



AQUIND Limited

AQUIND INTERCONNECTOR

Day Lane Technical Note

The Planning Act 2008

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DOCUMENT

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Approved By	Chris Williams
Date	25 January 2021



Aquind Interconnector - Revised HGV Construction Management Strategy for Day Lane

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PROJECT:	Aquind Interconnector	AUTHOR:	Stacey Gander
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INTRODUCTION

This Technical Note sets out a revised management strategy for the movement of Heavy Goods Vehicles (HGVs) on Day Lane as part of the construction stage of the Aquind Interconnector proposals. This revised strategy replaces that which was previously included in Section 3.4 of the Supplementary Transport Assessment (STA) (REP1-142).

The revised strategy has been produced in response to comments set out in Appendix 1 of Hampshire County Council's (HCC) Deadline 3 submission entitled "*Further submission including highways comments on matters raised at Deadline 2 and other matters*" (REP3-023) and on-going discussions between the Applicant and HCC. The topic of HGV management on Day Lane was also included in Question 3D on the Agenda for Issue Specific Hearing 2 (ISH2) (EV-012(a)) put forward by the Examining Authority (ExA), and was consequently discussed in ISH2 (EV-032, EV-033, EV-034, EV-035).

HCC also included additional comments regarding traffic management on Day Lane in the Deadline 5 submission entitled "*Deadline 5 Submission - Submission with updates from the Highway Authority and Lead Local Flood Authority*" (REP5-080) and in their Deadline 6 submission "*Written Summary of Oral Submission*" (REP6-078) which provided a specific review of the proposed approach to the management of traffic associated with the construction of the Converter Station.

The revised strategy has also been included within an updated version of the Framework Construction Traffic Management Plan (CTMP) (REP6-032), submitted at Deadline 6, and therefore is secured via Requirement 17 of the Development Consent Order (DCO) (REP3-003).

A Stage 1 Road Safety Audit has been completed for the proposed access junction that will serve the Converter Station during construction and operation as well as the proposed amendments to Day Lane. This Audit has been submitted to HCC in draft for their review in order to allow the Road Safety Audit Decision Log to be completed. Once this process has been completed, the Road Safety Audit can be submitted to the Examining Authority for review if required, noting that in the view of the Applicant, there are no insurmountable issues arising from the Audit.

CONSTRUCTION TRAFFIC NUMBERS ON DAY LANE

All construction vehicles travelling to the Converter Station Area will travel via Day Lane and will gain access via the junction of Day Lane / Broadway Lane. The Applicant is proposing to complete upgrades to this junction to facilitate construction traffic, and the proposals are set out in full in Section 3.3. of the STA (REP1-142).

The anticipated number of construction vehicles travelling to and from the Converter Station Area via Day Lane has been set out in Section 22.4.6. of Chapter 22 of the Environmental Statement (APP-137), as well



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as in Table 10 of the STA (REP1-142), and Chapter 15 of the ES Addendum (REP1-138). The anticipated number of HGV and LGV movements, as set out by associated construction activity, have been replicated below for ease of reference.

Table 1: Estimated construction related traffic accessing the Converter Station Area via Day Lane per day at peak construction

Construction Activity	Estimated HGVs		Estimated LGVs	
	Two-way	Total	Two-way	Total
Converter Station Area	43	86	0	0
Cable Route (for 6 gangs all using Converter Station Area as main compound)	24	48	12	24
Landfall (using Converter Station Area as main compound)	4	8	2	4
TOTAL	71	142	14	28

The construction traffic numbers set out in Table 1 are maximum values for daily traffic at peak construction. These maximum peak daily traffic flows have been fully assessed in Chapter 22 of the Environmental Statement (APP-137), and Chapter 15 of the Environmental Statement Addendum (REP1-139).

The timing of construction vehicle movements is dependent upon which construction activity the vehicle is associated with, and their respective working hours. Timing of movements are set out in Section 3.2. of the STA (REP1-142) and have been summarised below for reference.

Aquind Interconnector - Revised HGV Construction Management Strategy for Day Lane

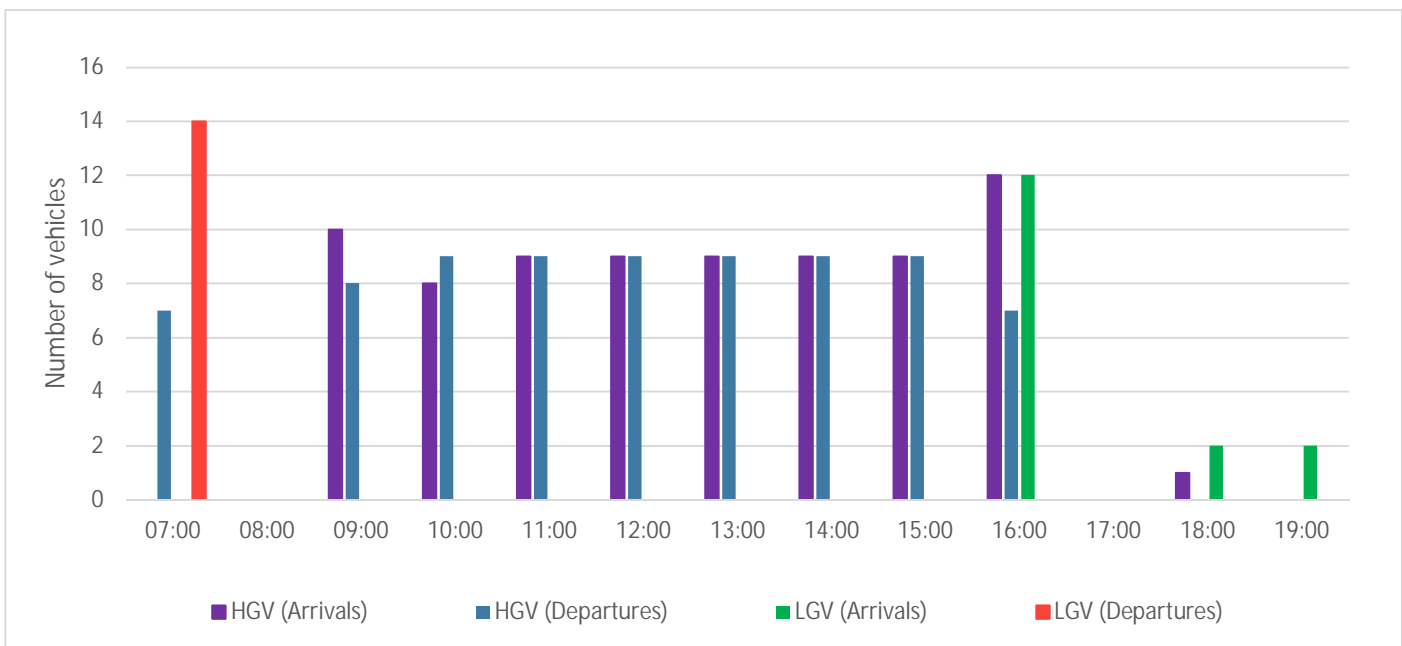
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Table 2: Estimated construction traffic movement timings to and from the Converter Station Area via Day Lane

Construction Activity	Estimated HGV timings		Estimated LGV timings	
	Arrivals	Departures	Arrivals	Departures
Converter Station Area	09:00 – 17:00	09:00 – 17:00	N/A	N/A
Cable Route (for 6 gangs all using Converter Station Area as main compound)	09:00 – 17:00	07:00 – 08:00, 09:00 – 16:00	16:00 – 17:00	07:00 – 08:00
Landfall (using Converter Station Area as main compound)	07:00 – 08:00, 09:00 – 17:00, 18:00 – 19:00	07:00 – 08:00, 09:00 – 17:00	18:00 – 19:00	07:00 – 08:00

Using the traffic movement numbers set out in Table 1 and the movement timings set out in Table 2, the daily profile of estimated construction related traffic movements using Day Lane at peak construction has been derived. This daily profile is set out in Figure 1.

Figure 1: Typical daily profile of maximum construction vehicle arrivals and departures at Converter Station Area during peak construction





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Both Table 2 and Figure 1 show no construction traffic movements in the AM or PM peak hours of 08:00 – 09:00 and 17:00 – 18:00 in reflection of the HGV management strategy set-out in the Framework CTMP (REP6-032). As is noted in paragraph 3.2.1.8. of the STA (REP1-142), there is a possibility that up to 12 LGV movements will occur in the PM peak as a result of construction workers travelling back to the Converter Station Area from the Onshore Cable Corridor (2 LGV's per cable gang). For the purpose of the worst-case assessment undertaken in the STA (REP1-142) and ES Addendum (REP1-139), all 12 LGVs travelling back to the Converter Station Area were added to the PM peak assessments. However, for the specific assessment of Day Lane undertaken in this Technical Note, the worst-case scenario is not additional movements in the peak hours, but concentration of movement numbers during a shorter time span. As such, for the purpose of this assessment, it is assumed that the 12 LGV's arriving at the Converter Station Area from the Onshore Cable Corridor at the end of the working day arrive between 16:00 and 17:00.

