

M25 junction 28 improvement scheme

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9.52 Outline Traffic Management Plan

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9.52 Outline Traffic Management Plan

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1. Introduction

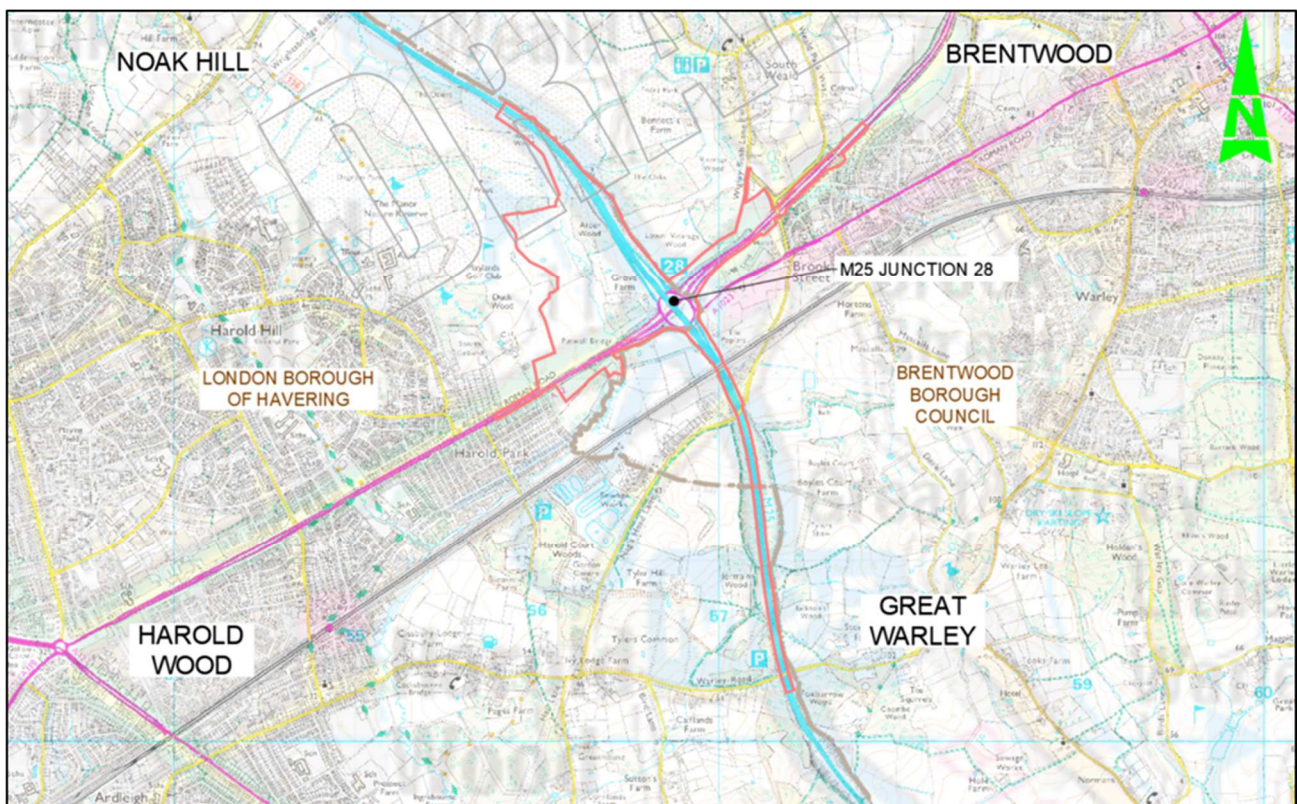
1.1 Purpose and objective

- 1.1.1 The purpose of this outline traffic management plan (outline TMP) is to set out the proposed approach to the temporary traffic management measures required during construction of the M25 junction 28 scheme (“the Scheme”) and how the approach will deliver the following key objectives:
- **Safety:** No one should be harmed when travelling or working on the strategic road network. We care about each other, our suppliers, our customers and communities.
 - **Good customer service:** We should tailor our way of working to minimise our impact on customers and stakeholders.
 - **Projects delivered on time and efficiently:** Projects should be planned and managed in a way that work is carried out efficiently, and as a result delivered on time.
- 1.1.2 The proposed approach to the temporary traffic management arrangements to achieve these objectives has been informed by the identification of key constraints, opportunities and challenges associated with construction of the Scheme. The Scheme’s communications engagement plan will identify key stakeholders and customers that will be consulted regarding the outline TMP to ensure their views are fully considered during the subsequent refinement of the proposed traffic management measures for inclusion in the TMP for approval by the Secretary of State, prior to commencement of construction.
- 1.1.3 This outline TMP has been developed by John Graham Construction Limited in conjunction with Atkins.
- 1.1.4 Highways England’s dynamic road works vision statement, which clarifies how traffic management should support good customer service, identifies five key areas that are considered within Appendix D of the outline TMP.
- 1.1.5 This outline TMP is based on a relatively high-level approach to construction commensurate with the current preliminary design being considered at this stage of the Scheme. The temporary traffic arrangements will therefore be refined as the design of the Scheme and the construction methodology are developed further in more detail. The outline TMP will form the basis of the traffic management plan that will be prepared prior to commencement of construction, and issued to the Secretary of State for approval under the relevant requirement in the DCO.
- 1.1.6 A detailed TMP, based on this outline TMP will be developed in consultation with stakeholders following the appointment by Highways England of the Delivery Partner and submitted to the Secretary of State for approval prior to commencement of construction under Requirement 10 of the DCO.
- 1.1.7 A Traffic Safety Control Officer will be responsible for managing the TMP on-site, and traffic management logs will be retained on-site, with incidents recorded in the Contractor’s progress report.

1.2 The Scheme

- 1.2.1 The scheme forms part of the second Road Investment Strategy (RIS) for 2020-2025. The RIS identified improvements to the M25 junction 28 as one of the key investments in the Strategic Road Network (SRN) for the London and south east region. The M25 junction 28 lies in the north east quadrant of the M25 orbital motorway (Figure 1.1). Junction 28 plays a key role in connecting the M25 motorway with the A12 to London and east of England, as well for local traffic to and from Brentwood. The focus of the project is on delivering operational outcomes on the network, to increase capacity, reduce congestion, improve safety and support future economic growth and development.
- 1.2.2 The Scheme connects the M25 anticlockwise with the A12 east via a two-lane (reducing to a single lane at the A12 merge) cloverleaf type link road, with hard shoulder, located to the north-west of junction 28.
- 1.2.3 Providing the diverge from the M25 for the new link to the north of junction 28 requires realigning the existing M25 northbound on-slip road to pass under the new link road. Following the diverge, the new link loops in an anti-clockwise direction through land to the northwest of the existing junction to merge with the A12 eastbound carriageway to the west of the junction 28.
- 1.2.4 A 50mph speed limit is proposed for the loop. The existing 50mph speed limit on the A12 eastbound will be extended to the carriageway beneath Poplars Bridge East that supports the junction 28 roundabout.

Figure 1.1: Location of M25 junction 28 improvement scheme



1.3 Challenges and considerations

1.3.1 Engagement with relevant stakeholders, including relevant authorities, emergency services, local businesses has taken place over the design development phase and will continue as the Scheme progresses.

1.3.2 The key challenges and considerations likely to impact temporary traffic management arrangements are:

- **High traffic flows.** The A12 and M25 junction 28 experience high volumes of traffic at peak times making it important to minimise traffic disruption and delay caused by any reductions in capacity due to proposed temporary traffic management measures.
- **Access to Grove Farm.** The entrance and exit to Grove Farm need to be maintained at all times.
- **Construction Compound Access.** The access to the main construction compound is off the A12 eastbound carriageway and will be left in/left out only. Consequently, construction traffic arriving from the A12 (east) and the M25 (north) will need to make a U-turn along the A12 to the west of the site access at Gallows Corner.
- **Statutory undertaker's equipment diversions.** Significant diversions are required including high pressure gas, high voltage electricity, water & communications. Some may be undertaken as advanced works, but this will extend the period that temporary traffic management is required on the road network.

2. Outline Traffic Management Plan (TMP)

2.1 Customer requirements

2.1.1 Table 2.1 summarises the key customers with whom liaison and consideration are key.

Table 2-1: Customer requirements

Customer Group	Who is Affected by this project?	What are their requirements and how are they impacted?	How has the TMP taken these requirements into account and proposed mitigations using the customer principles?
Customers	HGV drivers	<ul style="list-style-type: none"> Journey time reliability Advance warning of closures and/or diversions Appropriate diversion routes Maximised lane widths where possible 	<ul style="list-style-type: none"> Minimising road space occupancy Communication plan for warning of closures and/or diversions Closure clashes – not having closures on alternative routes used for diversions Diversion routes avoid narrow roads and low bridges
	Commuters	<ul style="list-style-type: none"> Journey time reliability Advance warning of closures and/or diversions Appropriate diversion routes Maximise lane availability during peak periods 	<ul style="list-style-type: none"> Provision of journey time information Communication plan for warning of closures and/or diversions Diversion routes agreed with local authority Minimise lane closures where possible
	Walkers and cyclists	<ul style="list-style-type: none"> Connectivity maintained during works Temporary safe routes provided through works (including provision for users with reduced mobility, visibility or other disability) Diversion routes minimised 	<ul style="list-style-type: none"> Safety features such as temporary signalised pedestrian crossings Suitable surface material for temporary footways
	Disabled car drivers	<ul style="list-style-type: none"> Method of recovery that is suitable for people with restricted mobility and their vehicles Suitable roadside facilities for disabled users (toileting and medication stops) 	<ul style="list-style-type: none"> Recovery vehicles are wheelchair accessible Customer care points with disabled access and welfare

Customer Group	Who is Affected by this project?	What are their requirements and how are they impacted?	How has the TMP taken these requirements into account and proposed mitigations using the customer principles?
Stakeholders	Grove Farm	Closures/diversions that may impact on journey time reliability to and from the property Minimal impact on their business and residential premises	One to one communication between contractor and landowner Weekly project update detailing forthcoming traffic management (TM) Diversion routes to guarantee their access to the road network
	Maylands Golf Club	Closures/diversion that may impact on journey time reliability to and from the facility Cleanliness of site access/egress	One to one communication between contractor and landowner Weekly project update detailing forthcoming TM Traffic management that maintains access to their facilities
	Glebelands	Closures/diversion that may impact on journey time reliability to and from their land. Cleanliness of site access/egress	One to one communication between contractor and landowner Weekly project update detailing forthcoming TM Traffic management that maintains access to their facilities
Partners	Aggregate suppliers	Clear route for ease of delivery Journey time reliability to site Suitable access and egress	Manage haul roads to facilitate site deliveries Access and egress points clearly marked and close to delivery site
	Operations Directorate (OD)	Communications plan with OD to minimise impact on the network Avoid clash of road space between scheme and maintenance work	Sufficient notification of closures Integrated traffic management meetings to avoid clashes on the strategic network and local diversion routes
	Essex County Council (ECC) and Transport for London (TfL)	Minimise closures/diversions that may impact on network highway maintenance activities Avoid clash of road space Seasonal traffic management embargoes	ECC & TfL representative to be invited to TM meetings Advance notice of closures/diversions Consider TM requirements during public holiday periods

Customer Group	Who is Affected by this project?	What are their requirements and how are they impacted?	How has the TMP taken these requirements into account and proposed mitigations using the customer principles?
	Local councils	Minimise closures/diversions that may impact on network highway maintenance activities Seasonal traffic management embargoes	Advance notice of closures/diversions Consider TM requirements during public holiday periods
	Bus operators	Minimise delays/diversions to bus routes Maintain existing accessibility on A12	Closures and TM to be clearly communicated to the operators and users of the bus routes on the A12 Agreement with bus operators on appropriate diversion routes during road closures
	Emergency services	Access through haul road during emergencies Suitable diversion routes Advance warning of closures and/or diversions	Process and procedure for allowing blue-light travel through the works/haul road Diversion routes avoid narrow roads and low bridges Sufficient notification of closures
Communities	Affected residents	Advance warning of closures and/or diversions Minimise disruption due to works including environmental factors (e.g. noise, dust, lighting) and diversion routes Appropriate and regular communication on scheme development	Notification and liaison with individuals and/or local group representatives Activity curfews e.g. no piling between 22:00 to 06:00 (confirm through CEMP) Diversion route signs and information to meet driver requirements and optimise usability to reduce opportunities for error and therefore reduce congestion

2.1.2 The twenty principles detailed in the Highways England document ‘*Roadworks: a Customer View*’ have been considered during the scheme development and will be fully taken into account when designing the traffic management for the Scheme during detailed design. See Table 2-2 and Appendix A.

Table 2-2: Customer view principles

Principle		Comment
01	Other roadworks and improvements	At this stage no other schemes planned for concurrent construction, other than Lower Thames Crossing (LTC), have been identified in the vicinity of the scheme. This will be continually reviewed through the scheme’s lifecycle. Close engagement will be maintained with the LTC project and local authorities to phase the traffic management plans and minimise disruption as far as practicable.
02	Speed of delivery	Elements of the design have been simplified to help facilitate construction through Early Contractor Involvement. This will be further reviewed during detailed design.
03	Length of roadworks	Opportunities for a sectional approach to the works will be investigated as the construction strategy develops to minimise the length and durations of carriageway occupancy as far as practicable.
04	Lane width	The A12 is heavily constrained and there is limited opportunity to widen lanes due to cross-section constraints.
05	Speed limit	Speed limits during construction will be reduced only when maintaining existing speed limits would be unsafe. The opportunity to investigate varying speed limits depending on traffic flows and works phases, will also be considered during detailed design.
06	Line demarcation	Permanent quality white lines to be used with existing lines removed where appropriate. Details to be determined in detailed design.
07	Visibility of temporary barrier	White lines and reflectors to be used to delineate barriers with high frequency maintenance.
08	Night-time visibility	The M25, A12 and roundabout circulatory have permanent street lighting. During detailed design, the phasing of works, including switching off existing lighting or lighting phases will be reviewed. Temporary lighting to maintain existing

Principle		Comment
		lighting levels will be considered. Dark patches in lit areas will be avoided.
09	Advance notice of works	Billboards will be provided at least four weeks prior to commencement of the works. Advanced notice to be provided on variable message signs (VMS) for closures. [Note: All pre-signing requests must be sent to VMSRequests@highwaysengland.co.uk with at least two weeks' notice.]
10	Scheme information at roadworks	Billboards will be provided in accordance with Highways England Major Projects Instruction (MPI) 48. (see 11 below).
11	Electronic signage	VMS will be provided in accordance with MPI 54. The benefit of additional provision on the affected local road network will be considered during detailed design. Consideration will also be given to the use of electronic billboards
12	Travel time variable message signage (TTVMS)	VMS will be provided in accordance with MPI 54.
13	Visible progress	Due to the constrained nature of the site, progress should be visible to customers. The regularity of updates for billboards during the works for key milestones will be established once sequencing of works is finalised during detailed design.
14	Engaging and communicating with customers	The detailed construction phase communication plan will be developed during detailed design.
15	Use multiple media channels, regularly	The detailed construction phase communication plan will be developed during detailed design and will consider all communication including social media as appropriate
16	Impactful Messages	Impactful messaging has been a feature of the communication strategy to date. The detailed construction phase communication plan will be developed during detailed design utilising the Construction and Roadworks Communication Toolkit.
17	Explain no activity	Identification of activities which may not be clearly visible but necessitating TM will be carefully considered in detailed design. Some works such as night works in the central reserve will not be

Principle		Comment
		apparent to road users. Consideration of signing to explain will be developed during detailed design and linked to the electronic signing strategy.
18	Seek customer feedback on new traffic management	Use of customer audits will be considered. Use of diversions routes during overnight closure will take into consideration the requirements of GG 903 ¹ .
19	Understanding customer experience	This will be implemented on the scheme in consideration of the Customer and Roadworks Communications Toolkit and agreed prior to construction commencement.
20	Complete the feedback loop	Customer feedback obtained at regular intervals throughout the construction programme and will be reported and used to inform the approach to future works and measures.

2.2 Nature of the works

2.2.1 The majority of the construction works will take place “off-line” for the construction of the loop road and re-alignment of the slip roads. Works likely to require temporary traffic management are detailed below (Table 2.3) and in the drawings included in Appendix B. The main impacts relate to: statutory undertakers works; modification, removal and installation of gantries; retaining wall works adjacent to the M25; slip road tie-ins and sheet piling for retaining walls.

