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Rebuttal Proof of Evidence Application 21/01028/OUTMAJ

HMP Garth and HMP Wymott, Moss Lane, Ulnes Walton, Leyland

Ministry of Justice

November 2023

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Rebuttal Proof of Evidence of Kevin Riley, Graham Eves, Lynette Morrissey and Paul Parker

TOWN AND COUNTRY PLANNING ACT 1990

APPEAL BY THE MINISTRY OF JUSTICE

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1. Introduction

1.1. Background

1.1.1. This Rebuttal relates to issues raised in the Proof of Evidence ("PoE") submitted by Mr Riley (on behalf of Chorley Council), Mr Eves (Ulnes Walton Action Group), Ms Morrissey (Ulnes Walton Action Group), and Paul Parker (Ulnes Walton Action Group). The respective CD references are listed below:

a. Mr Riley PoE and Appendices (CD N3).

b. Mr Eves PoE (CD O22) and Appendices (O23).

c. Ms Morrissey (CD O35) and Appendices (O37 to O70, where O46 to O70 are video files).

d. Mr Parker PoE (O25) and Appendices (O27 to O34).

1.1.2. It has been prepared and submitted in respect of an appeal for the following development:

"Hybrid planning application seeking: Outline planning permission (with all matters reserved except for means of access, parking and landscaping) for a new prison (up to 74,531.71 sqm GEA) (Class C2A) within a secure perimeter fence following demolition of existing buildings and structures and together with associated engineering works; Outline planning permission for a replacement boiler house (with all matters reserved except for access); and Full planning permission for a replacement bowling green and club house (Class F2(c)) on land adjacent to HMP Garth and HMP Wymott, Leyland"

1.1.3. I have focussed my evidence within this Rebuttal on the matters where I consider Rebuttal evidence would most assist the Inquiry. However, this should not be taken as a concession that I accept the other parts of the PoE submitted by Mr Riley, Ms Morrissey, and Ms Curtis which I do not comment on here.

1.2. Rebuttal structure

1.2.1. This Rebuttal uses the following structure:

a. Chapter 2 provides evidence in response to the PoE submitted by Mr Riley;

b. Chapter 3 provides evidence in response to the PoE submitted by Mr Eves;

c. Chapter 4 provides evidence in response to the PoE submitted by Ms Morrissey; and;

d. Chapter 5 provides evidence in response to the PoE submitted by Mr Parker.

2. Mr Riley (CD N3)

2.1. Ulnes Walton Carriageway Markings and Traffic Calming

Speed Indication Device (SpID)

2.1.1. At Paragraph 2.1.13 Mr Riley states that:

> *"There is evidence of speeding issues on the southern section of Ulnes Walton Lane with a flashing speed indicator sign for northbound traffic (towards the Prison) located on the southernmost section of Ulnes Walton Lane (in the vicinity of the equine centre lay-by). Presumably this was installed by the LHA and confirms that there are concerns of existing safety issues on this section of Ulnes Walton Lane, and the Appellant has not considered any mitigation other than at the Moss Lane and A581 junctions."*

2.1.2. The sign in question is shown on Figure 2-1 below and is a Speed Indication Device (SpID). It should be noted that the vast majority of SpID's are funded and requested by Parish Councils.

Figure 2-1 – Existing SpID on Ulnes Walton Lane (Footage taken 13th July 2022)

2.1.3. I have included guidance in Appendix A from Lancashire County Council (LCC) setting out the process for a Parish Council to request and install a SpID. A SpID is technically a temporary sign, which can only be in place for a certain amount of time. The requirements for installing a SpID include (amongst others):

a. Confirmation that the Parish have the funding in place;

b. Confirmation of the type of SpID;

c. Confirmation of potential locations, and that the Parish Council has consulted any residents;

d. Risk assessment for the safe installation of the equipment;

e. Structural assessment of installation options; and

f. Post installation requirements.

2.1.4. There is no requirement that the Parish Council needs to present any evidence of an existing road safety issue, or indeed that the Local Highway Authority (LHA) need to have a road safety concern.

2.1.5. An examination of Google Streetview© indicates that the SpID has been installed since (at least) June 2021.

2.1.6. Mr Eves (Appendix A in CD O23) has provided vehicle speed data for Ulnes Walton Lane, summarised in Table 2-1. This data shows that vehicle speeds are below the 40mph speed limit. Mr Riley has not provided any evidence of vehicle speeding.

Table 2-1 - Ulnes Walton Lane Speed Data

Vehicle Speed	Weekday (NB)	7 Day (NB)	Weekday (SB)	7 Day (SB)
85th Percentile (mph)	34.08	34.10	34.54	34.7
Average Speed	29.5	29.4	29.4	29.5

2.1.7. In summary, the presence of a SpID is not evidence of a road safety issue, and the evidence from UWAG demonstrates that the average and 85th percentile speeds are well below the posted speed limit.

Scheme Drawing

2.1.8. At Paragraph 2.1.14, Mr Riley points out that DWG GARTH_ATK_HGN_MOSS_DR_D_0003 references a raised table. The key on this drawing has been revised and an updated version of the DWG is included in Appendix B of this Rebuttal.

Forward Visibility

2.1.9. Mr Riley discusses the forward visibility at the Moss Lane/Ulnes Walton Lane junction. He maintains at Paragraph 2.1.15 that "*There has been no attempt to improve forward visibility for drivers turning right into Moss Lane to access the appeal site, which will remain impaired*."

2.1.10. My PoE (CD M6) includes a full review of relevant highway design policy, and it is clear that guidance indicates that the starting point for roads not on the trunk road network should be Manual for Streets 2 (MfS2). The relevant extracts are appended to my Proof.

2.1.11. With regards to forward visibility, Paragraph 10.3.2 in MfS2 states that:

> *"However, there will be situations in locations with design speeds of 60kph or less where it is desirable and appropriate to restrict forward visibility to control traffic speed - research carried out for MfS1 describes how forward visibility influences speed".*

2.1.12. Mr Riley contradicts the above guidance by suggesting that a 120m visibility splay is provided, effectively upgrading Ulnes Walton Lane to a trunk road standard. If we were to follow Mr Riley's advice, to provide trunk road standard visibility, it is likely that vehicle speeds would increase. I also note that Mr Eve's data shows that drivers do not currently speed at this location.

2.1.13. As stated, I disagree that we should assess the forward visibility using DMRB, and that MfS2 is the correct approach. In which case the formula for calculating SSD is detailed within MfS2 (Paragraph 10.1.15). I have used the recommended formula to calculate the SSD at this location, using Mr Eve's southbound speed information, see Figure 2-2.

Figure 2-2 – MfS2 Visibility Calculation

Required Visibility

85th Percentile Speed (mph)		34.7 mph
85th Percentile Speed (kph)		55.867 kph
Metres per Second		15.519 m/s
Perception Reaction Time	t=	1.5 secs
	v=	15.519 m/s
Decerelation Rate	d=	4.41 m/s2
	a=	0.00 %
Stopping Sight Distance	SSD =	51 m
SSD plus Bonnet Distance (2.4m)	SSD + Bonnet =	53 m

2.1.14. The calculation confirms that an SSD of 53m is required at this location. Mr Riley has provided Drawing 7769-WSP-SK-014 (PDF page 40 in CD N3) which confirms that a forward visibility value of 63m is achievable, well above the minimum requirement I have calculated.

2.1.15. In summary:

a. The evidence from Mr Eve clearly demonstrates that vehicle speeds at this location are well within the posted speed limit.

b. The forward visibility available is above the requirements in the guidance for local roads.

c. That national guidance specifies that it is desirable and appropriate to restrict forward visibility to control traffic speeds.

2.2. Moss Lane Traffic Calming

2.2.1. My PoE (CD M6) provides the justification for the proposed traffic calming scheme and the rationale behind the interventions, and I do not repeat that here. However, Mr Riley has stated that a prison van would be able to locate both axles on the raised table when approaching from the access from the existing prisons. My responses to this point are that:

a. This point was not raised in the road safety audits.

b. Mr Riley (drawing 7769-WSP-SK-01) has demonstrated this point using a 10m Rigid HGV. Most prison vans are between 6.5m and 7m long, only the largest 12 cell vans are 10m long. Therefore, the scenario described by Mr Riley has a low likelihood of occurrence.

2.2.2. Without prejudice to the above points, we have updated the layout (see DWG GARTH_ATK_HGN_MOSS_DR_D_0002_P4 in Appendix C) to show the raised table can easily be further extended into the existing HMP Garth and HMP Wymott access arm.

