highways england

A303 Sparkford to Ilchester Dualling Scheme TR010036

Volume 6.0

6.7 Outline Environmental Management Plan

AFFP Regulation 5(2)(a)
Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
May 2019

Infrastructure Planning

Planning Act 2008

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

A303 Sparkford to Ilchester Dualling Scheme

Development Consent Order 201[X]

Outline Environmental Management Plan

Regulation Number:	Regulation 5(2)(q)
Planning Inspectorate Scheme Reference	TR010036
Application Document Reference	6.7
Author:	A303 Sparkford to Ilchester Dualling Scheme: Highways England Project Team

Version	Date	Status of Version
Rev 0	July 2018	Application Issue
Rev A	April 2019	Deadline 5 submission
Rev B	May 2019	Deadline 7 submission

Table of Contents

1 Introduction and background to the scheme

1.1 Purpose of this Outline Environmental Management Plan

1.1.1 This document is the Outline Environmental Management Plan (OEMP) for the A303 Sparkford to Ilchester Dualling scheme (hereafter referred to as 'the scheme'). The purpose of the OEMP is to manage the environmental effects of the scheme as identified within Volume 6.1 of the Environmental Statement (ES) and to demonstrate compliance with environmental legislation.

1.1.2 This OEMP is based on the current design for which Development Consent Order (DCO) is being applied. It has been prepared in accordance with the Design Manual for Roads and Bridges (DMRB) Volume 11 Section 2[1], Manual of Contract Documents for Highways Works (MCDHW)[2] and Interim Advice Notes (IAN) 183/14 *Environmental Management Plans*[3] and IAN 182/14 *Major Schemes: Enabling Handover into Operation and Maintenance*[4].

1.1.3 This OEMP contains several outline management plans to be developed into full management plans, and also indicates plans that will need to be developed by the Principal Contractor prior to construction. These include:

- Annex B.1 – Outline Site Waste Management Plan (OSWMP)
- Annex B.2 - Outline Materials Management Plan (OMMP)
- Annex B.3 – Outline Soils Management plan (OSMP)
- Annex B.4 – Arboricultural Method Statement [Note: to be produced by the Principal Contractor (PC)]
- Annex B.5 – Outline Traffic Management Plan
- Annex B.6 – Communications Relations Strategy [Note: to be produced by the PC]
- Annex B.7 – Landscape and Ecological Management Plan [Note: to be produced by the PC]

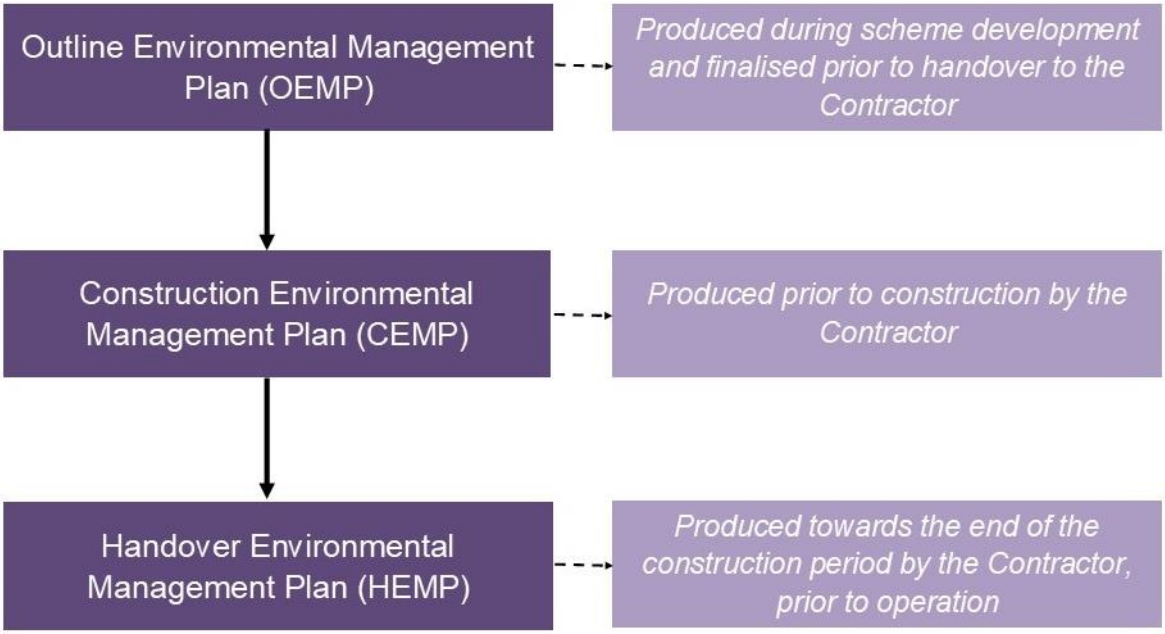
[1] Highways England (2018) Design Manual for Roads and Bridges Volume 11 Section 2 *General Principles of Environmental Assessment* [online] available at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section2.htm (last accessed June 2018).
[2] Highways England (2014) Design Manual for Roads and Bridges, Manual of Contract Documents for Highway Works (MCHW) [online] available at: http://www.standardsforhighways.co.uk/ha/standards/mchw/index.htm (last accessed June 2018).
[3] Highways England (2014) Interim Advice Note 183/14 Environmental Management Plans [online] available at: http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian183.pdf (last accessed June 2018).
[4] Highways England (2014) Interim Advice Note 182/14 Major Schemes: Enabling Handover into Operation and Maintenance [online] available at: http://www.mchwdmrb.com/ha/standards/ians/pdfs/ian182.pdf (last accessed June 2018).

1.1.4 A full Construction Environmental Management Plan (CEMP) will be prepared by the PC once the design and construction plans have been finalised. The CEMP will be based on, and incorporate the requirements of the OEMP relevant to the construction phase, with the aim of controlling potential impacts upon the natural and historic environment, people and businesses. All contractors will be required to comply with applicable environmental legislation together with any additional environmental controls imposed in the DCO, and the requirements of the CEMP. The CEMP will be managed alongside the PC's Environmental Management System (EMS), meeting the International Organisation for Standardisation (ISO)14001 requirements.

1.1.5 On completion of construction, the PC will prepare a final version of the CEMP for the operational and maintenance phase of the scheme in the form of a Handover Environmental Management Plan (HEMP). The HEMP will be implemented by the maintenance authority responsible for the maintenance of the scheme during the operational phase. The need for and approval of these management plans is secured under Requirements 3 and 4 of the Development Consent Order.

1.1.6 This process is depicted in Figure 1.1 below.

Figure 1.1: Evolution of the OEMP



Objectives of this OEMP

1.1.7 The overall objectives of this OEMP are as follows:

- To document all environmental actions and commitments that are required to manage and minimise environmental effects reported within the ES.
- To minimise the risk of any type of pollution incident or other form of unauthorised discharge.

- To minimise any nuisance to the nearby receptors.
- To maintain communication between the Client (Employer), the Project Manager and relevant third parties, with assignment of any specific and / or statutory reporting duties to third parties, where these are to remain their statutory duty.
- To be compliant with statutory legislation and contract specifications.
- To provide a framework for the implementation and review of the OEMP and other relevant documents.

1.1.8 This OEMP 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 scheme itself. It identifies mitigation and environmental issues from commencement to completion and included the following phases of construction:

- Demolition
- Prior to construction (for example advanced works)
- During construction (works)
- Post construction until completion (when the HEMP will replace it)

1.1.9 Throughout the OEMP, specific references are made to Schedule 8 Requirements and Protective Provisions within the ***Draft DCO* (*version 0.5 submitted as part of Deadline 7)*** relating to relevant matters either prior to, during, or after construction.

1.1.10 [Note: Following receipt of the DCO for the scheme, the OEMP will be updated to reference specific Requirements relating to the various phases of construction.]

1.2 Overview of the scheme

Existing corridor

1.2.1 The existing A303 forms part of the Strategic Road Network (SRN) and a strategic link between the south west and the rest of the south, south-east and London. The A303 corridor comprises multiple road standards, including dual-carriageway, single-carriageway, and single-carriageway sections with overtaking lanes. Speed limits also vary between 40mph and 70mph, depending on the character of the road and its surroundings.

Existing road

1.2.2 The section of the existing A303 that is being upgraded as part of this scheme commences at the eastern limits of the existing dual-carriageway of Podimore Bypass. Travelling east, the road reaches the junction with the B3151 before

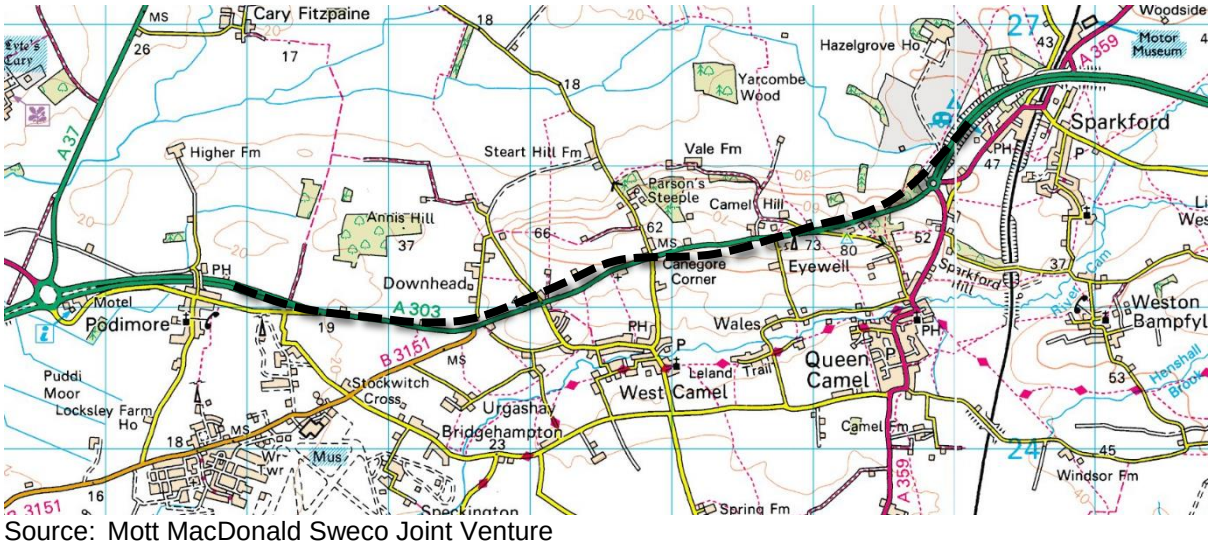
bearing north-east and rising upwards through Canegore Corner to reach the crest of Camel Hill at Eyewell. This section of the road is characterised by a single lane road, with double white lines negating overtaking and subject to a 50mph speed limit. There are several priority junctions along the route giving access to the settlements of Queen Camel and West Camel to the south and Downhead to the north, as well as several farm accesses and parking laybys.

1.2.3 From the crest of Camel Hill, the road descends to meet the roundabout at the western limit of the dual-carriageway of Sparkford Bypass (Hazlegrove Roundabout). This section comprises 2 lanes in the westbound direction, 1 lane in the eastbound direction and is also subject to a 50mph speed limit. Hazlegrove Roundabout forms a junction between the A303 and the A359 which runs south through Queen Camel and north-east through Sparkford. The roundabout also provides access to a service station, and to an independent preparatory school within the Registered Park and Garden of Hazlegrove House.

1.2.4 The section of the existing A303 that is being upgraded is 5.6 kilometres long.

1.2.5 The extents of the scheme are illustrated in Figure 1.1 below. Annex A shows the proposed red line boundary for the scheme.

Figure 1.1:Scheme extents



Source: Mott MacDonald Sweco Joint Venture

Scheme proposals

1.2.6 The proposed scheme is to provide a continuous dual-carriageway linking the Podimore Bypass and the Sparkford Bypass. The scheme will involve the removal of at-grade junctions and direct accesses. The proposed Hazlegrove Junction will be constructed to grade-separated standards and Downhead Junction and Camel Cross Junction will be constructed to compact grade-

separated standards, as illustrated on ***Figure 2.4 General Arrangement Plans (APP-102)***.

1.2.7 The speed limit for the highway once open will be 70 miles per hour, and the area of the proposed scheme within the red line boundary is approximately 119 hectares.

1.2.8 An ***Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C03, submitted as part of Deadline 7*)**, has been prepared for the scheme. Works must be implemented in accordance with this Environmental Masterplan, to minimise effects associated with landscape and visual, cultural heritage setting, noise and biodiversity. The scheme once operational should reflect this environmental design.

1.2.9 A detailed description of the scheme is provided within Chapter 2 The Scheme of the ***Environmental Statement (APP-039)*** and ***Chapter 2 of the Environmental Statement Addendum (OD-010)***.

1.3 Environmental context

1.3.1 The existing A303 corridor is the centre of the study area which runs from the north of Sparkford to the north of Podimore. The A303 transportation corridor is a discordant feature within a predominantly rural landscape. The A359 forms a lower grade transportation route in the eastern extents of the study area while the A37 lies just outside the study area to the west. A network of local support roads link farmsteads, small villages and clusters of houses within the study area.

1.3.2 Residential areas are predominantly concentrated to the south of the A303 and the study area, with the prominent historic villages of Sparkford, Queen Camel and West Camel. To the north of the A303 and the study area, residential properties comprise predominantly of isolated farmsteads and small collections of houses. Hazlegrove House Registered Park & Garden (RPG) and Hazlegrove School influence the character of the north-eastern section of the study area. Queen Camel and West Camel are designated as Conservation Areas around their characteristic historic core.

1.3.3 Land use has some variation across the study area but it is predominantly a mixture of arable and pastoral farming. Farmland north of the A303 mainly comprises large, irregular arable fields, whereas land to the south of A303 mainly comprises medium, irregular pastoral fields.

1.3.4 The Royal Naval Air Station (RNAS) at Yeovilton is a substantial conflicting feature in the southwest of the study area. Not only are the large warehouses,

runways and military infrastructure at odds within the flat agricultural landscape, but the regular air traffic is a frequent disruptor of tranquillity in the area.

1.3.5 There is a well-connected network of Public Rights of Way (PRoW) within the study area, including parts of the Leland Trail long distance footpath which stretches from Alfred's Tower in Stoke sub Hamdon to Ham Hill in the Cranbourne Chase AONB. Although the Leland Trail to the south of the A303 is the most notable PRoW within the study area, other rights of way are distributed across the landscape.

1.3.6 The following statutory environmental designations are located within the vicinity of the scheme:

- There are 2 scheduled monuments (Romano-British settlement immediately south-west of Camel Hill Farm and Medieval settlement remains 100 metres and 250 metres north of Downhead Manor Farm) within 1 kilometre of the scheme.
- The eastern end of the scheme will pass through the southern third of Hazlegrove House (Grade II Listed) Registered Park and Garden.
- There are 2 conservation areas (Queen Camel and West Camel) within 1 kilometre of the scheme.
- There are numerous Grade I, Grade II and Grade II* Listed buildings within 1 kilometre.
- There are 3 Special Areas of Conservation (SACs) (Mells Valley SAC, North Somerset and Mendip Bats SAC, and Bracket's Coppice SAC) designated for bat populations within 30 kilometres of the scheme.
- There is 1 Site of Special Scientific Interest (SSSI) (Sparkford Wood) 1.3 kilometres north-east.
- There is 1 designated ecological site (Whitesheet Hill SSSI) within 200 metres of the Affected Road Network (ARN).

1.3.7 The following non-statutory environmental designations are located within the vicinity of the scheme:

- There are 15 Local Wildlife Sites (LWSs) within 2 kilometres of the scheme.
- There are 2 Local Geological Sites (LGSs) within 1 kilometre of the scheme.

1.3.8 The key environmental designations located within 2 kilometres of the scheme extents, or just outside, are shown on the environmental constraints plan contained within Annex A.

1.4 Scheme objectives

Department for Transport objectives

1.4.1 The Department for Transport (DfT) has an aspiration for the SRN to be smoother, smarter and sustainable by 2040 (see Part 1, Chapter 2 of the Road Investment Strategy (RIS)[5]). The DfT aims to achieve this by focussing on 8 key performance areas as set out in Part 3, Chapter 1 of the RIS. These are:

- Making the network safer
- Improving user satisfaction
- Supporting the smooth flow of traffic
- Encouraging economic growth
- Delivering better environmental outcomes
- Helping cyclists, walkers and other vulnerable users of the network
- Achieving real efficiency
- Keeping the network in good condition

1.4.2 Further information is available in the RIS[5].

Highways England objectives

1.4.3 The objectives of the scheme as detailed in the ***Case for the Scheme* (*APP-149*)** are:

- Capacity – reduce delays and queues that occur during peak hours at seasonal times of the year.
- Safety – improve safety for all users of the A303 between Sparkford and Ilchester, as well as the wider A303 / A358 corridor.
- Support economic growth – facilitate growth in jobs and housing by providing a free-flowing and reliable connection between the south east and the south west.
- Environment – avoid unacceptable impacts on the surrounding natural and historic environment and landscape and optimise opportunities for enhancement.
- Local communities – reduce community severance and promote opportunities for improving their quality of life.
- Connectivity – improve the connectivity of the south west to the rest of the UK and improve business and growth prospects.

[5] DfT (2015) *Road Investment Strategy: 2015 to 2020* [online] available at: https://www.gov.uk/government/collections/road-investment-strategy (last accessed March 2018).

- Resilience – improve journey time reliability and resilience, and provide extra capacity to make it easier to manage traffic when incidents occur.

2 Project team roles and responsibilities

2.1 Site roles and responsibilities

2.1.1 The site based roles and the organisation of responsibilities in relation to environmental management are summarised below. The Principal Contractor (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.

2.2 Project management organisation

2.2.1 Overseeing management of the scheme will be directed by Highways England and any appointed Employer's Agent for the scheme. Highways England will delegate some site supervision roles such as the Engineering Clerk of Works 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 2.1. 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 2.1: General site contacts and responsibilities

Role	PCF Stage	Contact and Organisation	Telephone	Email
Highways England Project Manager	All	[TBC]	[TBC]	[TBC]
PC Environmental Manager	5/6	[TBC]	[TBC]	[TBC]
PC Environmental Clerk of Works	5/6	[TBC]	[TBC]	[TBC]
PC Environmental Specialist(s)	All	[TBC selected specialists]	[TBC]	[TBC]
Community Liaison Officer	5/6	[TBC]	[TBC]	[TBC]

2.2.2 [Note: Individual names and contact details will need to be inserted into Table 2.1 by Highways England and PC].

2.3 Environmental management responsibilities

2.3.1 The PC will have a contractual responsibility for producing the full CEMP once the design and construction plans have been finalised.

2.3.2 Highways England and delegated consultants acting on their behalf, PC and subcontractors are all responsible for complying with the scheme's environmental policies, relevant environmental legislation and regulations. It is a requirement that all persons on site will be made aware of their duty of care to

the environment and will be provided with sufficient training, supervision or instruction through Site Inductions, toolbox talks (TBTs) and specific Method Statements as necessary.

2.3.3 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 2.2.

Table 2.2: Environmental management responsibilities

Role	Responsibility
Highways England Project Manager	Oversee implementation of whole project and the individuals undertaking specific roles and duties. To be reported to as per Contract requirements and internal organisation EMS.
PC Environmental Manager	PC Environmental Manager or delegate responsible for overseeing the environmental components of the project. Coordination of specialists and site environmental management compliance. Audit the PCs' Site Waste Management Plan and activities associated with onsite waste management; Monitor compliance with the environmental requirements of the Works Information.
PC Environmental Clerk of Works	Provide site induction on environmental practises, toolbox talks, organise specialist surveys, and oversee monitoring and testing of materials as required. Monitoring PC site environmental compliance. Undertake day to day monitoring and compliance checks. Monitor control of dust, noise and vibration. Maintain and update site specific Method Statements. Hours of working to meet accepted noise and vibration limits set in consultation with Environmental Health Officer (EHO). Develop with PC Site Health & Safety Officer an Emergency Spillage Response Plan and associated protocols for incidents. Ensure local Environment Agency requirements are implemented for consents and permits.
PC Environmental Specialist(s)	Contamination and remediation specialist. Project Waste Management controller - may be member of PC dedicated Quality and Safety Team. Ecologist: Supervision if protected species presence confirmed or risk identified during works. Landscape Manager to supervise planting and aftercare. Other as required.
Community Liaison Officer	Key liaison with all above and Highways England Public Liaison Officer: Maintain and develop Community Relations Strategy. Maintain comment and enquiries log, and disseminate identified comment for response and implementation of action.

2.3.4 The PC will have a contractual responsibility for preparing the HEMP on completion of construction, for handover to the managing agent.

3 Record of environmental actions and commitments

3.1.1 The Record of Environmental Actions and Commitments (REAC) contained in Table 3.1 identifies the environmental commitments included within the Environmental Statement (ES) to address the potential environmental effects of the scheme. This REAC is an integral part of this Outline Environmental Management Plan (OEMP) and will continue to be integral to the CEMP and HEMP throughout the progression of the scheme.

3.1.2 The REAC has been developed and refined throughout the pre-applications stage and Examination stage with input from key stakeholders through the Statement of Common Ground process.

3.1.3 The REAC will be further updated as the scheme progresses and will be finalised at the end of construction on completion of the scheme where it will be developed into the HEMP. This is the main vehicle for passing essential environmental information to the Client and crucially to the body responsible for the future maintenance and operation of the asset.

Table 3.1: Record of environmental actions and commitments

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
General (G)									
G1	ES – CH2 (***APP-039***)	Hours of working	Construction work will take place between 07.00 and 18.00 on weekdays and from 07.30 to 13.00 on Saturdays, with no working on Sundays, Bank and Public Holidays. There may be exceptions to these hours to accommodate elements such as oversize deliveries and tie-in works, likely to involve a maximum of 4 full weekend closures. Exceptions to working hours detailed above will be agreed in writing with South Somerset District Council.	Not applicable	Daily site audits.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor.	P and C	Signature: Date:
G2	ES –CH8 (***APP-045***)	Protection of protected species during construction	During construction, toolbox talks or other instruction methods will be undertaken to allow operatives to: • Identify habitats suitable for protected species, individual species themselves, and measures for when these are encountered. These toolbox talks will be included within the CEMP. In the event that any protected or priority species which were not previously identified in the environmental statement (or any nesting birds) are found during construction activities, works in the vicinity of the identified species must cease and it be reported immediately to the Ecological Clerk of Works.	Phase 2 ecology surveys indicate presence of protected species.	Agree methods with Natural England where applicable. Protection measures undertaken in accordance with agreed methods.	Contractual responsibilities between Highways England and Principal Contractor, and Requirements of the DCO.	Principal Contractor.	P and C	Signature: Date:
G3	ES – CH2 (***APP-039***)	Avoidance of double handling of materials	Material deliveries will be programmed on an ‘as required’ basis to avoid temporary storage and double handling.	Not applicable	Daily site audits.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor.	P and C	Signature: Date:
G4	ES – CH2 (***APP-039***)	Reduce light disturbance for sensitive receptors.	Construction: • Lighting will be directional, and positioned sympathetically, to minimise light spill and disturbance for sensitive receptors. • Lighting would be at the minimum luminosity necessary and use low energy consumption fittings. Where appropriate, lighting would be activated by motion sensors to prevent unnecessary usage. It would comply with the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01[6] and the provisions of BS 5489,	Sensitive receptors within the vicinity of compounds and storage areas.	Inspection during installation of lighting.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor.	C	Signature: Date:

[6] Institute of Lighting Professionals (2011) Guidance notes for the reduction of obtrusive lights [online] available at: https://www.theilp.org.uk/documents/obtrusive-light/ (last accessed May 2018).

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			Code of practice for the design of road lighting[7], where applicable. Operation • The main A303 carriageway will not be lit. No local roads would be lit except for the existing Hazlegrove Roundabout and its approaches. At Hazlegrove Roundabout, each column shall be fitted with an LED P850 lantern. Each lantern shall be luminous intensity class G6, tilted at zero degrees. • Hazlegrove Underbridge will be lit during the day time only.						
G5	ES – CH2 **(*APP-039*)**	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 coarse gravel running surface or jet wash, or in the case of a heavily used exit point, wheel washers.	The local road network is used regularly.	Installation and use of facilities.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor.	C	Signature: Date:
G6	ES – CH2 ***(APP-039)***	Ensure positive community relations.	Prior to construction, the contractor will register with the National Considerate Constructor's Scheme and establish a forum to disseminate construction information to the Statutory Authorities, advisory bodies, landowners, parish councils, local interest groups and the general public, in line with the stakeholder communications plan. A Community Relations Officer will be appointed who will be responsible for these specific tasks. In cases where the construction works have an impact on neighbouring properties, businesses and buildings as identified within Chapters 5 to 14 of the ES, the occupants of these premises will be advised of these works no later than 6 weeks prior to their occurrence. The frequency of these meetings will be determined in consultation with South Somerset District Council and the PC.	Not applicable	National Considerate Constructor's Scheme and establish a forum to disseminate construction information to the consultees.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor.	P and C	Signature: Date:
G7	N/A	To ensure all proposed environmental mitigation elements retain their function notwithstanding any design amendments within the vertical	Construction to take place in accordance with the Works Plans (REP5-003) and Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C0, submitted as part of Deadline 7) and written landscaping scheme (as approved under Requirement 5 of the DCO).	Potential for mitigation bunds to lose their function as noise / landscape / visual screening.	Compliance with the Works Plans (REP5-003), Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5	Contractual responsibilities between Highways England and Principal Contractor, and Requirements of the DCO	Principal Contractor	C	Signature: Date:

[7] British Standards Institution (2013) BS 5489, Code of practice for the design of road lighting. Lighting of roads and public amenity areas [online] available at: https://shop.bsigroup.com/ProductDetail/?pid=000000000030217237 (last accessed May 2018).

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
		and horizontal limits of deviation. This includes the heights of proposed mitigation bunds, which are tied to the height of the carriageway so that the height of the bund is always maintained in relation to the height of the carriageway.			to 6 C04, Sheet 7 C03, submitted as part of Deadline 7) and the landscaping scheme approved under Requirement 5 of the DCO.				
Air Quality (AQ)									
AQ1	ES - CH5 (***APP-042***)	To limit and control emissions to air during construction.	Works will be carried out in accordance with the best practicable means, as described in Section 79 (9) of the Environmental Protection Act 1990, to reduce fumes or emissions which may impact upon air quality. This will include: • Minimise height of stockpiles and profile to minimise wind-blown dust emissions and risk of pile collapse. • Locate stockpiles out of the wind (or cover, seed or fence) to minimise the potential for dust generation. • Ensure that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed. • Enforce a maximum speed limit of 15mph on surfaced roads and a 10mph speed limit on unsurfaced haul roads and work areas, to prevent the generation of dust by fast moving vehicles. • Damp down surfaces in dry conditions. • Water should be sprayed during cutting / grinding operations (such as cutting curb slabs). • All vehicle engines and plant motors shall be switched off when not in use. • High dust generating activities within site compounds should be located as far away from nearby receptors as possible.	Community receptors, and ecological designated sites sensitive to changes in NOx concentrations within the vicinity of the scheme.	Daily site audits.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor.	C	Signature: Date:
Cultural Heritage (CH)									
CH1	ES – CH2 (***APP-043***)	Protection of archaeological remains during construction.	The temporary site compounds will be prepared by the removal of topsoil and overlaying with geotextile membrane prior to placement of temporary granular fill material. For the section of the haul route that runs adjacent to the Camel Hill Scheduled	Based on the results of the geophysical surveys this locality has the potential for high value buried archaeology.	Inspection during installation. Daily site audits.	Contractual responsibilities between Highways England and	Principal Contractor.	C	Signature: Date:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			Monument, the ground will be raised through the installation of geotextile, following topsoil strip, prior to the placement of temporary granular fill material. On completion of the scheme, these compound areas will be restored to their original condition, before being returned to the landowner or incorporated into the environmental mitigation proposals.			the Principal Contractor.			
CH2	ES – CH2 (***APP-043***)	Protection and reinstatement of heritage asset during construction (Howell Hill stone boundary wall).	Where Howell Hill stone wall (a linear feature forming the eastern boundary to the highway) is removed to make way for permanent works related to the scheme, stone will be set aside to be reused in construction of the scheme. The location and method of construction will be decided in consultation with SSDC. Recording of the length of wall to be removed will be carried out in line with the methodology set out in the OHWSI. Where the wall is to be removed for temporary works during construction it will be reinstated in the same location. The method of reconstruction will be decided in consultation with South Somerset District Council.	Potential for loss of feature which contributes to local historic landscape character.	Recording of length of wall to be removed. Reuse of removed stone within the scheme. Reconstruction of temporarily removed length of wall in a historically sensitive manner.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO	Principal Contractor	C	Signature: Date:
CH3	ES – CH 6 (***APP-043***)	Protection of Camel Hill Scheduled Monument during construction	Protection fencing and a buffer zone around Camel Hill Scheduled Monument to be erected prior to construction, following consultation on the type of fencing, location of fencing, extent of buffer zone, and methodology of erection, maintenance and removal, with Historic England and Somerset County Council. The fence is to be located outside of the footprint of the designated area. The fencing and buffer zone is to remain in place throughout construction.	Informed by the results of the full geophysical surveys and the results of archaeological evaluation adjacent to the scheduled monument as this locality has the potential for high value buried archaeology. Potential for asset to be damaged during construction due to proximity to the scheme.	Consultation on protection methodology with local authority archaeological advisor and Historic England. Protection measures installed, maintained and removed in line with agreed methodology.	Contractual responsibilities between Highways England and Principal Contractor, and Requirements of the DCO.	Principal Contractor	P and C	Signature: Date:
CH4	ES – CH 6 (***APP-043***)	Protection and reinstatement of listed milestone during construction	If the milestone is located during works prepare a methodology detailing the recording, removal, safe storage, restoration and reinstatement of the grade II listed milestone at Canegore Corner (National Heritage List for England (NHLE) reference 1345996) following.. This methodology, including the proposed location of the milestone will be prepared in consultation with Somerset County Council, Historic England and South Somerset District	Listed milestone requires removal.	Record, remove, store and reinstate milestone	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO.	Principal Contractor	P and C	Signature: Date:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			Council. The work is to be carried out in accordance with this methodology. If the milestone is not recovered during works, consultation will be undertaken with South Somerset District Council and Historic England regarding potential mitigation. This will focus on the significance of the milestone through its function and context as a marker of the former turnpike route.. Mitigation could include a record of the milestone from existing material and site survey, a replica milestone, or a modern interpretation of the milestone. Highway safety will be a key consideration in terms of agreeing the design and location of any proposed solution.						
CH5	ES – CH 6 (***APP-043***)	Protection of archaeological remains related to Hazlegrove House RPG during construction.	Protection fencing and a buffer zone around the areas of driveway earthworks to be retained within the Hazlegrove House RPG to be erected prior to construction. This will be erected following consultation on the type of fencing, location of fencing, extent of buffer zone, and methodology of erection, maintenance and removal, with Historic England, the Gardens Trust, and the Somerset County Council. The fencing and buffer zone is to remain in place throughout construction.	Based on the results of the geophysical surveys this locality has the potential for high value buried archaeology.	Consultation on protection methodology with local authority archaeological advisor. Protection measures installed, maintained and removed in line with agreed methodology.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO.	Principal Contractor	P and C	Signature: Date:
CH6	ES – CH 6 (***APP-043***)	Protection of heritage assets during construction (Royal Observer Core at Camel Hill)	Protection fencing and a buffer zone around the areas the Royal Observer Corps at Camel Hill to be erected during construction, following consultation on the type of fencing, location of fencing, extent of buffer zone, and methodology of erection, maintenance and removal, with South Somerset District Council. The fencing and buffer zone is to remain in place throughout construction.	Potential for asset to be damaged during construction due to proximity to the scheme.	Consultation on protection methodology with local authority archaeological advisor. Protection measures installed, maintained and removed in line with the methodology.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO.	Principal Contractor	P and C	Signature: Date:
CH7	ES - CH 6 (***APP-043***)	Preservation by record of archaeological remains.	Prepare an archaeological Written Scheme of Investigation (WSI) (based on the Outline Heritage WSI to be submitted during the DCO Examination) in consultation with Somerset County Council, South Somerset District Council and Historic England. Undertake the archaeological works as described within the WSI. The WSI should include any mitigation or recording identified as a result of the evaluation work. The archaeological works may take the form of archaeological excavation and / or strip map and record and / or archaeological monitoring. The works will be monitored by the Somerset County Council. A report will be produced and published for the results of the mitigation; these will require approval from the local authority archaeological advisor.	Based on the results of the geophysical surveys this locality has the potential for high value buried archaeology.	Consultation with the Local Authority Archaeological Advisor and Historic England. Production of a WSI. Appointment of an archaeological sub-contractor to undertake the agreed works. Publication of results of the archaeological work.	Contractual responsibilities between Highways England, the detailed design consultant and Principle Contractor, and Requirements of the DCO.	Detailed design consultant and Principal Contractor	P and C (Reporting may continue into the operation phase.)	Signature: Date:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
CH8	ES - CH 6 (***APP-043***)	Preservation by record of archaeological remains (driveways at Hazlegrove RPG).	Within Hazlegrove House RPG, the remains of the driveways that will be removed by the scheme will be subject to archaeological recording in line with the WSI.	Based on the results of the geophysical surveys this locality has the potential for high value buried archaeology.	Works to be undertaken by an archaeological sub-contractor in line with the methods outlined in the WSI. Publication of results of archaeological work.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO.	Principal Contractor	C	Signature: Date:
CH9	ES - CH 6 (***APP-043***)	Reduce adverse views from Hazlegrove House RPG	The layout of the soil storage area at Hazlegrove House RPG to be designed in such a way to minimise the impact on static views south west from the house and kinetic views moving south west through the parkland. This will include the location of areas and functions of the storage area and screening by way of suitable fencing or timber hoardings. The design of the soil storage area will be prepared in consultation with SSDC, The Gardens Trust and Historic England prior to construction.	The RPG is highly sensitive to change.	Sensitive layout of construction compound and soil storage areas.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO.	Principal Contractor	C	Signature: Date:
CH10	ES - CH 6 (***APP-043***)	Protect the character of Hazlegrove House RPG.	The landscape scheme at Hazlegrove House RPG including screening, landscape planting, erection of fences, surfacing and appearance of the balancing pond should reflect the parkland character of the RPG. This includes location of planting and species to be used. The landscaping scheme including maintenance will be prepared in consultation with SSDC, The Gardens Trust and, Historic England prior to undertaking any landscape works within the RPG.	The RPG is highly sensitive to change.	Implementation and maintenance of the planting scheme in consultation with South Somerset District Council, The Gardens Trust and Historic England.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO	Principal Contractor	A	Signature: Date:
CH11	ES - CH 6 (***APP-043***)	Protect the setting of and archaeological remains associated with Medieval settlement remains 100m and 250m north of Downhead Manor Farm scheduled monument	No excavation will be undertaken to install the ecological mitigation area to the east of Downhead. The fence will take the form of a hand driven post fence. The design and method of installation of the fencing will be prepared in consultation with Historic England and Somerset County Council prior to its installation.	The Scheduled Monument is highly sensitive to change	Installation of the ecological mitigation area in consultation with Historic England and Somerset County Council.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO	Principal Contractor	A	Signature: Date:
CH12	ES - CH 6 (***APP-043***)	Protection of heritage assets during construction (Milestone on B3151 at NGR ST56382471)	Protection fencing and a buffer zone around the areas the Milestone on B3151 at NGR ST56382471 to be erected during construction, following consultation on the type of fencing, location of fencing, extent of buffer zone, and methodology of erection, maintenance and removal, with South Somerset District Council. The fencing and buffer zone is to remain in place throughout construction.	Potential for asset to be damaged during construction due to size and proximity to the scheme.	Consultation on protection methodology with South Somerset District Council. Protection measures installed, maintained and removed in line with methodology.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO	Principal Contractor	P and C	Signature: Date:

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CH13	ES Addendum - CH 4 (***OD-010***)	Protection of heritage assets during construction (Eyewell)	Protection fencing and a buffer zone around the Eyewell to be erected during construction, following consultation on the type of fencing, location of fencing, extent of buffer zone, and methodology of erection, maintenance and removal, with the South Somerset District Council Conservation Officer. The fencing and buffer zone is to remain in place throughout construction.	Potential for asset to be damaged during construction due to size and proximity to the scheme.	Consultation on protection methodology with South Somerset District Council Protection measures installed, maintained and removed in line with methodology.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO	Principal Contractor	P and C	Signature: Date:
CH14	ES - CH 6 (***APP-043***)	Unexpected archaeological finds during construction.	An unexpected finds protocol will be written and implemented to deal with archaeology unexpectedly uncovered during construction, including treasure. This will set out the process of notification, recording and reporting for unexpected finds.	Potential for unexpected archaeological finds to not be recorded in line with national legislation and policy.	Consultation on unexpected finds protocol with South Somerset District Council and Historic England prior to construction. Implementation of protocol during construction.	Contractual responsibilities between Highways England and the Principal Contractor, and Requirements of the DCO	Principal Contractor	P and C	Signature: Date:
Landscape (L)									
L1	ES - CH7 (***APP-044***)	To limit visual intrusion and impacts upon landscape character during construction.	The following measures to be undertaken to reduce visual intrusion and impacts upon the landscape throughout construction: • Keep a well-managed and tidy site. • Welfare units and temporary site offices in a colour that will aid integration with the surrounding landscape where possible. • Boundary fencing or timber hoarding (2 metres in height) will be erected around all compounds and material storage areas.	Sensitive landscape and visual receptors within close proximity to construction activities.	Daily Site Audits.	To be implemented by the Principal Contractor.	Principal Contractor.	C	Signature: Date:
L2	ES - ***Appendix 7.1 Arboricultural Constraints Report (APP-069)*** and ***Appendix 7.3 Arboricultural Impact Assessment (AIA) (APP-071)***	To limit the impact of construction on existing trees and vegetation to be retained	Erection and maintenance of tree protection fencing in compliance with the Arboricultural Method Statement (Annex B.6 of this report) and BS5837:2012 (Trees in relation to design, demolition and construction – Recommendations) during the construction period. This should include: • Check the robustness and positioning of tree protection fencing. • Check that no materials or plant are stored within the tree protection fencing.	Not applicable	Daily Site Audits and the reference to and adherence with the Arboricultural Method Statement (to be produced).	To be implemented by the Principal Contractor and the scheme arboriculturalist.	Principal Contractor and the scheme arboriculturalist.	C	Signature: Date:
L3	ES – CH7 (***APP-044***)	To limit visual intrusion and impacts upon landscape character during operation	Mitigation planting areas to be maintained for a period of 5 years from completion of the scheme. This will be detailed in the Landscape and Ecological Management Plan (LEMP). The LEMP should include the required management regime for the grassland areas within the red line boundary to increase biodiversity.	Sensitive landscape and visual receptors and ecology receptors within close proximity to the scheme.	Successfully implement Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C03,	To be implemented by the Principal Contractor and the scheme Landscape Architect.	Principle Contractor and scheme landscape architect.	O	Signature: Date:

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					submitted as part of Deadline 7***)*** design in line with LEMP and the CEMP - supervision and review of planting works.				
L4	Deadline 6 Report ***(REP6-007)***	To retain long distance views from Slate Lane to the south	A review of the landscape design as part of the environmental masterplan to be undertaken to ensure the retention of long-distance views from the PRoW along Slate Lane looking south. It will be important to ensure that these long-distance views are designed whilst still ensuring that the landscape screening of views to the proposed Downhead Junction are retained. Consultation with South Somerset District Council's Landscape Architect to be undertaken as part of the detailed design when retaining these long-distance views is required.	Visual receptors along Slate Lane who are afforded long-distance views across to the south	Successfully implement Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C03, submitted as part of Deadline 7***)*** design in line with LEMP and the CEMP - supervision and review of planting works.	To be implemented by the Detailed Designer	Detailed Designer	O	Signature: Date:
L5	Deadline 6 Report ***(REP6-007)***	To reduce adverse visual effects from the vicinity of Camel Hill Farm and the perception of the area with travellers on the A303	Investigate other means of screening the proposed A303 from Camel Hill farm that would be more in keeping with the rural character, such as a stone-faced bund. Consultation with South Somerset District Council's Landscape Architect to be undertaken as part of the detailed design when designing the visual screening in this location.	Visual receptors would experience adverse effects from a wooden environmental barrier	Successfully implement ***Environmental Masterplan (Figure 2.8, APP-107)*** design in line with LEMP and the CEMP - supervision and review of planting works.	To be implemented by the Detailed Designer	Detailed Designer	O	Signature: Date:
L6	Deadline 6 Report ***(REP6-007)***	To ensure the bridges are in keeping with the local character of the area	Investigate the design of the proposed bridges at Hazlegrove and Downhead Junctions to ensure they are more reflective of the local landscape or the A303 corridor. This should be undertaken in consultation with South Somerset District Council, who have suggested the use of local stone facing panels or pier substructures.	The bridges would have an adverse effect on the character of the local area	Compliance with the detailed design.	To be implemented by the Detailed Designer	Detailed Designer	O	Signature: Date:
Biodiversity (B)									
B1	ES - CH8 (***APP-045***)	Protection and creation of priority habitats	During works: • Where hedgerows are required to be removed to facilitate the works, these will be replaced within the same location and any existing gaps planted with appropriate native species. Topsoil, containing the seedbank, will be translocated from the woodland within Hazlegrove RPG (works numbers 100 and 101 on the works plans, ***AS-004***) and used within the new areas of woodland creation, notably the area either side of Pepper Hill Copse.	Loss of priority habitats as a result of the scheme	Compliance with the Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C03, submitted as part of	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	C and O	Signature: Date:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			• Minimal topsoil to be applied for grassland areas to encourage the establishment of nutrient poor species rich grassland. Wherever it is possible for this habitat type to establish without any topsoil (dependant on the substrate beneath) none would be applied. Application of topsoil increases nutrient levels within the soil, which has a detrimental effect on species diversity and therefore it will be applied only where necessary, such as where the below substrate would not adequately support grassland habitat. • To mitigate the loss of 1 veteran tree, the intact hulk of the veteran tree should be felled and relocated in close proximity to a nearby veteran tree, woodland or parkland area. This will provide an opportunity for those invertebrates and fungi resident within the tree to relocate, provided there is suitable habitat nearby and will ensure that the hulk of the tree continues to provide deadwood resource in the future. • Works to install vehicular access across the ditch within the main compound area would be supervised by an Ecological Clerk of Works to ensure that access is positioned in the most appropriate place to minimise potential habitat degradation. • Once works have been completed, the ditch habitat would be reinstated and enhanced. This would include removal of any material used to construct the crossing and planting of aquatic and marginal vegetation in line with the landscape masterplan. During operation: • ‘Cut and remove’ to be employed for grassland management (including amenity grassland) to reduce nutrient levels and increase diversity.		Deadline 7), CEMP and LEMP.				
B2	ES – Confidential Badger Report which will be issued to the PC.	Protection of badgers	Before works: • In advance of construction works commencing on site, a badger survey would be undertaken to ensure that the status of the setts remains the same and also to identify any additional setts which may have been excavated within the construction footprint since.	Badgers are still present within the setts identified during the Phase 2 ecology surveys and no new setts have established within 30m of the scheme.	Compliance with Badger Mitigation outlined in the Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant. Any licensable	Principal Contractor	P, C and O	Signature: Date:

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			• The following works will be completed under a Natural England development licence:
			  • Permanent closure of setts 1a, 1b, 1c, sett 19, sett 30 and sett 64 (licensable period is between 1 July – 30 November, with 21 clear days of badger activity required).
			  • Temporary closure of setts 5,18,63 (licensable period is between 1 July – 30 November, with 21 clear days of badger activity required).
			• Refer to Appendix D of the Confidential Badger Report for the badger sett mitigation locations.
			During works:
			• Cover open excavations or provide ramps.
			• Exclusion zone of 30 metres for all works around the retained badger setts (or until the exclusion of badger setts to be closed has been completed, for those being permanently closed).
			• Refer to Appendix B of the Confidential Badger Report for badger sett locations.
			Operational:
			• Installation of badger tunnel and badger fencing and around the tunnel.
			• Monitoring of badger tunnel, twice annually for 2 years.
					to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C03, submitted as part of Deadline 7).
					