Table 2-3: Proposed traffic management requirements

Type of construction works	Temporary traffic management (TM) requirements		Reference to proposed traffic management and diversion plans
Statutory undertakers work	For statutory undertakers diversions work	A12 eastbound Lane 1 closure and narrow lanes	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000001 Layout 1 and Layout 2
Removal of existing gantries	Removal of existing gantry PS10 (CH 710)	Undertaken during a full closure of the M25 clockwise and anticlockwise at junction 28. New M25 anticlockwise entry slip to be	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000011

¹ <https://www.standardsforhighways.co.uk/prod/attachments/125f41ee-969c-4b6d-8951-c353c4bfd432>

Type of construction works	Temporary traffic management (TM) requirements		Reference to proposed traffic management and diversion plans
		utilised to allow for closure of M25 through the junction only	
	Removal of existing gantry (CH 1010)	Undertaken under a full closure of the M25 Clockwise and Anti-Clockwise between junctions 27 and 28	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000013
	Removal of existing gantry foundation (CH 710)	Undertaken under M25 anticlockwise hard shoulder and lane 1 closure	
	Removal of existing gantry foundation (CH 1010)	Undertaken under full closure of the M25 anticlockwise exit slip and hard shoulder closure of the mainline	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000002 Layout 5
Installation of new gantries and modifications of existing gantries	Installation of gantry PS10 (CH740)	Carried out under full closure of the M25 clockwise and anticlockwise. Utilisation of new slip road to allow closure only through the junction	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000011
	Installation of gantry (CH 1180)	Carried out with full closures of the M25 clockwise and anticlockwise between junctions 27 and 28	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000013
	Installation of cantilever gantry (CH 530)	undertaken under a full closure of the M25 anticlockwise at junction 28	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000026
	Modifications to existing gantries	Carried out under full closures of the M25 anticlockwise	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000027

Type of construction works	Temporary traffic management (TM) requirements		Reference to proposed traffic management and diversion plans
		between junctions 28 and 29	
Retaining wall works	Piling of the M25 anticlockwise retaining wall between Ch 910 and 1252 to be carried out with a M25 anticlockwise lane 1 and 2 closure	Piling of the M25 anticlockwise on-slip retaining wall to be undertaken once new slip road constructed, under Lane 2 closure of the M25 anticlockwise entry slip	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000002 Layout 5
Slip road works	Tie in of new A12 eastbound off-slip road	A12 eastbound narrow lane running	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000001 Layout 2
		A12 eastbound lane 1 closure	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000001 Layout 1
	Tie in of new A12 eastbound off-slip to circulatory	A12 eastbound off-slip left hand lane closure	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000001 Layout 3
	Tie in of new A12 eastbound on-slip road	A12 eastbound narrow lane running	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000001 Layout 4
	M25 anticlockwise on-slip earthworks	Narrow lanes on the M25 anticlockwise	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000002 Layout 5
	M25 anticlockwise verge works	Narrow lanes on the M25 anticlockwise an offside new M25 anticlockwise on-slip	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000002 Layout 5
	M25 anticlockwise tie in to bottom of new on-slip	Carried out with full slip road closures and lane closures on the roundabout with diversion route	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000002 Layout 5

Type of construction works	Temporary traffic management (TM) requirements		Reference to proposed traffic management and diversion plans
	M25 anticlockwise tie in to top of new on-slip	Offside lane closures on the slip road and lane closures on the roundabout	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000002 Layout 5
	M25 anticlockwise tie in to new off-slip	Narrow lanes on the mainline carriageway	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000002 Layout 5
Surfacing and road markings	Road markings on the A12 eastbound entry slip	Carried out with a full closure of the slip road	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000009
	M25 anticlockwise entry slip road markings	Carried out with a full closure of the slip road. Refer to diversion routes	Appendix B – HE551519-ATK-TTM-J28-DR-CH-000008

2.3 Proposed traffic management measures

2.3.1 The following section provides more details on the **proposed** temporary traffic management proposals. Customer impacts and proposed mitigations are included in Appendix C and the results of the benchmarking of these measures using the Dynamic Roadworks Benchmarking Template are included in Appendix D.

Work access

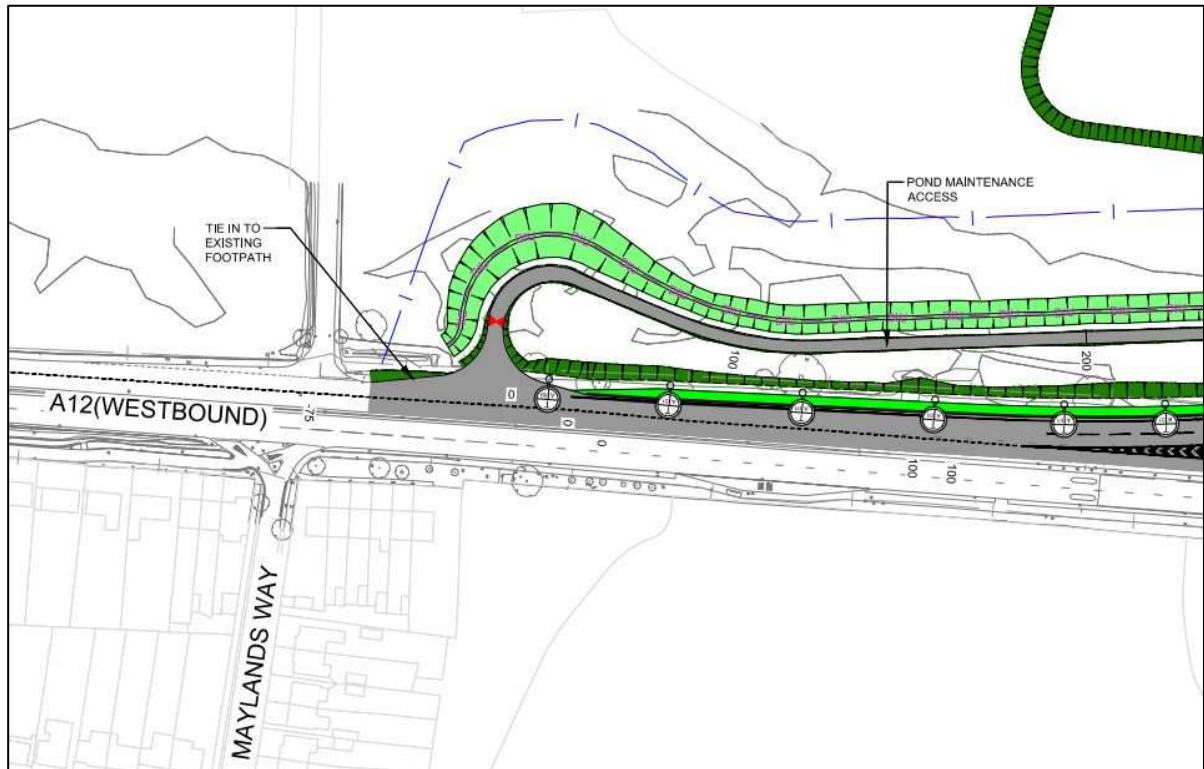
2.3.2 Access to the main site compound is via the proposed maintenance access adjacent to the Golf Club turn in and will be accessible throughout the entirety of the construction phase. The location is shown below in Figure 2-1. The detailed arrangements for the site access will be considered during the detailed traffic management design.

2.3.3 Access to the main site compound located north of the A12 and to the east of the access to Maylands Golf Club access road will be left in/left out only from the A12 eastbound carriageway, i.e. no right turns to or from the A12. The satellite compound to the north of Grove Farm will be connected to the main site compound via a temporary haul road. However, the satellite compound will also have a temporary entrance off the M25 junction 28 northbound on-slip to allow for some deliveries to be made directly to it. The satellite compound will have minimal storage space and, consequently, the entrance off the northbound on-slip will only be used by a limited number of 'just in time' deliveries of construction materials and equipment.

2.3.4 All construction traffic for the Scheme will use the M25, A12 and A127 to access the main and satellite compounds. Construction traffic arrivals to the main compound from the M25 north and A12 east will need to make a U-turn at the

A12 junction with Gallows Corner to access the site. Arrivals from the M25 south will use Junction 29 and the A127 westbound to access the site via Gallows Corner.

Figure 2.1: Site compound access



- 2.3.5 Vehicle swept path analysis showing HGVs making the U-turn at the Petersfield Avenue junction with the A12 is provided in Appendix E. This demonstrates that the existing junction at Petersfield Avenue is not wide enough to allow articulated HGVs to make a U-turn.
- 2.3.6 Deliveries to the satellite compound will be from the A12 and M25 via junction 28 and the northbound on-slip. These vehicles will not need to U-turn along the A12 or use the A127 westbound and Gallows Corner.
- 2.3.7 All construction traffic departures will be via the main compound and use the A12 eastbound, with traffic heading for the M25 and A12 west using the A12 eastbound off-slip and junction 28 to reach their destinations.
- 2.3.8 To ensure that construction vehicles use the correct compound entrance, suppliers will be given the appropriate compound gate number for either the main or satellite compound when materials are ordered. This will be displayed in the vehicle windscreen. Repeatedly turning up at the wrong gate would result in enforcement action being taken by the Principal Contractor to ensure suppliers adhere to delivery instructions.
- 2.3.9 The number of deliveries estimated to be generated by construction of the Scheme over the construction programme is provided in Appendix F. It is estimated that up to around 190 construction vehicle movements per day (95 arrivals and 95 departures per day) will be generated during the busiest period of activity over the construction programme. As delivery estimates are refined, stake holders will be updated during stakeholder engagement meetings.

Restrictions

- 2.3.10 At this stage of the Scheme's development, the following key restrictions have been identified:
- Weekday peak traffic flows occur between 5am and 8pm. Night closures will need to be removed prior to this period
 - ECC has a traffic management embargo from the week prior to Black Friday (mid-November) until the first week in January. This covers main roads within the network and any routes which include Christmas events such as grottos. Given the works impact on ECC routes, this will need to be considered in discussion with ECC
 - Approval for narrow lanes and hard shoulder closure on the M25 anticlockwise will need to be obtained.

Status: At this stage detailed traffic management proposals are not known. Once these are further developed, further liaison is required with key stakeholders to agree specific restrictions.

Operating lanes

- 2.3.11 Lane closures and narrow lane running will include but not be limited to:
- Narrow lane running on the M25 anticlockwise, and A12 eastbound for tie in works and verge works
 - Lane 1 and 2 closures on the M25 clockwise, anticlockwise and slip roads to allow for retaining wall piling mobilisation and de-mobilisation, tie in and surfacing works and for removal of existing gantry foundations. Removal of the bases under lane closures reduces the time needed for full closures
 - Hard shoulder closures on the M25 clockwise and anticlockwise to allow for the removal of existing gantry foundations
 - Lane closures on the A12 eastbound and the eastbound exit slip to enable tie in works, surfacing and line markings to be carried out
 - Lane 2 closure on the new M25 anticlockwise on-slip to allow for retaining wall piling mobilisation and de-mobilisation on offside verge.

Speed limits

- 2.3.12 Whilst full consideration will be given to maintaining existing traffic speeds during the roadworks, it may be necessary to implement the following restrictions. See Appendix G for the "Implementing the highest safe speed within road works checklist" and Appendix H for the high-level risk assessment.
- 2.3.13 A 40mph restriction may be implemented on the A12 eastbound mainline and the off-slip to the circulatory. Due to the lack of existing hard shoulder and hard strips on the A12, a reduction of speed to 40mph will allow for a minimum safety zone of 0.5m, maximising the available works area. After completion of the Scheme the permanent speed limit on the A12 west of the M25 and the off-slip will be

reduced to 50mph as part of the safety measures to accommodate the new loop road merge.

- 2.3.14 Both carriageways of the A12 do not fully comply with current highway standards (no hard strip) and consequently, narrow lanes may also be required which would increase potential hazards to pedestrians using the adjacent footways. Therefore, nearside lane closures on the A12 eastbound may be required, which will reduce capacity and may cause greater delay to customers.
- 2.3.15 On the M25, a 50mph speed limit may be required whilst the narrow lanes are in place and during overnight lane closures, to minimise the risk of road traffic accidents through the works. Temporary vehicle barriers will also be installed. Once detailed plans are in place, consideration will be given to varying speed limits whilst works are not being undertaken. When the working areas are established, the narrow lanes requirements will be reconsidered and a more detailed risk assessment undertaken, particularly when mobilising/demobilising heavy plant. Retaining permanent speed limits may be possible if temporary lane closures are implemented, however the benefit will need to be weighed against the requirements for more traffic operations and the disbenefit of restricting working hours.

Length and duration of traffic management

- 2.3.16 Anticipated lengths and durations of traffic management systems are described in Table 2.4. The impacts of these measures have been assessed in the Dynamic roadworks benchmarking template (see Appendix D). Based on a site length of 8.2km and a contract duration of 671 days the total road-space availability is approximately 5,555 Km/days (approx. 8.2x671). The total occupancy from Table 2.4 (length multiplied by duration with a 50% reduction of duration for night only works) is 2,657 km/days.
- 2.3.17 Permanent speed limits will be in force at locations where there is no traffic management such that the permanent speed limit is in place for approximately 52% of the distance and time duration of the project. If after more detailed design and risk analysis the narrow lane only running sections can be increased to permanent speed limits using the measures described in Table A1.8 of Chapter 8 part 3 – this percentage would reduce to 8%.
- 2.3.18 The dates shown above have been taken from the outline programme that shows the anticipated timing and sequencing of the proposed temporary traffic management measures. An outline programme is provided in Appendix I.

Table 2-4: Length and duration of traffic management

Activity	Location of TM	Length (m)	Duration (days/nights)
A12 Traffic Management			
Statutory Undertakers Diversions	Narrow lane and off-peak lane 1 closure on the eastbound A12	1,775	141 days (9-Feb-22 to 31-Aug-22)
A12 off-slip, bottom of slip	Narrow lanes on the eastbound A12	1,775	55 days (11-Aug-23 to 27-Oct-23)

Activity	Location of TM	Length (m)	Duration (days/nights)
road tie in works			
A12 off-slip, top of slip road tie in works	Nearside left turn lane closed at A12 off-slip approach to J28	40	85 days (11-Aug-23 to 08-Dec-23)
A12 off-slip, bottom of slip road tie in works	Lane 1 closure on the eastbound A12	1,090	20 Nights (16-Oct-23 to 10-Nov-3)
A12 on-slip, bottom of slip road tie in works	Narrow lanes on the eastbound A12	1,775	130 days (11-Dec-23 to 27-jun-24)
M25 Traffic Management			
M25 ACW on-slip offside verge works	Narrow lane on-slip at M25	6,185	100 days 21-Sep-23 to 21-Feb-24)
M25 ACW on-slip offside verge works	Narrow lane on-slip Lane 2 closure on the M25 ACW	6,185	140 days (19-Oct-23 to 20-May-24)
M25 ACW offside verge works	M25 ACW on-slip Lane 2 closure at J28	320	35 days (1-Dec-23 to 21-Feb-24)
M25 ACW on-slip - Bottom of slip road tie in works	Offside lane closures of M25 ACW	6,185	80 nights (19-Oct-23 to 21-Feb-24)
Roundabout, top of slip road tie in works	Roundabout nearside lane closures	-	30 days (13-Nov-23 to 22-Dec-23)
Gantry Traffic Management			
Gantry (Ch530) foundation installation	Hard shoulder closure and on-slip Lane 2 closure on the M25 CW	320	45 days (7-Dec-23 to 21-Feb-24)
Proposed gantry (Ch525)	Closure between J28 and J29 on M25 ACW	5,770	2 nights

Activity	Location of TM	Length (m)	Duration (days/nights)
installation works			(18-Jan-24 to 19-Jan-24)
Proposed gantry (Ch740) installation works	Full closure of M25 at J28	1,531	5 nights (9-Mar-24 to 13-Mar-24)
Existing gantry (Ch710) removal works	Full closure of M25 at J28	1,531	2 nights (15-Apr-24 to 16-Apr-24)
Proposed gantry (Ch1700) installation works	Full closure between J27 and J28 on M25	13,500	5 nights (15-Apr-24 to 16-Apr-24)

Carriageway and slip road closures

2.3.19 The proposed carriageway and slip road closures primarily required for gantry works are listed in Table 2-5.

Table 2-5: Carriageway and slip road closures

Type of closure (slip road / full carriageway)	Location (Start to end with respect to nearest junction or marker posts, if known)	Time of day (Start to end) / Stage in programme	Closure details	Drawing reference
Full carriageway	M25 clockwise and anticlockwise between J27 and J28	22:00-05:30 – Gantry removal/installation	M25 clockwise and anticlockwise carriageways to be closed between J27 and J28. Traffic to be diverted via Redbridge along the A12, A406 and M11.	HE551519-ATK-TTM-J28-DR-CH-000013
Full carriageway	M25 anticlockwise between J29 and J28	22:00-05:30 – Gantry Modification	M25 anticlockwise carriageway to be closed between J29 exit slip and J28 entry slip. Traffic to be diverted via Gallows Corner junction along the A127 and A12.	HE551519-ATK-TTM-J28-DR-CH-000027
Full carriageway	M25 clockwise between J28 and J29	22:00-05:30 – Gantry Modification	M25 clockwise carriageway to be closed between J28 exit slip and J29 entry slip. Traffic to be diverted via Gallows Corner junction along the A127 and A12.	HE551519-ATK-TTM-J28-DR-CH-000028
Full carriageway	M25 clockwise and anticlockwise within J28	22:00-05:30 – Removal of existing gantry	M25 clockwise and anticlockwise to be	HE551519-ATK-TTM-J28-DR-CH-000011

Type of closure (slip road / full carriageway)	Location (Start to end with respect to nearest junction or marker posts, if known)	Time of day (Start to end) / Stage in programme	Closure details	Drawing reference
			closed between extent of junction slip roads. Traffic to be diverted along slip roads via the circulatory.	
Slip road	J28 M25 anticlockwise on-slip full length of slip road.	22:00-05:30 – Gantry foundation removal	M25 anticlockwise on-slip full closure. M25 anticlockwise bound traffic to be diverted via junction 29 to enter the M25 anticlockwise carriageway.	HE551519-ATK-TTM-J28-DR-CH-000008
Slip road	J28 M25 clockwise off-slip full length of slip road.	22:00-05:30 – Gantry foundation removal	M25 clockwise off-slip full closure. M25 clockwise traffic to be diverted via junction 29 back to J28 anticlockwise on-slip.	HE551519-ATK-TTM-J28-DR-CH-000010
Slip road	A12 eastbound on-slip from J28 roundabout to end of slip.	22:00-05:30 – Road Markings	A12 eastbound on-slip full closure. Traffic diverted via Gallows Corner Roundabout along the A12.	HE551519-ATK-TTM-J28-DR-CH-000009

Hard shoulder running

- 2.3.20 There are no plans at this stage to run traffic temporarily on the hard shoulder.