2.3. A581/Ulnes Walton Lane Mitigation

2.3.1. At Paragraph 5.1.1 Mr Riley incorrectly states that the Appellant previously proposed that a S106 contribution would be spent on a signalised junction improvement scheme. Whilst a signal junction was discussed with LCC during pre-application scoping discussions, it was agreed with LCC that the improvement would be a mini roundabout. This was the case for the Hybrid Planning Application, the previous Inquiry, and the situation is accurately described by the Inspector at IR13.29.

Swept Path Analysis

2.3.2. At Paragraph 5.2.16 Mr Riley suggests that at the mini roundabout scheme, a HGV emerging from Ulnes Walton Lane would collide with a vehicle waiting on the A581 eastern approach because the HGV has priority over the vehicle. This is a hypothetical scenario which requires drivers to disobey various sections of the Highway Code.

2.3.3. Firstly, if there is a vehicle waiting, it would not necessarily be positioned at the give way line in a location in conflict with the swept path. The predicted overrunning of the most onerous swept path (16.5m Max Legal Length Articulated Vehicle) is only partially across the approach lane (around

1.5m). The give way line is 3.9m wide, leaving around 2.4m which is sufficient for a typical car being in the region of 2m in width.

2.3.4. Secondly, the HGV driver would see any vehicle waiting at the give way line and would **not** make the manoeuvre **until it was safe to do so**. To suggest the HGV would pull out and collide with a vehicle waiting is suggesting the driver of the HGV would contravene Rule 170 of the Highway Code which requires drivers to not cross or join a road until there is a gap large enough for them to do so safely.

2.3.5. Thirdly, a vehicle approaching the mini roundabout from the A581 would see the HGV approaching the junction and is also required to watch out for long vehicles which may be turning at a junction ahead as they may have to use the whole width of the road to make the turn (Rule 170 and Rule 221 of the Highway Code in Appendix D).

2.3.6. Similarly, Rule 221 of the Highway Code which specifically relates to large vehicles, notes these may need extra road space to turn or to deal with a hazard that you are not able to see. It notes drivers should be prepared to stop and wait if it needs room or time to turn. This behaviour is shown in the movie submissions from Ms Morrissey (CD O46 and O47) which show buses turning into A581. In the O46 example, the bus waits for the car to exit Ulnes Walton Lane, it does not continue with the turning movement regardless of other road users. This is an everyday occurrence at thousands of locations across the UK.

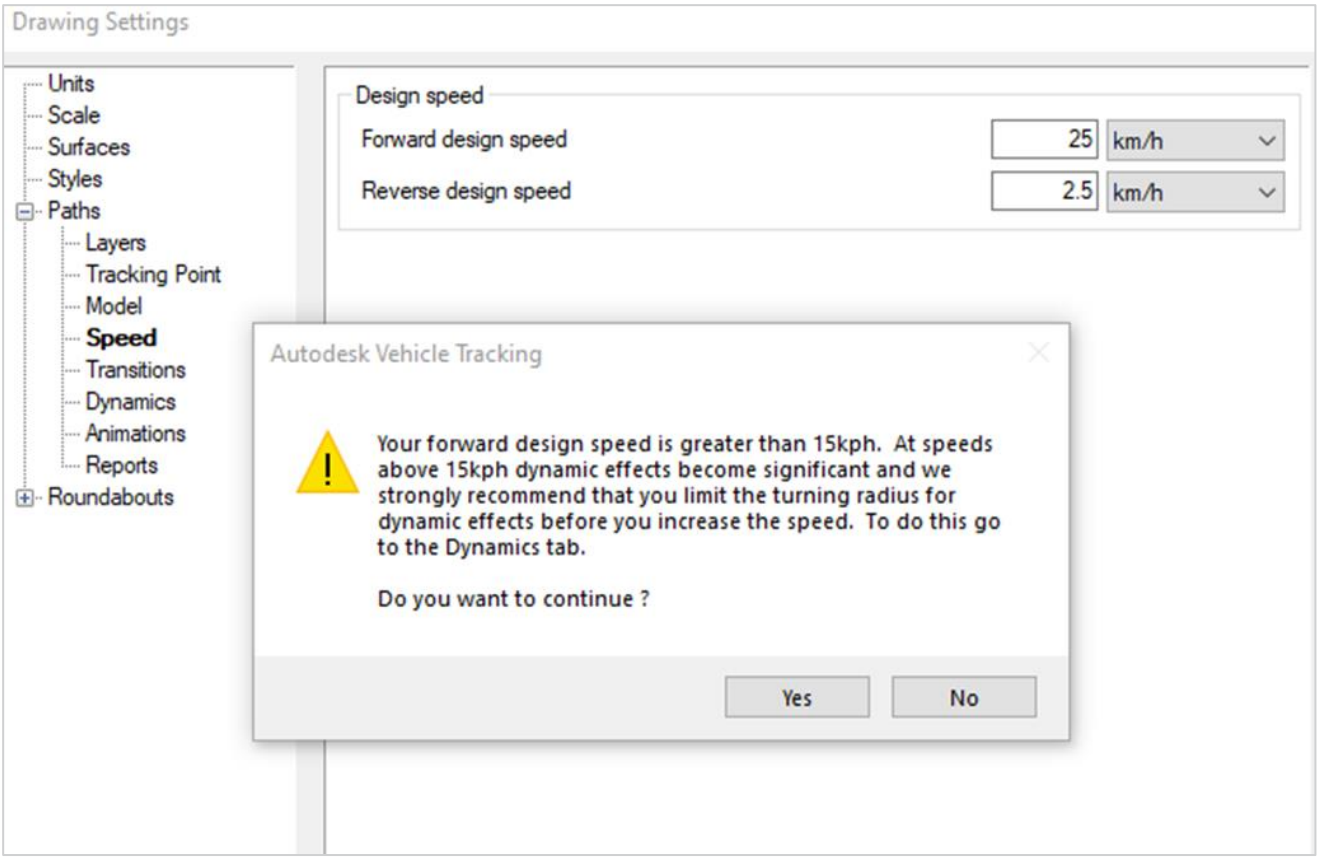
2.3.7. Mr Riley goes on to suggest that delays and capacity predictions for the scheme may be impacted by delays caused by HGV manoeuvres and suggests this is something that junction modelling cannot take into account. This is incorrect. The junction modelling is informed by empirical data, and the capacity of these observed junctions will have included HGV movements. The Junctions software specifically includes an input variable for percentages of HGVs, so that queues and delay predictions can be informed by the proportion of HGVs using the junction.

2.3.8. At Paragraph 5.2.23 Mr Riley notes that the settings in the Vehicle Swept Path software have been altered by WSP so that the articulated HGVs are undertaking turning movements at two speeds, 15kph and 25kph. I am surprised that these settings have been altered, and urge extreme caution when considering the outputs, with my reasons as follows:

a. An articulated HGV will travel through a junction at slow speeds, particularly given the traffic calming measures and raised table. It should be noted that 25kph equates to 7m per second. It would be almost impossible for an articulated HGV to traverse any traffic calming measure at 25kph, whilst also taking a 90 degree turn at this speed.

b. For this reason, the software provides a caution warning when changing the vehicle speeds greater than 15kph (see Figure 2-3). Mr Riley's proof does not provide justification for changing these critical settings.

Figure 2-3 – Vehicle speed warning



2.3.9. Altering the settings for the vehicle speeds only serves to provide an exaggerated output. It is impossible, and undesirable, to design a mini roundabout which can adequately accommodate an articulated HGV moving at this high speed. On this basis I provide no further commentary on the vehicle swept paths produced at high speeds as they do not provide an appropriate assessment.

