A1 Birtley to Coal House

Scheme Number: TR010031

7.4 Outline Construction Environmental Management Plan

APFP Regulation 5(2)(q)

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A1 Birtley to Coal House

Development Consent Order 20[xx]

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APPENDICES

1. INTRODUCTION & BACKGROUND TO THE SCHEME

1.1. BACKGROUND

1.1.1. This Outline Construction Environmental Management Plan (Outline CEMP) relates to the A1 Birtley to Coal House Scheme (the Scheme) and has been developed in support of Highways England's application for a development consent order (DCO) to authorise construction and operation of the Scheme.

1.1.2. An Environmental Impact Assessment (EIA) has been carried out for the Scheme and is reported in the Environmental Statement (ES) (**Application Document Reference: TR010031/APP/6.1)**. This CEMP is intended to give effect to mitigation contained in the ES.

1.1.3. The Outline CEMP has been produced in accordance with Highways England Interim Advice Note (IAN) 183/14, Environmental Management Plans **(Ref 1.1)**, other relevant publications, including CIRIA Environmental Good Practice on Site (2015) (**Ref 1.2**) and has been informed by professional experience. References to the Design Manual for Roads and Bridges (DMRB) and any IANs also refer to any revised or replacement documents.

1.1.4. The Outline CEMP accompanies the Application and is referred to as the "Outline CEMP" because it contains mitigation as intended at the point of application and in examination of the Application, but will be superseded by a more detailed CEMP in due course. Following the making of the DCO and prior to commencement of construction of the Scheme, a final CEMP will be produced by the main contractor. This will contain more detailed information and methodologies on the design and construction of the Scheme. It is straightforwardly referred to as the "CEMP". The CEMP will be developed to include, but not limited to, the following specific management plans as identified in the Register of Environmental Actions and Commitments (REAC) (see **Section 3** of this Outline CEMP):

- Communications Plan
- Construction Traffic Management Plan
- Archaeological Mitigation Strategy
- Landscape Management Plan
- Ecological Management Plan including the Invasive Non-Native Species Management Plan
- Soil Handling Strategy
- Materials Management Plan (MMP)
- Site Waste Management Plan (SWMP)
- Water Management Plan including the Temporary Surface Water Drainage Strategy
- Any other specific management plans identified during subsequent stages of the Scheme

1.2. PURPOSE OF THE CEMP

1.2.1. The ES identifies those measures that are envisaged and proposed to avoid, prevent, reduce or, where possible and appropriate, offset the potential environmental impacts associated with the construction of the Scheme. This Outline CEMP brings together these measures and details how they will be delivered.

1.2.2. The Outline CEMP provides details of environmental roles and responsibilities, details of consents and permissions, collection and submission of environmental data, environmental

maintenance and monitoring requirements including procedures for monitoring and reviewing compliance with the CEMP. It also deals with induction, training and briefing procedures for those carrying out the Scheme.

1.2.3. It also contains a record of the Scheme specific environmental actions and commitments to be implemented and managed through all stages of the Scheme.

1.2.4. The Outline CEMP enables the Examining Authority and Secretary of State (SoS) to identify those mitigation measures that are secured through the DCO.

1.2.5. This Outline CEMP is based on the preliminary design as submitted with the application, and will be refined, developed and expanded upon as detailed design progresses, construction methodologies are finalised, and more information becomes available. The Outline CEMP will form the basis of the CEMP which will be produced by the main contractor prior to construction. The CEMP will be a living document that will be maintained and updated to take account of the following:

- Changes in design
- Changes in external factors such as regulations and standards
- Any unforeseen circumstances as they arise such as new protected species or new archaeological finds
- The results of inspections and audits
- Learning points from environmental near misses and incidents

1.3. THE SCHEME

1.3.1. The Scheme is located between land north of junction 67 (Coal House) and junction 65 (Birtley) of the A1 in Gateshead. It aims to increase capacity and reduce congestion along this section of the A1 trunk road. Most of the work will take place within the existing highway boundary. However, some permanent and temporary land-take will be required alongside the A1 at certain points to enable the additional lanes to be constructed and the construction of an offline replacement for Allerdene Bridge.

1.3.2. The Scheme will provide additional road capacity by widening the southbound carriageway to four lanes and widening of the northbound carriageway to three lanes (with an additional lane between junctions) between junction 67 (Coal House) and junction 65 (Birtley). The additional lane between the junctions will help manage traffic joining and leaving the A1 on the northbound carriageway. The Scheme will also include minor changes to signage and road markings on the southbound carriageway between just south of junction 68 (Lobley Hill) and junction 67 (Coal House).

1.3.3. The Scheme includes a replacement bridge structure where the A1 crosses over the East Coast Main Line (ECML), 40m to the immediate south of the existing Allerdene Bridge structure, which would tie in to the existing carriageways at junction 67 (Coal House) and north of junction 66 (Eighton Lodge). The Scheme would include a replacement North Dene Footbridge located between junction 66 (Eighton Lodge) and junction 65 (Birtley) to accommodate the widening of the A1. Diversion of existing utilities would also be required as part of the Scheme.

1.3.4. Two options have been identified for the construction of the replacement for Allerdene Bridge, as follows:

- Allerdene embankment option – a single span bridge supported by embankments which utilises ground improvements in the form of rigid inclusions e.g. controlled modulus columns.
- Allerdene viaduct option – a multi span viaduct structure supported on piled foundations 40-45m deep, which ties into existing embankment structures at either end.

1.3.5. Northern Gas Networks (NGN) apparatus would be diverted and a new Above Ground Installation (AGI) constructed to the south of the Scheme. The existing Regulator building at Lamesley would be demolished. NGN are currently in discussion with Gateshead Council with regards to securing these works under the Town and Country Planning Act 1990. They are also discussing the option with Gateshead Council of this work being agreed under Permitted Development Rights as opposed to a formal planning application. However, to ensure that the NGN works can be delivered with certainty, the works are also included in this application. The CEMP implemented by the contractor following the making of the DCO will reflect the option selected for the delivery of the replacement Allerdene Bridge.

1.3.6. Fuller details on the Scheme can be found in the ES **Chapter 2** The Scheme (**Application Document Reference: TR010031/APP/6.1**).

1.3.7. The Scheme Footprint, which comprises both permanent and temporary land required to build, operate and maintain the Scheme is shown on **Figure 1: Site Compound Overview Plan** in **Appendix A** of this Outline CEMP.

LOCATION AND SURROUNDS

1.3.8. The Scheme is located on the A1 Newcastle Gateshead Western Bypass (NGWB) between just south of junction 68 (Lobley Hill) and junction 65 (Birtley), in the metropolitan borough of Gateshead and is approximately 6.5km in length. Further details can be found on **Figure 2.1** Scheme Location Plan (**Application Document Reference: TR010031/APP/2.1**).

1.3.9. The Scheme is located in an area of mixed residential land, rural and agricultural land, industrial land, recreational land, public open space and urban fringe. The majority of the land in which the Scheme is situated is Green Belt. The Angel of the North, a culturally significant monument, is located adjacent to the Scheme. Nearby Scheduled Monuments (SMs) include Bowes Railway, Ravensworth Coalmill and Ravensworth Castle. The Scheme intersects Ravensworth Conservation Area. There are adjacent woodlands (Longacre Dene, Hill Head) listed in the Ancient Woodlands Inventory 2011. Other land uses include Lamesley Conservation Area (and listed buildings) and large areas of agricultural land.

1.3.10. The River Team runs underneath junction 67 (Coal House) and continues to flow in a northerly direction through Team Valley Trading Estate where it is heavily modified, and onward to the River Tyne at Dunston. The River Team floodplain occupies areas from the outskirts of Birtley in the south, through Lamesley and around Coal House roundabout, and continues through Team Valley. The River Team wildlife corridor is situated largely to the south of, but also crossing, the A1 and is made up of Lamesley Pastures Local Wildlife Site (LWS), Tyne Marshalling Yard, Lamesley reed beds mine water treatment area, Bowes Railway SM and bridleway and Longacre Wood LWS.

CONSTRUCTION PROGRAMME

1.3.11. The indicative timeframes for the construction of the Scheme are provided in **Table 1-1** below.

Table 1-1 - Indicative construction programme

Activity	Timeframe
Northern Gas Network (NGN) diversion works	Spring 2020 – Spring/Summer 2021
Site mobilisation	Winter 2020/21
Main construction works	Winter 2020/21 – Winter 2023/24
Site demobilisation and reinstatement	Winter 2023/24

1.3.12. The following hours of work will be adhered to on site:

- Weekdays: 07.00 – 19.00
- Saturdays: 07.30 – 13.00
- There will be no working on Sundays, Bank and Public Holidays (except in each case for works relating to the replacement of Allerdene Bridge for which possessions of the ECML are required). Where works are required to be carried out outside these hours this will be agreed in writing in advance with the local authority as the relevant planning authority.

PROPOSED WORKS

1.3.13. The main construction works are split into eight areas as follows:

- NGN Works
- Aspect 1 – site mobilisation
- Aspect 2 – works on the ECML that are required for the demolition and replacement of Allerdene Bridge
- Aspect 3 – to and through the approach at junction 67 (Coal House)
- Aspect 4 – Allerdene Bridge
- Aspect 5 – east of Allerdene Bridge to junction 65 (Birtley)
- Aspect 6 – tie-in works
- Aspect 7 – removal of Allerdene Bridge and approaches
- Aspect 8 – site demobilisation
- Aspects 3, 4 and 5 together cover the full length of the Scheme. They are identified separately as each has a different Traffic Management (TM) strategy to enable the works to be constructed.

1.3.14. Further details of the works proposed within each aspect listed above can found in **Section 2.9** of the ES (**Application Document Reference: TR010031/APP/6.1**).

CONSTRUCTION COMPOUNDS

1.3.15. Two main construction compounds and two working construction compounds (**Figure 1 in Appendix A** of this Outline CEMP**)** will be set up to enable the Scheme to be built. The main construction compounds will include staff parking, site accommodation, materials storage, road sweepings management, facilities to wash vehicles and plant and vehicle maintenance areas. The main compounds will be secure - gated, fenced and 24-hour security provided, will be hard surfaced and will implement a one-way system. The compounds will be located as follows:

- Junction 66 Eighton Lodge compound - to the north of the A1, north east of Eighton Lodge roundabout
- Junction 67 Coal House compound - to the south of the A1, east of Coal House roundabout on NGN land

1.3.16. The working compounds will be smaller compound areas set up to enable specific works at Longbank Bridleway Underpass (widening) and Allerdene Bridge (demolition) and will comprise a secure fenced and gated area with site welfare, parking and materials storage. The working compounds are located as follows:

- Longbank compound - to the north of the A1, west of Longbank Bridleway Underpass
- Allerdene compound - to the north east of the existing Allerdene Bridge

CONSTRUCTION TRAFFIC MANAGEMENT

1.3.17. An Outline Construction Traffic Management Plan (Outline CTMP) has been produced to support the EIA and this Outline CEMP and is included in **Appendix B**. This will be further developed into a Construction Traffic Management Plan (CTMP) by the main contractor prior to the start of construction of the Scheme.

1.4. SCHEME OBJECTIVES

1.4.1. The specific objectives of the Scheme are as follows:

- **Supporting economic growth**: The Scheme forms part of a wider government initiative for growth in the north-east and aims to support economic growth by improving the road to the Newcastle and Tyneside area.
- **A safe and serviceable network**: The Scheme aims to reduce accidents and improve journey time reliability which will lead to a reduction in driver stress and delays.
- **A more free-flowing network**: The traffic model used to design the Scheme predicts that road users travelling through the Scheme will benefit significantly from reduced journey times as a result of the proposal.
- **Improved environment**: The environmental effects resulting from the Scheme have been considered during previous stages of development. Measures to mitigate potential effects on the local environment have been identified and will be further refined as the Scheme design is finalised. Opportunities to improve the local environment are also being sought as part of the final Scheme design.
- **An accessible and integrated network**: The Scheme will provide improved connectivity with the local road network. Access and safety for pedestrians, cyclists and horse riders will be considered as part of the Scheme. We are upgrading the road to accommodate abnormal loads.

2. PROJECT TEAM ROLES AND FUNCTIONS

2.1.1. The main roles and responsibilities to be adhered to throughout construction of the Scheme are set out in **Table 2-1**.

Table 2-1 - Responsibility matrix

Role	Key Environmental Functions
The Applicant (Client - Highways England)	▪ Set the framework and policy for environmental requirements and objectives for the Scheme. ▪ Approve draft Outline CEMP for submission as part of the Application. ▪ Approve CEMP prior to submission to the SoS for approval under the terms of the DCO. ▪ Primary responsibility for all matters under the DCO, its requirements and the CEMP.
Environmental Consultant (designer)	▪ Carry out EIA to identify potential environmental impacts, mitigation measures and significant effects. ▪ Produce the CEMP. ▪ Provide information to the design team to ensure Scheme design meets environmental requirements. ▪ Development of topic specific management plans where necessary.
Archaeologist (designer)	▪ Produce the Cultural Heritage Management Plan within the CEMP before construction. ▪ Produce a suitable mitigation strategy for unknown archaeological remains and agree it with the County Archaeologist. ▪ Oversee archaeological investigation works for the Scheme. ▪ Work with the Environmental Manager to review, update and maintain the Archaeology and Cultural Heritage Management Plan throughout the works. ▪ Produce the Written Scheme of Investigation (WSI) for the work to Bowes Railway SM and agree it with Historic England. ▪ Ensure all mitigation agreed with Historic England for the impacts from those works outlined in Article 39 and Schedule 10 of the draft DCO (**Application Document Reference: TR010031/APP/3.1**) are discharged on site and documented.
Landscape Specialist (designer)	▪ Oversee and monitor the implementation of the landscape mitigation strategy Figure 7-6 Landscape Mitigation Design

Role	Key Environmental Functions
	(**Application Document Reference: TR010031/APP/6.2**) on site. ■ Oversee and monitor the establishment/maintenance of the landscape works throughout the period from completion to the issue of the Defects Certificate relating to planting. ■ Verifies the issue of Design Certificates related to landscape works. ■ Monitors and assesses the development of the Scheme in its landscape context throughout the contract maintenance period and provides inputs to the CEMP and Handover Environmental Management Plan (HEMP).
Ecologist (designer)	■ The Suitably Experienced Ecologist (SEE) will have recent experience in ecological assessment for highway schemes with recent experience on United Kingdom (UK) schemes. The Ecologist will be a Member of this Institute of Ecology and Environmental Management (IEEM) or other relevant professional organisations, with at least two years membership. ■ The ecologist will be responsible for working with the Environmental Consultant to produce the Ecological Management Plan (EMP) within the CEMP before construction.
Project Manager/Contract Manager (main contractor)	■ Overall responsibility for ensuring all elements in the DCO, CEMP and all environmental legal and other requirements are implemented on site. ■ Main contractor internal review and approval of the CEMP. ■ Ensure resources are made available to carry out environmental responsibilities on site. ■ Notifying the Client of any environmental incidents. ■ Ensure risk assessments and method statements (RAMS) incorporate environmental aspects and risks. ■ Ensure instructions from the Client are implemented. ■ Ensure a single point of contact for external parties is identified and communicated. ■ Ensure subcontractor's method statements incorporate the appropriate environmental mitigation and risk assessment prior to the commencement of works.
Environmental Manager (main contractor)	■ Responsible for the overall management of environmental aspects on site. ■ Developing and reviewing the CEMP on a regular basis.

Role	Key Environmental Functions
	■ Ensure all environmental mitigation and monitoring measures identified in the Outline CEMP (and subsequent CEMP) and associated RAMS are implemented. ■ Carry out regular environmental site inspections and audits and report non-compliance to the Project/Contract Manager. ■ Establish and oversee environmental monitoring onsite. ■ Liaise with relevant environmental bodies and other third parties as appropriate. ■ Prepare, or ensure the preparation of, environmental permits, licences and consents and ensuring all associated conditions required are implemented. ■ Ensure site personnel are provided with a site environmental induction and appropriate training, briefings and toolbox talks are undertaken, and records kept. ■ Provide environmental advice and guidance to the team. ■ Carry out environmental incident investigations and review near miss and good practice reports. ■ Engage other environmental specialists, including, (but not limited to, those detailed below as required).
Named Ecologist (main contractor)	■ Suitably licensed and experienced ecologist to be the named ecologist on the Natural England European Protected Species (EPS) licence(s) in accordance with legal requirements and Natural England standards (**Ref. 1.3**). ■ Responsible for ensuring all requirements of the licence(s) are adhered to and providing advice in regard to this.
Ecological Clerk of Works (ECoW) (main contractor)	■ Responsible for ensuring that all ecological mitigation measures are implemented on site. ■ Ensure that the requirements of ecological licences e.g. protected species licences are implemented on site. ■ Undertake a watching brief during vegetation clearance. ■ Input into the CEMP as required. ■ Prepare and carry out ecological briefings and tool box talks on site. ■ Prepare specific ecological method statements and ecological permits as required. ■ Provide ecological advice and support to the site team. ■ Attend site when unexpected ecological habitats or species are identified. ■ Responsible for movement of EPS if found. The ECoW would need to be licensed to undertake these works.

Role	Key Environmental Functions
	▪ For works identified in the REAC in the aquatic environment, the ECoW would need to be suitably experienced for works in the aquatic environment.
Archaeologist (main contractor)	▪ Ensure all mitigation agreed with Historic England for the impacts from those works outlined in Article 39 and Schedule 10 of the draft DCO (**Application Document Reference: TR010031/APP/3.1**) are discharged on site and documented. ▪ Carry out a programme of intrusive Archaeological investigation prior to construction works taking place. This will be followed by a watching brief, including recording of unidentified features in accordance with a WSI agreed with the County Archaeologist.
All site-based Personnel including subcontractors	▪ Ensure all environmental requirements of the CEMP are adhered to on site. ▪ Attend site induction, regular environmental training and toolbox talks and ensure learning points are implemented on site. ▪ Carry out the works in accordance with environmental risk assessments and method statements. ▪ Report anything that deviates from agreed processes. ▪ Report environmental near misses, incidents and good practices. ▪ Only nominated trained personnel will carry out tasks such as refuelling plant, management of hazardous materials, environmental monitoring and waste management.
Other	The following roles will also be fulfilled as required: ▪ Arboriculturalist (main contractor)

3. RECORD OF ENVIRONMENTAL ACTIONS AND COMMITMENTS (REAC)

3.1.1. The Record of Environmental Actions and Commitments (REAC) contained in **Table 3-1** identifies the commitments included within the ES (**Application Document Reference: TR010031/APP/6.1**) to address the potential environmental effects of the Scheme.

3.1.2. The REAC will be updated as the Scheme progresses and will be finalised at the end of construction, on completion of the Scheme. This will be the main vehicle for communicating essential environmental information to the Client and the body who will be responsible for the future maintenance and operation of the asset.

Table 3-1 identifies commitments in the REAC which impose requirements on the design, construction and operation of the Scheme.