Adjacent roadworks and other traffic management

- 2.3.21 The only planned major project in the vicinity currently identified as potentially likely to be under construction at the same time as construction of the Scheme is the Lower Thames Crossing (LTC).
- 2.3.22 If both projects are granted development consent, then the two project delivery teams will collaborate to ensure planned temporary traffic management measures are coordinated throughout the overlapping construction period of the projects to minimise traffic impacts and disruption as far as practicable.
- 2.3.23 Consultation with Highway England Operations Directorate (OD) will need to be continued prior to, and after start of works, regarding overlap of works, as their planned closures and works have shorter lead in times than major projects.
- 2.3.24 Regular liaison will also be required with HE, TfL and ECC who maintain the adjacent road network to avoid conflict with routine and winter maintenance.

Status: Liaison with the HE OD, TfL and ECC will be required to confirm adjacent schemes. Local projects are likely to have reduced lead-in times so will need to be confirmed during detailed design and prior to construction commencement.

2.3.25 Non-motorised user diversions

- 2.3.26 Where the temporary traffic management diversion affects the existing non-motorised user (NMU) route on the eastbound A12 off-slip, the shortest practicable route that is compatible with construction phasing and safety requirements will be implemented.
- 2.3.27 Temporary arrangements required during construction will remain in place until the public right of way is either re-established or a permanent diversion or realignment is constructed.

Bank holidays and embargos

2.3.28 Constraints on traffic management operations are listed in Table 2.6.

Table 2-6: Bank holiday and embargos

Holiday	Year 2021	Year 2022	Year 2023	Year 2024
New Year's Day*	Friday 1 st January	Saturday 1 st January	Sunday 1 st January	Monday 1 st January
Substitute day for New Year's Day*	N/A	Monday 3 rd January	Monday 2 nd January	N/A
Good Friday*	Friday 2 nd April	Friday 15 th April	Friday 7 th April	Friday 29 th March
Easter Monday*	Monday 5 th April	Monday 18 th April	Monday 10 th April	Monday 1 st April
Early May Holiday	Monday 3 rd May	Monday 2 nd May	Monday 1 st May	Monday 6 th May
Spring Bank Holiday*	Monday 31 st May	Monday 30 th May	Monday 29 th May	Monday 27 th May
Summer Bank Holiday	Monday 30 th August	Monday 29 th August	Monday 28 th August	Monday 26 th August
Black Friday & Cyber Monday weekend	TBC Late November/early December	TBC Late November/early December	TBC Late November/early December	TBC Late November/early December
Christmas Day*	Saturday 25 th December	Sunday 25 th December	Monday 25 th December	Wednesday 25 th December
Substitute day for Christmas Day*	Monday 27 th December	Tuesday 27 th December	N/A	N/A
Boxing Day*	Sunday 26 th December	Monday 26 th December	Tuesday 26 th December	Thursday 26 th December
Substitute day for Boxing Day*	Tuesday 28 th December	N/A	N/A	N/A

*Note extended HE traffic management embargo to be considered.

2.3.29 Due to the extent and nature of the temporary traffic management for the Scheme, it is envisaged that on both safety and economical grounds it would not be practical to remove the traffic management arrangements for the bank holiday periods.

Significant events and seasonal traffic

2.3.30 No significant events have been identified at this stage.

Status: Further details regarding significant events and seasonal traffic will be confirmed by the Delivery Partner during detailed design.

Incident management

2.3.31 Breakdown recovery and associated safe drop off areas will be provided with durations and locations to be identified as the traffic management proposals and works scheduling are refined during detailed design. Incident Management Plans (IMP) will be developed in conjunction with the maintaining organisations on the M25 (Connect Plus Services) A12 East (HE service provider) A12 West (TfL); Traffic Safety Officers and the emergency services.

Status: An IMP, based upon the industry best practice will be developed. The IMP will be tested through desktop exercises with all parties present as appropriate. This will facilitate training of the IMP to all parties. The IMP will also specify any associated data that will be recorded and include consideration of the full range of incident scenarios that may occur in and around the works and associated areas

Incursion risk management

2.3.32 Risks associated with incursion into the traffic management systems with proposed mitigation measures are identified in Table 2.7.

Table 2-7: Incursion risk management

Incursion risk	Proposed control / Mitigation measures
Public vehicles enter the site via works accesses as a result of follow-in or accidental breach	<ul style="list-style-type: none"> Works accesses to be located along sections of the road with clear visibility and signage Suitable approach temporary signage and modifications to existing signage where a long-term slip closure is in place Site induction to include procedure for follow ins In the event of incursion, members of the public will be asked to remain in their vehicle and wait for an escort out
Deliberate breaches of road closures	<ul style="list-style-type: none"> Design traffic management as per guidance in Raising the Bar document 27: managing temporary traffic management incursions Alert/alarm systems at closures to warn the workforce of incursions Provide warning signs that CCTV is in operation Provide advance warning of closures to stakeholders Report incursions to police and record on AirsWeb The incident report will identify measures to prevent re-occurrence

Driver compliance

- 2.3.33 Subject to the review of speed limit requirements identified in section 2.3.4 above, a 40 mph speed limit may be in place for all traffic management on the A12. A 50mph speed limit may be in place for traffic management on the M25 due to narrow lane running and the nature of the operations. Enforcement through police operated safety cameras will be considered as part of the detailed traffic management design in Detailed design.

Status: Reference should be made to the Combined Operations Product Section 7 Compliance Strategy which will be developed further during detailed design stage.

Communication plan

- 2.3.34 A scheme communications plan has been developed and, along with the stakeholder database, this identifies key stakeholders and engagement strategies. This document will continue to be developed and will incorporate key communication requirements for the traffic management proposals as set out within this document.
- 2.3.35 A briefing note will be developed for the scheme and traffic management proposals agreed with the communications team. This will be provided to HE's customer contact centre and the Operational Planning team.

Status: The detailed traffic management proposals and associated communication plan proposals will not be known until the detailed design has been completed and the construction Delivery Partner is available to input in to the process.

Diversion route selection

- 2.3.36 The main temporary closures relate to the M25 mainline between J27 and J28 and between J28 and 29 and the M25 anticlockwise entry and exit slips. Mainline diversion routes will be the same as the routes already agreed by Connect Plus Services for emergency closures of those sections of the M25 and assessed against CHE memorandum 449.
- 2.3.37 Initial discussions have taken place with HE OD to determine suitable diversion routes during the M25 mainline overnight closures. Appendix J contains tactical diversion routes that have already been agreed between HE, the Police and local authorities for use during emergencies.
- 2.3.38 The M25 MS3 motorway signs will need to provide information of the closures in advance of the works to advise clockwise motorists to use the M11(N) and anticlockwise motorists to use A13(E) or A127(E).
- 2.3.39 Portable VMS signs will direct traffic travelling on the eastbound A406 approach to M11 junction 4 towards the A12 during the full closure between M25 junctions 27 and 28.
- 2.3.40 Similarly, portable VMS signs will direct traffic travelling on the northbound A406 approach to the A12 to take the A12 for destinations in the east.

2.3.41 Table 2.8 shows the proposed temporary closure locations and a description of the associated diversion routes.

Table 2-8: Diversion routes

Location of closure (Start to end with respect to nearest junction or marker posts, if known)	Diversion route description (Start to end with respect to nearest junction or marker posts, if known)	Length of diversion	Duration of the diversion	Additional journey time for the customer due to diversion route	No. of closures required	Drawing reference
Mainline Diversions						
M25 clockwise between J27 and J28 DBFO emergency diversion route 47	M25 A carriageway traffic will be diverted on to the M11 southbound to M11 J4, eastbound onto the A406 to Redbridge Roundabout, 2 nd exit onto the A12 eastbound to Gants Hill Roundabout, 3 rd exit onto A12 eastbound to M25 J28 and continue journey. Traffic on the M11 B carriageway to M25 A carriageway at J27 will continue on to the M11 B to M11 J4 and continue with diversion as above.	18 miles 18 miles 26 miles	2200-0530	30 mins 30 mins 30 mins	3	HE551519-ATK-TTM-J28-DR-CH-000013

Location of closure (Start to end with respect to nearest junction or marker posts, if known)	Diversion route description (Start to end with respect to nearest junction or marker posts, if known)	Length of diversion	Duration of the diversion	Additional journey time for the customer due to diversion route	No. of closures required	Drawing reference
	M11 A traffic will be diverted onto to M25 B carriageway at J27, exit at J26 and turnaround to M25 A carriageway, exit at J27 onto M11 B to M11 J4 and continue with diversion as above					
M25 anticlockwise between J28 and J27 DBFO emergency diversion route 48	M25 B carriageway traffic will be diverted at J28 on to the A12 westbound to Gallows Corner junction, 3 rd exit onto A12 westbound to Redbridge junction, 3 rd exit onto A406 northbound to M11 J4, northbound onto M11 to J27.	18 miles	2200-0530	32 mins	3	HE551519-ATK-TTM-J28-DR-CH-000013
M25 anticlockwise between J29 and J28	Traffic to be diverted at J29 westbound onto the A127 to Gallows Corner	6.3 miles	2200-0530	10 mins	1	HE551519-ATK-TTM-J28-DR-CH-000027

Location of closure (Start to end with respect to nearest junction or marker posts, if known)	Diversion route description (Start to end with respect to nearest junction or marker posts, if known)	Length of diversion	Duration of the diversion	Additional journey time for the customer due to diversion route	No. of closures required	Drawing reference
CPS Emergency diversion 50	junction, 4 th exit onto the eastbound A12 back to M25 J28.					
M25 clockwise between J28 and J29 CPS Emergency diversion 50	Traffic to be diverted at J28 eastbound onto the A12 to Gallows Corner junction, 1st exit onto the eastbound A127 back to M25 J29.	6.3 miles	2200-0530	10 mins	1	HE551519-ATK-TTM-J28-DR-CH-000028
M25 clockwise between J28 exit slip and J28 entry slip	Traffic to be diverted onto the exit slip around the junction and back onto the M25 clockwise	0.5 miles	2200-0530	2 mins	1	HE551519-ATK-TTM-J28-DR-CH-000011
M25 anti clockwise between J28 exit slip and J28 entry slip	M25 clockwise carriageway to be closed between J28 exit slip and J28 entry slip. Traffic to be diverted onto the exit slip around the junction and back onto the M25 clockwise.	0.5 miles	2200-0530	2 mins	1	HE551519-ATK-TTM-J28-DR-CH-000011

Location of closure (Start to end with respect to nearest junction or marker posts, if known)	Diversion route description (Start to end with respect to nearest junction or marker posts, if known)	Length of diversion	Duration of the diversion	Additional journey time for the customer due to diversion route	No. of closures required	Drawing reference
Slip road Diversions						
J28 M25 anticlockwise entry slip for full length of slip road	Traffic diverted onto M25 clockwise at J28, exit at J29, turn at junction and back onto M25 anticlockwise to continue journey.	6 miles	2200-0530	6 mins	1	HE551519-ATK-TTM-J28-DR-CH-000008
J28 M25 clockwise exit slip for full length of slip road	Traffic diverted along the M25 clockwise towards J29, where the diverted traffic will return back along the M25 anticlockwise and exit at J28	6 miles	2200-0530	6 mins	1	HE551519-ATK-TTM-J28-DR-CH-000010
A12 eastbound entry slip from J28 roundabout to end of slip	Divert traffic onto the A12 westbound to Gallows Corner junction, 5 th exit onto A12 eastbound and continue journey.	5 miles	2200-0530	10 mins	1	HE551519-ATK-TTM-J28-DR-CH-000009

Safety and environmental control measures

2.3.42 Measures to mitigate the risks to customer groups impacted by the scheme are identified in Table 2.9.

Table 2-9: Safety risk mitigation measures

Customer group	Safety measures
Customer	<ul style="list-style-type: none"> Free recovery through narrow lanes on the M25 Reduced speed limits through traffic management as appropriate Barrier to separate the works from travelling public Maintain safe NMU access Vehicle washdown and wheel wash provide at site exits to prevent transfer of mud and debris onto the road network Open payloads on construction vehicles to be covered to prevent release of dust and debris Spot checks undertaken to ensure construction vehicles are being properly maintained and comply with vehicle safety regulations. Construction vehicle drivers to be given refresher road safety and awareness training.
Stakeholder	<ul style="list-style-type: none"> Clear, well signed diversion routes, risk assessed to ensure suitability for vehicles Barrier to separate the works from travelling public Closures during lifting operations Integrated traffic management plans with stakeholders
Partner including workforce	<ul style="list-style-type: none"> Airlock systems used for closure entry points to prevent unauthorised access Suitable and sufficient temporary barrier Temporary speed limits through the works Closures during TM switches
Community	<ul style="list-style-type: none"> Risk assessment of diversion routes to identify local hazards such as bus stops and on-road parking Noise assessments and monitoring for construction works Signing to prevent/reduce re-routing onto unsuitable roads No idling of vehicles waiting to enter or leave sites

Human factors

Status: During detailed design, human factors will be considered in developing detailed TM layouts, a signing strategy and staff inductions.

2.4 Proposals for management of network occupancy

- 2.4.1 Road space has not yet been booked with Network Occupancy Management System planner.

Status: Details for the management of network occupancy will be developed in liaison with HE OD and their suppliers during detailed design alongside the agreement of the Detailed Local Operating Agreement (DLOA). Reference shall be made to the guidance for project managers within the document *Accurately Updating NOMS and our Digital Channels*.

2.5 Implications of traffic management measures

Intelligent transport services

Status: Detailed impacts of existing equipment during the works will be confirmed during the detailed design. Once detailed TM phasing and drawings are available, the Regional Intelligence Unit will need to undertake a traffic impact assessment to determine the level of delay the TM will cause.

Operations

- 2.5.1 The Scheme has been designed to minimise the impact on the M25 and the A12.
- 2.5.2 M25 work elements will be restricted to the slip road tie in, verge retaining walls and new/altered gantries. An incident management plan will be developed during detailed design 5 and operational maintenance protocols for winter maintenance will be agreed before works commence.
- 2.5.3 The new loop road has been designed to minimise impacting the A12 and work is restricted to tie ins and a new maintenance access off the A12.
- 2.5.4 Re-aligned slip roads have been designed to be constructed with minimum impact on the operation of the existing slip roads by providing sufficient clearance from the existing slip roads.

Maintenance activities

Status: Detailed impacts on maintenance activities will be confirmed during the agreement of the DLOA .

Other services providers

Status: Detailed impacts on other service providers, such as OD, DfT Statistics, NRTS contractor etc. will be assessed during detailed design and a strategy to mitigate will be produced.

Appendices

Appendix A: Roadworks principles

Roadworks principles

The table below details the proposed project approach to addressing the principles identified within Roadworks a Customer View (RACV) and the Roadworks a Customer View Implementation Toolkit. Within the table, the 'proposed approach' is the preferred option which has been selected and the project team is required to communicate the status of the project and activities completed at the current stage. The colour-coded text in the table is an indicator of the level of activities anticipated to have been completed during preliminary design and detailed design and should be used as guidance for completing this table. This text is based on best practice within the RACV Implementation Toolkit but should not be considered exhaustive. Within 'Other options considered', project teams should record any discounted options. The RACV Implementation Toolkit should be utilised to provide further guidance regarding best practice for achieving success with regards to each Customer Principle.

Colour coding key

- **Green** activities – Activities for planning, identifying and set up within preliminary design in anticipation of further detailed works to be undertaken within detailed design. These activities should also be refined within detailed design.
- **Blue** activities – Activities to be completed during detailed design.