2.3.10. At Paragraph 5.2.31, Mr Riley attempts to describe a scenario where a vehicle is exiting a private drive onto the mini roundabout. It is a very convoluted scenario which is described, but in general I would expect road users, including users exiting the private drive, to adhere to the Highway Code, which states at Rule 184, that:

> *"**On approaching a roundabout** take notice and act on all the information available to you, including traffic signs, traffic lights and lane markings which direct you into the correct lane. You should use **Mirrors – Signal – Manoeuvre** at all stages.*
>
> - *decide as early as possible which exit you need to take*
> - *give an appropriate signal (see Rule 186, below). Time your signals so as not to confuse other road users*
> - *get into the correct lane*
> - *adjust your speed and position to fit in with traffic conditions*
> - *be aware of the speed and position of all the road users around you."*

Traffic Calming

2.3.11. Mr Riley at Paragraph 5.3.10 references the RSA, and comment on providing details on kerb upstands. At Paragraph 5.3.13, Mr Riley states that it is "not possible to provide a continuous upstand", and that a "flush surface" is required. At this stage we have not designed the pavements, or specified kerbs as those are items addressed at Section 278 / detailed design stage. Notwithstanding, clearly there will need to be a kerb upstand, and that upstand will an important part of the highway drainage system. The kerb upstand will need to be reduced so that a car can comfortably pass over it, whilst demarking the difference between the footway and carriageway. Mr Riley's statement that it is **not possible** is entirely incorrect. To provide evidence on this point, I have included Oxfordshire County Council's technical specification (Appendix E) which states that "All kerbs at vehicle crossovers are to have a maximum 25mm upstand." Whilst this information is for another highway authority it demonstrates that Mr Riley statement is incorrect.

2.3.12. Mr Riley repeats this point at 5.5.6.

Substandard junction visibility

2.3.13. At Paragraph 5.4.36 Mr Riley notes that the x distance of 9m, which was adopted to assess the existing visibility splays, is incorrect, and that 2.4m should be used. I acknowledge that this is correct. Notwithstanding, the proposed mini roundabout is still providing an overall betterment as:

a. It provides a traffic calming scheme on the A581, lowering vehicle speeds; and

b. The existing layout in 2025 (no development) (CD M3 Table 5-2) shows that the junction does not operate within capacity, but that the proposed mini roundabout will provide an improvement, reducing overall delay in the critical AM period by 10 seconds (~13%).

Junctions 10 Capacity Analysis

2.3.14. At Paragraph 5.6.4. Mr Riley refers to a standard warning error generated by Junctions 10 during the AM Peak (Appendix T in CD M3). An extract of the warning is provided in Figure 2-4.

Figure 2-4 - Junctions 10 data warning

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 91% of the total flow for the roundabout for one or more time segments]

2.3.15. In Paragraph 5.6.5, Mr Riley, states that the unbalanced flows could lead to '*unsafe behaviour'.* Mr Riley goes on to state that "*if vehicles are not regularly stopped and required to give-way to traffic, there is a risk that those vehicles, through habit, will continue through the junction without stopping and will then be at risk of conflicting with an opposing vehicle when one arrives at the junction from Ulnes Walton Lane".*

2.3.16. First, in response to Mr Riley's claims of '*unsafe behaviour"* it is important to note that the data error warning generated by Junctions 10 is in specific relation to the capacity results. Where it states in the description to "*treat results with caution*", this specifically refers to the capacity outputs. This is not a warning in relation to the design of the junction or an indication of a highway safety issue. The 'Junctions 10 User Guide' (Appendix F) specifically states at Paragraph 14.2.1 that the software will underestimate the capacity of the junction if a mini roundabout has dominant through movements. Therefore, it is likely that the capacity of the proposed mini roundabout scheme at the A581/Ulnes Walton Lane junction has underestimated the forecast junction capacity and in reality, the scheme will perform even better once constructed and operational.

2.3.17. Second, Mr Riley claims in Paragraph 5.6.5 that "*an approaching vehicle could be assuming they have right of way until the last moments, before being able to see an opposing vehicle and overshooting the give-way into the path of the opposing vehicle. I note the Appellant has attempted to mitigate this by considering give-way markings on the A581 east, but it is my view that given drivers will travel regularly through the junction and be familiar with its operation, they will not be sufficient".*

2.3.18. Mr Riley has made reference to the give-way marking which will now be present on the A581. However, he has failed to acknowledge the other measures proposed by the Appellant at this location. These measures were outlined in Paragraph 8.1.3 of my Proof (CD M6) and include:

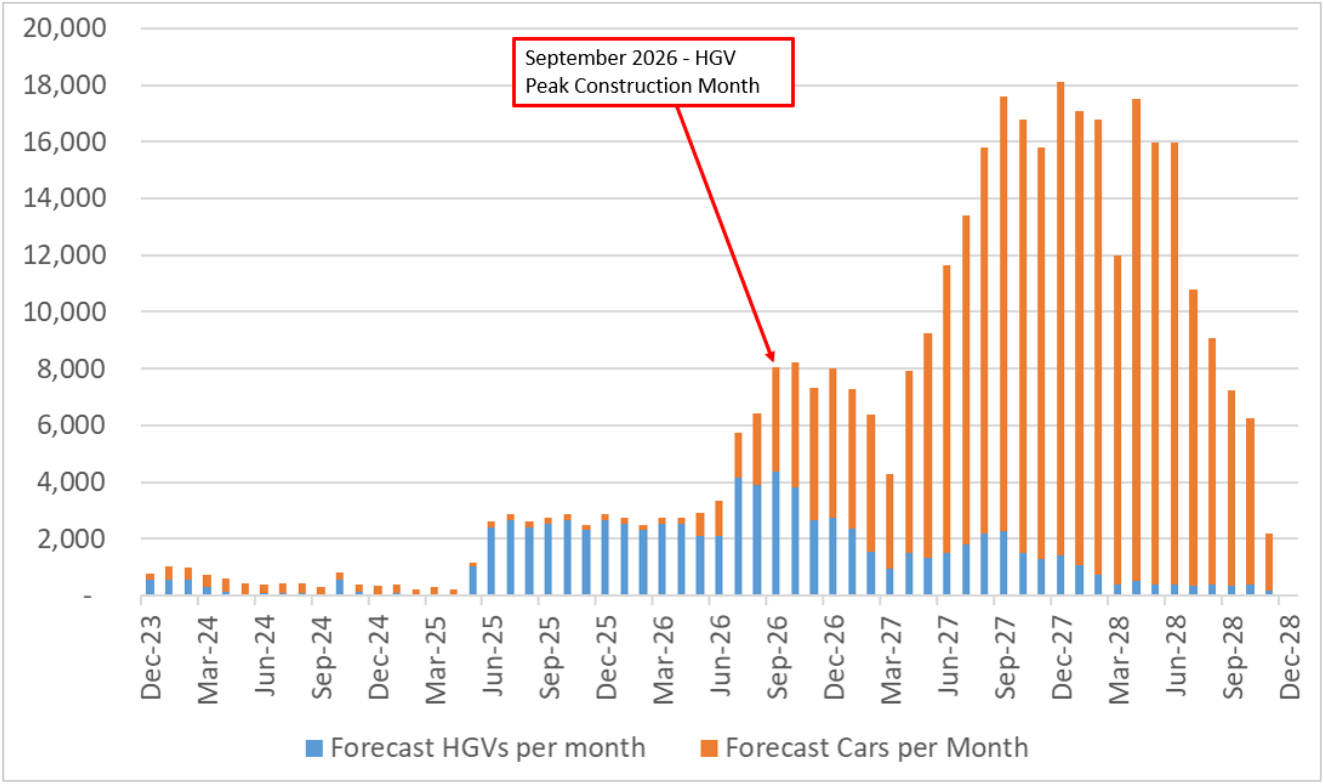
a. The provision of a raised table;
b. The provision of speed cushions along the A581;
c. Three new lighting columns on the Ulnes Walton Lane approach;
d. Relocated speed limit signs along Ulnes Walton Lane to extend the existing 30mph zone;
e. A reduced Inscribed Central Diameter (ICD); and
f. Dragons Teeth on all approach arms.

2.3.19. In my expert opinion, the additional measures proposed by the Appellant would provide vehicles with sufficient advanced warning of the approaching junction whilst reducing vehicle speeds as per the report on traffic calming on major roads (TRL Report 385) referenced in Paragraph 8.10.4 of my Proof (CD M6).

2.4. Construction Phase Impacts

2.4.1. At Paragraph 6.4.13 in Mr Riley's PoE (CD N3) he correctly identifies that *"the peak in HGV movements actually occurs in September 2026*". This was confirmed by the Appellant in Figure 6-2 and Paragraph 6.4.4 of CD M3. For ease of reference, I have provided Figure 6-2 from CD M3 in Figure 2-4 below. Please note I have reversed the HGVs and Cars so that you can clearly see the HGV profile in blue at the bottom of the graph.