					Badger Mitigation Licence – Report of Actions under licence.
						activity will be carried out under the relevant licence.			

B3	ES - CH8 and Bat Technical Report ***(Appendix 8.4, APP-077)***	Protection of bats	• Before works: An internal inspection of the building (F001 at land parcel WS64408, grid reference ST581256) to be scheduled a year prior to the planned demolition, along with emergence and re-entry surveys. Results from these surveys to be used to determine whether roosts within the building have become active again, and therefore the need for an EPS licence. • Installation of a bat house within suitable habitat, to mitigate the loss of building F001 at land parcel WS64408. • Night works are not anticipated to take place along the extent of the northern haul route. Traffic along the northern haul route would occur during the following working hours: between 07:00 and 18:00 on weekdays and 07:30 and 13:00 on Saturdays. There may be a small period of time during March / October when the days are short and bats may be flying at times that vehicles are using the track	Minimum of 220 bat boxes to be installed within suitable habitats adjacent to the scheme assumes– assuming land owner's permission is achieved. Monitoring surveys assumes land owner access is given for 5 years post construction.	Compliance with Bat Mitigation outlined in the Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C03, submitted as part of Deadline 7).	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	P, C and O	Signature: Date:

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			but the risks of bat mortalities would be low given the short period of time concerned. A speed limit of 10 mph would be in place, which would minimise the risk of collisions.. During works: • Building F001 to be re-surveyed for bats 1 year prior to demolition. Building to be subject to a soft strip immediately prior to demolition. • Bat house to be constructed within ecological mitigation area to the east of F001. • Habitat on site to be retained where possible; habitat loss to be minimised. • Where hedgerows require removal only during the construction phase, hedgerows to be reinstated and enhanced • Hedgerow removal to be minimised where possible, and gaps restricted to 10m wide where this is feasible to reduce the potential for severing commuting lines. However, there are areas within the scheme where larger extents of hedgerow require removal to accommodate the scheme design. • All areas of hedgerow to be retained must be fenced to prevent encroachment of plant and materials. • Buffer zones of at least 10m to be retained between construction activities and all hedgerows and woodland, and a buffer of at least 15m to be retained between construction activities and any trees and buildings, where roosts have been identified. It is not possible to retain a 15m buffer between works and roosts WS56543; ST106774 and ST84283. However, WS56543 is inactive and works within 15m of ST106774 are minor and will not lead to disturbance impacts. Works are proposed 14.5m from ST84283 (supporting a small number of common species); this buffer is considered appropriate. Please refer to Figure E.7 of ***Appendix 8.4 Bat Technical Report (document reference TR010036/APP/6.3)*** for confirmed bat roost locations. • 'Dead hedging' to be put in place to maintain linear features during construction.						

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			• Night time working to be avoided where possible to minimise the need for artificial lighting. • Where artificial lighting is required, directional and wildlife sensitive lighting to be used to prevent light spill onto hedgerows and treelines. • Approximately 60 bat boxes to be installed within suitable habitats adjacent to the scheme (location of boxes to be determined during detailed design). Bat boxes will be of a range of designs to support a variety of different bat species. • All trees to be felled for the scheme should be re-inspected for roosting bats prior to felling. This should comprise climb and inspect surveys with endoscopes. • Where no further evidence of bats is identified, then trees must be soft felled, and left on the ground for at least 1 day before being disposed of. • Where evidence of bats is recorded, the tree must not be felled as further emergence and return surveys may be required to establish which species of bat is roosting within the tree, and the type of roost. Natural England will then need to be consulted and an EPSM licence prepared. Operational • Planting of mature trees to act as a hop over for the hedgerow approximately 220m east of Canegore Corner, which links to the northern soil bund vegetated with trees and edges, leading to Steart Wood. In addition, planting to encourage bats to use the nearby underbridge (located to the west) and potentially installing illuminated bollards in the verge to deter species, such as lesser horseshow bats, crossing the road should be considered during the detailed design. South Somerset District Council should be consulted on the detailed design for mitigation in this location. • Annual monitoring of bat boxes and bat house for 3 years post construction. • Annual crossing point surveys at locations which were subject to severance, 3 years post construction. • Annual landscape scale transects, 3 years post construction.					

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
B4	ES - CH8 and Barn Owl Technical Report ***(Appendix 8.5, APP-078)***	Protection of barn owls	• Before works: Prior to the start of the works the 2 recorded Occupied Breeding Sites (OBS) and all previously identified Potential Nesting Sites (PNS) must be rechecked within 1km of the works. Please refer to ***Appendix A of Appendix 8.5 Barn Owl Technical Report (APP-078).*** • Closure of OBS1 will need to take place outside of the breeding season by a licenced ecologist. • Installation of 3 new nest boxes to mitigate for the loss of OBS1. During works: • No works will take place within 20m of an active barn owl nest. Please refer ***Appendix A of Appendix 8.5 Barn Owl Technical Report (APP-078)*** for the location of active barn owl nest. • 13 additional nest boxes to be provided at least every 1km, if this can be negotiated with local landowners. Operational: • Annual monitoring of nest boxes and screening planting, for 5 years post construction.	Additional nest boxes to be provided at least every 1km, assuming local landowners will grant permission. Monitoring surveys assumes land owner access is given for 5 years post construction.	Compliance with barn owl mitigation outlined in the ***Environmental Masterplan (APP-107)***.	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	P, C and O	Signature: Date:
B5	ES - CH8 and Breeding Bird Technical Report ***(Appendix 8.6, APP-079)***	Protection of breeding birds	During works: • If works commence in the bird breeding season (March to August inclusive), a suitably experienced ecologist should carry out a nesting bird check on any vegetation to be cleared, or vegetation to be retained, but which is directly adjacent to major works, no more than 24 hours prior to works commencing. • Where nesting birds are identified works should cease within the evidenced zone of likely disturbance of the nest for that species until birds have fledged and the nest is no longer in use. The buffer zones for nesting bird species found during construction works will be determined by the Ecological Clerk of Works, dependent on the nesting bird species and nature of works in proximity to the nest. • Replacement planting of hedgerows and woodland and the installation of 100 bird boxes (location of boxes to be determined during detailed design). • Construction works within the vicinity of the breeding hobbies should be undertaken outside the breeding season,	100 bird boxes to be installed within suitable habitats adjacent to the scheme, assumes land owner permission is achieved. A pair of breeding hobbies were recorded approximately 280m north of the proposed construction works.	Compliance with breeding bird mitigation outlined in the Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C03, submitted as part of Deadline 7)	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	C	Signature: Date:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			or otherwise screening of the works should be undertaken using hoarding or similar.						
B6	ES - CH8 and Reptile Technical Report **(Appendix 8.7, *APP-080*)**	Protection of common reptiles	• Before works: Reptile displacement to be undertaken, which involves the removal of habitat in a careful phased manner within the active reptile season (March to September inclusive), to be carried out at reptile area B6, B7 and B8. Please refer to Figure D.1 of ***Appendix 8.7 Reptile Technical Report (APP-080)*** for reptile site locations. • Reptile exclusion fencing to be installed under supervision of suitability experienced ecologist during the reptile active season (March – September) in area B6, B7, B8, area C26, area D10, D11, D13, D14, D15 and area D16, D17. Please refer to ***Appendix F of Appendix 8.7 Reptile Technical Report (APP-080) for*** exclusion fencing locations. • Reptile capture and translocation at area B6, B7, B8, area C26, area D10, D11, D13, D14, D15 should be carried out for a minimum of 60 days and area D16, D17 should be carried out for a minimum of 70 days until 5 clear days are achieved. Please refer to ***Figure D.1 of Appendix 8.7 Reptile Technical Report (APP-080)*** for reptile site locations. • After the capture programme, the remaining grassland habitat should be strimmed to ground level, and destructive searches of tree roots and a supervised topsoil strip should be undertaken before commencing construction activities within the excluded area. This need to be carried out with a suitably experienced ecologist present. • The reptile receptor site for captured individuals needs to be enhanced prior to start of translocation; 2 hibernacula to be installed and stock proof fencing to be installed in the northern area, to stop sheep grazing to allow grass structure to develop. Please refer to ***Figure D.1 of Appendix 8.7 Reptile Technical Report (APP-080)*** for receptor site location and enhancement. During works: • An Ecological Clerk of Work to be present during habitat clearance, to assess and carry out hand searches in	Assumes landowner consent to use land as receptor site and monitoring surveys.	Compliance with reptile mitigation outlined in the Environmental Masterplan (Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C03, submitted as part of Deadline 7).	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	P, C and O	Signature: Date:

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			any potential reptile habitat prior to removal. • Reptile exclusion fencing to remain in place during construction and regularly inspected and maintained. Please refer to Appendix F of ***Appendix 8.7 Reptile Technical Report (APP-080)*** for exclusion fencing locations. • In 2021: Allow grazing within northern receptor area; mow 1m width strips during winter months within southern field to increase structural diversity. • Grass areas at receptor site are to be left unmanaged between 2022- 2023 Operational: • Replacement and creation of habitats of value to reptiles, such as grassland, scrub, ponds, woodland glades and the provision of log and brash piles where appropriate. • In 2024: Allow grazing within northern receptor area; mow 1m width strips during winter months within southern field to increase structural diversity. • In 2025: Grass area to be left unmanaged. • In 2026, management of receptor areas returns to landowner on the assumption that the Highways England verge has established and provides suitable habitat for reptiles to colonise. • Reptile monitoring is required at the receptor site 5 years (2021 - 2025) following completion of translocation and construction works. Please refer to Figure D.1 of ***Appendix 8.7 Reptile Technical Report (APP-080)*** for receptor site location.					
B7	ES - CH8 and Hazel Dormouse Technical Report ***(Appendix 8.8, APP-081)***	Protection of hazel dormice	• Before works: Prior to any clearance of woodland, scrub or hedgerow vegetation, personnel should receive a toolbox talk by a suitably qualified ecologist, covering the identification, ecology, conservation status and legislative protection of dormice. • All retained woodland and hedgerow habitat to be fenced off so that it is protected from physical disturbance during the construction phase.	Not applicable	Compliance with mitigation measures outlined within the to be included in the CEMP.	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	C	Signature: Date:
B8	ES - CH8 and Great Crested Newt (GCN) Technical Report ***(APP-082)***	Protection of GCN	Before works: • Update presence / likely absence surveys of all ponds scoped out of the surveys completed in 2017 and those	Assumption regarding landowner consent to use land as receptor site.	Compliance with GCN mitigation outlined in the Environmental Masterplan	Contractual responsibilities between Highways	Principal Contractor	P, C and O	Signature:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			where GCN were not recorded. eDNA surveys to be completed, with further population surveys required if the eDNA surveys find GCN to be present. • GCN mitigation licence to be obtained from Natural England, based on the Ghost Licence accepted by Natural England (REP4-007). • Installation of exclusion and drift fencing around Meta-population A located at Downhead and meta-population C located at Hazlegrove. Please refer to Appendix B of ***Appendix 8.9 GCN Technical Report (APP-082)*** for pond and receptor site locations. • Relocation programme of individuals from these areas to be carried out for a minimum of 60 days until 5 clear days are achieved. Individuals caught to be relocated into the receptor sites close by. • Receptor sites to be enhanced before translocation including the creation of hibernacula at each site. • Relocation programme to be undertaken during the active GCN season (between March and September inclusive). • A 30 day trap out period is planned for ponds 41 and 7 until 5 clear days have been achieved. Please refer to ***Appendix B of Appendix 8.9 GCN Technical Report (APP-082)*** for pond site locations. • If either pond is found to be holding water during the trapping period the ponds should be drained down under ecological supervision and any remaining GCN relocated. • As part of the translocation, the exclusion fencing should be inspected and any damaged fixed. • Any scrub within the trap out areas (and within the working area) should be progressively strimmed in sections to increase the effectiveness of the translocation. This should occur under the supervision of an ecologist, by reducing the height to 150mm above ground, hand searched by the ecologist, then taken to 50mm above ground. • Once the capture programme has been completed, any potential hibernacula in the capture area should be dismantled by hand or under supervision by a licensed ecologist.	Monitoring surveys assumes land owner access is given for 4 years post translocation.	(Environmental Statement Addendum Appendix B Figure A2.4 Environmental Masterplan, Sheets 1 to 4 version C03, Sheets 5 to 6 C04, Sheet 7 C03, submitted as part of Deadline 7). Great crested newts Mitigation Licence – Report of Actions under licence.	England and Principal Contractor, and their Environmental Consultant. Any licensable activity will be carried out under the relevant licence.			Date:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			• Following completion of the trap out period, all remaining vegetation within the fenced off areas should be strimmed to 150mm above ground, hand searched by a licenced ecologist, then taken to 50mm above ground. • A hand search should be undertaken, before strimming as close to the ground as possible, at least 24 hours after the initial cuts. The arisings should be removed. • Once the phased vegetation clearance is complete, a destructive search should be undertaken to ensure no newts remain within the works areas. • As a precautionary measure, all excavation works should be covered at the end of each shift or a ramp installed. • Following clearance of habitats, the works area should be maintained as unsuitable for GCN for the duration of the works. • Exclusion fencing should remain intact around the works areas to ensure that GCN do not enter the works areas following completion of the relocation. During works: • No kerbs to be installed around the gully pots which are within 500m of meta-population A and C. However, if kerbs are essential, the gully pots should be located at least 10cm from the edge of the kerb to reduce the risk of GCN being channelled into the gully pots. • Gulley pots within 500m of the meta-populations should be fitted with amphibian gully pot ladders. • Exclusion fencing will be monitored and maintained throughout construction to ensure GCN do not re-enter the works area. Operational: • Re-instatement and enhancement of suitable GCN habitat. Please refer to environmental master plan ***(Figure 2.8, APP-107)*** and ***Appendix 8.9 GCN Technical Appendix (APP-082)*** • Creation of 2 new wildlife ponds. • Monitoring should be undertaken at the ponds of the Downhead population, including the newly created pond for 4 years post translocation (2021-2024).					

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			The monitoring should be carried out by a licenced ecologist. • 2 years of presence or absence monitoring should be undertaken at the Hazlegrove population (2021-2022). • Annual inspection of hibernacula condition and maintenance, for a period of 5 years (2020-2025). • Mitigation planting areas to be maintained for a period of 3 years from completion of the scheme. • After the 3-year management period is completed the management of land outside the highways boundary to be returned to the landowner.						
B9	ES - CH8 and Otter and Watervole Technical Report ***(Appendix 8.10, APP-083)***	Otter and water vole mitigation.	During works: • Where works, (including temporary works) are within close proximity to ditches known to support water vole, a minimum buffer of 5m from the edge of the ditch to be retained and fenced. Please refer to Appendix B of ***Appendix 8.10 Otter and Watervole Technical Report (APP-083).***	Not applicable	Compliance with mitigation measures outlined within the to be included in the CEMP.	Contractual responsibilities between Highways England and construction contractors, and their Environmental Consultant.	Principal Contractor	C	Signature: Date:
B10	ES - CH8 and Invertebrate Technical Report ***(Appendix 8.11, APP-084)***	Terrestrial invertebrates mitigation.	• Before works: Hedgerow removal to be carried out in the winter months, where brown hairstreak identified. • Blackthorn bushes with brown hairstreak ovum to be translocated by a suitably experienced ecologist adjacent to hedgerows. Operational: • Re-instatement and enhancement of invertebrate habitat, including ivy to provide mitigation for thick-headed fly. • Once hedgerows have become established, when management is required, hedgerows containing blackthorn will involve cutting of only 1 side of the hedgerow every other year to prevent local extinction of brown hairstreak. Cutting of hedgerows will be undertaken in early August, when eggs and larvae are less likely to be present within blackthorn, or in January and February.	Assumes permission is obtained from landowners to translocate ovum into suitable adjacent hedgerows.	Compliance with mitigation measures outlined within the to be included in the CEMP.	Contractual responsibilities between Highways England and Principal Contractor, and their Environmental Consultant.	Principal Contractor	P and O	Signature: Date:
Geology and Soils (GS)									
GS1	OSMP (Annex B.3) ES – CH9 **(*APP-046*)**	The protection of soil structure and quality – to prevent	Completion of works in line with the site SMP (refer to Annex B.3 of this report for the Outline SMP). This is to ensure works are undertaken in accordance with appropriate	Not applicable	Completion of SMP (live document)	Contractual responsibilities between Highways	Principal Contractor	C	Signature:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
		degradation of soils both within and outside the permanent and temporary development areas.	guidelines including Defra's Construction Code of Practice for the Sustainable use of Soils on Construction Sites (2009) and the British Standards Institution Specification for topsoil BS3882 (2015) particularly in areas where reinstatement of agricultural land is required. BS3882:2015 will also apply for topsoil spreading on areas of newly constructed earthworks where import is required. The use of a proprietary geotextile membrane to protect the existing ground condition where haul routes or site compounds / storage areas are located. A layer of inert crushed granular material placed on a geotextile membrane will form temporary running surfaces for construction plant and reinforcement of access tracks. Car parking and pedestrian areas will be bolstered with asphalt surfacing. On completion of the scheme, the temporary haul routes will be restored and the areas returned to their original condition. Where importation of topsoil is required for spreading on areas of newly constructed earthworks, this will be selected in accordance with BS 3882:2015[8] to ensure that the topsoil provides suitable substrates for native plant species and to maximise biodiversity, in accordance with industry best practice.			England and the Principal Contractor			Date:
GS2	OMMP (Annex B.2) OSWMP (Annex B.1) ES – CH9 **(*APP-046*)**	To maximise the re-use of suitable geological resources while minimising waste generated.	Completion of works in line with the site Materials Management Plan (MMP) (refer to Annex B.2), Site Waste Management Plan (SWMP) (refer to Annex B.1) and compliance with the CL:AIRE document 'The Definition of Waste: Development Industry Code of Practice' (2008).	Not applicable	Completion of MMP and SWMP (live documents)	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:
GS3	ES – CH9 (***APP-046*)**	The protection of controlled waters: general.	Works to be carried out in accordance with Environmental Protection Act (EPA) 1990, Section 161A of the Water Resources Act 1991 and the Environmental Permitting (England and Wales) Regulations 2010. Reasonable and practicable steps to be taken to protect the water environment will include: • The careful management of construction site drainage, including the use of cut-off ditches to collect site run-off, with run-off passed through settling lagoons or silt traps to allow removal of sediments prior	Not applicable	Daily site audits	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:

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

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			to discharge. Where considered necessary, treatment plant will be made available on site for construction runoff water and groundwater from dewatering, including: ○ Settlement tanks ○ Chemical dosing plant ○ Concrete washwater plant ○ Oil-water separators ○ Materials separators • Management of excavated topsoils will be in line with the guidance provided within the SMP to minimise soil being entrained in runoff water. • Works will be monitored by a suitably qualified Site Environmental Clerk of Works. • An auditing programme will be implemented to verify environmental performance.						
GS4	ES – CH9 (***APP-046***)	The protection of controlled waters during excavation and foundation works.	• Where piling or penetrative ground improvement is required, the works will be carried out in accordance with the Environment Agency guidance[9] [10]. If following the scheme GI, contaminated land is identified in areas of piling or penetrative ground improvement, a foundation works risk assessment will need to be undertaken to determine the likely effects relating to the driving of piles through any contaminated Made Ground or landfilled materials and into the underlying Secondary A Aquifer, and to identify what mitigation measures are appropriate for the site. • The batching of concrete to only be undertaken in designated impermeable areas with a segregated drainage system, placement of temporary bunds down-slope to contain any spillages, and the development of a spill response protocol. • The discharge of potentially contaminated groundwater will be appropriately managed by the Contractor through the use of appropriate treatment prior to discharge.	Not applicable	Consultation with the Environment Agency.	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:

[9] Environment Agency (2001) *Piling and penetrative ground improvement methods on land affected by contamination: guidance on pollution prevention*. National Groundwater and Contaminated Land Centre Report NC/99/72 [online] available at: http://www.merseygateway.co.uk/publicinquirydocs/Core-docs/CD-256.pdf (last accessed March 2018).
[10] Environment Agency (2002) *Piling into contaminated sites. National Groundwater and Contaminated Land Centre Report* [online] available at: http://webarchive.nationalarchives.gov.uk/20140329082414/http://cdn.environment-agency.gov.uk/scho0202bisw-e-e.pdf (last accessed March 2018).

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GS5	ES – CH9 **(*APP-046*)**	The protection of site soil and groundwater quality with respect to plant and working methods.	Working method statements to be in place during construction, to ensure environmentally safe working practices on site with respect to the underlying ground and groundwaters. These will include (but not be limited to): • The storage of oil, fuel and other potentially hazardous substances will be within a secure site compound located on a hardstanding area. Storage of these substances will be within an appropriately bunded area (110% of total capacity volume). • There will be designated refuelling and maintenance areas and concrete batching areas located on impermeable hardstanding with drainage treated appropriately. Placement of temporary bunds down-slope of potentially polluting activities. will contain any spillages. A spill response protocol will be developed. • Regular inspections of site plant will be carried out and the use of drip trays and training in the location and use of spill kits and emergency spillage procedures will be provided for site workers. Action Plans will be in place to effectively deal with any contamination issues during construction for example for spillages and leaks from construction plant. • Adjacent areas outside the development boundary will be protected by site fencing to prevent accidental encroachment and damage of topsoil by site plant.	Absence of GI data.	Production of working method statements. Daily site audits.	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	P, C	Signature: Date:
GS6	ES – CH9 **(*APP-046*)**	The management of soil and groundwater contamination risks.	Following development, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of Environmental Protection Act (1990). • Completion of works in line with the recommendations included within the scheme Remediation Strategy (to be written following the completion of the intrusive GI and subsequent contaminated land risk assessment). • Completion of works in line with the Method Statement produced (if necessary) for the removal, transportation, deposition and monitoring of any identified contaminated material, fuels, chemicals and waste. • All contaminated waste created on site will undergo basic characterisation prior to disposal to an appropriate landfill.	Absence of GI data.	Production of working method statements. Daily site audits. Consultation with the EA where necessary.	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:

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			Waste Acceptance Criteria (WAC) testing will be undertaken where necessary. • Every effort will be made to minimise waste to be landfilled with treatment at an appropriate facility or on-site treatment hub considered in the first instance. • Any imported materials will comply with standards provided within the Remediation Strategy.						
GS7	ES – CH9 **(*APP-046*)**	Management of contamination risks: reporting	A qualitative and quantitative Contaminated Land Risk Assessment (CLRA) to be prepared following the receipt of GI results for the scheme during the examination period, prior to commencement of construction. This will inform the conceptual site model and identify any unacceptable contamination risks and enable the selection of appropriate mitigation measures to ensure protection of human and environmental receptors (including controlled waters) during construction. Any mitigation measures required will be incorporated into the CEMP on completion of the CLRA. The CLRA scope will include: • Confirmation of the current geo-environmental baseline for the proposed route including its potentially contaminative history along with geological, hydrogeological and hydrological factors updated with factual site data. • Assessment of site specific GI chemical testing data using current best practice and standards to accurately determine the potential risks to human health, controlled waters, building materials, vegetation and in relation to ground gas risks given the different options for long term end use. • Production of a revised Site Conceptual Model, to be used to determine the potential contaminant linkages present (source-pathway-receptor model). A Remediation Strategy to be prepared on completion of the CLRA, and consultation with the Environment Agency and South Somerset District Council on the Remediation Strategy prior to completion. The Remediation Strategy will include (but not be limited to): • Review contaminated land risk assessment to identify pollutant linkages	Absence of GI data.	Review of GI results and production of CLRA, Remediation Strategy and method statement, in consultation with South Somerset District Council and the Environment Agency.	Contractual responsibilities between Highways England and their Consultant.	Detailed Design Consultant	P, and C	Signature: Date:

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			with unacceptable risks that require mitigation. • Identifying feasible remediation options for each relevant pollutant linkage. • Producing a remediation strategy that addresses all relevant pollutant linkages, where appropriate by combining remediation options. Following on from the Remediation Strategy, the preparation of a site-specific Method Statement for the removal, transportation, deposition and monitoring of any identified contaminated material will be developed by the Contractor if necessary and in line with the Pollution Prevention and Control Regime and the Environmental Permitting Regulations. The Method Statement will be incorporated within the CEMP, where necessary. The Method Statement will include specific instructions in relation to: • The control of excavation, separation, handling and storage activities, to ensure that those soils identified as contaminated are not combined with uncontaminated soil. • The on-site treatment of contaminated material if appropriate to allow re-use as appropriate thereby minimising the amount for offsite disposal. • The issue of appropriate health and safety procedures when working with contaminated materials.					
GS8	ES – CH9 **(*APP-046*)**	Management of contamination risks: workers	Production of risk assessments specific to the works in order to identify risks and appropriate mitigation measures in line with all the relevant health and safety legislation and guidance, to ensure the safety of workers.	Construction activities pose a risk to workers on site.	Production of and adherence to risk assessments.	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:
GS9	ES – CH9 **(*APP-046*)**	Obtain Land Drainage Consent for excavations and dewatering activities.	Discharge to surface waters will require a Land Drainage Consent from Somerset Drainage Board Consortium, for the following aspects of the scheme: • Renewal of an existing gateway crossing by means of a culvert or bridge. • Creation of a new gateway crossing by means of a culvert or bridge. • Piping a watercourse for a length of 8 metres or less.	Excavations and dewatering would be required for certain aspects of the scheme.	Consultation with the Somerset Drainage Board Consortium.	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:

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			• All structures or modifications in or within 9 metres of a watercourse (Headwalls, Sluices and Fencing). • Any temporary works in or within 9 metres of a watercourse, that will be in place for less than 6 months.						
GS10	ES – CH9 (***APP-046***)	Ensure appropriate methods of working in areas of historical landfills, infilled quarries or Made Ground.	• Further GI includes investigation at historic landfills and infilled quarries to accurately determine the extent and nature of contaminated materials within the red line boundary and a quantitative assessment of the associated risks and appropriate mitigation measures necessary. These are likely to include aquifer protection measures such as casing through any backfilled materials, recirculation or safe containment of drilling flush, plugging / reinstatement of landfill linings, appropriate disposal of excavated contaminated materials and reinstatement of capping materials if encountered. • Landfill material, Made Ground and natural strata have the potential to produce ground gases. Ground gas risks will be assessed in accordance with current guidance following GI completion as part of the CLRA process and appropriate mitigation identified.	Works in areas of historical landfills, infilled quarries or Made Ground.	Production of CLRA. Daily site audits. Consultation with the Environment Agency where necessary.	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:
Material Assets and Waste (M)									
M1	ES - CH10 (***APP-047***)	Reduce the use of materials and ensure resource efficiency.	Minimise material requirements within the detailed design of the scheme, by specifying the use of infrastructure that contains a high proportion of recycled content (where design constraints allow), and by designing to reuse as much site-won material as possible.	The construction of the scheme will require large quantities of material.	Not applicable	Contractual responsibilities between Highways England and their Consultant.	Detailed design consultant	P	Signature: Date:
M2	ES - CH10 (***APP-047***)	Reduce impact of transportation of materials to site.	Locally sourced materials and suppliers to be used where possible.	Assumes materials can be sourced locally.	Not applicable	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:
M3	ES - CH10 (***APP-047***)	Reduce generation of waste.	Completion of works in line with the SWMP (refer to Annex B.1) to reduce waste arisings by implementing the waste hierarchy (prevention, reuse, recycle, recovery and as a last resort disposal). For example, surplus excavated materials should be reused within	The construction of the scheme will require large quantities of material.	Completion of SWMP (live document)	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:

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			the landscaping of the scheme where possible.						
M4	ES - CH10 (***APP-057***)	Reuse of inert waste in nearby quarries.	Somerset has a long history of aggregate and building stone production. Therefore, opportunities to be sought for the reuse of inert waste in quarry restoration, and prioritised over disposal in landfill.	Nearby quarries contain material types needed for construction of the scheme.	Completion of SWMP (live document)	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:
M5	ES - CH10 (***APP-047***)	Ensure appropriate waste management facilities are identified and used	Where material must be taken to a recycling or disposal site, these sites must have the appropriate permits and should be located as close to the works as possible.	Assumed waste infrastructure has capacity locally.	Completion of SWMP (live document)	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	C	Signature: Date:
Noise and Vibration (NV)									
NV1	ES - CH 11 (***APP-048***)	Limit noise emissions during construction.	Implement following noise mitigation measures during construction: • Select quieter plant than has been used in the assessment (worst-case scenario) • Ensure equipment is maintained, in good working order, and is used in accordance with the manufacturer's instructions. • Fit equipment with silencers or mufflers. • Setting time restrictions on certain noisy activities. • Manage deliveries to prevent queuing of site traffic. • Do not leave plant running unnecessarily • Careful orientation of plant with directional features • Materials to be lowered instead of dropped from height • Use of adjustable or directional audible vehicle-reversing alarms or use of alternative warning systems (for example, white noise alarms) • Train and advise members of the construction team during toolbox talk briefings on quiet working methods. • Temporary barriers should be erected to fully obscure the construction works from a receptor.	Sensitive receptors within the vicinity of the scheme.	Mitigation measures to be included in the CEMP.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor	C	Signature: Date:
NV2	ES- CH 11 (***APP-048***)	Mitigate effects of noise and vibration on local communities	Letter drops explaining the likely duration of construction works, along with the start and stop dates, and reassurance that everything is being done to minimise noise levels should be considered. A dedicated site contact for the public and complains handling procedure	Sensitive receptors within the vicinity of the scheme.	Compliance with the Communications Relation Strategy.	Contractual responsibilities between Highways England and	Principal Contractor	P and C	Signature: Date:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			should be put in place. Further information that should be followed is contained in the Communications Relation Strategy (Annex B.6 of this report).			the Principal Contractor.			
NV3	ES - CH 11 (***APP-048***)	Limit vibration during construction.	Where vibration levels have been predicted to exceed SOAEL (PPV 1.0mm/s) the Contractor should: • Consider the use of alternative piling methods and/or plant. • Avoid piling at night in locations where it may have a noise or vibration impact. • Keep occupiers informed of the likely times and duration of works. • Monitor the vibration level at the nearest receptors (or at an equivalent offset distance) to enable the vibration level at receptors to be determined. Please note that the locations would need to be determined by the Contractor once the construction plant has been confirmed.	Sensitive receptors within the vicinity of the scheme.	Mitigation measures to be included in the CEMP.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor	C	Signature: Date:
NV4	ES - CH 11 (***APP-048***)	Limit noise emissions and vibration during construction.	Appropriate risk assessment to be undertaken to ensure adverse levels of noise and vibration are not experienced both on-site (for members of staff on-site) and at dwellings.	Sensitive receptors within the vicinity of the scheme.	Compliance with the risk assessment.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor	P and C	Signature: Date:
NV5	ES – CH11 (***APP-048***)	Limit noise emissions during construction	Routine noise and vibration monitoring to be carried out during construction works in addition to monitoring at those properties identified as at risk from significant adverse effects from linear works and in the vicinity of construction compounds. Monitoring would include long term measurements at locations where construction activity is likely to exceed 10 working days.	Sensitive receptors within the vicinity of the scheme.	Mitigation measures to be included in the CEMP.	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor	C	Signature: Date:
NV6	ES – CH11 (***APP-048***)	Limit noise emissions during operation at The Spinney and Annis Hill Farm.	Compensatory mitigation in the form of secondary glazing and acoustic trickle vents will be offered to ensure increases in operational noise can be offset at The Spinney and Annis Hill Farm.	Sensitive receptors within the vicinity of the scheme.	Not applicable	Contractual responsibilities between Highways England and the Principal Contractor.	Principal Contractor	O	Signature: Date:
People and Communities (PC)									
PC1	ES – CH12 (***APP-049***)	To ensure there is a safe environment for those travelling along the route, and for those delivering the	Implementation of the Traffic Management Plan (TMP) (refer to Annex B.6) will include the following measures: • Local road and A303 closures. • A reduction in speed limits to 40mph on the departure from Podimore	Local traffic and NMUs will still require access around the area.	Implementation of measures outlined in the TMP.	Contractual responsibilities between Highways England and the detailed design	Principal Contractor	P and C	Signature: Date:

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		construction works.	Roundabout taking into account a 1 + 1 contraflow. • A reduction in speed limit to 50mph for approximately 1,100 metres on the western approach to the A303 works. • Employment of average speed cameras to enforce limits. • Temporary speed limits on local roads. • Closures to the A303 between Podimore Roundabout, Sparkford Roundabout and the A371 Wincanton and a diversion route via the A359 form Sparkford Roundabout to Yeovil, and the A37 to the A303. • Closures to local roads, although access will be maintained to adjacent villages and businesses at all times. • Management of NMU routes.			consultant and Principal Contractor.			
PC2	ES – CH12 (***APP-049***)	To ensure that construction information is disseminated to landowners, parish councils, local interest groups and the general public.	Prior to construction, the appointed Contractor to register with the National Considerate Constructor's Scheme. Contractor to establish a forum established to disseminate construction information to landowners, parish councils, local interest groups and the general public. Properties, businesses and buildings, occupants of premises likely to be affected during construction are to be advised of the works prior to their occurrence.	Local community likely to be affected by the construction activities.	Registration with the National Considerate Constructor's Scheme and implementation of a forum to disseminate construction information.	Contractual responsibilities between Highways England and the detailed design consultant and Principal Contractor.	Principal Contractor	P	Signature: Date:
PC3	ES – CH12 (***APP-049***)	To minimise effects on all travellers during construction.	Constructions works to be phased to minimise effects on all travellers during construction. All temporary diversions for non-motorised users around the work site to be clearly signed, with alternative access arrangements maintained throughout the construction period, as required. The majority of existing crossings only to be closed once diversions are in place or the new arrangement has been established.	Local community likely to be affected by the construction activities.	Construction works are phased. Non-motorised user routes are signed and alternative access is arranged where necessary.	Contractual responsibilities between Highways England and the detailed design consultant and Principal Contractor.	Principal Contractor	C	Signature: Date:
PC4	ES – CH12 (***APP-049***)	To ensure NMU routes impacted by the scheme are appropriately re-provided.	NMU facilities to be installed at locations as defined in the Figure 2.4 (***APP-103***).	NMUs likely to be affected by the construction activities.	Non-motorised user facilities correctly installed at locations as defined within the Right of Way Strategy.	Contractual responsibilities between Highways England and the detailed design consultant and Principal Contractor.	Principal Contractor	O	Signature: Date:
Road Drainage and the Water Environment (RDWE)									
RDWE1	ES – Appendix 4.3 (***APP-056***)	To mitigate potential adverse	Construction activities must be managed in accordance with CIRIA Guidelines. Guidance	Watercourses and sensitive ecological	Daily site audits.	Contractual responsibilities	Principal Contractor	P and C	Signature:

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
		effects upon surface waters and groundwater during the construction phase	on best practice in relation to pollution prevention and water management is set out in the following documents: • CIRIA's *Environmental good practice on site*[11]. • CIRIA's *Control of water pollution from linear construction projects; Technical Guidance*[12]. • Environment Agency's *Protect groundwater and prevent groundwater pollution*[13].	sites within the vicinity of the scheme.		between Highways England and the Principal Contractor			Date:
RDWE2	ES – Appendix 4.3 (***APP-056***)	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	Specific measures to be implemented to limit the impact of construction activities on the water environment include: • All construction workers to be briefed on the importance of maintaining water quality, the location of surface water features, and the location and use of spill kits as part of the site induction. • The construction drainage network to incorporate measures (for example interceptors) to prevent the discharge of hydrocarbons to surface or groundwater systems. • In areas where there is increased risk of hydrocarbon / chemical spillage and around hazardous substance stores, additional precautions to be taken. These include bunding, impermeable bases, suitable drainage systems, and siting away from any open drainage channels. • Any stockpiled materials to be stored within enclosed areas to enable the runoff to be stored and treated where required. • It is advised that soil storage is kept a minimum of 12 metres away from a watercourse to avoid unnecessary pollution run-off into the watercourses. • Any concrete works to be carefully controlled and where required, any concrete tankers will be washed out in controlled areas. • All plant and machinery to be maintained in a good condition and any maintenance required will be undertaken within safe areas.	Watercourses and sensitive ecological sites within the vicinity of the scheme.	Daily site audits.	Contractual responsibilities between Highways England and the Principal Contractor	Principal Contractor	P and C	Signature: Date:

[11] Audus, Charles and Evans (2010) *Environmental Good Practice on Site* (Third Edition) (C692).
[12] Murnane, Heap and Swain (2006) *Control of water pollution from linear construction projects; Technical Guidance*
[13] Environment Agency (2017) *Protect groundwater and prevent groundwater pollution* [online] available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution (last accessed June 2018).