The daily profile set out in Figure 1 suggests a maximum of 18 HGV movements on Day Lane in any one hour prior to the implementation of any further management.

Reduction in HGV Flows

All construction traffic numbers set out in this section represent a worst-case scenario in peak construction and provides an estimate of the number of vehicle movements should no further management efficiencies or logistical measures likely to be introduced by the Contractor as identified in Section 3.7 of the Framework CTMP (REP6-032). These measures include the maximising of loads to reduce vehicle trips, reusing aggregate delivery HGVs and waste removal and consolidation of deliveries. In relation to HGVs associated with the Onshore Cable Route, the potential for a reduction in HGV numbers is noted through the following:

- For assessment purposes it has been assumed that each Onshore Cable Route construction location generates four individual two-way HGV movements in relation to the delivery of materials and removal of waste from each site. It is envisaged however that HGVs would in reality deliver materials to multiple construction locations at the start of each day through consolidation of deliveries as part of the journey. This will also apply to the collection of waste, given it is unlikely for an HGV to return to the Converter Station only partly laden if other construction locations need collections to be made.
- As noted by the Applicant as part of the Framework CTMP (REP6-032) and the Applicant's Transcript for Oral Submissions for Compulsory Acquisition Hearing 1 (REP5-034) temporary laydown areas will be provided within the Order Limits to facilitate construction of the Onshore Cable Route. In relation to this:
 - The working corridors to be located within the Order Limits have been appropriately sized taking into account the need to accommodate sufficient space for the storage of ducts and other materials which are to be used for the purpose of installing the cables, effectively providing laydown areas within the construction working corridor;

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- For Onshore Cable Route construction activities in more constrained locations, for instance within the highway, or on open space land where the working corridor is narrower to minimise impacts, the area required for plant and materials will all be contained within the working corridor, and construction will proceed on a linear basis with laydown and storage areas moving along with the work front;
 - More specifically, this will involve delivery of cement bound sand (CBS), ducts and protective tiles to the areas of construction, which will then be set aside at a lay-down and drop-off area contained within the working corridor. Material would then be transferred from the lay-down location within the working corridor to the point of work within the corridor using smaller plant on-site within the working corridor. This would not involve any additional vehicle movements, with the smaller plant remaining inside the confines of the working corridor as the linier route progresses
 - The materials will be replenished from the main compound on a daily basis or as and when required for such items as CBS and removal of spoil.
- The estimated number of HGV movements provided within this note reflects the peak period of construction, during the first 6-9 months of the construction programme. After this point, HGV construction traffic associated with the Converter Station will reduce, therefore reducing the overall HGV traffic flow on Day Lane further.

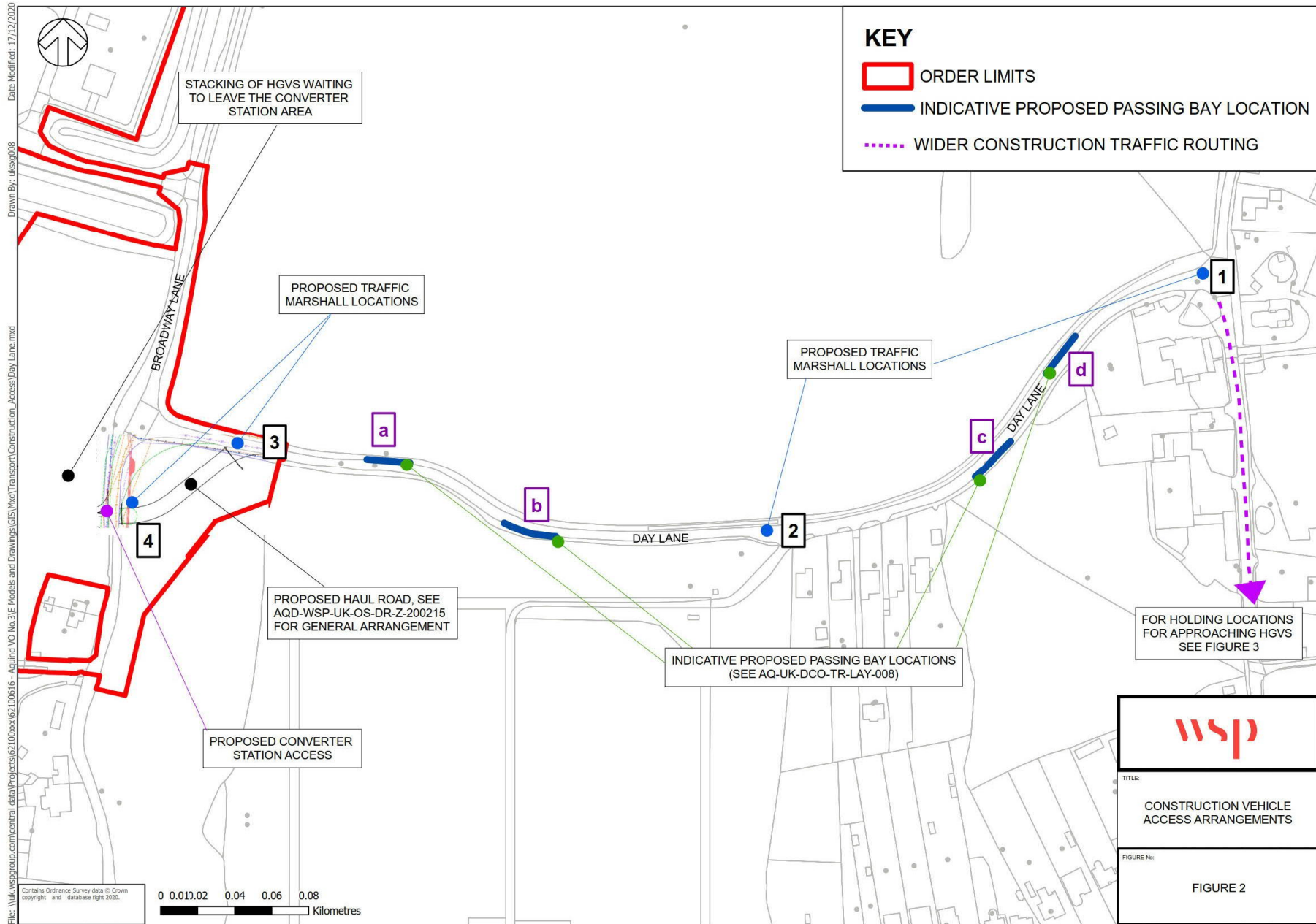
REVISED MANAGEMENT STRATEGY FOR HGV TRAFFIC DURING THE CONSTRUCTION PERIOD

Following discussions with HCC, the Applicant is proposing an amended strategy for the management of construction traffic on Day Lane. The amended strategy uses three main methods of construction vehicle management for mitigating the impacts of movements of such vehicles. These three methods are as follows:

- Introduction of passing bays on Day Lane;
- Strategic management of arrivals and departures of HGVs; and
- Use of banksmen and traffic marshals to control traffic on Day Lane.

A plan contextualising these three methods of construction traffic management on Day Lane has been included in Figure 2 for reference, and each is discussed further in turn.

Figure 2: Construction vehicle access arrangements



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Passing Bays

As can be seen in Figure 2, four passing bays are proposed to be implemented on Day Lane to ensure the safe passing of vehicles on this link. The indicative locations of these passing bays are set out in drawing No. AQ-UK-DCO-TR-LAY-008 which is attached to this Technical Note.

The siting of the proposed passing bays was informed by a site visit which was undertaken to Day Lane on 24th November 2020. Photos of proposed passing bay locations a, b and d have been included below for reference. An image from google maps street view (Google, 2020) has been included for proposed passing bay c.

- **Proposed passing bay a)**



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- **Proposed passing bay b)**



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- **Proposed passing bay c)**



¹ Image: Google (2020)

¹ Image: Google (2020) 'Street View – Day Lane.' Access online: <https://www.google.com/maps/@50.9145067,-1.0305403,3a,75y,174.24h,88.99t/data=!3m6!1e1!3m4!1sY1spl7hJoV4QJp1QOzQCYA!2e0!7!13312!8i6656> (18/12/2020)

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- **Proposed passing bay d)**



As can be seen in the images included, there is sufficient verge space in each location to allow for provision of passing bays without the need to undertake clearance of hedgerows or trees.