	Key principles	Proposed approach
1	Other roadworks and improvements	<p>TM planned in co-ordination with other projects and areas across the region (Highways England and non-Highways England)</p> <p>Consideration of diversion routes in co-ordination with other projects and areas across the region (Highways England and non-Highways England)</p> <p>Identify local regular forums prepared to review plans for TM</p> <p>Liaison with NOMS representative for works within the area.</p> <p>Co-ordination of diversion routes at key decision points and publication once approved.</p> <p>Identify and mitigate the impact of major events</p> <p>Produce schedule for local regular forums prepared to review plans for TM</p> <p>Signing on local roads to inform of incidents or roadworks on the Strategic Road Network</p>
2	Speed of delivery	<p>Review proposed key design decisions to ensure these can be constructed without significant impact on customers</p> <p>Increasing workforce/shift patterns/productivity to maximise utilisation of the restricted road space</p>

	Key principles	Proposed approach
		<p>Use available technology to minimise impact and maximise productivity</p> <p>Manufacturing components off-site</p>
3	Length of roadworks	<p>Phasing of road works delivery</p> <p>Length of road works in accordance with Traffic Signs Manual, Chapter 8, Part 3</p> <p>Suitable traffic modelling of the TM proposals to understand the impact on the customer</p> <p>Formal agreements for road works not in accordance with Traffic Signs Manual, Chapter 8, Part 3 requirements</p>
4	Lane width	<p>Consider alternative layout options, including widening non-standard/temporary 'narrow' lanes within roadworks, in design and communication of reasoning to customers</p> <p>Consider contraflow</p> <p>Alternate widths to facilitate traffic flows</p> <p>Smooth road surfaces and clear demarcation during works and after TM has been removed, and ensure sufficient budget is available to maintain this</p>
5	Speed Limit	<p>Options considered to maintain the permanent speed limit and why a lower speed limit is required, where applicable</p> <p>Suitable traffic modelling of the TM proposals to understand the impact on the customer</p> <p>Road works designed to be safe for permanent speed limit in accordance with Traffic Signs Manual, Chapter 8, Part 3</p>
6	Line demarcation	<p>Removal of white line set within contracts as a standard requirement</p> <p>Use of permanent standard white lines</p> <p>Demarcation for night time/rain/bright sunlight conditions</p> <p>Night time lighting requirements</p> <p>Regular checking and maintenance</p>
7	Visibility of temporary barrier	<p>Good visibility of temporary vehicle barrier</p> <p>Visibility in narrow lanes</p> <p>Improving visibility of temporary vehicle barrier</p> <p>Maintenance of vehicle barrier reflectors</p>
8	Night time visibility	<p>Risks and requirements of temporary lighting</p>

	Key principles	Proposed approach
		<p>Improving night time visibility of lanes/temporary vehicle barrier in road works using temporary lighting or through the retention of existing lighting</p> <p>Alternative solutions to using temporary lighting</p>
9	Advance notice of works	<p>Providing advanced notice, i.e. a minimum of 4 weeks prior to project commencing</p> <p>Use of billboards and VMS at roadside prior to start of roadworks</p> <p>Information communicated through various networks/media</p> <p>Planning for advanced notice of changes to TM provided throughout delivery</p>
10	Scheme information at the roadside	<p>Dependent upon the scale of the project use of either billboards or temporary signage to display reasons and timescales for the work, including signage along diversion routes, in accordance with MPI 48-042016</p> <p>Number and locations of billboards or temporary signage within main works and along diversion routes in respect to TM</p> <p>Size and appearance of temporary signage/billboards across the scheme</p> <p>Planning for updates to billboards or temporary signage</p>
11	Electronic signage	<p>Use of standard approach in accordance with the Variable Signs and Signals Policy for flexible project specific messaging and in accordance with MPI 54-062016 (reissued 15/08/2018)</p> <p>Use and location of portable VMS for travel time and project specific messaging</p> <p>Consideration of signing strategy with respect to information overload</p> <p>Consistency in language across projects for VMS messages</p> <p>Consider use of electronic billboards</p>
12	Travel Time VMS (TTVMS)	<p>Use and location of TTVMS through project TM for main works and diversion routes in accordance with MPI 54-062016 (reissued 15/08/2018)</p> <p>Accuracy of travel time including travel time for alternative routes (diversion routes)</p>
13	Visible progress	<p>Providing updates to customers about overall progress via signage within roadworks</p>

	Key principles	Proposed approach
		<p>Use of alternative media to provide customer updates</p> <p>Accuracy of information in line with key milestones and completed works</p>
14	Local communications and outreach	<p>Approach/strategy for delivering good communications at the right time</p> <p>Stakeholder mapping for project/area</p> <p>Use of public exhibitions</p> <p>Use of various media for communications, e.g. newsletters, radio, etc.</p> <p>Understanding of public requirements and key events for TM</p> <p>Diversion route engagement (pre- and post-works) to understand access requirements</p> <p>Progress updates</p> <p>Communications plan</p>
15	Use multiple media channels, regularly	<p>Identify provision/frequency of information and media methods to be used (make proportional to project)</p> <p>Use of NOMS to ensure accuracy of traffic data</p> <p>Engagement with appropriate organisations to raise awareness/advertise through their sites</p>
16	Impactful messages	<p>Information to be communicated – programme/community/customer benefit messages</p> <p>Identify media to be used</p> <p>Follow the Construction and Roadworks Communication Toolkit as appropriate</p>
17	Explain no activity	<p>Strategy to provide explanation of no activity and manage customer perception of project</p> <p>On-road/off-road communications approaches</p>
18	Seek customer feedback on new Traffic Management	<p>Planning for early customer drive through of new traffic management to spot issues, improvements, etc.</p> <p>Agree standard approach to seek feedback from traffic officers, customers and/or customer managers</p>
19	Understand customer experience	<p>Agree approach to collecting customer feedback</p> <p>Agree mechanisms to engage with various customers</p> <p>Identify process for analysis of correspondence and feedback</p>

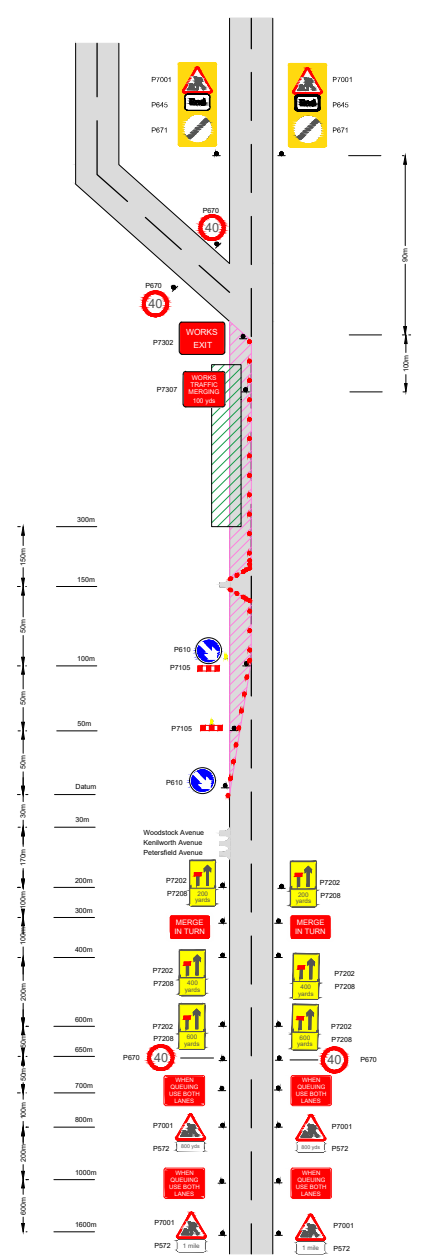
	Key principles	Proposed approach
		Planning for use of analysis outcomes to influence future communications
20	Complete the feedback loop	<p>Identify strategy to communicate how customer input has influenced delivery and project management</p> <p>Agree approach for communicating customer benefits when realised</p> <p>Plan customer specific POPE type assessments – during and after project to share learning</p> <p>Agree consultation strategy to collate customer views/feedback, e.g. pre-project, during construction, during operations, post-project</p> <p>Agree use of social media to share good news stories</p> <p>Identify strategy for sharing best practice, both internally and externally with customers</p>

Appendix B: Proposed traffic management layouts

DO NOT SCALE

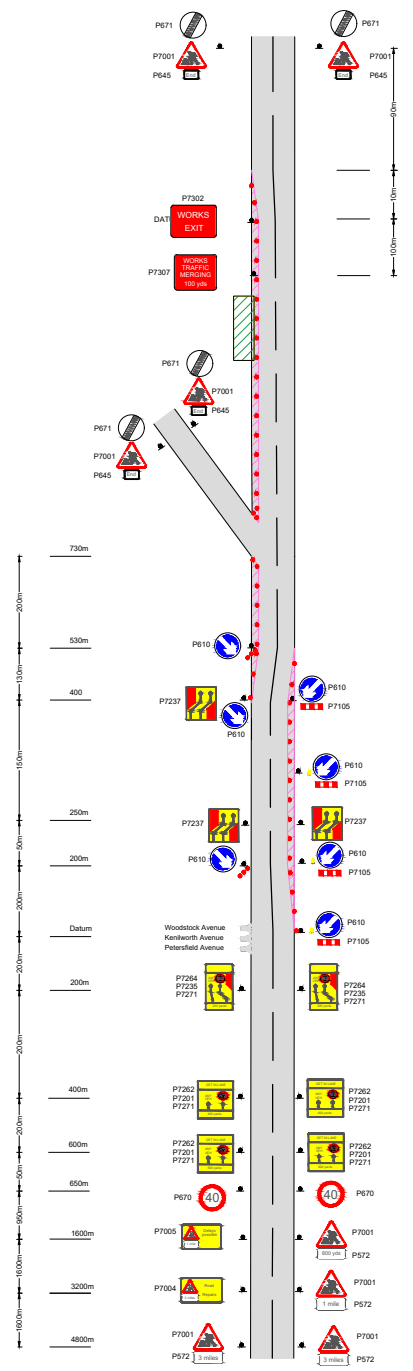
100
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Millimetres

- Stats works in verge
- A12 Eastbound Off slip tie-in works
- Length of traffic management approx. 1090m
- Duration of traffic management 20 nights



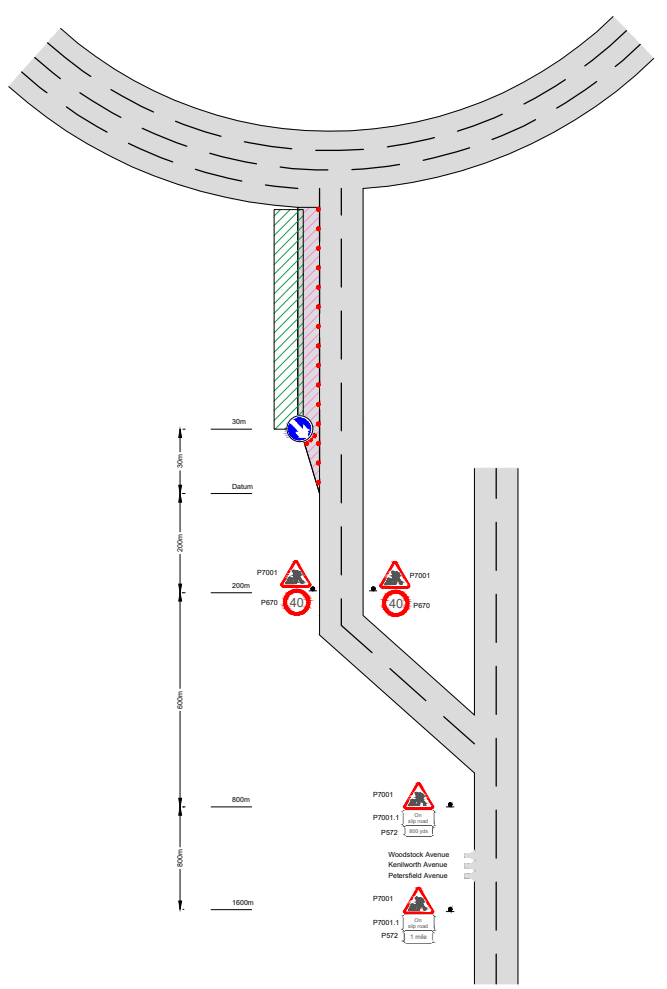
TRAFFIC MANAGEMENT LAYOUT 1
A12 EASTBOUND LANE 1 CLOSURE
IN ADVANCE OF EXIT SLIP

- Stats works in verge
- A12 Eastbound Off slip tie-in works
- A12 Eastbound On slip tie-in works
- Length of traffic management 1775m
- Total Duration of traffic management 250 days



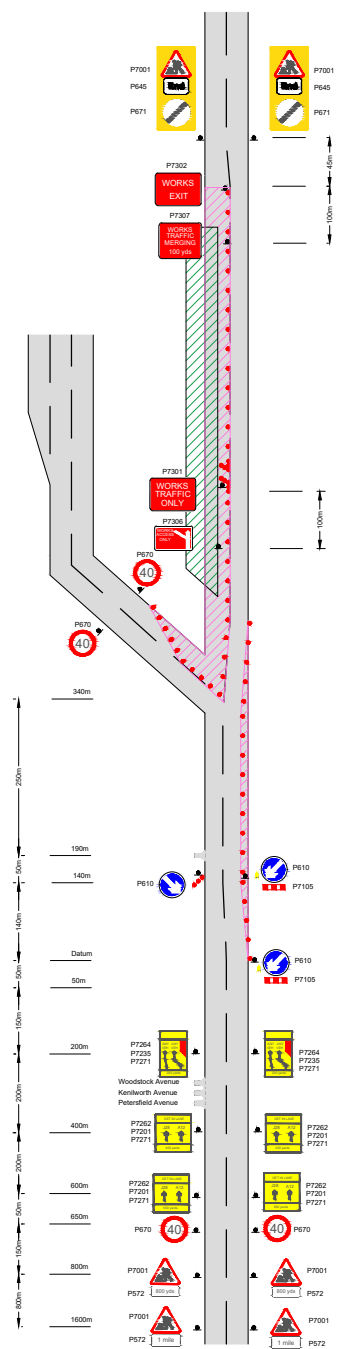
TRAFFIC MANAGEMENT LAYOUT 2
A12 EASTBOUND NARROW LANES

- A12 Off slip tie in
- Length of traffic management approx. 40m
- Duration of traffic management 85 days



TRAFFIC MANAGEMENT LAYOUT 3
A12 EASTBOUND EXIT SLIP
NEARSIDE LEFT TURN LANE CLOSURE

- A12 Eastbound on slip tie-in works
- Length of traffic management approx. 527m
- Duration of traffic management 20 nights



TRAFFIC MANAGEMENT LAYOUT 4
A12 EASTBOUND LANE 1 CLOSURE

KEY			
	TRAFFIC LANE		CONING
	FOOTWAY		TEMPORARY LIGHTING
	HARD SHOULDER		TEMPORARY ROAD WORKS SIGN - FOR DETAILS REFER TO DIAGRAM NUMBERS IN TSRGD
	SAFETY ZONE		ESSO HAROLD PARK SERVICE STATION
	WORKS AREA		LOCAL ROAD ACCESS

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: DCO EXAMINATION
 Status: A4
 Project Title: M25 junction 28 improvement scheme