Reference	Document reference	Objective	Action (including specific location and any monitoring required)	Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P=Pre-construction C=Construction O=Operation A=All	Completion record
			• Pollution prevention and spill response procedures (in the form of an Incident Control Plan) to be developed by the contractor and a spill kit and clean up equipment maintained on site. • Wheel washers and dust suppression measures to be used to prevent the migration of pollutants. • Monitoring of the surface watercourses to be carried out before, during, and after construction to ensure no adverse impact on water quality. • Manually operated penstocks to be provided immediately prior to all outfalls leading to a watercourse and upstream of attenuation pond flow control devices.						
RDWE3	Statement of Common Ground between the Environment Agency and the Applicant ***(REP4-004)***.	To ensure the borehole / well at ST 55646 24982, within the footprint of the proposed works, does not provide a preferential pathway where contaminated runoffs / spills can enter the aquifer during construction or operation.	Continued liaison with the landowner (where the water supply is present) should be undertaken during detailed design and specific mitigation measures, such as appropriate decommissioning using current best practice, should be included within the CEMP.	The borehole / well could provide a preferential pathway to groundwater resources.	Mitigation measures to be included within CEMP.	Inclusion of mitigation measures in the CEMP and strict adherence to the CEMP.	Detailed design consultant	All	Signature: Date:
Climate (C)									
C1	ES- CH13 **(*APP-050*)**	Reduce the waste and use of unnecessary materials and fuel.	Plant equipment and vehicles to be used on the scheme will be selected based on their relative environmental performance taken from a technical specification.	Not applicable.	Reduction in waste and fuel used throughout the construction and maintenance periods. Completion of CEMP and SWMP (live documents)	Strict following of the CEMP and SWMP throughout the construction and maintenance periods.	Principal Contractor	All	Signature: Date:
C2	ES- CH13 **(*APP-050*)**	Evaluate the final carbon emissions post-construction	Post-construction / as built carbon assessment to be undertaken to consider the actual emissions from the construction of the scheme. This will require the Principal Contractor to monitor the activities on site closely in order to have the data to undertake this final carbon assessment.	Not applicable	As built and construction activity data.	Recording of construction activity – material deliveries (location and mode), plant used and fuel consumption.	Principal Contractor	C	Signature: Date:

4 Consents and permissions

4.1 Consents and Agreement Position Statement

4.1.1 A ***Consents and Agreement Position Statement* (*APP-019*)** has been submitted as part of the Development Consent Order (DCO), which sets out the Highways England's intended strategy for obtaining the consents and associated agreements needed to implement the scheme. It identifies at a high-level what consents are expected to be needed for the scheme, together with how those consents will be obtained.

4.1.2 This chapter outlines the consents, permissions and agreements that will be, or will likely be, sought by the Highways England or the Principal Contractor (PC), insofar as they relate to the environmental aspects of the scheme.

4.1.3 [Note: This chapter will need to be updated for the CEMP to cover developments through the detailed design and construction planning phase, and thought the construction phase, in order to capture all relevant items.]

4.2 Consents and permissions

4.2.1 As outlined in the ***Consents and Agreement Position Statement* (*APP-019*)**, the principal consent for the scheme will be the DCO. The DCO process provides development consent for the works and enable land acquisition, along with many consents and powers to be dealt with at the same time. The DCO application may, however, need to be supplemented by other applications. At this point (during the Examination of the DCO application) the majority of consents and all of the powers required have been included, or addressed within the DCO as permitted by various provisions of the 2008 Act. These are outlined in the **Consents and Agreement Position Statement (*APP-019*)**.

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* (*APP-019*)**. These additional consents and permissions that may be required in relation to delivering the EMP are outlined in Table 4.1.

Table 4.1 Consents and permissions that may be required to deliver the EMP

Type	Issuing authority	Requirement
Badger Licence.	Natural England	Consent must be obtained before construction works can commence.
Great Crested Newt Licence.	Natural England	Consent must be obtained before construction works can commence.
Land Drainage Consent.	Somerset Drainage Board Consortium	Consent must be obtained for: Renewal of an existing gateway crossing by means of a culvert or bridge. Creation of a new gateway crossing by means of a culvert or bridge.

Type	Issuing authority	Requirement
		Piping a watercourse for a length of 8 metres or less All structures or modifications in or within 9 metres of a watercourse (headwalls, sluices and fencing) Any temporary works in or within 9 metres of a watercourse, that will be in place for less than 6 months.
Approval from Lead Local Flood Authority (LLFA)	Lead Local Flood Authority	A Sustainable Drainage Strategy (surface water) is a Local List Planning Application Requirement. It should include the detailed design, management and maintenance of surface water management system including Sustainable Drainage Systems (SuDS).
Exemptions for operations such as U1 (import of waste for use in construction) and T15 (crushing of aerosols to minimise hazardous waste) (if exemption limits can be met).	Environment Agency	PC to identify and register relevant and required exemptions with the Environment Agency.
Noise: Control of Pollution Act Section 61 Consent.	Environmental Enforcement Officer.	In advance of start date for construction. Consultation required to agree hours of working and any specific noise and vibration limits.
Waste Carrier Licence.	Environment Agency	PC to ensure their selected waste disposal contractor(s) holds a valid and current Waste Carrier Licence Waste Carriers to supply completed Transfer Notes for any collections and removals of non-hazardous or inert waste from site. These must be kept for 2 years. Waste carriers to supply completed hazardous waste transfer notes for any collections and removals of hazardous waste from site. These must be kept for 3 years.
Waste Disposal Licence.	Environment Agency	PC to ensure that waste is taken to facilities permitted to deal with that waste stream (including hazardous waste). Waste facilities to provide documentation to show that they are permitted to receive the waste streams.
Hazardous Waste Producer Registration.	Environment Agency	Hazardous waste producer registration is no longer required for any site having hazardous waste removed from their premises. Completion of the Consignment Notes for the removal of Hazardous Waste. Where required specialists to be contracted, for example asbestos removal.

5 Environmental asset data and as built drawings

5.1 Highways England Environmental Information System

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

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

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

5.2 Collection and submission of EnvIS data

5.2.1 Highways England's Interim Advice Note (IAN) (84/10)[14] states that identifying and recording EnvIS data is an ongoing process. Service providers are required to submit EnvIS data, stored on their own system, in the form of environmental inventory and environmental management information records. For designers,

[14] Highways England (2010) Interim Advice Note 84/10 Part 1 Volume 10 Section 10 Highways Agency Environmental Information System – EnVIS [online] available at: http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian84pt1.pdf (last accessed June 2018).

the frequency of EnvIS data submission (to Highways England), should be in line with the end point of the following milestones:

- Development phase (Preliminary Design) – Environmental Assessment/Statement Publication - environmental data resulting from statutory or non-statutory assessment of the environmental implication of a proposed project. Designers collect and submit EnvIS data for all Elements that have influenced or are influenced by the Preferred Route
- Development phase (Construction Preparation) – Detailed Design Drawings - environmental data detailing the final specification of the project. Designers collect and submit EnvIS data detailing all Elements associated with the planning and design of the project and planned environmental management actions that will be undertaken during the construction period and of the existing Elements likely to be affected.
- Construction phase (Construction) – As Built Drawings – environmental data detailing the completion of the project prior to handover. Designers collect and submit EnvIS data detailing all Elements associated with the construction of the project and planning environmental management actions that are required to be undertaken by the network managing agent as part of operating and maintaining the network area.

5.2.2 At this stage of the project, EnvIS data will be submitted through the publication of the Environmental Statement as part of the DCO application. This will include the submission of all species surveys results undertaken to inform the Environmental Statement.

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

6 Details of maintenance and EMP monitoring activities

6.1.1 This section lists systems of recording and inspections that will be required so as to maintain an audit trail of the environmental obligations, detailed in Table 3.1, of the scheme. This will be managed through the Quality and Safety Management Systems (QMS) and the Environmental Management System (EMS) of the Principal Contractor (PC), meeting the ISO14001 standards.

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

Environmental records inspections

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

Daily inspection check list

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

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

Procedures to monitor compliance

6.1.6 An overall Project Record will be required for formal records associated with implementation of the CEMP. This should be managed and controlled within the standard PCF project filing systems.

Administration

6.1.7 The PC will be responsible for maintaining site based environmental records including coordination of environmental site checks / inspection records, monitoring (sampling, recording and subsequent actions), consents, permits,

and waste transfer notes. The Appendices of the CEMP are live. The environmental records are to be scanned and filed electronically or filed in a hard copy of the live CEMP (subject to the PC internal filing systems). In the case of overlap with Health, Safety, Environment and Quality (HSEQ) files, these will be cross referenced within the updated CEMP back to HSEQ files held by the PC for any formal auditors to track and monitor compliance. This will be most likely in the case of handling and disposal of hazardous or contaminated waste and any chemicals and specialist materials subject to COSHH regulations.

Quality Management - Environmental Audit

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

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

Environmental Management Systems

6.1.10 EMS requirements will need to be maintained throughout the scheme. Contractors are required to be accredited or seeking to be accredited under ISO14001 as this indicates an understanding and implementation of an EMS for recording, monitoring and managing a project.

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

Control Documents

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

6.1.13 This section will be updated prior to construction by the appointed Contractor to additionally include:

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

7 Induction, training and briefing procedures for staff

7.1 Introduction

7.1.1 Table 7.1 identifies an indicative programme of training on environmental issues relevant to the scheme that have been identified for delivery prior to and during the construction stage. On commencement of site mobilisation, the Principal Contractor (PC) will be the site owner and responsible for site inductions and training of all personnel on the site, whether visitors, full time staff or subcontractors

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

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

7.1.4 Any additional induction and training requirements should be inserted within Table 7.1 below as they are identified throughout the lifetime of the scheme, by the PC.

Table 7.1 Indicative list of induction and TBT training required for the scheme

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

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

7.2 Environmental competencies

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

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

7.3 Training and site induction

7.3.1 All site personnel and visitors are to receive Site Safety induction and Environmental Awareness training from the PC before commencing activities on site. The list below is not exclusive but environmental training at Induction will at least include the following:

- Company/Project Environmental Policy.
- Site environment;
- Fuel containment.
- Earthworks and Excavations (Risks of exposing contamination).

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

7.4 Toolbox talks and induction supporting materials

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

8 Glossary

Term and abbreviation if necessary	Definition
Development Consent Order (DCO)	A (DCO) is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects (NSIP). This includes energy, transport, water and waste projects.
Construction Environmental Management Plan (CEMP)	A CEMP includes the specific measures that will be taken to control and manage the environmental impacts whilst the project is under construction that may otherwise occur for each of the environmental topics, such as noise, air quality, water resources and ecology. In addition, a description of the planned works and the general site arrangements should be included in the CEMP. The Principal Contractor will be responsible for ensuring the measures specified within the CEMP are implemented.
Contaminated Land Risk Assessment	The management and remediation of contaminated land that, in its current state, is causing or has the potential to cause significant harm or significant pollution of the water environment, is regulated by legislation contained within the Environmental Protection Act (1990) known as Part IIA.
Dust	The word 'dust' usually refers to particulate matter in the size range 1-75 microns in diameter. Dust can be mechanically transported either by wind or re-suspension by vehicles. It can also arise from wind erosion on material stock piles and earth moving activities.
Environment Agency	The Environment Agency is responsible for environmental protection and regulation in England and plays a central role in implementing the government's environmental strategy. The Environment Agency is the main body responsible for managing the regulation of major industry and waste, treatment of contaminated land, water quality and resources, fisheries, inland river, estuary and harbour navigations, and conservation and ecology. They are also responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea.
Environmental Clerk of Works	An environmental or construction professional with direct responsibility for monitoring compliance with planning consents, environmental permits, legislation and mitigation
Flood Risk Assessment (FRA)	An assessment of the likelihood of flooding in a particular area so that development needs and mitigation measures can be carefully considered.
Ground Investigation	Geotechnical investigations are performed by geotechnical engineers or engineering geologists to obtain information on the physical properties of soil and rock around a site.
Handover Environmental Management Plan (HEMP)	A management plan that contains essential environmental information needed by the body responsible for the future maintenance and operation of the asset.
Historic England	The public body that looks after England's historic environment. Championing historic places and helping people understand their value and care for them.
ISO 14001 Environmental Management Systems (EMS)	An ISO 14001 environmental management system (or commonly referred to as an EMS) is a structured system designed to help organisations manage their environmental impacts and improve environmental performance caused by their products, services and activities.
Listed Building	A building which is considered by the Secretary of State (for Culture, Media and Sport) to be of special architectural or historic interest in accordance with the regime set out in the Town and Country Planning (Listed Buildings and Conservation Areas) Act 1990.
Local Wildlife Site (LWS)	Non-statutory sites that are given protection under the planning process.

Term and abbreviation if necessary	Definition
Materials Management Plan (MMP)	The Materials Management Plan (MMP) identifies materials to be generated and clarifies how they will be reused. The Materials Management Plan must be approved by an independent Qualified Person (registered with CL:AIRE).
Mitigation	Measures intended to avoid, reduce and, where possible, remedy significant adverse environmental effects.
Natural England	Natural England are responsible for: • Helping land managers and farmers protect wildlife and landscapes. • Advising on the protection of the marine environment in inshore waters (0 to 12 nautical miles). • Improving public access to the coastline. • Managing 140 National Nature Reserves and supporting National Trails. • Providing planning advice and wildlife licences through the planning system. • Managing programmes that help restore or recreate wildlife habitats. • Conserving and enhancing the landscape. Providing evidence to help make decisions affecting the natural environment.
Operation	The functioning of a project on completion of construction.
Receptor	A defined individual environmental feature that has the potential to be affected by a project.
Registered Park and Garden (RPG)	A park or garden that has been registered under Historic England's 'Register of Historic Parks and Gardens of special historic interest in England' due to its high level of historic interest.
Special Area of Conservation	A Special Area of Conservation (SAC) is defined in the European Union's Habitats Directive (92/43/EEC), also known as the Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora.
Scheduled Monument	A scheduled monument is a historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Culture, Media and Sport under the regime set out in the Ancient Monuments and Archaeological Areas Act 1979.
Site of Special Scientific Interest (SSSI)	An SSSI is a conservation designation denoting a protected area in the United Kingdom, designated due to special interest in its flora, fauna, geological or physiographical features. They are protected by law to conserve their wildlife or geology.
Site Waste Management Plan (SWMP)	SWMPs encourage the effective management of materials and ensure waste is considered at all stages of a project - from design through to completion. Although no longer a regulatory requirement in England, SWMPs are still considered to be good practice.
Soils Management Plan (SMP)	A soil management plan is an important part of ensuring soil sustainability during construction projects.
Written Scheme of Investigation (WSI)	A Written Scheme of Investigation outlines known and potential archaeological features and deposits or built heritage elements on a site and suggests a structure for exploring them using the latest, most appropriate and cost-effective archaeological techniques.

Annex A – Environmental constraints plan

Annex B – Relevant management plans

B.1 Outline Site Waste Management Plan

A303 Sparkford to Ilchester Dualling

Outline Site Waste Management Plan

HE551507-MMSJV-EGN-000-RP-UU-0021

Date: April 2019

Table of Contents

1 Administration and planning

1.1 Introduction

1.1.1 This outline Site Waste Management Plan (SWMP) has been produced to provide guidance to the contractor in completing the full SWMP. It identifies the strategic approach for the management of construction waste and has been produced using the most current available information at the time of writing. It is intended to act as a template and provide guidance to the project team on the management of waste generated by the scheme, and any opportunities identified to minimise waste throughout the subsequent stages of design.

1.1.2 The main aims of a SWMP is to ensure that all construction waste is managed, stored and disposed of in an appropriate manner by approved contractors in accordance with the waste hierarchy and all relevant legislation. The main SWMP would be a live, working document, which would require updating regularly as the scheme progresses. Where the schemes' scope is subject to change the outline SWMP will be updated to reflect any changes as necessary, and fed into the main SWMP to be produced by the contractor. All text in red requires completing or updating by the contractor throughout the course of the scheme. This outline SWMP can be used by the contractor and updated where necessary.

1.1.3 Whilst the development of a SWMP is no longer mandatory (since December 2013), it is still considered best practice and the Department for Environment Food and Rural Affairs (Defra) encourages businesses to use SWMP's on a voluntary basis as flexible resource efficiency tools.

1.1.4 Best practice suggests that the SWMP approach should be applied from the early design stages and carried forward and revised throughout the project delivery process. A Design for Resource Efficiency (D4RE) workshop was undertaken in January 2018 and the opportunities identified for improving resource efficiency during the detailed design can be found in appendix A. This ensures cost savings are maximised by considering waste minimisation initiatives and identifying opportunities to reduce, reuse or recycle waste materials and improve resource efficiency during earlier design stages.

1.2 Overview of the scheme

Existing corridor

1.2.1 The A303 forms part of Highways England's Strategic Road Network (SRN) and a strategic link between the south west and the rest of the south, south-east and London. The route comprises multiple road standards, including dual carriageway, single carriageway and single carriageway sections with overtaking lanes. Speed limits also vary between 40 miles per hour and 70 miles per hour, depending on the character of the road and its surroundings.

Existing road

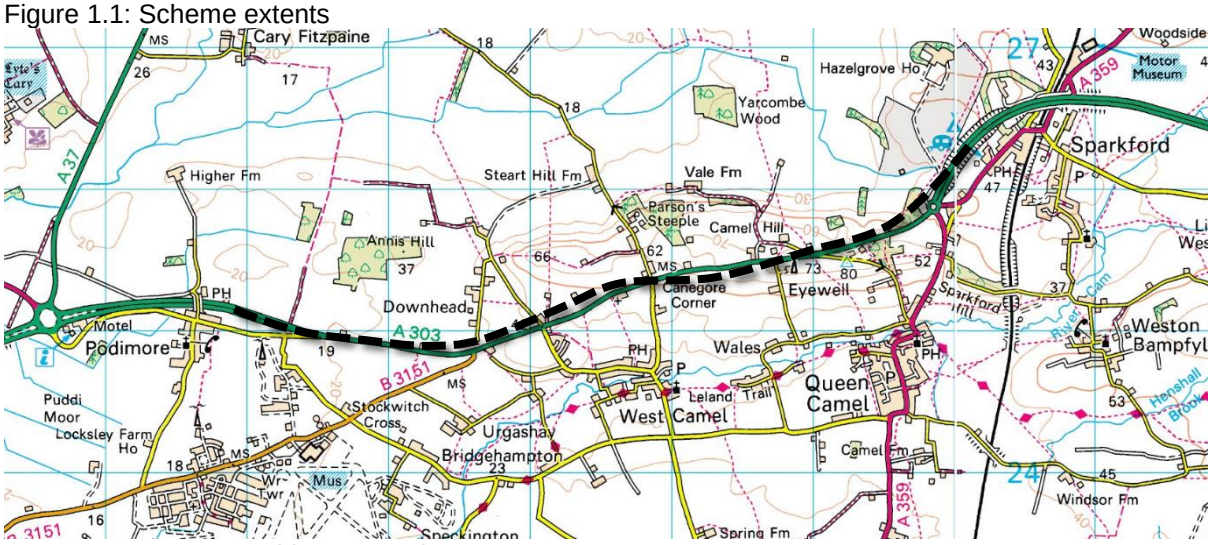
1.2.2 The section of the A303 that is being upgraded as part of this scheme commences at the eastern limits of the existing dual carriageway, the Podimore Bypass. Travelling east, the corridor reaches the junction with the B3151 before bearing north east and rising upwards through Canegore Corner to reach the crest of Camel Hill at Eyewell. This section of the corridor is characterised by a single lane road, with double white lines negating overtaking and subject to a 50 miles per hour speed limit. There are several priority junctions along the route giving access to the settlements of Queen Camel and West Camel to the south and Downhead to the north, as well as several farm accesses and parking laybys.

1.2.3 From the crest of Camel Hill, the corridor descends to meet the roundabout at the western limit of the dual carriageway Sparkford Bypass (Hazlegrove Roundabout). This section comprises 2 lanes in the westbound direction, 1 lane in the eastbound direction and is also subject to a 50 miles per hour speed limit. Hazlegrove Roundabout forms a junction between the A303 and the A359 which runs south through Queen Camel and north-east through Sparkford. The roundabout also provides access to a service station, and to a school at Hazlegrove House.

1.2.4 The section of the A303 that is to be upgraded is almost 3.5 miles, or approximately 5.6 kilometres long.

1.2.5 The extents of the scheme are illustrated in Figure 1.1 below. Appendix B shows the proposed red line boundary for the scheme.

Figure 1.1: Scheme extents



Source: Mott MacDonald Sweco Joint Venture

Scheme proposals

1.2.6 The proposed scheme is to provide a continuous dual-carriageway linking the Podimore Bypass and the Sparkford Bypass. The scheme would involve the removal of at-grade junctions and direct accesses. The Hazlegrove Junction would be constructed to grade-separated standards and Downhead Junction and Camel

Cross Junction would be constructed to compact grade-separated standards, as illustrated on ***Figure 2.3 General Arrangement Plans*** of the ***Environmental Statement (APP-102).***

1.2.7 A detailed description of the scheme is provided within ***Chapter 2 The Proposed Scheme*** of the ***Environmental Statement (APP-039)*** and ***Chapter 2 The Proposed Scheme*** of the ***Environmental Statement Addendum (OD-010).***

1.3 Scheme information

1.3.1 Information about the scheme is outlined in Table 1.1 below.

Table 1.1: Scheme information (TBC = to be completed by contractor on updating)

Client	Highways England
Person in charge of the project	TBC
Author of oSWMP: Design Stage	Anita Manns
Author of oSWMP: Construction Stage	TBC
Schemes title / reference	A303 Sparkford to Ilchester Dualling
Schemes location	Somerset
Schemes cost (estimated)	TBC
Scheme / Building footprint	TBC
Start date	TBC
Completion date	TBC
Description of schemes scope	See scheme description in section 1.4.
Person responsible for waste management	Principal Contractor (TBC)
Document controller	TBC
Version date and number	First issue: July 2018 (P01) (Contractor to update on each SWMP revision during design, construction and operation in the event of any significant changes)
Location of SWMP	TBC by contractor during construction

1.4 Responsibilities

1.4.1 The Principal Contractor will be responsible for overseeing and documenting results of the SWMP, and will monitor the effectiveness and accuracy of the documentation. Copies of the plan will be distributed to subsequent relevant parties when necessary. During construction the site manager will be responsible for the SWMP and will ensure that a copy of the plan is distributed to the Principal Designer Advisor, Client, Project Manager and each sub-contractor. This will be undertaken every time the plan is updated.

2 Proposals for minimisation, reuse and recycling of waste

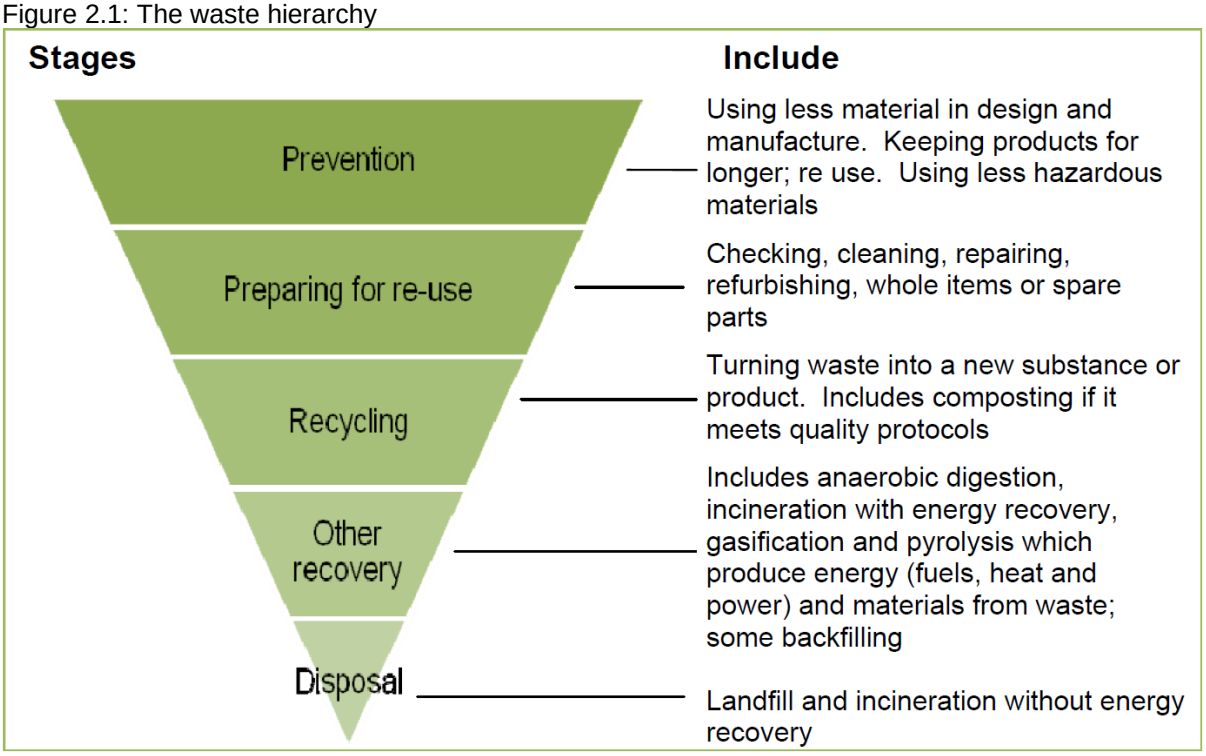
2.1 General measures

2.1.1 The purpose of this outline SWMP is to inform the production of the full SWMP to ensure that it facilitates the principles of the waste hierarchy and minimises the production of waste from the outset of the scheme. The SWMP should be used to record any early decisions, design changes, construction methods or material specifications which have helped to minimise waste arisings on site. Such measures are to be incorporated into the overall design and implemented in the construction stage.

2.1.2 The waste hierarchy illustrates the preferred waste management options. It gives top priority to preventing waste in the first place. Where waste is created, it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (for example, landfill). The higher up the waste hierarchy waste is managed the greater the cost and resource savings.

2.1.3 The waste hierarchy is explained in Figure 2.1.

Figure 2.1: The waste hierarchy



Source: Guidance on applying the Waste Hierarchy1

2.1.4 Eliminating waste at source is the best way to make dramatic savings in waste costs and reduce the impact on the environment. This can be achieved through:

[1] Defra (2011) *Guidance on applying the waste hierarchy* [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf accessed 23/11/2016 (last accessed May 2018).

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

2.1.5 Disposal of waste to landfill or incineration should be a last resort after all the above options have been considered.

2.1.6 Waste minimisation is at the top of the waste hierarchy and this should continue to be a priority throughout the progression of the scheme. The objective of this outline SWMP is to inform the production of the main SWMP to ensure the waste hierarchy is implemented as set in order of preference; the highest options will be adopted where reasonably practicable, but usually a combination of options will be appropriate.

2.1.7 Waste will arise mainly from site clearance, excavation and construction activities. The scheme will require specific construction materials (such as concrete, asphalt and cabling) to be imported to the site. A Bill of Quantities (BoQ) should be developed during the detailed design stage to inform the full SWMP.

2.1.8 In addition, correct waste disposal procedures in accordance with the Waste Duty of Care provisions[2], are required. This will be achieved by ensuring that, wherever possible, existing materials at the site are re-used. Where waste cannot be re-used or recycled, it shall be disposed of in accordance with the relevant waste management regulations, for example, *Landfill Directive* (1999/31/EC) and Waste Acceptance Criteria procedures.

2.1.9 The contractor will be required to identify appropriately permitted facilities that can accept and treat the waste materials produced, in order to divert them from landfill. Table 3.3 and Table 3.4 identify suitable waste management facilities in close proximity to the scheme.

2.1.10 In order to ensure the appropriate reuse of the materials the earthworks should be carried out under a Materials Management Plan (MMP) in accordance with industry adopted guidance The Definition of Waste: Development Industry Code of Practice[3].

[2] Defra (2016) *Waste Duty of Care Code of Practice* [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/506917/waste-duty-care-code-practice-2016.pdf (last accessed May 2018).
[3] Contaminated Land Applications In Real Environments (CL:AIRE) (2011) *The Definition of Waste: Development Industry Code of Practice* [online] available at: https://www.claire.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dow-cop-main-document (last accessed May 2018).

2.2 Construction waste

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

- surplus construction materials as a result of over-ordering
- materials damaged on site or in transit
- hazardous materials
- packaging materials
- surplus construction, demolition and excavation materials
- canteen, accommodation and welfare wastes

Demolition materials

2.2.2 The demolition of 1 building, a derelict farm building, is foreseen to be necessary to the completion of the scheme. Where appropriate, aggregates produced from demolition should be segregated and re-used within the scheme as fill material.

Excavated soils

2.2.3 Soils will be stripped and either re-used as fill on site, or stockpiled to be used for landscaping purposes.

2.2.4 A cut and fill balance should be established for excavated material to maximise the re-use of site-won material and minimise off-site treatment or disposal, therefore reducing the cost.

2.2.5 Fill from the excavated cut areas will be reused on-site, in accordance with the appropriate specification for the material classification.

2.2.6 Any excavated materials should be carefully stored, if necessary, in segregated piles for subsequent re-use on the site. These excavated materials should be re-used as deposition material for infilling or landscaping.

2.2.7 All suitable excavated material would be re-used in the construction of the permanent works and in landscaping features, further reducing the requirement to import materials for construction and vastly reducing the need to remove surplus material from site.

2.2.8 The majority of excavated material from the western section of the scheme, between the Podimore tie in and Downhead, would be transported for re-use via the temporary bridge and southern haul route to the area of fill east of Howel Hill. Material from the cut operation between Downhead and Steart Hill would be relocated via the northern haul route to the embankment works associated with the Hazlegrove underpass. It is envisaged that this approach would best support a balanced cut to fill ratio resulting in minimal volumes of material having to be sent off-site.

2.2.9 Any surplus materials should be removed from site for either direct beneficial use elsewhere (such as land remediation projects) or recovery at an off-site facility. Surplus excavated materials including soils, gravels, clay and man-made fill can potentially generate significant implications on disposal costs if it cannot be re-used on site.

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

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

Vegetation

2.2.12 Any vegetation removed should be chipped and used for landscaping or sent for composting, if re-use is not possible.

Packaging

2.2.13 Any packaging waste should be segregated for recycling or returned to suppliers. If feasible, pre-fabricated material should be used and imported to site. In certain circumstances this will reduce the amount of packaging required and waste produced.

Hazardous waste

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

Unacceptable materials

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

Imported materials

2.2.16 Surplus or waste materials arise from either the materials imported to the site or those generated on-site. Imported materials are those which are brought on to the site for inclusion into the permanent works.

2.2.17 Where possible consideration should be made for the re-use of materials back into the scheme. However, the scheme would still require specific materials to be imported to site, for example, backfill to structures (granular fill) would be imported to site as no material meeting the required specification is expected to be won from within the site. On completion of the embankment construction and backfilling, the balance of the excavated material would be used to form the landscape fill areas to the designed profile. These areas would then be top soiled.

2.2.18 In addition, it is unlikely that suitable material for road construction would be available from site-won material, as such, sub-base and capping materials would need to be imported.

2.2.19 Any waste produced through the importation of materials, for example during the delivery and pouring of concrete, should be monitored and included in the SWMP under construction works. Where possible, the design should consider the use of materials with a higher recycled content such as concrete, for example for the base of any areas requiring concreting.

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

Fit out material

2.2.21 Final fit out of the scheme and other associated infrastructure, should be done in conjunction with the client and not to an assumed design specification, to minimise wastage of materials, such as paints and cables.

Temporary works

2.2.22 Three temporary site compounds would be established to support the construction of the scheme. This requires the removal of vegetation and will be overlain with a geotextile membrane prior to placement of temporary granular fill material imported to the site. Car parking and pedestrian areas would be bolstered with asphalt surfacing. On completion of the scheme, these compound areas would be reinstated, using topsoil removed for their construction, to their original condition, before being returned to the landowner or incorporated into the environmental mitigation proposals. Waste or material generated would be removed from site for recycling or re-use elsewhere.

2.2.23 In addition, the temporary works requires 2 off-line haul routes and 1 temporary bridge. Haul routes would be constructed from imported granular fill, placed on geotextile. Ground conditions would dictate the depth of fill required, however, the design of the temporary roads could incorporate geogrid or lime stabilisation methods to reduce the amount of granular fill required. On completion of the scheme, the temporary haul routes would be restored and the areas returned to

their original condition. Waste or material generated would be removed from site for recycling or re-use elsewhere.

2.3 Resource efficiency

2.3.1 Table 2.1 highlights some of the various resource efficiency measures for minimising waste during the site works, for a typical scheme of this type. The table shows the responsibilities apportioned to designated personnel to ensure the measures are undertaken. It demonstrates the components and decisions involved in ensuring a reduction in the amount of waste and surplus materials being produced during any works on site. This is intended to assist in minimising the amount of material which would traditionally be sent to landfill and to ensure compliance with the waste hierarchy.

2.3.2 Table 2.1 should be reviewed and updated accordingly by the contractor should there be changes to the design.

Table 2.1: Resource efficiency measures for the scheme

Planning waste minimisation during construction	Waste minimisation decisions taken	Resource saving	Responsibility[4]	Date action commenced
Design	Enabling the purchase of materials in shape or dimension and form that minimises the creation of off-cuts or waste. Ensure design considerations take into account the 5 principles for a resource efficient design: • design for reuse and recovery • design for off-site construction • design for materials optimisation • design for resource efficient procurement • design for deconstruction and flexibility (for the future)	Minimal waste produced. Materials that have to be ordered in should be done in accordance with the contract, this should be determined prior to the commencement of the works. Within the design stage, re-use and recycling of existing materials and structures will be taken into consideration.	Project Manager	From the design outset
Construction methods	Sequencing the works such that re-use of materials can be undertaken. The works consist of material excavation and filling, and new road, bridge and junction construction.	Minimal waste produced. Potential does exist for the made ground material produced from the excavation works to be re-used as infill.	Principal Contractor	From the design outset, continuing during design and planning stages, and implemented during the construction stage.
Materials	Assess the quantities of materials required on-site.	Reduces cost by ensuring only materials required for the scheme are purchased.	Principal Contractor	From the design outset, continuing during detailed design and throughout the procurement and construction stages of the scheme.
	Just in time delivery (as needed basis) to prevent over supply.	Prevents lost time in re-ordering of damaged equipment, reduces need for storage if over ordering occurs.		
	Secure storage to minimise the generation of damaged materials or theft.			
	Keeping deliveries packaged until they are ready to be used.			
	Inspection of deliveries on arrival.			
	Increase the use of recycled content; this could include traditional use of recovered material such as crushed concrete demolition waste and by	An increase in the demand for such products would reduce the quantity of waste going to landfill.		

[4] It is the responsibility of the client to appoint a principal contractor for the purposes of the SWMP, if one or more contractors are working on the scheme. If the scheme does not use a contractor, responsibility for updating the plan remains with the client.

Planning waste minimisation during construction	Waste minimisation decisions taken	Resource saving	Responsibility[4]	Date action commenced
	procuring mainstream manufactured products with higher recycled content than their peers. Quick win areas of the scheme in which to implement this for could be concrete frames, flooring and brick or block work.	Recycled material use results in a reduction in demand for extraction of virgin materials and subsequently the carbon and environmental footprint.		

2.3.3 It is anticipated that the contractor will endeavour to re-use or recycle materials on the scheme where possible.

2.3.4 Measures to facilitate resource efficiency throughout the scheme, and therefore to minimise waste production, are detailed in Table 2.2.

Table 2.2: Summary of proposed or recommended minimisation measures

Summary of proposed and recommended minimisation measures		
Use of prefabricated or pre-cast elements	Proposed	It is proposed that as much of the construction as possible will be carried out off-site, with steel girders, pre-fabricated units or bridge deck slabs or beams being delivered to site when required. Some elements of the design can be pre-fabricated off-site to minimise on-site waste arisings and associated vehicle movements. These pre-fabricated elements will generate less on-site waste through off-cuts and storage damage. Units should be sourced from a supplier that recycles off-cuts and materials at the pre-fabrication site otherwise this measure simply shifts the waste problem from one location to another.
Excavation	Proposed	Excavated materials including soils, gravels and man-made fill can potentially generate the largest quantities of all the waste streams with significant implications on disposal costs if it cannot be reused on site. It is proposed that excavated material where appropriate, will be stored for re-use as fill or landscaping material or reinstatement. This includes the re-use of stripped top soils.
Material re-use	Recommended or proposed	**Concrete / aggregates:** Any concrete taken up should be source segregated, for recycling either as fill or capping on-site or removed to an off-site facility. Aggregates from the demolition of the farm building should be re-used as fill material, where appropriate.
		Timber: Any timber taken down at the site shall, in the first instance, be re-used on site as landscaping material such as mulch or sent to a recycling facility and turned into features such as furniture or other high value timber products.
		Vegetation: Where vegetation such as trees and shrubs are to be removed to facilitate either the demolition or construction of the works, these should, where appropriate, be chipped and re-used within the landscaping of the scheme or sent for composting off-site. Minimise vegetation removal to save replanting and waste. Re-use vegetation to create biodiversity or ecological habitats or features or as soft edging around the drainage pond.
		Soils or excavated materials: Early management of earthworks to quantify appropriate move or use of earth (cut or fill). Re-use of soils on-site or on other locally identified developments.
Minimisation of contaminated land arisings	Recommended	Where possible contaminated material should be clearly identified and delineated prior to the works commencing to ensure only contaminated material is excavated. This material could be remediated and re-used on-site, or, if found to pose no risk to receptors (for example, groundwater and human health) should be left undisturbed. The latter can minimise potential transport and disposal costs. This approach should be standard practice among designers and contractors.

Summary of proposed and recommended minimisation measures		
Contractor targets	Recommended	The Principal Contractor should consider setting off-cut or surplus targets for sub-contractors with a positive incentive scheme for on-site waste champions. Good practice suggests that a maximum 3% wastage rate based on the total amount of construction material handled on site is achievable.
Avoiding over-purchasing and accurate delivery times	Recommended	Over-purchasing can lead to significant wastage and should be avoided in the first instance. Ensuring materials are ordered for delivery shortly before they are used on the scheme would also avoid possible damage and therefore wastage.
Use of take back schemes	Recommended	Some suppliers offer a take back scheme, which should be utilised where practicable, particularly for packaging and pallets.
Monitoring and review	Recommended	The Principal Contractor should use the waste data provided from the waste removed from the scheme and the periodic review process (required as part of the SWMP) to their advantage to assess whether the waste objectives are being met, and if not to review procedures to steer the scheme towards achieving them. This will require clear responsibilities to be identified, supported with authority and incentives to act on any deviations from the SWMP.
Education and awareness	Recommended	Waste minimisation must be underpinned by education and awareness throughout all levels of the project team, from the design team to site contractors who handle the construction materials. This could be via site inductions and frequent toolbox talks (included as part of health and safety updates) which all contractors and site workers will be expected to attend.
Consideration of end of life materials	Recommended	Consideration should be given to what will happen to the materials specified when they reach the end of their useful life. Where possible, elements should be designed for repair, modular repair, recycling at the end of life or safe disposal. The use of hazardous materials, in particular, should be minimised.

2.3.5 The tables in appendix A identify some recommended additional measures that should be considered and implemented, where appropriate, to ensure that the scheme is as resource efficient and cost effective as possible. It should be noted that this is not an exhaustive list. These are opportunities that were identified in a Design for Resource Efficiency workshop undertaken for the scheme, and should be reviewed and updated as the detailed design progresses.