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Swept path analysis has been undertaken for all four of the proposed passing bays on Day Lane and can be seen in drawing No. AQ-UK-DCO-TR-LAY-009, which is also attached to this Technical Note. The swept path analysis was undertaken using two 10.2m tipper HGVs travelling in opposing directions on Day Lane at the same time. The swept path analysis undertaken demonstrates that through the use of the proposed passing bays, the two 10.2m tippers HGVs can pass one another without conflict. Whilst the proposed management strategy prevents any two project-related HGV's meeting one another on Day Lane, the proposed passing bays ensure any construction related HGV's do not conflict with any other general traffic travelling on Day Lane. This includes the prevention of a conflict in an instance in which a construction related HGV is travelling on Day Lane at the same time a non-project related HGV. For the purposes of completeness, swept path analysis has also been undertaken to assess potential conflicts between a 10.2m tipper and a large car. This analysis is included in drawing No. AQ-UK-DCO-TR-LAY-010, which is also attached to this Technical Note, and demonstrates that through the use of the proposed passing bays conflicts between the two vehicle types in question can be successfully avoided.

As with the proposed upgrades to the junction of Day Lane / Broadway Lane, a Stage 1 Road Safety Audit is also currently being undertaken for the proposed passing bays on Day Lane, and the results of this Audit will be submitted to the ExA and HCC for review when available.

Strategic management of arrivals and departures

MANAGEMENT OF ALL HGVs EXITING THE CONVERTER STATION AREA

The amended strategy for management of HGVs exiting the Converter Station Area includes the stacking of HGVs when exiting the site.

As is stated in the traffic flow section of this Technical Note, 71 HGVs will depart from the Converter Station Area via Day Lane during a typical working day in peak construction (including HGV's associated with construction activities associated with the Converter Station Area, the Onshore Cable Corridor and Landfall). This equates to approximately nine HGV movements travelling eastbound on Day Lane every hour. It is proposed that during peak construction, the banksman / traffic marshal located at the exit of the Converter Station Area manage HGV exits from the site, allowing vehicles to leave only in a convoy of three HGVs. Once three HGVs are ready to leave, all three vehicles are released together in a convoy travelling eastbound on Day Lane.

This methodology would mean the time in which Day Lane is occupied by HGV movements exiting the site would reduce from approximately one instance every seven minutes, to one instance every twenty minutes. This methodology would thereby decrease the total time within the working day in which eastbound HGV movements take place on Day Lane, and thus decrease the potential for conflicts with both general traffic



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and arriving HGVs. In order to ensure the exiting convoy does not conflict with the arrival of HGVs, all banksmen and traffic marshals will be made aware by radio contact when a convoy is to be released.

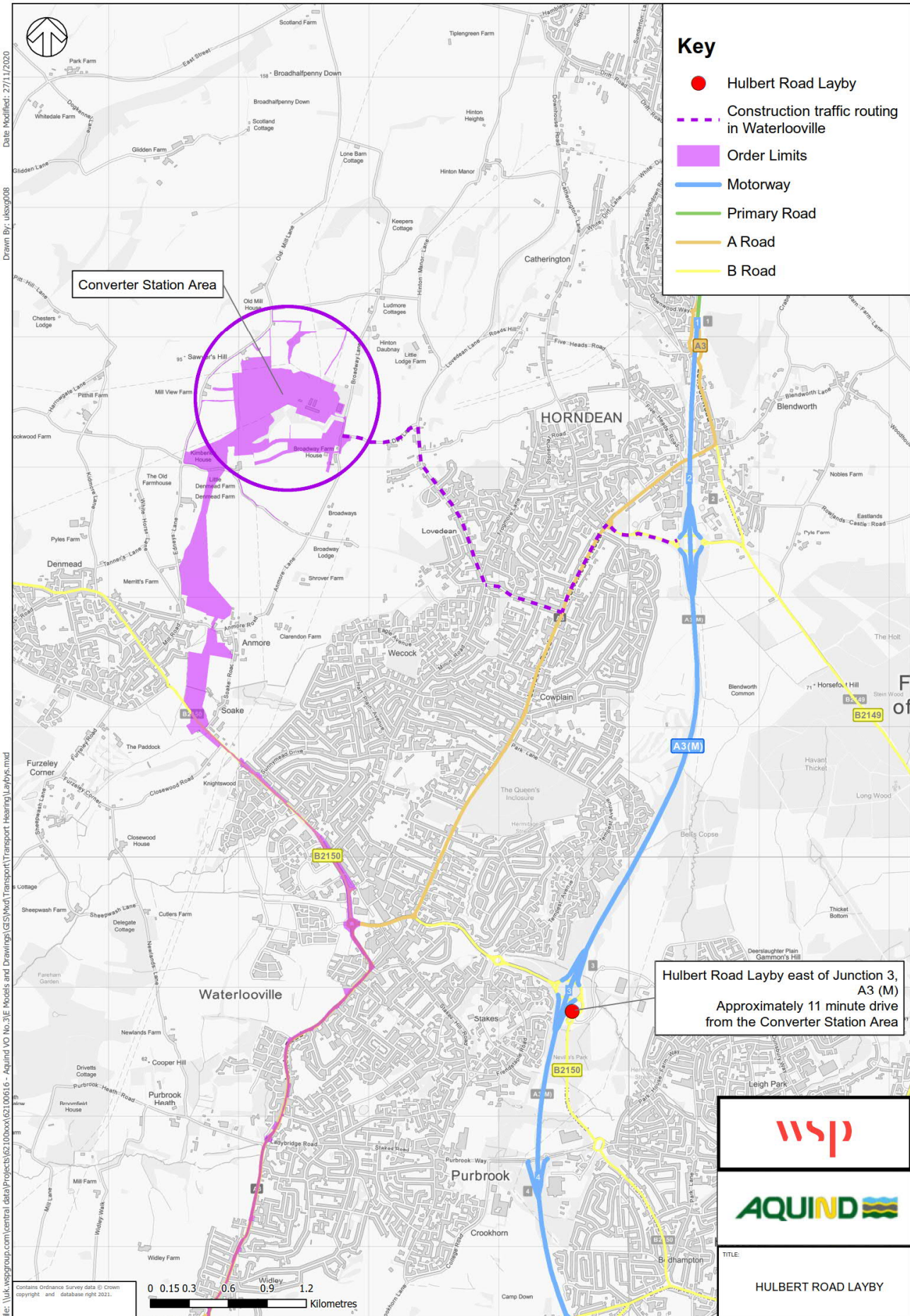
MANAGEMENT OF HGVs ARRIVING AT THE CONVERTER STATION AREA ASSOCIATED WITH CONSTRUCTION OF THE CONVERTER STATION

In terms of HGV arrivals, their management will be dealt with by way of a requirement to pre-book an arrival time at the Converter Station Area and 'check-in' on approach to confirm that availability. This will allow HGV arrivals to be coordinated in order to avoid times when HGVs will be departing.

As has been agreed with HCC, any HGVs which are travelling to the Converter Station Area will be permitted to wait on the northern Layby on Hulbert Road, to the immediate east of Junction 3, A3 (M). This layby forms part of the local road network and therefore is under the jurisdiction of HCC as the relevant Local Highway Authority and is located an approximately 11 minute drive from the Converter Station Area via the permitted HGV routing in Waterlooville. The use of the layby for the management of inbound HGVs will require a temporary parking suspension notice to be applied in order to ensure this area is available for relevant construction traffic. The exact form this parking suspension will take and how it will be secured is being discussed with HCC.

The location of the Hulbert Road layby in relation to the Converter Station Area is set out in Figure 3.

Figure 3: Identified HGV Check In Areas





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The waiting layby on Hulbert Road can accommodate up to four waiting HGVs at any one time. As with departures from the Converter Station Area, it is anticipated that at peak construction there will be 43 HGV movements travelling westbound on Day Lane associated with construction of the Converter Station. It is proposed that HGVs will pull into the pre-identified layby shown in Figure 3 in order to ‘check-in’ with the banksmen at the Converter Station Area ahead of their arrival slot. This process will be monitored and enforced through measures contained within Sections 8.5 and 8.6 of the Framework CTMP (REP6-032).

Arriving vehicles will travel from the Hulbert Road layby to the Converter Station Area in groups of three, accompanied by escort vehicles. The groups of HGVs will be given authorisation by the traffic marshals / banksman to leave the layby on Hulbert Road and access the Converter Station Area via the authorised route only if vehicles are not due to exit the Converter Station Area. Once this authorisation has been given, no HGVs will be permitted to leave the Converter Station Area until the dispatched HGVs have arrived. Should the arriving HGVs be likely to conflict with a departing convoy, the approaching HGVs will be held at their check-in point until the departing HGVs have cleared the banksman at the eastern end of Day Lane. This will eliminate the potential for conflicting HGV movements to occur on Day Lane.

This management strategy will ensure that HGVs arriving at the Converter Station can be scheduled to avoid times when departing HGVs are leaving. At the same time, if HGVs are known to be arriving at the Converter Station Area, departing HGVs can be held on site until such as the incoming HGVs have arrived.