Figure 2-5 - Monthly Forecast Construction Vehicles Across Construction Programme

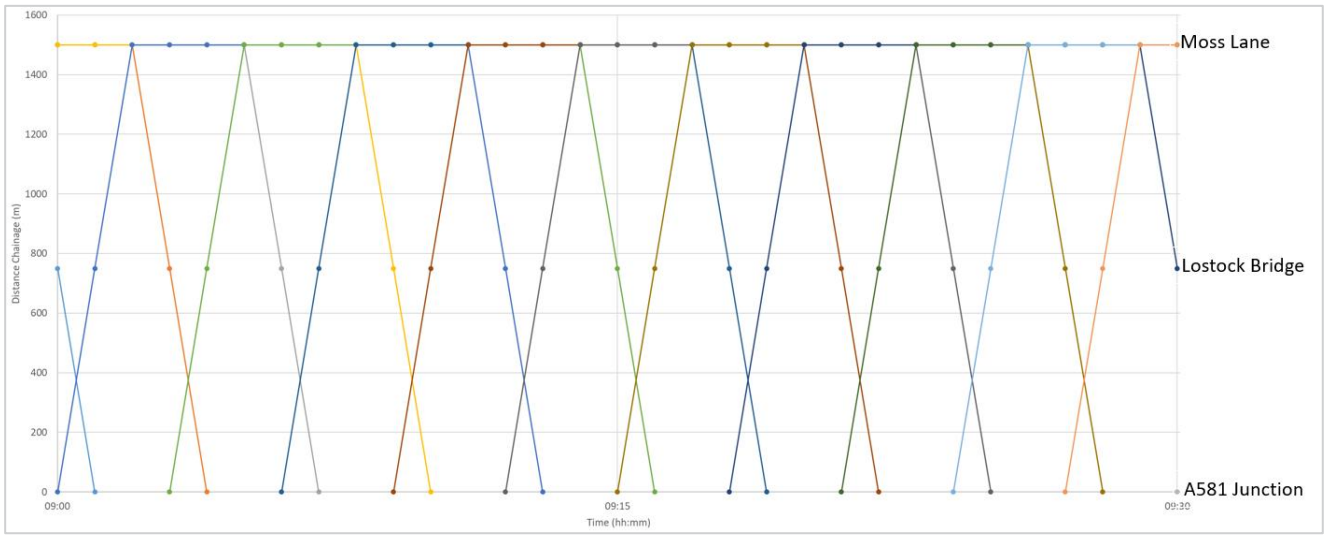


2.4.2. Mr Riley goes on to state at Paragraph 6.4.15 that "*it takes approximately 2 minutes in uncongested conditions to travel along Ulnes Walton Lane from the A581 junction to the Moss Lane junction. This does not account for any delays encountered at either junction. It is therefore likely, given that there will be one HGV movement every 1.5 minutes, that two HGVs will need to travel past each other, which as I will set out in this Proof is not physically possible due to the narrow road and the bends*".

2.4.3. In response to the point raised by Mr Riley, I have taken the arrival and departure profile for HGVs during September 2026, the Peak Construction Month for HGV movements and plotted the time and distance along Ulnes Walton Lane (see Figure 2-5). The analysis identifies the points of conflict along Ulnes Walton Lane based on the arrival and departure profile for HGVs and the time it takes to travel along Ulnes Walton Lane (based on a speed of 30mph).

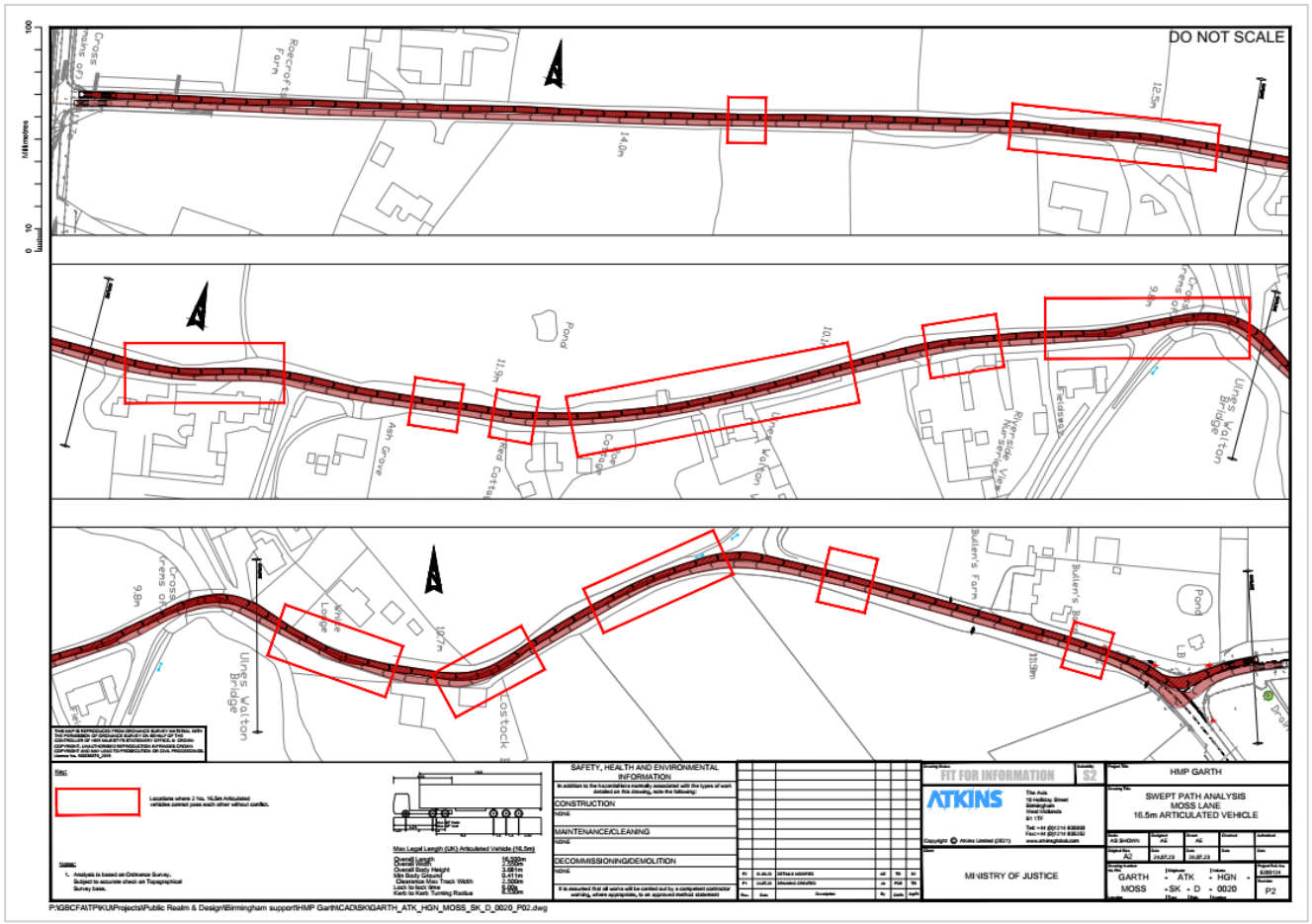
2.4.4. The analysis demonstrates that it is probable that during the peak construction period that two HGVs will meet on Ulnes Walton Lane. However, within my analysis the most likely passing point is approximately 400m north of the A581/Ulnes Walton Lane junction.

Figure 2-6 – HGV Time/Distance Chart along Ulnes Walton Lane



2.4.5. To determine if the point of passing identified will cause a highway safety issue, I have undertaken further SPA along Ulnes Walton Lane using a 16.5m Max Legal Length (UK) Articulated Vehicle (see Figure 2-6).

Figure 2-7 – SPA along Ulnes Walton Lane (16.5m Articulated Vehicle)



2.4.6. The SPA in Figure 2-6 demonstrates that there is approximately 690m of carriageway between the A581/Ulnes Walton Lane junction and the Moss Lane/Ulnes Walton Lane junction which is potentially too narrow for two 16.5m Articulated Vehicles to pass. For context, the distance along Ulnes Walton Lane between these two junctions is approximately 1.5k.

2.4.7. The point of conflict identified on Figure 2-5 is located along the southern section of Ulnes Walton Lane which has sufficient carriageway space for two 16.5m Articulated Vehicles to pass safely as demonstrated on Figure 2-6. It is also important to note that SPA is a very robust assessment of vehicular movements which assumes vehicles move in a uniform fashion. As demonstrated in Figure 2-3, SPA is also largely affected by other factors including design speed. In Appendix 2 of Ms Morrisey's PoE (CD O35), there is photographic evidence demonstrating:

a. That two HGVs can pass side by side along Ulnes Walton Lane (Reference A10).

b. That a HGV and a Bus can pass on Lostock Bridge (Reference A12).

c. That it is possible for a fire engine and a HGV to pass on Lostock Bridge (Reference A16).