Table 3-1 - Register of environmental actions and commitments

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
General							
G1	The main contractor will develop this Outline CEMP into the CEMP in line with IAN 183/14 (**Ref 1.1)** EMP. The CEMP will be approved by the SoS following consultation with the local authority, prior to construction works commencing on site. The measures contained in the CEMP will be reviewed and updated by the main contractor in consultation with Highways England on a regular basis. As a minimum it will be reviewed and updated as follows: ▪ Every six months. ▪ To incorporate changes to legislation, policy or other requirements. ▪ To incorporate the outcomes of environmental audits and inspections. ▪ Following the outcome of environmental incident investigation on site. ▪ In response to near miss and good practice reporting.	To provide a framework for the implementation of environmental requirements on site.	CEMP	Main contractor	Updated CEMP The CEMP will be approved by the SoS following consultation with the local authority. Reported on the Requirements Register published on Highways England's Scheme website.	Pre-construction	
G2	Prior to construction, the main contractor will sign up to and adhere to the National Considerate Constructor's Scheme (CCS).	To implement and demonstrate best construction practices and promote good community relations.	CEMP	Main contractor	Site registration CCS Monitor Report and Score	Pre-construction Construction	
G3	The main contractor will inform the public of the nature, timing and duration of particular construction activities and the duration of the construction works, for example, by newsletters, letter drops and liaison with the local authority. A Communication Plan (that includes community engagement) will be developed before work commences on site.	To promote positive community engagement and ensure members of the public are kept up to date on the works.	CEMP	Main contractor	Communications Plan	Pre-construction Construction	
G4	Unless agreed in advance with the local authority, the following hours of work will be adhered to on site (other than ECML possessions): ▪ Weekdays: 07.00 – 19.00 ▪ Saturdays: 07.30 – 13.00 ▪ There will be no working on Sundays, Bank Holidays and Public Holidays	To minimise impacts to members of the public.	CEMP	Main contractor	Agreement in writing following consultation with the local authority	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
G5	The main contractor will ensure that all evening/night time works are agreed in consultation with the local authority in advance of the works taking place - evening/night time works are likely to include: ▪ Diversion of NGN intermediate pressure mains. ▪ Construction of the new Allerdene Bridge and demolition of the former Allerdene Bridge (under ECML possessions). ▪ Central reserve hardening works. ▪ Placement of bridge beams and undertake deck works at Kingsway Viaduct and Eighton Lodge underbridges. ▪ Removal of the existing North Dene Footbridge and placement of the new North Dene Footbridge. ▪ A1 planing and surfacing works and installation of road markings (where these cannot be undertaken using TM). ▪ Installation of gantries.	To enable specific construction works to be carried out and to minimise the impacts of such works to members of the public.	ES Paragraph 11.10.13	Main contractor	Agreement in writing following consultation with the local authority	Construction	
G6	The main contractor will implement the following measures for lighting during construction: ▪ Temporary lighting used for construction will be switched-off when not in use and positioned so as not to spill on to adjacent land. ▪ Directed lighting will be used to minimise light pollution/glare. Lighting levels will be kept to the minimum necessary for security and safety by the main contractor. ▪ Work during hours of darkness will be avoided as far as practicable and where necessary directed lighting will be used to minimise light pollution/glare. Lighting levels will be kept to the minimum necessary for security and safety ▪ A suitable lighting strategy will be developed for implementation across the Scheme in accordance with industry standards and good practice guidance on lighting with regards to protected species. This will include: • Avoidance of artificial lighting of watercourses, particularly during the hours of darkness to prevent impacts to fish behaviour or passage. • Avoidance of light spill using directional and or baffled lighting. • Positioning of lighting columns away from habitats of value to foraging and commuting bats (hedgerows, trees, woodland). • Reducing the height of lighting columns to reduce light spill onto adjacent habitats. • Avoid use of blue-white short wavelength lights and high UV content. • The use of construction lighting will be in accordance with industry standards and follow best available guidance on lighting with regards to protected species ((e.g. Bat Conservation Trust (2009) and Institute of Lighting Engineers (2007)). The construction lighting	To minimise impacts to adjacent Landscape Character Areas. To minimise impacts to sensitive receptors from light. To reduce disturbance to fauna and flora, throughout the Scheme. To protect sensitive mammal habitats from illumination, throughout the Scheme. To protect bats form road traffic accidents and prevent	CEMP ES Paragraph 2.7.38, 7.9.3, 7.9.4, 7.10.32, 8.9.7, 8.9.8 and 14.9.2	Designer Main contractor	Lighting Design Site environmental inspection reports The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	design will take into account the need to avoid illuminating sensitive mammal habitats (e.g. for bats) in locations such as: adjacent to watercourses, along woodland edges and where there is known activity identified through pre-construction ecological surveys. Where this is not possible the main contractor will agree any exceptions with the ECoW, Highways England and the local authority. The main contractor will implement the following measures for lighting during operation: ▪ Lighting must be designed to minimise light spill onto adjacent areas through the use of low energy LED fittings with a zero-upward spill above 95 degrees (in accordance with Highways England requirements to utilise full cut off luminaries on the strategic road network). ▪ Lighting will be specified to best-in-class for energy efficiency. ▪ In order to protect bats using Longbank Bridleway Underpass lighting during operation will: • Use movement triggers so that lighting only turns on when people (large objects) move through the area. • Avoid light spill using directional and or baffled lighting. • Avoid blue-white short wavelength lights and lights with high UV content.	fragmentation of populations, at Longbank Bridleway Underpass. To minimise the use of energy by the Scheme.					
G7	Wheel washing facilities will be installed at both the Eighton Lodge compound at junction 66 (Eighton Lodge) and the Coal House compound. This may take the form of jet washing in a vehicle maintenance area or a wheel wash at the site egress. All construction vehicles with the potential to transfer mud onto the surrounding roads will use the wheel wash facilities before leaving site.	To minimise dust/mud being transferred to the surrounding area.	CEMP	Main contractor	Site environmental inspection reports	Construction	
G8	Material deliveries will be programmed to arrive “just in time” as far as possible to avoid temporary storage, minimise the potential for damage and double handling.	To minimise waste generation due to damage and reduce materials handling costs.	CEMP	Main contractor	Site environmental inspection reports	Construction	
G9	The most efficient plant, vehicles and equipment, as detailed in the product specification, will be selected for construction of the Scheme, as far as practicable.	To minimise impacts on resources and the environment including air	CEMP	Main contractor	Site environmental inspection reports	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
		quality, noise, water.					
Air Quality							
A1	The following will be carried out to reduce emissions of dust as set out in the Annex 1 of the Minerals Policy Statement (**Ref 1.4**): ▪ The main contractor will record any complaints relating to dust and air quality, including likely causes and mitigation measures. ▪ The main contractor will ensure site perimeter and fences etc. are kept clean. ▪ Visual inspections of off-site dust deposition will be undertaken daily by the main contractor. ▪ Weather conditions, and dust generating potential of material, will be considered when planning the works. ▪ Dusty materials will be removed from site as soon as possible. ▪ Loads entering and leaving the site with dust generating potential will be covered. ▪ Vehicles moving on site will comply with site speed limits (15mph on hard surfaces, 10mph on unconsolidated surfaces). ▪ Water assisted sweeping of local roads will be undertaken if material is tracked out of site. ▪ The main contractor will install hard surfacing as soon as practicable on site and ensure that they are maintained in good condition. ▪ Dust generating materials will be stored away from sensitive receptors and screened/shielded. ▪ As far as possible plant and equipment will be sited and operated away from sensitive receptors. ▪ Exposed soils will be protected from winds until sealed or re-vegetated. ▪ Dust generating activities will be minimised, particularly near residential receptors/sensitive ecosystems during prolonged periods of dry weather. ▪ During periods of dry weather daily dust inspections will be carried out and documented.	To minimise emissions of dust from earthworks and general construction activities.	ES Paragraph 5.9.4	Main contractor	Daily dust audits carried out by site team and documented Construction Traffic Management Plan approved by the SoS following consultation with the local authority. Reported on the Requirements Register published on Highways England's Scheme website.	Construction	
A2	The main contractor will ensure any site plant, machinery and equipment is well maintained, in good working order and switched off when not in use and ensure a 'no idling' policy is implemented for all vehicles associated with the site.	To minimise emissions from construction-related traffic and plant	ES Paragraph 5.9.4	Main contractor	Plant inspection checks Reported on the Requirements Register published on Highways England's Scheme website.	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
Cultural Heritage							
CH1	Where planting is cleared for construction works south of the Angel of the North within the highway soft estate between chainage 2560 to 2780, the replanting will be similar to the existing but less dense to increase visibility of the Angel of the North from the carriageway and surrounding areas (see **Sheet 3 of 5, Figure 7.6** Landscape Mitigation Design (**Application Document Reference: TR010031/APP/6.2).**	To realise benefits to the setting of the Angel of the North.	ES Paragraph 6.9.3	Designer Main contractor	Landscape Design approved by the SoS following consultation with the local authority. Reported on the Requirements Register published on Highways England's Scheme website. Landscape as built drawings	Design Construction	
CH2	Prior to construction, an archaeological WSI will be agreed with Historic England and the local authority in relation to archaeological works during construction required within the railway cutting associated with the Bowes Railway Scheduled Monument (1003723) and the Scheme Footprint. The WSI will include those actions detailed within CH2, CH3, CH4, CH5, CH6, CH7, and N8 of this CEMP. The WSI will be submitted to and approved by the SoS in consultation with Historic England and the local authority prior to the commencement of any works on site.	To determine the significance of, and record any designated and non designated heritage assets affected by the Scheme.	ES Paragraph 6.9.5 and 6.9.6	Main contractor Archaeologist (main contractor)	WSI approved by the SoS in consultation with the local authority and Historic England. Reported on the Requirements Register published on Highways England's Scheme website.	Pre-construction	
CH3	The section of masonry retaining wall associated with Bowes Railway SM (1003723) to be demolished will be dismantled by a suitably qualified archaeologist to record any archaeological features. A method statement will be produced for these works and will form part of the WSI. A written, drawn and photographic record of the dismantling will be compiled by the archaeologist (main contractor). This record will be approved by the SoS in consultation with Historic England.	To minimise adverse impact on Bowes Railway SM and to record any features of significance.	ES Paragraph 6.9.7	Archaeologist (main contractor)	WSI approved by the SoS in consultation with Historic England. Method statement for the demolition and dismantling of the retaining wall associated with Bowes Railway SM which will form part of the WSI. A written, drawn and photographic record of the dismantling of the wall approved by the SoS in	Pre-construction Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
					consultation with Historic England.		
CH4	Prior to construction taking place within the field containing the ridge and furrow earthworks, adjacent to the Bowes Railway Hotel, an archaeological topographic survey of the entire field will be undertaken in accordance with Historic England metric survey standards. A method statement will be produced for these works and will form part of the WSI.	To compile a survey of the earthworks prior to the disturbance.	ES Paragraph 6.9.8	Main contractor	Topographical Survey Report approved by the SoS in consultation with the local authority. Method Statement for the archaeological topographic survey of the field containing the ridge and furrow earthworks which will form part of the WSI. WSI approved by the SoS in consultation with the local authority.	Pre-construction	
CH5	An interpretation panel must be placed on the section of Bowes Railway closest to the proposed works. The panel will be designed to present and interpret the history and importance of the SM. In this way the experience of the SM will be enhanced for the local community. The nature and type of board will be agreed in consultation with the local authority. If the location of the board is within the Bowes Railway SM area, this will also be agreed in consultation with Historic England. The main contractor will be responsible for installing the panel.	To improve interpretation and presentation of the SM.	ES paragraph 6.9.9.	Main contractor with guidance from the archaeologist (main contractor)	Agreement on nature, type and location of boards with the local authority officers e.g. Public Rights of Way and Archaeology/Conservation officers and Historic England (if the interpretation panel is within the SM area). Interpretation panel provided	Construction	
CH6	A section of surviving wall associated with Bowes Railway SM (1003723) of equal length to that being demolished will be repaired. Prior to any repair works commencing, the section of wall to be repaired, and the repointing and conservation methodology, will be agreed in consultation with Historic England. The repair works will be carried out by a qualified stone mason experiences in using lime mortar.	To offset the harm to the scheduled retaining wall of the Scheduled Bowes Railway (1003723) and to enhance the	ES Paragraph 6.9.10	Archaeologist (main contractor) Main contractor	Evidence of repair to the section of wall Consultation with Historic England	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
		appearance of the SM.					
Landscape and Visual							
L1	The following measures will be applied during construction of the Scheme: ▪ Areas will be cleared for construction as close as possible to works commencing and top soiling, reseeding and planting will be undertaken as soon as practicable after sections of work are complete. ▪ As far as practicable, plant and material storage areas will be sited to avoid landscape and visual impact. ▪ Construction sites will be kept tidy (e.g. free of litter and debris).	To reduce the magnitude and duration of visual intrusion on nearby receptors.	ES Paragraph 7.9.3	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Site Environmental Inspection Reports	Construction	
L2	The following measures will be applied during construction of the Scheme, to minimise impacts on soil quality as follows: ▪ Uncontaminated topsoil for re-use will be stored in un-compacted mounds no more than 2m in height and stored separately from subsoil material. ▪ Stripped topsoil will be used in areas of the same proposed vegetation type to utilise the existing natural seed bank. ▪ Subsoil in planting areas will be replaced after construction and where required, ripped to a minimum of 450mm before top soiling and planting. ▪ Proposed planting areas in existing arable and pasture land, not subject to construction activity, will be ripped to 600mm to alleviate compaction, where required.	To protect soil for the purposes of landscape planting.	ES Paragraph 7.9.3	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Site Environmental Inspection Reports Landscape Inspection Records Landscape as built drawings	Construction	
L3	During construction the loss of any existing woodland, scrub, heath, grassland vegetation, and isolated trees and shrubs, not affected by the permanent works, will be limited as far as practicable. All existing trees and shrubs not affected by the construction of the permanent works will be fenced off with a suitable type of temporary fencing in accordance with BS5837. Fencing will extend to the drip line of the tree canopies (unless otherwise agreed by an	To minimise impacts on existing vegetation from clearance or encroachment	ES Paragraph 7.9.3	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	arboricultural advisor). Fencing will be erected before any construction activities in that area commence and will remain for the entire period of construction in that area.				published on Highways England's Scheme website Site Environmental Inspection Reports The CEMP will be approved by the SoS following consultation with the local authority		
L4	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** between chainage 325 and 785 southbound, vegetation that provides an existing screen to development (residential properties) to the north will be retained and protected during the construction of the adjacent retaining wall. Scattered trees will be planted to reinforce the existing vegetation that forms a visual screen to the south of the Landscape Character Area 1 – Team Valley and screening adjacent visual receptors. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless the SoS, following consultation the local authority, gives consent to a variation.	To maintain and enhance landscape and visual screening.	ES Paragraph 7.9.5 and 7.11.4	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Design Construction	
L5	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** the area between chainage 1010 and 1700, and encompassing the northbound and southbound verges, and the newly constructed embankment slopes will be subject to an extensive planting strategy. The planting strategy will filter and screen views of the newly aligned carriageway from nearby visual receptors and provide integration to the wider landscape framework, reflecting existing landscape patterns. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting season with a specimen of the same species and size as that originally	To provide screening from the road.	ES Paragraph 7.9.5 and 7.11.4	Main contractor	Landscape planting implemented in line with the Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2)** and approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways	Design Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	planted, unless the SoS, following consultation with the local authority the local authority, gives consent to a variation.				England's Scheme website Landscape as built drawings Landscape Design Certificate		
L6	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** south east of junction 67 (Coal House) planting to the boundary of the AGI (NGN apparatus) will be required to integrate the Scheme. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless the SoS, following consultation with the local authority, gives consent to a variation.	To soften the appearance and reduce potential impacts on the adjoining open countryside and visual receptors to the south and south-west.	ES Paragraph 7.9.5 and 7.11.4	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Design Construction	
L7	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** woodland planting will be provided south of Allerdene embankment option (chainage 1700 to 2320), aimed at integrating the Scheme with the adjacent woodland setting of the existing A1 corridor. This will be achieved through the planting of a woodland edge type mix, which will be designed to reflect local vegetation patterns and species, to both cutting and embankment slopes where existing woodland is removed as a result of the Scheme. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless the SoS, following consultation with the local authority, gives consent to a variation.	To integrate the Scheme with the adjacent woodland.	ES Paragraph 7.9.5 and 7.11.4	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Design Construction	
L8	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** between chainage 2320 and	To allow for greater views of	ES Paragraph	Designer	Landscape design approved by the SoS	Design	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	2540 and next to the southbound carriageway, the proposed cutting slope will be subject to woodland edge planting, with some focused planting of scattered trees. This will allow for a greater awareness of the Angel of the North sculpture next to the road corridor (from the existing situation), providing a focal point in views from the A1 corridor. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless the SoS, following consultation with the local authority, gives consent to a variation.	the Angel of the North from the road and surrounds.	7.9.5 and 7.11.4	Main contractor	following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Construction	
L9	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** within and on the approaching slip roads to the junction 66 (Eighton Lodge) with the A167 (chainage 2560 to 3220), replacement woodland will be provided to mitigate the effects associated with the proposed changes to the adjoining slopes as a result of the widening of the existing carriageways. This will take the form of native planting appropriate to the location and comprising species that reflect the surrounding vegetation to aid integration. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless the SoS, following consultation with the local authority, gives consent to a variation.	To mitigate the impacts of vegetation removal.	ES Paragraph 7.9.5 and 7.11.4	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Design Construction	
L10	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** between chainage 3300 and 3700 and next to the southbound carriageway, woodland edge planting of native species will be provided to tie the modifications to the landform into the adjacent landscape and vegetative framework. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting	To mitigate the impacts of vegetation removal.	ES Paragraph 7.9.5 and 7.11.4	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Design Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	season with a specimen of the same species and size as that originally planted, unless the SoS, following consultation with the local authority, gives consent to a variation.				Landscape as built drawings Landscape Design Certificate		
L11	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** between chainage 3800 and 4120, a replacement hedgerow with intermittent trees to re-form the existing boundary removed during construction, will be provided. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless the SoS, following consultation with the local authority, gives consent to a variation.	To provide screening to the adjoining landscape character and reinstate the visual boundaries to the adjacent Landscape Character Area 5 – Birtley.	ES Paragraph 7.9.5 and 7.11.4	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Design Construction	
L12	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** within the area of existing woodland off Banesley Lane and east of the existing housing, within the confines of the highway boundary, management work and replanting to improve the quality of the woodland and its capacity to provide screening to the A1 corridor will be undertaken. This will take the form of felling dead or diseased material, to be dealt with appropriately and replanting using appropriate species as standard or feathered trees.	To improve the quality of existing woodland.	ES Paragraph 7.9.6	Main contractor	Site Environmental Inspection Reports.	Construction	
L13	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** east of Allerdene (chainage 1460 to 1520), the planned attenuation pond will be enhanced through additional tree planting and areas of scrub to provide improved habitat connectivity and enhanced appearance to the Scheme within views from the A1. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting season with a specimen of the same species and size as that originally	To provide improved habitat connectivity and enhanced views.	ES Paragraph 7.9.6 and 7.11.4	Designer Main contractor	Attenuation pond design. Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Design Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	planted, unless the SoS, following consultation with the local authority, gives consent to a variation.				Landscape as built drawings		
L14	As detailed on **Figure 7-6** Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2),** south of the Angel of the North sculpture, existing woodland planting within the highway soft estate between chainage 2560 to 2780, will be the subject of woodland enhancement measures, this will include thinning operations and pruning in order to provide greater visibility of the sculpture in views from the A1 corridor and more widely within the surrounding landscape.	To allow for greater views of the Angel of the North from the road and surrounds.	ES Paragraph 7.9.6	Main contractor	Site Environmental Inspection Reports	Construction	
L15	Measures have been developed and designed (shown on **Figure 7-6 Landscape Mitigation Design (Application Document Reference: TR010031/APP/6.2**) to avoid or reduce the impacts identified as potentially arising, the Environmental Masterplan ((**Figure 2.4) (Application Document Reference: TR010031/APP/6.2**)), the Manual of Contract Documents for Highways Works (MCHW) Series 3000 (**Ref 1.5**) and Series 600 (**Ref 1.6**) appendices and the CEMP. Landscape planting will be monitored for a period of five years following completion to ensure successful establishment. Any tree or shrub planted as part of the landscape planting that, within a period of five years after planting, is removed, dies or becomes in the opinion of the relevant planning authority, seriously damaged or diseased, will be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless the SoS, following consultation with the local authority, gives consent to a variation.	To minimise visual and local biodiversity impact of the Scheme. To minimise visual and local biodiversity impact.	ES Paragraph 7.9.1 ES Paragraph 7.11.4 Manual of Contract Documents for Highways Works	Main contractor Highways England	Landscape planting implemented in line with the Landscape Mitigation Design **(Application Document Reference: TR010031/APP/6.2)** and the Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Operation	
L16	As detailed in **Section 6.1** below within "Post Construction Monitoring", the following post-construction monitoring will be carried out: ▪ Monitoring of the growth and establishment of the planting strategy implemented as part of the Scheme. ▪ Periodic review of agreed viewpoints to confirm that views associated with the Scheme have been mitigated as anticipated.	To establish the effectiveness of the proposed landscape mitigation strategy associated with the Scheme.	ES Paragraphs 7.11.2	Main contractor	Landscape Inspection Records	Operation	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
Biodiversity							
B1	Permanent loss of priority habitat areas will be avoided where possible. Similarly, where temporary land includes priority habitat areas then these areas will also be avoided, or the use of them minimised, where possible.	To avoid permanent loss and reduce temporary loss of priority habitat areas and suitable GCN terrestrial habitat.	ES Paragraph 8.9.3	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority. Reported on the Requirements Register published on Highways England's Scheme website.	Design Construction	
B2	The landscape design will: ▪ Reinstate habitat features within the same geographical area, where possible, maintaining connectivity to existing retained habitat features. ▪ Create a diversity of habitat creation across the Scheme, including grasslands, scrub and woodland. ▪ Create woodland corridors and treelines to link existing woodland at Robin's Wood to the River Team and enhance the wildlife corridors between Longacre Wood LWS and the existing wildlife corridor to the west. ▪ Create linear features (hedgerows and tree lines) using native species along much of the length of the Scheme, on both east and west sides of the carriageway (design permitting). ▪ Use native species within the planting plan. This will however omit ash Fraxinus excelsior from all planting mixes due to the biosecurity risk of ash dieback. ▪ Plant native trees and hedgerows to enhance the Bowes Railway LWS wildlife corridors and strengthen the wildlife corridor to encourage use. ▪ Use native species and plant stock of local provenance within the mitigation planting design.	To achieve ecological enhancement in the longer term.	ES Paragraph 8.9.4	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Design Construction	
B3	Culverts will be designed, where possible, to include natural beds (between 100mm and 250mm) to maintain and assist fish passage. To mitigate for potential downstream impacts and maintain passage along watercourses, baffles or similar structures will be installed within existing culverts.	To mitigate the effects of fragmentation for fish populations, at culverts throughout the Scheme.	ES Paragraph 8.9.7	Designer	Detailed design of culverts As built drawings	Design Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
B4	Woodland strips south of Allerdene Bridge of the Scheme will be created to screen the suitable wintering bird habitat to the south.	To protect the wintering bird population from increased noise levels during operation, to the south of Allerdene Bridge.	ES Paragraph 8.9.8	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Design Construction	
B5	A pre-construction badger survey of the entire Study Area will be undertaken at least three months prior to the commencement of works. This approach can be staggered in line with the construction areas and associated programme of works. Should badger activity be confirmed within the area of works, a licence will be sought from Natural England, prior to commencement of the works.	To ensure badgers are not disturbed and ensure legal compliance with the Protection of Badgers Act 1992	ES paragraph 8.9.7	Main contractor ECoW (main contractor)	Badger Survey Report Badger Licence, if required	Pre-construction	
B6	Pre-construction clearance of vegetation will be undertaken outside of the main bird nesting season (March to August inclusive) to avoid damage or destruction of nests. Or, if unavoidable in this period, the ECoW will inspect the area within 24 hours prior to clearance. Should any nests be identified a suitably sized buffer zone will be put in place around the nest in which no works occur until the young in that nest have fledged.	To protect bird species throughout the Scheme.	ES paragraph 8.9.7	Main contractor ECoW (main contractor)	Method Statement Breeding Bird Report	Pre-construction Construction	
B7	Checks for red squirrel will be undertaken of the woodland east of Allerdene Bridge prior to any tree clearance in this area. Tree felling in areas with potential red squirrel dreys will be timed outside of the red squirrel breeding season (February to September). Where these timescales cannot be achieved the ECoW will determine an appropriate course of action. Should any red squirrel be identified or considered potentially present within that area either prior to works commencing or during works, then works will cease and the ECoW will be contacted for advice prior to works re-commencing. The works will be carried out in accordance with the advice of the ECoW. All tree felling in locations where dreys are present (active or inactive) will be	To protect red squirrel and their dreys within woodland east of Allerdene Bridge and to comply with conservation legislation.	ES paragraph 8.9.7	Main contractor ECoW (main contractor)	Method statement Red Squirrel Report Site Visit Report Protected Species Licence	Pre-construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	supervised by the ECoW. A Natural England licence will be in place for the removal of all active dreys (and dreys where activity levels cannot be confirmed).						
B8	If, during the construction phase, vegetation clearance reveals reptile presence within the Scheme Footprint, then clearance operations will cease in that area until advice has been sought from the ECoW. The works will be carried out in accordance with advice of the ECoW.	To protect reptile species throughout the Scheme	ES paragraph 8.9.7	Main contractor ECoW (main contractor)	Method statement Site Visit Report	Construction	
B9	Monitoring of the freshwater environment will be undertaken immediately prior to, during and post construction activities. Monitoring requirements will be further detailed within the CEMP, the Flood Risk Activities Permit from the EA and/or the Ordinary Watercourse consent from the Lead Local Flood Authority (LLFA), as appropriate. These consents will be obtained by the main contractor prior to commencement of any works within 8m of a watercourse.	To protect river quality and fish including salmon and brown trout and outfalls 2,5, and 9.	ES paragraph 8.9.7	Main contractor with guidance from the ECoW (main contractor)	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Flood Risk Activities permit Ordinary watercourse consent Monitoring Records	Pre-construction Construction Post construction	
B10	Pre-construction placement of the temporary underground culvert within the River Team within Coal House roundabout will be undertaken outside the period of September to April to avoid the salmon and brown trout (migratory and non-migratory) spawning periods. This will be agreed with the Environment Agency. Soft-start and intermittent working techniques will be applied to the piling works to reduce the associated disturbance impacts on fish. Additionally, the modifications of any culverts to outfalls 2, 5 and 9, will also be timed to be undertaken outside the period of September to April to avoid the salmon and brown trout (migratory and non-migratory) spawning periods.	To protect fish, including brown trout and salmon within the River Team and outfalls 2,6 and 9.	ES paragraph 8.9.7	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Method Statements.	Pre-construction Construction	
B11	During construction any river dewatering and/or in-channel working, an ecological watching brief and fish rescue plan will be instigated. Where areas are required to be temporarily dewatered to permit construction activities, fish	To protect fish, including brown trout, eel and	ES paragraph 8.9.7	Main contractor	Ecological watching brief	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	will be removed by means of electrofishing and relocated upstream prior to dewatering.	salmon within watercourses.		ECoW (main contractor)			
B12	Any tree felling will be carried out by experienced contractors to reduce direct mortality of protected species according to agreed felling methods between contractors and the ECoW.	To protect flora and fauna throughout the Scheme.	ES paragraph 8.9.7	Main contractor with guidance from the ECoW (main contractor)	Method Statement	Pre-construction Construction	
B13	Plant and personnel will be constrained to a prescribed working corridor through the use of, where practicable, temporary barriers to minimise the damage to retained habitats and potential direct mortality and disturbance to animals located within and adjacent to the Scheme working corridor. Working areas will be restricted while working in or adjacent to areas including but not restricted to, the LWSs, green wildlife corridors, retained woodlands, retained hedgerows. Protection measures and protected areas will be detailed within the CEMP. Temporary mammal-resistant fencing will be provided around construction compounds. Trenches, holes and pits created during construction, will be kept covered at night or provide a means of escape for mammals, reptiles and amphibians that may become entrapped. Gates to compound areas will be designed sensitively to prevent mammals from gaining access and will be closed at night.	To protect habitats and fauna throughout the Scheme.	ES paragraph 8.9.7	Main contractor with guidance from the ECoW (main contractor)	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Pre-construction Construction Operation	
B14	Given the presence of a confirmed bat roost within bridge at Eighton Lodge South underbridge, a European protected species (EPS) licence application and associated mitigation and compensation requirements is required prior to commencement of the Scheme (**Appendix 8.14** European Protected Species Licence (**Application Document Reference: TR010031/APP/6.2)**. As part of the EPS licence application, the capture and exclusion of bats and the removal of the roosts prior to proposed works on the bridge at Eighton Lodge South underbridge will be undertaken between mid-March and mid-November (inclusive). A toolbox talk will be provided to the main contractor (and sub-contractors as required) to outline the proposed works, actions to take if a bat is encountered and their legal responsibility regarding bats and their roosts. Upon receipt of the EPS licence, any licensable works will be directly supervised by the ECoW, if safe to do so. All capture and exclusion methods	To comply with conservation legislation and protect roost bat species (specifically common pipistrelle), at Eighton Lodge South underbridge	ES paragraph 8.9.7	Named Ecologist (main contractor) Main contractor with guidance from the ECoW (main contractor) ECoW (main contractor)	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website EPS Licence Toolbox Talk Records Environmental Inspection Records	Pre-construction Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	will be detailed within the EPS licence application documents. These will include hand removal of suitable roosting features (if possible) and exclusion using a one-way device and all features which cannot be removed by hand. These methods could be supplemented by the use of dusk and/or dawn surveys (if considered safe to undertake). The following permanent compensation features must be implemented prior to construction and start of works: ▪ Provision of four tree mounted (two per tree) or pole mounted 'woodcrete' bat boxes (Schwegler 1FF or similar), to provide roosting opportunities during the demolition and renovation of the bridge at Eighton Lodge South underbridge. These features will be installed prior to any works commencing and remain in place for a minimum of five years and can only be removed after this time should there be no evidence of use during this period. However, it is recommended that the features are permanent to provide ecological enhancement and opportunities for roosting bats over an extended period. ▪ Inclusion of suitable bat features within the retained Eighton Lodge South underbridge, such as installation of a 'bat tube' or mounted bat box.				Evidence of bat boxes and bat features		
B15	Before and during construction all trees assessed with bat roost potential that require to be pruned or felled to accommodate the Scheme will be subject to a pre-felling inspection by the ECoW no more than 24 hours prior to works commencing in search of roosting bats. Where features cannot be wholly assessed, and ambiguity exists over the possible presence of bats, trees will be 'soft-felled' (i.e. felled in small sections) with care taken not to compromise the integrity of any potential roost feature in order to safeguard any potential bats present.	To comply with conservation legislation and protect roosting bats, throughout the Scheme.	ES Paragraph 8.9.7	Main contractor with guidance from the ECoW (main contractor)	Pre-felling Inspection Report Method Statement	Construction	
B16	Following completion of underpass construction works and prior to operation, native trees and hedgerows must be planted at Longbank Bridleway Underpass (Bowes Railway LWS) to attempt to funnel bats below the A1 and so that they continue to use the underpass in order to reduce the effects of fragmentation of the extant bat population.	To protect bats utilising the Longbank Bridleway Underpass as a crossing structure.	ES Paragraph 8.9.7	Main contractor with guidance from the ECoW (main contractor)	The CEMP will be approved by the SoS following consultation with the local authority. Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
					England's Scheme website Environmental Inspection Reports		
B17	Works within 500m of waterbodies WB14, WB15, WB16, WB17 and WBB (shown on **Figure 2** in **Appendix 8.6** of the ES **(Application Document Reference: TR010031/APP/6.3)**) will be conducted under a Precautionary Working Method Statement (PWMS). Habitat clearance within 500m of Ponds B and 14 will be undertaken during the optimal period of mid-April to mid-June, when most newts will have returned to their breeding ponds. If these timings cannot be achieved, hand searching of areas of suitable habitat will be undertaken by a ECoW. All site operatives will receive a briefing from an ECoW. The briefing will include details of the legal protection of great crested newts, the PWMS, tips on identification of great crested newts and the procedures to follow should the species be discovered during works. Immediately prior to the works commencing, the proposed works area will be thoroughly hand searched by a licenced ecologist (or accredited agent). The hand search will take place no earlier than 24 hours prior to works commencing and will concentrate on all suitable terrestrial vegetation within the works area ((including access route(s)). All vehicles, plant and equipment on site will use predetermined access routes and must not encroach onto any habitats or areas which have not been hand searched prior to works taking place. If a great crested newt is encountered during the proposed works, all activities in the area will cease immediately. If not present on site at the time, the ECoW will be contacted to assess the situation and to determine whether an EPS licence will be required before work in that area proceeds. If considered necessary, guidance will be sought from Natural England. Works will not recommence until the ECoW has confirmed that it is appropriate to do so.	To protect great crested newt from impacts on land within 500m of waterbodies WB14, WB15, WB16, WB17 and WBB.	ES Paragraph 8.9.7	Main contractor ECoW	Survey Reports EPS Licences Signed Toolbox Talk Records	Pre-construction Construction	
B18	The main contractor will describe within the CEMP, the strategy to be implemented for the appropriate treatment of Invasive Non-Native Species (INNS). The strategy will set out appropriate construction, handling, treatment and disposal procedures to prevent the spread of INNS in line with recognised good practice.	To prevent the spread of INNS, to the north-east of junction 67 (Coal House), north of the A1 near the Angel of the North and	ES Paragraph 8.9.7	Main contractor	Invasive Species Management Plan (as part of the CEMP) approved by the SoS following consultation with the local authority Reported on the Requirements Register	Pre-construction Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
		within Longacre Wood LWS.			published on Highways England's Scheme website		
B19	The area south of the Allerdene Bridge will be remediated to grassland (see **Figure 7-6** Landscape Mitigation Design (**Application Document Reference: TR010031/APP/6.2**)). Fruiting species that provide winter berries for thrushes and finches, such as crab apple *Malus sylvestris*, wild cherry *Prunus avium*, rowan *Sorbus aucuparia*, elder *Sambucus nigra* and hawthorn *Crataegus monogyna* will be included within land south of Allerdene Bridge. Management of berry bearing shrubs and fruit trees will occur in the latter part of the winter (January/February) to maximise the availability of these as a foraging resource.	To mitigate impacts to wintering bird.	ES Paragraph 8.9.7	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Landscape as built drawings Landscape Design Certificate	Construction Operation	
B20	During construction, all retained trees affected by construction will be protected in line with guidelines provided in BS 5837 Trees in relation to Construction. This will include: ▪ Establishment of Root Protection Areas (RPA) ▪ Protective fencing will be erected around the RPA to reduce risks associated with vehicles trafficking over roots system or beneath canopies ▪ Selective removal of lower branches of trees to reduce risk of damage by construction plant and vehicles ▪ Measures to prevent soil compaction ▪ Maintain vegetation buffer strips (where practicable)	To comply with guidelines provided in 'BS 5837 Trees in relation to Construction' (British Standards Institute, 2012).	ES Paragraph 8.9.7	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Site Environmental Inspection Reports	Construction	
B21	Planting will be undertaken at Longacre Wood to replace any trees that were intended to be retained which are felled or die as a result of construction works. The size, species and location of replacement trees will be included in the Landscape Design and approved by the SoS in consultation with the local authority.	To minimise impacts to Longacre Wood LWS.	ES Paragraph 8.9.7	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
					Site Environmental Inspection Reports Landscape Design		
B22	During construction, where retained, deadwood will be placed in a variety of locations and conditions to benefit a number of species. Deadwood will be stored in a location away from the working area to prevent risk of damage and then placed within areas of retained woodland or woodland planting at an appropriate time. Tree stumps will be retained in situ where felled on the edge of working areas where this does not pose a constraint to the works.	To provide habitat for reptiles and invertebrates.	ES Paragraph 8.9.7	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Site Environmental Inspection Records	Construction	
B23	Species rich grassland habitat will be created consisting of a native species mix within the vicinity of the waterbodies as detailed in the Landscape Mitigation Design (**Figure 7.6 (Application Document Reference: TR010031/APP/6.2)**)	To provide habitat for great crested newt and mitigate for the loss of grassland across the Scheme.	ES paragraph 8.9.7	Designer Main contractor	Landscape design approved by the SoS following consultation with the local authority. Reported on the Requirements Register published on Highways England's Scheme website.	Design Construction	
Geology and Soils							
GS1	A suitable capping layer, likely to comprise either 400mm layer of 'clean' soil or a shallower thickness with a geotextile marker layer, will be constructed in any areas of soft landscape planting located over areas of Made Ground contaminated with asbestos. This will be included in the Scheme Remediation Strategy which will be produced prior to works commencing and approved by the Secretary of State in consultation with the local authority.	To minimise the risk of future site users coming into contact with contaminated ground.	ES Paragraph 9.9.12	Designer Main contractor	Remediation Strategy approved by the SoS in consultation with the local authority Detailed Design As built drawings	Design Construction	
GS2	The following measures will be applied to minimise impacts on soil quality as follows: ▪ Temporary agricultural land take areas will be reinstated back to agriculture following the construction phase.	To ensure agricultural soil quality is not detrimentally	ES Paragraphs 9.9.4,	Main contractor	Soil Handling Strategy (as part of the CEMP which will be approved by the	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	▪ A suitable soil handling strategy will be developed to help preserve land quality on the temporary land take areas and to make effective use of the soils from the areas of permanent land take. ▪ In accordance with Defra's Good Practice Guide for Soils (**Ref 1.7**), (to note, this was recently withdrawn but there is currently no replacement guidance available) as a minimum soil management measures during construction will include: • A Soil Handling Strategy will be prepared for the Scheme and will form part of the CEMP. • Stripping of topsoil and subsoil will take place when weather and soil conditions are suitable (i.e. not during wet inclement weather conditions). • Surface stripping then separating storage and management of topsoil and subsoil into storage heaps, which are well aerated and covered to limited infiltration and dust generation. • Topsoil and subsoil will be stored and managed separately. Topsoil will be stored in stockpiles of no more than 2m and with sides no steeper than 1 in 1.75. • Topsoil and subsoil will be returned to the original areas, in separate layers where possible where these areas are not occupied by permanent new infrastructure. • Appropriate machinery will be used to minimise soil compaction, for example, reducing the use of heavy plant or tracked vehicles passing over organic soils. • Any highly compacted area of organic soil will be dug out and aerated. • Dust suppression measures, such as damping down, will be implemented during periods of dry weather.	affected by the Scheme.	9.9.6, 9.10.3 CEMP		SoS following consultation with the local authority) Reported on the Requirements Register published on Highways England's Scheme website Site Environmental Inspection Records		
GS3	The following measures will be implemented to minimise the risks to controlled waters from grouting activities: ▪ A grouting method statement must be produced prior to any grouting works which will include an assessment of ground conditions, potential receptors and measures included to ensure that pollution of sensitive receptors e.g. groundwater, will not occur. ▪ Grout batching plant and associated materials will be contained within a fully bunded area to prevent escape of spills. ▪ Where required, a grout curtain will be installed (e.g. using pea gravel) to restrict the flow of grout beyond the treatment boundaries. ▪ Spill mats will be placed around grouting wells to catch any grout spillages.	To prevent pollution of watercourses.	ES Paragraph 9.9.7 and 13.9.10	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Site Environmental Inspection Reports	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
					Grouting Method Statement		
GS4	The following measures will be implemented to mitigate risks to human health (construction workers and surroundings site visitor/occupants): ▪ Works will be undertaken in accordance with a suitable Remediation Strategy, to be agreed with the local authority ahead of site works starting. ▪ Earthworks will be completed in accordance with a CL:AIRE compliant MMP to ensure re-used material does not present a risk to human health or the environment. This will be declared to CL: AIRE via a Qualified Person. This will ensure any contaminated material are re-used suitably as part of the earthworks associated with the Scheme. ▪ Construction workers will wear appropriate PPE, monitoring equipment and Respiratory Protective Equipment (RPE) where a risk has been identified, for example where asbestos fibres have been identified within the soil. ▪ Temporary shoring will be used in excavations when working with loose or unstable ground. ▪ Works will be undertaken in accordance with a grouting method statement. ▪ All earthworks dealing with asbestos will be undertaken in accordance with the Control of Asbestos Regulations (2012). ▪ Should unexpected contamination be encountered as part of the earthworks, then a suitable remediation strategy will be formulated in consultation with the local authority to suitably mitigate the effects.	To protect Human Health. To maximise the reuse of materials generated by the Scheme.	ES Paragraph 9.9.8 and 10.9.4	Main contractor	Materials Management Plan Method Statements Construction Phase Health and Safety Plan	Construction	
GS5	The following measures will be implemented to minimise explosion risks associated with Confined Spaces: ▪ Gas monitoring equipment will be used by all operatives entering below ground confined spaces. ▪ Confined space specific risk assessment will be undertaken, before producing and implementing suitable RAMS to mitigate risks, and ensuring personnel have the appropriate training. ▪ Methane detectors will be placed within surrounding buildings (located within 50m) during drilling and grouting activities, to monitor whether any gases are being released as the voids pressure is increased during grouting.	To minimise explosion risks associated with Confined Spaces.	ES Paragraph 9.9.9	Main contractor	Confined Space Permit to Work RAMS	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
GS6	The following measures will be implemented during the construction phase to minimise risks associated with ground collapse and ground related structural damage: ▪ Grouting pressure checks will be undertaken when pumping any grout into the ground to monitor whether any anomalies in pressure are noted which could signify that grouting may be reaching areas outside those intended. ▪ Where required, a grout curtain will be installed (e.g. using pea gravel) to restrict the flow of grout beyond the treatment boundaries and inhibit the impact upon any surrounding shaft walls. ▪ Mine shafts located within the Scheme Footprint will require capping, if not already suitably treated. ▪ Appropriately designed temporary shoring will be used in excavations when working with loose or unstable ground.	To minimise risks associated with ground collapse and ground related structural damage.	ES Paragraph 9.9.10	Main contractor	Grouting Method Statement Temporary Works Design	Construction	
Materials Resources							
M1	Measures will be investigated during detailed design which have the potential to avoid and mitigate adverse impacts from material resources consumption, and the generation and disposal of waste. Such measures will include: ▪ Minimising resource use by: • simplifying layout and form • using standard sizes • balancing cut and fill • maximising the use of renewable material resources, and materials with recycled or secondary content • setting net importation as a Scheme goal ▪ Designing pre-fabricated structures and components, where appropriate, so that environmental impacts associated with, for example, material use, material handling, material transport, waste generation, waste treatment, waste transport, energy use and disruption on site, are reduced. ▪ Considering how material resources can be designed to be more easily adapted over an asset lifetime, for example the use of weathering steel for Allerdene Bridge (both options) would ensure long term durability with minimal maintenance compared with painted steelwork. ▪ Considering the deconstructability and demountability of elements so that they can be reused at the end of their design life. ▪ Identifying materials that can be recovered or reused at the end of their design life as far as practicable.	To minimise impacts on material resources.	ES Paragraph 10.9.3, 14.9.2	Designer Contractor	Detailed Design	Design Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	▪ Specifying materials with the least embedded carbon as far as practicable.						
M2	Material resources from Scheme demolition activities will be re-used in the construction of the new road as far as possible.	To maximise reuse of surplus materials generated by the Scheme.	ES Paragraph 10.9.4 and 14.9.2	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website SWMP Materials Management Plan	Construction	
M3	The replacement North Dene Footbridge will comprise pre-constructed elements.	To reduce waste production on site.	ES Paragraph 10.9.4	Designer	Detailed Design	Design Construction	
M4	The feasibility of reusing North Dene Footbridge deck elsewhere on the highway network will be investigated. Should this not be possible alternatives for reuse elsewhere will be investigated. Where the North Dene Footbridge deck cannot be reused it will be recycled either on or off-site.	To maximise the reuse of surplus material generated by the Scheme.	ES Paragraphs 10.9.3 and 14.9.2	Designer Client Main contractor	The CEMP will be approved by the SoS following consultation with the local authority. Reported on the Requirements Register published on Highways England's Scheme website SWMP	Design Construction	
M5	Potential reuse of materials on other Applicant schemes in the North East will be investigated.	To maximise reuse of surplus materials generated by the Scheme or on the Highways England network.	ES Paragraph 10.9.4	Designer Client Main contractor	Materials Management Plan SWMP The CEMP will be approved by the SoS following consultation with the local authority	Design Construction	