Whilst HGVs are travelling to/from the Converter Station Area along Day Lane, general background traffic can be held at the access, using “Stop/Go” boards. This strategy can also be used on Lovedean Lane at the junction of Day Lane / Lovedean Lane. Adopting this strategy will ensure that the free flow of traffic is maintained for the travelling public, whilst allowing for a flexible approach to traffic management when there is the need to control movement and allowing a procedure to be able to deal with any unforeseen circumstances that may arise.

MANAGEMENT OF HGVs ARRIVING AT THE CONVERTER STATION AREA ASSOCIATED WITH CONSTRUCTION OF THE ONSHORE CABLE ROUTE

Alongside the HGV’s approaching the Converter Station Area which are discussed above and are associated with construction in the Area itself, HGV’s will also be arriving at the Converter Station Area from both the Onshore Cable Corridor (24 HGV’s daily), and Landfall (4 HGV’s daily). The travel of these HGV’s will be also be actively managed through contact with the Converter Station Area. These HGVs will be held at their position either at Landfall or on the Onshore Cable Corridor, and only be cleared for approach to the Converter Station Area when their arrival will not conflict with other HGVs exiting or arriving.

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Use of Banksmen and Traffic Marshals

The proposed location of banksmen and traffic marshals on Day Lane is set out in Figure 2, this has remained largely unaltered from that which was proposed within the STA (REP1-142). Minor amendments have been made to the positioning of the banksman / traffic marshal location number 2 from the Day Lane arm of the junction of Day Lane / Lovedean Lane, to the Lovedean Lane arm of this junction. Whilst the locations of the banksmen / traffic marshals on Day Lane remains mostly unchanged, the implementation of the proposed passing bays, as well as further discussions with HCC and the implementation of further strategic management of HGV arrivals and departures has resulted in updated proposal for their roles. The proposals for the roles of the banksmen / traffic marshals on Day Lane set out in this TN supersede that which is included in Section 3.4. of the STA submitted at Deadline 1.

- **Location 1:** Will use STOP/GO boards to halt general traffic on Lovedean Lane at the Day Lane / Lovedean Lane junction for the time period between a convoy of HGV's being released from the Converter Station Area and when these vehicles exit Day Lane at this junction;
- **Location 2:** Will coordinate with Locations 3 and 4 to prevent the release of a convoy of HGV's from the Converter Station Area when a resident of the private properties on Day Lane has left their property and is travelling westbound on Day Lane with the potential to collide with such convoy. Banksman 2 will also warn residents wishing to exit should a convoy of HGV's already have been released from the haul road which has yet to have passed the property in question. Preference will always be given to residents wishing to leave their properties over the exit of an HGV convoy, with residents only being held should a convoy already have been released when they wish to depart;
- **Location 3:** Will use STOP/GO boards to temporarily halt vehicles travelling eastbound on Day Lane prior to the proposed haul road access in order to allow a convoy of HGV's to exit safely; and
- **Location 4:** Is to be located at the Broadway Lane entrance of the proposed haul road and will temporarily halt traffic on Broadway Lane when a construction vehicle (or convoy of such vehicles) is travelling across the highway between the Converter Station Area entrance and the haul road.

All banksmen / traffic marshals will remain in contact with one another at all times via telecommunication devices as to ensure a coordinated approach to HGV management on Day Lane.

It will be required that the gate at the western end of the haul road used to access the Converter Station must be opened first in order to allow unimpeded access. This will prevent any HGVs from queuing back from the haul road onto Day Lane.



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Capacity Assessment: Lovedean Lane

In Post Meeting Note Agenda Item 3d (point 4) of HCC's Deadline 6 submission entitled '*Written Summary of Oral Submission*' (REP6-078), the LHA expressed concerns regarding the overall delays that could impact upon other road users at that junction of Lovedean Lane / Day Lane as a result of the proposed traffic management. In order to address these concerns, the Applicant has undertaken a capacity assessment for this junction, accounting for the proposed traffic management measures.

In order to simulate the proposed use of STOP/GO boards, the junction of Lovedean Lane / Day Lane has been modelled with all three arms operating under signal control within LinSig junction modelling software.

As is set out above, it is proposed that STOP boards will be used to halt traffic on Lovedean Lane in both directions of travel in order to prevent conflicts occurring with HGVs exiting the site via Day Lane. The STOP boards will prevent vehicles entering Day Lane and travelling westbound along the link at the same time as an HGV convoy has been released and is travelling eastbound.

As is set out above, given the proposed convoying of the nine HGV's forecast per hour in groups of three means that general traffic on Lovedean Lane will only be halted once every 20 minutes. Vehicles will be held on Lovedean Lane for a typical maximum duration of approximately 90 seconds, whilst the convoy of departing HGVs travel along Day Lane. This reflects the likely time it would take for the group of HGV's to travel from the Converter Station to Lovedean Lane. Given the length of Day Lane between the Converter Station and Lovedean Lane of 600 metres and assuming a conservative average speed of 20 mph, the journey time for HGV's would amount to marginally over one minute. As such, the junction has been assessed using a cycle time of 20 minutes (1,200 seconds), with a fixed green time on the Day Lane approach of 90 seconds.

In order to undertake this capacity assessment, traffic flows for Lovedean Lane were taken for the Interpeak period from an average of the two Do Something (DS) scenarios of the SRTM outputs. As the proposed construction traffic management strategy prevents other construction vehicles approaching Day Lane when a convoy of HGV's has been released from the Converter Station Area, no construction traffic has been added to the Lovedean Lane approaches. The modelled traffic flows for Lovedean Lane are set out in Table 3.

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Table 3: Modelled traffic flows - Lovedean Lane, 2026

	Hourly Interpeak Traffic Flow (vehicles) (Average DS)
Lovedean Lane (northbound)	144
Lovedean Lane (southbound)	173

The traffic flows set out in Table 3 suggest a typical arrival rate of approximately 2-3 vehicles a minute in both directions on Lovdean Lane at the junction with Day Lane.