2.4 Waste minimisation statement

2.4.1 The purpose of this outline SWMP is to inform the production of the full SWMP to ensure that it facilitates the principles of the waste hierarchy and to minimise the production of waste from the outset of the scheme. Such measures are to be incorporated into the design and implemented in the construction stage of the scheme. This is in addition to ensuring correct waste disposal procedures in accordance with the Waste Duty of Care provisions (see section 3.5). Where waste cannot be re-used or recycled, it shall be disposed of in accordance with the *Landfill Directive* (1999/31/EC) and Waste Acceptance Criteria procedures.

2.5 Initial review of anticipated waste arisings

2.5.1 Table 2.3 highlights the initial review to identify potential and expected waste arisings for a scheme of this type. The aim of this review is to identify the waste streams anticipated to be encountered during the scheme, and consider the possible management options for these materials (which would include identification of suitable local waste management or disposal sites that can accept the waste). This initial waste review considers the recycling and re-use potential of each waste stream anticipated, and identifies some indicative benchmark recycling targets, based on similar schemes, which could be used to steer the detailed SWMP as the scheme develops.

Table 2.3: Initial review of anticipated waste arisings

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Indicative recovery target[5]	Management options
Site clearance	Plants and shrubs Other vegetation	High	High	High	80%	Arisings removed from the scheme should be collected in skips or stockpiled on-site. If it cannot be re-used in the scheme, for example for landscaping, it will need to be sent off-site for processing. A local merchant facility would be the most practicable treatment solution. All waste must be pre-treated before it is sent for final disposal, whether this is segregation on-site or off-site at a transfer facility
Earthworks	Topsoil	Medium	High	High	90% - 100%	Topsoil has excellent potential for re-use opportunities in landscaping around the scheme. A Soil Management Plan should be developed to facilitate the re-use.
	Excavated natural ground	High	High	High	100%	Opportunities for the re-use of material as infill or as a base for any access routes should be explored. If the material is low grade subsoil, there is potential to re-use this as a landscaping or infill material prior to the laying of topsoil.
	Excavated man-made ground	Low	High	High	100%	Due to the properties of man-made fill, opportunities to re-use the material compared to natural or topsoil are more limited. However, re-use where possible within the scheme, for example infill or sub-base, or send off-site for recycling.
	Contaminated soil	Low / negligible	Low	Low	10%	All soil extracted (whether contaminated or not) should be stockpiled on-site and subject to laboratory analysis prior to re-use or removal to an off-site waste facility (following WAC testing if required), to identify whether the material can be re-used as fill material or will require landfilling at an appropriately permitted site. Contaminated soils may be considered for re-use if it is in accordance with the CL:AiRE CoP v2 and a risk assessment has been undertaken to ensure there is no environmental risk if it is re-used, and its re-use fits with the justification in the CL:AiRE CoP v2.

[5] Indicative recovery targets are subjective and based on targets achieved for similar schemes, benchmarking information, and the experience of the author. The contractor should review and revise this table based up on decisions made during the detailed design stage.

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Indicative recovery target[5]	Management options
Construction	Concrete, bricks and mortar, slates	Low	High	High	100%	This could potentially create waste through damage to bricks and blocks and spillages of cement and mortar. Any arisings should be contained in an appropriate skip to be sent for off-site reprocessing, where it cannot be re-used on site.
	Cables	Low	Low	Low	5%	Cables are likely to be used in the wiring of the electrical components, for example lighting and signalling. Off-cuts of cable will therefore be required to be disposed of. Avenues for recycling of cable are limited, even though the copper can be recovered. Any arisings should be contained in an appropriate skip to be sent for off-site for reprocessing or disposal.
	Bitumen road surface	Low	High	High	80%	Through careful ordering of materials, it is likely that there would be very little (if any) waste generated from road surfacing activities. Any excess road-surfacing material should be reworked into a re-usable form to enable use on future highway construction schemes. Excavated road material should be re-used in the scheme, where appropriate, either processed into a 'foambase' or hydraulically bind and re-lay, in accordance with the required specifications.
	Concrete drainage pipes, kerbs and walls	Low	High	High	100%	Small quantities may arise, although pre-casting of the components prior to arrival on the site would reduce wastage in the first place. Any arisings should be placed in a skip and sent to a local recycling facility or crushed and subsequently reused on these or other schemes.
	Lighting columns, posts, signage etc	Low	Medium	High	75%	Although such ancillary equipment has a low re-use potential due to the design of the junction, there is a strong potential for recovery off-site.
	Liquid waste	High	Low	Low	0%	Limited options to recover waste arising from chlorinated water for flushing out systems. Disposal of liquids from temporary welfare facilities should be undertaken by a licensed contractor. Disposal of liquid wastes down surface water drains may cause water pollution, which if it occurs is a strict liability offence and can lead to expensive clean-up costs and enforcement action

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Indicative recovery target[5]	Management options
						being undertaken. Ensure only clean, uncontaminated surface water is discharged to surface water drains. Permission to discharge to foul sewer should be obtained from the relevant sewerage undertaker. All contaminated liquids should be stored in appropriately designed containers, with secondary containment systems in place and sent for disposal or treatment.
	Hazardous waste (paints, resins, oils etc.)	Low	Medium	Medium	50%	These waste streams should be segregated from other waste streams and stored in appropriately designed and secure bunded storage areas or cupboards for subsequent identification and removal for treatment off-site at a hazardous waste facility.
General site waste	Packaging waste (plastics, wood, film, metal and cardboard	Low	Low	Medium	50%	This waste would predominantly consist of plastic sheeting, shrink-wrap, wooden pallets, metal strips (binding). Segregate each waste stream into colour-coded skips and remove off-site to an appropriate local facility for recycling. Opportunities should be explored for supplier packaging take back schemes.
	Canteen waste (comprising of food waste but also mixed waste)	Low	Medium	Medium	50%	Likely to comprise food waste and non-recyclable materials. Consideration should be given for providing separate bins for the collection of food waste, newspapers and non-recyclable materials. Food waste can be sent to an in-vessel composting facility, whilst non-recyclable (residual) waste will require landfilling or send the non-recyclable waste to an energy-from-waste (EfW) facility.
	Welfare facilities waste (sewage sludge)	Medium	Low	Low	0%	Limited options to recover waste arising from on-site welfare facilities. Sewage sludge from the toilet facilities will be pumped out and sent to an appropriately permitted treatment plant. Other wastes, such as paper towels,. are likely to require landfilling or send to an EfW facility.
	Office waste (paper, cardboard,	Low	Medium	Medium	50%	Likely to comprise paper, cardboard, metal cans and plastic bottles. All materials can be recycled. Offices should be

Activity	Anticipated waste stream	Anticipated volume	Recovery potential	Overall priority for recovery	Indicative recovery target[5]	Management options
	plastics and non-recyclable)					equipped with bins to segregate each waste stream for collection and future recycling off-site.

3 Waste Management

3.1 Segregation

3.1.1 A designated area should be laid out and labelled to facilitate the separation of materials for potential recycling, salvage, re-use and return. Recycling and waste bins are to be kept clean and clearly marked to avoid contamination of materials. Skips for segregation of waste currently identified include:

- Inert (for example, inert plastics, concrete and rubble)
- Hazardous (for example, contaminated land, Japanese Knotweed if identified)
- Mixed non-hazardous (non-biodegradable waste)
- Mixed non-hazardous (biodegradable waste)
- Metal (for example, copper and iron, mixed ferrous and non-ferrous)
- Wood (for example, fencing / hoarding, worktops, doors, frames etc)
- Waste Electronic and Electrical Equipment (WEEE): WEEE should be handled in conjunction with measures outlined within the WEEE Regulations 2006 (as amended)
- Canteen, office or welfare waste

3.1.2 The scheme will accord with the *Waste (England and Wales) Regulations 2011*, as amended, in particular the requirements in respect to the Duty of Care requirements.

3.1.3 It is essential that the excavation and construction work is carried out closely with the waste management contractors, to determine the best techniques for managing waste and to ensure a high level of recovery of materials for re-use or recycling.

3.1.4 Successful recycling and re-use relies upon early planning, identification of clear responsibility, and provision of space within a compound for segregation and storage.

3.1.5 Discussions are required between the client and Principal Contractor to identify space requirements within the compounds to accommodate skips and storage of reusable materials.

3.1.6 Waste management options should be supported by the identification of appropriately permitted waste treatment and recycling facilities in close proximity to the scheme. Table 3.3 and Table 3.4 identifies potentially suitable facilities for waste management.

Colour coding

3.1.7 The use of different coloured skips (or sufficiently clear labelling) to ensure that construction workers are clear about where to put each type of waste will help to

reduce the level of contamination in the skips. This also increases the likelihood that a load would not be rejected once the waste stream has been sent off-site for reprocessing. In cases where the load is rejected, the likely destination would be landfill (which would increase the costs to the scheme).

3.2 Reuse of construction materials

3.2.1 Excavation and site clearance activities have the potential to generate a significant quantity of waste arisings. The classification of waste material from the site should be undertaken in accordance with Part II, Regulation 7 of the *Landfill Regulations 2002* (as amended). Uncontaminated material, where identified, should be re-used where possible within the proposed works for site levelling and fill.

3.2.2 If applicable, surplus inert excavated materials with some engineering strength (for example, stone, bricks, clay, rubble, rock) could be suitable for beneficial use in land reclamation projects. This may require compliance with the criteria and thresholds of certain exemptions (for example, U1 or U11 may be applicable) or permits under the *Environmental Permitting Regulations 2010* (as amended). The CL:AIRE *Definition of Waste Code of Practice*[6] (CL:AIRE CoP) may also be applicable for the re-use of this material. Any chosen option would need to meet current legislative requirements. The material could be re-used in other schemes in the surrounding area, if one were proceeding at the same time, to avoid disposal at landfill and its associated impacts and costs, but will need to meet current legislative requirements.

3.3 Waste disposal characterisation

3.3.1 Under Part II, Regulation 7 of the *Landfill (England and Wales) Regulations 2002* (as amended), waste is classified as either inert, non-hazardous, or hazardous. Hazardous waste cannot be re-used on site under an exemption and may require additional treatment prior to disposal. The exception is contaminated soil re-used in accordance with an approved MMP produced under the CL:AIRE CoP.

3.3.2 Furthermore, there is a statutory requirement under the *Landfill Directive* (1999/31/EC as amended) to pre-treat any waste (including hazardous waste) prior to disposal off-site. Pre-treatment may reduce the cost of disposal by rendering the waste non-hazardous. Responsibility for the basic classification of waste rests with the producer and landfill operator.

3.4 Forecasting the planning, reduction and reuse of waste

3.4.1 The following section details expected waste arisings from the scheme. Table 3.1 and Table 3.2 detail those types of waste expected to arise from enabling, demolition and construction works, and segregate the approximate amounts of

[6] CL:AIRE (2013) *Definition of Waste: Code of Practice* [online] available at: https://www.claire.co.uk/projects-and-initiatives/dow-cop (last accessed May 2018).

waste into different waste streams. The overall aim is to prevent cross-contamination of waste types and to maximise re-use and recycling opportunities.

3.4.2 Material quantities, where provided, are intended to present an approximate guide for efficient waste management best practice; the contractor should independently verify the quantities of waste materials likely to be produced during the works. Waste quantities specified within the outline SWMP are also subject to programme and design change.

3.4.3 It should be noted that at this stage, limited information is held regarding the scheme and the likely construction activities. The information in this outline SWMP is based on information from other documents, publicly available data and professional judgement relating to predicted construction and operational effects. Information has been estimated from the preliminary design drawings of the scheme, for input into the Mott MacDonald Carbon Portal and Highways England carbon tool, and this information has been used to provide estimated waste quantities. The site clearance has been calculated as 530,377m^2 which has been assumed from the scheme area within the red line boundary. The wastes identified at this stage, from this area is shown in Table 3.1 below.

3.4.4 Estimated quantities of materials for scheme construction have been produced for the elements of the scheme that have been designed at this stage. However, waste for construction has not yet been calculated. The outline SWMP should be updated upon receiving this information.

Table 3.1: Estimation of waste, enabling and demolition works (including excavation) (To be completed by the Design team and Contractor prior to construction commencing)

Type	Materials	Forecast estimated quantities (m^3)	On-site reuse / recycling (%)	Recovery (%)	Disposal (%)
Inert	Concrete	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Rubble	TBC	TBC	TBC	TBC
	Subsoils	TBC	95%	5%	TBC
	Sand and gravel (made ground)	TBC	TBC	TBC	TBC
	Boulder clay	TBC	TBC	TBC	TBC
Non-hazardous	Soils (moderate contamination-suitable for reuse onsite)	TBC	TBC	TBC	TBC
	Topsoil	117,251	100%	TBC	TBC
	Bricks and blocks	TBC	TBC	TBC	TBC
	Mixed waste	TBC	TBC	TBC	TBC
	Metal	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Plasterboard	TBC	TBC	TBC	TBC
	Packaging	TBC	TBC	TBC	TBC
	Cable & wiring	TBC	TBC	TBC	TBC
	Glass	TBC	TBC	TBC	TBC
	Green waste / vegetation	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC
Hazardous	Asbestos	TBC	TBC	TBC	TBC
	Contaminated soils- unsuitable for reuse	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC

Table 3.2: Estimation of waste, construction works (To be completed by the Design team and Contractor prior to construction commencing)

Type	Materials	Forecast estimated quantities (tonnes/m^3)	On-site reuse / recycling (%)	Recovery (%)	Disposal (%)
Inert	Concrete	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Rubble	TBC	TBC	TBC	TBC
	Subsoils	TBC	TBC	TBC	TBC
Non-hazardous	Soils (moderate contamination-suitable for reuse onsite)	TBC	TBC	TBC	TBC
	Topsoil	TBC	TBC	TBC	TBC
	Bricks and blocks	TBC	TBC	TBC	TBC
	Mixed waste	TBC	TBC	TBC	TBC
	Metal	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Plasterboard	TBC	TBC	TBC	TBC
	Packaging	TBC	TBC	TBC	TBC
	Cable & wiring	TBC	TBC	TBC	TBC
	Glass	TBC	TBC	TBC	TBC
	Green waste / vegetation	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC
Hazardous	Toxic chemicals for example, paint tins, line markers, mastic	TBC	TBC	TBC	TBC
	Contaminated soils- unsuitable for reuse	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC

3.5 Treatment and disposal options

3.5.1 The appointed waste contractor for the site should contact the relevant treatment or transfer facilities, or the Environment Agency directly to determine the most appropriate waste management facility to handle the waste material that is generated. The transfer station will then send the waste off for final disposal at an appropriate landfill site.

3.5.2 As stated in section 3.3, the *Landfill (England and Wales) Regulations 2002* (as amended) requires that disposal sites are classified into one of three categories dependent on the chemical composition of the material; these are hazardous, non-hazardous and inert. EU Waste Acceptance Criteria (WAC) are in place to control the nature of hazardous waste that can be sent to landfill. For hazardous wastes there are numerical limit values covering substances in granular wastes, monolithic wastes, and stable non-reactive hazardous wastes (SNRHW). The limit values are set out in the *Landfill (England and Wales) (Amendment) Regulations 2004* and the *Landfill (England and Wales) (Amendment) Regulations 2005*.

3.5.3 Certain waste streams must be analysed prior to disposal to confirm whether they are inert, hazardous or non-hazardous. Then the material may require WAC testing prior to disposal. Landfill WAC results must not be used for waste classification purposes.

3.5.4 WAC testing is not required for all types of waste, and therefore an appropriately qualified person should develop a testing regime as required prior to waste disposal, to prevent abortive work.

3.5.5 For excavated materials that are confirmed to be suitable for re-use within the scheme without causing harm to human health or the environment, there are several re-use and recycling opportunities. These include infill, bunding and landscaping, or for construction or maintenance of attenuation ponds, roads, pavements, footings for gates, fences and poles.

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

3.5.7 Table 3.3 highlights a number of waste transfer stations, soil treatment facilities and other treatment facilities that are within 10 kilometres of the scheme (BA22 8HT (Podimore) and BA22 7LH (Sparkford)).

Table 3.3: Waste sites – waste transfer stations and other sites (these are examples of suitable waste facilities close to the scheme -)

Site name	Operator	Post Code	Category*	Distance (km)**
Podimore Transfer Station	Somerset County Council	BA22 8JG	A11 - HCI Waste Transfer Station SR / 12 - Treatment of waste to produce soil <75,000 tpy	2 - 8
Dimmer Recovery Facility	Viridor Waste (Somerset) Ltd	BA7 7NR	A22 - Composting Facility	4
Tout Quarry	S Morris Limited	TA11 7AN	S1539 - Use of waste in a deposit for recovery operation	4 – 7.5
Bearley Farm	Walters Family	BA22 8PE	S1539 - Use of waste in a deposit for recovery operation	5.5
Pen Mill Trading Estate Scrap Yard	W & S Waste Management Ltd	BA21 5HA	A20 - Metal recycling facility	6
Ash View Farm	Ashley Beaton	TA11 7DS	S1539 - Use of waste in a deposit for recovery operation SR / 12 - Treatment of waste to produce soil <75,000 tpy	6
Artillery Road Transfer Station	Y P H Waste Management Ltd	BA22 8RP	S0807 - 75kte HCI Waste TS + treatment + asbestos	7
Hole 17 Yeovil Golf Club	Mike Lock Construction Ltd	BA21 5BW	A25 - Deposit of waste to land as a recovery operation	8
Evercreech Junction Recycling Depot	Kier Integrated Services Ltd	BA4 6NA	A11 - HCI Waste Transfer Station A25 - Deposit of waste to land as a recovery operation	9
Whiscombe Hill Transfer Station	Westcombe Waste Management Ltd	TA11 6HY	A11 - HCI Waste Transfer Station	10
Southwood Waste Transfer Station	Commercial Recycling (Southern) Ltd	BA4 6LX	A11 - HCI Waste Transfer Station	10
Sherborne Golf Course	Hopkins Development Ltd	DT9 4RN	A25 - Deposit of waste to land as a recovery operation	10

Notes: * These categories are based upon Environment Agency definitions. Any site may accept inert waste, and it would be left to the contractor to identify appropriately permitted sites for treatment and disposal of waste materials. Consideration should be given to the waste hierarchy with the reuse and recycling of waste before material is sent to landfill sites.

** Distance for waste facilities and landfills is a road distance measured from postcodes BA22 8HT (Podimore) and BA22 7LH (Sparkford) to the postcode given for the identified facility.

Source: Environment Agency Public Registers[7,8]

[7] Environment Agency (2018) Public Registers [online] available at: https://environment.data.gov.uk/public-register/waste-operations/registration?easting=361409&northing=127517&name-search=&number-search=&local-authority=&address-search=&__postcode=BA22+7LH&dist=10 (last accessed May 2018).

[8] Environment Agency (2018) Public Registers [online] available at: https://environment.data.gov.uk/public-register/waste-operations/registration?easting=354726&northing=123801&name-search=&number-search=&local-authority=&address-search=&__postcode=BA22+8HT&dist=10 (last accessed May 2018).

3.5.8 Table 3.4 includes operational disposal facilities within 20 kilometres of the scheme (BA22 8HT (Podimore) and BA22 7LH (Sparkford)).

Table 3.4: Waste sites – landfill (these are examples of suitable waste facilities close to the scheme)

Site name	Type*	Post Code	Status	Distance (km)**
Dimmer Landfill PPC Permit	A06 - Landfill taking other wastes	BA7 7NR	To PPC	4
Southmead Farm Landfill Site	A06 - Landfill taking other wastes	TA11 6EW	Issued	6
Witcombe Lane Landfill Site	A06 - Landfill taking other wastes		Issued	7
Bearly Farm	A05 - Landfill taking Non-Biodegradeable Wastes	BA22 8PE	Issued	8 - 16
Landfill and Treatment Site on Land Adjacent to Woodhouse Farm, Montacute	A05 - Landfill taking Non-Biodegradeable Wastes	TA15 6XL	Issued	8.5
Whiscombe Hill Transfer Station & Landfill	L04 – Non-Hazardous Landfill	TA11 6HY	Transferred	10

Notes: * These categories are based upon Environment Agency definitions. Any site may accept inert waste, and it would be left to the contractor to identify appropriately permitted sites for treatment and disposal of waste materials. Consideration should be given to the waste hierarchy with the reuse and recycling of waste before material is sent to landfill sites.
** Distance for waste facilities and landfills is a road distance measured from postcodes BA22 8HT (Podimore) and BA22 7LH (Sparkford) to the postcode given for the identified facility.

Source: Environment Agency (2018)[9] https://data.gov.uk/dataset/1683346b-abf9-4712-ba84-02871a318212/environmental-permitting-regulations-waste-sites

Duty of Care compliance

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

3.5.10 The *Waste (England and Wales) Regulations 2011*, as amended, explains the duties which apply to anyone who produces, keeps, imports or manages controlled waste in England and Wales.

3.5.11 One purpose of a SWMP is to incorporate an auditable system that:

- identifies the person responsible for removing the waste from site
- keeps copies of all duty of care documentation (waste transfer notes and hazardous waste consignment notes)

[9] Environment Agency (2018) *Environmental Permitting Regulations – Waste Sites* [online] available at: https://data.gov.uk/dataset/1683346b-abf9-4712-ba84-02871a318212/environmental-permitting-regulations-waste-sites (last accessed May 2018).

- is in accordance with the relevant Duty of Care legislation in place

3.5.12 Table 4.1 and Table 4.3 assist with the information required to meet the Duty of Care requirements. All reputable waste contractors will have systems in place to ensure that all the Duty of Care requirements are met prior to the waste being collected.

3.5.13 Various information sources are available to enable the Principal Contractor to identify local waste management facilities for both recycling, recovery and disposal and check permit and waste carrier licence information to reinforce the duty of care requirements.

Declaration

3.5.14 The client and Principal Contractor will take all reasonable steps to ensure that:

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

Signatures: Client: Principal Contractor:	Date: Date: Date:

Responsibility for waste management

3.5.16 Table 3.5 identifies the primary waste streams that will arise from the activities at the site and whose responsibility it is to control and monitor the amounts of waste produced.

Table 3.5: Assigned responsibility for waste management (To be completed and updated by Contractor at start of construction)

Site activity / Sub-contractor work package	Primary waste stream	Who is responsible for waste management
Excavation and site clearance	TBC	TBC
Groundworks	TBC	TBC
Foundations, Piling	TBC	TBC
Structure	TBC	TBC
Brick & Blockwork	TBC	TBC
Mechanical Electrical	TBC	TBC
Trades- (Joinery, Painting, Plastering, Rendering, Plumbing, Heating etc)	TBC	TBC

Site activity / Sub-contractor work package	Primary waste stream	Who is responsible for waste management
Removal of Site Offices, Temporary Works & Final Clear Away	TBC	TBC

3.6 Waste storage and transportation logistics

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

3.7 Site security

3.7.1 Both the client and principal contractor should take reasonable steps to ensure site security measures are in place to prevent illegal disposal of waste at the site.

4 Implementation of the SWMP

4.1 Register of waste carrier licences and permits

4.1.1 Table 4.1 gives information on the waste management contractors, their environmental permit, waste carriers licences or relevant exemptions that will need to be checked and verified for use on the scheme.

4.1.2 The *Landfill Regulations (2002)* also require that waste is described by European Waste Catalogue (EWC) codes on Transfer Notes (and Consignment Notes if waste is hazardous) required under the applicable Duty of Care regulations. The EWC categorises wastes into 20 main groups and approximately 900 codes. The EWC also identifies hazardous wastes, and these wastes are dealt with by the *Hazardous Waste Regulations 2005* (as amended). These wastes should be appropriately described on Hazardous Waste Consignment Notes.

Table 4.1: Register of waste carriers and permits (To be revised, completed and updated by the contractor during scheme construction)

EWC waste description	EWC*	Origin	Waste Carrier			Permit	
			Name	Licence number	Expiry date	Name	Licence number
Concrete	17 01 01	From excavation of made ground known to be uncontaminated					
Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances	17 01 06 (M)**	From demolition of buildings					
Mixtures of concrete, bricks, tiles and ceramics other than those in 17 01 06	17 01 07	From demolition of buildings					
Wood	17 02 01	From demolition of buildings					
Glass	17 02 02	From demolition of buildings					
Plastic	17 02 03	From demolition of buildings					
Glass, plastic and wood containing or contaminated with dangerous substances	17 02 04 (M)	From demolition of buildings					

EWC waste description	EWC*	Origin	Waste Carrier			Permit	
			Name	Licence number	Expiry date	Name	Licence number
Cables containing oil, coal tar and other dangerous substances	17 04 10 (M)	Installation of replacement cables, including off cuts					
Cables other than those mentioned in 17 04 10	17 04 11	Installation of replacement cables, including off cuts					
Soil and stones containing dangerous substances	17 05 03 (M)	From excavation of Made Ground known to be contaminated					
Soils and stones other than those mentioned in 17 05 03	17 05 04	From excavation of Made Ground known to be uncontaminated					
Other construction and demolition wastes (including mixed wastes) containing dangerous substances	17 09 03 (M)	From excavation of Made Ground known to be contaminated					
Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	17 09 04	Site construction waste.					

EWC waste description	EWC*	Origin	Waste Carrier			Permit	
			Name	Licence number	Expiry date	Name	Licence number
Paper and card	20 01 01	Packaging materials, site office waste					
Mixed municipal waste	20 03 01	General site waste					
Mixed construction and demolition waste	17 09 04	From excavation of Made Ground known to be uncontaminated					
Bituminous mixtures containing coal tar	17 03 01 (M)	From excavation of Made Ground and potential historical contamination					
Bituminous mixtures other than those in 17 03 01	17 03 02	From excavation of Made Ground known to be uncontaminated					
Waste of liquid fuels, fuel oil and diesel	13 07 01 (A)***	General leaks from vehicle movements, construction equipment					
Petrol	13 07 02 (A)	General leaks from vehicle movements					
Other fuels including mixtures	13 07 03 (A)	General leaks from vehicle movements					
Waste paint and varnish containing organic solvents or other dangerous substances	08 01 11 (M)	Paint wastage from new road layout and bridge protection					

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

Notes: *EWC code transposed into UK law by Lists of Wastes Regulations 2005, as amended and pursuant to Article 1(a) of Directive 75/442/EEC on waste and Article 1 (4) of Directive 91/689/EEC on hazardous wastes. EWC codes may vary depending on the actual waste types identified and removed from site.

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

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

4.2 Training and communication

4.2.1 To develop a culture of promoting best practice and increase knowledge and awareness of waste management issues at site, the SWMP, as well as the procedures to be followed, should be given to all contractors and subcontractors during the site induction and key measures should reinforced in tool box talks. Tool box talks should be carried out every month on waste issues and all subcontractors should be expected to attend. Attendance should be recorded in the relevant training logs. It is hoped that these values can be transferred from this site to the next, promoting adoption of sustainable waste management practices on a wider scale.

4.3 Monitoring and waste records

4.3.1 The Principal Contractor should receive a waste transfer note from the waste disposal company showing the exact amount of waste materials removed from site. This sheet should also identify how much material was sent to landfill and how much was sent for recycling (Table 4.2).

4.3.2 All skips must be monitored to ensure that cross-contamination of segregated skips does not occur. The ‘tool box’ talks should focus on how the waste management system is working and identify the extra costs associated with contamination.

4.3.3 The Principal Contractor should continually review the type of surplus materials being produced and change the site set up to maximise on-site re-use or recycling; landfill will be the last option.

4.3.4 The main SWMP should be included as an agenda item at the weekly construction meetings. In addition, the plan should be communicated to the whole team (including the client) at the monthly meetings. This should include any updates from the last version.

Table 4.2: Waste management records (to be completed and updated by Principal Contractor during scheme construction)*

Date removed	Waste type	Identity of the person removing the waste	Site the waste is being taken to and whether licensed or exempt	Waste carrier and registration number*	Confirmation of delivery*	Waste management route (reuse on / offsite, recycled on / offsite, recovery, landfill, other

Notes: * Evidence of waste carrier registration and waste transfer or hazardous waste consignment notes for each removal of waste are filed and cross-referenced.

4.4 SWMP implementation checklist

4.4.1 Table 4.3 is a checklist which is should be filled out by the Principal Contractor to ensure the SWMP is fully implemented from the outset of the scheme. Further actions required to accompany the checklist should be identified in Table 4.4.

Table 4.3: Implementation checklist (to be revised and completed by the Contractor for the main SWMP)

Checks (please tick)	Y	N
Have terms and commercial rates been agreed with the waste management contractor(s)?		
Have data reporting procedures been agreed with waste management contractor(s)?		
For offsite waste management or disposal- Are all the waste destination details correct?		
Has a waste segregation / collection area been prepared?		
Has the waste management area been adequately sign posted?		
Has the SWMP planning meeting been set?		
Has the waste management document control / filing system been set up?		
Have all necessary staff and contractors read and signed the SWMP?		
Have all the SWMP training / briefing requirements for staff been met?		
Have all the SWMP training / briefing requirements for contractor(s) been met?		
Have all the waste management targets been set?		
Has the SWMP been approved by the Project Manager?		

Table 4.4: Further actions (to be revised and completed by the Contractor for the main SWMP)

Comments / Further Actions:	
1. Excavated material to be tested for contamination prior to re-use and / or disposal	
2. Waste Contractor to be assigned	
3. Storage areas for excavated material to be decided upon	
4. Frequency of waste removal from the site to external storage areas or waste transfer station to be decided upon	
5.	
6.	
7.	

4.5 Updating the SWMP

4.5.1 It is recommended that the plan is updated as often as necessary to record accurate information on progress, and whenever changes occur on-site or relating to materials, or at least every six months if there is little change during the scheme.

4.5.2 Updates to the main SWMP should give a current picture of how work is progressing against the waste estimates contained in the plan. Therefore, for waste that is re-used or recycled on-site, the SWMP should be updated to describe how much of the estimated volume or tonnage has been processed. For waste that is removed from the site, the SWMP must be updated to record the

identity of the person removing the waste, the type (and quantity) of waste and the site to which it has been taken.

4.5.3 Whenever waste is removed from the site the principal contractor should record the actions in Table 4.2. Revisions to the SWMP should be recorded in Table 4.5.

Table 4.5: SWMP revisions record (To be updated, by the Contractor, as the Scheme progresses through the different phases and the SWMP requires updating)

Nature of revision	Date of revision	Author of revision

5 Review and audit of SWMP

5.1 Post-construction review

5.1.1 This aim of this section of the outline SWMP is to inform the production of the full SWMP to ensure that a post construction review takes place, designed to identify that the SWMP has been monitored throughout the lifetime of the scheme and then signed off at its closure (see Table 5.1).

5.1.2 At the end of the construction of the scheme, it is recommended that both the client and Principal Contractor review, revise and refine the SWMP as necessary within 2 months of completion, to ensure compliance with relevant legislation and to identify if lessons could be learned for future similar schemes. This review should identify and may conclude the following:

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

Table 5.1: Post construction confirmation (To be completed by the Contractor and Client up on completion of the project)

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

5.2 Audit of plan

5.2.1 A waste audit should be undertaken at all stages of the scheme. This will identify the amount, nature and composition of the waste generated on site. The waste audit will examine the manner in which the waste is produced and will provide opportunity for a commentary to highlight how the management and practices inherently contribute to the production of construction and demolition waste. The measured waste quantities will be used to quantify the costs of waste management and disposal.

5.2.2 The audit plan should be updated as the scheme progresses, as this will help to identify which waste streams are not achieving their anticipated recycling

potential so that alternative methods to handle that waste stream can be explored for the remainder of the scheme.

5.3 Audit of plan – estimated versus actual quantities

5.3.1 Table 5.2 and Table 5.3 detail the actual enabling and construction waste streams and quantities resulting from the scheme and how they should be treated, such as on-site or off-site recycling or re-use, final disposal.

5.3.2 Table 5.4 records the deviation between those waste quantities estimated and actual. An estimate of cost savings is also made here.

Table 5.2: Enabling / demolition waste (actuals) (To be completed by the Contractor as the enabling and demolition works progress and presents actual waste quantities produced by the Scheme construction)

Type	Materials	Actual quantities (tonnes/m^3)	On-site reuse/recycling (%)	Recovery (%)	Disposal (%)
Inert	Concrete	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Rubble	TBC	TBC	TBC	TBC
	Topsoil / Subsoils	TBC	TBC	TBC	TBC
	Sand and gravel	TBC	TBC	TBC	TBC
	Boulder clay	TBC	TBC	TBC	TBC
Non-hazardous	Soils (moderate contamination- suitable for reuse onsite)	TBC	TBC	TBC	TBC
	Bricks and blocks	TBC	TBC	TBC	TBC
	Mixed waste	TBC	TBC	TBC	TBC
	Metal	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Plasterboard	TBC	TBC	TBC	TBC
	Packaging	TBC	TBC	TBC	TBC
	Cable & wiring	TBC	TBC	TBC	TBC
	Glass	TBC	TBC	TBC	TBC
	Green waste / vegetation	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC
Hazardous	Asbestos	TBC	TBC	TBC	TBC
	Contaminated soils- unsuitable for reuse	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC

Table 5.3: Construction waste (actuals) (To be completed by the Contractor as the construction of the Scheme progresses and presents actual waste quantities produced during construction)

Type	Materials	Actual quantities (m^3)	On-site reuse / recycling (%)	Recovery (%)	Disposal (%)
Inert	Concrete	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Rubble	TBC	TBC	TBC	TBC
	Topsoil / Subsoils	TBC	TBC	TBC	TBC
Non-hazardous	Soils (moderate contamination-suitable for reuse onsite)	TBC	TBC	TBC	TBC
	Bricks and blocks	TBC	TBC	TBC	TBC
	Screed	TBC	TBC	TBC	TBC
	Mixed waste	TBC	TBC	TBC	TBC
	Metal	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Plasterboard	TBC	TBC	TBC	TBC
	Packaging	TBC	TBC	TBC	TBC
	Cable & wiring	TBC	TBC	TBC	TBC
	Glass	TBC	TBC	TBC	TBC
	Green waste / vegetation	TBC	TBC	TBC	TBC
	her (List, identified by type, name, EWC)	TBC	TBC	TBC	TBC
Hazardous	Toxic chemicals for example, paint tins, line markers, mastic	TBC	TBC	TBC	TBC
	Contaminated soils- unsuitable for reuse	TBC	TBC	TBC	TBC
	Other (List, identified by type, name, EWC)	TBC	TBC	TBC	TBC

5.3.3 Table 5.4 records the deviation between those waste quantities estimated and actual. An estimate of cost savings is also made here.

Table 5.4: Deviations (To be completed after construction is completed and a review of forecast and actual waste quantities has been undertaken and any cost savings recorded)

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

5.4 Estimate of cost savings

[Enter]

5.5 Relevant signatures

Principal Contractor: [Enter] **Date:** [Enter]

Client: [Enter] **Date:** [Enter]

outline SWMP Author: Anita Manns **Date:** June 2018

Appendix A: Design for Resource Efficiency opportunities

[To the design team or contractor – in the comment column (below) add any further information required explaining the opportunity or idea, whether it is included in the design, or specific technical considerations required]

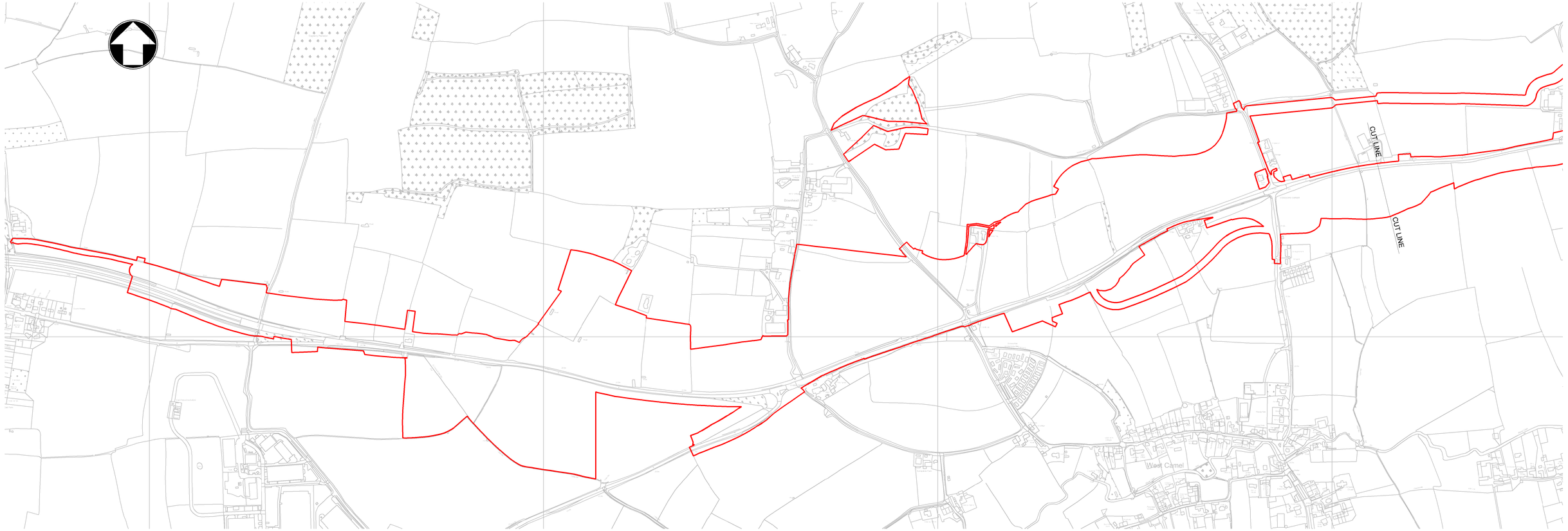
Category A High impact on resource efficiency, easy to implement	**Comment**
Include Podimore roundabout in the Scheme rather than two separate schemes.	Determined to be unsuitable.
Electric charging points	Determined to be unsuitable.
Pipe surround material reduced. Full / partial surround.	
Pre-cast solutions: - Central reservation barrier - Chambers	
Acoustic fences sourced from sustainable materials	
Re-use existing signs	
Remove junctions and local connections	Determined to be unsuitable.
Use of passive posts removing the need for Vehicle Restraint Systems	
Use materials with high recycled content	
Discussions with local quarries to use materials and borrow pits	Contractor to investigate
Use locally sourced top soil and plants	Contractor to investigate
Chip green waste onsite and use in landscaping - currently not enough cut and fill to cover landscape requirements	Contractor to investigate
Reuse materials from existing road (where the road will be altered)	Contractor to investigate
Plant species that require little maintenance / Use of native low maintenance species	
Soil stabilisation for the pavement base	Contractor to investigate
Future proof for automated vehicles	Determined to be unsuitable.
Concrete barrier for the VRS	Determined to be unsuitable.
Provision of land for future highway use	Determined to be unsuitable.
Use of species that can absorb and retain more carbon	
Use of recycled materials - car tyres in / as flood bunds	
Combine biodiversity connections with NMU crossings - green bridges	
Reduce length of pipe runs and make use of the surface water channels	
Local community and farming involvement in maintenance	
Minimise the number of new assets	Determined to be unsuitable.
Reuse all waste materials on site	Determined to be unsuitable.
Include ERAs now	Determined to be unsuitable.