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					Reported on the Requirements Register published on Highways England's Scheme website		
M6	A SWMP will be produced and maintained by the main contractor in order to identify, monitor, manage and reuse materials, arisings and waste on site.	To minimise and manage surplus materials and waste on site.	ES Paragraph 10.9.4 and 14.9.2	Main contractor	SWMP Site Environmental Inspections	Construction	
M7	Earthworks material classified as unacceptable for reuse (U1/U2), will be treated in order to divert these arisings from landfill. Treatment options will be identified following testing. The reuse of this material will be included in the MMP which will be approved by the SoS in consultation with the local authority.	To maximise reuse of surplus materials generated by the Scheme.	ES Paragraph 10.9.4	Designer Main contractor	Materials Management Plan.	Construction	
M8	Locally sourced materials and suppliers will be used where practicable.	Reduce impact of transportation of materials to site.	ES Table 10-16.	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Construction	
Noise and Vibration							
N1	A Thin Surface Course System (TSCS) for all sections of the A1 and slip roads up to the roundabouts but excluding the roundabout circulatory must be installed.	To reduce noise generated across the Scheme.	ES Paragraph 2.7.1 and 11.9.1	Designer Main contractor	Detailed design drawings As built drawings	Design Construction	
N2	An acoustic barrier, approximately 670m long and 3m high, must be provided next to the north bound carriageway along the Highway boundary, to tie into or overlap with the existing bund west of the northbound carriageway at Lockwood Avenue as shown on **Figure 2.4** of the ES, Environmental Masterplan **(Application Document Reference: TR010031/APP/6.2).**	To minimise noise and vibration for local residents.	ES Paragraph 2.7.1, 11.9.1 and 11.9.3	Designer Main contractor	Detailed design drawings As built drawings	Design Construction	

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N3	The easternmost 45m of the existing noise barrier at Lady Park will be realigned to the back edge of the proposed slip road verge, such that the full length of the barrier sits at the back edge of the carriageway as detailed in **Figure 11.7b** of the ES (**Application Document Reference TR010031/APP/6.2**). This barrier will be retained with a height of 2.5m along its full length.	To minimise noise and vibration for local residents.	ES Paragraph 2.7.1, 11.9.14	Main contractor	Detailed design drawings As built drawings	Design Construction	
N4	A concrete centre reserve will be constructed along the full length of the Scheme.	To contribute to minimising noise and vibration for local residents.	ES Paragraph 11.9.2	Designer Main contractor	Detailed design drawings As built drawings	Design Construction	
N5	The following measures will be implemented during construction: ▪ The contractor and their sub-contractors will at all times apply the principle of Best Practicable Means (BPM) as defined in Section 72 of the Control of Pollution Act 1974 and carry out all work in such a manner as to avoid or reduce any disturbance from noise. ▪ Guidance given in BS 5228-1 (Section 8 - Control of noise and Annex B (**Ref 1.8**) - Noise sources, remedies and their effectiveness) will be followed and advice and training on noise minimisation given to staff during site induction procedures. ▪ All plant brought on to site will comply with the relevant European Commission (EC)/UK noise limits applicable to that equipment or should be no noisier than will be expected based on the noise levels quoted in BS 5228-1. Each plant item will be well maintained and operated in accordance with manufacturers' recommendations and in such a manner as to minimise noise emissions. ▪ Electrically powered plant will be preferred, where practicable, to mechanically powered alternatives. ▪ Sound reduced plant fitted with suitable silencers or operated within enclosures will be used. ▪ Pneumatic tools will be fitted with silencers or mufflers. ▪ Deliveries to site will be programmed and routed to minimise disturbance to local residents. ▪ Items of plant operating intermittently will be shut down in the periods between use. ▪ Stationary plant will be located so that the noise effect at receptors is minimised and items of static plant, when in operation, will be noise attenuated using methods based on the guidance and advice given in BS 5228-1.	To minimise noise nuisance from construction plant and activities.	ES Paragraph 11.9.5	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Noise monitoring records Site Environmental Inspection Records	Construction	

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	▪ Construction methods will be selected in accordance with best practice. For example, the breaking-out of concrete structures will use low noise methods such as munching or similar, rather than percussion breaking. ▪ Plant and equipment will be noise reduced / lowest noise emission models e.g. within the lower range of expected noise emission levels based on the example data contained with BS5228-1 (**Ref. 1.8**) whilst remaining fit for purpose. Care will be taken for works required during out-of-hours/night-time periods, e.g. as associated with the formation of the new Allerdene Bridge and removal of the existing Allerdene Bridge, where night-time rail possessions are anticipated to be required. ▪ Temporary acoustic barriers and other noise containment measures such as screens, sheeting and acoustic hoarding at the site boundary (and where required around individual plant) will be erected where appropriate to minimise noise breakout and reduce noise levels at potentially affected receptors. ▪ There will be a considerate and neighbourly approach to relations with local residents with particular care given to the timing and regularity of works that are undertaken within any one area. For example, appropriate periods of respite will be allowed where the generation of high noise levels is unavoidable e.g. due to the proximity of works. ▪ For out-of-hours/night-time works that are programmed for the formation of the new Allerdene Bridge and removal of the existing Allerdene Bridge (where rail possessions are anticipated to be required), local residents will be provided with advanced notice via means of a local letter drop, public notice or other such communication. ▪ A construction noise monitoring programme will be undertaken for all out-of-hours work that is to be undertaken for the installation of the new Allerdene Bridge and the removal of the existing Allerdene Bridge. This programme will include an active feedback loop to the construction contractor by means of a visual or alert based system allowing live monitoring of compliance with appropriate construction noise criteria. ▪ If a temporary significant noise (or vibration) effect cannot reasonably be prevented and the works being undertaken are crucial to progressing a particular phase of the Scheme, then separate liaison with the local authority will be undertaken to agree that best mitigation techniques are being applied and therefore that associated effects are minimised. This will include agreement with the local authority regarding the nature, timing and duration of works. Community consultation will also be carried out as appropriate.						

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N6	The site manager, or other appointed site representative, will be responsible for logging all received environmental noise and vibration comments/complaints, as well as the action that is taken in response to each point raised, and whether this was successful. Where not successful, supplementary actions will be carried out and resulting effects logged. The contact details for the site representative will be openly advertised so that local residents have a point of contact in case of any issues arising. The site representative will be responsible for keeping an open line of contact with local residents and advising the timing and programming of potentially noisy works.	To promote positive community engagement and ensure members can raise concerns with a named point of contact.	ES Paragraph 11.9.5	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Site noise complaint log to include a record of actions taken to resolve and close out complaint	Construction	
N7	BPM will be implemented to minimise construction generated vibration. Many of the measures listed for noise in N1 above will also help to minimise vibration. All plant items will be properly maintained and operated according to manufacturers' recommendations and in such a manner as to avoid causing excessive vibration and careful consideration will be given to the methods of work. A construction vibration monitoring programme will be undertaken where driven piling works are required, or where vibratory rollers are to be used in the immediate vicinity of sensitive receptors. This programme will include an active feedback loop to the construction contractor by means of a visual or alert based system allowing live monitoring of compliance with appropriate construction vibration criteria.	To minimise nuisance resulting from construction vibration.	ES Paragraph 11.9.9 and 11.9.10	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Vibration monitoring records	Construction	
N8	Where piling works are required for the extension of Longbank Bridleway Underpass, these will be completed using a rotary bored (i.e. non-impulsive) method. Monitoring will be carried out to identify if the retaining wall associated with Bowes Railway SM (1003723) is damaged during construction. The condition of the wall will be compared with the baseline condition detailed in the Bowes Railway Retaining Wall Survey Report (**Application Document Reference: TR010031/APP/6.3**). If any of the wall is damaged it will be repaired on a like for like basis using the agreed conservation strategy set out in CH6. These repairs will be in addition to those identified in CH7 in this CEMP. These monitoring requirements will be included in the WSI.	Facilitate the delivery of the Longbank Bridleway Underpass without damage to the section of the retaining wall associated with Bowes Railway SM (1003723) that is to be kept.	ES Paragraph 11.9.11	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority. WSI approved by the SoS in consultation with Historic England. Reported on the Requirements Register published on Highways England's Scheme website	Construction	

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Population and Health							
PH1	A 2.5m high wooden close-board fence will be provided at the footpath over Longbank Bridleway Underpass.	To shield horses from adjacent traffic on the A1 and ensure a standard 3.0m wide passage is available across the entire width of the headwall of the Underpass.	ES Paragraph 2.7.1	Designer Main Contractor	Detailed design drawings As built drawings	Design Construction	
PH2	The new North Dene Footbridge will have a 3.5m (unsegregated) pedestrian/cycle path over the bridge deck and ramp and will have a 1 in 12 (minimum) gradient ramp. Corduroy tactile paving to aid the movement of partially sighted Walking, Cycling and Horse Riding (WCH) users. Signage and layout will be clear to understand and avoid creating route uncertainty. Improvements will be provided at both Eighton Lodge and Coal House interchanges to ensure pedestrian facilities (dropped kerbs and tactile paving) are consistent around the junctions.	To provide improved access for WCH users.	ES Paragraph 2.7.1 ES Paragraph 12.9.5 ES Paragraph 12.9.12	Designer Main Contractor	Detailed design drawings As built drawings	Design Construction	
PH3	Ways to minimise the visual impact of gantries which could impact on views to the Angel of the North will be investigated during detailed design. This will include designing gantries as far as possible to have a reduced visual impact and sympathetic placement of gantries within the design envelope.	To minimise impacts on views to the Angel of the North.	ES Paragraph 12.9.1	Designer	Detailed design drawings	Design	
PH4	Temporary diversions will be put in place where WCH routes are closed during construction (North Dene Footbridge, Longbank Bridleway, Lamesley Bridleway 72 and access to footways near junction 65 (Birtley) and junction 66 (Eighton Lodge)). Temporary diversion routes are detailed within the Streets, Rights of Way and Access Plans (**Application Document Reference: TR010031/APP/2.4**).	To ensure continued access for WCH.	ES Paragraph 12.8.8 ES Paragraph 12.9.7	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
					England's Scheme website		
PH5	All areas temporarily required for construction will be reinstated to reflect their former vegetation cover, unless otherwise stated on **Figure 7.6** Landscape Mitigation Design (**Application Document Reference: TR010031/APP/6.2**).	To ensure community land is returned to community use following construction	ES Paragraph 12.9.18	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Construction	
PH6	Existing footpaths and walking, cycling and horse riding routes will be retained, and where crossed by the route, provided with proper means of access to prevent severance. The Smithy Lane crossing point, located along the A1, will remain open and unaffected during the construction period. The existing roads that will be incorporated into the temporary diversion routes during construction are detailed within the Streets, Rights of Way and Access Plans (**Application Document Reference: TR010031/APP/2.4).**	To prevent community severance.	ES Paragraph 12.9.15 ES Paragraph 12.9.16	Designer	Detailed Design As built drawings	Design	
PH7	The design of routes for WCH will incorporate good practice with regards to the safety, including lighting.	To ensure the safety of WCH and improve amenity of users of footpaths.	ES Paragraph 12.9.11	Designer	Detailed Design As built drawings	Design	
PH8	Measures will be put in place to maximise the potential for the workforce and project supply chain to be sourced locally which will include: ▪ Working with local people and local businesses to ensure that, wherever possible, investment in the North East, stays in the North East. ▪ Engaging with Jobcentre Plus to advertise job opportunities to local people seeking employment and identifying opportunities for work placements, further education and skills training. ▪ Opportunities for everybody working on the Scheme to upskill, through experience, training and development programmes.	To maximise benefits to the local economy.	ES Paragraph 12.9.20	The Applicant Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
PH9	A CTMP will be out in place which will detail measures to be implemented to minimise disruption to road network users. The Outline CTMP which is included in **Appendix B** of this Outline CEMP will be updated by the contractor and will form part of the CEMP which will be approved by the SoS in consultation with the local authority(s). Signage and route layout will be clear to understand and avoid creating route uncertainty. Any diversions or closures undertaken during construction will be clearly advertised, and any diversionary routes will be clearly signposted and not lead to uncertainty. Signage will be put in place to ensure local tourism and recreational facilities remain accessible.	To minimise driver stress as a result of traffic management during Scheme construction.	ES Paragraph 12.9.5 and 12.9.21	Main contractor	Construction Traffic Management Plan approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Construction	
PH10	The works will be programmed so that North Dene Footbridge and Longbank Bridleway Underpass are not closed at the same time. This will ensure that there is a route across the A1 at all times.	To minimise impacts to WCH using PRoW.	ES Paragraph 12.9.8	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Construction	
P11	The construction works will be programmed in consultation with Network Rail and rail operators to ensure effects on rail travellers are minimised through the use of weekend and night-time route closures, and to ensure that alternative transport methods are provided where necessary.	To minimise impacts on rail travellers	ES Paragraph 12.9.13	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority	Construction	
Road Drainage and the Water Environment							
W1	An attenuation pond must be provided in the location of the former A1 carriageway as shown on the General Arrangement Plan (sheet 3 of 7) (**Application Document Reference: TR010031/APP/2.6**).	To prevent contaminated water entering watercourses.	ES Paragraph 2.7.1	Designer	Detailed design As built drawings	Design Construction	
W2	The additional piers at Kingsway Viaduct must have piled foundations (into bedrock).	To ensure the effects of scour do not undermine the foundations.	ES Paragraph 13.9.2 ES Table 14-12	Designer	Detailed design As built drawings	Design Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
W3	All attenuation storage must be designed with overflow and isolation systems to retain contaminated road drainage, allowing the contaminated water to be treated before discharge. The storage facilities will also allow sediment and pollutants to settle thus reducing the contaminant concentration in the water.	To prevent contaminated water entering watercourses.	ES Paragraph 2.7.1 and 13.9.13	Designer Main contractor	Detailed design As built drawings	Design Construction	
W4	Oil interceptors must be installed at all outfalls.	To improve the water quality of the road discharge.	ES Paragraph 2.7.1 and 13.9.13	Designer Main contractor	Detailed design As built drawings	Design Construction	
W5	Silt control vortex separators must be incorporated into the outfalls to Longacre Dene. The potential to include further silt control measures on all other outfalls will be investigated at detailed design.	To prevent sediment release into the watercourse.	ES Paragraph 2.7.1 and 13.9.13	Designer Main contractor	Detailed design As built drawings	Design Construction	
W6	Cut-off drains must be constructed at the base of all new embankments along the road.	To prevent any contaminated runoff that exceeds the drainage capacity from entering third party land.	13.9.14	Designer Main contractor	Detailed design As built drawings	Design Construction	
W7	Pollution Control Devices (Penstocks) must be installed where the larger volumes of liquid can be retained in the case of a pollution incident. These will be at the following locations: ▪ Allerdene pond - Outfall 8 ▪ Coal House underground storage tank (north-east quadrant) – Outfall 11 ▪ Coal House underground storage tank (south-east quadrant) - Outfall 13 ▪ Birtley Bowes Incline underground storage tank – Outfall 1	To mitigate the risks of pollution to watercourses.	13.9.15	Designer Main contractor	Detailed design drawings As built drawings	Design Construction	
W8	Flood plain compensation must be provided via a top soil scrape for the loss of the River Team floodplain due to the extended piers, this will be provided within the junction 67 (Coal House) roundabout (**Figure 7** Flood Plain Compensation Area (**Application Document Reference: TR010031/APP/6.1**)).	To offset the loss of floodplain associated with the additional piers at Kingsway Viaduct.	ES Paragraph 13.9.17	Designer	Detailed design drawings	Design	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
W9	Scour protection must be incorporated into the design of the Kingsway Viaduct extension. Scour protection will be considered at detailed design and implemented in such a way so as not to impact the morphology of the river.	To mitigate against erosion around the bridge pier abutments at the River Team crossing.	ES Paragraph 13.9.18	Designer Main contractor	Detailed design drawings As built drawings	Design Construction	
W10	In realigning the A1 to the south of the existing Allerdene Bridge, Allerdene Culvert must be replaced by either a new culvert and realignment of the drainage channel (Allerdene embankment option) or daylighting of the Allerdene Culvert and replacement and realignment of the drainage channel to accommodate a new viaduct over the adjacent railway line (Allerdene viaduct option). Both options for Allerdene Culvert will be designed to mimic the flow conditions of the existing watercourse to minimise impacts to the channel morphology and to ensure flood risk is not increased within and outside of the Scheme Footprint. Mitigation measures to be implemented must include: ▪ For Allerdene embankment option, reinforced concrete headwalls, wingwalls and aprons will be provided at the inlet and outlet of the new culvert with appropriate scour prevention measures to minimise the risk of erosion. ▪ For Allerdene viaduct option, in addition to the alterations provided for Allerdene embankment option, the existing culvert will be removed and replaced with an open channel. ▪ For both Allerdene embankment option and Allerdene viaduct option potential opportunities have been identified to improve the channel design and to provide enhancement to the river environment and morphology by, for example, inclusion of pools and riffles (or similar features to increase biodiversity) constructing a two-stage channel, adopting bioengineering techniques, such as rock rolls and mattresses, to maintain the channel profile and by re-vegetating the banks of the proposed channel realignment. These, and further potential enhancements, will be considered at the detailed design stage of the Scheme. ▪ The proposed channels, for both Allerdene embankment option and Allerdene viaduct option, have a slightly larger capacity than the existing (1,001m^3, 1,293m^3 and 865m^3 respectively), therefore the use of flow control culverts has been considered to maximise the channel storage and subsequently utilise the storage in the floodplain to minimise the change in flow contribution to the River Team. The requirements for flow control culverts will be incorporated into the detailed design of the proposed channel.	To mitigate impacts and to provide improvements to Allerdene Burn and Culvert.	ES Paragraph 13.9.19	Designer	Detailed design drawings	Designer	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
W11	A surface water drainage strategy will be developed for the relocated NGN site (adjacent to the relocated section of the Allerdene Burn) during detailed design and approved by the SoS in consultation with the local authority. The strategy will utilise SuDS based attenuation/principles where feasible to ensure that there is no impact on water quality.	The surface water strategy for the NGN site will ensure that discharge rates do not exceed the greenfield rates and will require new outfalls to the relocated Allerdene Burn.	ES Paragraph 13.9.16	NGN Designer	NGN Surface Water Drainage Strategy	Design	
W12	A Flood Risk Activities permit from the EA and Ordinary Watercourse consent from the LLFA will be required for any works within channel or 8m from top of the River Team bank. These consents will be obtained by the main contractor prior to any works commencing within or near a watercourse. Any dewatering or discharge of waters during construction may also require an environmental permit.	To obtain consent for works affecting watercourses.	ES Paragraph 13.9.6	Main contractor	Flood risk activity permit and ordinary watercourse consent approved by the relevant authority	Pre-construction	
W13	As-built drawings and any relevant survey data will be provided by the main contractor to Highways England to enable them to update the Highways Agency Drainage Data Management System (HADDMS).	To ensure Highways England has the most up to date information on their assets.	ES Paragraph 13.9.7	Designer Main contractor	Data supplied to Highways England	Design Construction	
W14	The CEMP will include a temporary surface water drainage strategy, including flood risk mitigation measures. The temporary surface water drainage strategy will form part of the CEMP which will be approved by the SoS. The temporary surface water drainage strategy will be put in place prior to the commencement of the works that they are required to off-set.	To avoid an increase in flood risk.	ES Paragraph 13.9.11	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Construction	
W15	The following mitigation measures will be implemented during the construction phase to minimise impacts on water quality: ▪ Appropriate construction methodology will be employed such as the use of coffer dams to exclude the work area from the main waterbody	To minimise Impacts to water quality.	ES Paragraph 13.9.8	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	(such as Allerdene Burn), thus reducing the risk of increased sediment loads or hazardous substances being directly released into the waterbody. ▪ Environmental permit and ordinary watercourse consent will be sought and a method statement will be produced prior to starting work around the River Team and Allerdene Burn respectively. ▪ Fuel and potentially hazardous construction materials will be stored at least 10m away from the River Team and other surrounding watercourses and in bunds that have areas with external cut-off drainage; fuel will be stored in double skinned tanks with 110% capacity. ▪ Areas with a greater risk of spillage (e.g. vehicle maintenance and storage areas for hazardous materials) will be carefully sited (e.g. away from drains or areas where surface waters may pond). ▪ All drains within the Scheme Footprint will be identified and labelled and measures implemented to prevent polluting substances from entering them. ▪ Silt fences, silt traps, filter bunds, settlement ponds and/or proprietary units such as a 'siltbuster' will be used to treat sediment laden water. ▪ Oil absorbent booms will be installed, as appropriate, on the surface watercourses immediately downstream of the works area, and will be regularly inspected and maintained. ▪ Temporary cut-off drains will be used uphill and downhill of the working areas to prevent clean runoff entering and dirty water leaving the working area without appropriate treatment. ▪ Control and treatment measures will be regularly inspected to ensure they are working effectively. ▪ Measures will be put in place to prevent pollution from construction plant, vehicles and machinery including regular checks for oil and fuel leaks, refuelling in designated areas, on an impermeable surface, away from drains and watercourses. ▪ Plant will be maintained in a good condition with wheel washing in place. ▪ All refuelling will be supervised and carried out in a designated area with appropriate cut-off drainage and located away from watercourses. ▪ In the event of plant breakdown, drip trays will be used during any emergency maintenance and spill kits will be available on site. ▪ All fuel, oil and chemicals will be stored in a designated secure area, with secondary containment provided. ▪ Concrete wash out will only take place at designated concrete washout areas.				Reported on the Requirements Register published on Highways England's Scheme website Temporary surface water drainage strategy Method Statements Environmental consents and permits Site Environmental Inspection Reports		

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	▪ Surface water run-off and excavation dewatering will be captured and settled out prior to disposal to sewer as appropriate. Any contaminants will be removed prior to disposal. ▪ Stockpiles/excavated materials will be stored in such a way to minimise silt laden runoff and/or windblown particles (e.g. by covering or seeding). ▪ All loose materials will be covered so as not to give rise to a significant increase in sediment load to the drainage network. ▪ Sewage generated from site welfare facilities will be disposed of appropriately.						
W16	Where works will lead to temporary changes in the surface water runoff regime a temporary surface water drainage strategy will be developed to ensure that there will be no increase in runoff or pollutant load during the construction phase of the Scheme. This will be undertaken in consultation with the Local Authority as the LLFA.	To ensure that there is no increase in surface water runoff.	ES Paragraph 13.9.12	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Temporary Surface Water Drainage Strategy	Construction	
W17	The following measures will be implemented to minimise the risks to the water environment associated with localised flooding during construction: ▪ Where there is a risk of localised flooding, measures will be put in place to prevent pollution e.g. by ensuring no fuel, oil or chemicals are stored in these locations, and moving plant and machinery from these areas when not attended. ▪ Surface water drainage and the area within the Scheme Footprint will be maintained in order to prevent significant ponding of surface water and to ensure the risk of localised flooding is not increased. ▪ Monitoring of local weather will take place in order to be able to predict localised flooding within the Scheme Footprint during construction so that control measures can be implemented. ▪ The River Team will be temporarily culverted to allow safe access over the river during the construction of the Kingsway Viaduct. The temporary culvert units and channel will be appropriately sized to manage the design flows to minimise the impacts on the natural flow characteristics of the watercourse.	To ensure the risk of localised flooding is not increased and to minimise impacts to water quality.	ES Paragraph 13.9.11	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website Temporary Surface Water Drainage Strategy Construction method statements	Construction	

Ref	Action (including monitoring requirements)	Objective	Source Reference	Organisation / Individual Delivering Measure	Achievement criteria and reporting requirements	Project stage (Design, pre-construction, construction, operation)	Record of Completion (Signature and date)
	▪ The contractor will sign up to the Environment Agency's flood warning service and have an appropriate flood management plan in place to ensure the safety of the workers in and around the River Team channel and flood plain. ▪ The CEMP will detail the timing of the works for the construction of the flood plain compensation and the relocation of the Allerdene Burn. This is to ensure that the mitigation measures are in place prior to the commencement of the works that they are required to off-set.						
W18	The potential for disruption to off-site field drainage will be assessed prior to the commencement of works by the main contractor, in the locations where this will occur, diversions/alternative drainage routes will be constructed prior to the works.	To avoid disruption to field drainage and associated increase in flood risk.	ES Paragraph 13.9.11	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Construction	
Climate							
C1	Weep holes will be incorporated into the detailed design to ensure a reduction in the build-up of pore water pressures behind wall faces in retaining walls. Structure drainage systems will have maintenance access to ensure blockages are reduced as much as practically possible to eliminate build-up of water.	To prevent damage to structures.	ES Table 14-12	Main contractor	Detailed design drawings As built drawings	Detailed Design Construction	
C2	The following aspects will be implemented to reduce Green House Gas (GHG) emissions from the Scheme: ▪ Raw materials will be selected as far as practicable with the least GHG emissions intensity in reference to information published in Environmental Product Declarations (EPDs). ▪ Vehicles, plant and processes will be specified to be best in class for efficiency. ▪ Specification of best-in-class energy efficient systems for operations e.g. lighting and signage.	To reduce GHG emissions.	ES Paragraph 14.9.2	Main contractor	The CEMP will be approved by the SoS following consultation with the local authority Reported on the Requirements Register published on Highways England's Scheme website	Detailed Design Construction	

4. CONSENTS AND PERMISSIONS

4.1.1. A Consents and Agreement Position Statement (**Application Document Reference: TR010031/APP/3.3**) has been submitted as part of the DCO application, which sets out the Applicant'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 section of the Outline CEMP identifies those environmental consents, permissions and agreements that will be, or will likely be, sought by the Applicant or the main contractor for the Scheme on its behalf. It will be the responsibility of the main contractor to secure these consents and permissions for the Scheme where not sought by the Applicant.