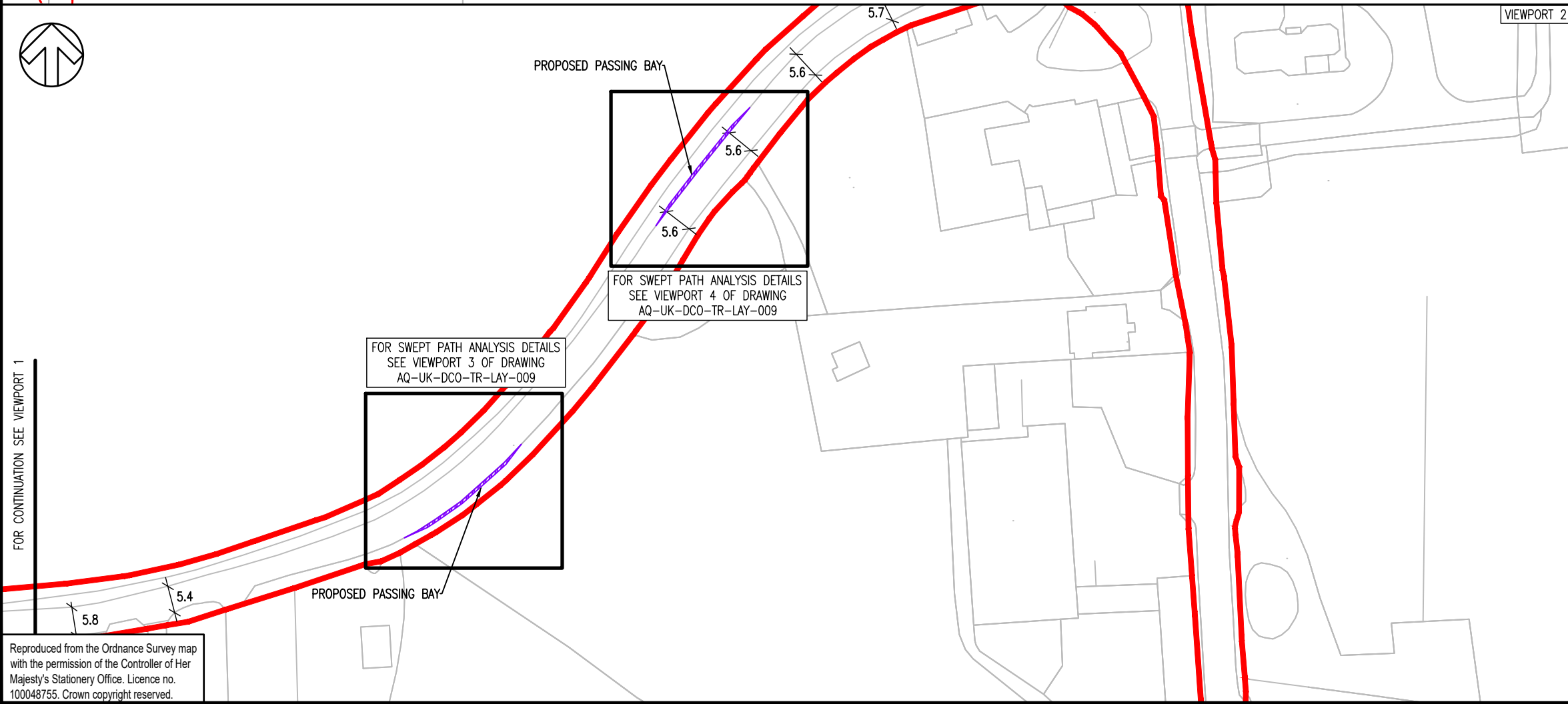
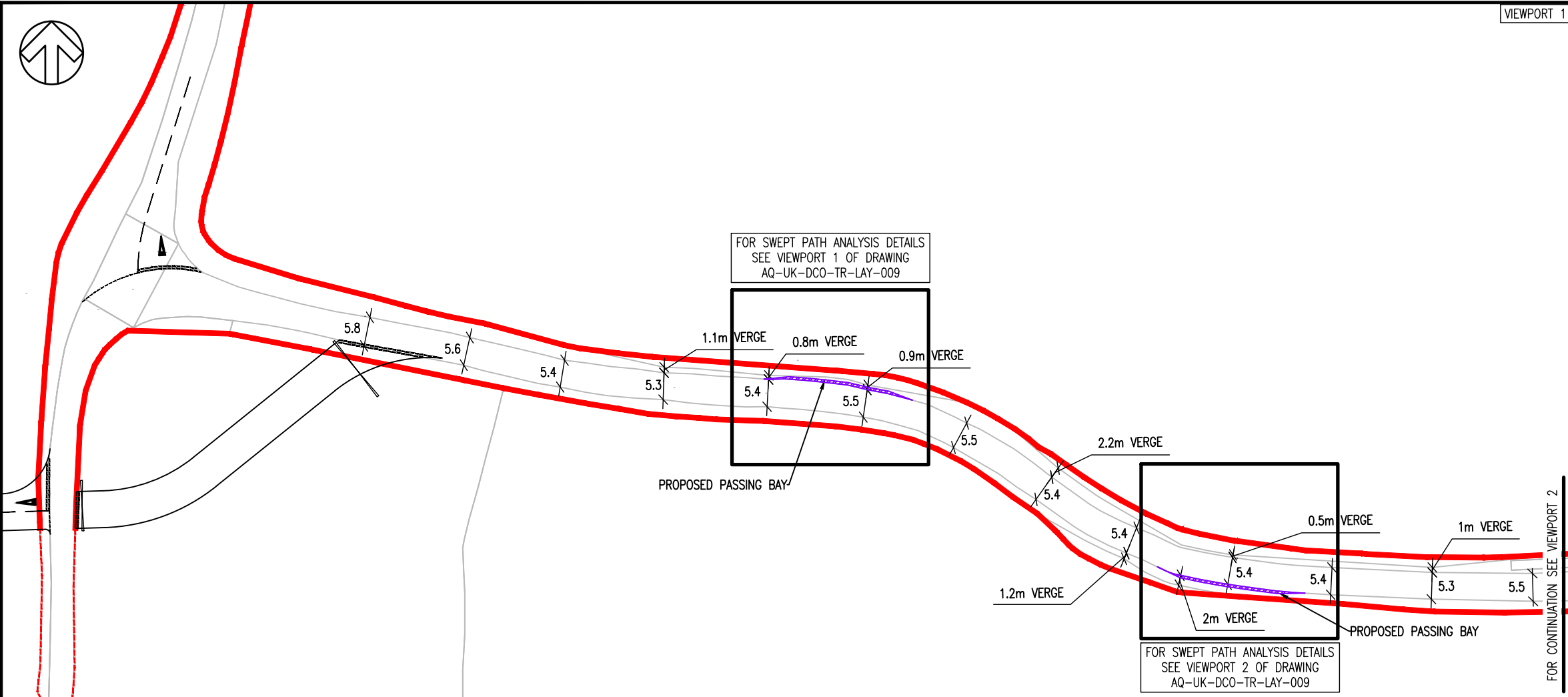
The results of the capacity modelling undertaken for this junction are set out in Table 4, the full LinSig outputs have been attached to this Technical Note.

Table 4: Capacity assessment output - Lovedean Lane / Day Lane

Approach	Interpeak (Average DS)		
	Degree of Saturation (%)	Mean Maximum Queue (PCU)	Delay (seconds / PCU)
Lovedean Lane (northbound)	8.0	4	5
Lovedean Lane (southbound)	10.0	5	5
Cycle Time: 1,200s Overall PRC: 799.8%			

As can be seen from the results set out in Table 4, it is forecast that there will be maximum queues of between 4-5 PCU shown on Lovedean Lane during the 90 seconds that traffic is halted on these arms. This broadly aligns with the vehicle arrival rate for these approaches which is discussed above. The junction modelling outputs forecast a delay of five seconds per vehicle during the interpeak hour modelled. This level of delay is minor and would not cause material inconvenience for general traffic travelling through the junction, particularly as this circumstance would only take place up to three times per hour.

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\62100616 - AQUIND VO NO.3\E MODELS AND DRAWINGS\300 - SITE\320 - TASK 7 UK ROUTE\SKQAQ-UK-DCO-TR-LAY-008.DWG, printed on 17 December 2020 10:49:40, by Scurtu, Aneta



DO NOT SCALE

- NOTES:
- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
 - THE DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL REVENANT DOCUMENTATION.
 - ALL PASSING BAY DIMENSIONS ARE 0.5m WIDTH BY 20m LENGTH PLUS 5m ENTRY AND EXIT TAPERS.

KEY:

- HIGHWAY BOUNDARY
- ▨ PROPOSED AREA OF NEW CARRIAGEWAY TO PROVIDE NEW VEHICLE PASSING BAY

A	16/12/2020	AVI	FIRST ISSUE	SG	CW
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: **S2 - FOR INFORMATION**



Grosvenor House, 2 Grosvenor Square, Southampton, SO15 2BE, UK
T+ 44 (0) 2380 101 700
wsp.com



CLIENT: AQUIND

ARCHITECT:

PROJECT: **AQUIND**

TITLE: **DAY LANE
PROPOSED PASSING BAYS**

SCALE @ A3: 1:1000 CHECKED: SG APPROVED: CW

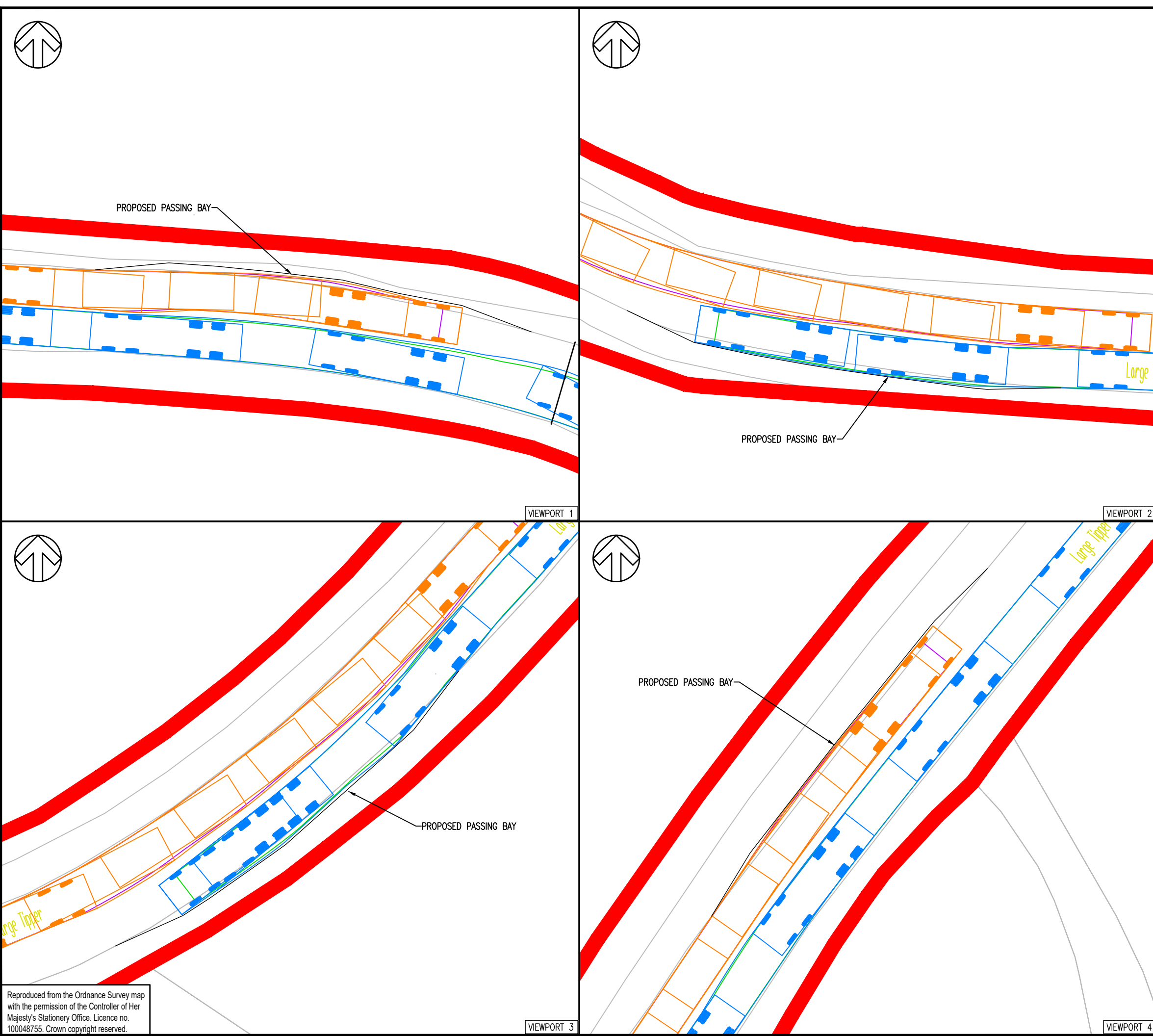
PROJECT No: 62100616 DESIGNED: AVI DRAWN: AVI DATE: December 20