2.4.8. In addition, the logistics report commissioned by Laing O'Rourke (see Appendix N in Core Document M3) confirmed that it is possible for a HGV to access the site without impacting or overrunning any existing kerb lines. Therefore, I do not consider there to be a highway safety issue associated with the Peak Construction Month for HGV movements (September 2026).

2.4.9. LCC, as the Local Highway Authority also confirmed that the impact of construction traffic will not give rise to any unacceptable highway safety impacts (see Appendix A in CD M3). LCC also reiterated that they are "*committed to continue working positively with the MoJ should the appeal be allowed, regarding the Construction Traffic Management Plan for each phase of development, as required by proposed condition 20. This will include careful analysis of the routing of construction vehicles, deliveries, their adherence to agreed routes, necessary restrictions, and vehicle caps (HGV's)".*

2.4.10. As part of the additional highways evidence (See Table 6-11 in Core Document M3), the Appellant has provided a summary of the measures contained within the Working Draft Construction Traffic Management Plan (CTMP - Core Document K11). The measures include signage on the local highway network, such as temporary speed limit restrictions, diversion routes, and construction warning signs; wheel washing; Plant and Vehicle Marshals to control deliveries; incident reporting; and monitoring of traffic conditions on the public highway.

3. Mr Eves (CD O22)

3.1. The Appellant's Highway Improvements

3.1.1. At Paragraph 4.1, Mr Eves states that "*the available visibility for southbound vehicles turning right into Moss Lane is only about 50m*". This contradicts the evidence presented by Mr Riley who states that the achievable Stopping Sight Distance (SSD) is 63m (see Paragraph 2.1.17 in CD N3). Notwithstanding, I have addressed forward visibility earlier in this rebuttal at Section 2.1.

3.1.2. Mr Eves proceeds to reference the Junctions 10 outputs for the Ulnes Walton Lane/Moss Lane junction provided in Appendix Q of CD M3a. The Junctions 10 outputs demonstrate that the Appellant has assumed a SSD of 28.8m for traffic turning right into Moss Lane from Ulnes Walton Lane (see Figure 3-1). If the Appellant was to update the Junctions 10 model for the Ulnes Walton Lane/Moss Lane junction to increase the SSD value in line with the distance quoted by Mr Eves or Mr Riley it would only improve the operational capacity of the junction and therefore the Appellant has been overly robust in the assumptions applied to the standalone junction capacity modelling.

Figure 3-1 – Extract from Appendix Q (Core Document M3a)

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Ulnes Walton Lane (N)	6.70			28.8	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

3.1.3. At Paragraph 4.3, Mr Eves states that "*during the AM construction peak, the number of vehicles turning right into Moss Lane will increase from 46 PCUs to 281 PCUs (Table 6-4) - in approximate terms an increase of 250 vehicles or an additional vehicle every 15 seconds*". To confirm, the exact increase is 235 PCUs which is forecast to occur during the AM Construction Peak (06:00-07:00). This is outside of the AM Network Peak (07:00-08:00) where the volume of background traffic on the network is higher.

3.1.4. At Paragraph 4.3, Mr Eves also refers to the forecast vehicle queue associated with vehicles waiting to turn right into Moss Lane (1.7 PCUs). Specifically, Mr Eves states *"…there will always be at least 1 vehicle waiting to turn right into Moss Lane (Table 6-5 identifies a queue of 1.7 vehicles)".* To confirm, the outputs from Junctions 10 present the maximum queue from the worst performing time period, which is equal to 1.7 PCUs. It is incorrect to assume that this queue will remain constant throughout the hour (as demonstrated in Figure 3-2).

Figure 3-2 - Junctions 10 - Queue Profile for Right Turning Traffic into Moss Lane

3.1.5. Mr Eves has also provided some anecdotal evidence in Paragraph 4.3 stating that "*for many drivers a delay of even 19 seconds at an "uncontrolled" junction, before a turning movement can be undertaken, can seem "interminable" and can lead to "chances" being taken, which then increases the risk of a collision occurring*". Mr Eves has not provided any evidence to support this claim.

3.1.6. In response to the anecdotal evidence presented by Mr Eves, I would like to reiterate that the analysis presented in Table 6-5 (CD M3a) demonstrates that the Moss Lane/Ulnes Walton Lane junction is forecast to operate within acceptable thresholds of capacity in all of the assessment scenarios, and as per Figure 6-3 (in CD M3) the number of vehicles associated with the construction phase of the project will only exceed the operational phase for a total 10 months during the construction programme.

3.1.7. In addition, Section 3.6 within the TA for GW2 provides a review of historic PIA data from the DfT (CD A35). The PIA data covers a five-year analysis period (2016-2020) and includes the Moss Lane/Ulnes Walton Lane junction. I updated the PIA analysis within my original PoE (refer to Table 5-2 and Figure 5-1 in CD E4). The updated analysis confirmed that there has been zero recorded PIAs at the Ulnes Walton Lane/Moss Lane junction during the five-year analysis period. Therefore, I do not consider there to be an existing highway safety issue at the Moss Lane/Ulnes Walton Lane junction, especially in relation to the existing forward visibility.

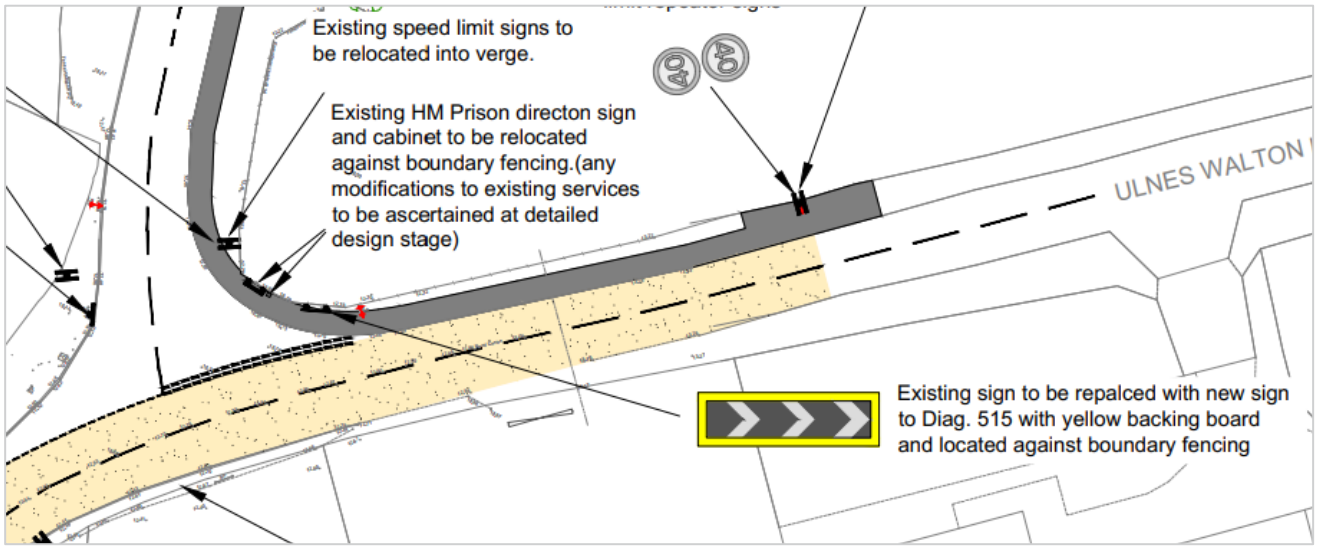
3.1.8. In addition, as per IR13.21, the Inspector has confirmed that the evidence indicates that the proposals would not exacerbate any safety issues insofar as PIAs are concerned.

3.2. Vulnerable Road Users

3.2.1. At Paragraph 4.4, Mr Eves makes reference to the Appellants proposal to provide a new 2m wide footway along Ulnes Walton Lane (from the existing northbound bus stop on Ulnes Walton Lane to the existing access junction for HMP Garth and HMP Wymott on Moss Lane (see DWG: GARTH_ATK_HGN_MOSS_DR_D_0003 in CD M3a). Mr Eves states that the new footway will require "*the existing signage and/or any new signage to be located such that it does not impede the use of the footway by pedestrians… it appears that the signage required (and any relocated cabinet) will encroach into the new footway to be provided for pedestrians thus narrowing the width available*".