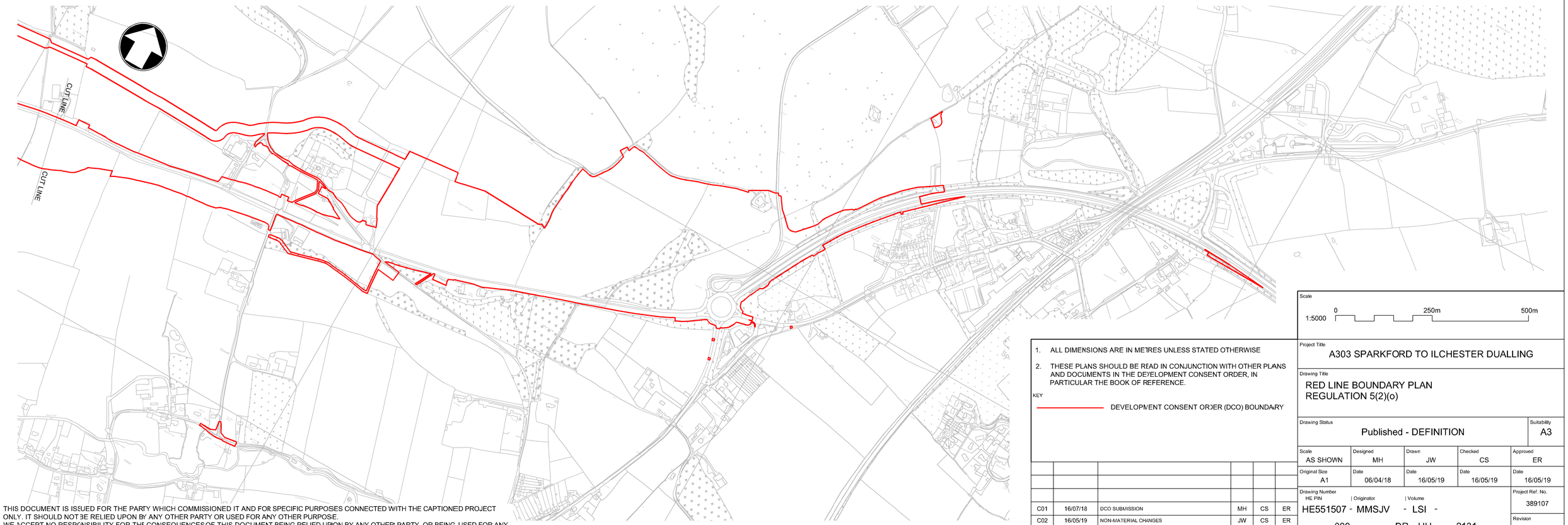
Category B High impact on resource efficiency, difficult to implement	**Comment**
Natural drainage (SuDS)	
Change working practices - get rid of peak hour work (regard to traffic flows)	
Campaign to try and smooth peak tourist traffic flow during construction	
Discussion with local developments to see if materials can be used	Contractor to investigate
Import / export fill not virgin material	Contractor to investigate
Close A303 for construction period reducing the length	Determined to be unsuitable
Promote / introduce TDM (Travel Demand Management)	Determined to be unsuitable
Balance / Minimal earthworks	
EA / HE combined scheme. Combine construction programme efficiency - materials / resourcing	
Automated traffic monitoring	Contractor to investigate
Reduce carriageway width and number of lanes	Determined to be unsuitable
Additional carriageway to carry traffic	Determined to be unsuitable
Use of glass as embankment and subsurface road material	Contractor to investigate
Reduce amount of paint needed for markings	
Use electric construction vehicles	Contractor to investigate
Reduce / no lighting on scheme even at junctions (including Hazlegrove)	

Category C Low impact on resource efficiency, easy to implement	**Comment**
Planting for felling - combined purpose of screening and felling in partnership with FC	

Category D Low impact on resource efficiency, difficult to implement	**Comment**
Cycle lane across length of scheme and more NMU bridges to encourage reduction of car usage	Determined to be unsuitable
Solar powered road surface	Contractor to investigate
Collect free energy from all vehicles that use the dual carriageway (technology capable to absorb energy through pressure)	Contractor to investigate
Astroturf or equivalents	

Appendix B: Red line boundary of the scheme





1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE
2. THESE PLANS SHOULD BE READ IN CONJUNCTION WITH OTHER PLANS AND DOCUMENTS IN THE DEVELOPMENT CONSENT ORDER, IN PARTICULAR THE BOOK OF REFERENCE.

KEY

DEVELOPMENT CONSENT ORDER (DCO) BOUNDARY

Scale
1:5000 — 0 — 250m — 500m

Project Title
A303 SPARKFORD TO ILCHESTER DUALLING

Drawing Title
RED LINE BOUNDARY PLAN
REGULATION 5(2)(o)

Drawing Status: Published - DEFINITION
Suitability: A3

Scale	Designed	Drawn	Checked	Approved
AS SHOWN	MH	JW	CS	ER
Original Size	Date	Date	Date	Date
A1	06/04/18	16/05/19	16/05/19	16/05/19

Drawing Number: HE PIN | Originator | Volume
HE551507 - MMSJV - LSI -
000 - DR - UU - 2131
Location | Type | Role | Number

Project Ref. No.: 389107
Revision: C02

REV.	DATE	AMENDMENT DETAILS	ORIG	CHK'D	APP'D
C01	16/07/18	DCO SUBMISSION	MH	CS	ER
C02	16/05/19	NON-MATERIAL CHANGES	JW	CS	ER

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B.2 Outline Materials Management Plan

A303 Sparkford to Ilchester Dualling

Outline Materials Management Plan (MMP)

HE551507-MMSJV-EGT-000-RP-LP-0005

Date: April 2019

Table of Contents

1 Introduction

1.1 Overview of the scheme

Existing corridor

1.1.1 The A303 forms part of Highways England's Strategic Road Network (SRN) and a strategic link between the south west and the rest of the south, south-east and London. The route comprises multiple road standards, including dual carriageway, single carriageway and single carriageway sections with overtaking lanes. Speed limits also vary between 40 miles per hour and 70 miles per hour, depending on the character of the road and its surroundings.

Existing road

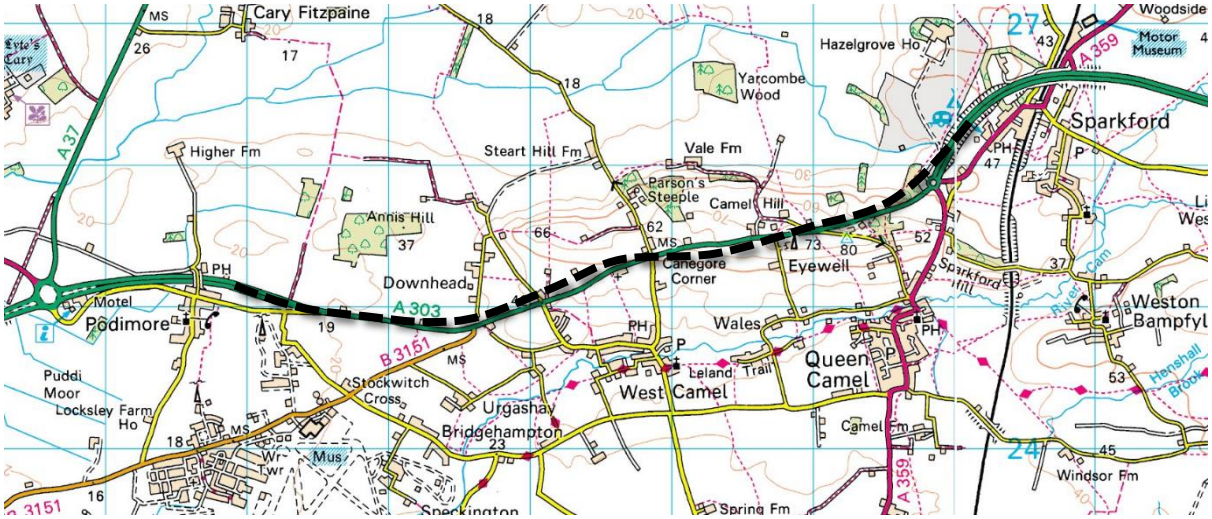
1.1.2 The section of the A303 that is being upgraded as part of this scheme commences at the eastern limits of the existing dual carriageway, the Podimore Bypass. Travelling east, the corridor reaches the junction with the B3151 before bearing north east and rising upwards through Canegore Corner to reach the crest of Camel Hill at Eyewell. This section of the corridor is characterised by a single lane road, with double white lines negating overtaking and subject to a 50 miles per hour speed limit. There are several priority junctions along the route giving access to the settlements of Queen Camel and West Camel to the south and Downhead to the north, as well as several farm accesses and parking laybys.

1.1.3 From the crest of Camel Hill, the corridor descends to meet the roundabout at the western limit of the dual carriageway Sparkford Bypass (Hazlegrove Roundabout). This section comprises 2 lanes in the westbound direction, 1 lane in the eastbound direction and is also subject to a 50 miles per hour speed limit. Hazlegrove Roundabout forms a junction between the A303 and the A359 which runs south through Queen Camel and north-east through Sparkford. The roundabout also provides access to a service station, and to a school at Hazlegrove House.

1.1.4 The section of the A303 that is to be upgraded is almost 3.5 miles, or approximately 5.6 kilometres long.

1.1.5 The extents of the scheme are illustrated in Figure 1.1 below. Appendix A shows the proposed red line boundary for the scheme.

Figure 1.1:Scheme extents



Source: Mott MacDonald Sweco Joint Venture

Scheme proposals

1.1.6 The proposed scheme is to provide a continuous dual-carriageway linking the Podimore Bypass and the Sparkford Bypass. The scheme would involve the removal of at-grade junctions and direct accesses. The Hazlegrove Junction would be constructed to grade-separated standards and Downhead Junction and Camel Cross Junction would be constructed to compact grade-separated standards, as illustrated on ***Figure 2.3 General Arrangement Plans*** of the ***Environmental Statement (APP-102).***

1.1.7 A detailed description of the scheme is provided within ***Chapter 2 The Proposed Scheme*** of the ***Environmental Statement (APP-039***) and ***Chapter 2 The Proposed Scheme*** of the ***Environmental Statement Addendum (OD-010)***.

1.2 Purpose of this Outline MMP

1.2.1 Mott MacDonald Sweco Joint Venture on behalf of Highways England has developed this Outline Materials Management Plan (MMP) as part of its commitment to minimise waste generated by seeking ways to reuse site-won / excavated materials within the construction of the scheme provided it meets the requirements of the CL:AIRE Code of Practice (CoP)[1].

1.3 Scope of this Outline MMP

1.3.1 This Outline MMP has been produced to act as a **live document** and would be populated following receipt of:

- Development Consent Order (DCO) and associated regulatory consultation.

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

- Intrusive GI factual reporting.
- Detailed geotechnical design.
- Contaminated land risk assessment and the formation of a Remediation Strategy / Design Statement.
- Detailed earthworks design / cut-fill balance.

1.3.2 Where additional information is required to be included at a later stage, this is indicated as red text within the report.

1.3.3 Appendices C to J would be produced by the contractor.

1.4 References and definitions

1.4.1 The references used within this Outline MMP are provided within Table 1.1 and the definitions within Table 1.2.

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

Table 1.1: References

Ref	Title	Document No.
1	CL:AIRE (March 2011) The Definition of Waste: Development Industry Code of Practice, Version 2	Not applicable
2	Revised *Waste Framework Directive* 2008/98/EC	Not applicable
3		
4		
5		
6		
7		
8		
9		
10		

Table 1.2: Definitions

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

2 Materials Management Plan

2.1 Background

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

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

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

2.1.3 The production of the MMP will demonstrate that the above factors have been considered in line with the CL:AIRE Code of Practice (CoP)[1].

2.1.4 At the current time, this Outline MMP is assumed to relate to the DoW CoP Scenario 1 – reuse on the site of origin, however this would need to be confirmed following the receipt of the items listed in paragraph 1.2.1.

2.2 Form

2.2.1 The form below follows the MMP proforma (dated October 2014) provided by CL:AIRE. The answers to the questions posed within this form, together with the supporting documentation would constitute the MMP and must be provided to the Qualified Person.

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

2.2.3 The answers to the questions posed within this form, together with the supporting information will constitute the MMP and must be provided to the Qualified Person.

2.2.4 A Qualified Person may comment on draft versions of this MMP, but would not complete the Declaration until receipt of all the relevant documents, demonstrating lines of evidence have been provided for the scheme.

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

[Below form to be completed prior to construction]

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

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

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

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

☐ 1. Reuse on the Site of Origin
☐ 2. Direct Transfer of clean naturally occurring soil / mineral materials
☐ 3. Cluster Project
☐ 4. Combination of any of the above

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

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

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

Document Control

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

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

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

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

Site Details

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

Landowners

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

Summary and Objectives

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

General Plans and Schematics

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

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

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

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

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

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

details and waste carriers registration details (if applicable).	

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

12a. For the site where materials are to be reused and for Hub Site locations provide Environment Agency contact details (full address and named contacts):	
For all Cluster Projects: 12b. Attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection to the proposals (see 3.37 of DoW CoP). If the EA has not been consulted please explain why (see paragraph 3.39 of the DoW CoP).	EA references:

Lines of Evidence

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

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

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

Suitable for Use Criteria

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

Where contamination is suspected or known to be present 14a. Please provide copies of or relevant extracts from the risk assessment(s) that has been used to determine the specification for use on the site. ***This must relate to the place where materials are to be used.*** This must be in terms of (i) human health (ii) controlled waters and (iii) any other relevant receptors. If a risk assessment is not relevant for a particular receptor given the site setting please explain why below:	Document Reference(s):
14b. Please attach any relevant documentation from the LA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP).	LA Document references:
14c. Please attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 and Table 2 of the CoP).	EA Document references:
14d. Please attach any relevant documentation from any other regulators (if relevant) relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP).	Document Reference(s):

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

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

Certainty of Use

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

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

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

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

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

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

Quantity of Use

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

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

Contingency Arrangements

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

21a. What is to happen to, and who is to pay for out of specification materials?	Reference:
21b. What is to happen to, and who is to pay for any excess materials?	Reference:
21c. What happens if the project programme slips in relation to excavated materials or materials under -going treatment?	Reference:
21d. Other identified risk scenarios for the project (relating to excavated materials)?	Reference:

The Tracking System

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

22a. For all sites please describe the tracking system to be employed to monitor materials movements.	
Where contamination is suspected or known to be present, state the procedures put in place to: 22b. Prevent contaminants not suitable for the treatment process being accepted	

Where contamination is suspected or known to be present, state the procedures put in place to: 22c. Prevent cross contamination of materials not in need of treatment, wastes awaiting treatment and treated materials	
Where contamination is suspected or known to be present, state the procedures put in place to: 22d. Demonstrate that materials that do not require treatment and successfully treated materials reach their specific destination.	
Where contamination is suspected or known to be present, state the procedures put in place to: 22e. Ensure that waste for off-site disposal or treatment is properly characterised and goes to the correct facility.	

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

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

Records

25. Where, and in what form, are records to be kept? Note – records for example, transfer notes, delivery tickets, Desk Top Study, Site Investigation, Risk Assessment(s), Verification Report(s)	

need to be kept for at least 2 years after the completion of the works and production of the Verification Report.	

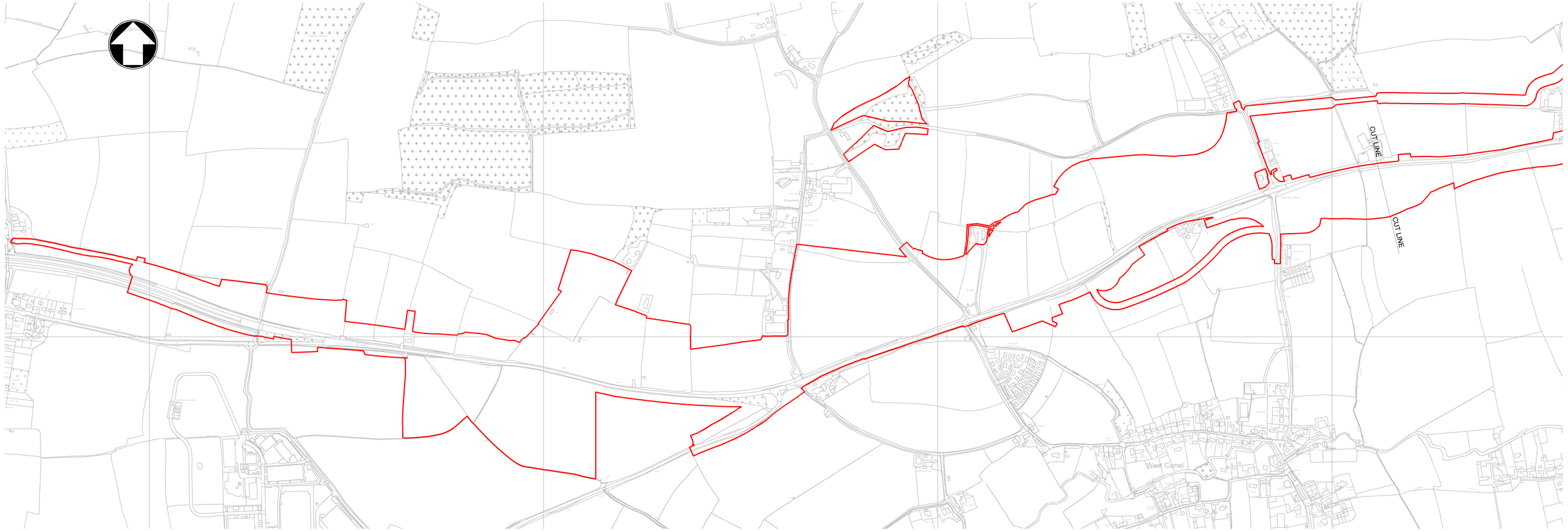
Verification Plan

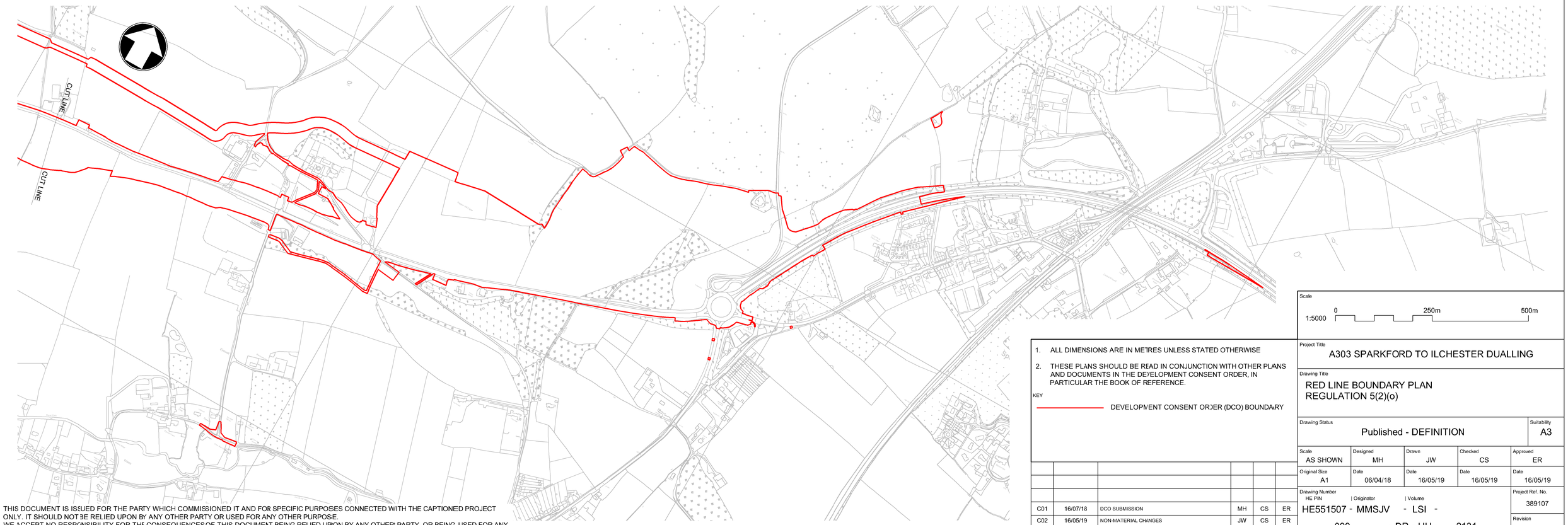
26. Provide or explain the Verification Plan which sets out how you will record the placement of materials and prove that excavated materials have been reused in the correct location and in the correct quantities within the development works (see 3.4 of the DoW CoP).	Document Reference

Appendix A: Drawings

The scheme red line boundary is shown overleaf.

[Additional drawings to be produced by the contractor]





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Appendix B: Materials movement schedules

[To be produced by the contractor]

Appendix C: Evidence of no objection by regulators

[To be produced by the contractor]

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

[To be produced by the contractor]

Appendix E: Remediation strategy

[To be produced following analysis of GI results]

Appendix F: Earthworks estimated volumes

[To be produced by the contractor]

Appendix G: Example tracking sheets

[To be produced by the contractor]

Appendix H: Organogram

[To be produced by the contractor]

Appendix I: Out of specification material

[To be produced by the contractor]

B.3 Outline Soils Management Plan

A303 Sparkford to Ilchester Dualling

Outline Soils Management Plan

HE551507-MMSJV-EGT-000-RP-LP-0006

Date: April 2019

Table of Contents

1 Introduction

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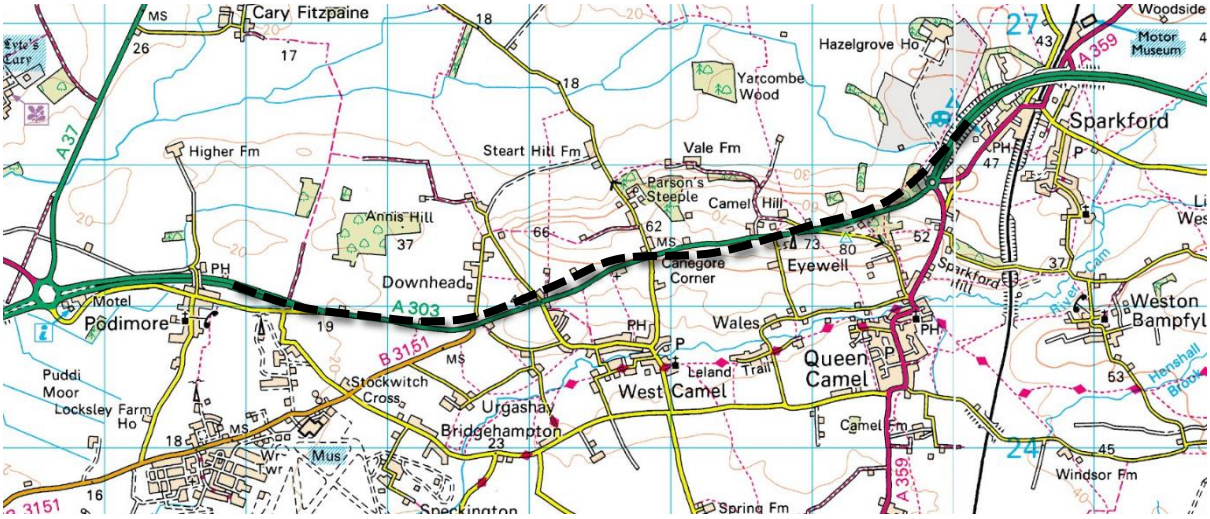

Source: Mott MacDonald Sweco Joint Venture

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1.2.2 A detailed description of the scheme is provided within ***Chapter 2 The Proposed Scheme*** of the ***Environmental Statement (APP-039)*** and ***Chapter 2 The Proposed Scheme*** of the ***Environmental Statement Addendum (OD-010)***.

1.3 Scope and purpose of work

1.3.1 This Soils Management Plan (SMP) is to be used as a **live document** throughout the development of the scheme.

1.3.2 This document presents the Outline SMP for land affected by permanent and temporary works associated with the scheme. It provides an overview of the baseline soil and environmental conditions at the site and immediate surroundings, along with detailing the best practice methods and guidance for soil management on-site.

1.3.3 The scope is as follows:

- Review available information to ascertain the soil and environmental baseline conditions at the site.

- Identify any relevant project works and activities that may be relevant to soil on-site for the project.
- Identify the likely soil resources that would be encountered.
- Provide recommendations and guidance on the protection, handling, storage, and reinstatement of soil on-site, in accordance with the Department for Environment, Food, and Rural Affairs' (Defra) Construction Code of Practice (CoP) for the Sustainable Use of Soils on Construction Sites[1].

1.3.4 The purpose of the outline SMP for this scheme is to:

- Set out how soils are to be managed in accordance with Defra's CoP.
- Ensure the quality of soil resources won from the site is maintained during construction so that they remain suitable for re-use.
- Ensure agricultural land used temporarily during construction is restored satisfactorily and avoid incurring compensation claims from landowners.

1.3.5 The Defra CoP is a "*practical guide to assist anyone involved in the construction industry to protect the soil resources with which they work*". The Defra CoP is not legislatively binding, but Defra claims that soil resources on-site can be protected and enhanced, and the cost savings, wider sustainability objectives and legal obligations regarding waste controls can be achieved through following it. A SMP "*should be produced on all construction sites where re-usable reserves of topsoil and/or subsoil have been identified by the Soil Resource Survey*".

1.3.6 This outline SMP aims to inform the reader of the following in-line with current understanding:

- Approximate area of soil to be protected from earthworks and construction activities.
- Approximate volumes of topsoil and subsoil to be stripped from the development area, construction compounds, haul routes, and their stockpile locations.
- Methods for stripping, stockpiling, re-spreading and ameliorating landscape soils.

1.4 Summary of soils specific construction activities

1.4.1 For full details of construction activities please refer to the construction strategy detailed in section 2.5 of ***Chapter 2 The Proposed Scheme*** of the

[1] Department for Environment, Food, and Rural Affairs 2009. *Construction Code of Practice for the Sustainable use of Soils on Construction Sites*. Defra: London.

Environmental Statement (APP-039) and ***Chapter 2 The Proposed Scheme*** of the ***Environmental Statement Addendum (OD-010).***

1.4.2 A summary of activities impacting upon scheme soils is provided in sections 1.4.3 to 1.4.27 below.

Land use requirements during construction and operation

1.4.3 The extent of land use requirements during construction are anticipated to be a total of 117 hectares. Once the scheme is operational, the land requirements are anticipated to be a total of 84 hectares.

Temporary works to facilitate the construction of the scheme

Site compounds and storage areas

1.4.4 Temporary site compounds would be established to support the construction operations. These would generally comprise mobile portacabin office units, welfare facilities, storage areas for construction materials, maintenance areas and parking areas for the workforce.

1.4.5 The temporary site compounds would be prepared by the removal of vegetation and overlaying with geotextile membrane prior to placement of temporary granular fill material. Car parking and pedestrian areas would be bolstered with asphalt surfacing. On completion of the scheme, these compound areas would be restored to their original condition, before being returned to the landowner or incorporated into the environmental mitigation proposals.

1.4.6 Four compound and temporary storage areas associated with the construction of the scheme have been identified as described below.

Main site compound

1.4.7 An area of land to the south of the existing A303 and to the north of the B3151 has been identified as the optimum location for the main site compound. A new access point to the proposed main site compound would be constructed from the existing A303.

1.4.8 The main site compound would facilitate the storage of construction plant and materials. Earthworks material storage would be located elsewhere on site, however, topsoil removed in the construction of the main site compound would be stored locally in bunds and reused, once construction is complete and the compound facilities removed, to return the land back to its original use.

Additional compounds

1.4.9 In addition to the main site compound, 2 supplementary compound location areas have been identified to facilitate the works. These smaller compound

areas identified would include a limited number of mobile cabins, welfare, material storage and temporary works areas.

1.4.10 A structures compound would be created to facilitate construction of the Downhead overbridge. This compound would be located to the northwest of the new overbridge with access via a new opening from Steart Hill.

1.4.11 A satellite compound at Hazlegrove has also been identified as an area of land required to facilitate both the construction of Hazlegrove underpass and remodelling of Hazlegrove Roundabout.

Temporary haul routes

1.4.12 The temporary works requirements for the scheme include two off-line haul routes and one temporary bridge. These features are fundamental to the earthworks strategy in facilitating the transportation of excavated material from the western section of the site to the east during construction.

1.4.13 Typically, the haul routes would be 12 metres wide to allow for the efficient running of dump trucks, with a further 3 metres required alongside the route for the temporary storage of topsoil. Haul routes would be constructed from imported granular fill, placed on geotextile. Ground conditions would dictate the depth of fill required, however, the design of the temporary roads could incorporate geogrid or lime stabilisation methods to reduce the amount of granular fill required. On completion of the scheme, the temporary haul routes would be restored and the areas returned to their original condition.

1.4.14 The proposed northern haul route, between Steart Hill and Camel Hill, would be approximately 2 kilometres in length. The route would begin at Steart Hill and follow a course to the south of Steart Wood. From here, the route would head in the direction of Pepper Hill Copse before returning to the earthworks footprint west of Hazlegrove underpass.

1.4.15 The southern haul route would sit between Plowage Lane and Howell Hill and link the temporary bridge to the embankment construction east of Howell Hill.

Temporary bridge

1.4.16 The incorporation of a temporary pre-engineered modular steel bridge system spanning the existing A303 would provide the means for excavated material from the north of the existing road to be transported to the south directly, negating any reliance on local road networks. The temporary bridge would be positioned west of the Downhead overbridge roundabout beyond the extent of the proposed permanent works.

Construction

Site clearance

1.4.17 Site clearance would commence in each area following the completion of any required ecological translocation activities identified during pre-construction surveys and in accordance with the Construction Environmental Management Plan (CEMP) developed during the construction planning phase. Areas of vegetation clearance and top soil strip would be limited to that which is necessary for the construction of the scheme and would be phased to minimise the areas of exposed ground at any given time to reduce the potential risk for runoff.

1.4.18 Topsoil and earthworks storage areas have been identified along the length of the scheme. These locations have been strategically positioned to support efficiency in relation to programme and environmental objectives. Due consideration would be given to the arrangements identified in the water pollution risk assessment and final permanent works design.

Earthworks strategy

1.4.19 Haul routes would be used for the majority of earth moving operations.

1.4.20 Soils would be stripped using a combination of excavators, dump trucks and graders and would be transported directly to areas of fill or to temporary topsoil stockpile locations.

1.4.21 Fill from the excavated cut areas would be removed by articulated dump truck and placed using conventional earthworks plant, comprising bulldozers and compaction plant (compactors and vibrating rollers) which would place the material in layers in accordance with the appropriate specification for the material classification.

1.4.22 All suitable excavated material would be re-used in the construction of the permanent works and in landscaping features, further reducing the requirement to import materials for construction and vastly reducing the need to remove surplus material from site.

1.4.23 Backfill to structures (granular fill) would be imported to site as no material meeting the required specification is expected to be won from within the site. On completion of the areas for embankment construction and backfilling, the balance of the excavated material would be used to form the landscape fill areas to the designed profile. These areas would then be top soiled.

Outline Environmental Management Plan

1.4.24 This document forms an appendix to the ***Outline Environmental Management Plan (OEMP) (APP-148)***.

Site Waste Management Plan

1.4.25 The generation and handling of waste materials from the construction phase is an important aspect of the environmental assessment and environmental control and management during construction. So as to ensure compliance with legislative requirements in relation to the management of waste, and to demonstrate their Duty of Care, the appointed Contractor would be required to produce and implement a detailed Site Waste Management Plan (SWMP) for the construction phase of the scheme. An ***Outline Site Waste Management Plan (SWMP)*** has been produced which is contained in ***Annex B.1 of the OEMP (APP-148)***.

1.5 Limitations

1.5.1 This Outline SMP has been produced to act as a live document and should be updated with site-specific data following receipt of:

- Development Consent Order (DCO) and associated regulatory consultation.
- Intrusive Soil Resource Survey (SRS) data and reporting.
- Detailed geotechnical design (following completion of intrusive GI – currently ongoing).
- Contaminated land risk assessment and the formation of a Remediation Strategy / Design Statement.
- Detailed earthworks design/cut-fill balance.

1.5.2 It should be noted that an intrusive SRS has not yet been undertaken and therefore information presented within this document has been obtained from a review of readily available published information and previous reporting making this this document is generic in nature. However, an intrusive SRS would be completed prior to construction at which point this Outline SMP can be updated.

1.5.3 This document has been prepared for the A303 Sparkford to Ilchester Dualling scheme and should not be relied upon or used for any other scheme without an independent check being carried out as to its suitability and prior written authority of Highway England being obtained. Highways England accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purpose for which it was commissioned. Any person using or relying on the document for such other purposes agrees, and will by such use or reliance be taken to confirm his agreement to indemnify Highways England for all loss or damage resulting there from. Highways England accepts

no responsibility or liability for this document to any party other than the person by whom it was commissioned.

2 Requirements

2.1 Summary of soils specific mitigation

2.1.1 The ***Environmental Statement*** produced for the scheme provides information on the effects of construction for the site of the proposed scheme and the wider area along with associated mitigation measures. Effects and mitigation measures specifically relating to the management of scheme soils are summarised in Table 2.1.

Table 2.1: Summary of soil specific effects and mitigation measures

Reference	Effects and mitigation measures
Chapter 9 Geology and Soils of the ***Environmental Statement (APP-046).***	Effects: Site construction may lead to the permanent removal of high quality agricultural soils or topsoil / subsoil material. In addition, soil deterioration and consolidation may occur due to poor storage and handling or due to vehicle movements and loading, leading to adverse effects. Contaminated soils may be encountered. Excess soils and superficial materials may be generated. Mitigation: • Valuable site topsoils and subsoils would be stripped first, segregated and stockpiled appropriately for reinstatement or re-use across the site and later where possible. Where re-use on-site is not possible for all soils, alternative sites for re-use in close proximity would be prioritised. Appropriate procedures would be incorporated into a Soil Management Plan (SMP) within the CEMP. • The inclusion of a SMP within the CEMP would ensure works are undertaken in accordance with appropriate guidelines such as Defra's CoP[1] and BS3882: 2015"Specification for Topsoil"[2] particularly in areas where reinstatement of agricultural land would be required. • Where importation of topsoil is required for spreading on areas of newly constructed earthworks, this would be selected in accordance with BS 3882:2015 to ensure that the topsoil provides suitable substrates for native plant species and to maximise biodiversity, in accordance with industry best practice. • Removal / remediation of any areas of contaminated soils identified following intrusive GI, contaminate land risk assessment and the production of a Remediation Strategy. • Appropriate mass balance calculations, a robust Materials Management Plan (MMP), a Site Waste Management Plan (SWMP) and compliance with the CL:AIRE document 'The Definition of Waste: Development Industry Code of Practice' would help to maximise the re-use of suitable resources while minimising waste generated.
Chapter 12 People and Communities of the ***Environmental Statement (APP-049) and Chapter 12 People and Communities*** of the ***Environmental Statement Addendum (OD-010).***	Effects: Construction effects for the scheme represent a worst case Major Adverse impact on Medium value Grade 3 agricultural land and a Minor Adverse magnitude of impact on High value Grade 2 agricultural land. This represents both a temporary and permanent worst-case Moderate Adverse and significant effect on agricultural land. The scheme would result in direct impacts to individual farm businesses, with some temporary and permanent changes to business practices required as a result of land loss, severance and changes to access. Mitigation: In areas of land which would be temporarily acquired, soils would be managed in accordance with Defra CoP[1], whilst a Soil Handling and Management Plan would be followed which would include details of how agricultural land would be restored at the end of construction.

[2] British Standards Institution. 2015. BS 3882:2015 *Specification for topsoil*. BSI: London

Reference	Effects and mitigation measures
Chapter 10 Material Assets and Waste of the ***Environmental Statement (APP-047).***	Effect: Production of soils from site clearance. Mitigation: • Excavated soils considered suitable for re-use would be re-used on-site, for example in the landscaping. • Any surplus soils unsuitable for re-use would be sent off site for treatment and re-use/recycling.

2.2 Best practice and standards

Guidance

2.2.1 The main guidance and best practice which this document follows is Defra's CoP[1]. Stated within Defra's CoP: '*although there is various existing guidance on the care and use of soil for supporting the soft landscaping of construction projects, there is no overarching guidance on soil use and management at each stage of the construction process*'.

British Standards

2.2.2 British Standard BS3882:2015[2] '*specifies requirements for the classification and composition of natural and manufactured topsoils that are moved or traded for creating soil profiles intended to support plant growth. The standard is not applicable to subsoil, or to topsoil that is to remain in situ, however, it is not intended to preclude the use of topsoil that is already on site and suitable for its intended purpose*.'

2.2.3 British Standard BS8601:2013[3] specifies requirements for the classification and composition of natural and manufactured subsoils that are moved or traded for creating soil profiles intended to support plant growth. The standard is not applicable to topsoil, or to subsoil that is to remain in situ, however, it is not intended to preclude the use of topsoil that is already on site and suitable for its intended purpose (on- and off-site).

2.2.4 These British Standards are invoked when soil is moved or traded, such as when sold off-site, in which case soils must meet the specified acceptability criteria to be shown to be fit for purpose. They also outline best practice methods of soil management which are the same as those included in Defra's CoP[1].

[3] British Standards Institution. 2013. BS 8601:2013 *Specification for subsoil and requirements for use*. BSI: London

3 Environmental baseline

3.1.1 Throughout this section, reference is made to baseline soils features located within or immediately adjacent to the scheme red line boundary. Sheets 1 and 2 contained within ***Figure 9.1 Baseline Information Used to Inform the Geology and Soils Assessment*** of the ***Environmental Statement (APP-127)*** and the individual farm maps included within ***Appendix 12.4 Agricultural Impact Assessment Baseline Report*** of the ***Environmental Statement (APP-096)*** and the ***Agricultural Impact Assessment Baseline Report Technical Note*** in the ***Environmental Statement Addendum Appendix A (OD-011)*** which visually display the location of the majority of features discussed in this section in relation to the scheme and current baseline mapping.

3.1.2 Where features are discussed in relation to a specific distance along the scheme (the scheme 'chainage', which is measured and referenced in metres), please make reference to figures included as part of ***Chapter 2 The Proposed Scheme*** of the ***Environmental Statement (APP-039)*** and ***Chapter 2 The Proposed Scheme*** of the ***Environmental Statement Addendum (OD-010)***.

3.2 Sources of information

3.2.1 Sources of information used in this chapter include previous reporting that has been prepared as the scheme has been developed, historical and geological mapping and other data sources as referenced in the footnotes.

3.2.2 Key existing reports are detailed below:

- ***Appendix 9.1 Preliminary Sources Study Report (PSSR)*** of the ***Environmental Statement (APP-087)***. This report was prepared in accordance with Highways England's geotechnical reporting requirements presented in HD22/08 (Volume 4 of the DMRB)[4] and includes a desk based review of geological mapping and memoirs along with the review of information from a large number of historic reports available from the HAGDMS website.
- A Landmark Envirocheck Report included as Appendix B within ***Appendix 9.1 PSSR*** of the ***Environmental Statement (APP-087)***.
- ***Appendix 9.2 Annex A to PSSR*** of the ***Environmental Statement (APP-088)*** produced to be read in conjunction with the ***Appendix 9.1 PSSR*** of the ***Environmental Statement (APP-087)***.

[4]Design Manual for Roads and Bridges Volume 4, Section 1 Part 2 [online] available at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol4/section1/hd2208.pdf (last accessed March 2018).

3.3 Geological setting

Superficial deposits

3.3.1 British Geological Survey (BGS) mapping[5,6] indicates superficial deposits are limited in their distribution across the red line boundary area. While Alluvium (clay, silt, sand and gravel) is present approximately 1 kilometre to the north of the existing A303 at its closest, BGS boreholes record alluvium (as well as Taele Gravel) at approximate chainage 1,200 metres.

3.3.2 A small area of River Terrace Deposits (sand and gravel) is shown 500 metres west of Sparkford on BGS mapping and underlies an area within the scheme redline boundary to be used as an ecological mitigation area, as depicted on ***Figure A2.4 Environmental Masterplan*** of the ***Environmental Statement Addendum Appendix B (OD-012)***. River Terrace Deposits are also indicated to be present at Podimore, although not directly beneath the proposed scheme alignment.

Solid geology

3.3.3 BGS mapping[7,and 8], indicates the area is principally underlain by the Langport Member, Blue Lias Formation and the Charmouth Mudstone Formation (undifferentiated), of the Lias Group (previously referred to as the Lower Lias). According to ***Appendix 9.1 PSSR*** of the ***Environmental Statement (APP-087)***:

- The Langport Member: A series of tough cream and buff calcite mudstones with thin interbedded pale grey and buff marls anticipated to be approximately 6.4 metres in thickness at Sparkford.
- Blue Lias: An interbedded sequence of grey and blue-grey limestones and mudstones / shales, anticipated to be approximately 7.6 metres in thickness at Camel Hill.