DRAWING No: **AQ-UK-DCO-TR-LAY-008** REV: **A**

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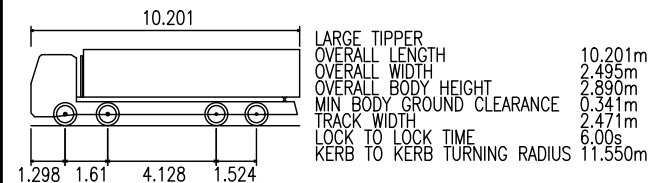
File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\6210006162100616 - AQUIND VO NO.3\E MODELS AND DRAWINGS\300 - SITE\320 - TASK 7 UK ROUTE\SKQAQ-UK-DCO-TR-LAY-009.DWG, printed on 17 December 2020 10:53:09, by Scurtu, Aneta



DO NOT SCALE

NOTES:

1. ALL VEHICLES ARE TRACKED AT A DESIGN SPEED OF 5mph.
2. ALL SWEEP PATHS WERE TRACKED USING A LARGE TIPPER, VEHICLE PROFILE SHOWN BELOW (DIMENSIONS IN METRES):



VEHICLE TRACKING KEY:

- EASTBOUND VEHICLE
- EASTBOUND VEHICLE WHEELS
- WESTBOUND VEHICLE
- WESTBOUND VEHICLE WHEELS

ADDITIONAL ITEMS:

- █ HIGHWAY BOUNDARY

A	16/12/2020	AVI	FIRST ISSUE	SG	CW
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: **S2 - FOR INFORMATION**



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CLIENT: 

ARCHITECT: -

PROJECT: **AQUIND**

TITLE: **DAY LANE
PROPOSED PASSING BAYS SWEEP PATH ANALYSIS**

SCALE @ A3: 1:250	CHECKED: SG	APPROVED: CW
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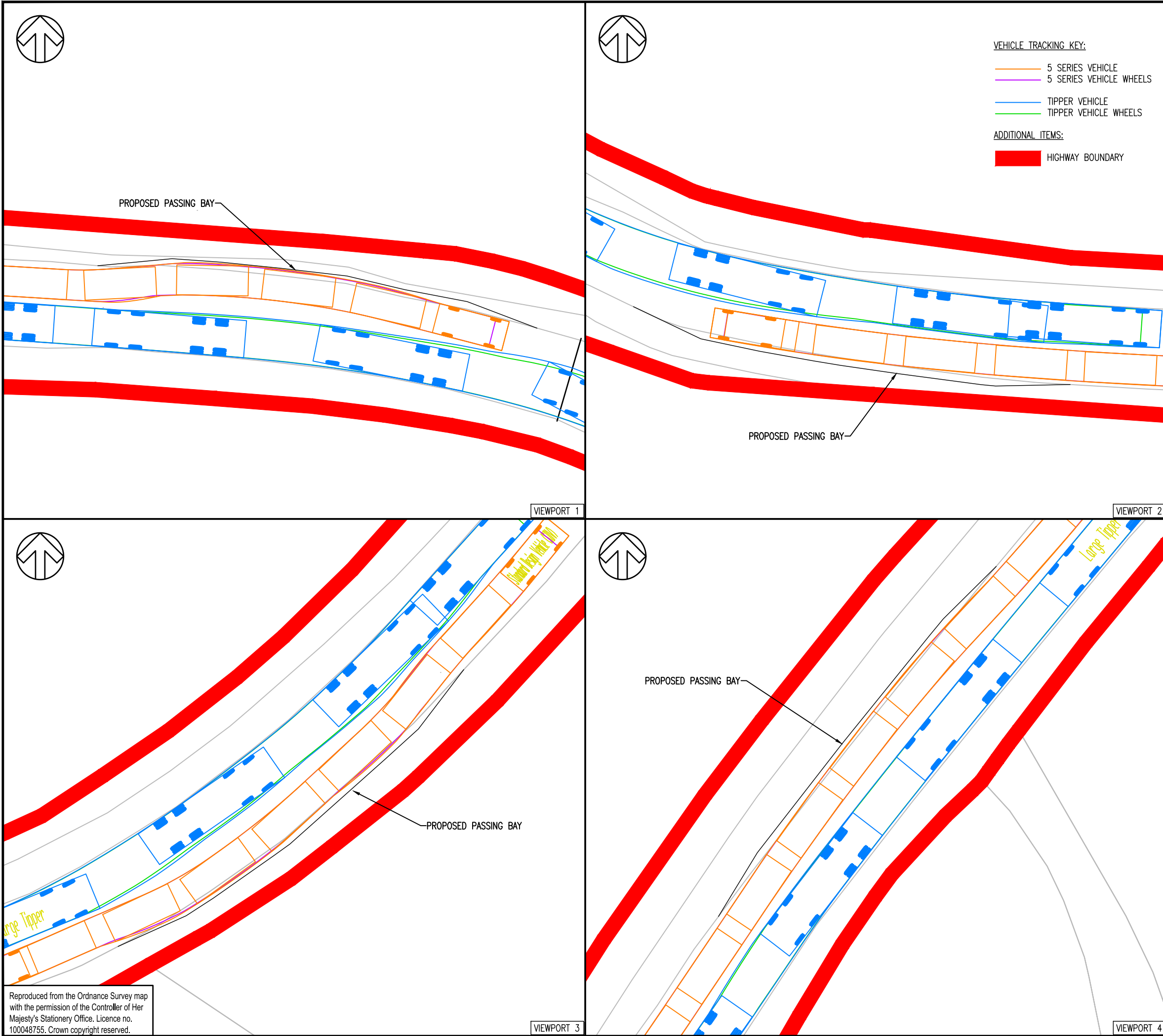
PROJECT No: 62100616	DESIGNED: AVI	DRAWN: AVI	DATE: December 20
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DRAWING No: AQ-UK-DCO-TR-LAY-009	REV: A
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File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\62100616 - AQUIND VO NO.3\IE MODELS AND DRAWINGS\300 - SITE\320 - TASK 7 UK ROUTE\SKQAQ-UK-DCO-TR-LAY-010.DWG, printed on 18 December 2020 16:19:15, by Scurtu, Anela



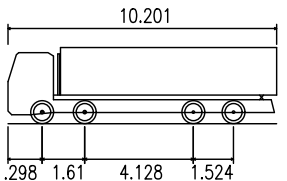
VEHICLE TRACKING KEY:
 — 5 SERIES VEHICLE
 — 5 SERIES VEHICLE WHEELS
 — TIPPER VEHICLE
 — TIPPER VEHICLE WHEELS

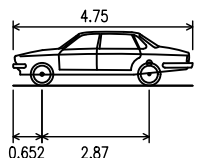
ADDITIONAL ITEMS:
 ■ HIGHWAY BOUNDARY

DO NOT SCALE

NOTES:

- ALL VEHICLES ARE TRACKED AT A DESIGN SPEED OF 5mph.
- SWEPT PATHS WERE TRACKED USING A LARGE TIPPER AND A STANDARD VEHICLE. BOTH PROFILES ARE SHOWN BELOW (DIMENSIONS IN METRES):