4.1.3. In addition to the DCO, there are other regulatory regimes that must be complied with and licences and/or consents that will need to be obtained to allow the Scheme to proceed including, but not limited to:

- European Species and Notable species licences
- Environmental Permit: Flood Risk Activities
- Ordinary Watercourse Consent
- Waste exemption for re-use of material on site (if required)

4.1.4. It is the responsibility of the main contractor to ensure that consents have been obtained and to ensure compliance with the latest environmental legislation. The main contractor will update **Table 4-1** once the necessary consents have been established to record and document the requirements.

Table 4-1 – Consents and permissions that may be required during construction to deliver the Scheme

Type	Issuing Authority	Requirement
Badger Licence	Natural England	Consent must be obtained before construction works can commence.
EPS Licence	Natural England	Consent must be obtained before construction works can commence due to presence of a confirmed bat roost.
Environmental Permit: Flood Risk Activities	Environment Agency	Main contractor to obtain a permit for works: ▪ On or near a main river ▪ On or near a flood defence structure ▪ In a flood plain
Ordinary watercourse Consent	Local Authority	Main contractor to obtain consent for:

Type	Issuing Authority	Requirement
		▪ 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 eight 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 nine metres of a watercourse, that will be in place for less than six months.
Consent from LLFA	Lead Local Flood Authority	Main contractor to obtain consent for the temporary surface water drainage strategy.
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	Main contractor to identify and register relevant and required exemptions with the Environment Agency.
Waste Carrier Licence	Environment Agency	Main contractor 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 two 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 three years.
Waste Disposal Licence	Environment Agency	Main contractor to ensure that waste is taken to facilities permitted to deal with

Type	Issuing Authority	Requirement
		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. ENVIS

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.

COLLECTION AND SUBMISSION OF ENVIS DATA

5.1.3. Highways England's IAN (84/10) (**Ref 1.9**) states that identifying and recording EnvIS data is an ongoing process. Service providers are required to submit EnvIS data, stored on their own system, in the form of environmental inventory and environmental management information records. For designers, the frequency of EnvIS data submission (to the Applicant), should be in line with the end of the following milestones:

- Preliminary Design: Development phase– Environmental Assessment/Statement Publication - environmental data resulting from statutory or non-statutory assessment of the environmental implication of the Scheme. Designers collect EnvIS data for all elements that have influenced or are influenced by the Scheme.
- Construction Preparation: Development phase– Detailed design drawings - environmental data detailing the final specification of the Scheme. Designers collect and submit EnvIS data detailing all elements associated with the planning and design of the project and any pre-construction environmental surveys e.g. species surveys, archaeological investigations.
- Construction, commissioning and handover: Construction phase – As Built Drawings – environmental data detailing the completion of the Scheme 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.

5.1.4. At this stage of the Scheme, EnvIS data will include the submission of all species surveys results undertaken to inform the ES and a copy of the ES and associated documents.

5.1.5. The above approach should align with and inform the requirements of the ‘As-built Documentation’ required at Construction, commissioning and handover.

6. DETAILS OF MAINTENANCE AND ENVIRONMENTAL MONITORING ACTIVITIES

6.1. MONITORING

6.1.1. The ES and REAC propose certain requirements for environmental monitoring during construction to ensure the identified mitigation measures and actions can be tracked and closed out when completed. Some of these are specific, for example, noise monitoring: others are more general, for example, covered by regular environmental inspections.

6.1.2. The main contractor will be responsible for conducting monitoring during construction and following completion of construction for a set period. After this period, all roads, bridges, footways and other infrastructure associated with the Scheme will be adopted by Highways England and fall within their routine schedule of maintenance and inspections as detailed in **Section 6.2** below.

6.1.3. A central filing system will be in place to store monitoring records and site environmental inspection reports. Furthermore, records of compliance with the requirements of the Outline CEMP, derived from audits and other inspections, will be held at the main contractor's site office.

6.1.4. The following monitoring will typically be carried out:

Table 6-1 – Construction stage monitoring to be carried out

Monitoring	Responsible Person	Frequency
Air quality monitoring	Main contractor	Daily visual dust inspections during dry weather.
Archaeological monitoring of all groundworks at the section of masonry retaining wall of the Scheduled Bowes Railway and monitoring of the permanent removal of some sections of the masonry walling of the Bowes Railway SM.	Archaeologist (main contractor)	During groundworks at the section of masonry retaining wall of the Scheduled Bowes Railway and on removal of the masonry wall of the Bowes Railway SM.
Noise and vibration monitoring	Main contractor	Live monitoring (with alert system) during construction
Monitoring of the freshwater environment	ECoW (main contractor)	As detailed in the Flood Risk Activities Permit and/or Ordinary Watercourse Consent.

Monitoring	Responsible Person	Frequency
Gas monitoring	Main contractor	During drilling and grouting activities, to monitor whether any gases are being released from the ground as the voids pressure grounded.
Weekly environmental inspections	Site Manager/Agent	Weekly
Environmental inspections	Environmental Manager/Co-ordinator	Monthly
Environmental audits	Environmental Manager/Co-ordinator	Quarterly/Bi-annually
SWMP update and review	Environmental Manager/Co-ordinator	Monthly
CEMP update and review	Environmental Manager/Co-ordinator	Updated to take account of the following as soon as information becomes available: ▪ Changes in design ▪ Changes in external factors such as regulations and standards ▪ Any unforeseen circumstances as they arise such as new protected species or new archaeological finds ▪ The results of inspections and audits ▪ Learning points from environmental near misses and incidents As a minimum the CEMP should be reviewed and updated every six months.

POST CONSTRUCTION MONITORING

6.1.6. Following completion of the Scheme and to establish the effectiveness of the proposed mitigation strategy associated with it on going monitoring will be required, managed by, or on behalf of, Highways England.

6.1.7. This will take two forms:

- Monitoring of the growth and establishment of the planting strategy implemented as part of the Scheme.

- Periodic review of agreed viewpoints to confirm that views associated with the Scheme have been mitigated as anticipated.

6.1.8. During the establishment period following the implementation of the planting strategy, ongoing monitoring of the shrubs, trees, and grassland will be required to ensure that the mitigation strategy has been successfully delivered. This will involve an annual inspection and reporting on all plant material, to ensure that plants have established within acceptable levels such that the mitigation strategy will be delivered in the future. There will be a requirement for any tree or shrub planted, within a period of five years after planting, that is removed, dies or becomes in the opinion of the local authority, seriously damaged or diseased, must be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless the SoS, following consultation with the local authority, gives consent to a variation.

6.2. MAINTENANCE

6.2.1. Following completion of construction, the main contractor will be responsible for defects over a set period (generally five years). Towards the end of the construction period the CEMP will be developed as HEMP which will include the monitoring and management arrangements going forward during future maintenance and operation. The Scheme must be operated and maintained in accordance with the HEMP.

6.2.2. Maintenance of the trunk road network is the responsibility of Highways England, whilst maintenance of the local road network is the responsibility of the local authorities. These arrangements will apply to the Scheme, meaning that the A1 mainline, and its link/slip roads will be maintained by Highways England. The A1231 over junction 65 (Birtley) and the roundabout circulatory at junction 66 (Eighton Lodge) and junction 67 (Coal House) are maintained by Gateshead Council. The roads across the local authority boundary to the east are maintained by Sunderland City Council. All existing maintenance procedures specific to this section of the A1 will need to be reviewed by the relevant parties and updated as necessary.

6.2.3. Short-term maintenance and repair activities are likely to comprise inspections on the new works and installed assets, and any unplanned works due to damage to assets in events such as road traffic incidents. Longer term maintenance and repair works will include measures such as road restraint systems and traffic and road markings.

6.2.4. There will also be on-going (annual) inspections and general routine maintenance works such as debris removal, sweeping, litter picking and weed killing will still be required.

6.2.5. In the longer term, expected planned maintenance will include activities such as resurfacing the road and replacement of assets when they become life expired.

7. INDUCTION, TRAINING AND BRIEFING PROCEDURES FOR STAFF

7.1. INDUCTIONS

7.1.1. In order to meet the environmental commitments, set out in this Outline CEMP, all staff will be suitably trained for their roles including their environmental responsibilities. A record of training will be maintained by the main contractor. As a very minimum all site personnel will be given a site induction, regular environmental tool box talks and RAMS briefings which will cover environmental issues related to the works and the CEMP.

7.1.2. The items relating to environmental awareness which are likely to be covered during site induction include the following:

- Company or Scheme specific environmental policy
- Site environment and risks
- Prevention and control of pollution (e.g. fuel containment; spill kits)
- Risks of exposure to contamination associated with earthworks and excavations
- Materials storage (defined for excavated and imported materials)
- Waste management and storage (defined for domestic waste and construction waste)
- Wheel washing and road sweeping
- Nuisance (e.g. noise, dust, vibration and odour)
- Traffic management plans (e.g. haulage routes)
- Communication with the public
- Reporting of environmental near misses, hazards and incidents
- Emergency Response Plans

7.2. TRAINING AND COMPETENCY

7.2.1. The training and competency of personnel will be ensured by the main contractor, who will prepare and deliver a programme of training relevant to environmental management. This may include more detailed training in the topics listed above and those relevant to the site-specific hazards. Any personnel carrying out activities with a potential for specific environmental impacts (e.g. refuelling of plant) will be provided with specific training.

7.2.2. Additional requirements for training should be identified and added to throughout the construction phase. Additional requirements for training will be identified through environmental audits and feedback on non-compliance. A log of training and competency will be maintained by the main contractor.

7.3. TOOLBOX TALKS

7.3.1. The competency of personnel will be reinforced through daily ‘toolbox talks’ led by the main contractor. Topics for toolbox talks will include those relevant to the site-specific hazards or tasks. A log of toolbox talks provided for personnel will be maintained by the main contractor.

7.3.2. A summary of the training to be provided on site is summarised in **Table 7-1.**

Table 7-1 - Proposed site training schedule

Meeting/Briefing/Training	Frequency	Attendees
Safety, Health and Environment (SHE) Progress Meetings	Weekly/Monthly	Environment Manager TBC
Induction Training (which will include environmental aspects)	On first visit to site	All persons attending site (site personnel, sub-contractors, clients, visitors).
RAMS briefings	Every job task	All involved in task.
Environmental Toolbox Talks will be carried out appropriate to the construction works being carried out on site at that time.	Minimum of one per month	All persons carrying out work on site (site personnel, sub-contractors).
Environmental briefings e.g. Environmental Bulletins/Alerts, Lessons Learnt, Results of Inspections/Audits	As required.	All persons carrying out work on site (site personnel, sub-contractors).
Job specific training e.g. IOSH working with Environmental Responsibilities and Site Waste Management.	As required	As identified for personnel with environmental responsibilities.
Scheme specific information, including the CEMP.	As required	Briefed out to all staff and displayed on notice board.

8. ACRONYMS

AGI	Above Ground Installation
AO	Archaeology Officer
BPM	Best Practicable Means
BS	British Standard
CCS	Considerate Constructor's Scheme
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DG	District Governor
EC	European Commission
ECML	East Coast Main Line
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EMP	Ecological Management Plan
EMP	Environmental Management Plan
EnvIS	Environmental Information System
EPD	Environmental Product Declarations
EPS	European Protected Species

ES	Environmental Statement
GRP	Glass-reinforced Plastic
HADDMS	Highways Agency Drainage Data Management System
HAGIS	Highways Agency Geographic Information System
HEMP	Handover Environmental Management Plan
IAN	Interim Advice Note
IEEM	Institute of Ecology and Environmental Management
INNS	Invasive Non-Native Species
IOSH	Institution of Occupational Safety and Health
LED	Light Emitting Diode
LLFA	Lead Local Flood Authority
LWS	Local Wildlife Site
MCHW	Manual of Contract Documents for Highways Works
MMP	Materials Management Plan
MSP	Maintenance Service Provider
NGN	Northern Gas Networks
NGWB	Newcastle Gateshead Western Bypass
NIAs	Noise Important Areas
PPE	Personal Protective Equipment
PPG	Pollution Prevention Guidelines
PWMS	Precautionary Working Method Statement

RAMS	Risk Assessment Method Statement
RCB	Rigid Concrete Barrier
REAC	Register of Environmental Actions and Commitments
RPA	Root Protection Areas
RPE	Respiratory Protective Equipment
SHE	Safety, Health and Environment
SM	Scheduled Monument
SOS	Secretary of State
SWMP	Site Waste Management Plan
TSCS	Thin Surface Course System
TM	Traffic Management
UK	United Kingdom
WCH	Walking, Cycling and Horse Riding
WSI	Written Scheme of Investigation

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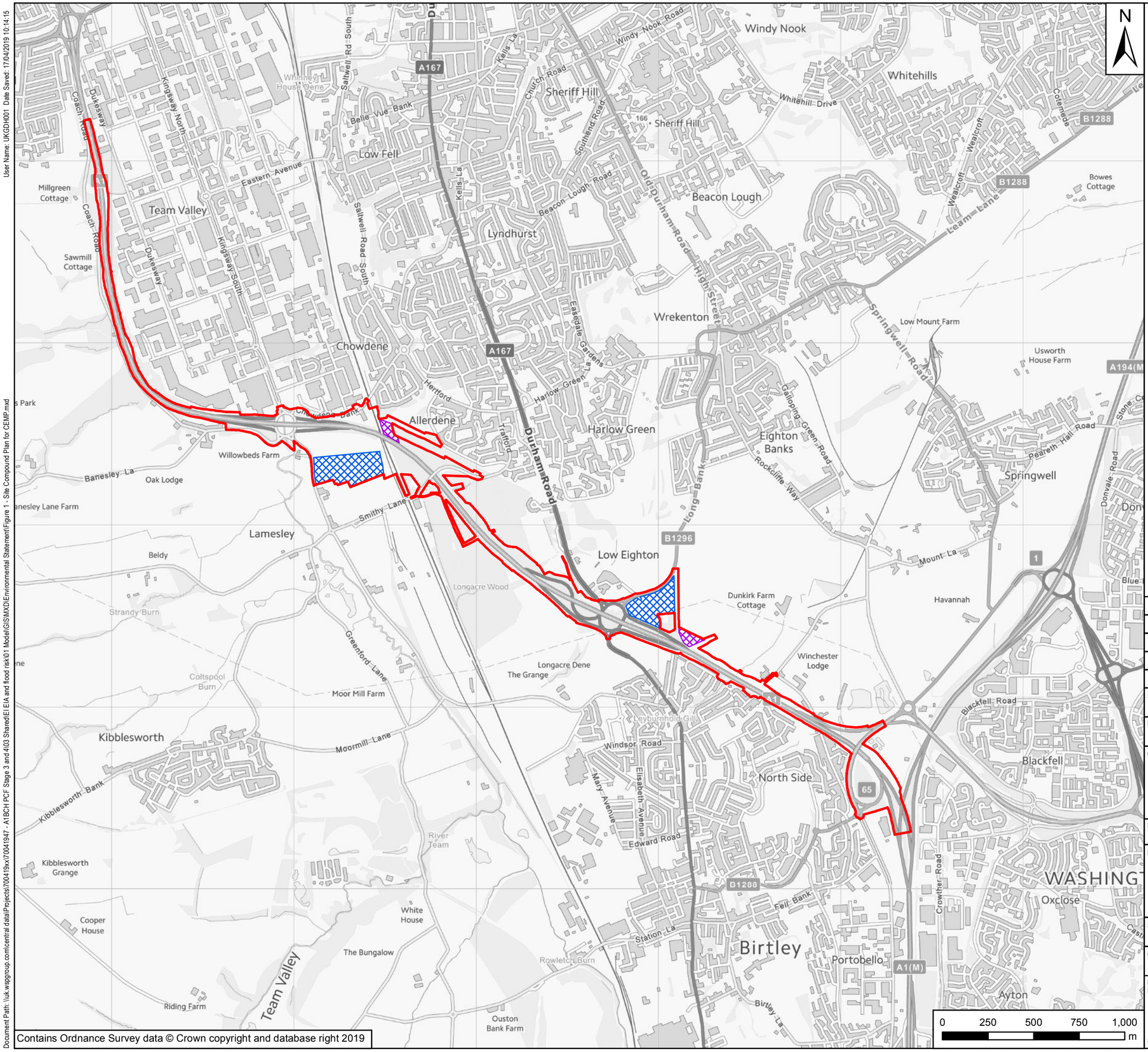
Appendix A

FIGURE 1 SITE COMPOUND LOCATIONS



Rev	Date	Description	By	Chk'd	App'd
P03	Apr 2019	Third Issue	GH	JR	KS
P02	Mar 2019	Second Issue	GH	JR	KS
P01	Dec 2018	First Issue	GH	JR	NJA

Suitability

Status

PINS Reference Number: TR010031

Client: highways england

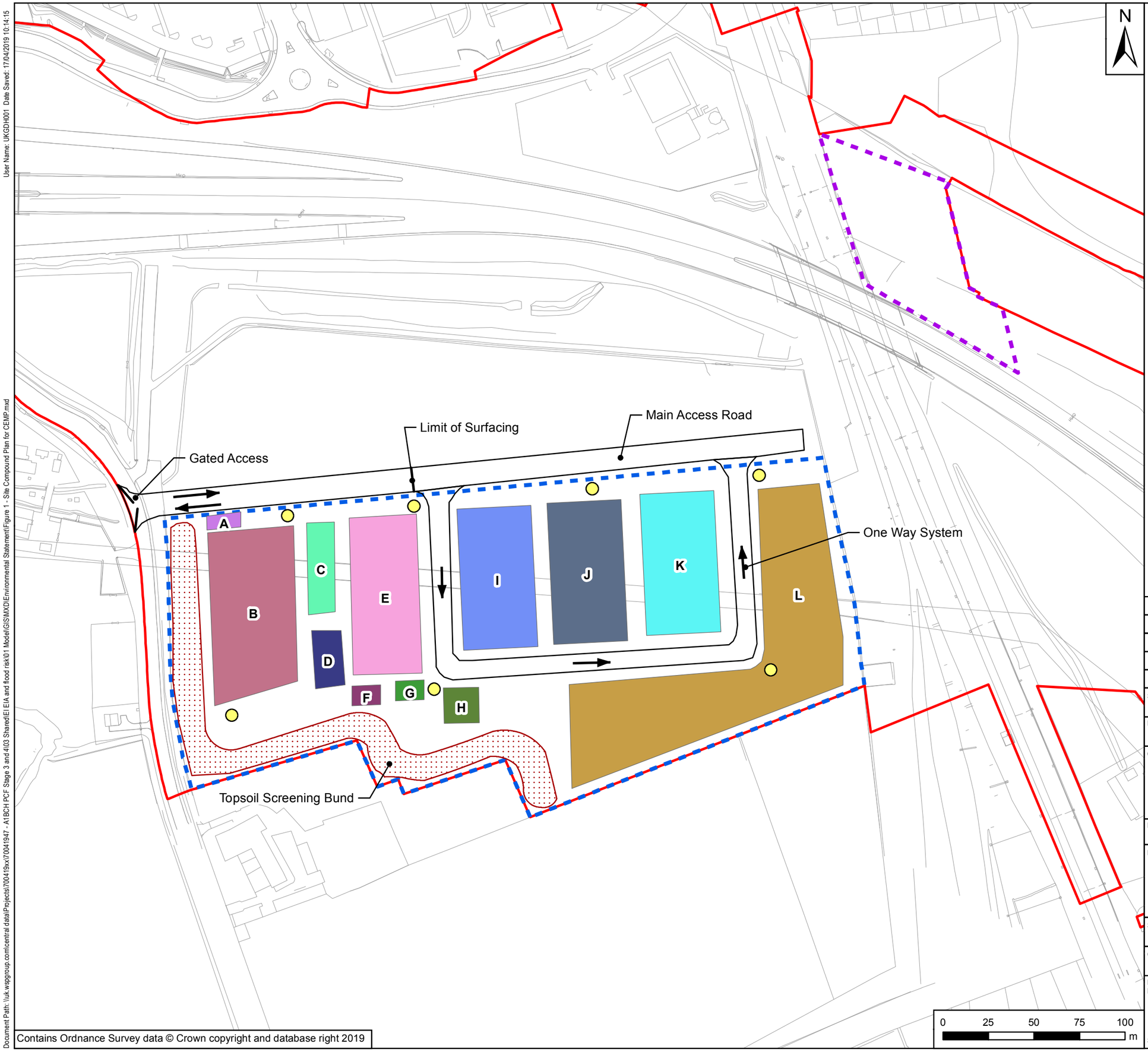
Project Title: A1 Birtley to Coal House Scheme

Drawing Title: Figure 1 Site Compound Plan Overview

Scale	Drawn	Checked	Approved	Authorised
1:20,000	GH	JR	NA	KS
Original Size	Date	Date	Date	Date
A3	April 19	April 19	April 19	April 19

Drawing Number HE PIN: HE551462 | Originator: WSP | Volume: 6.3 | Revision: P03

B2CH | Section | Type | ID | Direction | Type | Role | Number | PW Stage Code



Rev	Date	Description	By	Chk'd	App'd
P03	Apr 2019	Third Issue	GH	JR	KS
P02	Mar 2019	Second Issue	GH	JR	KS
P01	Dec 2018	First Issue	GH	JR	NJA

Suitability

Status

PINS Reference Number
TR010031

Client
highways england

Project Title
A1 Birtley to Coal House Scheme

Drawing Title
Figure 1 Site Compound Plan
Detailed View, Junction 67

Scale	Drawn	Checked	Approved	Authorised
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Original Size	**Date**	**Date**	**Date**	**Date**
A3	April 19	April 19	April 19	April 19

Drawing Number
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HE551462

Originator
WSP

Volume
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Revision
P03

B2CH
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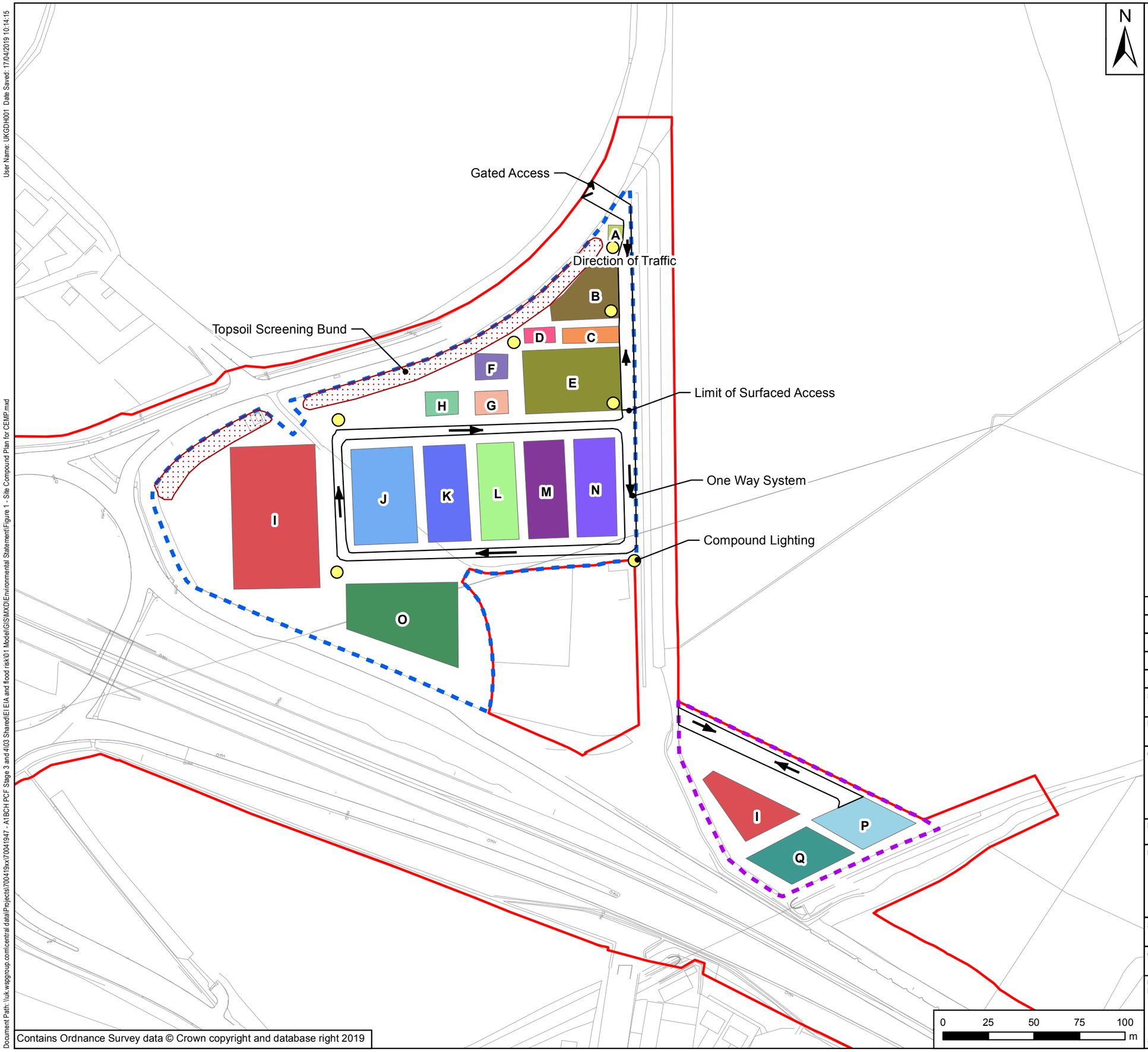

N

Key

- Scheme Footprint
- Construction Compound
- Working Compound
- A, Security
- B, Staff Parking
- C, Site Offices
- D, Mess Facility
- E, Contractor Parking
- F, Secure Stores
- G, Segregated Waste
- H, Fuel Storage and Distribution
- I, Material Storage
- J, Plant Maintenance Area
- K, Plant Storage
- L, Subcontractor Storage
- M, Laboratory
- N, Traffic Maintenance Yard
- O, Aggregate Storage
- P, Laydown Area
- Q, Mess/Storage

Rev	Date	Description	By	Chk'd	App'd
P03	Apr 2019	Third Issue	GH	JR	KS
P02	Mar 2019	Second Issue	GH	JR	KS
P01	Dec 2018	First Issue	GH	JR	NJA

Suitability

Status

PINS Reference Number: TR010031

Client: highways england

Project Title: A1 Birtley to Coal House Scheme

Drawing Title: Figure 1 Site Compound Plan
Detailed View, Junction 66

Scale	Drawn	Checked	Approved	Authorised
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Original Size	**Date**	**Date**	**Date**	**Date**
A3	April 19	April 19	April 19	April 19