[5] British Geological Survey (1973) Geological Survey of England and Wales 1:63, 360/1:500,000 geological map series, New Series p(Sheet number 296 – Glastonbury), 1:50,000 scale, Solid and Drift [online] available at: http://www.bgs.ac.uk/data/maps/maps.cfc?method=viewRecord&mapId=10187 (last accessed March 2018).
[6] British Geological Survey (2017) Online viewer – bedrock and superficial geology and borehole search functions [online] available at: http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html (last accessed March 2018)
[7] British Geological Survey (1973) Geological Survey of England and Wales 1:63, 360/1:500,000 geological map series, New Series p(Sheet number 296 – Glastonbury), 1:50,000 scale, Solid and Drift [online] available at: http://www.bgs.ac.uk/data/maps/maps.cfc?method=viewRecord&mapId=10187 (last accessed March 2018).
[8] British Geological Survey (2017) Online viewer – bedrock and superficial geology and borehole search functions [online] available at: http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html (last accessed March 2018).

3.3.4 The BGS[9] note that much of the Lias has high pyrite and sulphate content. Lias clays are also prone to swelling and shrinking associated with smectite content.

3.3.5 In the vicinity of Camel Hill, the existing A303 (and proposed scheme) is crossed by a small inlier of undifferentiated interbedded mudstone and limestone of the Westbury Formation and the Cotham Member of the Penarth Group.

Previous ground investigation data

3.3.6 A number of historical ground investigations (GI) have been completed in the area, broadly located along the scheme alignment (see the ***Appendix 9.1 PSSR*** of the ***Environmental Statement (APP-087)*** for further information).

3.3.7 The relevant exploratory boreholes located along the route of the existing A303 provide information on the local ground conditions as summarised in Table 3.1. However, it should be noted that these are restricted to the westbound carriageway of the proposed alignment and additional intrusive GI (currently ongoing) would provide confirmation for the eastbound section of the route.

Table 3.1: Previous GI data summary

Chainage	Soil and Superficial Geology Data	Bedrock data
0 - 2,000 metres	Thin layer of topsoil up to 0.5m thick. Superficial deposits not reported.	Underlain by firm to very stiff, grey clay. Some layers contain calcareous shells and concretions, occasional thin beds of slightly laminated mudstone (considered to be the Lias Group).
2,000 – 3,500 metres	Topsoil around 0.3m thick. Underlain by variable thicknesses of sand and gravel superficial deposits (River Terrace Deposits).	Rockhead is recorded at a maximum of 8m below ground level (bgl) with stiff to very hard, grey, silty sometimes shelly clay.
3,500 – 5,000 metres	Not reported. Thin layer of superficial deposits present to a max depth of 1.45m bgl, generally described as brown sand and gravel. To the south of the road up to 1m thick River Terrace Deposits of gravel are recorded.	Blue Lias Formation (limestone) proven to 15m bgl.
5,000 – 6,000 metres	Approximately 0.3m thickness of topsoil. Occasionally underlain by River Terrace Deposits of gravel to a maximum of 0.7m thick.	Bedrock comprises Charmouth Mudstone Formation (of Lias Group).

3.3.8 Made Ground was encountered within some boreholes along the route alignment to a maximum depth of 1.4 metres below ground level. The material

[9] Hobbs, P.R.N., Entwisle, K.L., Northmore, K.J., Sumbler, METRES.G., Jones, L.D., Kemp, S., Self, S., Barron, METRES. and Meakin, J.L (2012) Engineering Geology of British Rocks and Soils - Lias Group. British Geological Survey, 323pp. (OR/12/032) (unpublished) [online] available at: http://nora.nerc.ac.uk/17270/ (last accessed March 2018).

was variable, generally described as sandy clay with fragments of brick, concrete and hardcore. Made Ground is anticipated with the existing road construction, comprising asphalt over Type 1 sub-base.

Historical quarries

3.3.9 Historical OS mapping contained within the Landmark Envirocheck Report (appendix B of ***Appendix 9.1 PSSR*** of the ***Environmental Statement (APP-087)***), details a number of historical quarries located in close proximity to the current A303 and the proposed scheme alignment in the vicinity of Camel Hill. The presence or composition of any backfilled materials is unknown.

3.4 Soils setting

Soil types

3.4.1 The MAGIC online map viewer[10] provides a map[11] of the soil types present. Two different soil types are shown within the scheme red line boundary as summarised in Table 3.2.

Table 3.2: Baseline soil data

Chainage	Name	Main Surface Texture Class	Natural Drainage Type	Natural Fertility	Characteristic Semi-Natural Habitats	Main Land Cover
~0-2000 m	Slightly acid loamy and clayey soils with impeded drainage	Loamy	Slightly impeded drainage	Moderate to high	Wide range of pasture and generally broadleaved and mixed woodland types	Arable and grassland
~2000-end	Lime-rich loamy and clayey soils with impeded drainage	Clayey	Slightly impeded drainage	High	Base-rich pastures and classic ‘chalky boulder clay’ ancient woodlands; some wetter areas and lime-rich flush vegetation.	Arable, some grassland

Source: MAGIC Mapping[12]

[10] Defra (2017) MAGIC Online Map [online] available at: http://magic.defra.gov.uk/ (last accessed March 2018).
[11] National Soil Resources Institute (NSRI) Simplified Soil Map (England) (2005)
[12] Defra (2018) Magic online mapping [online] available at: http://www.magic.gov.uk/ (last accessed May 2018).

Agricultural land

3.4.2 The 1:250,000 Series Provisional Agricultural Land Classification (ALC) map for the South West Region[13] was consulted to obtain the land classification of soil for the site.

3.4.3 ALCs were developed by Defra in accordance with the method detailed in the *Revised Guidelines and Criteria for Grading the Quality of Agricultural Land*[14] by the defunct Ministry of Agriculture, Fisheries and Food (now merged into Defra) to provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use.

3.4.4 The principal physical factors that influence agricultural production are:

- Climate: rainfall, temperature, frost risk, aspect and exposure.
- Site: gradient, microrelief and flood risk.
- Soil: texture, structure, depth and stoniness.

3.4.5 These factors together with interaction between them form the basis of classifying land into 1 of 5 grades (where '1' to '5' represents 'excellent' to 'very poor' respectively).

3.4.6 Approximately 99 hectares of the land within the 117 hectares redline boundary is believed to be used for agricultural production[15], with an area of parkland to the eastern most extents of the scheme and smaller parcels of permanent pasture. The provisional regional ALC maps[13] indicate that approximately 97 hectares of the land within the study area is Grade 3 (good to moderate) with approximately 2 hectares of Grade 2 (very good quality) agricultural land, where:

- '*Grade 2 - very good quality agricultural land: Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.*

[13] Natural England (2010) Agricultural Land Classification Map South West Region (ALC006) [online] available at: http://publications.naturalengland.org.uk/publication/144017?category=5954148537204736 (last accessed April 2018).
[14] Ministry of Agriculture, Fisheries and Food. 1988. *Revised guidelines and criteria for grading the quality of agricultural land* [Online]. Available at: http://publications.naturalengland.org.uk/publication/6257050620264448?category=5954148537204736 (last accessed May 2018).
[15] ***Chapter 12 People and Communities*** of the ***Environmental Statement (APP-049)***

- *Grade 3 - good to moderate quality agricultural land: Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2"*[14].

Farm businesses reliant upon agricultural land

3.4.7 Numerous field parcels, predominantly separated by hedgerows and woodland are present. Altogether, there are considered to be 27 individual farms within the study area, which comprise landowners, tenants and occupants of land. The individual farm drawings show the extent of the farms in relation to the scheme design, particularly with regard to the redline boundary. These are included as part of ***Appendix 12.4 Agricultural Impact Assessment Baseline Report*** of the ***Environmental Statement (APP-096)*** and the ***Agricultural Impact Assessment Baseline Report Technical Note*** in the ***Environmental Statement Addendum Appendix A (OD-011)***. The agricultural land is used for a range of arable and pasture uses.

3.5 Hydrogeological setting

Superficial deposits

3.5.1 According to MAGIC online mapping[12], the overlying drift deposits, where present, are classified as a Secondary A Aquifer, defined as the presence of "*permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers*".

Bedrock

3.5.2 Environment Agency mapping shows that the bedrock geology present across the site (solid strata of the Langport Member, Blue Lias Formation and the Charmouth Mudstone Formation) is classed as a Secondary A Aquifer.

3.5.3 In the vicinity of Camel Hill, the interbedded mudstone and limestone of the Westbury Formation and the Cotham Member of the Penarth Group are classed as Secondary B Aquifers, defined as "*lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering*".

3.5.4 No part of the scheme is located within a Groundwater SPZ.

Groundwater vulnerability

3.5.5 According to MAGIC mapping, groundwater vulnerability across the greater part of the area is predominantly classified as Intermediate with a small area of High

in the vicinity of Camel Hill. With regards to groundwater vulnerability, a High vulnerability is an area that can easily transmit pollution to groundwater, and is characterised by high leaching soils and the absence of low permeability superficial deposits. Intermediate vulnerability is an area that offers some groundwater protection.

3.6 Hydrological setting

3.6.1 The proposed scheme lies within the catchment of the River Cam to the south and to a more limited extent, the River Cary via Dyke Brook to the north. The River Cam runs approximately 500 metres south of the proposed scheme alignment in a roughly parallel direction to the west before it joins the River Yeo at a confluence near Yeovilton. Dyke Brook ranges from being around 1,200 metres to 1,650 metres north of the proposed scheme alignment where it flows to the west in a roughly parallel direction and meets with the River Cary.

3.6.2 Dyke Brook and the River Cam are fed by a number of springs that can be seen on the OS map of the area.

3.7 Ground quality (contaminated land)

Current land use and man-made features

3.7.1 The principal land use surrounding the existing A303 is agriculture including arable farming and pasture for dairy farming.

3.7.2 The principal man-made feature for the scheme is the existing highway network with the towns of Sparkford and Podimore at either end of the proposed scheme and the numerous smaller settlements both to the north and south of the existing A303.

3.7.3 An active Shell petrol station is located at approximate chainage 4,700 metres to the immediate south of the scheme red line boundary, while Steart Road Garage with associated underground fuel tanks is located in close proximity to the north of the proposed scheme alignment at chainage 3,300 metres. A filling station is also present south of Hazlegrove Roundabout, to the immediate south-east of the proposed scheme red line boundary.

3.7.4 MOD land (understood to be a signal station) with a visible array is present immediately to the south of the current A303 and proposed scheme alignment at approximate chainage 4,250 metres. Adjacent to the MOD site is an approximately 25 metre tall communication tower located 30 metres from the edge of the existing A303.

Historic land use

3.7.5 The historical development of the area has been summarised from historical mapping contained within the Landmark Envirocheck Report (appendix B of ***Appendix 9.1 PSSR*** of the ***Environmental Statement (APP-087)***).

3.7.6 Historical mapping shows that the vicinity of the scheme has comprised generally agricultural land, wooded areas and orchards throughout its history and generally runs parallel to the line of historic roads prior to the construction of the current A303 (around 1979).

3.7.7 On the earliest mapping (1886), several quarries were indicated to the north and south of the eastern half of the proposed route. However, the majority of these were no longer marked by 1904 mapping suggesting abandonment or infilling.

3.7.8 The filling station to the south of the existing A303 at chainage 4,700 was first marked on 1975 mapping. A garage was also shown to the south of the road at Camel Cross chainage 2,050 metres on 1975 mapping, however the site is now in use as a bed and breakfast and restaurant. The garage at Steart Road was also first indicated on 1975 mapping.

3.7.9 The MOD land to the immediate south of the A303 chainage 4,250 metres was first identified on 1962 mapping (although unlabelled, its exact date of construction between 1904 - 1962 is unknown).

3.7.10 Over time, the surrounding settlements have grown and the number of mapped ponds and springs in the vicinity has risen.

Landfill records

3.7.11 One historic landfill is located within the scheme red line boundary:

- Land Adjacent to Hazlegrove Park, which accepted inert and household waste from June 1989 to June 1990. The route crosses the southern boundary of the landfill at approximately chainage 5,650 – 5,900 metres.

Potential contamination sources

3.7.12 The following points summarise the likely potential contamination sources identified for the scheme alignment:

- Infilled historic quarries containing unknown fill.
- Historical and current fuel stations and garages with underground tanks adjacent to proposed scheme.
- Historic landfills within and adjacent to the scheme red line boundary.

- Presence of Made Ground originating from the construction of the existing A303 and isolated commercial, residential and agricultural uses.
- Details of the MOD site adjacent to the existing A303 at chainage 4,250 metres are unknown. Hazard signs for asbestos are displayed, possibly forming the roofs of the older buildings on the site.
- Existing highway verges can become contaminated over time through spray and run-off which can contain fuels, oils, heavy metals and other products such as antifreeze.

4 Soil protection and soil stripping

4.1.1 Based on the assumed estimates of area which would be permanently affected (approximately 8400,000 square metres), and the estimates of average depth of topsoil [value (metres cubed) to be included by the contractor] , the calculated estimate of the volume of topsoil affected is [value (metres cubed) to be included by the contractor] (Note: As this is a live document, volumes are subject to change as the scheme progresses).

4.1.2 Temporary land-take in the vicinity of the proposed dual carriageway is required for construction, storage of materials, compound areas, welfare units, and haul routes. An estimate has been made for the temporary land-take using the extent of the temporary working areas. The estimated temporary land-take area is approximately 300,000 metres squared (30 hectares). For the area of temporary land-take, topsoil volume estimates of [value (metres cubed) to be included by the contractor] for the compound area, and [value (metres cubed) to be included by the contractor] for the haul routes are estimated. Actual volumes are likely to vary as works begin.

4.2 In-situ soil protection measures

4.2.1 Areas of soil that are to be protected are assumed to be both those at the red line boundary and those located on land located within the red line boundary but within areas which would not be utilised as part of the permanent or temporary land-take. These areas would be protected and a drawing would be produced by the contractor to show these locations. The estimated area of land within construction boundary which would not be utilised is [value (square metres) to be included by the contractor].

4.2.2 These areas should be:

- Marked by barrier tape and exclusion signs.
- Haul routes should be no wider than necessary to accommodate two passing vehicles and should be stripped of soil down to a firm base, with indiscriminate vehicle movements across soil must be avoided.
- Changes to haul routes or alterations to the areas to be protected or stripped would not be undertaken unless given approval by the scheme Environmental Clerk of Works, and once approved, alterations must be clearly marked on plans readily accessible by relevant site personnel.
- Tracked vehicles are to be used where soil trafficking is unavoidable.

4.2.3 Areas of temporary land-take that would have topsoil and subsoil reinstatement would have a protective geotextile membrane covering the underlying surface.

4.3 Soil stripping measures

Topsoil stripping

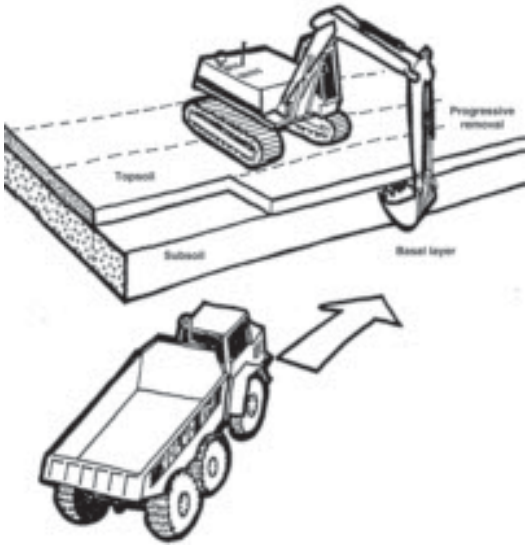
4.3.1 Before the commencement of work on-site, topsoil from all areas that are to be disturbed by permanent or temporary works would be stripped by earthmoving plant that is appropriate to the size of the site, volume of soil to be stripped, and haul distances.

4.3.2 Topsoil would normally be stripped to a thickness defined by depth below the surface and / or a distinct colour change. Stripping topsoil too deeply so that subsoil becomes incorporated will reduce its quality and fertility.

4.3.3 See Table 4.1 for the measures to be employed on site.

Table 4.1: Topsoil stripping guidance

Details	Description of Measures
Aim	**To ensure topsoil as a finite resource is stripped to enable future reuse, and not wasted.**
Specification	• Surface vegetation would be removed by blading off, scarification and raking, or killed off using suitable non-residual herbicide applied not less than two weeks before the commencement of stripping. • Vegetation above 100mm would be cut (considering any ecological precautionary method of working) and removed from the land surface prior to topsoil stripping. This would help minimise the risk of anaerobic zones developing in the soil stockpiles. • Topsoil would be carefully stripped from all areas being returned to agriculture and placed in soil storage within the same area (to minimise the risk of spreading animal diseases and soil borne plant pests) which would be used in the restoration of that land. • It is not necessary to strip topsoil from the areas where topsoil would be stored. • The preferred method of minimising the damage to topsoil would be the use of a tracked excavator on the surface of the topsoil (minimising soil compaction), and digging to the topsoil's maximum depth and loading it onto site or transport vehicles. Transport vehicles would be driven on the subsoil, or basal layer if the subsoil is to be stripped, and confine movements to designated temporary haul routes. • Other methods of stripping which offer the same level or more protection of topsoil are acceptable. • Topsoil stripping depth at areas of permanent land-take, temporary haul routes and compounds is estimated to be an average of [value ([metres) to be included by the contractor], it is likely to vary on-site. • Topsoil stripping should be performed in the driest condition possible. If periods of sustained heavy rainfall (for example. >10mm in 24 hours) occurs during soil stripping operations, work must be suspended and not restarted until the ground has had at least one full dry day or agreed moisture criteria (for example, a specified soil moisture content) can be met. • Over deep stripping would mix topsoil and subsoil and must be avoided. Colour differences would help identify the layers in conjunction with the recommended topsoil stripping depths. If it is unclear the depth of subsoil advice should be sought from the scheme Environmental Clerk of Works. • Once topsoil has been stripped from temporary land-take areas, the contractor would survey the extent of any exposed land drains and have their condition assessed and recorded.

Details	Description of Measures
Diagram	

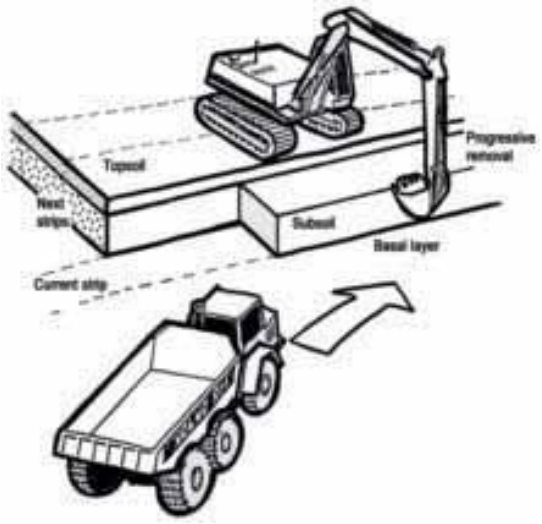
Source: Defra[1] and professional experience.

Subsoil stripping

4.3.4 As with topsoil, subsoil from all areas that are to be disturbed by permanent or temporary works would be stripped by earthmoving plant that is appropriate to the size of the site, volume of soil to be stripped, and haul distances prior to the commencement of work. Guidance for subsoil stripping is summarised in Table 4.2.

Table 4.2: Subsoil stripping guidance

Details	Description
Aim	**To ensure subsoil is not damaged or wasted, allowing its reuse.**
Specification	• Topsoil would first be stripped from all areas from which subsoil is to be removed for reuse. • The preferred soil stripping method is the removal of each soil unit – the soil layers above the base/formation layer are removed in sequential strips that can be up to 6m wide (the reach of a 360° excavator). • Using an excavator bucket with teeth is preferable to using one without; • Where there is a cover of topsoil, that layer is removed first before stripping subsoil to the specified depth. The soil transport vehicle runs on the layer beneath the subsoil. • Subsoil is to be stripped to a depth of approximately [value (metres) to be included by the contractor] (upper subsoil layer, estimated depths range from [value (metres) to be included by the contractor] and [value (metres) to be included by the contractor]), actual depths will depend upon the nature of subsoil encountered and may be informed by trial holes (estimated thickness of subsoil is [value (metres) to be included by the contractor]). • Other methods of stripping which offer the same level or more protection of topsoil are acceptable. • Subsoil stripping should be performed in the driest condition possible. If periods of sustained heavy rainfall (for example >10mm in 24 hours) occurs during soil stripping operations, work must be suspended and not restarted until the ground has had at least one full dry day or agreed moisture criteria (for example a specified soil moisture content) can be met.

Details	Description
Diagram	

Source: Defra[1] and professional experience.

5 Soil stockpiling and storage

5.1 Soil stockpiling

5.1.1 Soils stripped during construction are to be stored in temporary stockpiles. The aims of storing soil materials in temporary stockpiles are to:

- Prevent their damage from the weather and construction activities.
- Minimise the surface area occupied.
- Maintain soil quality and minimise damage to the soil's physical (structural) condition so that it can be easily reinstated.
- Avoid the mixing of different soil materials to the detriment of their overall quality – topsoils and subsoil should be stockpiled separately.
- Minimise soil erosion, pollution to watercourses and increased flooding risk to the surrounding area.
- Avoid additional and unnecessary remediation, compensation and materials costs by achieving all the above.

5.2 Soil stockpile location

5.2.1 Soil materials are to be stockpiled and stored in allocated areas which are to be illustrated on a drawing to be produced by the contractor (appendix of the construction site where they can be left undisturbed and not interfere with site operations).

5.2.2 Topsoil and any subsoil material would be stockpiled as close as possible to where it arises. Soil stripped to create the haul routes would be stockpiled in a linear bund adjacent to the routes. Soil stripped for compound areas would be stockpiled in adjacent bunds, which can also be used to provide a visual and acoustic screen.

5.2.3 Stockpiles must not be positioned within the root or crown spread of trees, or adjacent to ditches, watercourses or existing or future excavations.

5.3 Soil segregation measures

5.3.1 Soils of different Soilscape classifications and ALC classifications (see section 3.5) would be segregated and stored separately.

5.3.2 Topsoil and subsoil would need to be stored separately, to minimise contamination and loss of suitable material. Topsoil should only be stored on topsoil, and should be removed from any areas where subsoil is to be stored.

5.3.3 In addition, if any unanticipated materials such as Made Ground are encountered during stripping these should be separated from both topsoil and subsoil and stockpiled separately. Anticipated Made Ground as identified during the intrusive GI should be segregated and stored separately following the

guidance within the scheme Remediation Strategy (to be produced following completion of the currently ongoing intrusive GI and subsequent contaminated land interpretative reporting).

5.4 Soil stockpiling measures

5.4.1 Guidance outlined in the Defra's Construction CoP[1] suggests stripped soil materials (topsoil and distinct subsoil layers) are to be stockpiled according to the following method:

- Ground to be used for storing the topsoil must be cleared of vegetation and any waste arising from the development (for example, building rubble and fill materials).
- Topsoil must be stripped from under subsoil / Made Ground stockpile locations.
- Individual topsoil and distinct subsoil are to be stockpiled separately and different materials must not be mixed either with each other, or with contaminated materials or organic materials arising from vegetation clearance.

5.4.2 The proposed methodologies for construction of soil stockpiles in accordance with the CoP[1] and professional experience are set out below:

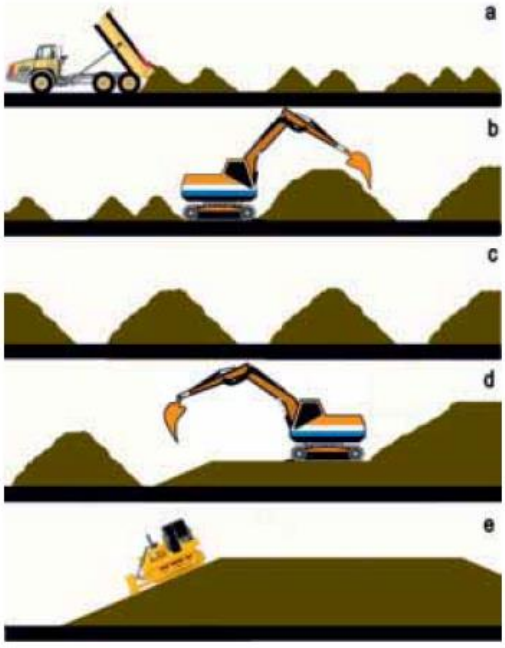
- Topsoil required for agricultural restoration would be stored as close to the farm of origin as possible to present the spread of disease.
- Topsoil and subsoil would be stored separately and 'like on like' to minimise contamination and loss of suitable material. For example, topsoil should only be stored on topsoil. Topsoil shall be stripped and removed from any areas where subsoil is to be stored.
- Records would be maintained of the origin and storage location of all topsoil and subsoils to enable restoration in the correct place and sequence.
- Areas of soil storage on-site would be signed with the type of soil and protected from machine incursion;
- Soil storage locations would be positioned away from tree canopies and hedges (at least 10 metres).
- Soil stockpiles along the haul road would be 2 metres in height.
- No materials would be stored on top of soil stockpiles and the operation of construction plant on storage mounds would be restricted to placement and removal of soils.
- Soil stockpiles would be constructed with a slope angle normally not be less than 40°, as that is the natural angle of repose (dependent on texture and moisture content).
- Where stockpiles are to be long term (>3 months) consideration of seeding to control potential dust generation would be considered;

- Seeding would also minimise soil erosion and help reduce infestation by nuisance weeds.
- The temporary storage of soil in agreement with local interested parties can be positioned as such to act as a temporary screen of the construction activities.

5.4.3 The high-level review of the soil characteristics on-site states it is a loamy and clayey soil with impeded drainage.

5.4.4 It is therefore assumed that it would have to be stockpiled when wet and/or plastic in consistency. The method for stockpiling is presented in Table 5.1.

Table 5.1: Stockpiling method for wet plastic soils

Details	Description	
Aim	**This method minimises the amount of compaction, while at the same time maximising the surface area of the stockpile to enable the soil to dry out further.**	
Specification and Diagram		a. The soil is tipped in a line of heaps to form a 'windrow', starting at the furthest point in the storage area and working back toward the access point. b. Any additional windrows are spaced sufficiently apart to allow tracked plant to gain access between them so that the soil can be heaped up to a maximum height of 2m. c. To avoid compaction, no machinery, even tracked plant, traverses the windrow. d. Once the soil has dried out and is non-plastic in consistency (this usually requires several weeks of dry and windy or warm weather), the windrows are combined to form larger stockpiles, using a tracked excavator. e. The surface of the stockpile is then regraded and compacted by a tracked machine (dozer or excavator) to reduce rainwater infiltration.

Source: Defra[1] and professional experience.

5.5 Soil stockpile maintenance

5.5.1 The stockpiles would be maintained according to the following method:

- Once the stockpile construction has been completed, the area must be cordoned off with secure fencing to prevent any disturbance or contamination by other construction activities.
- Each soil stockpile must be clearly signed / labelled as to the type of material present (for example, topsoil, subsoil A, subsoil B) and its origin.

- Should they appear, management of weeds must be undertaken regularly during the summer months either by spraying or by mowing or strimming to prevent their seeds being shed.
- Soil stockpiles must not be disturbed by unnecessary trafficking or other activities during the storage period.

5.6 Stockpiling of non-soil materials

5.6.1 Stockpiling of materials is only to take place on areas which have been stripped of topsoil and subsoil. The underlying material would be overlain by geotextile to prevent mixing of materials.

6 Soil preparation and reinstatement

6.1.1 Adequate preparation is essential to enable successful re-use of the site-won soils, allowing successful revegetation and landscaping in accordance with the proposed landscaping scheme.

6.1.2 This has significant sustainability benefits by minimising requirements for disposal and importation of soils.

6.2 Locations

6.2.1 Soils stripped from areas of temporary land-take (compounds, storage areas and haul routes) would be reinstated on-site.

6.2.2 Soils stripped from areas of permanent works earthworks if not needed to be re-used on-site would be removed off-site as a material for re-use elsewhere.

6.3 Methods

Decompaction specification

6.3.1 The receiving substrate must be de-compacted prior to the receipt of subsoil or topsoil resources for agricultural land restoration. Guidance from Defra's CoP[1] states that the receiving basal layer is likely to have been compacted during construction activities, temporary use of compound areas, or soil stockpile storage. The purpose of de-compaction is to break up any panning to reduce flood risk and promote deeper root growth.

6.3.2 The type of de-compaction method employed in an area of the site is dependent on the amount of space available and the extent of compaction observed:

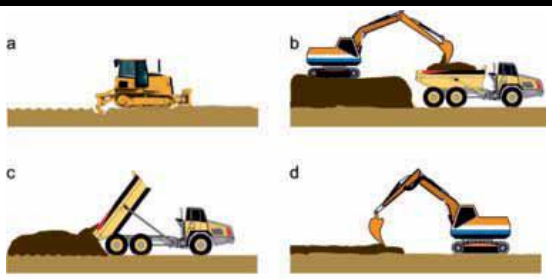
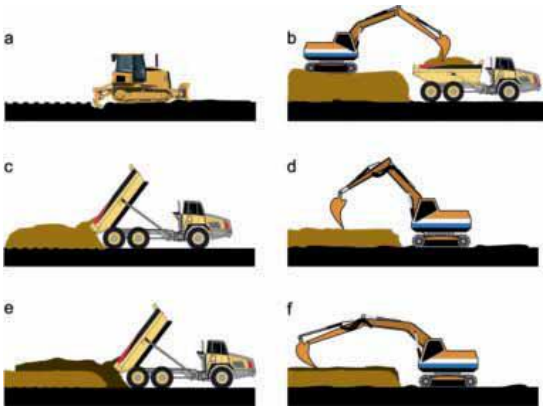
- A small (1-5 tonne) to medium sized (13 tonne) tracked excavator, fitted with a single rigid tine is effective in restricted areas, such as in planting beds and road verges.
- In more open areas, a tractor-drawn subsoiler is capable of loosening soil that is not too heavily or deeply compacted and compressed air injection can also be used to de-compact the soil profile in such locations.
- Deep compaction can only be effectively relieved using heavy duty ripper equipment, such as a single rigid tine device.
- For loosening to be most effective, it must be carried out when the soil is sufficiently dry to the full depth of working (otherwise the tine merely cuts and smears the subsoil rather than lifting, fracturing and loosening it).
- A toothed excavator bucket is not an appropriate tool for ripping soil and must not be used.

Soil spreading specification

6.3.3 Specification set out in Defra's CoP[1] and professional experience are incorporated and presented in Table 6.1.

Table 6.1: Loose-tipping soil spreading method

Details	Description
Aims	**To respreads stockpiled soil material to provide a structured, uncompacted, and well-aerated soil profile for successful establishment and subsequent growth of plants and grass. Preventing over-compaction which leads to waterlogging, and anaerobic environment which leads to poor establishment or failure of vegetation growth, and increase surface runoff.**
Specification	• When all structures, machinery, and materials (including any protective membranes installed above the subsoil) have been removed grading would take place to ensure the necessary drainable levels are achieved. • The subsoil would be thoroughly loosened but only in dry conditions. Suitable rotary equipment (for example winged tine subsoiler) shall be used to working to a depth of 250mm in the subsoil. Subsoil loosening shall be carried out before topsoil replacement taking care around buried services and shallow drains. • If sustained heavy rainfall (for example >10mm in 24 hours) occurs during or immediately prior to spreading operations, work must be suspended and not restarted and the soil must not be trafficked until the receiving ground has had at least a full dry day to dry. • A hydraulic excavator, fitted with a toothed-bucket to avoid excessive smearing, would be used to load the soil materials from the source area or stockpile into a dump truck which then discharges them onto the receiving surface. • An excavator would then spread newly dropped soil to the required thickness. If there is to be more than one soil layer (in other words if both topsoil and subsoil are being replaced) then the whole length of the strip is restored with subsoil before the process is repeated with topsoil. • The topsoil would be lifted onto the subsoil without the excavator travelling on the newly placed subsoil. Only when the strip has been completed is the next one started. • Topsoil would be replaced to the original depth (as identified prior to earthworks commencing) whilst minimising compaction of the loosened subsoil and limiting work to dry conditions. • Ideally topsoil should be loose tipped and levelled without re-compacting the subsoil. If this cannot be achieved further loosening would be carried out once the topsoil has been replaced. • Any stones greater than approximately 100mm in diameter should be removed. • If the soil is cloddy (lumpy) in structure, the excavator bucket can be used to break up the clods. Large stones can be removed during the operation. • Modified versions of the loose-tipping method, for use when both subsoil and topsoil are to be placed, include spreading the subsoil as described above but then spreading the topsoil layer out using a low ground pressure dozer. Providing that soil conditions are suitably dry and dozer movements are minimised, this can gently consolidate the placed soil without causing over-compaction.

Details	Description	
Topsoil		a. Loosening the subsoil of the receiving ground. b. Loading of topsoil from stockpile; c. Back tipping topsoil onto loosened subsoil. d. Levelling topsoil.
Topsoil and Subsoil		a. Loosening the substrate of the receiving ground. b. Loading of subsoil from stockpile; c. Back tipping subsoil onto loosened substrate. d. Levelling sub-soil. e. Back tipping topsoil. f. Spreading topsoil over subsoil using excavator working on substrate.

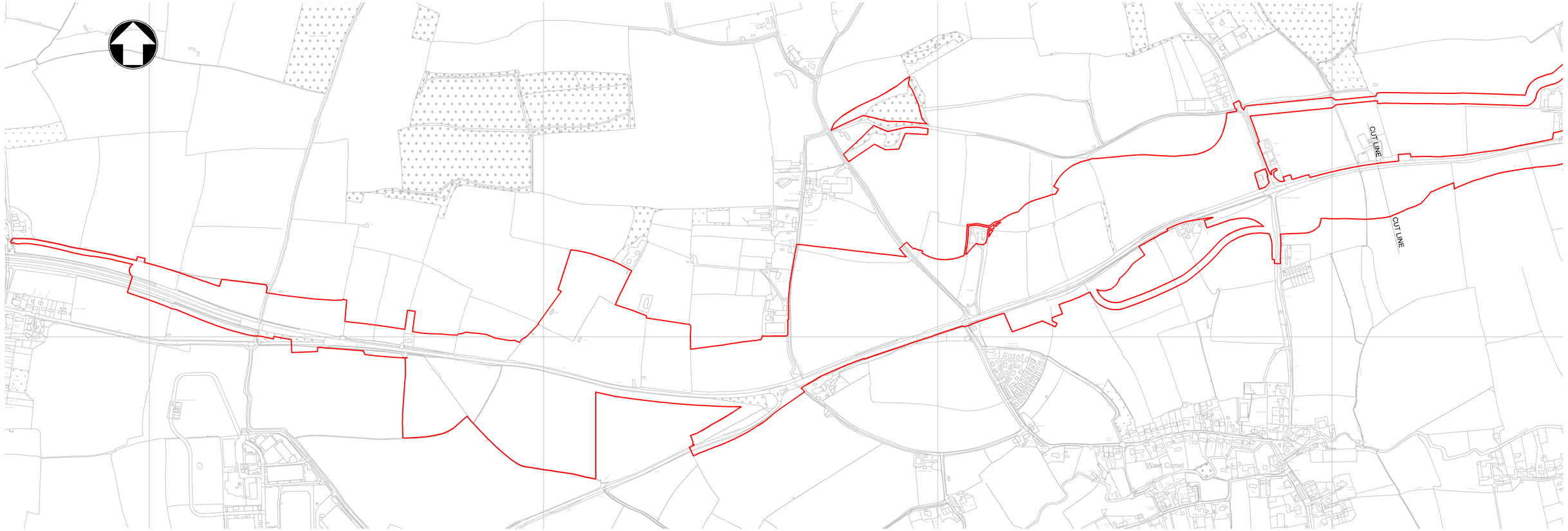
Source: Defra[1] and professional experience.

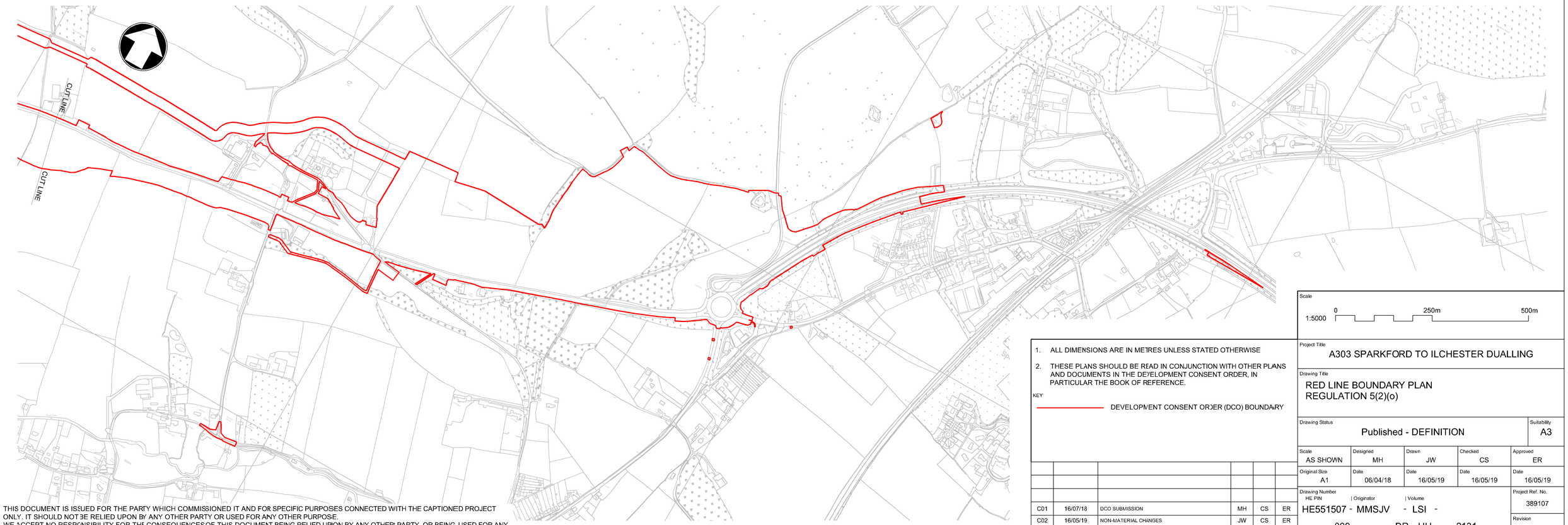
6.4 Monitoring and aftercare

6.4.1 The following actions would be undertaken during monitoring and aftercare:

- Continuing communication with the landowner shall be maintained to keep them informed of progress and to deal with any matters arising.
- A before and after survey of levels to ensure correct drainage and soil depths.
- The landowner shall approve and agree the reinstatement works before and after soil replacement.
- Cropping as soon as possible is strongly advised with a crop that has a good rooting system (grass or cereals). This would help minimise soil slumping and erosion in the event of heavy rainfall.

Appendix A: Red line boundary of the scheme





1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE
2. THESE PLANS SHOULD BE READ IN CONJUNCTION WITH OTHER PLANS AND DOCUMENTS IN THE DEVELOPMENT CONSENT ORDER, IN PARTICULAR THE BOOK OF REFERENCE.

KEY

DEVELOPMENT CONSENT ORDER (DCO) BOUNDARY

Scale
1:5000 — 0 — 250m — 500m

Project Title
A303 SPARKFORD TO ILCHESTER DUALLING

Drawing Title
RED LINE BOUNDARY PLAN
REGULATION 5(2)(o)

Drawing Status: Published - DEFINITION
Suitability: A3

Scale	Designed	Drawn	Checked	Approved
AS SHOWN	MH	JW	CS	ER
Original Size	Date	Date	Date	Date
A1	06/04/18	16/05/19	16/05/19	16/05/19

Drawing Number: HE PIN | Originator | Volume
HE551507 - MMSJV - LSI -
000 - DR - UU - 2131
Location | Type | Role | Number

Project Ref. No.: 389107
Revision: C02

REV.	DATE	AMENDMENT DETAILS	ORIG	CHK'D	APP'D
C01	16/07/18	DCO SUBMISSION	MH	CS	ER
C02	16/05/19	NON-MATERIAL CHANGES	JW	CS	ER

C:\users\bro67630\appdata\local\projectwise\workdir\prise_cde_he\dms44322\HE551507-MMSJV-LSI-000-DR-UU-2131.dwg May 28, 2019 - 4:33PM WAR71061

B.4 Arboricultural Method Statement

An Arboricultural Method Statement should be prepared prior to construction by the appointed Arboriculturalist to ensure the appropriate protection to trees during construction, in line with the guidance contained within BS 5837:2012[15].