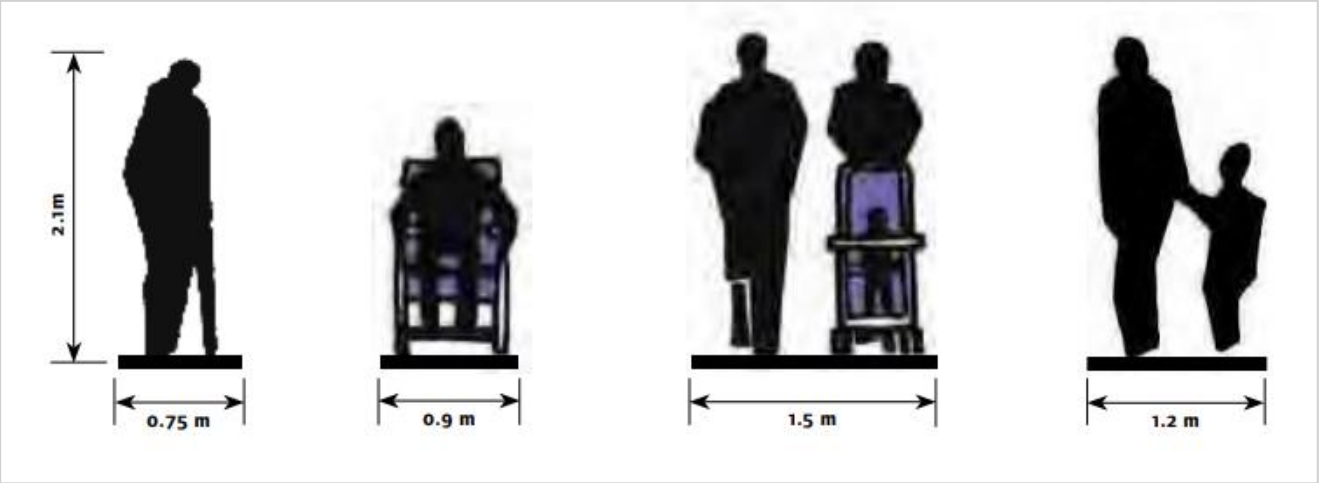
3.2.2. Please note, the Appellant has indicated on DWG: GARTH_ATK_HGN_MOSS_DR_D_0003 that the existing and proposed street furniture is to be either relocated or located against the boundary fencing to maximise the width of the proposed footway. For ease of reference, please see an extract from DWG: GARTH_ATK_HGN_MOSS_DR_D_0003 below in Figure 3-3.

Figure 3-3 - Extract from DWG: GARTH_ATK_HGN_MOSS_DR_D_0003



3.2.3. In addition, the Appellant is proposing to provide a 2m wide footway in accordance with Manual for Streets to accommodate the vulnerable road users identified in Figure 3-4. Therefore, there is sufficient footway even if the existing and proposed street furniture is located at the back of the footway against the boundary fence.

Figure 3-4 - Extract from Figure 6.8 in MfS



3.2.4. It is also important to note that exact location of the existing and proposed street furniture is subject to agreement with Lancashire County Council (LCC) as the Local Highways Authority during the s278 process. In addition, the proposed footway will be subject to further Road Safety Audits (RSAs) during the detailed designs stage.

3.2.5. At Paragraph 4.4, Mr Eves also suggests that the proposed footway width may cause an issue for pedestrians waiting to cross the road to access the post box. I refer to Paragraph 7.3.8 in my Proof (CD M6) which confirms that no pedestrians were recorded using the post box during either of the 12-hour survey periods (Thursday 8th June and Saturday 10th June 2023).

3.2.6. At Paragraph 4.10, Mr Eves makes reference to National Highways guidance regarding departures from standard. As per Paragraph 4.3.4 and Figure 4-1 in my PoE (CD M6), Moss Lane, Ulnes Walton Lane, and the A581 do not form part of the Strategic Road Network (SRN) or the Major Road Network (MRN) and are therefore not trunk roads. Therefore, as per Section 4.5 of my PoE (CD M6) it is not appropriate to apply the standards for trunk roads to non-trunk roads. This includes guidance from National Highways.

3.3. Traffic Survey Data

3.3.1. At Paragraph 6.6, Mr Eves has presented an alternative set of traffic flows based on the methodology set out in Appendix 6 of his Proof (CD O22). Mr Eves has concluded at Paragraph 6.7 that the Appellant "*significantly under-estimates*" the traffic flows along Ulnes Walton Lane.

3.3.2. I have reviewed Mr Eves methodology set out within Appendix 6 of his Proof (CD O22). In summary, Mr Eves has applied traffic growth factors from TEMPro to the 2023 observed traffic flows to calculate a 2027 future baseline. Mr Eves has then manually assigned the trip generation from the former Leyland Test Track site (South Ribble Planning Ref. 07/2017/3361 ORM) and added it on top of the 2027 future baseline. Mr Eves has also manually assigned the trip generation associated with 5 dwellings at Ecclestone Equestrian Centre (Chorley planning Ref. 20/00816) and 5 dwellings at Roecroft Farmhouse (Chorley Planning Ref. 22/00509).

3.3.3. It should be noted that TEMPro is a data browser which extracts traffic growth forecasts from the National Trip End Model (NTEM). NTEM is a trip generation model that is used to forecast the potential demand for travel in England and Wales. Typically, NTEM uses the trend rate of housebuilding from each Local Plan to estimate future growth based on the allocated development sites.

3.3.4. Leyland Test Track is an allocated development site in the South Ribble Local Plan (adopted July 2015) under Policy EMP6. Therefore, the future traffic growth forecasts associated with Leyland Test Track would already be accounted for in NTEM and TEMPro. Mr Eves has therefore double counted the future traffic growth associated with Leyland Test Track in his alternative set of traffic flows.

3.3.5. In addition, I have reviewed the Transport Assessment for Leyland Test Track which Mr Eves has used for the basis of his assessment of committed development. I can confirm that the AM Peak Hour used in the Leyland Test Track Transport Assessment for the residential and employment trip generation is 08:00-09:00. The AM Peak hour used for the assessment of the GW2 operational flows is 07:00-08:00 (see Table 5-4 in CD A35). The AM Peak hour used for the assessment of the GW2 construction flows is 06:00-07:00 (see Paragraph 6.4.11 in CD M3).

3.3.6. Therefore, not only has Mr Eves double counted the future traffic growth associated with Leyland Test Track, but he has also assumed a cumulative scenario where the AM trip generation associated with GW2 would be on the network at the same time as the AM trip generation associated with Leyland Test Track, despite having different peak hours (see Appendix 7 in CD O23). Therefore, the additional Junctions 10 analysis presented by Mr Eves in Table 6.4 of CD O22 is based on incorrect assumptions and flawed scenarios, therefore the outputs have not been considered further.

3.3.7. I have demonstrated in Figure 5-3 and Figure 5-4 of my PoE (CD M6) that the 2021 peak hour flows used in the Transport Assessment (CD A35) are higher than the 2023 observed peak hour flows recorded in February 2023. Furthermore, I have demonstrated that if you factor the 2023 observed peak hour traffic flows to a 2028 future assessment year using TEMPro v7.2 the flows would remain lower than the 2026 peak hour flows used to inform the analysis within the Transport Assessment. Therefore, the analysis contained within the Transport Assessment is robust.

3.3.8. As per the Inspector's conclusions (IR 13.18), it is "*common ground between the Appellant and the Council that the approach to the traffic surveys is appropriate and has been validated by the LHA. It provides a suitable baseline, and the TA takes into account committed development*".

3.4. Construction Traffic

3.4.1. At Paragraph 7.9, Mr Eves refers to the Noise and Vibration Impact Assessment (CD A22) undertaken by Hydrock. Mr Eves states, "*If there is to be no working hours condition, and construction activities can commence before 8am (with construction vehicles arriving before 7am), the Noise Assessment and Vibration assessment may need to be revisited as the period before 7am is considered 'night-time' and the noise impact of such large volumes of additional traffic travelling through residential areas will need to be assessed".*

3.4.2. In response to the points raised by Mr Eves regarding construction traffic, Hydrock has produced additional noise evidence (see Appendix G). In Section 6 of the additional noise evidence, Hydrock concluded that when comparing calculated night-time noise levels associated with the construction phase with the 'Lowest Observed Adverse Effect Level' (LOAEL) thresholds set for this assessment, based on World Health Organisation (WHO) and BS8233 health-based guidance, no exceedances are predicted. This demonstrates that night-time levels are relatively low and are unlikely to result in any detectable adverse effects on health and quality of life.