Drawing Number
HE PIN: HE551462
Originator: WSP
Volume: 6.3
Revision: P03
B2CH
Section | Type | ID | Direction | Type | Role | Number
PW Stage Code

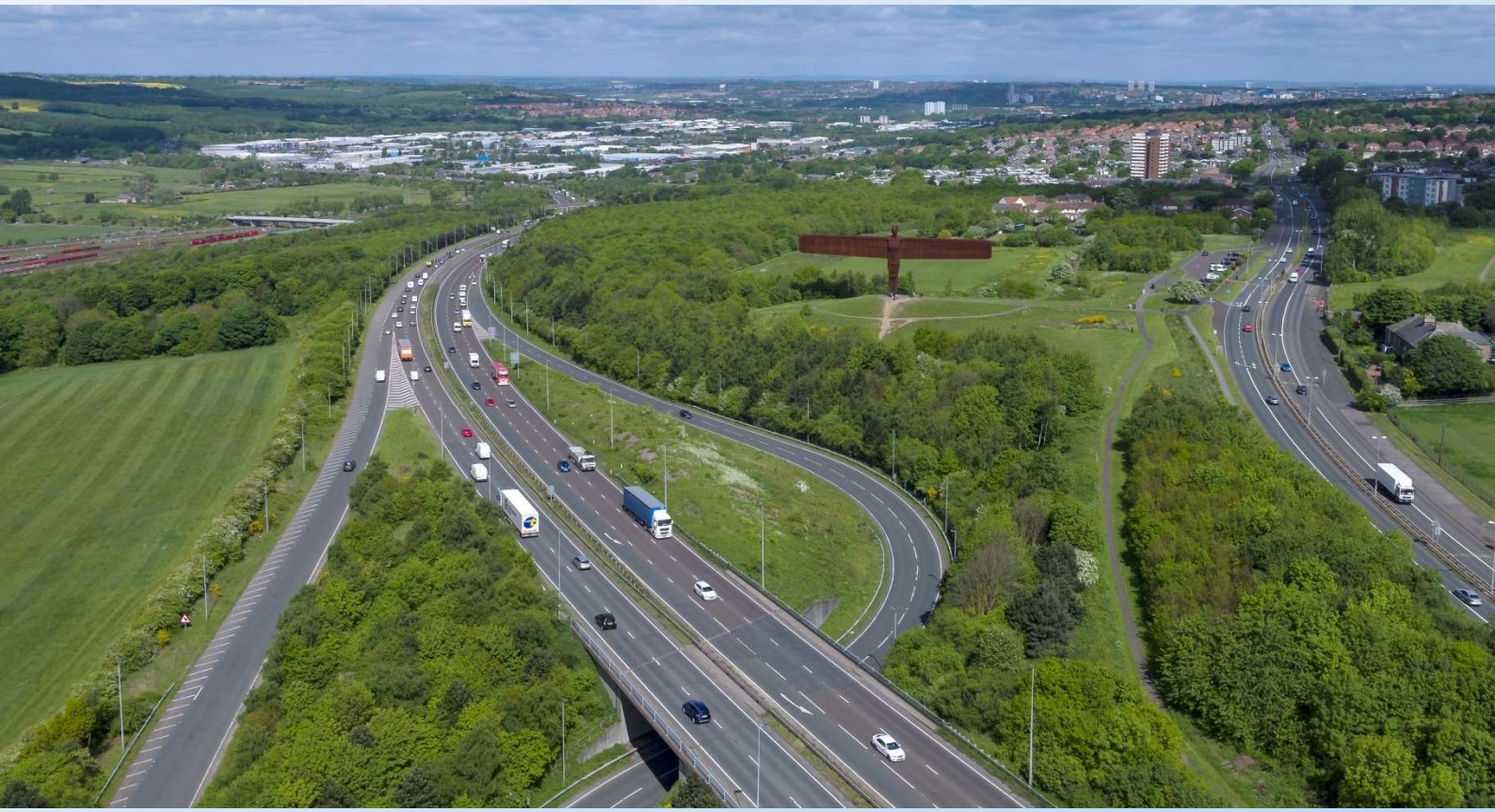
Appendix B

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

Highways England

A1 BIRTLEY TO COAL HOUSE SCHEME

Outline Construction Traffic Management Plan



HE551462-WSP-EGN-ZZ-RP-LE-00011
APRIL 2019

CONFIDENTIAL

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TABLES

FIGURES

APPENDICES

1. INTRODUCTION

1.1. OVERVIEW

1.1.1. This Outline Construction Traffic Management Plan (this "CTMP") has been prepared in support of an application made by Highways England (the "Applicant") for a Development Consent Order (DCO) in relation to the A1 Birtley to Coal House (the "Scheme"). A detailed description of the Scheme can be found in Chapter 2 of the Environmental Statement (ES) (**Application Document Reference; TR010031/APP/6.1**).

1.1.2. This CTMP provides a framework for addressing the transport issues associated with the movement of the construction traffic to service the Scheme, including site access, routing, signage, heavy goods vehicles (HGVs) and abnormal indivisible loads (AILs).

1.1.3. The purpose of this CTMP is to set out the principles that the Applicant and the main contractor will follow to manage construction traffic on the highway network throughout the construction of the Scheme.

1.1.4. This document will be developed as the as the Scheme progresses.

1.2. DOCUMENT STRUCTURE

1.2.1. The CTMP is divided into the following sections:

- Chapter 2 – Site Access
- Chapter 3 – Construction Programme and Working Hours
- Chapter 4 – Construction Traffic Impact
- Chapter 5 – Abnormal Indivisible Loads
- Chapter 6 – Construction Laydown and Parking

2. SITE ACCESS

2.1. INTRODUCTION

2.1.1. Two main construction compounds and two working construction compounds will be set up to enable the Scheme to be built.

2.1.2. The main construction compounds will include staff parking, site accommodation, materials storage, road sweepings management, facilities to wash vehicles and plant and vehicle maintenance areas. The main compounds will be secure - gated, fenced and 24 hour security provided, will be hard surfaced and will implement a one way system. The compounds will be located as follows:

- Junction 66 Eighton Lodge compound - to the north of the A1, north east of Eighton Lodge roundabout
- Junction 67 Coal House compound - to the south of the A1, east of Coal House roundabout on NGN land

2.1.3. It is estimated that construction of both compounds will be over a twelve-week period, which includes time for providing access and egress from the local road network, and all other ancillary works. The compound locations are provided on **Figure 2a** within Appendix A of the Outline Construction Environmental Management Plan (CEMP) (**Application Document Reference: TR010031/APP/7.4**).

2.1.4. The working compounds will be smaller compound areas set up to enable specific works at Longbank Bridleway Underpass (widening) and Allerdene Bridge (demolition) and will comprise a secure fenced and gated area with site welfare, parking and materials storage. The working compounds are located as follows:

- Longbank compound - to the north of the A1, west of Longbank Bridleway Underpass
- Allerdene compound - to the north east of the existing Allerdene Bridge

2.2. JUNCTION 67 (COAL HOUSE) COMPOUND

2.2.1. The Junction 67 (Coal House) compound will be located to the south west of junction 67 (Coal House) roundabout and accessed off Lamesley Road. Temporary possession of the 6 hectares is sought.

2.2.2. The Junction 67 (Coal House) compound will be required to facilitate the construction of Allerdene Bridge, Kingsway roundabout and the other works in this vicinity. **Figure 2b** within Appendix A of the (CEMP) illustrates the site access to this construction compound.

2.2.3. There will be a further working compound, Allerdene compound, that will be required for Allerdene Bridge demolition works.

2.3. JUNCTION 66 (EIGHTON LODGE) COMPOUND

2.3.1. The Junction 66 (Eighton Lodge) compound will be located to the east of junction 66 (Eighton Lodge). The compound will be used for the works associated with the rest of the Scheme. Temporary possession of the 3.5 hectares is sought.

2.3.2. **Figure 2c** within Appendix A of the (CEMP) illustrates the site access to this construction compound.

2.3.3. There is a second working compound at junction 66 (Longbank Bridleway Underpass), that will be required for Longbank Underpass.

2.4. ACCESS ROUTES TO THE COMPOUND SITES

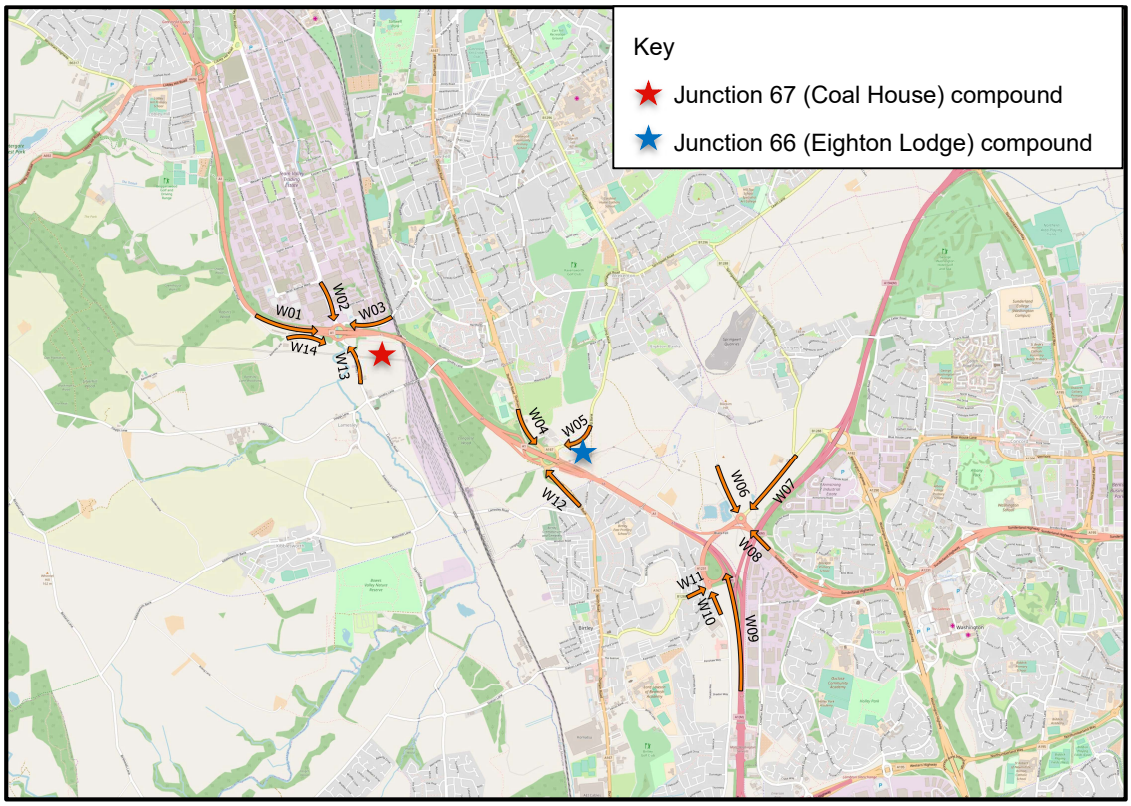
2.4.1. As illustrated by **Figure 1** below, there are thirteen approach routes via main road links (Strategic Road Network and Local Highway Network) to the Scheme compound sites for construction workers and construction vehicles.

2.4.2. The junction 67 (Coal House) compound is accessible from Lamesley Road. The main access route for the compound is via the A1(M) junction 67 (Coal House) Roundabout.

2.4.3. The junction 66 (Eighton Lodge) compound is accessible from the B1296 Longbank. The main access route is via the A1(M) junction 66 (Eighton Lodge) Roundabout.

2.4.4. The distribution of the construction traffic is considered further in **Section 4** of this CTMP.

Figure 1 - Access routes into the A1 Birtley to Coal House Scheme Footprint



2.5. SIGNAGE FOR CONSTRUCTION RELATED TRAFFIC

2.5.1. Appropriate signage to ensure sufficient guidance for construction traffic will be provided, and to ensure that the traffic does not deviate from a specified route. More specifically, this will guide construction traffic in and out of the construction laydown, main construction compound and the main construction site along the A1(M).

2.5.2. Signage will also be used as a means of guiding the construction workers to the designated construction parking bays.

2.5.3. The location of signage will be developed as the Scheme progresses and a final CTMP is developed. This will be developed in consultation with Gateshead Council and approved by the Secretary of State in line with Requirement 10(1) of Schedule 2 to the draft DCO (**Application Document Reference: TR010031/APP/3.1**).

2.6. PUBLIC RIGHTS OF WAY (PROW)

2.6.1. Within the Scheme Footprint, there are existing footways, footpaths and bridleways. Further details of the Public Rights of Ways (PROW) affected by the Scheme can be found on the Streets, Rights of Way and Access Plans (**Application Document Reference: TR010031/APP/2.4**). A detailed assessment of the Scheme impact on PROW and Walkers, Cyclists and Horse Rider (WCH) users is provided at Chapter 12 of the ES (**Application Document Reference: TR010031/APP/6.3**).

3. CONSTRUCTION PROGRAMME AND WORKING HOURS

3.1. CONSTRUCTION PROGRAMME

3.1.1. The construction programme for the main construction works is winter 2020/21 to winter 2023/24. Site mobilisation, site demobilisation and reinstatement activities are anticipated to be undertaken during the first and last quarter of the construction programme.

3.1.2. Construction traffic data has been provided by the buildability support contractor for the main construction works and an assessment of the construction phase of the Scheme has been undertaken and an outline construction programme developed. Two options (embankment option; and viaduct option) have been developed for the provision of the new Allerdene Bridge. Further details can be found in **paragraphs 2.711 – 2.7.18** of **Chapter 2: The Scheme** of the ES (**Application Document Reference: TR010031/APP/6.1**).

3.1.3. The proposed outline construction programmes for both the embankment option and viaduct option are presented in **Appendix A**. The programmes have been prepared from a first principles approach whereby construction materials required for each element of the Scheme have been estimated and programmed accordingly. This provides a resultant total number of traffic movements for each quarter of the construction programme.

3.1.4. Based on the outline construction programme, for each construction option, daily vehicle profiles have been produced, and show the average number of vehicles per weekday for each quarter across the construction programme.

Figure 2 - Average number of vehicles per weekday (embankment option)

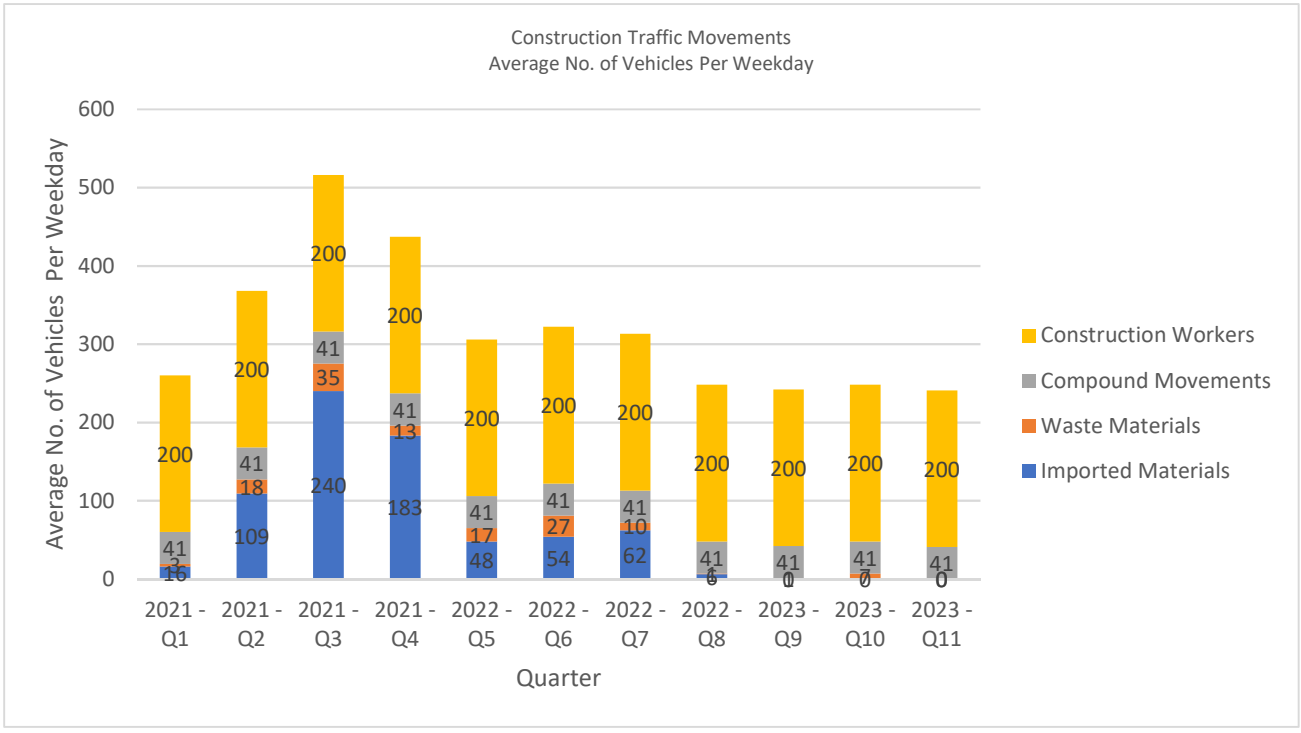
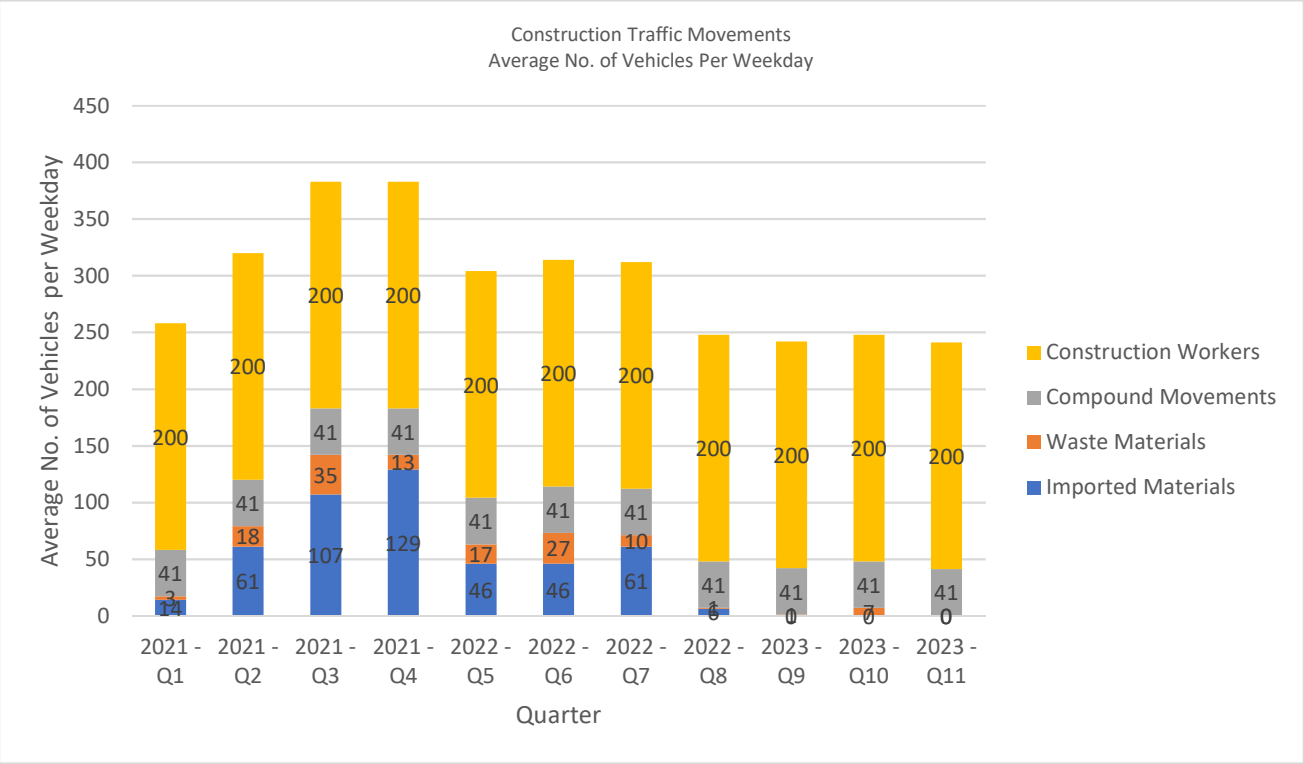


Figure 3 - Average number of vehicles per weekday (viaduct option)



3.2. CONSTRUCTION WORKING HOURS

3.2.1. During the construction, the standard working hours will be Monday to Friday from 7:00am to 19:00pm and that construction personnel will work over a nine hour period each day.

3.2.2. Based on the above, it has been assumed that all construction worker related trips will arrive on site between 6.00am and 10.00am and depart the site between 16:00pm and 20:00pm.

4. CONSTRUCTION TRAFFIC IMPACT

4.1. TRIP GENERATION

4.1.1. **Figure 2 and 3** (See Section 3 paragraph 3.1.4 of this CTMP) highlight that the peak year of construction is projected to be 2021, and the peak quarter is projected to be 2021 – Q3 for both the viaduct option and the embankment option.

4.1.2. Trip generation has been estimated on the basis of the outline construction programme, which sets-out the average number of vehicles for each day of each quarter.

4.1.3. The methodology for the trip generation for both the annual average daily traffic (AADT) 2021 and peak quarter is set below, and supported by **Appendix A, B and C**.

4.2. DISTRIBUTION

CONSTRUCTION VEHICLE TRIPS

4.2.1. The construction vehicle trips were broken down into trips associated with:

- Imported materials
- Waste
- Compound movements

4.2.2. The estimated likely routing for each of the above is provided within **Appendix A**. The result of the construction vehicle distribution is presented within **Appendix B.**

Imported Materials

4.2.3. For both the embankment option and the viaduct option, an estimate has been made about the likely source and route to site for import materials associated with the Scheme.

4.2.4. For material imported from across the UK, it is assumed that each compound is accessed from the A1.

Waste

4.2.5. An estimate has been made of the likely disposal method and likely disposal destination for each waste component associated with the Scheme.

4.2.6. For each waste component, the optimum route from the Scheme to the likely disposal destination was estimated.

Compound Movements

4.2.7. An estimate has been made in relation to the anticipated number of trips by works vehicles, assumed to originate from junction 66 (Eighton Lodge) compound, and access the works area.

CONSTRUCTION WORKER TRIPS (COMMUTING)

4.2.8. To establish the distribution of the predicted construction worker traffic on the local highway network within the study area, a distribution model has been prepared using the 2011 Census Origin-Destination dataset and based on the method of travel to work by car.

4.2.9. The catchment area for the distribution model has been identified as Tyne and Wear comprised of Gateshead, North Tyneside, Newcastle upon Tyne, South Tyneside, County Durham and Northumberland.

4.2.10. In order to better understand how the construction worker traffic will be distributed within the catchment area, the zones are based on the census output area – Middle Layer Super Output Area (MSOA), this results in 251 zones. Based on the census data, the percentage of trips between the origin zone and each of the destination zones is calculated with the percentages then assigned to the fastest routes to establish the distribution of the construction worker traffic.

4.2.11. The anticipated number of construction worker vehicles per day within the construction period has been estimated to be 200, based on vehicle occupancy of 1.2 and an average workforce of 240.

4.2.12. It has been assumed that 80% of construction worker trips are to junction 66 (Eighton Lodge) compound, and 20% of trips to junction 67 (Coal House) compound. These proportions represent the number of parking spaces at each compound relative to the total number of parking spaces.

4.2.13. The total anticipated results of the construction worker distribution models are shown in **Table 4-1** and **4-2.** The routes are illustrated on **Figure 1**.

Table 4-1 - Construction worker distribution and apportioned trips to junction 66 (Eighton Lodge) compound

Route	Proportion	Inbound	Outbound	Total
W01 – A1 SB	39%	62	62	125
W02 – Kingsway S	0%	0	0	0
W03 – Chowdene B	0%	0	0	0
W04 – A167 SB	9%	15	15	29
W05 – Longbank	6%	9	9	19
W06 – Eighton R	0%	0	0	0
W07 – B1288	16%	26	26	52

Route	Proportion	Inbound	Outbound	Total
W08 – A1231	8%	13	13	26
W09 – A1 NB	9%	15	15	30
W10 – Portobello R	0%	0	0	0
W11 – B1288	0%	0	0	0
W12 – A167 NB	12%	20	20	40
W13 – Lamesley R	0%	0	0	0
W14 – Banesley L	0%	0	0	0

Table 4-2 - Construction worker distribution and apportioned trips to junction 67 (Coal House) compound

Route	Proportion	Inbound	Outbound	Total
W01 – A1 SB	39%	16	16	31
W02 – Kingsway S	0%	0	0	0
W03 – Chowdene B	8%	3	3	6
W04 – A167 SB	0%	0	0	0
W05 – Longbank	0%	0	0	0
W06 – Eighton R	0%	0	0	0
W07 – B1288	16%	6	6	13
W08 – A1231	8%	3	3	6
W09 – A1 NB	9%	4	4	7
W10 – Portobello R	2%	1	1	1
W11 – B1288	0%	0	0	0

Route	Proportion	Inbound	Outbound	Total
W12 – A167 NB	0%	0	0	0
W13 – Lamesley R	18%	7	7	15
W14 – Banesley L	0%	0	0	0

4.3. ASSIGNMENT

4.3.1. Construction worker trips have been assigned to the road network based on the gravity model approach, which broadly uses the major urban areas across the region as the origin of construction workers. The fixed route approach is used for construction deliveries/removals as outlined in **Section 4.2**. Aggregating the construction traffic and construction worker traffic, the resulting flow diagrams are presented in **Appendix C.**

4.3.2. The flow diagrams were produced for the following scenarios:

- Viaduct Option - 2021 (AADT)
  - Heavy Goods Vehicle (HGV)
  - Light Goods Vehicle (LGV)
  - Total (HGV + LGV)
- Viaduct Option - Q3 2021 Peak (Average Daily Weekday Trips)
  - Heavy Goods Vehicle (HGV)
  - Light Goods Vehicle (LGV)
  - Total (HGV + LGV)
- Embankment Option - 2021 (AADT)
  - Heavy Goods Vehicle (HGV)
  - Light Goods Vehicle (LGV)
  - Total (HGV + LGV)
- Embankment Option - Q3 2021 Peak (average daily weekday trips)
  - Heavy Goods Vehicle (HGV)
  - Light Goods Vehicle (LGV)
  - Total (HGV + LGV)

4.3.3. The LGV and Total (HGV + LGV) scenarios include the construction worker movements (commute to and from junction 66 (Eighton Lodge) compound and junction 67 (Coal House) compound.

4.3.4. A summary of the construction traffic flow on each link for each scenario is shown in **Table 4-3** and **Table 4-4.**

Table 4-3 - Link Summary: AADT 2021

Link/Gateway	AADT 2021					
	Viaduct Option			Embankment Option		
	1A	1B	1C	3A	3B	3C
	HGV	LGV	Total	HGV	LGV	Total
W01	51	156	207	61	156	217
W02	0	0	0	0	0	0
W03	0	6	6	0	6	6
W04	0	29	29	0	29	29
W05	10	73	83	10	73	83
W06	0	0	0	0	0	0
W07	1	65	66	1	65	66
W08	0	32	32	0	32	32
W09	98	37	135	172	37	209
W10	0	1	1	0	1	1
W11	0	0	0	0	0	0
W12	2	40	42	2	40	42
W13	0	15	15	0	15	15
W14	0	0	0	0	0	0

Table 4-4 - Link Summary: Peak Q3 2021

Link/Gateway	Peak Q3 2021					
	Viaduct Option			Embankment Option		
	2A	2B	2C	4A	4B	4C
	HGV	LGV	Total	HGV	LGV	Total
W01	74	156	230	140	156	296
W02	0	0	0	0	0	0
W03	0	6	6	0	6	6
W04	0	29	29	0	29	29
W05	14	87	101	14	87	101
W06	0	0	0	0	0	0
W07	2	65	67	2	65	67
W08	0	32	32	0	32	32
W09	204	37	241	404	37	441
W10	0	1	1	0	1	1
W11	0	0	0	0	0	0
W12	4	40	44	4	40	44
W13	0	15	15	0	15	15
W14	0	0	0	0	0	0

5. ABNORMAL INDIVISIBLE LOADS

5.1. INTRODUCTION

5.1.1. There are Abnormal Indivisible Loads (AILs) associated with the construction of Allerdene Bridge with the following scheme elements:

- Transportation of steel beams for bridges
- Transportation of Precast concrete beams for bridges
- Transportation of steel beams from demolition activities
- Transportation of large cranes

5.1.2. It is anticipated that AILs will access the Scheme using the A1 northbound or southbound but this is subject to further review as the Scheme progresses.