A precautionary approach towards tree protection should be adopted and any operations, including access, proposed within the RPA (or crown spread where this is greater) should be described within the arboricultural method statement, in order to demonstrate that the operations can be undertaken with minimal risk of adverse impact on trees to be retained.

The arboricultural method statement should be appropriate to the proposals and might typically address some or all of the following, incorporating relevant information from other specialists as required:

- Removal of existing structures and hard surfacing
- Installation of temporary ground protection
- Excavations and the requirement for specialised trenchless techniques
- Installation of new hard surfacing – materials, design, constraints and implications for levels
- Specialist foundations – installation techniques and effect on finished floor levels and overall height
- Retaining structures to facilitate changes in ground levels
- Preparatory works for new landscaping
- Auditable / audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision.

The AMS should also include a list of contact details for the relevant parties.

[15] British Standard (2012) BS 5837:2012 Trees in relation to design, demolition and construction. [online] available at: https://shop.bsigroup.com/ProductDetail/?pid=000000000030213642 (last accessed June 2018).

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B.5 Outline Traffic Management Plan

A303 Sparkford to Ilchester Dualling

Outline Traffic Management Plan

HE551507-MMSJV-GEN-000-RP-UU-0039

Date: May 2019 **Version: V05**

Table of Contents

1 Introduction

1.1 Purpose and objectives

1.1.1 The purpose of this Outline Traffic Management Plan is to describe the principles of the traffic management arrangements required for the construction of the permanent works whilst providing a safe environment for those travelling through the works, as well as those engaged in the construction of the works. The detailed plan prepared in accordance with this outline will specify access routes for construction traffic and site compound locations.

1.1.2 The detailed plan will provide details of the phasing of the works and how this will affect deliveries to the site. In addition, the detailed plan will identify any Temporary Traffic Regulation Orders necessary in addition to the Development Consent Order (DCO).for the construction of the works.

1.1.3 This document should be considered as a work in progress, and is subject to further development throughout the examination of the draft DCO

1.2 Description of scheme

Description (mainline)

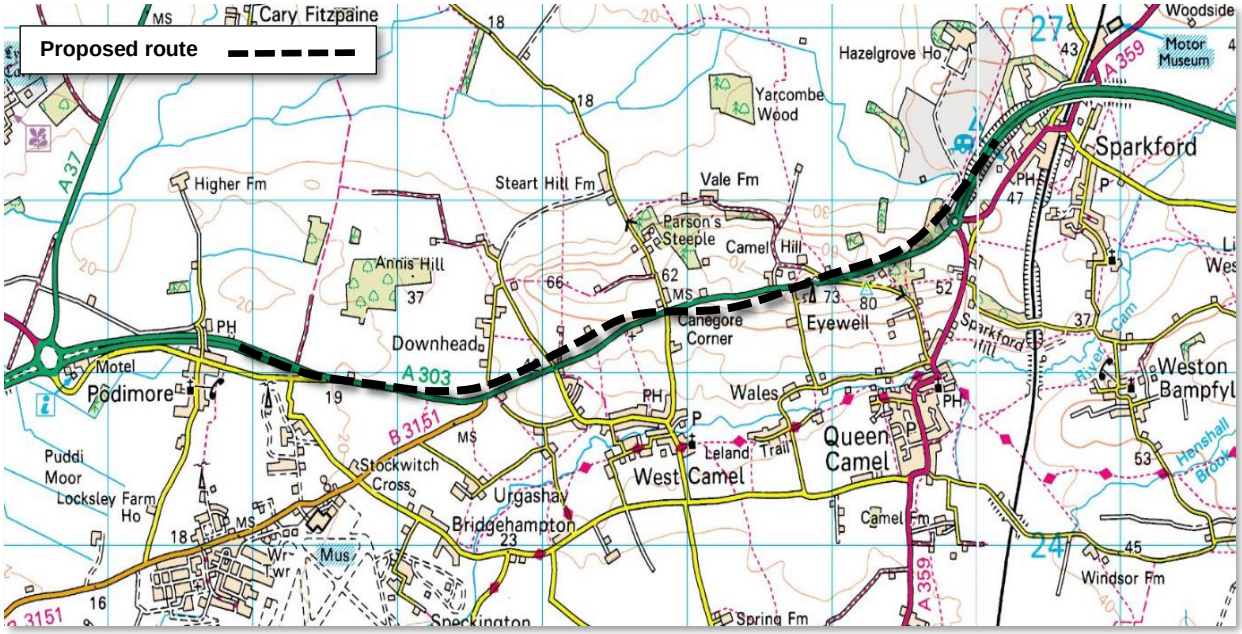
1.2.1 At its western limits, the scheme ties in with the existing dual carriageway A303 Podimore Bypass. Travelling eastwards, the route initially follows the existing A303 closely until the B3151 before moving north of the existing carriageway and rising up just to the south of Downhead before crossing over the existing A303 at Canegore Corner. This passes very close to the Noise Important Area at the West Camel Methodist Church (depicted by a " + " symbol on Figure 1.1 just to the west of Canegore Corner). The route then takes a southerly alignment briefly before meeting up with the existing road again to pass between a Scheduled Monument and a MOD signal station at the crest of Camel Hill. Finally, the route then bypasses the existing Hazlegrove Roundabout to the north through a Registered Park and Garden (RPG) associated with Hazlegrove House before tying into the existing A303 north of Sparkford village.

Junctions

1.2.2 A new all movements grade-separated junction will be provided in the vicinity of the Hazlegrove Roundabout. This will enable free flowing passage of traffic on the A303. The junction will incorporate entry and exit slip roads in both directions providing connections to Hazlegrove House, the A359, access to villages south of the route and access to properties at Camel Hill to the north of the route. A limited movements junction, also enabling free flowing passage of traffic on the A303 but comprising an eastbound connection only, will be

provided in the vicinity of Downhead. A limited movement junction will also be provided in the vicinity of the junction with the B3151 comprising only westbound connections.

Figure 1.1 Scheme Extents



Challenges and considerations

1.2.3 The differences in level between the existing and proposed carriageways at Canegore Corner (Pinch Point A) and Camel Hill (Pinch Point B) present a challenge for the traffic management insofar as at some point during the construction the east and west bound carriageways could be on temporary alignments and at different levels.

1.2.4 Local residents have a concern that the works will increase ‘rat running’ through their communities. At weekends and during school holiday periods there is a significant increase in traffic using this route and traffic can queue or travel at low speeds. Particular attention to this will be required to addressing this and preventing inappropriate use of local roads in the detailed plan.

Programme

1.2.5 Construction is due to commence in March 2020. All subsequent dates are subject to confirmation following detailed programming of the works by Highways England’s contractor.

2 Traffic management plan

2.1 Customer requirements

2.1.1 This section will be developed further when the detailed plan is produced, however, key principles have been included in Table 2.1 below.

Table 2.1 Stakeholder requirements

Customer group	Who is affected by this scheme?	What are their requirements	How has the traffic management plan taken these requirements into account?
Customer	HGV drivers	• Journey time reliability • Advance warning of closures and / or diversions • Appropriate diversion routes • Maximised lane widths where possible	• Sufficient notification of closures • Closure clashes – not having closures on alternative routes that are not subject to diversions • Diversion routes avoid narrow roads and low bridges
	Seasonal holiday traffic	• Clear information of delays displayed at remote locations so traffic can decide on alternative route • Clear and accurate information on the works	• Provision of Journey Time reliability system • Communications Plan
Stakeholder	RNAS Yeovilton (large local employer)	• Traffic management that may impact on journey time reliability to and from Airfield	• Advance warning and regular liaison. • Avoid bulk deliveries during commuting times
	RNAS Yeovilton Annual Air Show (up to 40,000 visitors)	• Closures / diversion that may impact on journey time reliability to and from the Show • Clear routes for visitors to get to the Show with good signing	• Commitment to stakeholder liaison and use of mobile VMS to assist in traffic movements where there is an impact as a result of the scheme
Partner	Local farm traffic	• Clear route for ease of delivery • Ability to cross A303 • Suitable access and egress	• Manage haul roads to facilitate site deliveries • Access and egress points clearly marked and close to delivery site
	Emergency services	• Access through haul road during emergencies • Suitable diversion routes • Advance warning of closures and / or diversions	• Process and procedure for allowing blue-light travel through the works, if agreeable with the emergency services • Diversion routes avoid narrow roads and low bridges • Sufficient notification of closures
Community	Local residents to scheme	• Advance warning of closures and / or	• Notification and liaison with individuals and / or local

Customer group	Who is affected by this scheme?	What are their requirements	How has the traffic management plan taken these requirements into account?
		diversions • Sensitivity to local requirements for example, market days • Minimal disruption due to works, including environmental factors (for example, noise, dust, lighting) and diversion routes	group representatives • Activity curfews for example, no piling between 22:00 – 06:00 • Diversion route signs and information to meet driver requirements and optimise usability to reduce opportunities for error and therefore reduce congestion

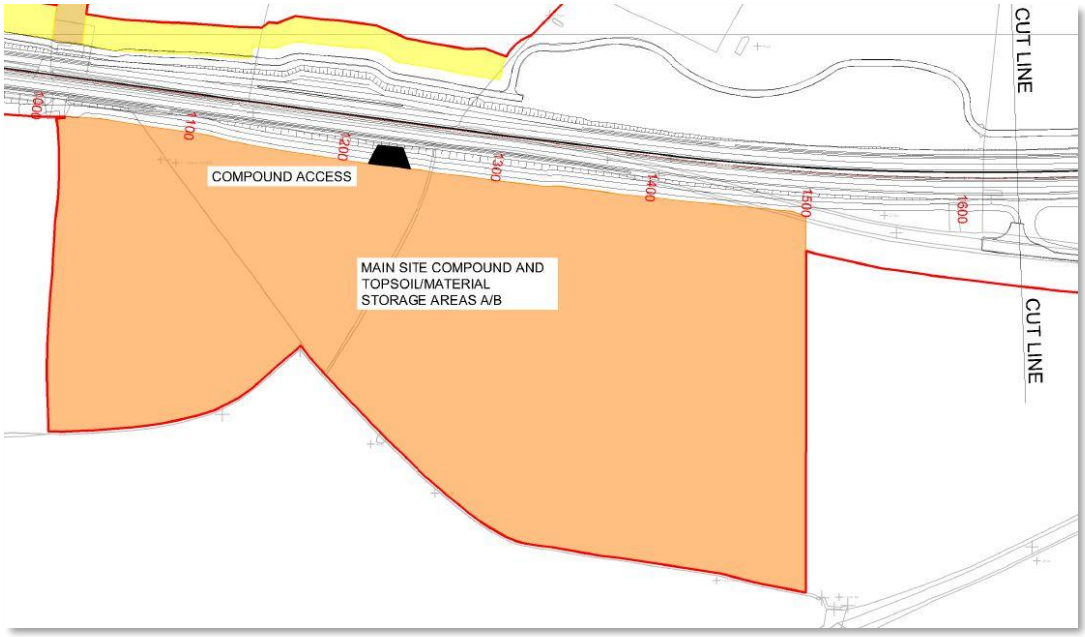
2.2 Nature of the works

2.2.1 Works involved in the scheme include earthworks, drainage, environmental mitigation, pavement construction, structures and landscaping. Statutory undertakers' and license holders' diversionary works are also required for electricity, water, telephone and communication cables. Earthworks operations will be carried out using off road plant and equipment on haul roads. A temporary bailey bridge is to be installed across the existing A303 to allow haulage without interfering with the A303. This is expected to simplify the management of construction and road traffic. Figure 2.1 provides an illustration of the earthworks haulage routes and the temporary bridge. Some of the minor side roads will have heavy plant crossings with traffic signal control.

Figure 2.1 Earthworks haulage routes.

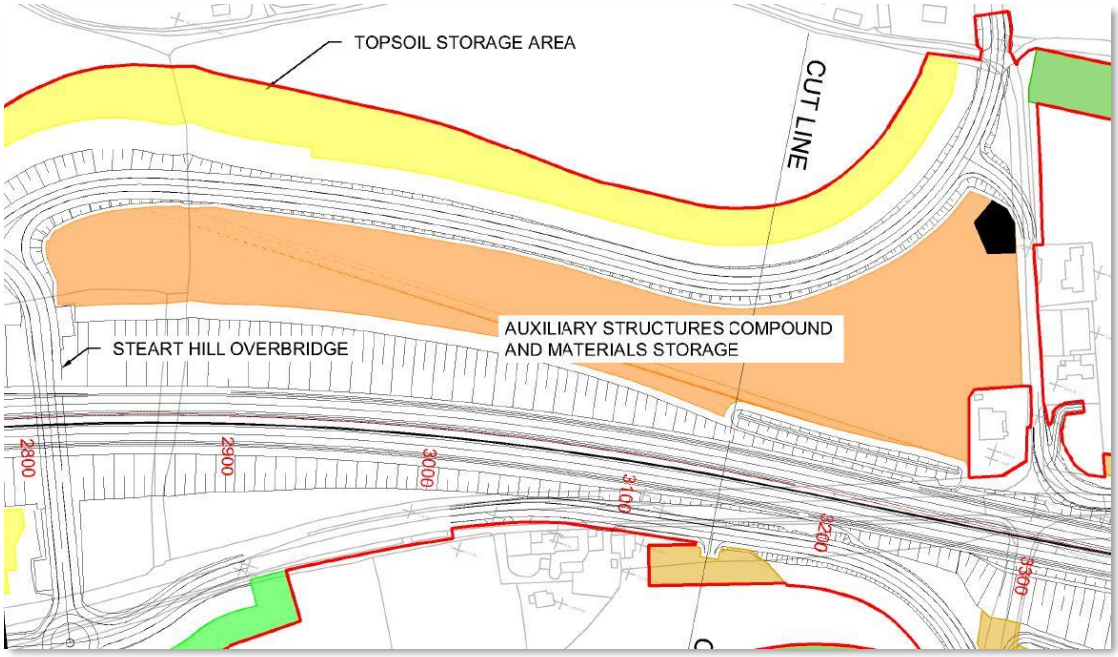
2.2.2 The proposed location for the main site compound is the south of the existing A303 and west of the B3151 junction. There will also be topsoil and material storage at this location. Access for works vehicles will be directly from the A303. Figure 2.2 provides an illustration of the compound and proposed access. Works traffic will not be permitted to use the B3151 to access the site from the south.

Figure 2.2 Main site compound.



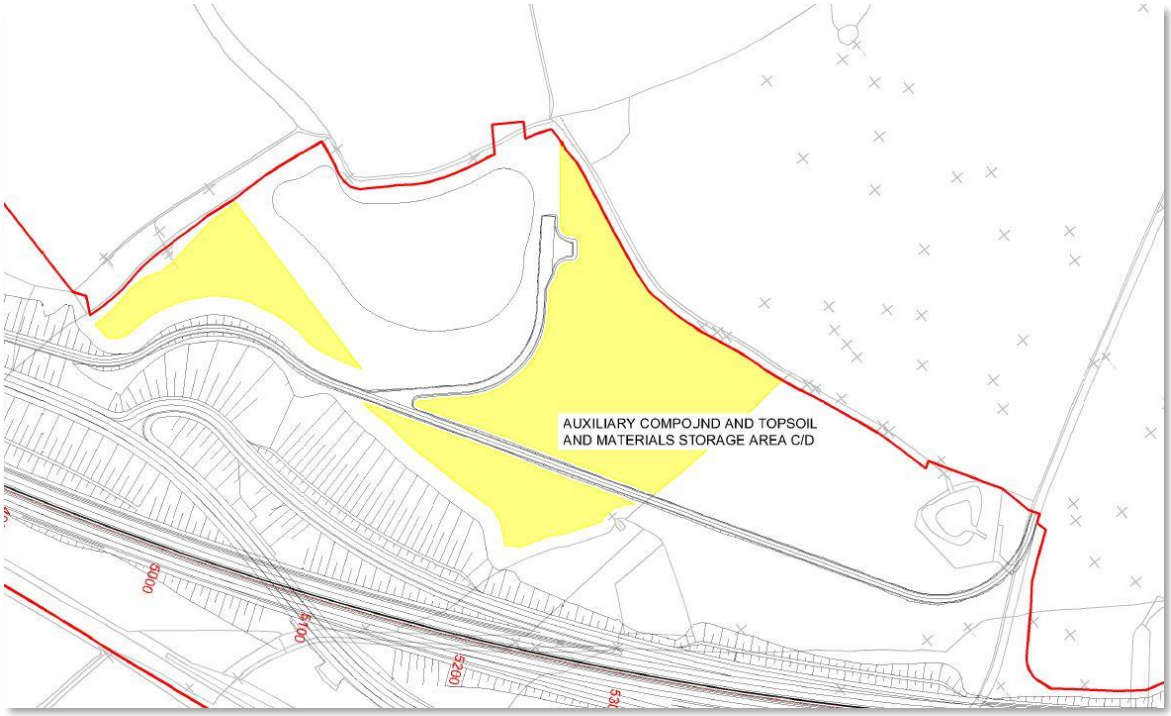
2.2.3 Another compound is proposed in the area to the north of the proposed A303 and the west of Steart Hill. This compound is for the construction of the new Steart Hill overbridge. There will also be material storage at this location. The compound will be accessed from Steart Hill via the A303. Figure 2.3 provides an illustration of the compound and proposed access. No works traffic will be permitted to travel north on Steart Hill from the compound access.

Figure 2.3 Auxiliary compound at Steart Hill.



2.2.4 A third compound is proposed near Hazlegrove Roundabout which will require a new access to be constructed off the roundabout. Figure 2.4 provides an illustration of the compound.

Figure 2.4 Auxiliary compound at Hazlegrove.



2.2.5 The current programme is based on construction commencing in Spring 2020.

2.2.6 Details of specific dates for side road and A303 carriageway closures and traffic management switches will be confirmed by Highways England's main contractor. The requirement to close side roads and the A303 will be subject to consultation with Somerset County Council and the emergency services.

2.2.7 Construction work would take place between 07.00 and 18.00 on weekdays and from 07.30 to 13.00 on Saturdays, with no regular working on Sundays, Bank and Public Holidays. There may be exceptions to these hours to accommodate elements such as oversize deliveries and tie-in works.

2.3 Proposed traffic management measures

Restrictions

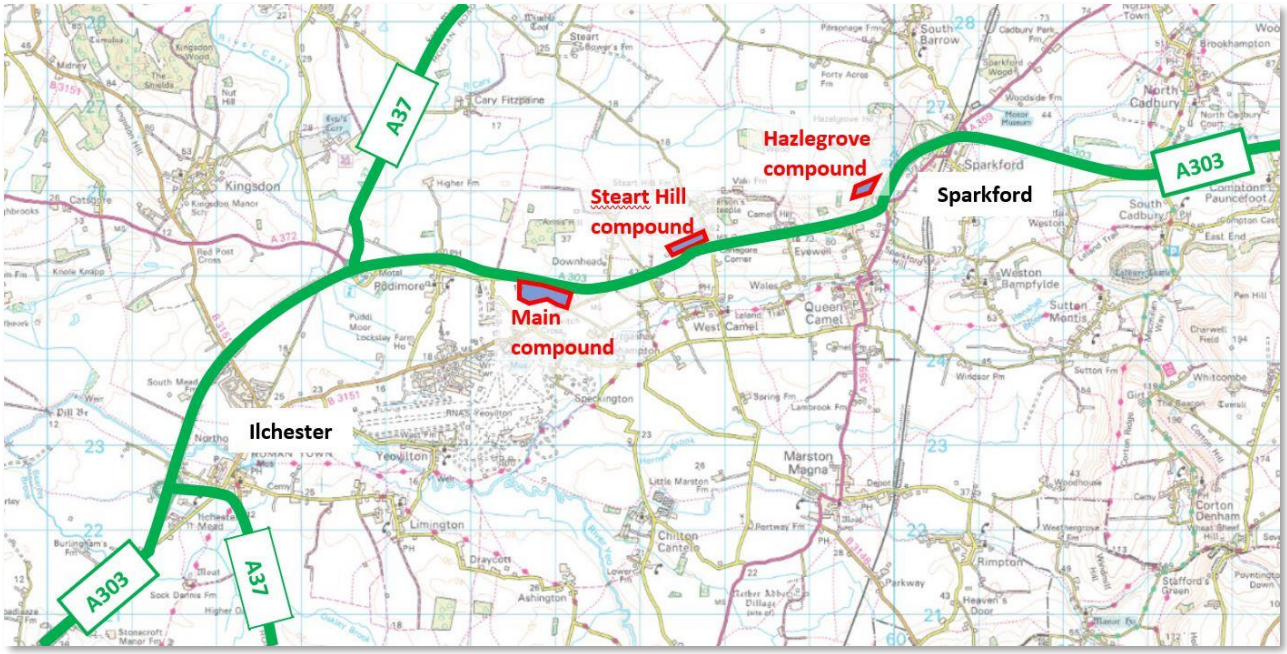
2.3.1 Appendix A of this document contains details of the overall traffic management layout for the A303 which is expected to be in place for the duration of the works, from March 2020 until August 2022.

2.3.2 Single lane traffic in each direction of the A303 can be maintained for the majority of the construction period, with the exception of carriageway closures for tie-in works and installation of some of the traffic management. Each phase will require a number of traffic management set ups and it is envisaged that all traffic management schemes installed on the project will be 'Standard' as defined in clause D1.6.2 of Part 1 of the Traffic Signs Manual. Should any departures be required these will be discussed with Highways England, Avon & Somerset Police and Somerset County Council (as local highway authority).

2.3.3 Workspace requirements for each phase and associated section of the work will be in accordance with those defined in Part 1 of Chapter 8 of the Traffic Signs Manual, allowing for both working space and longitudinal and lateral safety zones. The need for temporary vehicle restraint system will be in accordance with TD19, IAN142/11 and Raising the Bar document 4.

2.3.4 All works traffic will be directed to use the A303 and A37 to approach the site. The A359 from Yeovil to Sparkford is not suitable for HGV traffic, as it has a 7.5T weight limit and in Queen Camel there are a number of existing priority traffic calming measures. Traffic approaching the site from the south can join the A303 from the A37 at Ilchester Meads. These proposed routes, along with the three compound locations, are illustrated in Figure 2.5.

Figure 2.5 Delivery routes (shown in green) and compound locations



Operating Lanes

2.3.5 Generally, one lane in each direction will be maintained at all times. Lane widths will be reduced to 3.5m and 3.25m when contraflow is used. The procedure for the management of abnormally wide loads on the A303 will need to be reviewed during the planning of any reduction of running lane widths.

Speed Limits

2.3.6 Provisional details of temporary speed limits are provided in appendix C of this document.

2.3.7 The existing speed limit on the single carriageway section of the A303 within the works area is 50mph. The approach and departure dual carriageway sections at Sparkford and Ilchester are national speed limit (70mph).

2.3.8 The proposed speed limit through the works taking into account 1+1 contraflow, temporary alignments and carriageways is likely to be 40mph. The eastbound approach to the works could be reduced to 40mph on the departure from Podimore Roundabout. This will prevent traffic from accelerating away from the roundabout to then be confronted with a temporary lower speed limit after a few hundred metres.

2.3.9 On the westbound approach to the works the A303 carriageway should be reduced to 50mph for around 1100m prior to the 40mph speed limit through the contraflow and into the works site.

2.3.10 Average Speed Cameras are often used to enforce speed limits through road works. These will be considered along with other potential measures to determine the most appropriate way in which to encourage and enforce compliance with temporary speed restrictions along the A303 and the local road network.

2.3.11 Some of the side roads will also benefit from temporary speed limits. Steart Hill, Howell Hill and Plowage Lane are already subject to 30mph limits. However, Traits Lane, the unnamed lane to Vale Farm, Downhead Lane and the B3151 are all currently derestricted although should temporarily be subject to speed reductions to between 20mph and 40mph.

Length of traffic management

2.3.12 The overall length of the A303 subject to traffic management (including the approach and departure lengths) is 7.5km. This will require a Departure from Standard (Traffic Signs Manual Chapter 8).

Carriageway closures

2.3.13 It will be necessary to close the A303 between Podimore Roundabout and Hazlegrove Roundabout for various items of permanent and temporary works. These include installation of traffic management (for example contraflows and temporary road markings) installation and removal of the temporary earthworks Bailey bridge, surfacing and construction of tie-ins to existing carriageways.

2.3.14 The majority of the A303 carriageway closures will be overnight (typically 2100hrs or 2200hrs to 0500hrs). Depending on final design detail, however, it is also anticipated that two extended closures (that is, 2000hrs Saturday to 1400hrs Sunday or 2200hrs Friday to 0500hrs Monday) will be required. Provisional details of these closures along with the diversion routes are provided in the appendix B of this document.

2.3.15 The diversion route for the closure of the A303 between Sparkford and Podimore is via the A359 from Sparkford Roundabout to Yeovil and the A37 to the A303 at Ilchester. This is Highways England's diversion route and uses the A359 through Queen Camel where there are a number of narrow sections of carriageway with priority to oncoming traffic. When A303 traffic is diverted it would assist traffic flow if these sections were subject to traffic control (either two-way temporary traffic signals or STOP / GO). The current 7.5T weight limit (except for access) between Sparkford and Two Elms Road south of Marston Magna will be suspended when the A359 is used as a diversion route for the A303.

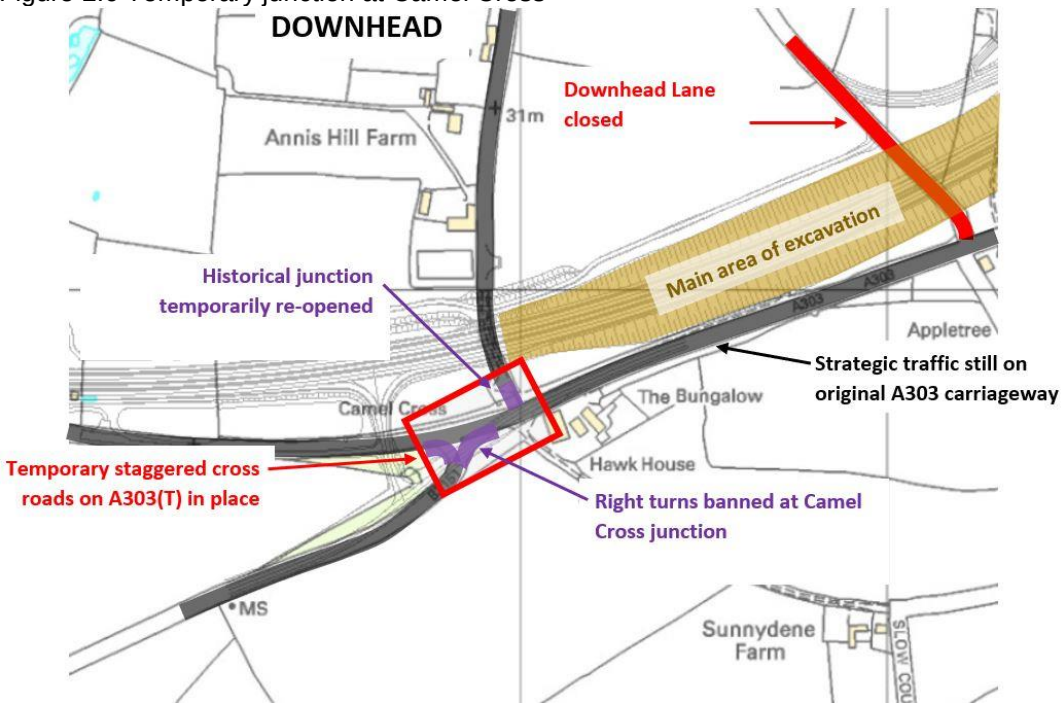
2.3.16 Side road closures will be required as the works progress. Provisional details of these and their associated diversion routes are provided in the appendix B of this document.

2.3.17 A road safety audit will be conducted on each of the diversion routes prior to implementation.

2.3.18 As a result of the phasing of the local road construction two temporary junctions are likely to be required on the A303 whilst it still carries strategic traffic. Road safety audits will be undertaken on the design of these temporary junction layouts prior to their implementation.

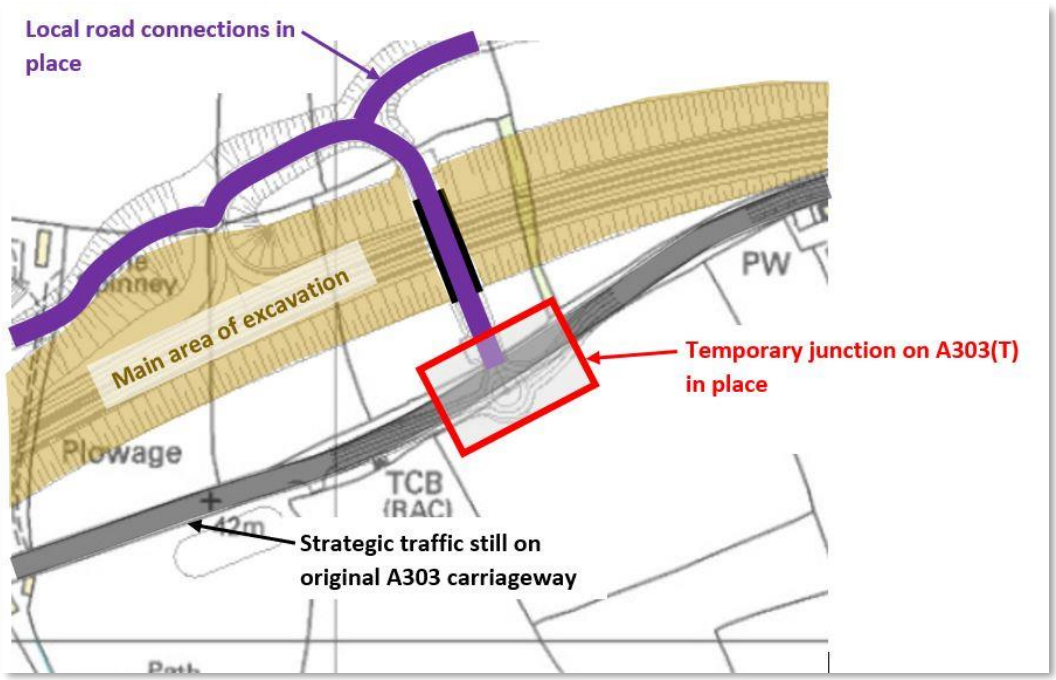
2.3.19 The first temporary junction is at Camel Cross, where the diversion route for the closure of Downhead Lane involves the re-opening of a historical junction opposite the B3151. This is illustrated in Figure 2.6.

Figure 2.6 Temporary junction at Camel Cross



2.3.20 The second temporary junction will be at the proposed junction between the de-trunked A303 and Downhead Junction Link. The Downhead Junction link will be in place and will be carrying local traffic prior to the de-trunking of the A303. It will not be possible to construct the permanent solution (the 'Steart Hill Roundabout') until strategic traffic is running on the new dual carriageway. This is illustrated in Figure 2.7.

Figure 2.7 Temporary junction at Steart Hill Roundabout



Hardshoulder Running

2.3.21 Not applicable.

Adjacent Roadworks and other traffic management

2.3.22 Other major schemes being carried out potentially at the same time as the A303 Sparkford to Ilchester are the A358 Taunton to Southfields and the A303 Stonehenge to Berwick Down Improvement. It is also possible that small improvement schemes and street-works will be undertaken by Somerset County Council on roads affected by the scheme.

2.3.23 A Traffic Management Working Group will be established by Highways England's main contractor. The objective of this group would be to:

- Ensure ongoing co-ordination and co-operation between Highways England and Somerset County Council during the planning of the works.
- Ensure adequate information is prepared for review by Somerset County Council as the consenting authority for Temporary Traffic Regulation Orders.
- Ensure any significant traffic management operations (for example full weekend closures of the A303) are planned well in advance of their implementation.

2.3.24 The Traffic Management Working Group will meet on a monthly basis. The group will be chaired by the Main Contractor and be attended by the traffic management contractor's Traffic Safety and Control Officer (TSCO), Main Contractor's Project Manager, Highways England's Technical Advisor (TA), Highways England's Project Manager, Somerset County Council's Traffic Manager and Somerset County Council's Street-Works Co-ordinator.. It is also recommended that the Project Team are represented at Somerset County Council's quarterly NRSWA co-ordination meetings.

Public and Bank Holidays

2.3.25 Traffic management schemes will remain in place and maintained during Public and Bank Holidays with the exception of full closures of the A303 which will not be permitted at such times.

2.3.26 Figure 2.9 provides details of all anticipated public and bank holidays throughout the works.

Significant events and seasonal traffic

2.3.27 The annual Air Day in July at RNAS Yeovilton attracts up to 40,000 visitors and this will need to be taken into account when planning the works. The A303 is a main route to the south west and as such carries significant holiday traffic at

certain times of the year. Traffic management activities will have to be planned to avoid or cause minimum disruption to holiday traffic.

2.3.28 Somerset County Council operate a traffic management embargo on local roads within the scheme area during the Glastonbury Festival. It should also be noted that SCC operate a local roads embargo for The Royal Bath and West Show in May and, whilst the embargo for this event is not likely to extend into the scheme area there may be indirect impacts.

2.3.29 Figure 2.8 provides details of all anticipated significant events throughout the works.

Figure 2.8 Public holidays and significant events (provisional dates)

School Holidays	Event	2020	2021	2022
Easter	Easter (start)	03-Apr-20	26-Mar-21	08-Apr-22
	Good Friday	10-Apr-20	02-Apr-21	15-Apr-22
	Easter Monday	13-Apr-20	05-Apr-21	18-Apr-22
	Easter (end)	19-Apr-20	11-Apr-21	24-Apr-22
	May Day	04-May-20	03-May-21	02-May-22
	Late May Day	25-May-20	31-May-21	30-May-22
	Glastonbury (start)	26-Jun-19	23-Jun-21	24-Jun-22
	Glastonbury (end)	30-Jun-19	27-Jun-21	28-Jun-22
	Yeovilton Air Day (Royal Navy International Air Day)	11-Jul-20	10-Jul-21	09-Jul-22
Summer	Summer (start)	20-Jul-20	19-Jul-21	18-Jul-22
	August Bank Holiday (also end of Summer)	31-Aug-20	30-Aug-21	29-Aug-22
Christmas	Christmas (start)	21-Dec-20	20-Dec-21	19-Dec-22
	Christmas Day BH	25-Dec-20	27-Dec-21	26-Dec-22
	Boxing Day BH	28-Dec-20	28-Dec-21	27-Dec-22
	Christmas (end)	03-Jan-21	03-Jan-22	03-Jan-23

Incident management

2.3.30 A number of measures can be put in place to assist with incident management, including continuous attendance on site of a Traffic Safety and Control Officer and traffic management maintenance crew who will patrol the works. Closed-Circuit Television (CCTV) installation may also assist and will be considered during detailed planning of the works.

2.3.31 The detailed plan should consider whether it is appropriate that a vehicle recovery service is deployed. This could be in the form of site-based vehicles operating from a static compound(s) or in the form of a call out service managed from a remote control room such as Highways England have used on other schemes.

Incursion Risk Management

2.3.32 Vehicle incursions in to work areas are recognised as one of the highest risks to road worker safety. 250 incursions per month are regularly reported between operations and major projects on the strategic road network, the true figure could be much higher as there is a perception that incursions are normal and accepted as part of the job. An incursion is defined as 'an intentional or unintentional unauthorised entry into temporary traffic management, by all or part of a vehicle being driven by members of the public or emergency services'.

2.3.33 The guidance and recommendations from the Highways Safety Hub will be adopted and current best practice will be used.

Driver compliance

2.3.34 The detailed plan should consider whether Average Speed Cameras should be deployed to enforce the temporary speed limit on the A303. This may be particularly useful on the approaches to the works at the lead-in tapers, where compliance with the temporary limit will greatly improve the flow of traffic.

2.3.35 Journey Time Reliability signing can significantly improve driver compliance as it gives reassurance that delays are not as severe as may be perceived. Mobile Variable Message Signs (VMS) can give actual durations to pass through the roadworks and times to remote destinations. This would be of particular use to westbound holiday traffic when information about the duration to M5 at J25 (Taunton) or M5 J29 (Exeter) could be given and consideration to the provision of these should be included in the detailed plan.

Communications Plan

2.3.36 A Communications Plan will be developed during the 'construction preparation' stage and implemented throughout the construction stage. This plan will be prepared by the main contractor in accordance with the requirements of Highways England's established Project Control Framework (PCF) and is intended to describe the arrangements for engaging local people, road users and stakeholders and then keeping them informed throughout construction. The document will identify all those who need to be informed about the works and level of engagement with them. Information about the works may be provided in various ways: - in the form of a site-specific Highways England webpage (with links from other websites, for example www.roadworks.org), social media, letter drops, public exhibitions and TV / radio presentations. The communication plan will detail response times for queries from the public. It will also show the process for issuing press statements and publicity around major events (that is, road closures or significant temporary alignment changes).

2.3.37 Roadside signage will used to provide advance notice of intended works. This may be in the form of static signs or mobile variable message signs.

2.3.38 Engagement with the local and wider community, including businesses, and the formulation of solutions on an ongoing basis will form an integral part of traffic management where this is possible.

Diversion Route selection

2.3.39 The anticipated diversion routes for the closure of the A303 are those currently used by the Area 2 Asset Support Contractor. These routes were agreed by Highways England and Somerset County Council in 2014. It is recommended that prior to use by the project, a formal Road Safety Audit is carried out or if this is not possible then an independent review of the routes to take account of the additional traffic which will be diverted along them.

2.3.40 A number of local diversion routes have been proposed for the side roads joining / leaving the A303 adjacent to the works. These are provided in appendix B of this document.

Safety Measures

2.3.41 Measures in place to ensure the safety of customer groups, including road users and the work force are detailed throughout this document.

Human Factors

2.3.42 This section will need to be updated in detailed plan and draw upon the pilot studies carried out by Highways England as part of Task 73 (Human Factors Integration). These studies have been designed to help identify the type of efficiencies and value that can be delivered on live schemes from performing human factors activities. The studies looked at incident data review, incident trending, incident hotspot identification and incident reduction options.

2.4 Implications of traffic management measures

Operations

2.4.1 A Detailed Local Operating Agreement (DLOA) will be prepared and agreed with all relevant parties to define precisely which party is responsible for an activity and for response times. The DLOA will describe how each party co-ordinates their works to ensure there is minimal effect on each other’s operations.

Maintenance activities

2.4.2 The DLOA will set out the division of maintenance responsibility within the works limits.

Other service providers

2.4.3 It is not believed that there are any other service providers present on this section of the A303.

Public transport operators

2.4.4 Impact of the proposed traffic management on public transport will be assessed and mitigated during further stages of development of this plan, throughout 2019.

Emergency services

2.4.5 Impact of the proposed traffic management on emergency services will be assessed and mitigated during further stages of development of this plan, throughout 2019. In particular, the Chief Officer of the Police will be consulted in accordance with Article 19 of the draft Development Consent Order.

Abnormal loads

2.4.6 Impact of the proposed traffic management on the management of abnormal loads will be assessed and mitigated during further stages of development of this plan, throughout 2019. In particular, the procedure for management of abnormally wide vehicles will be reviewed with respect to proposals for narrow lane running on the A303.

3 Non-Motorised User Management Plan

3.1 Introduction

3.1.1 The management of off-carriageway highways and non-motorised user (NMU) facilities during construction will be dependant upon the construction sequencing adopted by the main contractor. The main contractor will develop this part of the detailed plan throughout 2019 in preparation for the commencement of construction. The following section contains outline proposals.