3.4.3. Furthermore, Hydrock concluded that the night-time maximum noise levels associated with road traffic on Moss Lane are likely to be reduced as a result of the implementation of a 20mph speed limit (during the Construction Phase).

3.4.4. In accordance with Planning Practise Guidance (PPG) this indicates that noise may be present and not intrusive, and no change in quality of life due to the noise is anticipated. This demonstrates compliance with the aims of the Noise Policy Statement for England (NPSE) and the National Planning Policy Framework (NPPF).

4. Ms Morrissey (CD O35)

4.1. Photographic Evidence

4.1.1. In Appendix 2 of Ms Morrisey's PoE (CD O35), there is photographic evidence demonstrating:

d. That two HGVs can pass side by side along Ulnes Walton Lane (Reference A10).

e. That a HGV and a Bus can pass on Lostock Bridge (Reference A12).

f. That it is possible for a fire engine and a HGV to pass on Lostock Bridge (Reference A16).

4.1.2. The photographic evidence provided by Ms Morrisey demonstrates that Ulnes Walton Lane can accommodate larger vehicles travelling in both directions, contrary to point raised by Mr Riley at Paragraph 6.2.11 in CD N3.

5. Mr Parker (CD O25)

5.1. Construction Route Assessment

5.1.1. In Paragraph 11 of Mr Parker's PoE (CD O25), he refers to an email exchange between Laing O'Rourke and Explore which references a Construction Route Assessment. A copy of the Construction Route Assessment is provided in Appendix H.

5.1.2. The Construction Route Assessment was produced in March 2022. The purpose of the report was to review the proposed Construction Access Routes (originally identified by the Contractor) and to identify any existing constraints which may require mitigation to facilitate use by the proposed Construction Vehicles during the construction phase of the development, some of which are non-standard Abnormal Indivisible Loads (AILs).

5.1.3. The routes assessed within the March 2022 Construction Route Assessment (see Appendix G) were not identified as preferred routes by Laing O'Rourke in the September 2022 logistics report (Route 4 and Route 5 were identified as the preferred Construction Access Routes) and therefore the March 2022 Construction Route Assessment is now superseded.

Appendix A - SpID Guidance (LCC)

Speed Indicator Devices (SpIDs)

- **The rules to be applied with regards to duration when placing on the highway**
- **The procedural steps required for approval and installation**

Draft copy for consultation & feedback.

Feedback required by 22nd April 2022 to SpeedManagement.gov.uk

Lancashire County Council

www.lancashire.gov.uk

Introduction

The purpose of this document is to set out the County Council's procedure for the procurement and installation of SpIDS funded by Parish and Town Councils, and to clarify how long a Speed Indication Device (SpID) can be left in one position.

Rules to be applied with regards to duration when placing a SpID on the highway

Technically a SpID can only be used as a temporary sign and cannot therefore be left in place indefinitely at a single location. In addition, these types of signs can lose their effectiveness after they have been in place for some time and need to be moved or taken down periodically to maximise the impact that they can have.

Background

SpIDs are used throughout the county as a safety or speed calming solution. The vast majority of them have been purchased and are deployed by Parish and Town Councils. A SpID sign can be an effective tool to tackle perceived or actual speeding on the network. However, the longer a sign stays in one location the more likely that over time it could lose its effectiveness.

SpIDs should not be confused with Vehicle Activated Signs (VAS) which provide an illuminated version of a prescribed traffic sign when triggered by a vehicle (although often linked to speed they can be activated by the height of a vehicle for example).

SpID

VAS

Legislation

SpIDs are not specifically prescribed in the Traffic Signs Regulations & General Directions (TSRGD) but are widely used and accepted across the UK. The most relevant section of the TSRGD that could be considered for prescribing these signs is Schedule 13, Part 9 of the TSRGD 2016. This Schedule provides a raft of regulations that allow councils to place "Other temporary signs" on the network.

Whereas VAS signs are prescribed in the regulations and can be installed as permanent fixtures, signs that are introduced under schedule 13 part 9 are

"Temporary" and have a 6-month limit when placed on the network. The 6-month limit was a new introduction as part of the latest TSRGD and it was not prescribed in the 2004 version of the statutory instrument.

Moving forward

To ensure compliance with Regulations and maintain effectiveness we will be applying the following requirements:

Signs installed after 1st Jan 2022

Any SpID introduced after this date will be treated as a temporary sign in line with the rules set out under Schedule 13 part 9 of the TSRGD. Therefore, the SpID must either be moved to a different point or location or taken down completely if no other site or location is available. This should be between 3 and 6 months of when it was placed at a given point or location. There then must be a break of at least 1 month before the sign can be returned to the same point or location it was moved or taken down from.

This will ensure compliance with Regulations and help to maintain the effectiveness of the signs.

Signs Installed between 2016 – 31st December 2021

SpIDs that were installed during this period should be subject to the temporary 6-month limit rules. However, it is accepted that there could be an unexpected financial burden if the council retrospectively applied the requirements set out above. It is therefore expected that SpIDs which were purchased for a sole location will be allowed to remain until it reaches its end of life. However, when a replacement is sought the requirement set out above will be applied i.e., the SpID must either be moved to a different point or location or taken down completely if no other site or location is available. This should be between 3 and 6 months of when it was placed at a given point or location. There then must be a break of at least 1 month before the sign can be returned to the same point or location it was moved or taken down from.

Signs installed pre-2016

The regulation prior to 2016 did not place a time limit on the duration of a temporary sign. Signs installed prior to this date will be permitted to remain in a single location (if that is how they were installed) until the end of its operational life. When a replacement sign is sought the new requirements will be applied and further locations will need to be sought.

Procedure for the procurement and installation of SpIDs – funded by Parish & Town Councils

1. The Parish/Town Council must confirm that funding has been identified and approved, and that there is a firm commitment to purchase a SpID, prior to involving LCC in any assessment / approval process.
2. The type of SpID intended must be communicated to LCC Speed Management Team, as there is a weight limit restriction if mounting to an LCC lighting column. If mounting to a lighting column is intended, the unit should be no more than 0.3m^2 in size and no more than 20kg in total weight including the SpID unit, mounting bracket, batteries and solar panels.

   If the Parish/Town Council wish to purchase a battery powered SpID exceeding these limits, or a solar powered SpID, they must be mounted on a bespoke post to the correct specification.
3. A list of potential locations, where speeding is perceived to be a problem, should be compiled, specifying street lighting columns if possible, or alternatively grid reference co-ordinates.

   Note: Parish/Town Councils are responsible for consulting with any residents within the vicinity of the proposed sign, to ensure that they have no objections to the planned installation.

   a. The radar range on SpIDs between manufacturers may differ, this must be considered when identifying potential locations.
   b. Consider how close the SpID is located to a speed limit change.
4. A Lancashire County Council representative will conduct a risk assessment on the intended locations, considering the following:

   a. Visibility of SpID to drivers
   b. Length and layout of approaching highway
   c. Safe and legal parking needed for deployment of sign
   d. Suitability of lighting columns

5. For battery powered SpIDs meeting the criteria, once the intended lighting column locations have been approved, they each require a structural assessment to be carried out by the Street Lighting Team. In this case the Parish Council must provide a purchase order to LCC Street Lighting.

   For solar powered or battery powered SpIDs exceeding the size and weight limit, requiring a bespoke post, there are two options for installation.

   Option 1

   Posts may be installed by the sign supplier or a contractor. In this case the Parish/Town Council will need to contact lhsstreetworks@lancashire.gov.uk to request an S50 license (there is a license application fee for this), and the work must not commence until the license has been obtained.

Option 2

Posts may be installed by the LCC Street Lighting Team.

In this case the Parish Council must provide a purchase order to LCC Street Lighting for the installation of the bespoke post (and SpID unit if required).

6. Upon completion of the lighting column structural assessment, or the approved installation of the bespoke post, the Parish/Town Council can proceed with the purchase of the mounting plates / brackets.
7. LCC will then arrange for the mounting plates / brackets to be installed at the approved sites.

   The point at which the installation of the plates / brackets is being organised and carried out, is an ideal time to order the SpID unit, to optimise the warranty period.
8. The initial installation of the SpID, and future movement between locations, must only be carried out by a competent person who has received appropriate training for the correct installation of the equipment, working at height and working within the highway.

   It is the Parish/Town Council's responsibility to confirm that the person has received the appropriate training.