5.2. HAULAGE RESPONSIBILITIES

5.2.1. The requirements outlined below will be the responsibility of the haulage companies during the delivery of AIL components:

- Abnormal load drivers, and their convoy, will avoid residential areas where possible.
- Abnormal load deliveries will only take place during the hours agreed with both the Police and Highway Authorities.
- Peak traffic periods will be avoided when planning the timing of deliveries both to and from the construction site.
- Deliveries during a weekend will be minimised but will take place if this is deemed to be acceptable to both the Police and Highway Authorities.
- To ensure the safe and effective coordination of the work, written notification of the commencement of the delivery periods will be given to the Police and Highway Authority within an agreed timescale to be agreed with the respective parties.
- Additional temporary warning signs may be provided on the delivery route for AILs in accordance with the requirements of the Highway Authority.
- Any modifications, temporary or permanent, to the highway network must be agreed with the Local Highway Authority and Highways England prior to the delivery of AILs.

5.3. NOTIFICATIONS

5.3.1. To facilitate the delivery of AILs, it will be the responsibility of the haulage company to contact and inform the following key stakeholders. The haulage company must be able to advise each of the stakeholders in terms of proposed delivery dates and likely impacts.

Emergency Services

5.3.2. The Police, Fire and Ambulance services should be given written notice of the deliveries, and further daily notifications should be provided.

Highway Authorities

5.3.3. The respective Highway Authorities should be given advance written notice of the AIL deliveries on the Strategic Road Network (SRN) and local road network. The relevant authorities are likely to include Highways England, Gateshead Council, and other local authorities at the origin of the AIL (depending on the origin of the AIL).

5.3.4. Updates should be provided on a regular basis as the delivery timetable is finalised with the supplier during the delivery period.

Local Residents

5.3.5. For AILs being delivered on the local highway network, relevant and timely information should be provided to local residents affected during the delivery of the AILs four weeks and one week prior to the commencement of the deliveries.

5.3.6. The preferred method and channels for communicating with residents will be determined prior to the start of construction. At this stage, it is proposed that communication should provide residents with the following key information:

- Name and contact details of the Construction Site Manager(s).
- Name and contact details of the relevant Supplier Site Manager(s).
- The date on which the deliveries will begin.
- The anticipated duration of the delivery period.
- Formal request for residents to keep the necessary sections of the highway clear of parked vehicles during the delivery period.
- Emergency contact details for the local Police.

Local Businesses

5.3.7. In addition to the distribution of information, local businesses will also be consulted directly in order to ensure that any effect on their business is minimised. This will include Royal Mail (with delivery offices located in Gateshead).

Planned Engineering Works

5.3.8. Through working with the Gateshead Council, planned engineering works which conflict with the delivery route times should be identified. Discussions will then focus on minimising and, where possible avoiding, any disruption to the local community during the planned engineering works.

5.3.9. All events within the local community which are planned or notified will be considered by the developer when scheduling deliveries. The site manager will contact the relevant stakeholders two weeks in advance of scheduled deliveries to ensure that all issues are considered, and that necessary mitigation measures are implemented.

5.4. HIGHWAYS CONDITIONS SURVEY

5.4.1. A highway condition survey will be carried out along the whole route ahead of the first AIL delivery, and after the final AIL.

5.4.2. Any road maintenance issues or damage deemed to be attributable to the AIL will be rectified, and the road will be returned to its former condition.

5.5. MITIGATION

5.5.1. The main contractor prior to transportation of the first AIL will ensure that an Access Route Survey Report will be produced by the relevant haulage company to identify the pinch-points requiring minor mitigation (such as temporary removal of street furniture and safety barriers).

5.5.2. At this stage, the exact size of the AILs are not known, to determine the likely route. Further detailed assessment would be undertaken if required, to determine the exact temporary mitigation required for the A1(M), and other local required temporary mitigations, as well as the agreement of traffic management and coordination of the delivery with Highways England and Local Authorities.

5.6. FULL CLOSURES

5.6.1. It is anticipated that any full closures required will be overnight, and when this occurs, existing diversion routes in place identified by Highways England when there is a requirement to close the A1, for example, for maintenance works, will be used. Local Authorities will be consulted regarding any embargo periods, route traffic sensitivity, road works, and any other highway restrictions in advance of any of these materialising.

6. CONSTRUCTION LAYDOWN AND PARKING

6.1. CONSTRUCTION STAFF PARKING

6.1.1. Construction staff parking will be provided at junction 67 (Coal House) compound and at junction 66 (Eighton Lodge) compound.

6.1.2. There will be approximately 50 parking spaces made available to construction workers at junction 67 (Coal House) compound and approximately 200 parking spaces made available to construction workers at junction 66 (Eighton Lodge) compound.

6.2. CONSTRUCTION LAYDOWN AREAS

6.2.1. The HGV deliveries associated with the main highway construction will utilise the laydown areas at junction 66 (Eighton Lodge) compound, or may be transported directly to the construction site.

6.2.2. The HGV deliveries associated with the Allerdene Bridge will utilise the laydown areas at the junction 67 (Coal House) compound.

Appendix A

CONSTRUCTION PROGRAMME

Construction Programme for the Viaduct

Provided by Morgan Sindall on 17th September 2018

Item	Use	Likely Source	Route to Site	Comments	Quantity(T)	Quantity (Wagons)	Max T/ Day	Max Wagons/ day	Ave Wagons/Day	Item / Quarter	2021 - Q1	2021 - Q2	2021 - Q3	2021 - Q4	2022 - Q5	2022 - Q6	2022 - Q7	2022 - Q8	2023 - Q9	2023 - Q10	2023 - Q11
											Viaduct - Option A										
Steel	Reinforcement	Sheffield	A1M Northbound to Site	Includes 2600T For viaduct alone	4800	240	60	3	1	Reinforcement	0	1	2	1	1	0	0	0	0	0	0
Steel	Bridge Beams	Darlington	A1M Northbound to Site	Includes 4100t In viaduct	5906	150	200	4	2	Bridge Beams	0	0	0	2	2	0	0	0	0	0	0
Steel	Sheet Piling/Retaining Structures	Preston	A1M Northbound to Site	0	1180	60	40	2	1	Sheet Piling/Retaining Structures	0	1	1	1	0	0	0	0	0	0	0
Steel	Gantries	Nottingham	A1M Northbound to Site	0	315	32	40	2	1	Gantries	0	0	0	0	0	0	0	1	0	0	0
Steel	Bridge Parapets	Birmingham	A1M Northbound to Site	0	400	20	20	1	1	Bridge Parapets	0	0	0	0	1	1	0	0	0	0	0
Steel	Safety Fencing	West Midlands	A1M Northound to Compound then distributed to site via HIAB	0	250	12	20	1	1	Safety Fencing	0	0	1	1	1	1	1	1	0	0	0
Aluminium	Lighting Columns	Co Louth,Ireland	A1 Northbound to Compound then distributed to site via HIAB	0	60	4	20	1	1	Lighting Columns	0	0	1	1	1	0	0	1	0	0	0
Ductile Iron	Manhole Covers and Frames	Ilkeston	A1 Northbound to Compound then distributed to site via HIAB	0	40	2	20	1	1	Manhole Covers and Frames	0	1	0	0	0	0	0	0	0	0	0
Timber	Fencing	Goole	A1 Northbound to Compound then distributed to site via HIAB	Estimated Quantity	180	18	20	1	1	Fencing	0	0	0	0	0	1	1	1	0	0	0
Timber	Temporary Formwork	Jarrow	Via A194 and A1 to Compound	0	520	52	20	1	1	Temporary Formwork	0	1	1	0	0	0	0	0	0	0	0
Aggregates	Drainage	Thrislington East Quarry,Ferryhill	A1M Northbound to Site	0	15200	760	200	10	1	Drainage	0	1	1	1	1	1	1	1	0	0	0
Aggregates	Road Construction	Thrislington East Quarry,Ferryhill	A1M Northbound to Site	0	20000	2000	2000	100	4	Road Construction	0	2	4	4	3	2	2	0	0	0	0
Aggregates	Structural Fills	Thrislington East Quarry,Ferryhill	A1M Northbound to Site	Includes 4500 on viaduct	43700	3180	200	10	10	Structural Fills	0	10	10	8	0	4	0	0	0	0	0
Aggregates	Piling Platforms	Thrislington East Quarry,Ferryhill	A1M Northbound to Site	Temporary Works	13140	657	500	25	8	Piling Platforms	2	8	0	0	0	0	0	0	0	0	0
Earthworks	Imported Class 2 for Embankment	Unknown	A1M Northbound or A1M Southbound to site	Estimated Quantity-No details	40000	2000	2000	100	35	Imported Class 2 for Embankment	0	0	0	35	0	0	0	0	0	0	0
Concrete	RC Structures	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	Includes 60050 for viaduct alone	87300	4850	1000	50	18	RC Structures	0	10	18	18	15	8	8	0	0	0	0
Concrete	Pavements	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	0	45500	2275	600	30	10	Pavements	0	0	10	10	10	10	10	0	0	0	0
Concrete	Drainage and Kerbing	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	0	2780	460	80	4	1	Drainage and Kerbing	0	1	1	1	1	1	1	1	0	0	0
Concrete	Rigid Inclusions	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	Not required on viaduct option	43900	2900	1100	60	20	Rigid Inclusions	0	0	20	20	0	0	0	0	0	0	0
Concrete	CSB	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	0	3300	184	200	12	6	CSB	0	0	0	0	0	0	6	0	0	0	0
Cement	Grouting to Mine Workings	0	A1M Northbound to Site	Estimated Quantity-No details	50000	2500	100	5	12	Grouting to Mine Workings	12	12	12	0	0	0	6	0	0	0	0
Precast Concrete Products	Drainage -Manholes	Ilkeston	A1M Northbound to Site	0	140	7	20	1	1	Drainage -Manholes	0	1	0	0	0	0	0	0	0	0	0
Precast Concrete Products	Kerbing	Maltby,Rotherham	A1M Northbound to Site	Estimated Quantity-No details	350	18	20	1	1	Kerbing	0	1	0	0	0	0	1	0	0	0	0
Plastics	Drainage pipes	Doncaster	A1M Northbound to Site	0	90	9	10	1	1	Drainage pipes	0	1	0	0	0	1	0	0	0	0	0
GRP	Permanent Formwork	Filey,North Yorks	A1M Northbound to Site	0	420	20	20	1	1	Permanent Formwork	0	0	0	1	0	0	0	0	0	0	0
Bituminous Products	Road Surfacing	Coxhoe Plant,Raisby Hill,Coxhoe	A1M Northbound to Site	0	124900	6245	1500	75	25	Road Surfacing	0	10	25	25	10	15	25	0	0	0	0
										Sub-Totals	14	61	107	129	46	46	61	6	0	0	0
Item	Source	Likely Disposal Method	Likely Disposal Destination	Notes	Quantity(T)	Quantity (Wagons)		Max Wagons/Day	Ave Wagons/day												
											Waste Generated										
Timber	Existing Timber Fencing Removed during Site Clearence	Off site Recycling facility	JBT Waste, Birtley	Approx 4000m	180	18		1	1	Existing Timber Fencing Removed during Site Clearence	1	0	0	0	0	1	0	0	0	0	0
Earthworks Cut	Unsuitable Earthworks Matetials Cut from Scheme (Class U1/2)	Re moved to landfill	Unknown	0	50840	2540		20	15	Unsuitable Earthworks Matetials Cut from Scheme (Class U1/2)	0	15	15	0	0	12	0	0	0	0	0
Steel	Existing Safety Fencing Removed during Site Clearence	Off site Recycling facility	JBT Waste, Birtley	0	250	12		1	1	Existing Safety Fencing Removed during Site Clearence	0	1	0	1	0	1	0	0	0	0	0
Steel	Existing Signage removed during site clearence	Off site Recycling facility	JBT Waste, Birtley	110 Signs	50	3		1	1	Existing Signage removed during site clearence	0	0	1	0	0	0	1	0	0	0	0
Steel	Existing structures to be demolished-Steel Beams	Off site Recycling facility	Thompsons of Prudhoe	0	255	12		2	2	Existing structures to be demolished-Steel Beams	0	0	0	0	0	0	0	0	0	2	0
Steel	Existing Structures to be demolished-Steel Reinforcement	Off site Recycling facility	Thompsons of Prudhoe	0	580	30		2	2	Existing Structures to be demolished-Steel Reinforcement	0	0	0	0	0	0	0	0	0	2	0
Concrete	Concrete removed during demolition of structures	Crushed on site for use in hardstandings or removed off	Thompsons of Prudhoe	0	5700	285		10	2	Concrete removed during demolition of structures	0	0	0	0	0	0	0	0	0	2	0
Concrete	Concrete removed during general site clearence i.e kerbing	Crushed on site for use in piling platforms or removed c	A1M2F Site	Approx 8000m	2300	115		2	1	Concrete removed during general site clearence i.e kerbing	0	1	0	1	0	1	0	0	0	0	0
Pavement-Road Planings	Road planings from cold milling Operations	Re used on site in lieu of imported capping materials or	A1B2C Site	0	52530	2600		25	10	Road planings from cold milling Operations	0	0	10	10	10	10	8	0	0	0	0
Pavement -Sub base	Sub base removed during pavement re construction	Re used on site in piling platforms or laydown areas	A1B2C Site	0	7200	360		20	4	Sub base removed during pavement re construction	0	0	4	0	4	0	0	0	0	0	0
Pavement -Concrete	Concrete removed during pavement construction	Crushed on site for use in hardstandings or removed off	Thompsons of Prudhoe	0	5220	260		20	4	Concrete removed during pavement construction	0	0	4	0	2	0	0	0	0	0	0
Vegetation	Vegetation removed during site clearence	Mulched and spread on site or removed off site for mul	A1B2C Site	Estimated Quantity	100	10		1	1	Vegetation removed during site clearence	1	0	0	0	0	1	0	0	0	0	0
General Construction Waste	General waste generated during construction activities	Off site waste segragation facility	JBT Waste, Birtley	Estimated 10T/week	1500	150		1	1	General waste generated during construction activities	1	1	1	1	1	1	1	1	1	1	0
										Sub-Totals	3	18	35	13	17	27	10	1	1	7	0
Discipline	Identity	Purpose	Number of Vehicles	Number of Daily Movements	Time of Day	Total Movements	Notes	Comments													
											J66 Compound Movements										
Contractor Staff	Contractor Supervision	Works Foremen Supervising Operations	8	3	Between 07.30 & 17.30	2151	0	All movements from J	0	Contractor Supervision	3	3	3	3	3	3	3	3	3	3	3
	Contractor Engineering	Site Engineering and Surveying	8	3	Between 07.30 & 17.30	2151	0	0	0	Contractor Engineering	3	3	3	3	3	3	3	3	3	3	3
	Contractor Inspectors	Design Team Assurance Inspections	2	1	Between 07.30 & 17.30	717	0	0	0	Contractor Inspectors	1	1	1	1	1	1	1	1	1	1	1
	Contractor H&S Advisors	H&S inspections	1	1	Between 07.30 & 17.30	717	0	0	0	Contractor H&S Advisors	1	1	1	1	1	1	1	1	1	1	1
	Contractor Laboratory Technician	Site Materials Testing	1	2	Between 07.30 & 17.30	1434	0	0	0	Contractor Laboratory Technician	2	2	2	2	2	2	2	2	2	2	2
Client Staff	Client Inspectors	Client Team Audits and Inspections	1	1	Between 08.30 & 16.30	717	0	0	0	Client Inspectors	1	1	1	1	1	1	1	1	1	1	1
Traffic Management	TSCO	Traffic Management Inspections	1	5	24 Hours per day,7 days Per Week	5019	0	0	0	TSCO	5	5	5	5	5	5	5	5	5	5	5
	TM Maintenance Crew	Traffic Management Maintenance	1	4	24 Hours per day,7 days Per Week	4015	0	0	0	TM Maintenance Crew	4	4	4	4	4	4	4	4	4	4	4
Contractor Attendances	Fuel Bowser	ReFuelling of Site Plant	1	4	Between 07.30 & 17.30	2868	0	0	0	Fuel Bowser	4	4	4	4	4	4	4	4	4	4	4
	Road sweeper	Sweeping of site accesses and public roads	2	4	Between 07.30 & 17.30	2868	0	0	0	Road sweeper	4	4	4	4	4	4	4	4	4	4	4
	Welfare Maintenance Crew	Restocking and cleaning of Site Welfare Facilities	1	4	Between 07.30 & 17.30	2868	0	0	0	Welfare Maintenance Crew	4	4	4	4	4	4	4	4	4	4	4
Contractor Deliveries	Materials Distribution from Compound to Workface	Deliveries of materials from Compound to site	1	4	Between 07.30 & 17.30	2868	Assumed HGV	0	0	Materials Distribution from Compound to Workface	4	4	4	4	4	4	4	4	4	4	4
	Plant Distribution from Compound to Workface	Deliveries of Plant from Compound to site	1	2	Between 07.30 & 17.30	1434	Assumed HGV	0	0	Plant Distribution from Compound to Workface	2	2	2	2	2	2	2	2	2	2	2
Contractor Direct Workforce	Workforce Travel from Compound to Workface	Workforce movements from compound to worksite	12	1	Between 07.30 & 17.30	717	0	0	0	Workforce Travel from Compound to Workface	1	1	1	1	1	1	1	1	1	1	1
Sub Contractor Workforce	Subcontractors travel from Compound to Workface	S/C workforce movements from compound to work site	6	1	Between 07.30 & 17.30	717	0	0	0	Subcontractors travel from Compound to Workface	1	1	1	1	1	1	1	1	1	1	1
Other Vehicle Movements	Road Wagon travel from Compound to Workface	Wagon travel from compound to worksite	4	1	Between 07.30 & 17.30	717	Assumed HGV	0	0	Road Wagon travel from Compound to Workface	1	1	1	1	1	1	1	1	1	1	1
										Sub-Totals	41	41	41	41	41	41	41	41	41	41	41

Construction Programme for the Embankment

Provided by Morgan Sindall on 17th September 2018

Item	Use	Likely Source	Route to Site	Comments	Quantity(T)	Quantity (Wagons)	Max T/ Day	Max Wagons/ day	Ave Wagons/Day
Steel	Reinforcement	Sheffield	A1M Northbound to Site	Includes 2150T associated with Gas p	4350	226	60	3	1
Steel	Bridge Beams	Darlington	A1M Northbound to Site	0	1806	45	200	4	4
Steel	Sheet Piling/Retaining Structures	Preston	A1M Northbound to Site	0	1180	60	40	2	1
Steel	Gantries	Nottingham	A1M Northbound to Site	0	315	16	40	2	1
Steel	Bridge Parapets	Birmingham	A1M Northbound to Site	0	150	8	20	1	1
Steel	Safety Fencing	West Midlands	A1M Northound to Compound then distributed to site via HIAB	0	250	12	20	1	1
Aluminium	Lighting Columns	Co Louth,Ireland	A1 Northbound to Compound then distributed to site via HIAB	0	60	3	20	1	1
Ductile Iron	Manhole Covers and Frames	Ilkeston	A1 Northbound to Compound then distributed to site via HIAB	0	40	2	20	1	1
Timber	Fencing	Goole	A1 Northbound to Compound then distributed to site via HIAB	0	180	18	20	1	1
Timber	Temporary Formwork	Jarrow	Via A194 then A1M Northbound to site	0	250	25	20	1	1
Aggregates	Drainage	Thrislington East Quarry,Ferryhill	A1M Northbound to Site	0	15200	760	200	10	1
Aggregates	Road Construction	Thrislington East Quarry,Ferryhill	A1M Northbound to Site	0	20000	1000	2000	100	4
Aggregates	Structural Fills	Thrislington East Quarry,Ferryhill	A1M Northbound to Site	0	39200	1960	200	10	8
Aggregates	Granular Drainage Layer	Thrislington East Quarry,Ferryhill	A1M Northbound to Site	0	47700	2385	1200	60	20
Aggregates	Piling Platforms	Thrislington East Quarry,Ferryhill	A1M Northbound to Site	Temporary Works	23850	1190	500	25	16
Earthworks	Imported Class 2 for Embankment	Unknown	A1M Northbound or A1M Southbound to site	0	226300	11315	2000	100	80
	Imported Topsoil	Unknown	A1M Northbound or A1M Southbound to site	0	69500	3475	200	15	15
Concrete	RC Structures	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	Includes 27350 T associated with gas	54650	3643	1000	50	15
Concrete	Pavements	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	0	45500	3033	600	30	10
Concrete	Drainage and Kerbing	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	0	2780	185	80	4	1
Concrete	Rigid Inclusions	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	Not included in WSP RC structures sp	92600	5140	1100	60	40
Concrete	CSB	Newcastle Plant,Pottery Lane,Newcastle on Tyne	Via A184 then A1M Southbound to site	0	3350	223	200	12	6
Cement	Grouting to Mine Workings	0	A1M Northbound to Site	Estimated Quantity-No details	50000	2500	100	5	12
Precast Concrete Products	Drainage -Manholes	Ilkeston	A1M Northbound to Site	0	140	7	20	1	1
Precast Concrete Products	Kerbing	Maltby,Rotherham	A1M Northbound to Site	0	350	18	20	1	1
Plastics	Drainage pipes	Doncaster	A1M Northbound to Site	0	90	9	10	1	1
Bituminous Products	Road Surfacing	Coxhoe Plant,Raisby Hill,Coxhoe	A1M Northbound to Site	0	124900	6245	1500	75	25

Item	Source	Likely Disposal Method	Likely Disposal Destination	Notes	Quantity(T)	Quantity (Wagons)		Max Wagons/Day	Ave Wagons/day
Timber	Existing Timber Fencing Removed during Site Clearence	Off site Recycling facility	JBT Waste, Birtley	Approx 4000m	180	18		1	1
Earthworks Cut	Unsuitable Earthworks Matetials Cut from Scheme (Class U1/2)	Re moved to landfill	Unknown	0	50840	2540		20	15
Steel	Existing Safety Fencing Removed during Site Clearence	Off site Recycling facility	JBT Waste, Birtley	0	250	12		1	1
Steel	Existing Signage removed during site clearence	Off site Recycling facility	JBT Waste, Birtley	110 Signs	50	3		1	1
Steel	Existing structures to be demolished-Steel Beams	Off site Recycling facility	Thompsons of Prudhoe	0	255	12		2	2
Steel	Existing Structures to be demolished-Steel Reinforcement	Off site Recycling facility	Thompsons of Prudhoe	0	580	30		2	2
Concrete	Concrete removed during demolition of structures	Crushed on site for use in hardstandings or removed off	Thompsons of Prudhoe	0	5700	285		10	2
Concrete	Concrete removed during general site clearence i.e kerbing	Crushed on site for use in piling platforms or removed o	A1M2F Site	Approx 8000m	2300	115		2	1
Pavement-Road Planings	Road planings from cold milling Operations	Re used on site in lieu of imported capping materials or	A1B2C Site	0	52530	2600		25	10
Pavement -Sub base	Sub base removed during pavement re construction	Re used on site in piling platforms or laydown areas	A1B2C Site	0	7200	360		20	4
Pavement -Concrete	Concrete removed during pavement construction	Crushed on site for use in hardstandings or removed off	Thompsons of Prudhoe	0	5220	260		20	4
Vegetation	Vegetation removed during site clearence	Mulched and spread on site or removed off site for mul	A1B2C Site	Estimated Quantity	100	10		1	1
General Construction Waste	General waste generated during construction activities	Off site waste segragation facility	JBT Waste, Birtley	Estimated 10T/week	1500	150		1	1

Discipline	Identity	Purpose	Number of Vehicles	Number of Daily Movements	Time of Day	Total Movements	Notes	Comments	
Contractor Staff	Contractor Supervision	Works Foremen Supervising Operations	8	3	Between 07.30 & 17.30	2151	0	All movements from J66	0
	Contractor Engineering	Site Engineering and Surveying	8	3	Between 07.30 & 17.30	2151	0	0	0
	Contractor Inspectors	Design Team Assurance Inspections	2	1	Between 07.30 & 17.30	717	0	0	0
	Contractor H&S Advisors	H&S inspections	1	1	Between 07.30 & 17.30	717	0	0	0
	Contractor Laboratory Technician	Site Materials Testing	1	2	Between 07.30 & 17.30	1434	0	0	0
Client Staff	Client Inspectors	Client Team Audits and Inspections	1	1	Between 08.30 & 16.30	717	0	0	0
Traffic Management	TSCO	Traffic Management Inspections	1	5	24 Hours per day,7 days Per Week	5019	0	0	0
	TM Maintenance Crew	Traffic Management Maintenance	1	4	24 Hours per day,7 days Per Week	4015	0	0	0
Contractor Attendances	Fuel Bowser	ReFuelling of Site Plant	1	4	Between 07.30 & 17.30	2868	0	0	0
	Road sweeper	Sweeping of site accesses and public roads	2	4	Between 07.30 & 17.30	2868	0	0	0
	Welfare Maintenance Crew	Restocking and cleaning of Site Welfare Facilities	1	4	Between 07.30 & 17.30	2868	0	0	0
Contractor Deliveries	Materials Distribution from Compound to Workface	Deliveries of materials from Compound to site	1	4	Between 07.30 & 17.30	2868	Assumed HGV	0	0
	Plant Distribution from Compound to Workface	Deliveries of Plant from Compound to site	1	2	Between 07.30 & 17.30	1434	Assumed HGV	0	0
Contractor Direct Workforce	Workforce Travel from Compound to Workface	Workforce movements from compound to worksite	12	1	Between 07.30 & 17.30	717	0	0	0
Sub Contractor Workforce	Subcontractors travel from Compound to Workface	S/C workforce movements from compound to work site	6	1	Between 07.30 & 17.30	717	0	0	0
Other Vehicle Movements	Road Wagon travel from Compound to Workface	Wagon travel from compound to worksite	4	1	Between 07.30 & 17.30	717	Assumed HGV	0	0

Year	2021	2021	2021	2021	2022	2022	2022	2022	2023	2023	2023
Item / Quarter	2021 - Q1	2021 - Q2	2021 - Q3	2021 - Q4	2022 - Q5	2022 - Q6	2022 - Q7	2022 - Q8	2023 - Q9	2023 - Q10	2023 - Q11
	Embankment - Option B										
Reinforcement	0	1	2	1	1	0	0	0	0	0	0
Bridge Beams	0	0	0	0	4	0	0	0	0	0	0
Sheet Piling/Retaining Structures	0	1	1	1	0	1	0	0	0	0	0
Gantries	0	0	0	0	0	0	0	1	0	0	0
Bridge Parapets	0	0	0	0	0	1	0	0	0	0	0
Safety Fencing	0	0	1	1	1	1	1	1	0	0	0
Lighting Columns	0	0	1	1	1	0	0	1	0	0	0
Manhole Covers and Frames	0	1	0	0	0	0	0	0	0	0	0
Fencing	0	1	0	0	0	1	1	1	0	0	0
Temporary Formwork	0	1	1	0	0	0	0	0	0	0	0
Drainage	0	1	1	1	1	1	1	1	0	0	0
Road Construction	0	2	4	4	3	2	2	0	0	0	0
Structural Fills	0	10	10	8	0	4	0	0	0	0	0
Granular Drainage Layer	0	0	20	20	0	0	0	0	0	0	0
Piling Platforms	4	16	0	0	0	0	0	0	0	0	0
Imported Class 2 for Embankment	0	0	80	80	0	0	0	0	0	0	0
Imported Topsoil	0	0	15	15	6	6	15	0	0	0	0
RC Structures	0	10	15	15	10	10	0	0	0	0	0
Pavements	0	0	10	10	10	10	10	0	0	0	0
Drainage and Kerbing	0	1	1	1	1	1	1	1	0	0	0
Rigid Inclusions	0	40	40	0	0	0	0	0	0	0	0
CSB	0	0	0	0	0	0	6	0	0	0	0
Grouting to Mine Workings	12	12	12	0	0	0	0	0	0	0	0
Drainage -Manholes	0	1	0	0	0	0	0	0	0	0	0
Kerbing	0	1	0	0	0	1	0	0	0	0	0
Drainage pipes	0	1	1	0	0	0	0	0	0	0	0
Road Surfacing	0	10	25	25	10	15	25	0	0	0	0
Sub-Totals	16	109	240	183	48	54	62	6	0	0	0
	Waste Generated										
Existing Timber Fencing Removed during Site Clearence	1	0	0	0	0	1	0	0	0	0	0
Unsuitable Earthworks Matetials Cut from Scheme (Class U1/2)	0	15	15	0	0	12	0	0	0	0	0
Existing Safety Fencing Removed during Site Clearence	0	1	0	0	0	1	0	0	0	0	0
Existing Signage removed during site clearence	0	0	1	0	0	0	1	0	0	0	0
Existing structures to be demolished-Steel Beams	0	0	0	0	0	0	0	0	0	2	0
Existing Structures to be demolished-Steel Reinforcement	0	0	0	0	0	0	0	0	0	2	0
Concrete removed during demolition of structures	0	0	0	0	0	0	0	0	0	2	0
Concrete removed during general site clearence i.e kerbing	0	1	0	1	0	1	0	0	0	0	0
Road planings from cold milling Operations	0	0	10	10	10	10	8	0	0	0	0
Sub base removed during pavement re construction	0	0	4	0	0	0	0	0	0	0	0
Concrete removed during pavement construction	0	0	4	0	2	0	0	0	0	0	0
Vegetation removed during site clearence	1	0	0	0	0	1	0	0	0	0	0
General waste generated during construction activities	1	1	1	1	1	1	1	1	1	1	0
Sub-Totals	3	18	35	13	17	27	10	1	1	7	0
	J66 Compound Movements										
Contractor Supervision	3	3	3	3	3	3	3	3	3	3	3
Contractor Engineering	3	3	3	3	3	3	3	3	3	3	3
Contractor Inspectors	1	1	1	1	1	1	1	1	1	1	1
Contractor H&S Advisors	1	1	1	1	1	1	1	1	1	1	1
Contractor Laboratory Technician	2	2	2	2	2	2	2	2	2	2	2
Client Inspectors	1	1	1	1	1	1	1	1	1	1	1
TSCO	5	5	5	5	5	5	5	5	5	5	5
TM Maintenance Crew	4	4	4	4	4	4	4	4	4	4	4
Fuel Bowser	4	4	4	4	4	4	4	4	4	4	4
Road sweeper	4	4	4	4	4	4	4	4	4	4	4
Welfare Maintenance Crew	4	4	4	4	4	4	4	4	4	4	4
Materials Distribution from Compound to Workface	4	4	4	4	4	4	4	4	4	4	4
Plant Distribution from Compound to Workface	2	2	2	2	2	2	2	2	2	2	2
Workforce Travel from Compound to Workface	1	1	1	1	1	1	1	1	1	1	1
Subcontractors travel from Compound to Workface	1	1	1	1	1	1	1	1	1	1	1
Road Wagon travel from Compound to Workface	1	1	1	1	1	1	1	1	1	1	1
Sub-Totals	41	41	41	41	41	41	41	41	41	41	41