3.1.2 The local highway authority will be consulted during development of this plan.

3.2 General

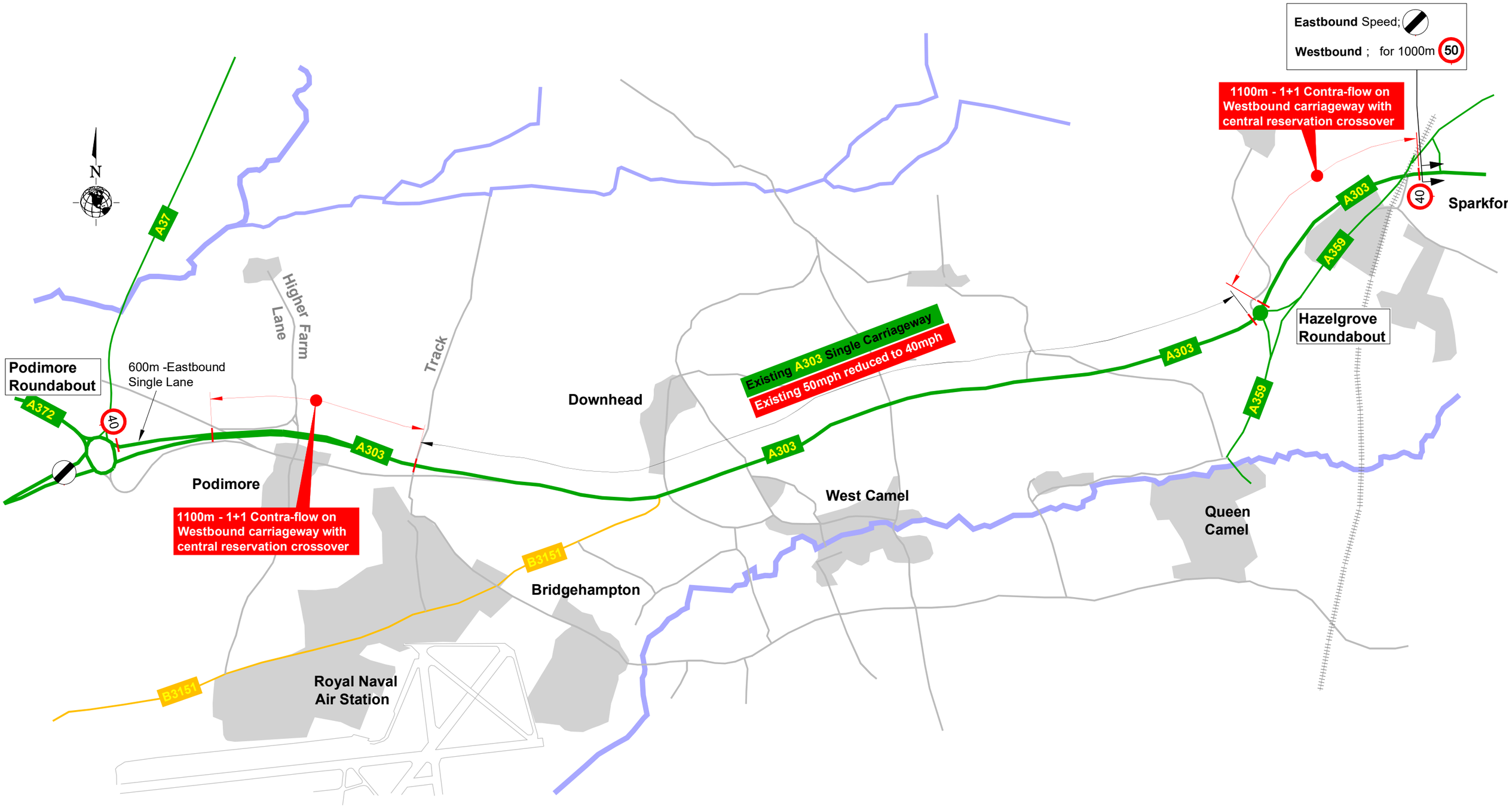
3.2.1 Ten Public Rights of Way (PRoWs) will be affected by the scheme. PRoWs that are scheduled to be permanently closed (with no permanent alternative) as part of the works will be closed in March 2020 to facilitate construction works with diversions in place along alternative routes. This applies to 6 of the affected PRoWs (references Y30/28, Y27/29, Y27/21, WN23/32, WN23/10 and WN23/33).

3.2.2 PRoWs that are scheduled to be permanently diverted will, if possible, be diverted onto their new permanent route early in the construction process. However, if this is not possible temporary diversions will be required until the permanent route has been established. This applies to the remaining 4 PRoWs (references Y27/36, Y27/10, Y27/9 and WN23/12).

4 TM Plan Management

4.1.1 Management of this document during planning and implementation of traffic management works will be the responsibility of Highways England's main contractor.

Appendix A: Traffic management schematic



A303 Sparkford to Ilchester buildability support and advice
Traffic Management Schematic - OPTION 1

2748/17

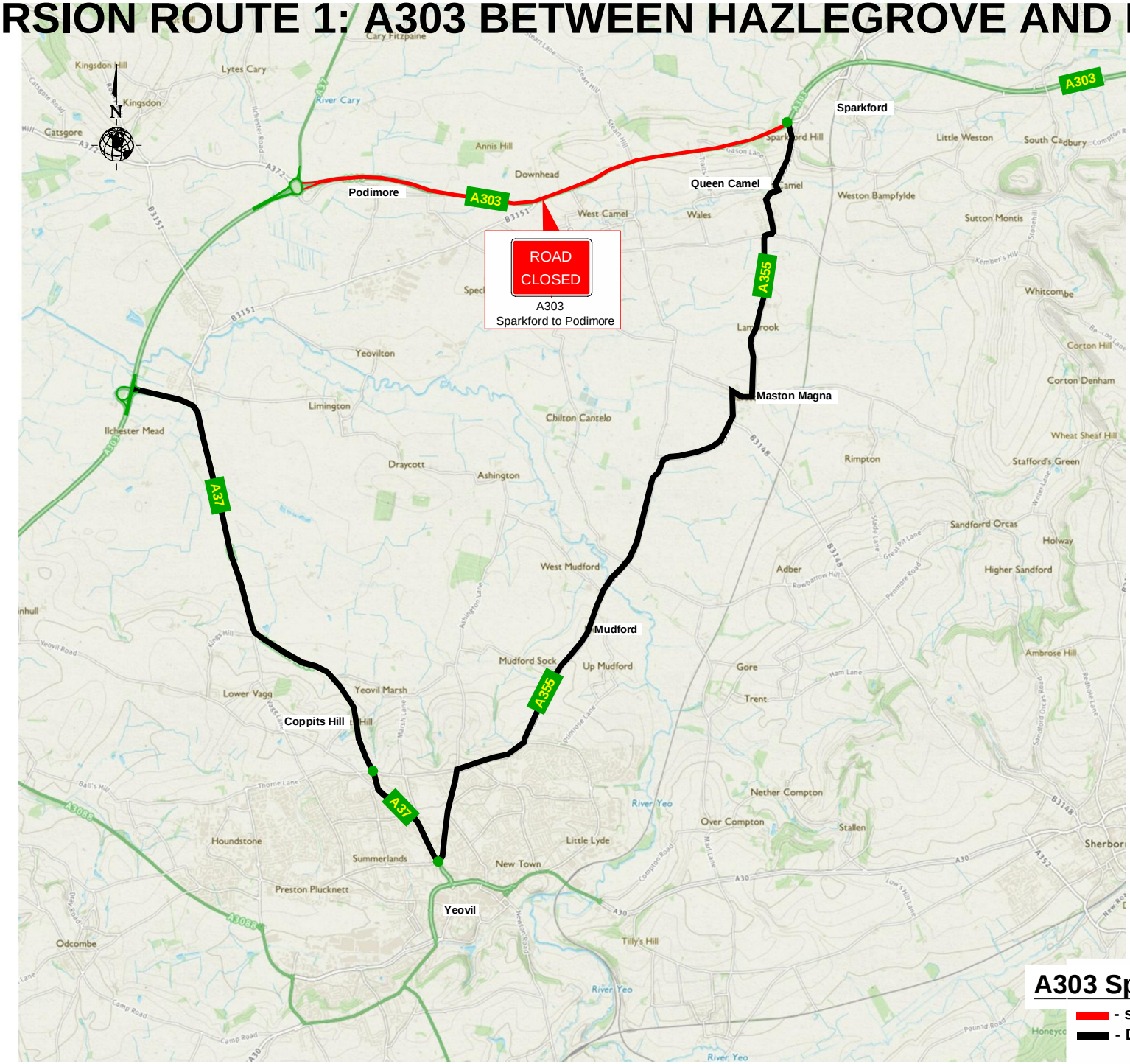
Appendix B: Schematic drawings for diversion routes

Route	Closure of	Diversion via	Notes
1	A303 between Hazlegrove and Podimore Roundabouts	A359 / Yeovil / A37	
2	A303 between Wincanton and Hazlegrove Roundabout	A371 / Castle Cary / A359	
3	Westbound off-slip to Podimore	Podimore Roundabout	
4	Traits Lane and Gason Lane junctions with A303	A359 / Blackwell Road	
5	Steart Hill junction with A303 at Canegor Corner	Steart Hill / Babcary / Sparkford Road / High Street Sparkford	See Notes
6	Howell Hill junction with A303 at Canegore Corner	Fore Street / Keep Street	
7	Plowage Lane at junction with A303	Fore Street / Keep Street	
8	Downhead Lane junction with A303	Historical junction at Annis Hill Farm, Camel Cross	
9	B3151 junction with A303 at Camel Cross	B3151 / Ilchester / A37	See Notes

N.B. Implementation dates are to be confirmed during detailed planning of the works

N.B. it is anticipated that the Steart Hill and B3151 junctions will remain open throughout the works, although movement to and from the A303 may be restricted to left turning manoeuvres only. It may be necessary to close these junctions during overnight periods.

DIVERSION ROUTE 1: A303 BETWEEN HAZLEGROVE AND PODIMORE



A303 Sparkford to Podimore

- section of Road CLOSURE
- Diversion Route (2 Way)

17/1/18

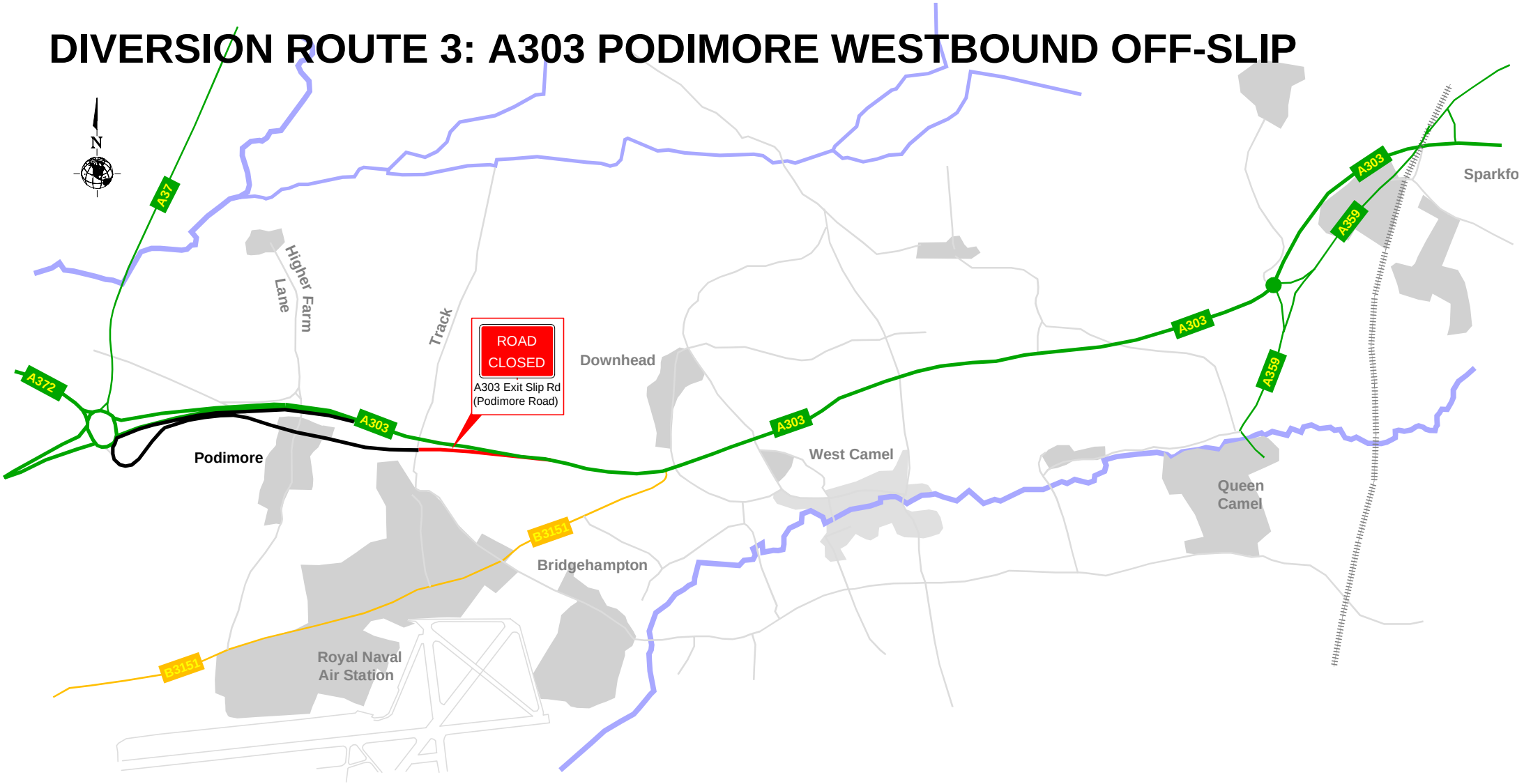
DIVERSION ROUTE 2: A303 BETWEEN WINCANTON AND HAZLEGROVE

A303 Wincanton to Sparkford

- section of Road CLOSURE
- Diversion Route (2 Way)

22/1/18

DIVERSION ROUTE 3: A303 PODIMORE WESTBOUND OFF-SLIP

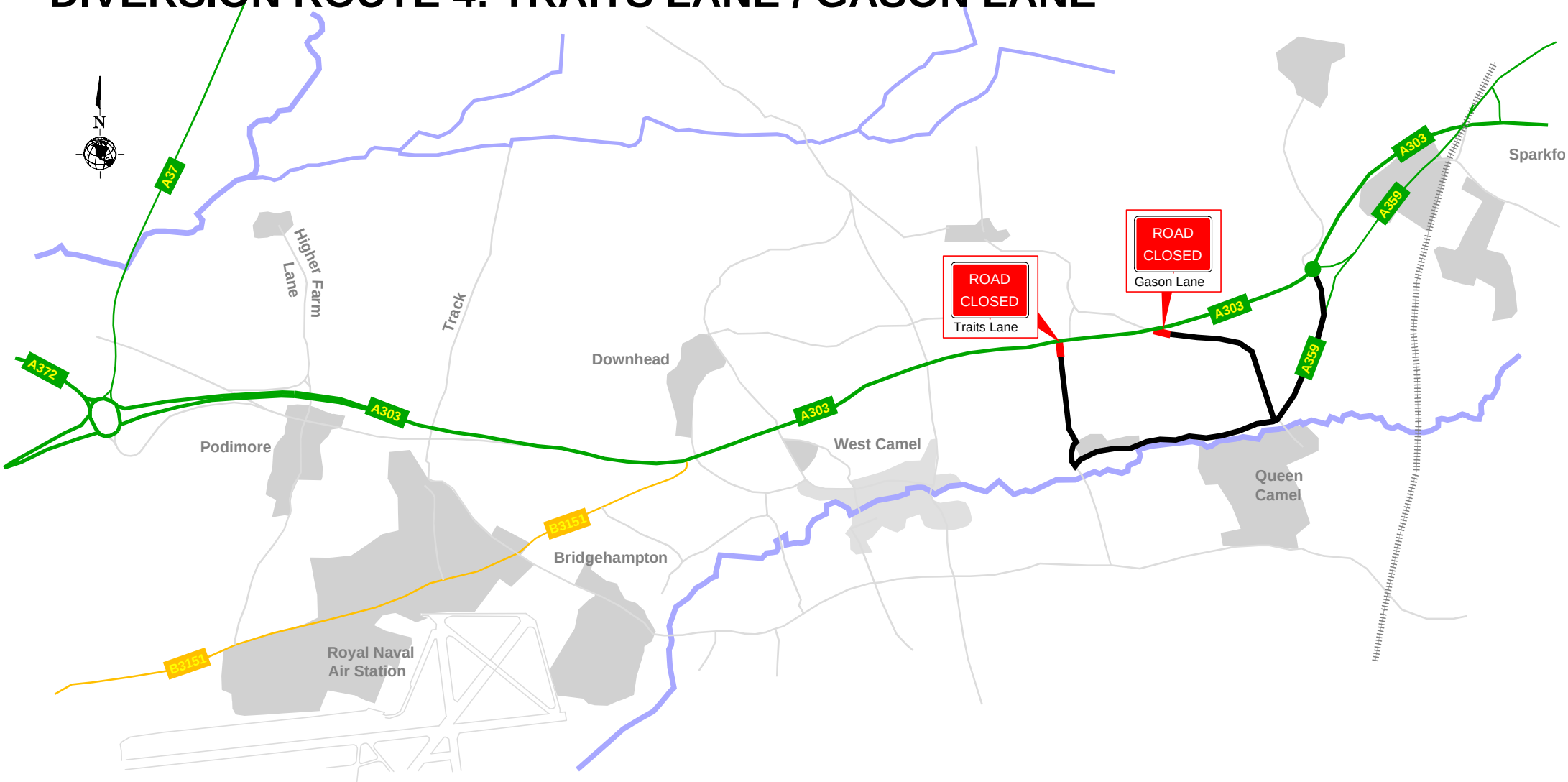


A303 Exit Slip Road

- section of Road CLOSURE
- Diversion Route

17/1/18

DIVERSION ROUTE 4: TRAITS LANE / GASON LANE

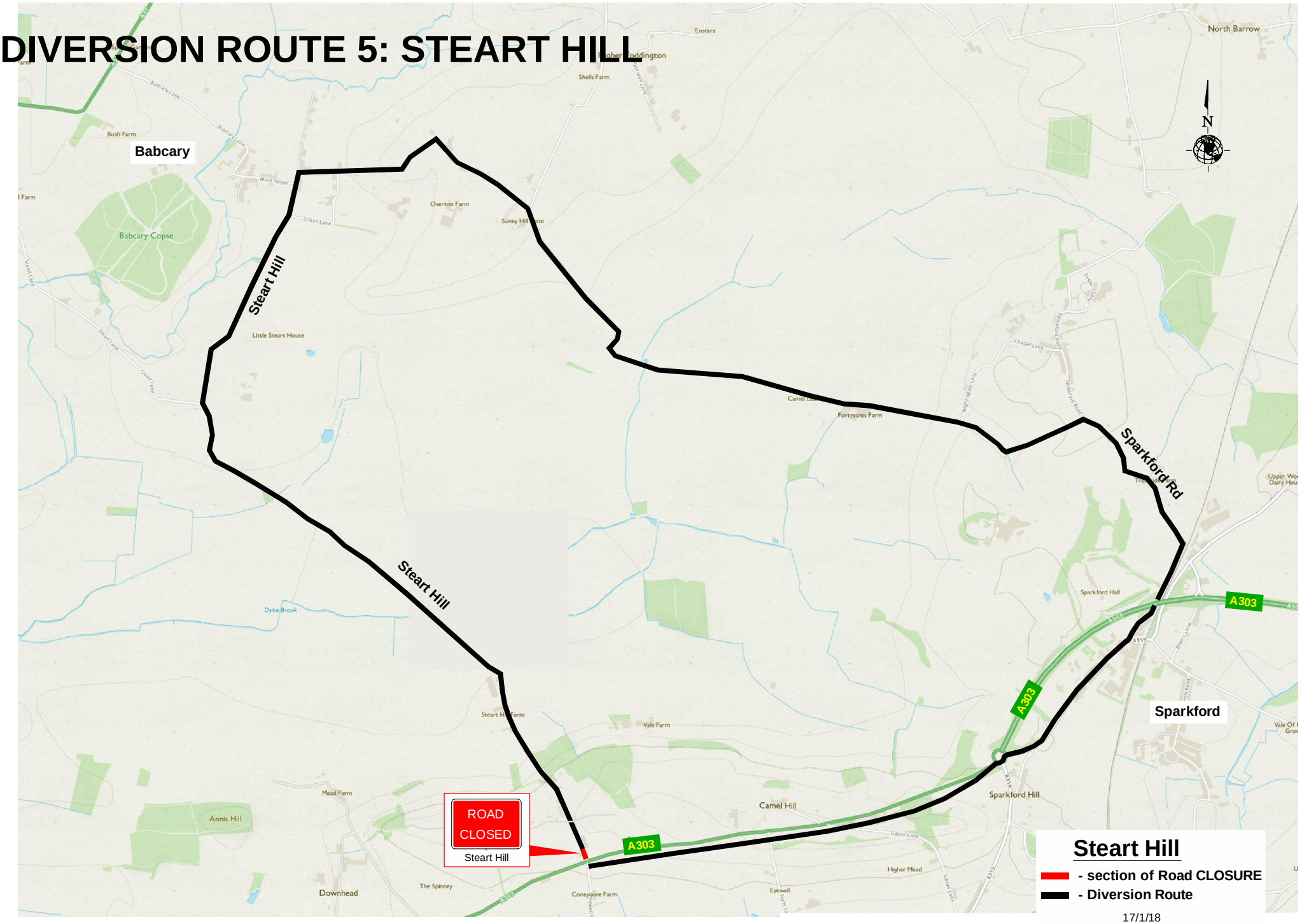


Traits Ln / Gason Ln

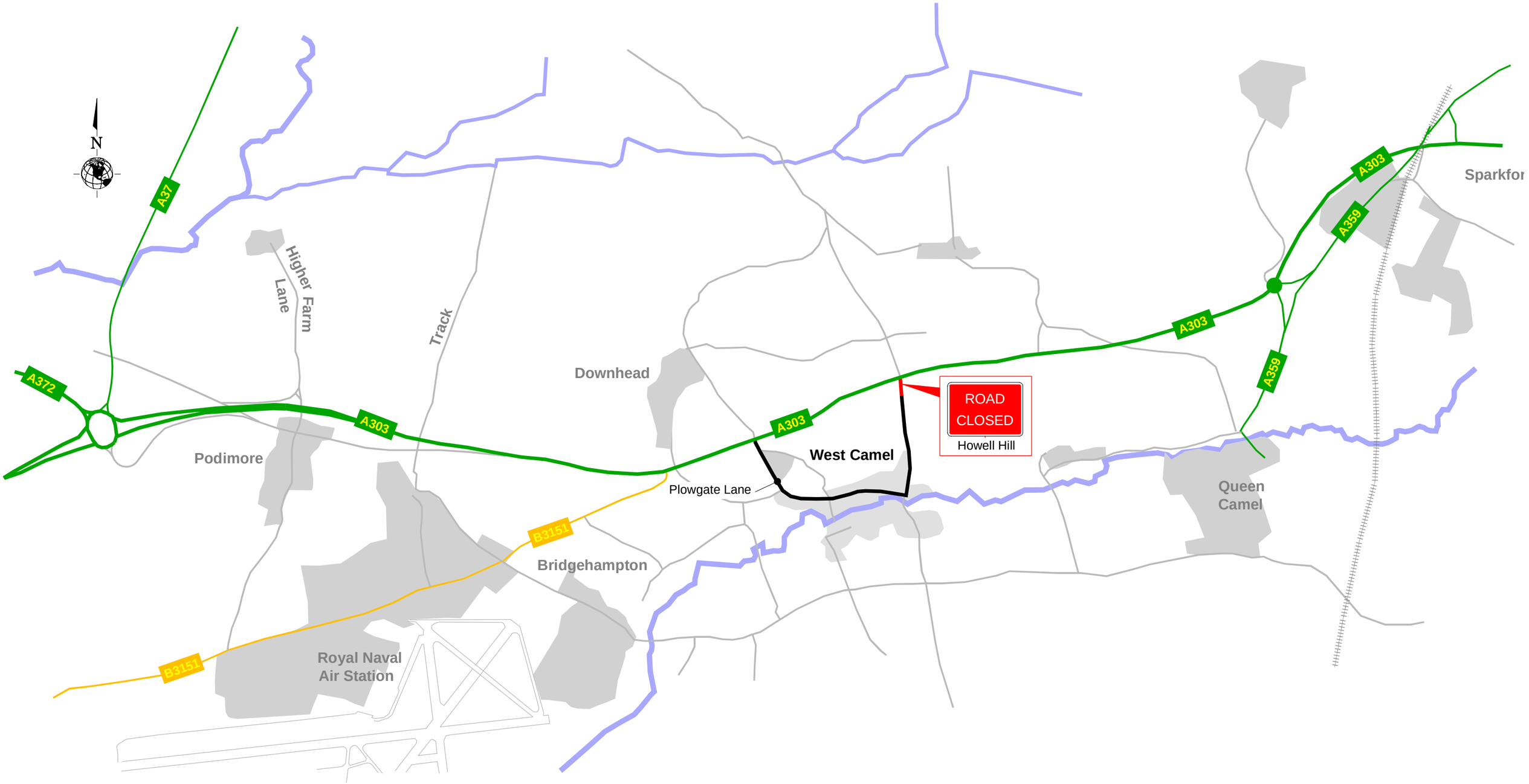
- section of Road CLOSURE
- Diversion Route (2 way)

17/1/18

DIVERSION ROUTE 5: STEART HILL



DIVERSION ROUTE 6: HOWELL HILL

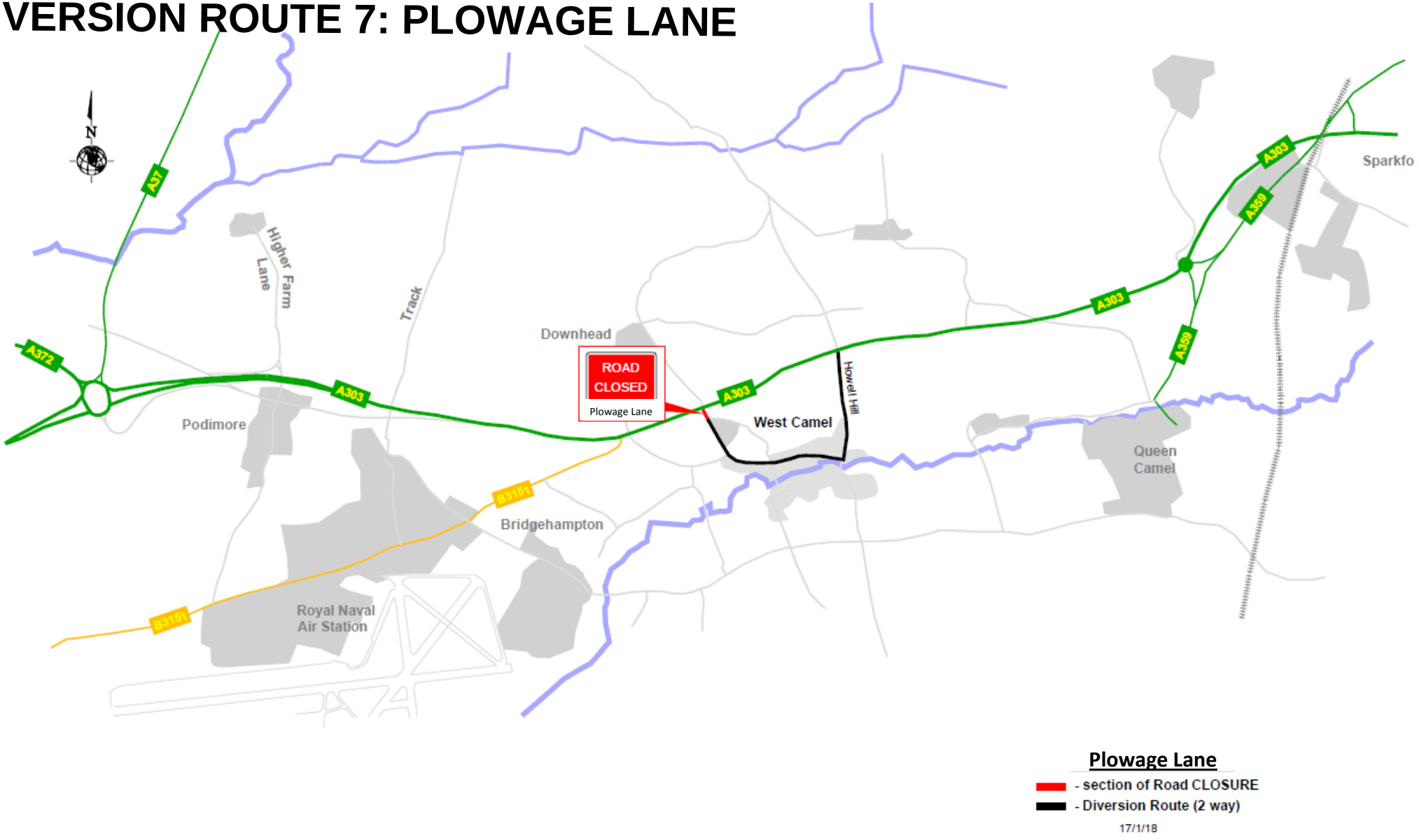


Howell Hill

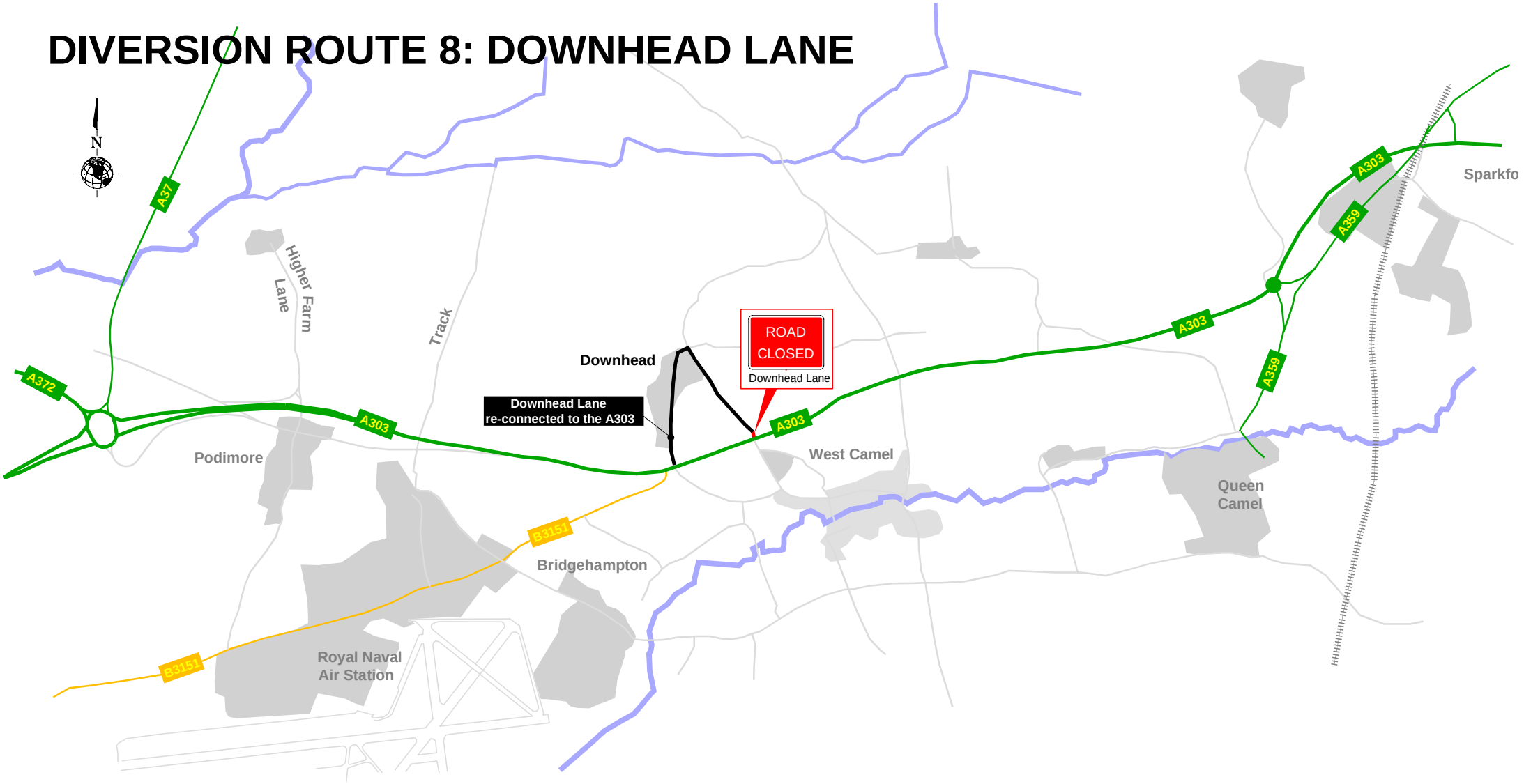
- section of Road CLOSURE
- Diversion Route (2 way)

17/1/18

DIVERSION ROUTE 7: PLOWAGE LANE



DIVERSION ROUTE 8: DOWNHEAD LANE



Downhead Lane

- section of Road CLOSURE
- Diversion Route (2 way)

17/1/18

DIVERSION ROUTE 9: B3151

B3151 - Yeovilton Road

- section of Road CLOSURE
- Diversion Route (2 way)

17/1/18

Appendix C: Temporary road closures and regulatory measures

Provisional schedule of temporary speed limits

Road	Approximate extent	Current speed	Provisional temporary speed limit
A303 (both directions)	Between Sparkford Railway Bridge and approx. 120m west of Hazlegrove Roundabout	National speed limit	40 mph
A303 (both directions)	Between approx. 120m west of Hazlegrove Roundabout and Podimore Bypass	50mph	40 mph
A303 (both directions)	Podimore Bypass	National speed limit	40 mph
A303 (westbound)	Sparkford railway bridge eastwards for approximately 1km	National speed limit	50 mph
B3151	Between 150m east of Stockwitch Cross and Camel Cross	National speed limit	40 mph
Westbound off slip to Podimore	Full extent	National speed limit	40 mph
Downhead Lane	Approach to A303	National speed limit	30 mph
Plowage Lane	Approach to A303	30mph	No change proposed
Steart Hill	Approach to A303	30 mph	No change proposed
Howell Hill	Approach to A303	30 mph	No change proposed
A359 High Street	Approach to Hazlegrove Roundabout	National speed limit	40 mph
A359 to Queen Camel	Approach to Hazlegrove Roundabout	National speed limit	40 mph

NB Implementation dates are to be confirmed during detailed planning of the works
Temporary speed limits are subject to further review during development of the detailed plan

Provisional schedule of temporary road closures / access restrictions

Road	Approximate extent	Timescales
A303	Between Hazlegrove Roundabout and Podimore Roundabout	2 full weekend (22:00hr Friday to 05:00 Monday) or 3 weeks of overnight closures. Possible overnight closures at other times.
B3151 / A303	Right turns banned to/from the A303 at Camel Cross junction	TBC
Downhead Lane	Approach to A303 to be temporarily via lane alongside Annis Hill Farm	TBC
Steart Hill	Right turns banned to/from the A303 at junction with A303 (Canegore Corner)	TBC
Howell Hill	Junction with A303 to be closed	TBC

N.B. permanent closures are not scheduled in this document
N.B. Implementation dates are to be confirmed during detailed planning of the works

Provisional schedule of temporary revocation of weight restriction

Road	Approximate extent	Timescales
A359	Between Hazlegrove Roundabout and Two Elms Road south of Marston Magna	2 full weekend periods (22:00hr Friday to 05:00 Monday) or 3 weeks of overnight closures. Possible overnight revocations at other times.

N.B. Implementation dates are to be confirmed during detailed planning of the works

B.6 Communications Relations Strategy

A Community Relations Strategy would be produced prior to construction, by the appointed Contractor. The Community Relations Strategy should aim to identify issues that are important to local people through ongoing dialogue and outreach and aims to use feedback received to improve scheme proposals. A Community Relations Strategy also acts as an effective communications channel to keep local people informed of updates and progress. Ideally a 2-way process, an effective community engagement strategy is based on transparency and meaningful dialogue that engenders trust and confidence between promoter and communities.

- Community outreach
- Issues understanding
- Scheme updates
- Scheme optimisation

B.7 Landscape and Ecological Management Plan

A Landscape and Ecological Management Plan (LEMP) would be produced by the appointed Landscape Architect and Ecologist prior to construction. This should take the form of a Series 3000 Landscape and Ecology[16]. The Series 3000 would specify the landscape construction and maintenance works required for the contracted works.

Specified elements within the Series 3000 should include timings, frequency, preparatory works, materials, tools, reference drawings, procedures, responsibilities and exclusions required for the contractor to implement, establish and maintain the scheme. It is recommended that the Series 3000 document is made up of the following aspects detailed within Table B.1 below:

Table B.1: Indicative contents of LEMP

Chapter	Indicative contents / aim of chapter
Introduction	• Scheme description • Objectives of the LEMP - The Landscape and Ecological Management Plan (LEMP) will provide information on the management of landscape and ecological elements within the site boundary during its operation. The LEMP will identify the landscape and ecological mitigation measures set out in the Environmental Statement for the Scheme and provide information on how the measures will be delivered through landscape works and management in the future to ensure the objectives of the Scheme are achieved. It should be noted that the LEMP is intended to be a "live" document and to evolve during the construction process. - The LEMP will identify the management types and maintenance objectives for the five-year aftercare period as well as providing a long-term management strategy with the long term aim of creating a sustainable landscape and habitat areas. It will also provide a document suitable for the future management of the site by others. • Roles and responsibilities
ENVIS Requirements	This section will address EnvIS (Environmental Information System) as Highways England's primary tool for the recording of environmental assets, and the prescription of environmental management actions. Environmental design data will be submitted to Highways England in accordance with IAN 84/10 to provide a useful mechanism to review the progress and performance of environmental objectives in the future.
Landscape and Ecological Context	• Landscape Character and Visual Context and general mitigation approach. • Ecological Context and general mitigation approach.
Landscape and Environmental objectives and functions	Definition of landscape elements and landscape and environmental function in line with DMRB Volume 10 for each element (planting type or other environmental mitigation feature) relevant to the scheme for example Species Rich Grassland or ecological feature such as hibernacula.

[16] Highways England (2001) Manual of Contract Documents for Highway Works Volume 1 Specification for Highway Works: Series 3000 Landscape and Ecology [online] available at: http://www.standardsforhighways.co.uk/ha/standards/mchw/vol1/pdfs/series_3000.pdf (last accessed June 2018).

Chapter	Indicative contents / aim of chapter
Landscape and Ecological Management	• Reference to Series 3000 (to be appended to LEMP) for detailed specification of actions to be undertaken during implementation and maintenance of planting during aftercare period. • Landscape Management • Management actions and frequency of actions required for each landscape element within scheme boundary. • Pre-construction and construction phase habitat and species mitigation measures, including those required under Natural England development licences. These include: - Pre-construction or update surveys; - Creation or enhancement of habitats as receptor areas for species, to include installation of features such as wildlife boxes and hibernacula; - Exclusion of species such as great crested newts, reptiles barn owls and badgers from the works area, where necessary; - Sensitive timing and method of habitat removal, to include destructive searches where appropriate and retention of soils for seedbank translocation of sensitive habitats; - Implementation of temporary mitigation measures, such as fencing/ demarcation of retained habitats and buffers around sensitive receptors; - Implementation of measures to ensure continued habitat connectivity during construction, such as dead hedging; - Ecological Clerk of Works responsibilities; - Toolbox talks to site personnel; - Supervision of installation of permanent mitigation features such as the badger tunnel; amphibian ladders; wildlife boxes (additional to those mentioned above) and bat house; • Post construction management actions and frequency of actions required for ecological mitigation interventions, to include - Creation of habitat areas including nutrient poor managed grassland; wildflower and species rich grassland; woodland and hedgerow habitat; - Management of retained and created habitats up to 5 years post construction to optimise benefits for protected and notable species; - Monitoring of species for up to 5 years post construction including great crested newts; reptiles, barn owls and badgers.

B.8 Scheme Asbestos Management Plan

Annex C – Environmental method statements

To be produced prior to construction by the appointed PC. This section should include relevant method statements where commitments have been made to do so, including, but not limited to:

- Protected species
- Buried archaeology

Annex D – Emergency procedures and record of environmental incidents

To be produced prior to construction by the appointed PC. This section should 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; and
- details of any contact with enforcing bodies.

Annex E – Final environmental investigation and monitoring reports

To be produced prior to construction by the PC. 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 location of these if easily accessible elsewhere.