	LARGE TIPPER	10.201m
	OVERALL LENGTH	10.201m
	OVERALL WIDTH	2.495m
	OVERALL BODY HEIGHT	2.890m
	MIN BODY GROUND CLEARANCE	0.341m
	TRACK WIDTH	2.471m
	LOCK TO LOCK TIME	6.00s
	KERB TO KERB TURNING RADIUS	11.550m

	5 SERIES	4.750m
	OVERALL LENGTH	4.750m
	OVERALL WIDTH	1.800m
	OVERALL BODY HEIGHT	0.325m
	MIN BODY GROUND CLEARANCE	0.325m
	TRACK WIDTH	1.700m
	LOCK TO LOCK TIME	4.00 sec
	KERB TO KERB TURNING RADIUS	6.200m

A	18/12/2020	AMS	FIRST ISSUE	CW	CW
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: **S2 - FOR INFORMATION**



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CLIENT: 

ARCHITECT: -

PROJECT: **AQUIND**

TITLE: **DAY LANE
 PROPOSED PASSING BAYS SWEPT PATH ANALYSIS**

SCALE @ A3: 1:250 CHECKED: CW APPROVED: CW

PROJECT No: 62100616 DESIGNED: AMS DRAWN: AMS DATE: December 20

DRAWING No: **AQ-UK-DCO-TR-LAY-010** REV: **A**

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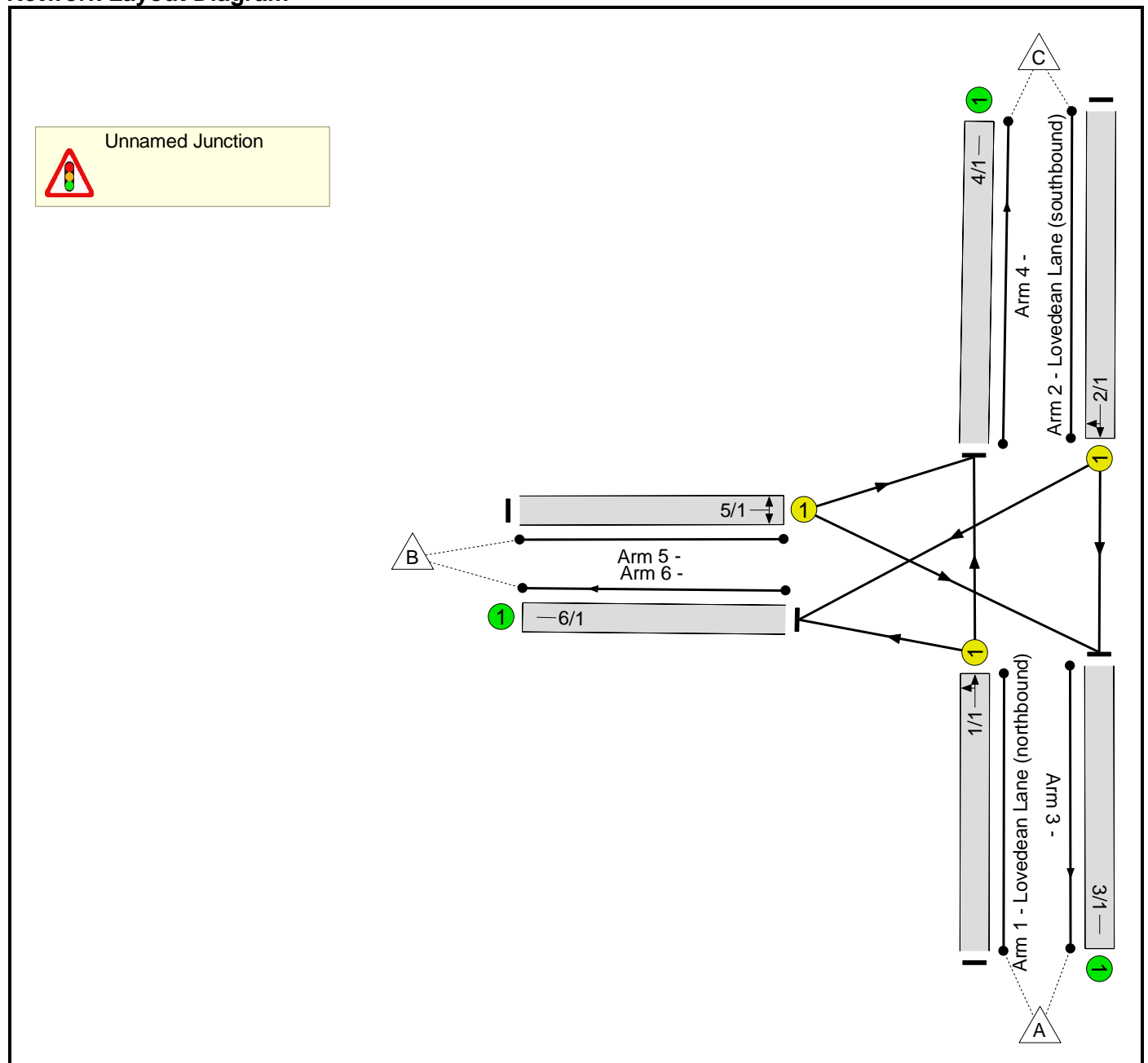
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Full Input Data And Results
Full Input Data And Results

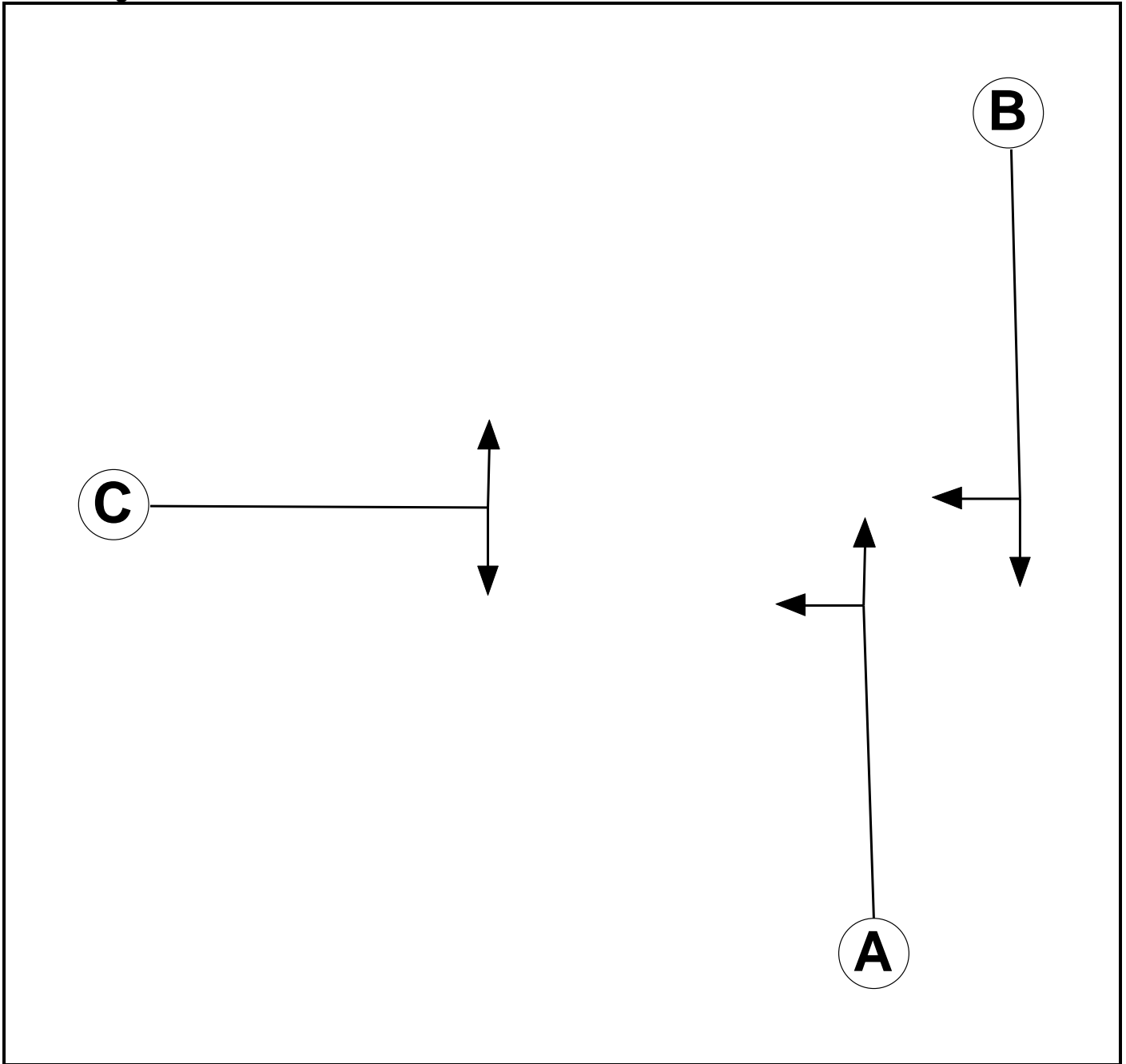
User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Lovedean Lane Day Lane.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7