Appendix B

TRAFFIC DATA ANALYSIS / CALCULATIONS

Construction Trip Distribution for Viaduct

Construction Programme

Item / Quarter	Route
Reinforcement	W09
Bridge Beams	W09
Sheet Piling/Retaining Structures	W09
Gantries	W09
Bridge Parapets	W09
Safety Fencing	W09
Lighting Columns	W09
Manhole Covers and Frames	W09
Fencing	W09
Temporary Formwork	W07
Drainage	W09
Road Construction	W09
Structural Fills	W09
Piling Platforms	W09
Imported Class 2 for Embankment	W09
RC Structures	W01
Pavements	W01
Drainage and Kerbing	W01
Rigid Inclusions	W01
CSB	W01
Grouting to Mine Workings	W09
Drainage -Manholes	W09
Kerbing	W09
Drainage pipes	W09
Permanent Formwork	W09
Road Surfacing	W09
Sub-Totals	
Existing Timber Fencing Removed during Site Clearence	W12
Unsuitable Earthworks Matetials Cut from Scheme (Class U1/2)	W09
Existing Safety Fencing Removed during Site Clearence	W12
Existing Signage removed during site clearence	W12
Existing structures to be demolished-Steel Beams	W01
Existing Structures to be demolished-Steel Reinforcement	W01
Concrete removed during demolition of structures	W01
Concrete removed during general site clearence i.e kerbing	W01
Road planings from cold milling Operations	W09
Sub base removed during pavement re construction	W09
Concrete removed during pavement construction	W01
Vegetation removed during site clearence	W09
General waste generated during construction activities	W12
Sub-Totals	
Contractor Supervision	W05
Contractor Engineering	W05
Contractor Inspectors	W05
Contractor H&S Advisors	W05
Contractor Laboratory Technician	W05
Client Inspectors	W05
TSCO	W05
TM Maintenance Crew	W05
Fuel Bowser	W05
Road sweeper	W05
Welfare Maintenance Crew	W05
Materials Distribution from Compound to Workface	W05
Plant Distribution from Compound to Workface	W05
Workforce Travel from Compound to Workface	W05
Subcontractors travel from Compound to Workface	W05
Road Wagon travel from Compound to Workface	W05
Sub-Totals	

Construction Trip Distribution for Embankment

Construction Programme

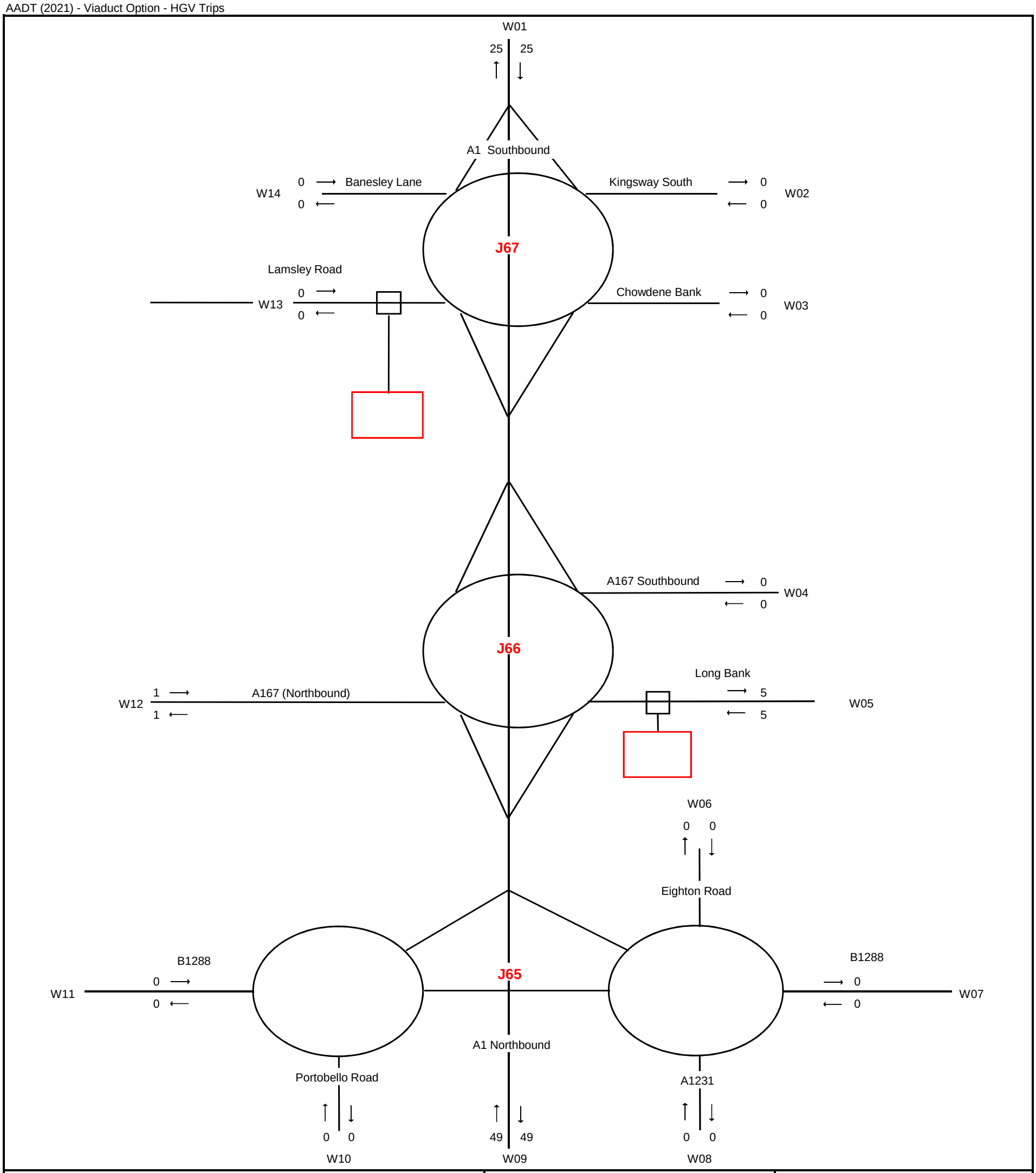
Item / Quarter	Route
Reinforcement	W09
Bridge Beams	W09
Sheet Piling/Retaining Structures	W09
Gantries	W09
Bridge Parapets	W09
Safety Fencing	W09
Lighting Columns	W09
Manhole Covers and Frames	W09
Fencing	W09
Temporary Formwork	W07
Drainage	W09
Road Construction	W09
Structural Fills	W09
Granular Drainage Layer	W09
Piling Platforms	W09
Imported Class 2 for Embankment	W09
Imported Topsoil	W09
RC Structures	W01
Pavements	W01
Drainage and Kerbing	W01
Rigid Inclusions	W01
CSB	W01
Grouting to Mine Workings	W09
Drainage -Manholes	W09
Kerbing	W09
Drainage pipes	W09
Road Surfacing	W09
Sub-Totals	
Existing Timber Fencing Removed during Site Clearence	W12
Unsuitable Earthworks Matetials Cut from Scheme (Class U1/2)	W09
Existing Safety Fencing Removed during Site Clearence	W12
Existing Signage removed during site clearence	W12
Existing structures to be demolished-Steel Beams	W01
Existing Structures to be demolished-Steel Reinforcement	W01
Concrete removed during demolition of structures	W01
Concrete removed during general site clearence i.e kerbing	W01
Road planings from cold milling Operations	W09
Sub base removed during pavement re construction	W09
Concrete removed during pavement construction	W01
Vegetation removed during site clearence	W09
General waste generated during construction activities	W12
Sub-Totals	
Contractor Supervision	W05
Contractor Engineering	W05
Contractor Inspectors	W05
Contractor H&S Advisors	W05
Contractor Laboratory Technician	W05
Client Inspectors	W05
TSCO	W05
TM Maintenance Crew	W05
Fuel Bowser	W05
Road sweeper	W05
Welfare Maintenance Crew	W05
Materials Distribution from Compound to Workface	W05
Plant Distribution from Compound to Workface	W05
Workforce Travel from Compound to Workface	W05
Subcontractors travel from Compound to Workface	W05
Road Wagon travel from Compound to Workface	W05
Sub-Totals	

Appendix C

CONSTRUCTION TRAFFIC FLOW

DIAGRAMS

AADT (2021) - Viaduct Option - HGV Trips

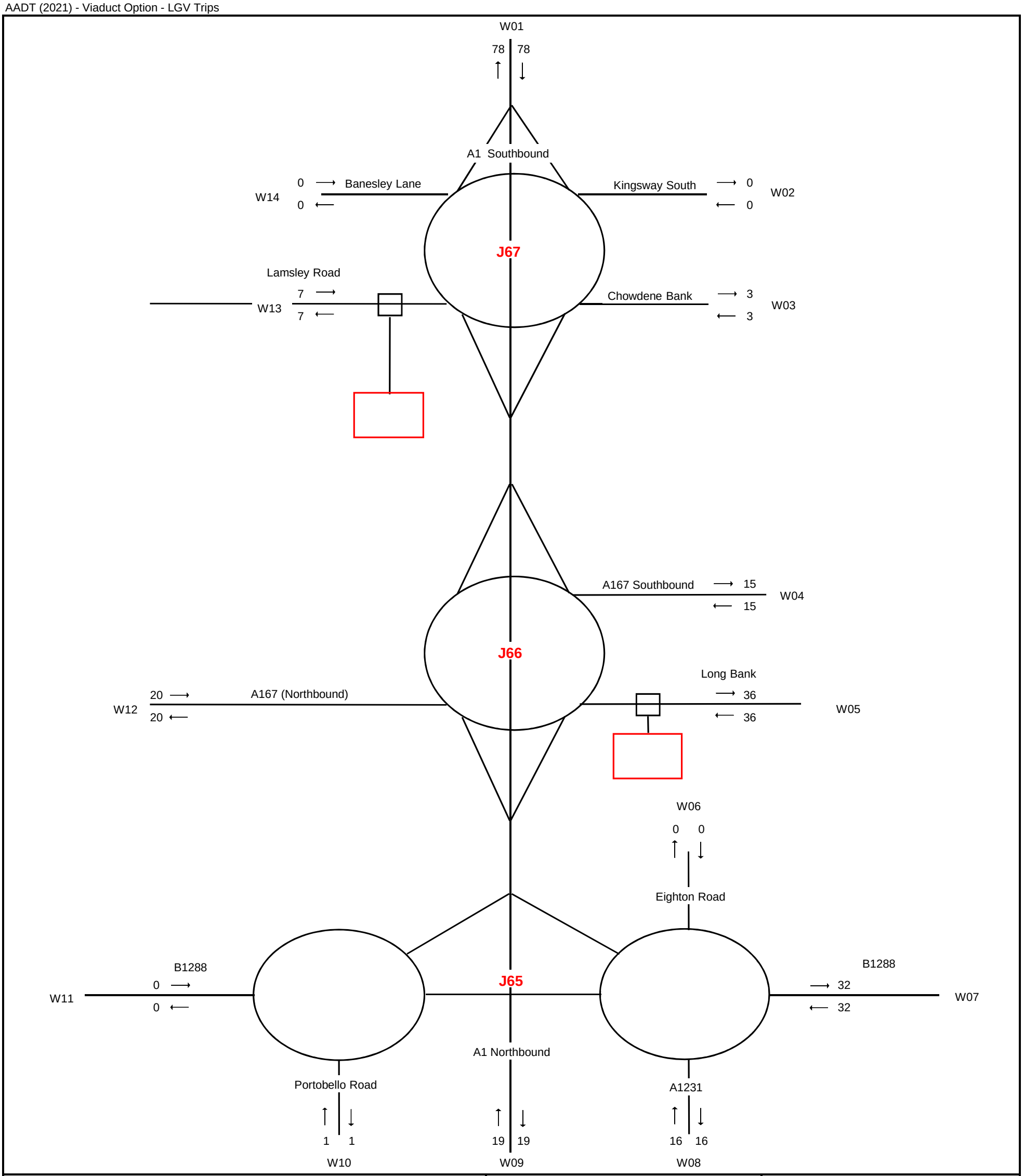


Notes

The Construction Traffic Management Plan is Appendix B of the Outline Construction Environmental Management Plan Application Document Reference TR010031/APP/7.4

Client HIGHWAYS ENGLAND			**Project** A1 BIRTLEY TO COALHOUSE Construction Traffic Management Plan
Drawing Title AADT (2021) - Viaduct - HGV Trips - Average Weekday Daily Traffic			
DWG REF Flow Diagram - 1A		**Date** 28/03/2019	
Drawn By JD	**Checked By** PW	**Approved By** VH	**Data File** 0001.14 Traffic Flow Analysis.xlsx

AADT (2021) - Viaduct Option - LGV Trips



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Client

HIGHWAYS ENGLAND

Project

A1 BIRTLEY TO COALHOUSE

Construction Traffic Management Plan

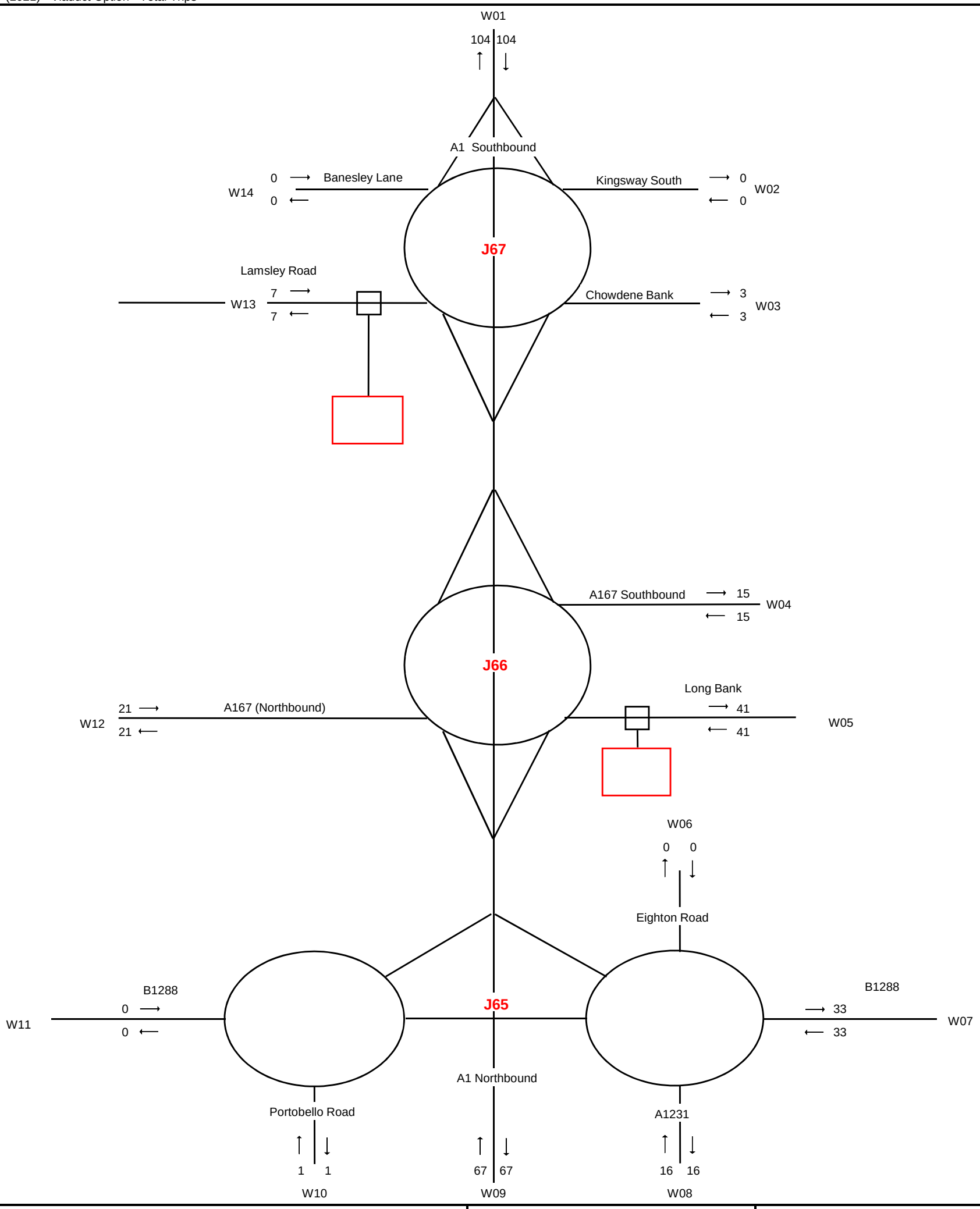
Drawing Title

AADT (2021) - Viaduct - LGV Trips - Average Weekday Daily Traffic

DWG REF	Date
Flow Diagram - 1B	28/03/2019

Drawn By	Checked By	Approved By	Data File
JD	PW	VH	0001.14 Traffic Flow Analysis.xlsx

AADT (2021) - Viaduct Option - Total Trips



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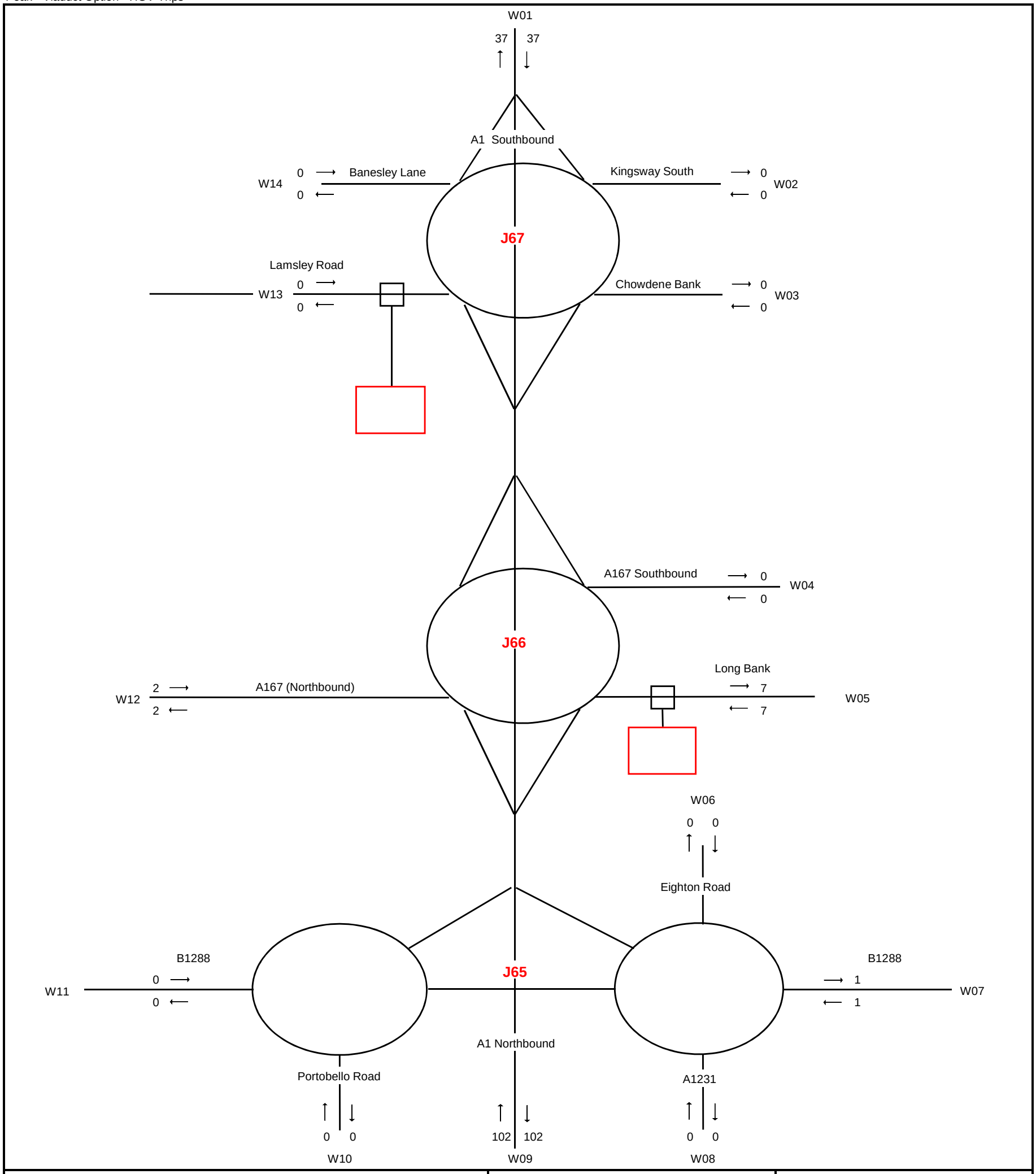
Client HIGHWAYS ENGLAND			**Project** A1 BIRTLEY TO COALHOUSE Construction Traffic Management Plan
Drawing Title AADT (2021)- Viaduct - Total Trips - Average Weekday Daily Traffic			
DWG REF Flow Diagram - 1C		**Date** 28/03/2019	
Drawn By JD	**Checked By** PW	**Approved By** VH	**Data File** 0001.14 Traffic Flow Analysis.xlsx

Peak - Viaduct Option - HGV Trips



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Client

HIGHWAYS ENGLAND

Project

A1 BIRTLEY TO COALHOUSE

Construction Traffic Management Plan

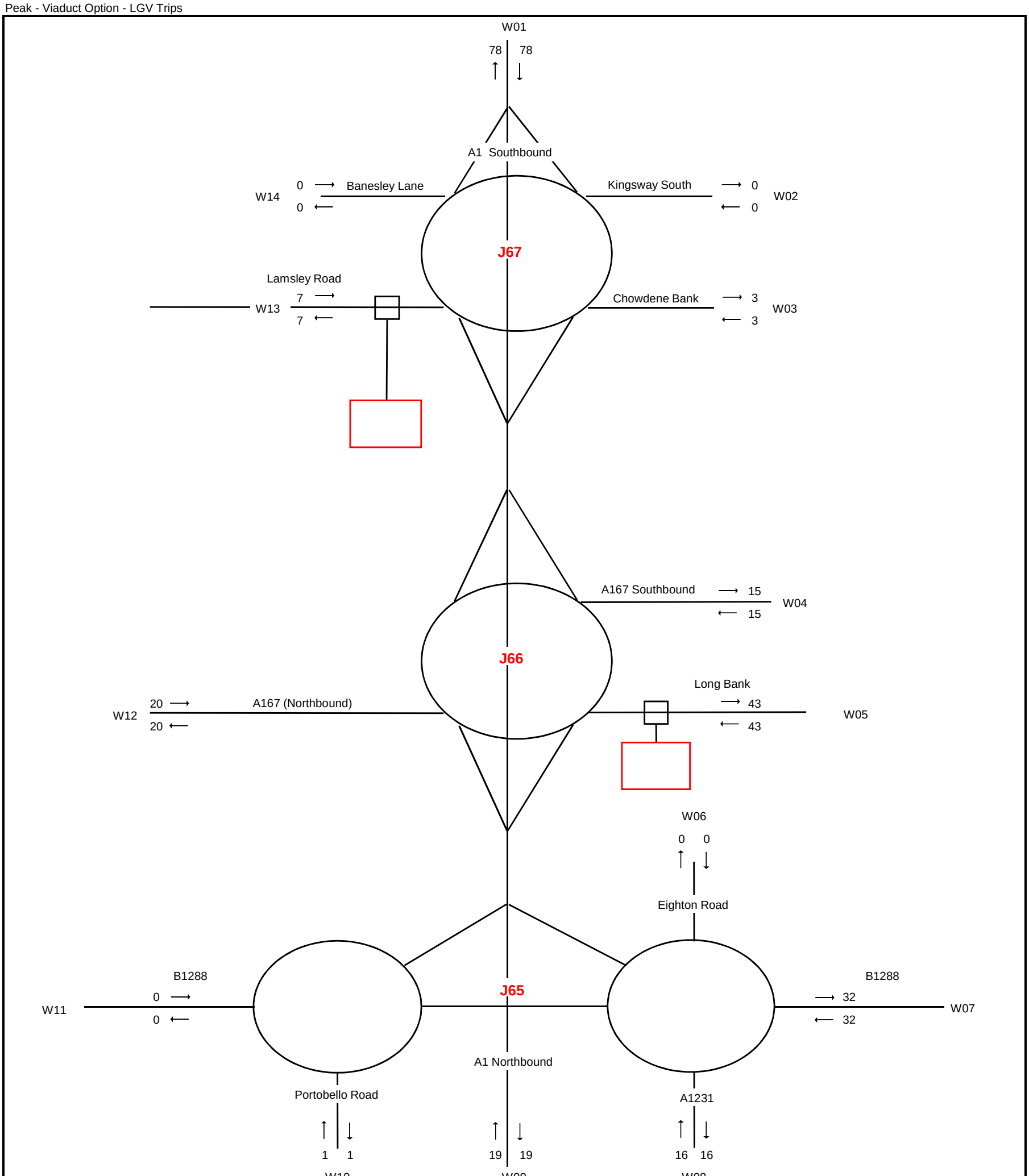
Drawing Title

Peak (Q3 2021) - Viaduct - HGV Trips Average Weekday Daily Traffic

DWG REF	Date
Flow Diagram - 2A	28/03/2019

Drawn By	Checked By	Approved By	Data File
JD	PW	VH	0001.14 Traffic Flow Analysis.xlsx