SNC-LAVALIN
ATKINS

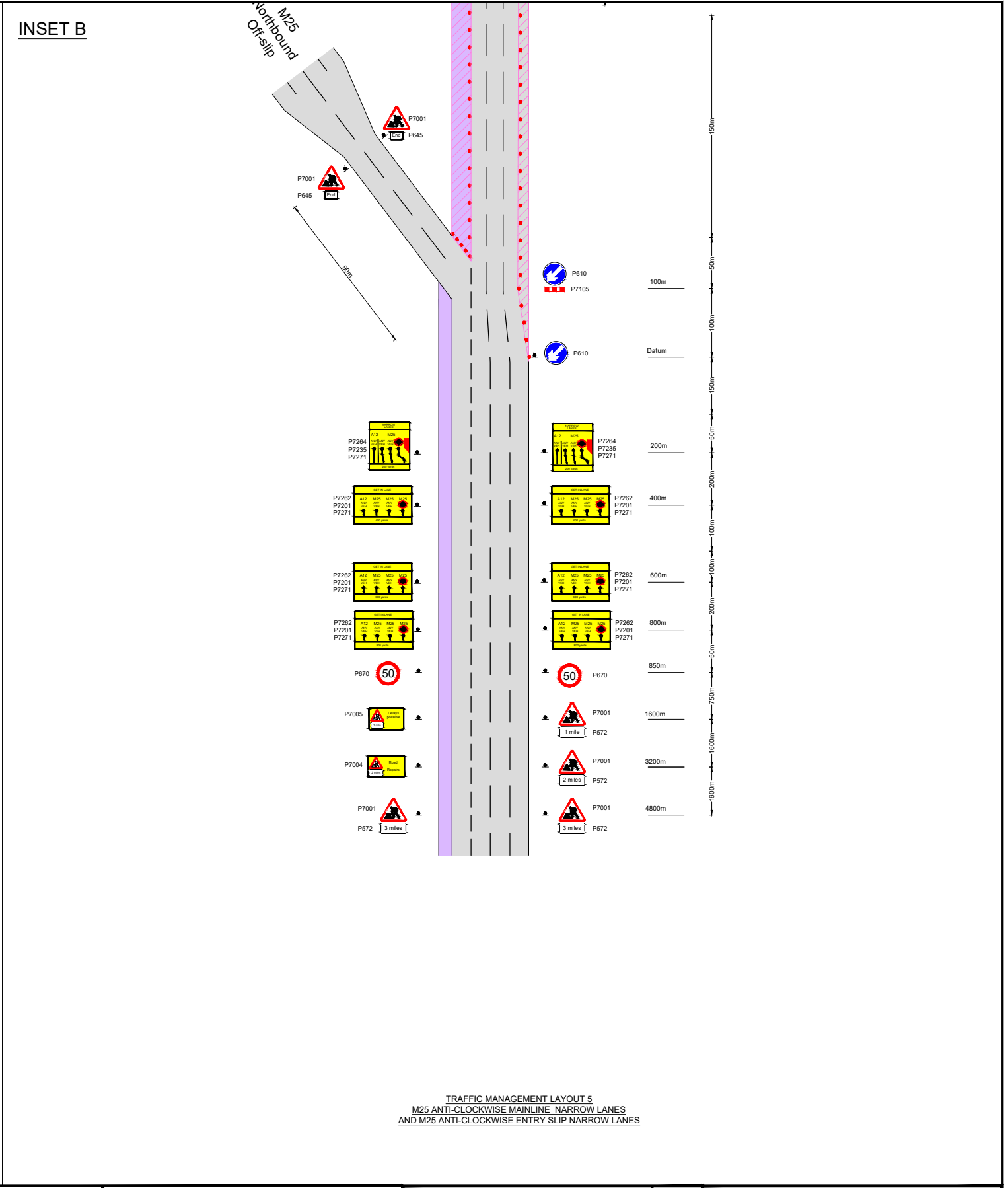
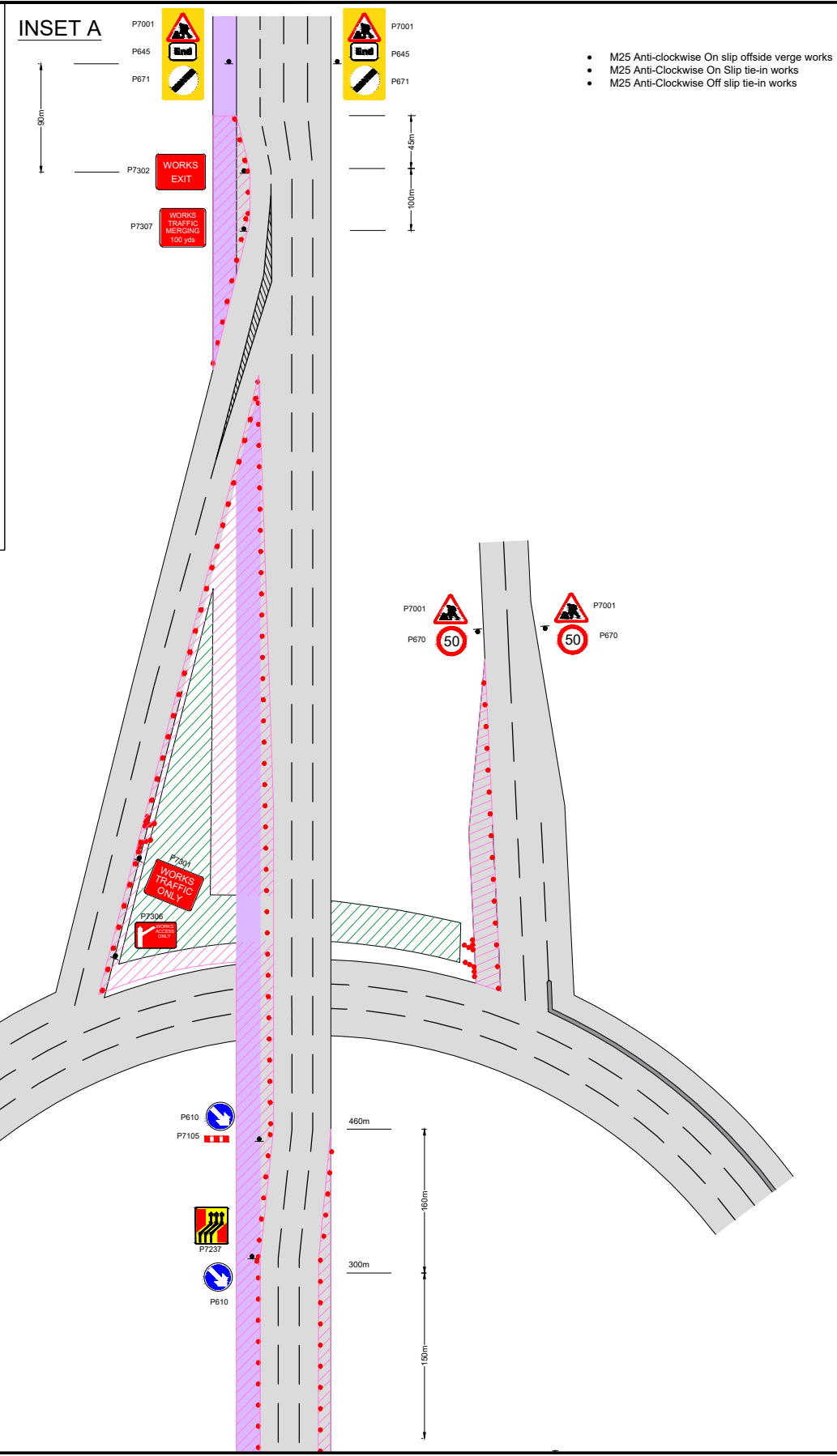
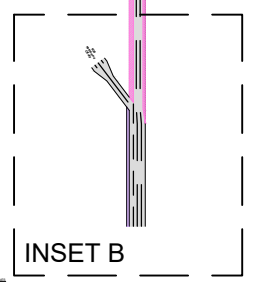
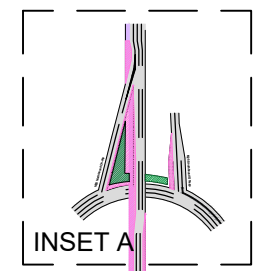
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Drawing Title		Drawing Number		Project	
TEMPORARY TRAFFIC MANAGEMENT LAYOUTS SHEET 1 OF 2		HE551519	ATK	TTM	-
J28		- DR - CH - 000001		-	
Location	Original Size	Scale	Project Ref. No.	Sheet	Rev.
J28	A1	NTS	5158157	1 of 9	0

DO NOT SCALE

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Millimetres



TRAFFIC MANAGEMENT LAYOUT 5
M25 ANTI-CLOCKWISE MAINLINE NARROW LANES
AND M25 ANTI-CLOCKWISE ENTRY SLIP NARROW LANES

KEY	
	TRAFFIC LANE
	CONING
	FOOTWAY
	TEMPORARY LIGHTING
	HARD SHOULDER
	TEMPORARY ROAD WORKS SIGN - FOR DETAILS REFER TO DIAGRAM NUMBERS IN TSRGD
	SAFETY ZONE
	WORKS AREA
	ESSO HAROLD PARK SERVICE STATION
	LOCAL ROAD ACCESS

NOTES

- For details of diversion see drawing HE551519-ATK-TTM-J28-DR-CH-00009.
- Length of Traffic Management approx. 6,185m.
- Total duration of Traffic Management 327 nights to carry out slip road tie-in works and verge works.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **DCO EXAMINATION** Status: **A4**

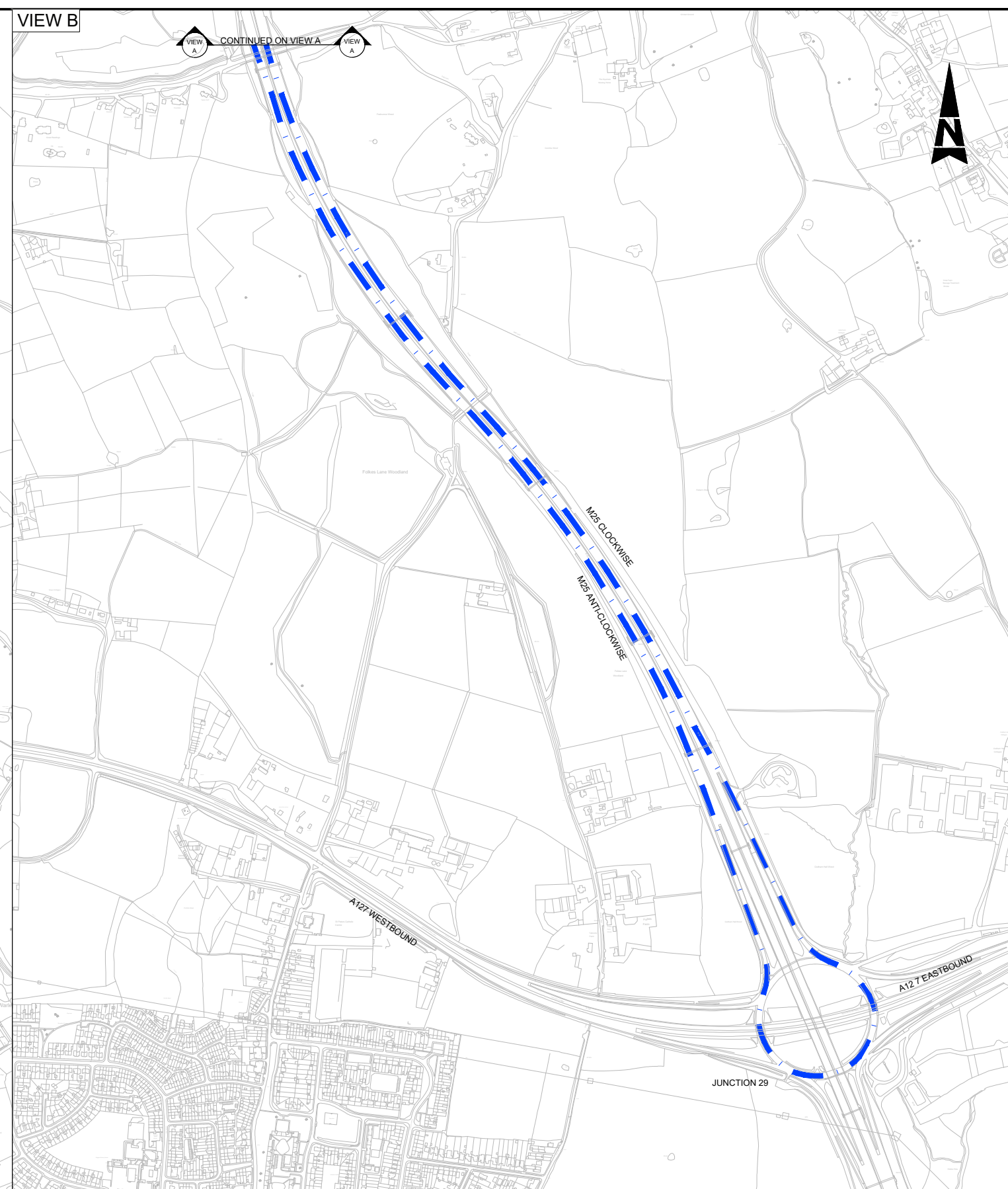
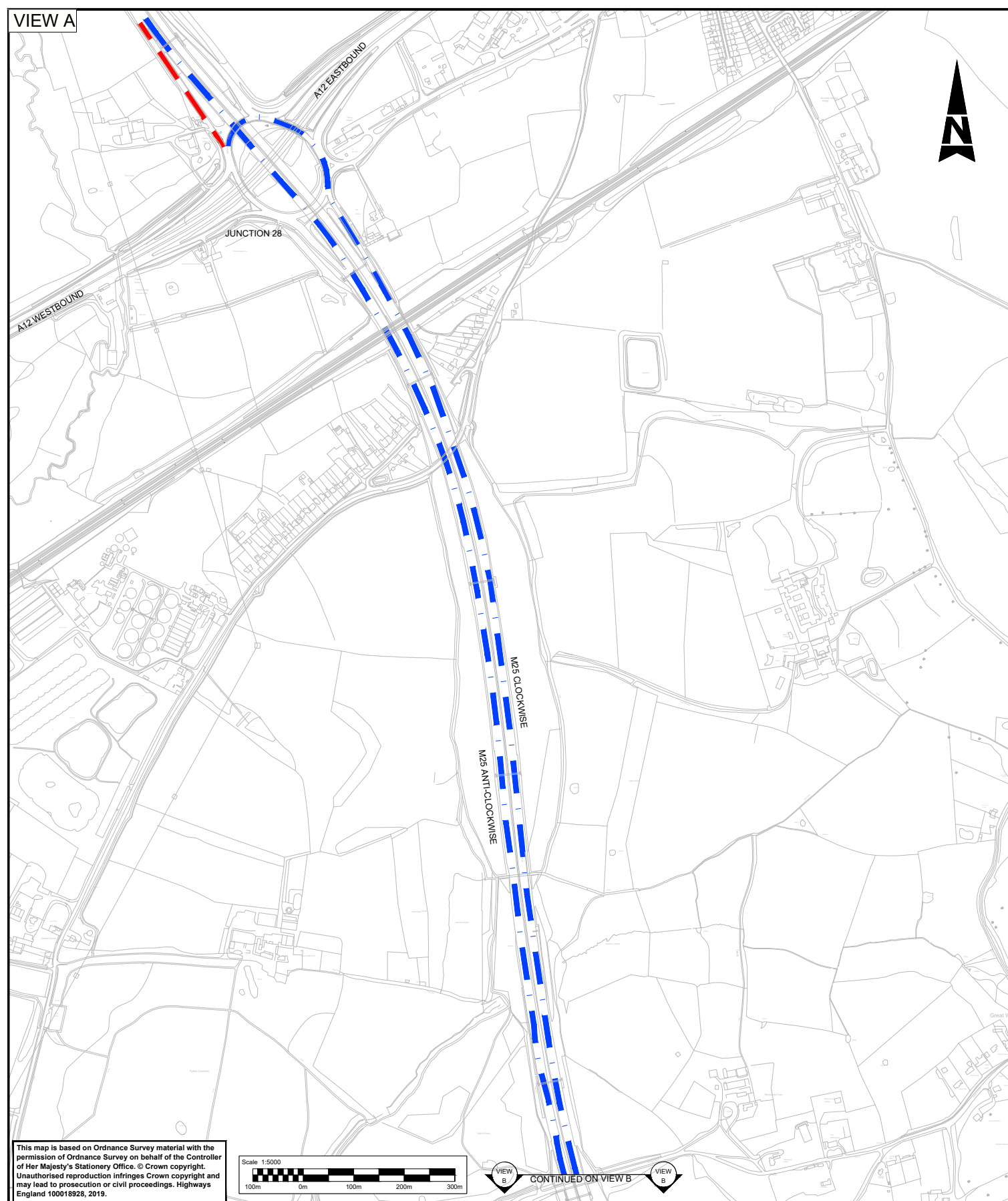
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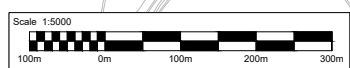
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Project Title	M25 junction 28 improvement scheme		
Drawing Title	TEMPORARY TRAFFIC MANAGEMENT LAYOUTS SHEET 2 OF 2		
Drawing Number	Project	Originator	Volume
HE551519	- ATK	- TTM	-
J28	- DR - CH	- 000002	
Location	Type	Role	Number
A1	Scale: NTS	Project Ref. No.: 5158157	Sheet: 2 of 9
Original Size:	Scale:	Project Ref. No.:	Sheet: Rev: 0

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- KEY**
- M25 J28 ANTICLOCKWISE ON SLIP ROAD CLOSURE
 - - - DIVERSION ROUTE

- NOTES**
1. For details of slip road closure see drawing HE551519-ATK-TTM-J28-DR-CH-000005 Layout 8.
 2. Length of Closure approx. 295m.
 3. Length of Diversion approx 4800m.
 4. Duration of Traffic Mangement 20 nights to tie in bottom of new slip road.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **DCO EXAMINATION** Status: **A4**

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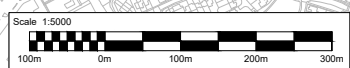
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Drawing Title	TEMPORARY TRAFFIC MANAGEMENT M25 ACW ON SLIP CLOSURE DIVERSION ROUTE		
Drawing Number	Project	Originator	Volume
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J28	- DR - CH - 000008		
Location	Type	Role	Number
Original Scale: A1	Scale: 1:5000	Project Ref. No.: 5158157	Sheet: 3 of 9 Rev: 0

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- KEY**
- A12 J28 EASTBOUND ON SLIP ROAD CLOSURE
 - - - DIVERSION ROUTE

- NOTES**
1. For details of slip road closure see drawing HE551519-ATK-TTM-J28-DR-CH-00003 Layout 6 .
 2. Length of Closure approx. 335m.
 3. Length of Diversion approx 8,570m.
 4. Duration of Traffic Management 5 nights to carry out roadmarkings.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **DCO EXAMINATION** Status: **A4**