Full Input Data And Results

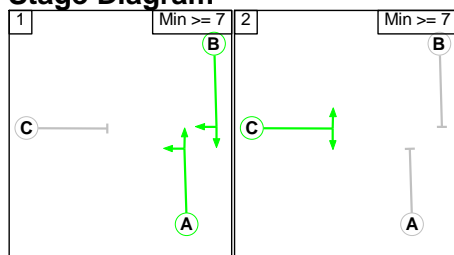
Phase Intergrens Matrix

	Starting Phase			
	A	B	C	
Terminating Phase	A			
	B			
	C			

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	C

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage	To Stage	
	1	2
1		
2		

Full Input Data And Results

Give-Way Lane Input Data

Junction: Unnamed Junction

There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Lovedean Lane northbound)	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 4 Ahead	Inf
											Arm 6 Left	Inf
2/1 (Lovedean Lane southbound)	U	B	2	3	60.0	Geom	-	2.60	0.00	Y	Arm 3 Ahead	Inf
											Arm 6 Right	Inf
3/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 3 Right	Inf
											Arm 4 Left	Inf
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Average DS IP'	10:00	11:00	01:00	

Scenario 1: 'Average DS IP' (FG1: 'Average DS IP', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
A	0	0	144	144	
B	0	0	0	0	
C	173	0	0	173	
Tot.	173	0	144	317	

Traffic Lane Flows

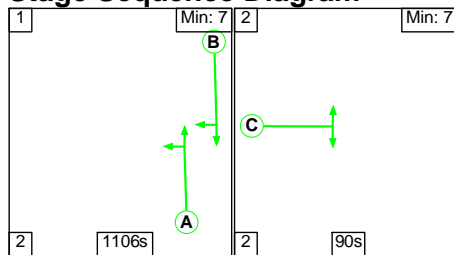
Lane	Scenario 1: Average DS IP
Junction: Unnamed Junction	
1/1	144
2/1	173
3/1	173
4/1	144
5/1	0
6/1	0

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Lovedean Lane (northbound))	3.25	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1940	1940
				Arm 6 Left	Inf	0.0 %		
2/1 (Lovedean Lane (southbound))	2.60	0.00	Y	Arm 3 Ahead	Inf	100.0 %	1875	1875
				Arm 6 Right	Inf	0.0 %		
3/1	Infinite Saturation Flow						Inf	Inf
4/1	Infinite Saturation Flow						Inf	Inf
5/1	3.25	0.00	Y	Arm 3 Right	Inf	0.0 %	1940	1940
Arm 4 Left				Inf	0.0 %			
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: 'Average DS IP' (FG1: 'Average DS IP', Plan 1: 'Network Control Plan 1')

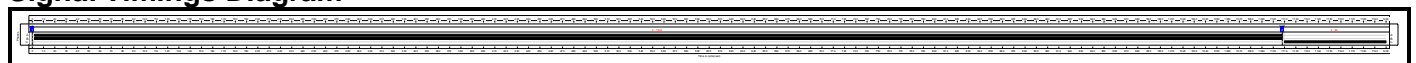
Stage Sequence Diagram



Stage Timings


Stage	1	2
Duration	1106	90
Change Point	0	1108

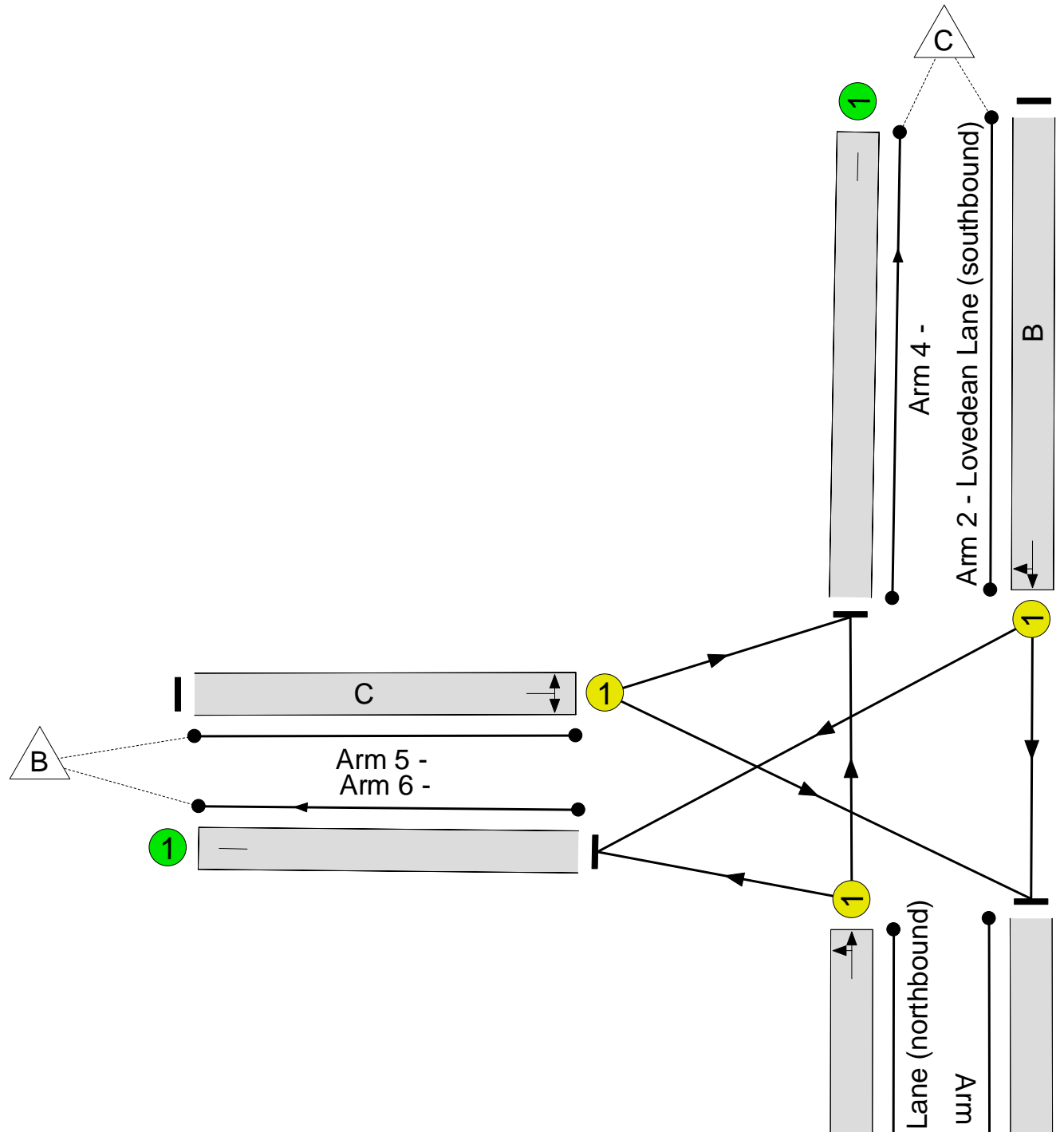
Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram

Full Input Data And Results

 **Unnamed Junction**
PRC: 799.8 %
Total Traffic Delay: 0.4 pcuHr



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	10.0%
Unnamed Junction	-	-	N/A	-	-		-	-	-	-	-	-	10.0%
1/1	Lovedean Lane (northbound) Ahead Left	U	N/A	N/A	A		1	1106	-	144	1940	1790	8.0%
2/1	Lovedean Lane (southbound) Ahead Right	U	N/A	N/A	B		1	1106	-	173	1875	1730	10.0%
3/1		U	N/A	N/A	-		-	-	-	173	Inf	Inf	0.0%
4/1		U	N/A	N/A	-		-	-	-	144	Inf	Inf	0.0%
5/1	Right Left	U	N/A	N/A	C		1	90	-	0	1940	147	0.0%
6/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	0	0	0	0.3	0.1	0.0	0.4	-	-	-	-
Unnamed Junction	-	-	0	0	0	0.3	0.1	0.0	0.4	-	-	-	-
1/1	144	144	-	-	-	0.2	0.0	-	0.2	5.0	4.0	0.0	4.0
2/1	173	173	-	-	-	0.2	0.1	-	0.2	5.1	4.9	0.1	5.0
3/1	173	173	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	144	144	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1			PRC for Signalled Lanes (%): 799.8		Total Delay for Signalled Lanes (pcuHr): 0.45		Cycle Time (s): 1200						
			PRC Over All Lanes (%): 799.8		Total Delay Over All Lanes(pcuHr): 0.45								