Peak - Viaduct Option - LGV Trips



Notes

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Client

HIGHWAYS ENGLAND

Project

A1 BIRTLEY TO COALHOUSE

Construction Traffic Management Plan

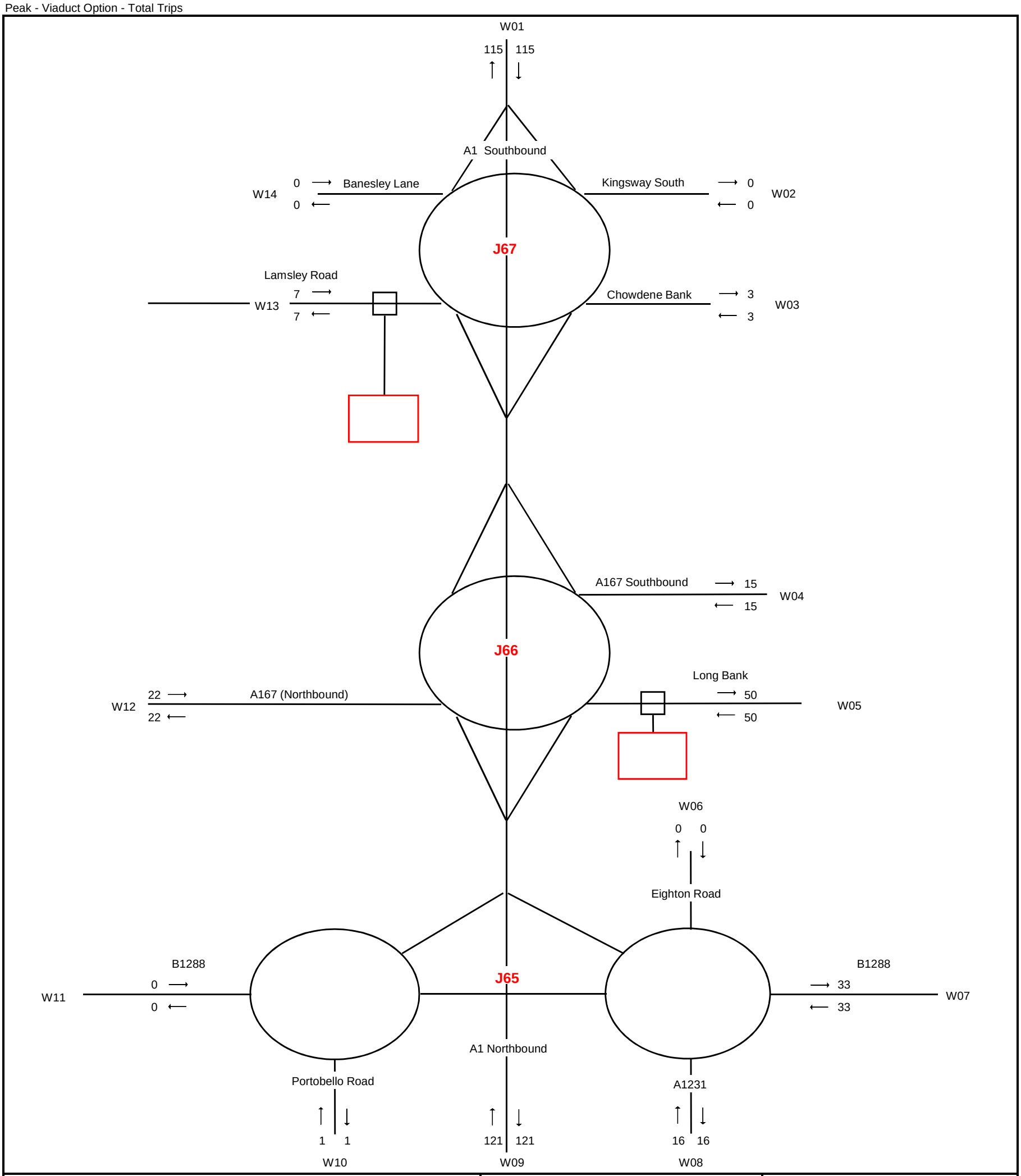
Drawing Title

Peak (Q3 2021) - Viaduct - LGV Trips - Average Weekday Daily Traffic

DWG REF	Date
Flow Diagram - 2B	28/03/2019

Drawn By	Checked By	Approved By	Data File
JD	PW	VH	0001.14 Traffic Flow Analysis.xlsx

Peak - Viaduct Option - Total Trips



Notes

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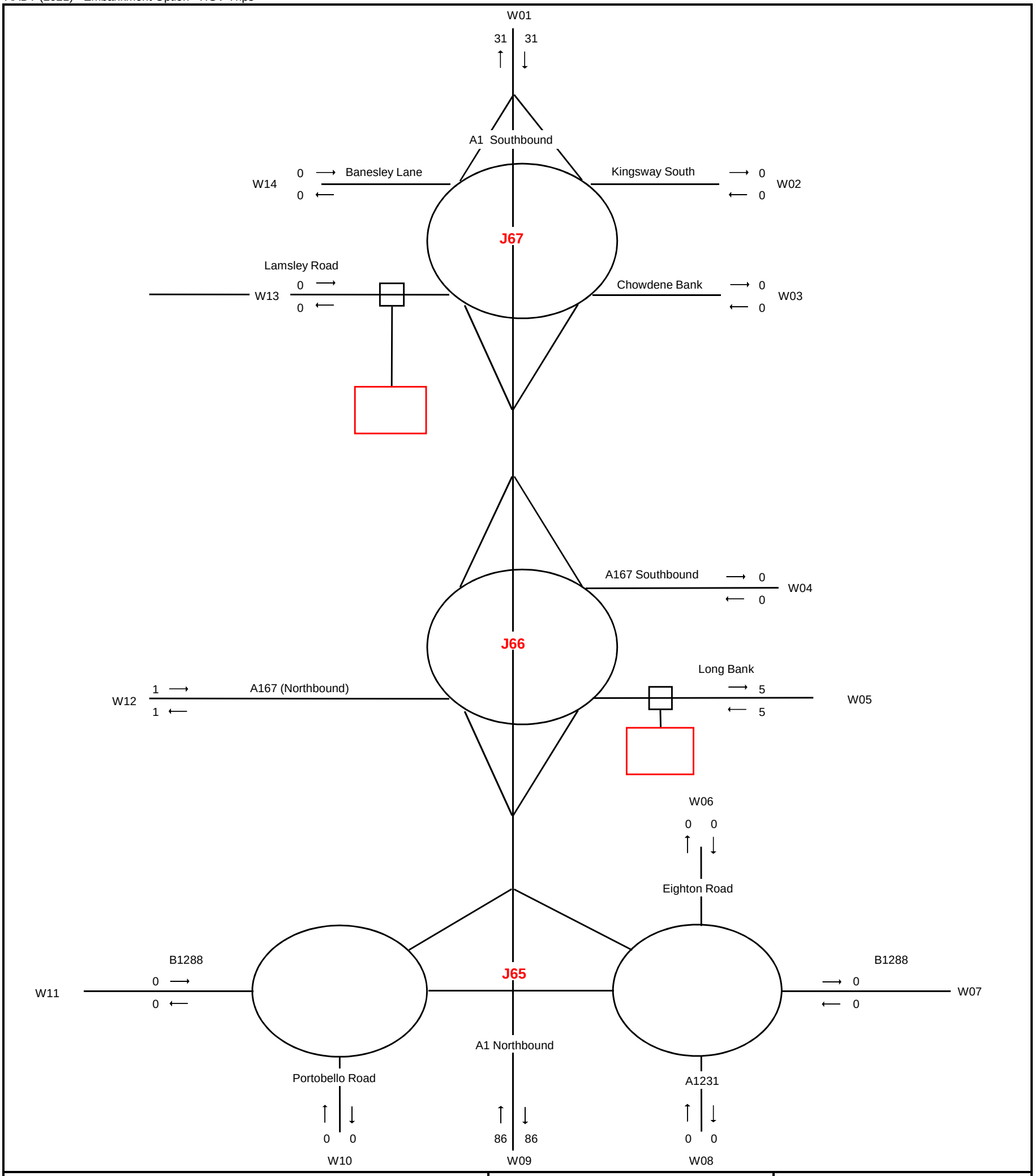
Client HIGHWAYS ENGLAND			**Project** A1 BIRTLEY TO COALHOUSE Construction Traffic Management Plan
Drawing Title Peak (Q3 2021) - Viaduct - Total Trips - Average Weekday Daily Traffic			
DWG REF Flow Diagram - 2C		**Date** 28/03/2019	
Drawn By JD	**Checked By** PW	**Approved By** VH	**Data File** 0001.14 Traffic Flow Analysis.xlsx

AADT (2021) - Embankment Option - HGV Trips



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Client

HIGHWAYS ENGLAND

Project

A1 BIRTLEY TO COALHOUSE

Construction Traffic Management Plan

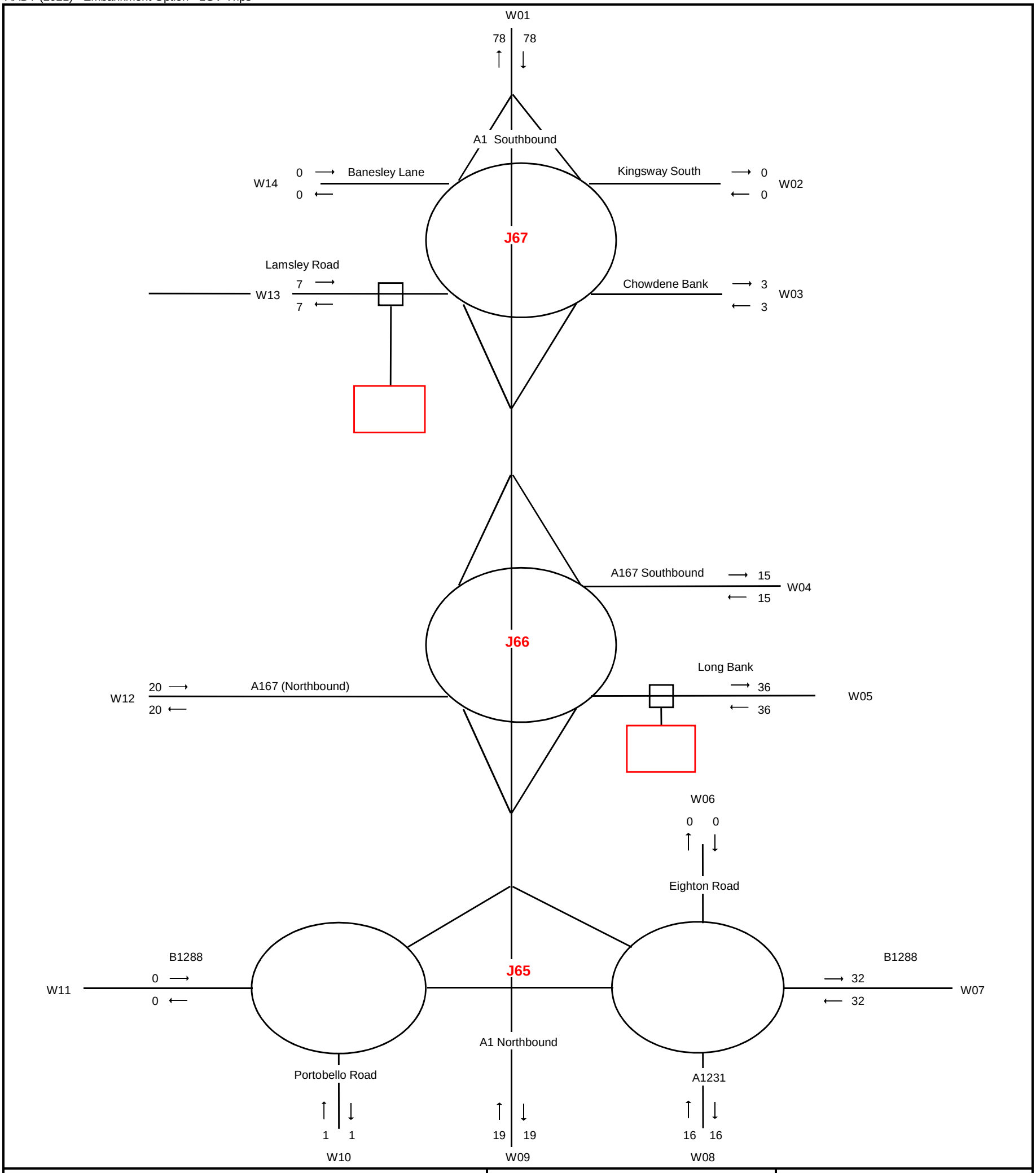
Drawing Title

AADT (2021) - Embankment - HGV Trips - Average Weekday Daily Traffic

DWG REF	Date
Flow Diagram - 3A	28/03/2019

Drawn By	Checked By	Approved By	Data File
JD	PW	VH	0001.14 Traffic Flow Analysis.xlsx

AADT (2021) - Embankment Option - LGV Trips



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HIGHWAYS ENGLAND

Project

A1 BIRTLEY TO COALHOUSE

Construction Traffic Management Plan

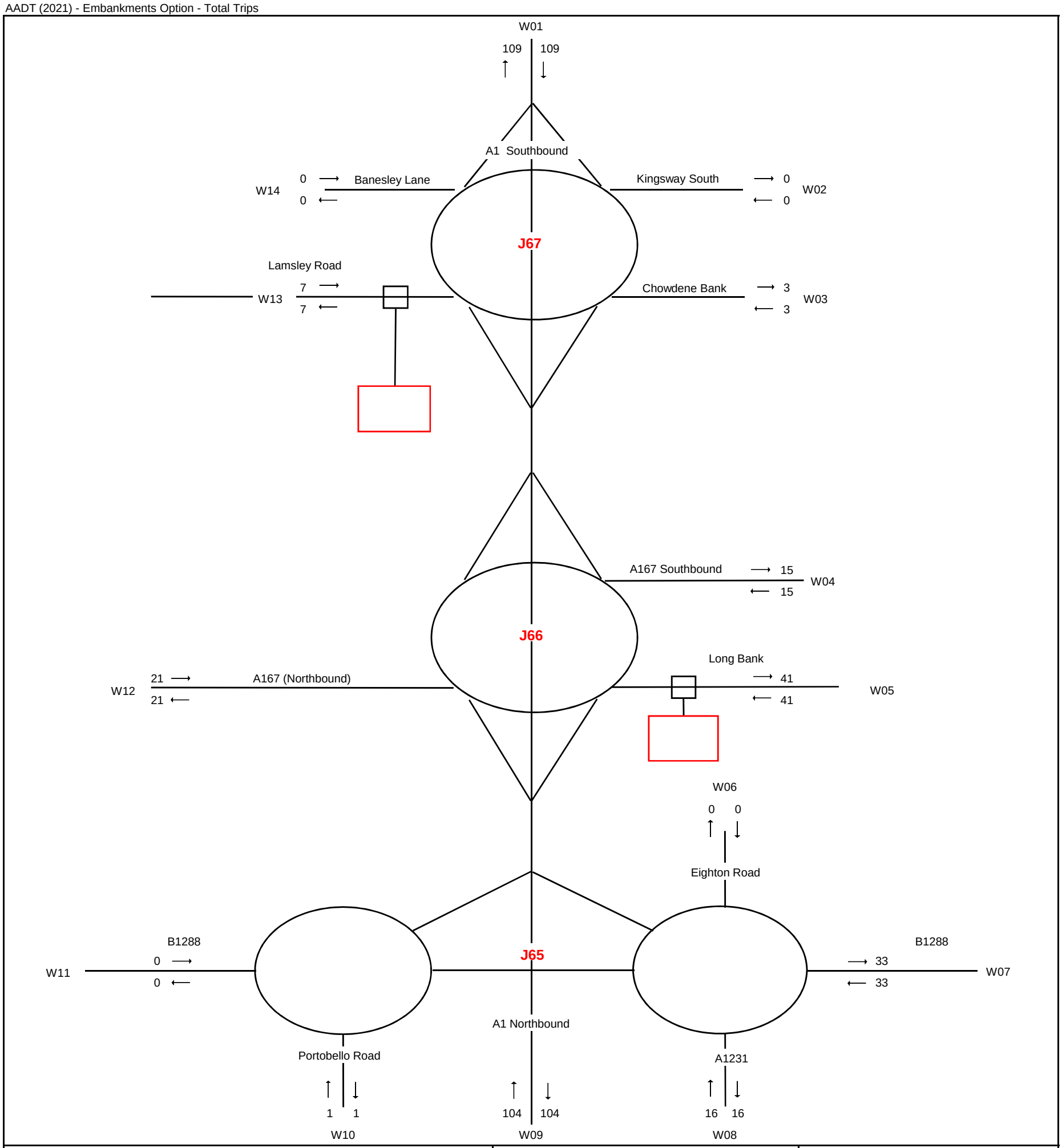
Drawing Title

AADT (2021) - Embankment - LGV Trips - Average Weekday Daily Traffic

DWG REF	Date
Flow Diagram - 3B	28/03/2019

Drawn By	Checked By	Approved By	Data File
JD	PW	VH	0001.14 Traffic Flow Analysis.xlsx

AADT (2021) - Embankments Option - Total Trips



Notes

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Client

HIGHWAYS ENGLAND

Project

A1 BIRTLEY TO COALHOUSE

Construction Traffic Management Plan

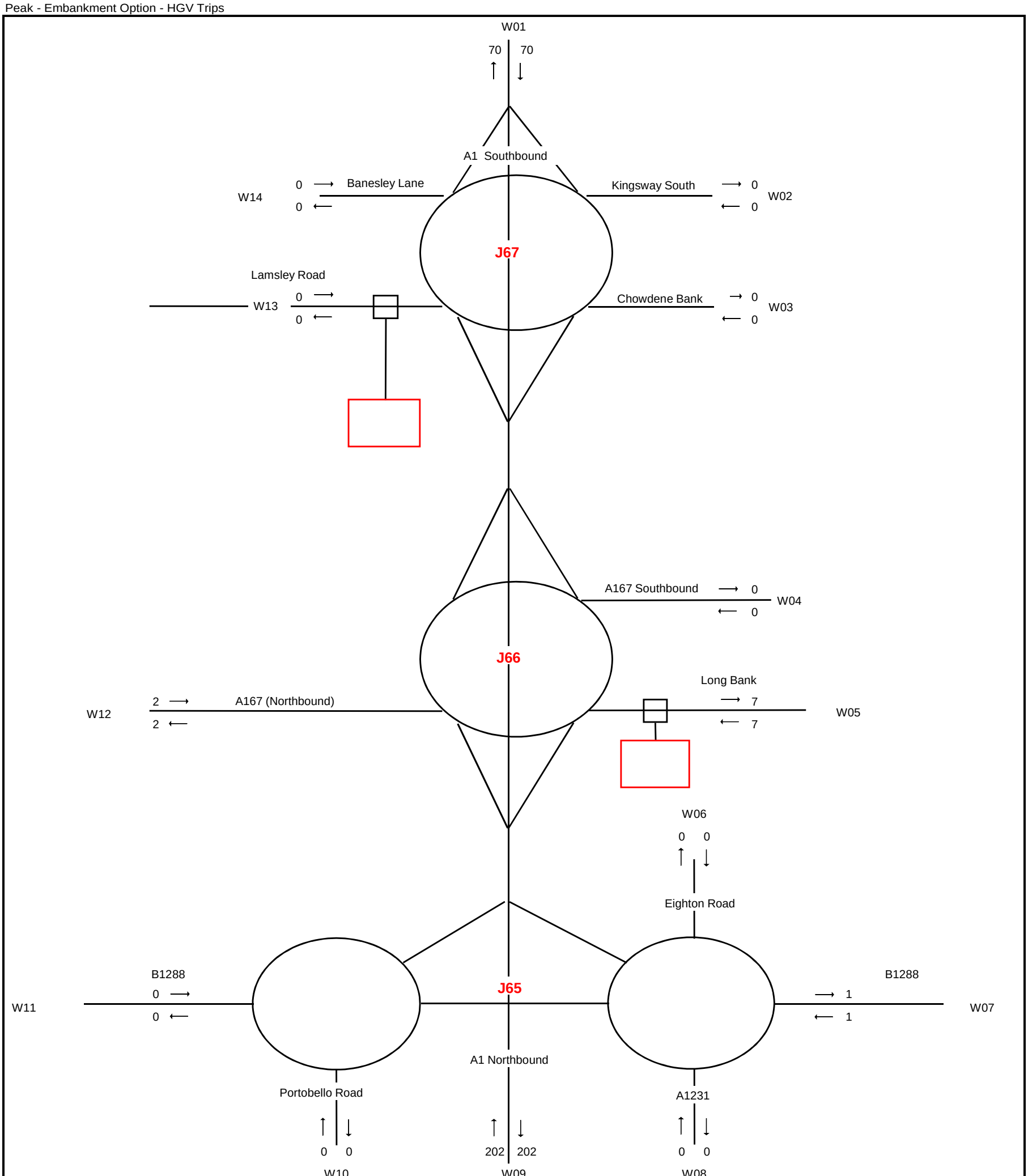
Drawing Title

AADT (2021) - Embankment - Total Trips - Average Weekday Daily Traffic

DWG REF	Date
Flow Diagram - 3C	28/03/2019

Drawn By	Checked By	Approved By	Data File
JD	PW	VH	0001.14 Traffic Flow Analysis.xlsx

Peak - Embankment Option - HGV Trips



Notes

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Client

HIGHWAYS ENGLAND

Project

A1 BIRTLEY TO COALHOUSE

Construction Traffic Management Plan

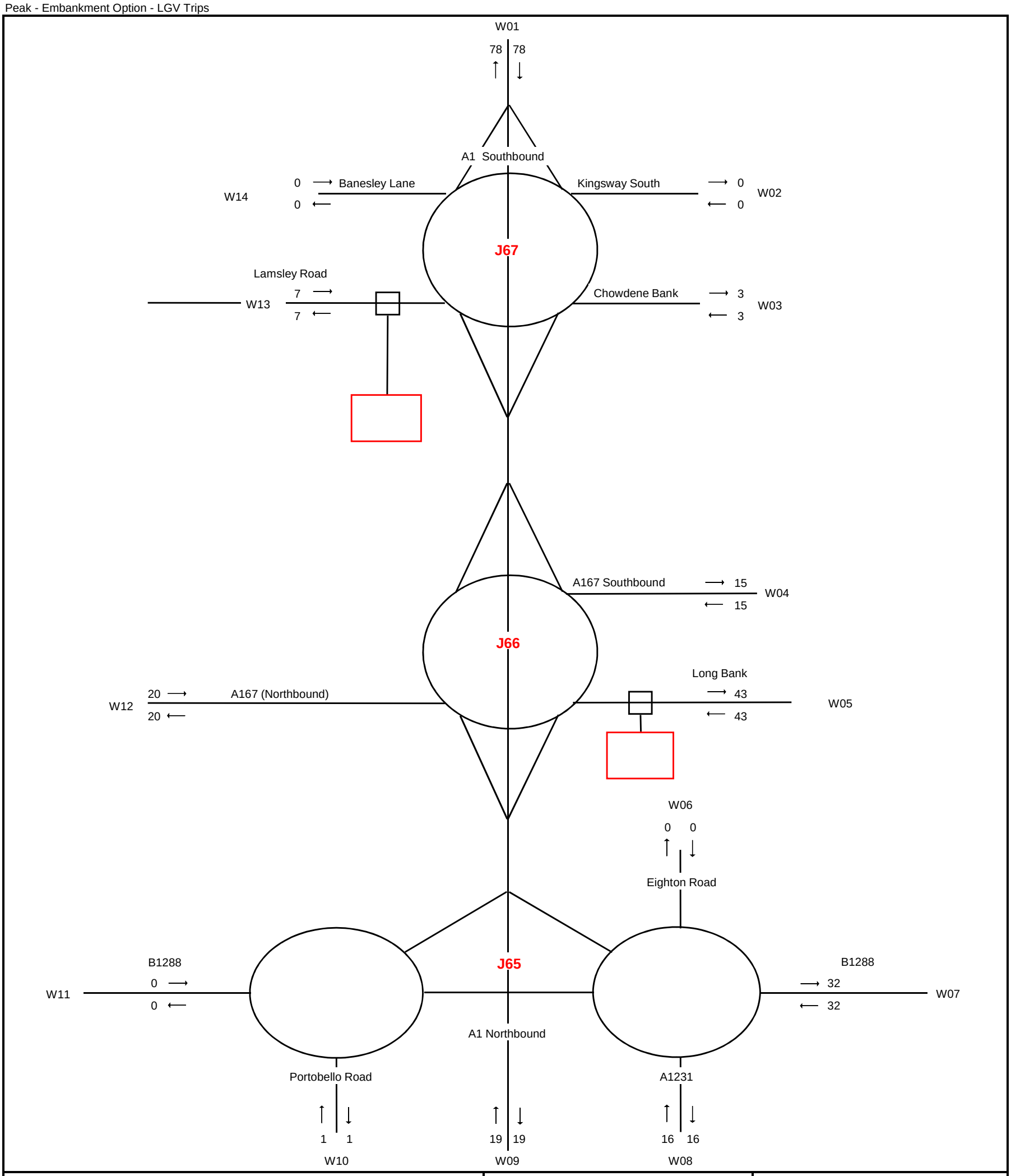
Drawing Title

Peak (Q3 2021) - Embankment - HGV Trips - Average Weekday Daily Traffic

DWG REF	Date
Flow Diagram - 4A	28/03/2019

Drawn By	Checked By	Approved By	Data File
JD	PW	VH	0001.14 Traffic Flow Analysis.xlsx

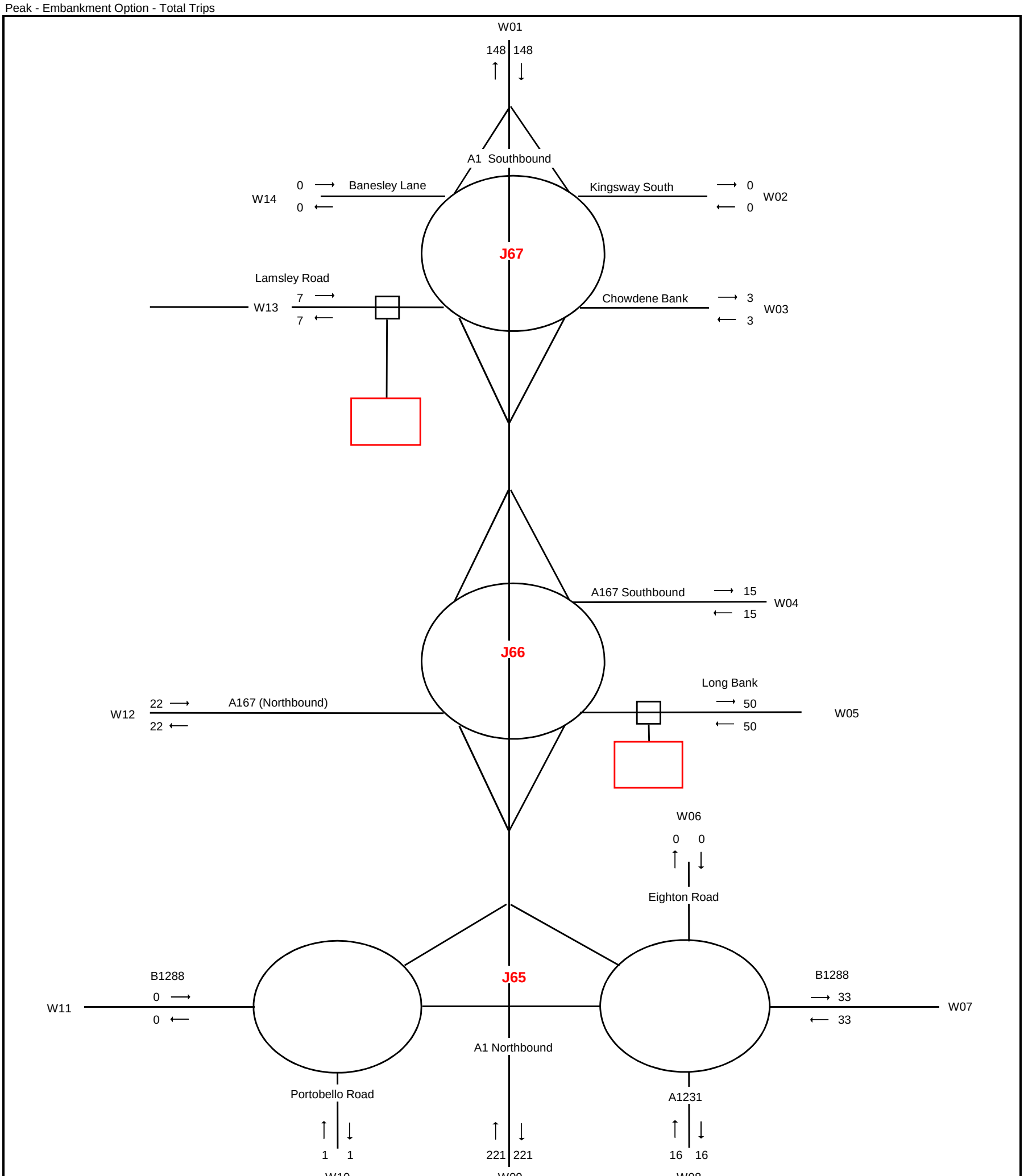
Peak - Embankment Option - LGV Trips



Notes	Client	Project
The Construction Traffic Management Plan is Appendix B of the Outline Construction Environmental Management Plan Application Document Reference TR010031/APP/7.4	HIGHWAYS ENGLAND	A1 BIRTLEY TO COALHOUSE Construction Traffic Management Plan

Drawing Title			
Peak (Q3 2021) - Embankment - LGV Trips - Average Weekday Daily Traffic			
DWG REF		**Date**	
Flow Diagram - 4B		28/03/2019	
Drawn By	**Checked By**	**Approved By**	**Data File**
JD	PW	VH	0001.14 Traffic Flow Analysis.xlsx

Peak - Embankment Option - Total Trips



Notes The Construction Traffic Management Plan is Appendix B of the Outline Construction Environmental Management Plan Application Document Reference TR010031/APP/7.4	**Client** HIGHWAYS ENGLAND		**Project** A1 BIRTLEY TO COALHOUSE Construction Traffic Management Plan
	Drawing Title Peak (Q3 2021) - Embankment - Total Trips - Average Weekday Daily Traffic		
	DWG REF Flow Diagram - 4C	**Date** 28/03/2019	
	Drawn By JD	**Checked By** PW	**Approved By** VH	**Data File** 0001.14 Traffic Flow Analysis.xlsx

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