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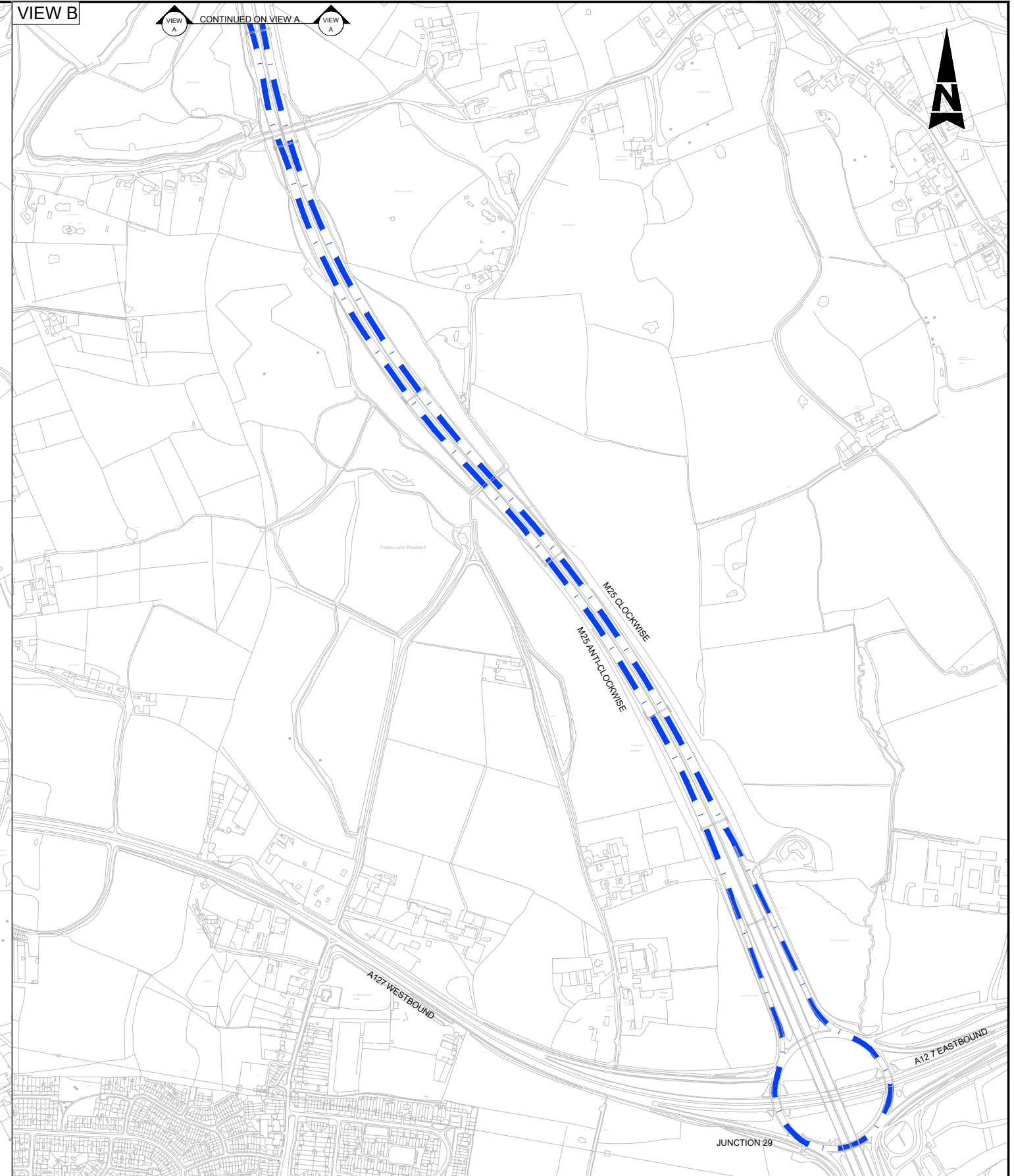
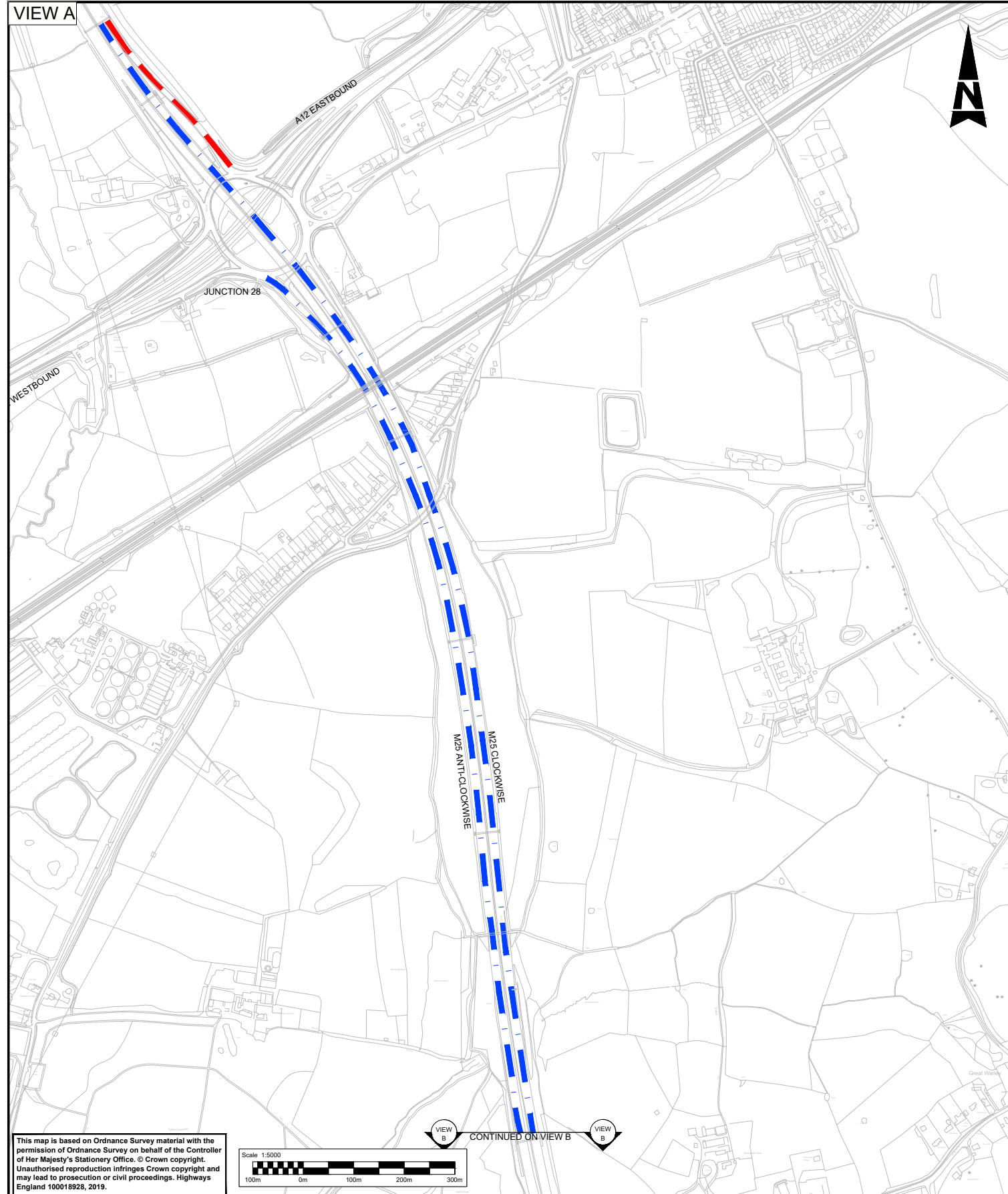
Project Title: **M25 junction 28 improvement scheme**

Drawing Title: **TEMPORARY TRAFFIC MANAGEMENT
A12 EASTBOUND ON SLIP ROAD CLOSURE
DIVERSION ROUTE**

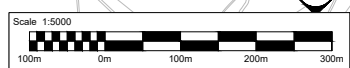
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Project: **J28 - DR - CH - 000009**

Original Size: **A1** Scale: **1:5000** Project Ref. No.: **5158157** Sheet: **4 of 9** Rev: **0**

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VIEW B CONTINUED ON VIEW B

- KEY**
- M25 J28 CLOCKWISE OFF SLIP ROAD CLOSURE
 - DIVERSION ROUTE

- NOTES**
1. Length of Closure. 378m.
 2. Length of Diversion. 9570m.
 3. Duration of Traffic Management 5 nights to carry out road markings.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **DCO EXAMINATION** Status: **A4**

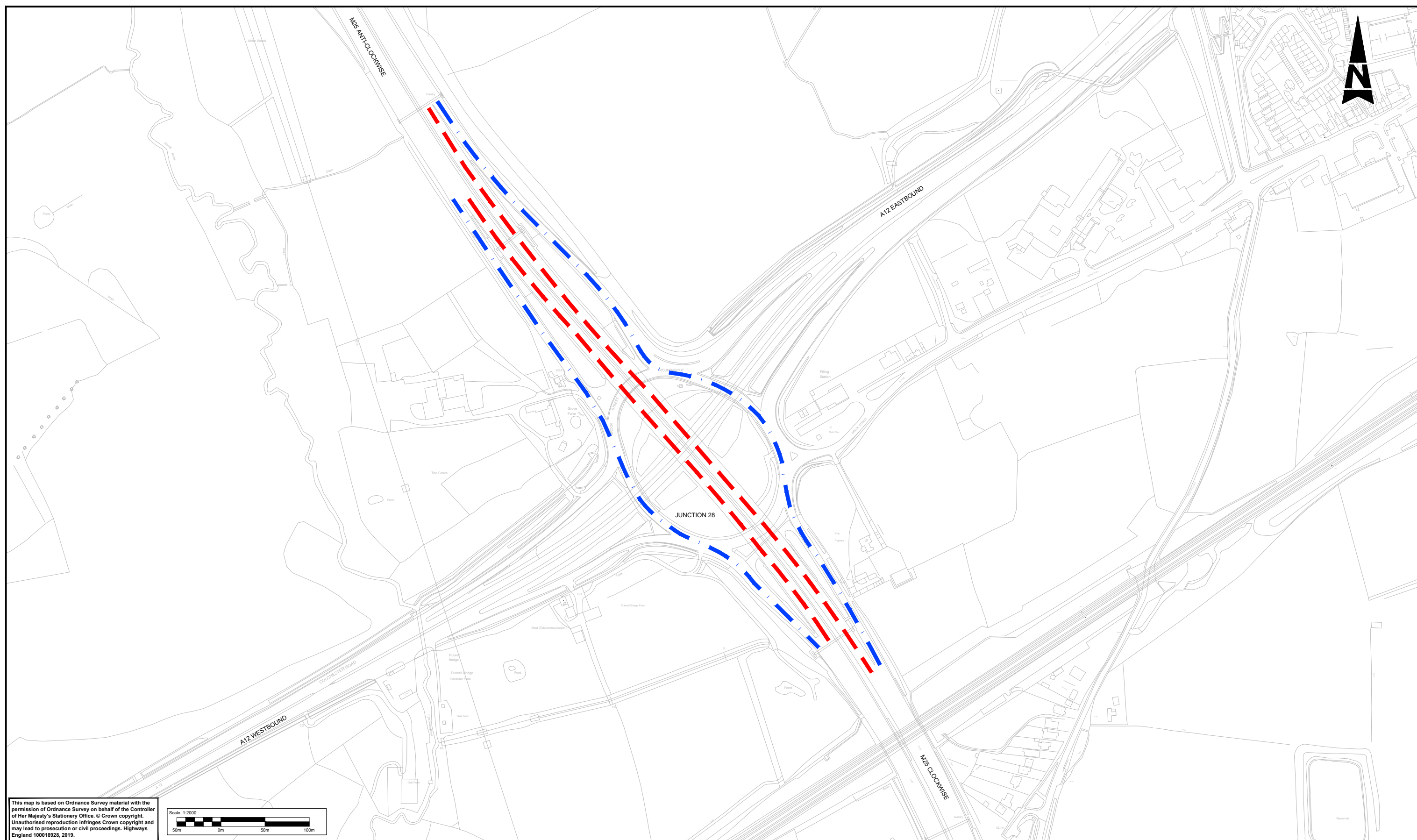
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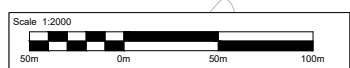
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Project Title		M25 junction 28 improvement scheme	
Drawing Title		TEMPORARY TRAFFIC MANAGEMENT M25 CW OFF SLIP CLOSURE DIVERSION ROUTE	
Drawing Number	Originator	Volume	
Project	HE551519 - ATK	- TTM -	
	J28	- DR - CH - 000010	
Location	Type	Role	Number
Original Scale: A1	Scale: 1:5000	Project Ref. No.: 5158157	Sheet: 5 of 9 Rev: 0

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- KEY**
- — — — — M25 CLOCKWISE AND ANTI-CLOCKWISE FULL ROAD CLOSURES
 - — — — — M25 CLOCKWISE AND ANTI-CLOCKWISE DIVERSION ROUTE

- NOTES**
1. Length of Traffic Management approx. 645m anti clockwise and 886m clockwise.
 2. Duration of Traffic Management 9 nights, for Installation of gantry 740 and removal of gantry 710.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **DCO EXAMINATION** Status: **A4**

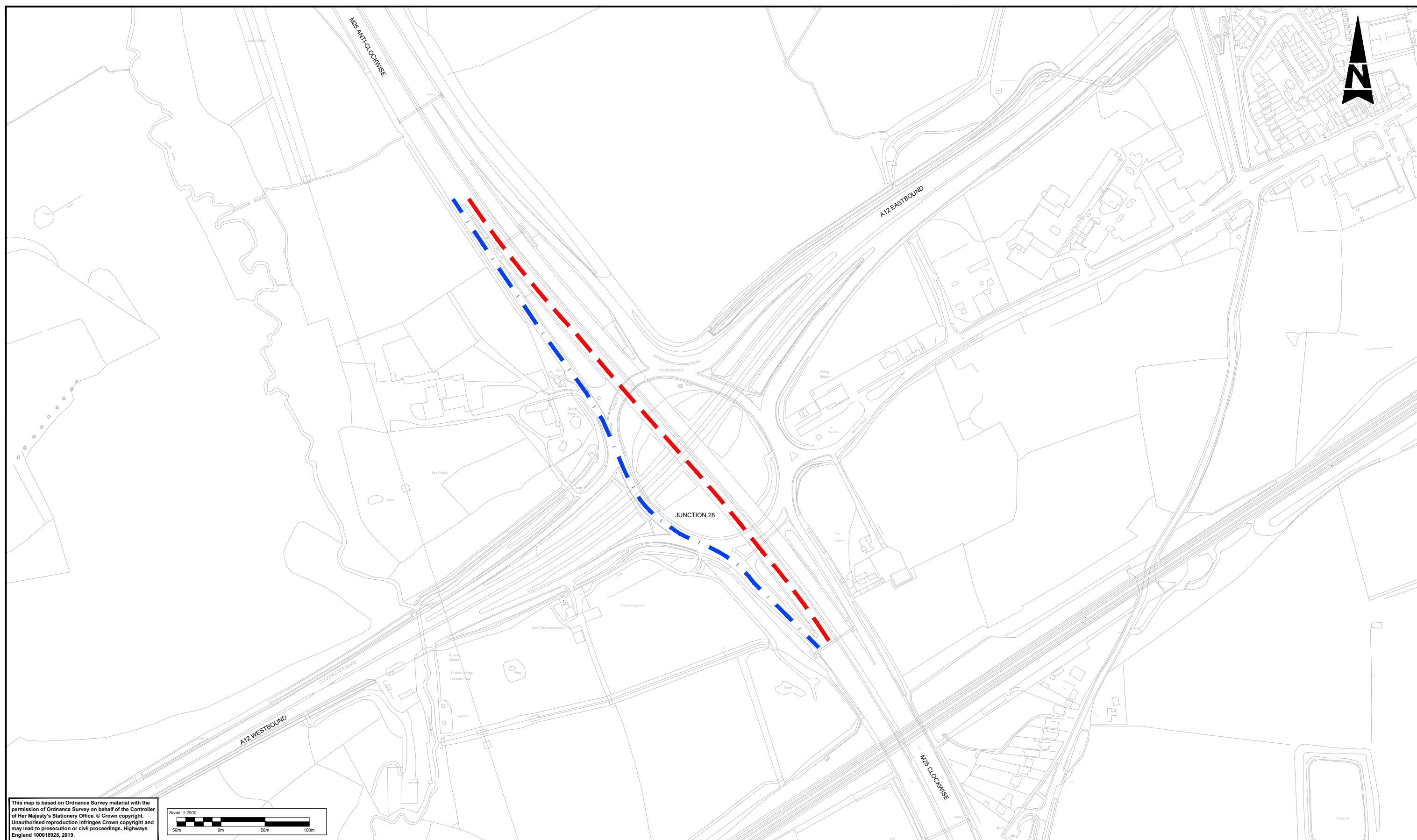
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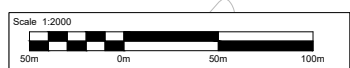
Client: **Working on behalf of highways england**

Project Title	M25 junction 28 improvement scheme		
Drawing Title	TEMPORARY TRAFFIC MANAGEMENT M25 CW AND M25 ACW FULL CLOSURE DIVERSION ROUTE		
Drawing Number	Project	Originator	Volume
HE551519	- ATK	- TTM	-
J28	- DR - CH	- 000011	
Location	Type	Role	Number
A1	Scale: 1:2000	Project Ref. No.: 5158157	Sheet: 6 of 9 Rev: 0

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KEY
 SLIP ROAD CLOSURE
 DIVERSION ROUTE

NOTES
 1. Length of Traffic Management approx. 645m.
 2. Duration of Traffic Management 5 nights for modifications to 3No. ganties.

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Drawing Suitability: **DCO EXAMINATION** Status: **A4**

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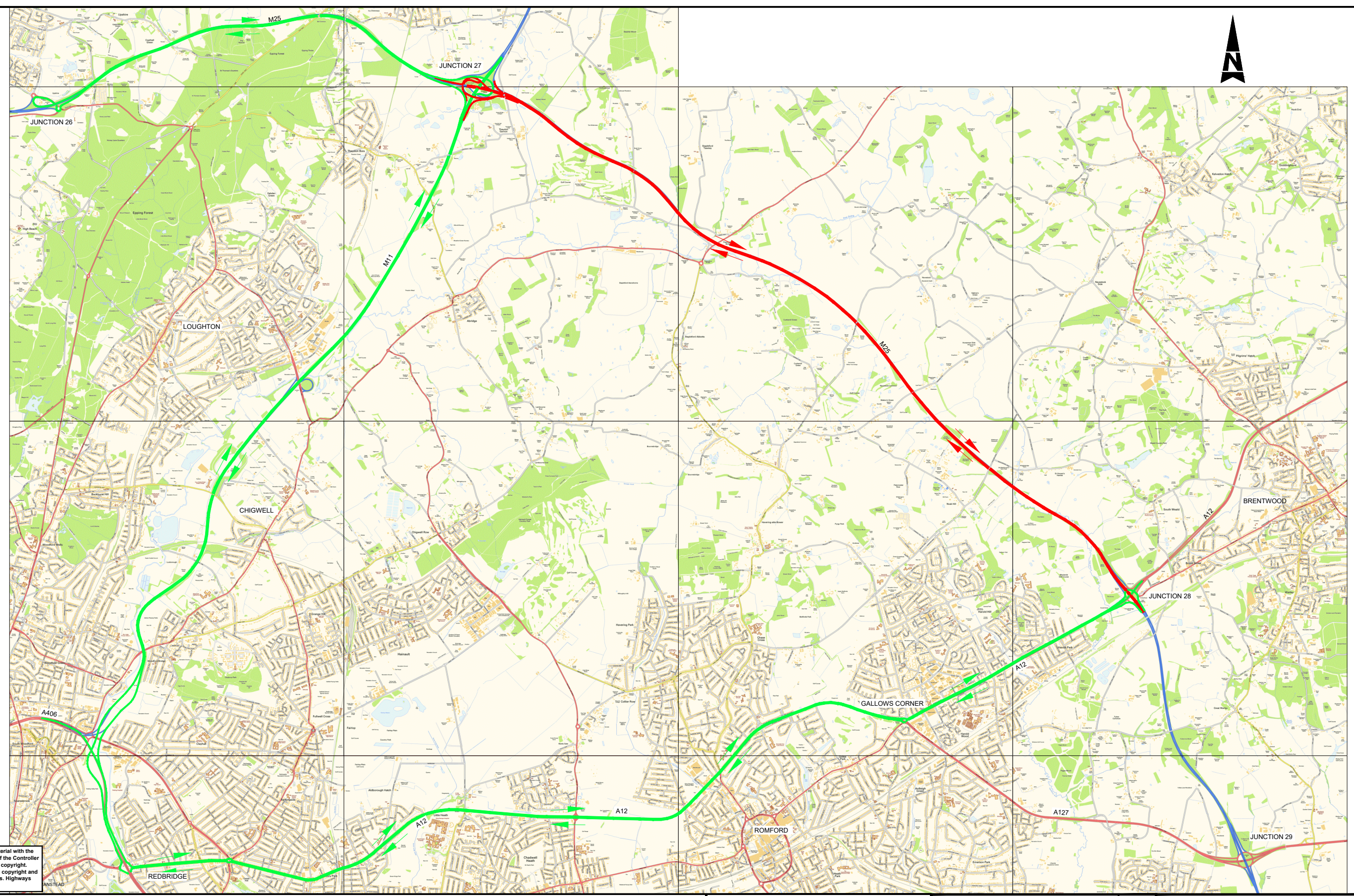
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Project Title	M25 junction 28 improvement scheme		
Drawing Title	TEMPORARY TRAFFIC MANAGEMENT M25 CW CLOSURE DIVERSION ROUTE		
Drawing Number	Project	Originator	Volume
HE551519	- ATK	- TTM	-
J28	- DR - CH	- 000026	
Location	Type	Role	Number
Original Size: A1	Scale: 1:2000	Project Ref. No.: 5158157	Sheet: 8 of 9 Rev: 0

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KEY	
	M25 CLOCKWISE AND ANTI-CLOCKWISE FULL ROAD CLOSURE BETWEEN J28 AND J27
	M25 CLOCKWISE ANTI-CLOCKWISE DIVERSION ROUTE BETWEEN J28 AND J27

- NOTES**
- Length of Closure, 13,500m.
 - Length of Diversion 29,500m
 - Duration of Traffic Management 7 nights.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **DCO EXAMINATION** Status: **A4**

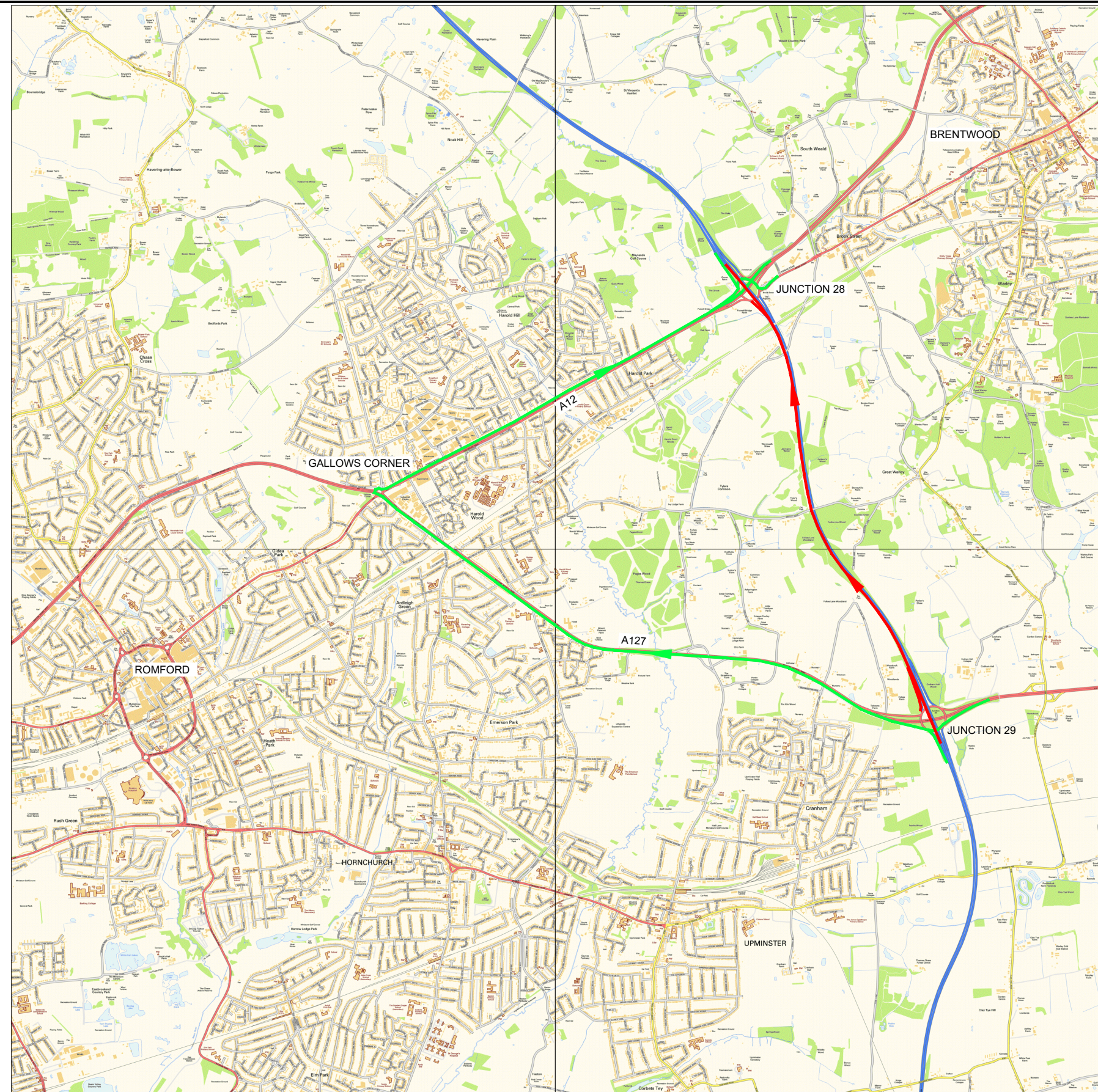
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Project Title: M25 junction 28 improvement scheme	
Drawing Title: TEMPORARY TRAFFIC MANAGEMENT M25 CLOSURE J27 TO J28 DIVERSION ROUTE	
Drawing Number: HE551519	Originator: ATK
Project: J28	Volume: - TTM -
Location: J28	Type: - DR - CH - 000013
Original Scale: A1	Scale: NTS
Project Ref. No.: 5158157	Sheet: 7 of 9
Rev. 0	

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KEY

	M25 ANTI-CLOCKWISE FULL ROAD CLOSURE BETWEEN J29 AND J28
	M25 ANTI-CLOCKWISE DIVERSION ROUTE BETWEEN J29 AND J28

- NOTES**
- Length of Closure, 5,770m.
 - Length of Diversion 10,200m
 - Duration of Traffic Management 5 nights.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **DCO EXAMINATION** Status: **A4**

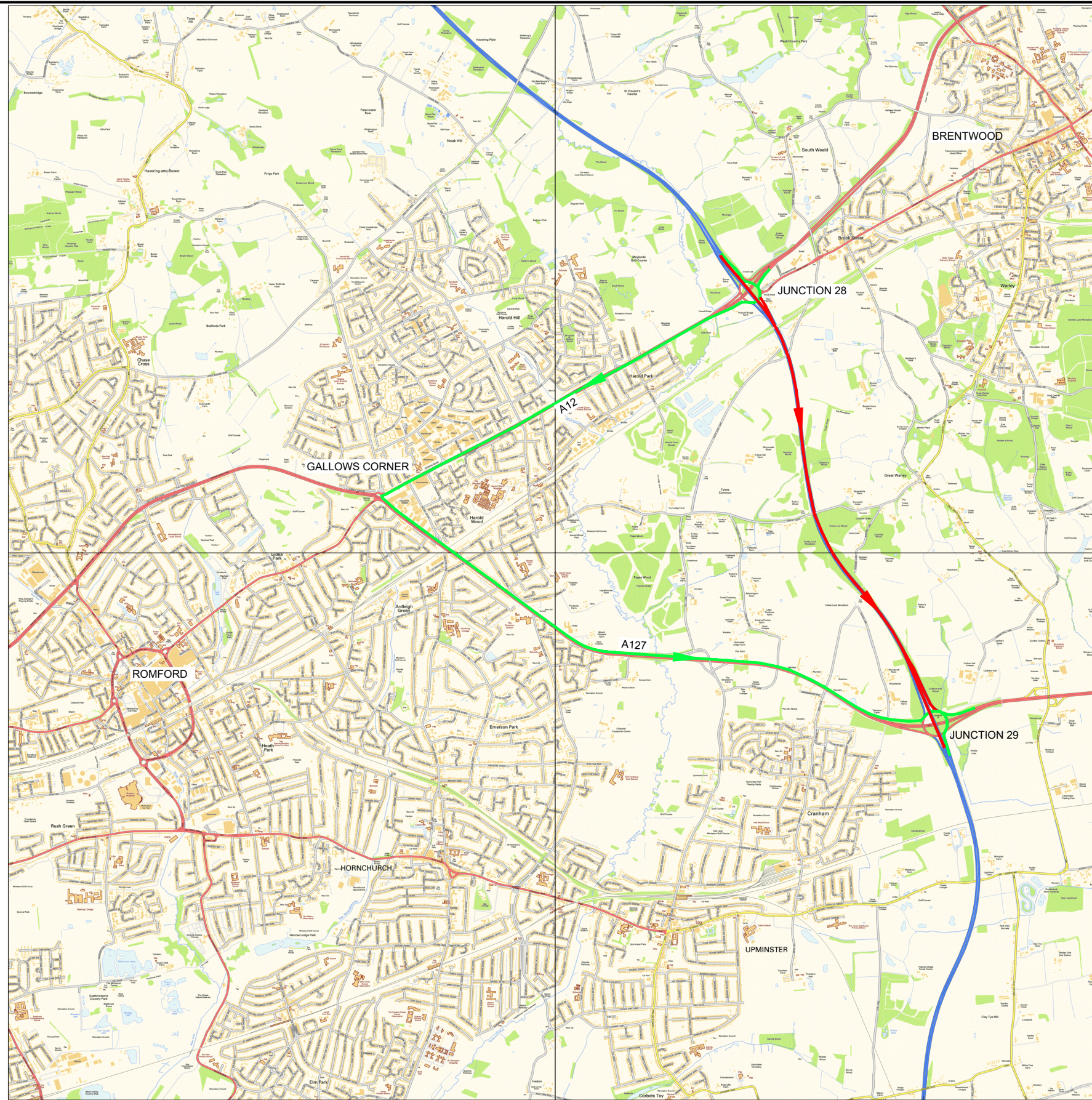
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Project Title M25 junction 28 improvement scheme	
Drawing Title TEMPORARY TRAFFIC MANAGEMENT M25 CLOSURE J29 TO J28 DIVERSION ROUTE	
Drawing Number Project HE551519 - ATK - TTM - J28	Originator Volume - DR - CH - 000027
Location Original Scale: A1	Type Role Number Project Ref. No.: 5158157 Sheet: 9 of 9 Rev: 0

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KEY

- M25 CLOCKWISE FULL ROAD CLOSURE BETWEEN J28 AND J29
- M25 CLOCKWISE DIVERSION ROUTE BETWEEN J28 AND J29

NOTES

1. Length of Closure, 5,770m.
2. Length of Diversion 10,200m
3. Duration of Traffic Management 5 nights.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **DCO EXAMINATION** Status: **A4**

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Project Title	M25 junction 28 improvement scheme		
Drawing Title	TEMPORARY TRAFFIC MANAGEMENT M25 CLOCKWISE CLOSURE J28 TO J29 DIVERSION ROUTE		
Drawing Number	HE551519	Originator	ATK
Project	J28	Volume	TTM
Location	J28	Role	DR - CH - 000028
Original Size	A1	Scale	NTS
Project Ref. No.	5158157	Sheet	1 of 1
Rev.	0	Rev.	0

Appendix C: Customer impact assessment tool

Consider the impact of the roadworks (and the associated construction traffic) on the different types of road users and rate the level of impact:

Table C1: Intelligent transport service infrastructure impacts

	Road user type (e.g. commuters, leisure drivers, freight, etc.)	Level of impact		
		High	Medium	Low
1	Commuters	H		
2	Freight		M	
3	Leisure		M	

Consider the impact of the roadworks (and the associated construction traffic) on the communities and rate the level of impact:

Table C2: Impact of roadworks and associated construction traffic on communities and level of impact

	Community (e.g. commuters, leisure drivers, freight, non-motorised user, etc.)	Level of impact		
		High	Medium	Low
1	Commuters	H		
2	Freight	H		
3	Leisure		M	

Consider the impact of diversion routes on road users and communities and rate the level of impact:

Table C3: Impact of diversion routes on road users and communities and level of impact

	Customer types (e.g. commuters, leisure drivers, freight, industrial estates, residents, local authorities, retail parks, schools, stadiums, local events, land owners, etc.)	Level of impact		
		High	Medium	Low
1	Commuters			L
2	Leisure			L
3	Freight	H		
4	Industrial Estate		M	
5	Residents	H		
6	Local stakeholder		M	

Appendix D: Dynamic roadworks benchmarking template

Table D1: RAG descriptions for visions

	Green (aligned to vision)	Amber (just outside vision)	Red (well outside vision)
Speeds	Over 50% of the project (in distance and time) is at the permanent speed limit	Less than 50% is at the permanent speed limit, but there is clear evidence showing what alternative methods of construction were used.	Less than 50% is at the permanent speed limit, and there is no evidence showing what alternative methods of construction were used.
Length	<p>The total length of TM on any one 'journey' (i.e. on 2 arms of a roundabout that could form a realistic journey) is shorter than 6km, or 1 link if on a motorway.</p> <p>Or, the total length of TM is more than 6km (or 1 link if a motorway) but there is evidence the increased length is proportional to a reduced delivery time.</p> <p>Or, the total length of TM is more than 6km (or 1 link if a motorway) but the additional length is operating at a minimum of 60mph.</p> <p>AND the average journey time created by the road works is not more than an additional seven minutes thirty seconds.</p>	<p>The total length of TM is more than 6km (or 1 link if a motorway) and there is evidence that the reduced delivery time is halfway proportional to the increased length. e.g. a fifty percent increase in length for a 25% reduction in the time taken to deliver the additional length.</p> <p>AND the average journey time created by the road works is not more than an additional seven minutes thirty seconds.</p>	<p>The total length of TM is more than 6km (or 1 link if a motorway) and there is no evidence of reduced delivery time even halfway proportional to the increased length, nor is the additional length a minimum of 60mph.</p> <p>AND/OR the average journey time created by the road works is more than an additional seven minutes thirty seconds.</p>
Closures & diversions	No more than 1 full closure (including slip road closures) every 3 months	No more than 1 full closure (including slip road closures) every month	More than 1 full closure (including slip road closures) every month

	Green (aligned to vision)	Amber (just outside vision)	Red (well outside vision)
	And / or the diversion route has a comparable journey time, and impact on communities along the diversion route are minimal		
Delivering quicker	Benefits are delivered to the customer before full opening (NA if offline project) AND construction is undertaken at least 6 days a week AND restrictions are lifted during embargo periods (unless full productivity is maintained)	Benefits are delivered to the customer before full opening (NA if offline project) OR construction is undertaken at least 6 days a week OR restrictions are lifted during embargo periods (unless full productivity is maintained)	No benefits are delivered to the customer before full opening (NA if offline project) NOR is construction undertaken at least 6 days a week NOR are restrictions lifted during embargo periods (and full productivity isn't maintained)
Explaining activity	There is evidence of a comprehensive on-road/off-road communications approach, which updates customers as required of activities undertaken, works completed and progress made.	Evidence of an off-road only communications approach, which updates customers as required of activities undertaken, works completed and progress made.	No evidence of a communications approach which updates customers as required of activities undertaken, works completed and progress made.

NA – This part of the vision is not applicable to this project e.g. the project may be a new road so there is no need to report on speeds/length etc.

Not yet known – The project cannot yet provide this information. If this option is chosen, the project must provide supporting evidence on a) why it is not yet known and b) when the information is expected to be available.

Dynamic road works benchmarking scores

Table D2: Dynamic roadworks benchmarking template

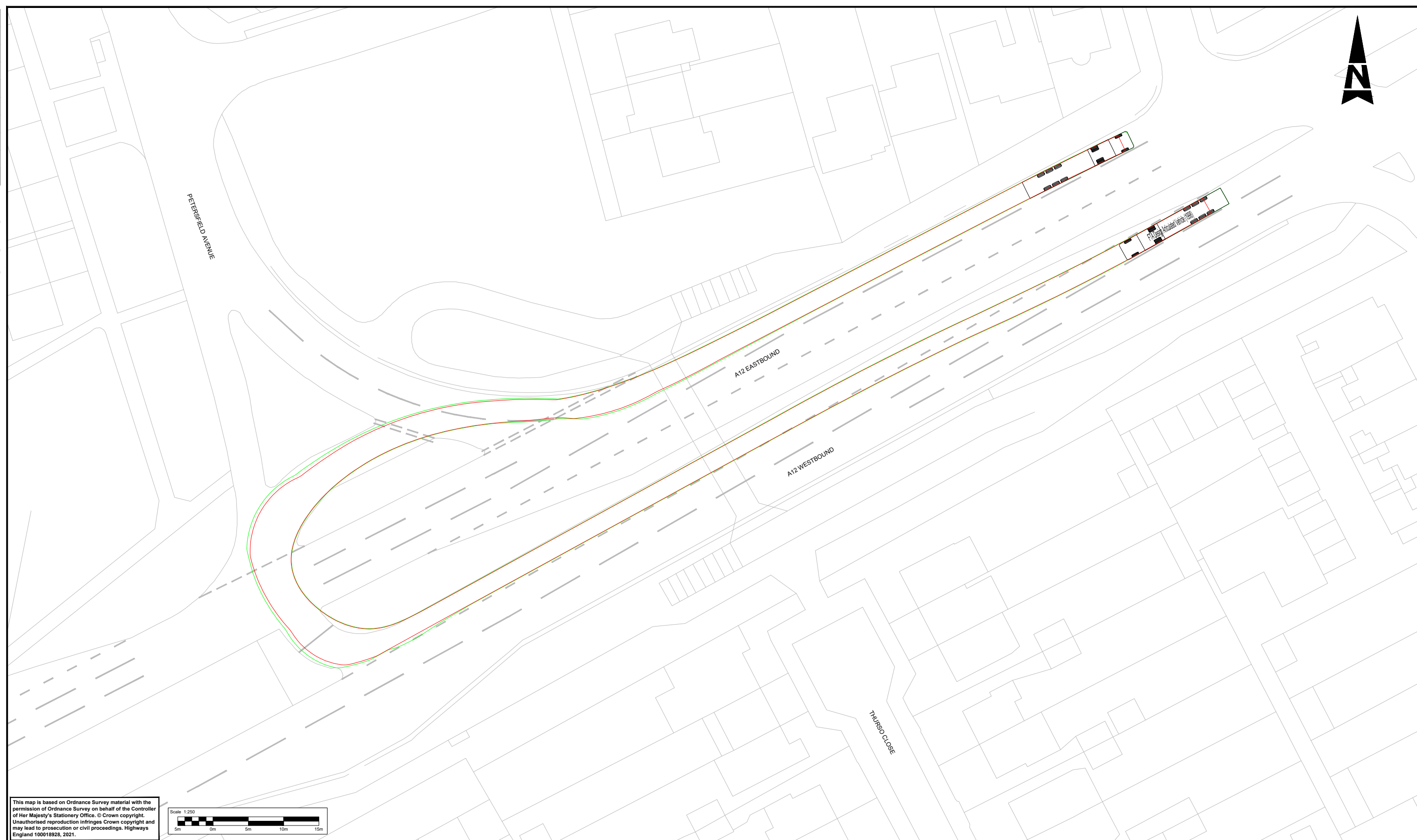
Vision	Green/ Amber/ Red/ NA/ Not yet known	Project evidence for RAG rating
<p>1. Speeds Varying the speed limits so they are appropriate for the work taking place</p>	Green	<p>Based on a site length of 8.2km and a contract duration of 671 days the total road-space availability is approximately 5555 Km/days (approx. 8.2x671). The total occupancy from Table 2.4 (length multiplied by duration with a 50% reduction of duration for night only works) is 2657 km/days. Permanent speed limits will be in force at locations where there is no traffic management such that the permanent speed limit is in place for approximately 52% of the distance and time duration of the project. If after more detailed design and risk analysis the narrow lane only running sections can be increased to permanent speed limits using the measures described in Table A1.8 of Chapter 8 part 3 – this percentage would reduce to 8%.</p>
<p>2. Length Shortening the length of roadworks</p>	Green	<p>TM is mostly localised to tie in works and short length/duration gantry works</p>
<p>3. Closures and diversions Appropriate use of full road closures (including slip road closures) and associated diversions</p>	Amber	<p>No more than 1 full closure average per month</p>
<p>4. Delivering quicker Delivering road works quicker</p>	Amber	<p>Construction is undertaken at least 6 days a week</p>
<p>5. Explaining activity Explaining clearly what activities are, or are not, taking place</p>		<p>Communications plan will be developed during Stage 5</p>

Appendix E: Petersfield Avenue vehicle swept path analysis

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Millimetres

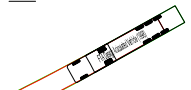
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KEY



Articulated Heavy Goods Vehicle (1998)
Overall Length - 16.480m
Overall Width - 2.550m
Speed of vehicle sweptpath - 5km/h

Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **DCO EXAMINATION** Status: **A4**



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Project Title: **M25 junction 28 improvement scheme**

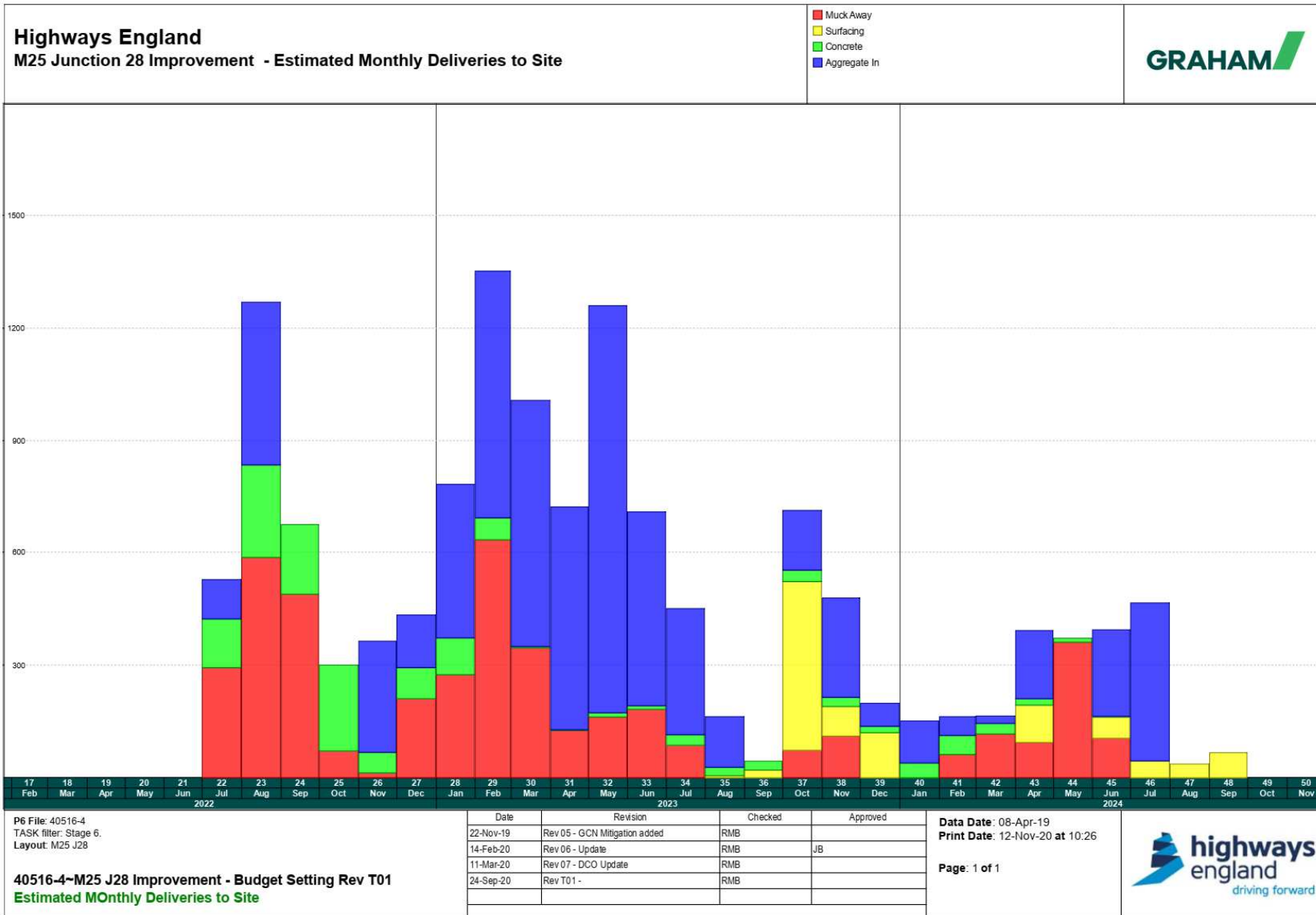
Drawing Title: **PETERSFIELD AVENUE
CONSTRUCTION TRAFFIC U-TURN
SWEPT PATH ANALYSIS
ARTICULATED VEHICLE**

Drawing Number: **HE551519** Originator: **ATK** Volume: **-**
Project: **A12_ML** Role: **- DR - CH -** Number: **000001**

Location: _____ Type: _____ Role: _____ Number: _____

Original Size: **A1** Scale: **1:250** Project Ref. No.: **5158157** Sheet: **1 of 1** Rev: **0**

Appendix F: Estimated construction vehicle trip generation



Appendix G: Implementation the highest safe speed within road works checklist

Implementing the highest safe speed within road works – checklist

This checklist is from the ‘Implementing the highest safe speed within road works - guidance’. This checklist should be completed prior to Section 2.3.3 to provide further information to justify the speed restrictions chosen for the road works scheme. Following completion of this checklist, Section 2.3.3 and Table 2-3 should then be completed, to provide details on the reasoning for the planned speed restrictions, along with any implications.

Table G1: Checklist for implementing the highest safe speed within road works

	Checklist items	Reasoning
Development of design brief	Incorporate requirements outlined in <i>Chief Highways Engineer Memorandum 446/19</i>	<p>The requirements of CHE Memorandum 446/19 have been considered in Preliminary design as far as possible. Requirements in the memorandum are now incorporated in Chapter 8 Part 3, including Table A1.8 Criteria for identification of design speed for standard schemes.</p> <p>The requirements of the Memorandum together with the preliminary traffic management design and this Traffic Management Plan will feed into the design brief for Detailed design, where more detailed traffic management proposals will be developed.</p> <p>The Traffic Management proposals to date reflect the current understanding of the programme, site constraints and methods of construction to be adopted.</p>
Safety risk assessment	<p>Where 60mph speed restrictions are to be used, set a safety objective to ensure the safety baseline can be maintained</p> <p>Review appropriate evidence to inform the analysis of risk</p> <p>Ensure your scheme specific risk assessment captures all reasonably foreseeable hazards</p>	<p>Safety Risk Assessment has been undertaken to ascertain appropriate safe speeds within the roadworks. Please refer to Appendix H</p>

	Checklist items	Reasoning
Work programme and traffic management proposal	Ensure design of temporary traffic management is suitable for road users travelling at the proposed speed restriction	Preliminary traffic management layouts have been developed to reflect possible speed restrictions which may be necessary for certain activities. Speed restrictions will vary depending on works being undertaken and at different location. This will be refined during the Traffic Management Design at Detailed design with particular attention paid to elimination of speed limits when the only restriction is narrow lane working.
	Where the same speed restriction cannot be used across the entirety of the scheme, consider use of varying restrictions, where suitable	
Implementation	Consider undertaking additional safety audits to ensure that the required mitigations outlined within your safety risk assessment are implemented correctly	This is to be revisited during the Traffic Management Design at Stage 5. Temporary Traffic restrictions which may be required during construction will be obtained, even if subsequent risk assessments enable their use to be substantially reduced or eliminated. A safety audit of the detailed traffic management proposals will be required
	Where enforcement is required as part of your safety risk assessment, engage with enforcement agencies early	
	Obtain the appropriate Temporary Traffic Restriction Orders required for your proposal	
Validation	Where assumptions in your safety risk assessment were informed by expert opinion or other sources of data, monitor suitable metrics to provide information on the performance of implemented mitigations	Metrics will be agreed and monitored during the Traffic Management Design at Stage 5
	Update your safety risk assessment and introduce new mitigations to maintain safety baseline if required	

Appendix H: High level risk assessment

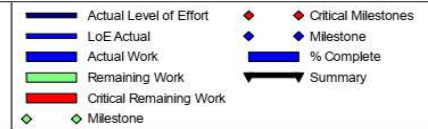
High level risk assessment

Location	Temporary Traffic Management Feature	Measure	Chapter 8 Requirement	The Risk Is	The Risk Is caused by	Mitigation	Other Measures possible		Comments
							Measure	Impact	
A12 (utility works and tie-in operations)	Safety Zone reduced 0.5m with or without narrow lane running	Temporary 40mph limit enforced when work is in progress	Mandatory under clause D3.2.12	Barrier impacts and injury to motorists and workforce	Sub-standard cross section width of existing carriageway	Reduce speed limit whilst works are in place in accordance with C8	Lane closures	Increase in user delays	Permanent speed limit on this section of road after the works are completed will be reduced to 50mph. The A12 is part of Transport for London's road network at this location
							Carriageway Widening	Significant additional cost	
M25 ACW (gantry foundation installation)	Hard shoulder closure	Maintain 70mph limit throughout Traffic Management	Chapter 8 Part 3 - Clause U2.10	Barrier impacts and injury to motorists and workforce	Works distracting drivers (medium risk)	Produce a safe TM proposal, at a 70mph design speed in accordance with Chapter 8 Part 3 - Clause U2.10	N/A	N/A	More detailed risk analysis of operations to be undertaken in Stage 5. If the safety criteria at this location cannot be met, the speed limit can be reduced down to a minimum of 50mph in the worst case scenario.
M25 ACW	Narrow lane running	Maintain 70mph limit throughout Traffic Management	Chapter 8 Part 3 - Clause U2.10	Barrier impacts and injury to motorists and workforce	Works distracting drivers (low risk)	Produce a safe TM proposal, at a 70mph design speed in accordance with Chapter 8 Part 3 - Clause U2.10	N/A	N/A	This is a lower risk work element, driver behaviour to be monitored and speed reductions introduced as appropriate
M25ACW Lane Closures for piling rig mobilisation/demobilisation	Lane closures	Maintain 70mph limit throughout Traffic Management	Chapter 8 Part 1 - D3.7.26 Table 3.5	Barrier impacts, side swipe collisions and injury to motorists and workforce	Lane changes, high traffic volumes and works distracting drivers (high risk)	Reduce speed limit to 50mph whilst works are in place in accordance with C8 part 1	Full Closure	Disruption and user delays	It may be necessary to close 2 lanes plus hard shoulder for crane mobilisation demobilisation activates. The risks of distractions and impact with heavy plant during loading and unloading operations is high. Operation to be considered in more detail in PCF stage 5 when plant and pile driving characteristics are known

- Recommended
- Further risk assess in PCF Stage 5
- Not recommended

Appendix I: Outline traffic management programme

Highways England
M25 Junction 28 Improvement



P6 File: 40516-4
 TASK filter: TM
 Layout: M25 J28

40516-4~M25 J28 Improvement - Budget Setting Rev T01
For Budget Setting - TM Only

Date	Revision	Checked	Approved
09-Aug-19	Rev 03 - Advanced Works Strategy	RMB	
10-Oct-19	Rev 04 - A12 Options	RMB	
22-Nov-19	Rev 05 - GCN Mitigation added	RMB	
14-Feb-20	Rev 06 - Update	RMB	JB
11-Mar-20	Rev 07 - DCO Update	RMB	

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Page: 1 of 1



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