   They must also be provided with a suitable platform stepladder, high visibility jacket, hard hat, and steel toe-capped footwear, for their personal safety.
9. The personnel being used by the Parish/Town Council for the initial installation and future movement of the SpID must be fully insured, and this must include public liability insurance, provided by the insurance policy belonging to the SpID owner.
10. Once the SpID equipment is installed and operational, as these devices are deemed temporary, you must follow the guidance outlined in the policy document for duration of period at the same location.
11. The Parish/Town Council is responsible for any maintenance or repairs to signs, and bespoke posts that they own.
12. Please note that any costs incurred by Lancashire County Council for site inspections and installations will be rechargeable to the Parish/Town Council.

Racing limit required to avoid unintended consequences:

Unfortunately, some reckless and irresponsible drivers see SpIDs as a challenge to try and achieve a display of the highest speed possible, and a SpID installed without a display limit can inadvertently encourage racing at very high speeds.

It is therefore a requirement that SpIDs are purchased with an 'anti-race' facility (maximum display speed cut-off), with the cut-off limit being set at a maximum of 15mph above the posted speed limit.

If you have purchased a SpID prior to the issuing of this guidance, and you do not have a racing limit set, please contact your SpID supplier for further advice.

Contact us:

For further information on SpID purchase & installation in Lancashire, please contact SpeedManagement@lancashire.gov.uk

NOTE: The above email address is not to be used for reporting issues with speeding vehicles which may need to be addressed with further action by Lancashire County Council and/or Lancashire Constabulary. Please report these concerns using: Lancashire Road Safety Partnership website

If residents witness regular incidents of nuisance or dangerous driving, they can contact the police directly either by the non-emergency telephone number: 101, or on the Lancashire Constabulary 'Do It Online' webpage, with a record of the registration numbers of the vehicles (along with dashcam footage if you have this to assist in prosecution).

Appendix B - DWG GARTH_ATK_HGN_MOSS_DR_D_0003 (Revised)

DO NOT SCALE

Millimetres 0 10 100

2m WIDE FOOTWAY - EXISTING LIGHTING COLUMNS TO BE REPOSITIONED AS NECESSARY SUBJECT TO AGREEMENT WITH LOCAL AUTHORITY

CUTLINE SEE DRAWING GARTH-ATK-HGN-MOSS-DR-D-0003

SEE DRAWING GARTH-ATK-HGN-MOSS-DR-D-0002 CUTLINE

CUTLINE SEE DRAWING GARTH-ATK-HGN-MOSS-DR-D-0003

SEE DRAWING GARTH-ATK-HGN-ULNES-DR-D-0001 CUTLINE

Existing bus stop location. -
As agreed, existing bus stop to be upgraded to high quality disability compliant standard to include provision of a raised kerb, boarding platform, new shelter, and the required carriageway markings

Extent of 30/40mph speed limits

Existing speed limit signs to be relocated into verge.

Existing 40mph speed limit repeater signs

Existing traffic and road signs to be repositioned as necessary

Existing HM Prison directon sign and cabinet to be relocated against boundary fencing.(any modifications to existing services to be ascertained at detailed design stage)

ULNES WALTON LANE

New sign to Diag. 515 with yellow backing board

Existing sign to be repalced with new sign to Diag. 515 with yellow backing board and located against boundary fencing

Existing hedgerow to be trimmed as appropriate

New repeater signs to Diag. 670 40mph (300mm Dia.)

New sign to Diag. 512.1 'Bend Ahead' sited 110m before the hazard. With yellow backing board subject to agreement with Highway Authority.

New coloured surface treatment on approach and through existing bend

New sign to Diag. 512.1 'Bend Ahead' sited 110m before the hazard. With yellow backing board subject to agreement with Highway Authority.

Existing 40mph speed limit repeater signs

Existing bus stop location

14.3m

119m

Drain

Bullen's Barn

Bullen's Farm

Earnshaw Shire Farm

Key:

- Red carriageway surfacing
- Proposed footway
- Raised table
- Coloured Surface Treatment
- Proposed/ Existing Sign face
- Existing lighting column

Notes:

1. Layout is preliminary design 'for information' only and subject to approval from Highway Authority.
2. Layout is based on Ordnance Survey. Subject to detailed design on Topographical Survey base.
3. All proposed road markings and signage to be in accordance with the 'Traffic Signs Regulations and General Directions 2016'.
4. On completion of works all affected infrastructure including hedging, fencing, ditches, footways, kerbing, verges and road surfacing shall be reinstated in accordance with the Overseeing Organisation's requirements.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION
NONE

MAINTENANCE/CLEANING
NONE

DECOMMISSIONING/DEMOLITION
NONE

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

Rev.	Date	Description	By	Chk'd	App'd
P2	28.08.23	KEY AMENDED	AE	TR	SY
P1	27.01.23	DRAWING CREATED	JA	PDE	TR

Drawing Status: FIT FOR INFORMATION
Suitability: S2

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Client: MINISTRY OF JUSTICE

Project Title: HMP GARTH

Drawing Title: PROPOSED NEW TRAFFIC CALMING

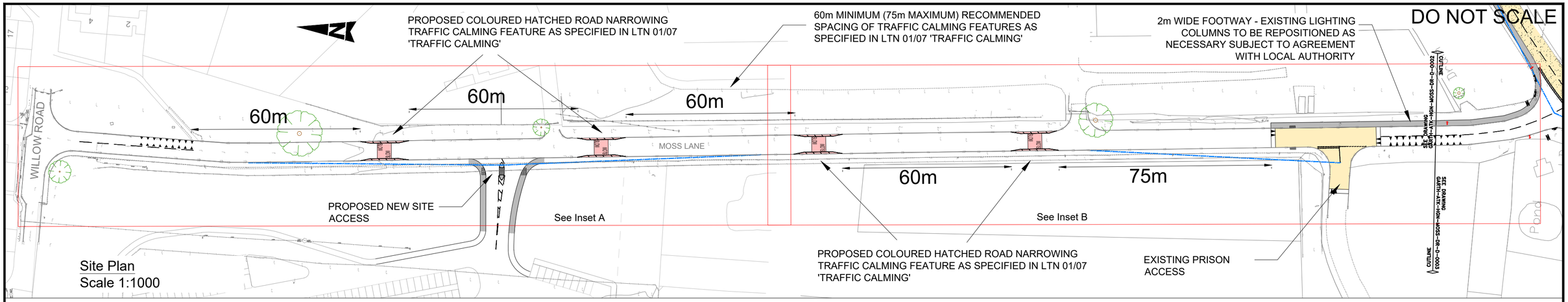
Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	JA	JA	PDE	TR
Original Size: A2	Date: 27.01.23	Date: 27.01.23	Date: 27.01.23	Date: 27.01.23

Drawing Number: HA PIN GARTH - ATK - HGN - MOSS - DR - D - 0003 (Location - Originator - Volume - Type - Role - Number)
Project Ref. No.: 5200124
Revision: P2

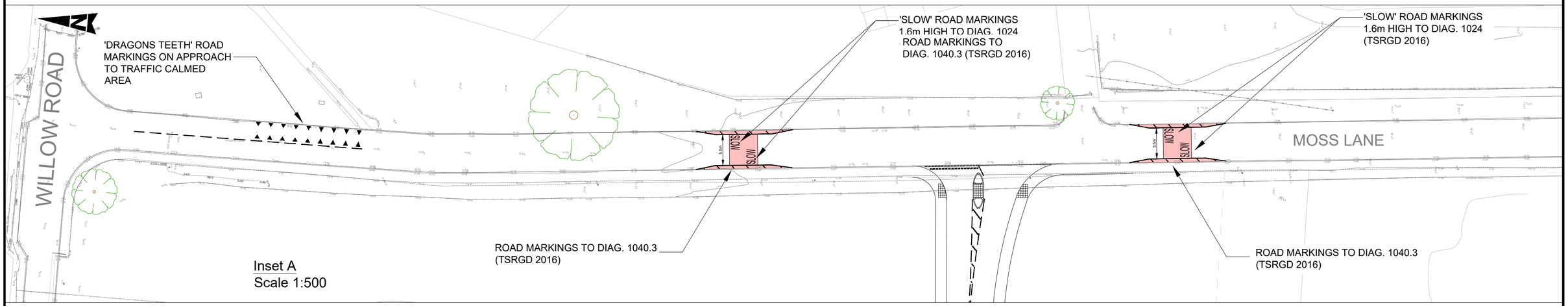
Appendix C - DWG GARTH_ATK_HGN_MOSS_DR_D_0002_P4 (Revised)

DO NOT SCALE

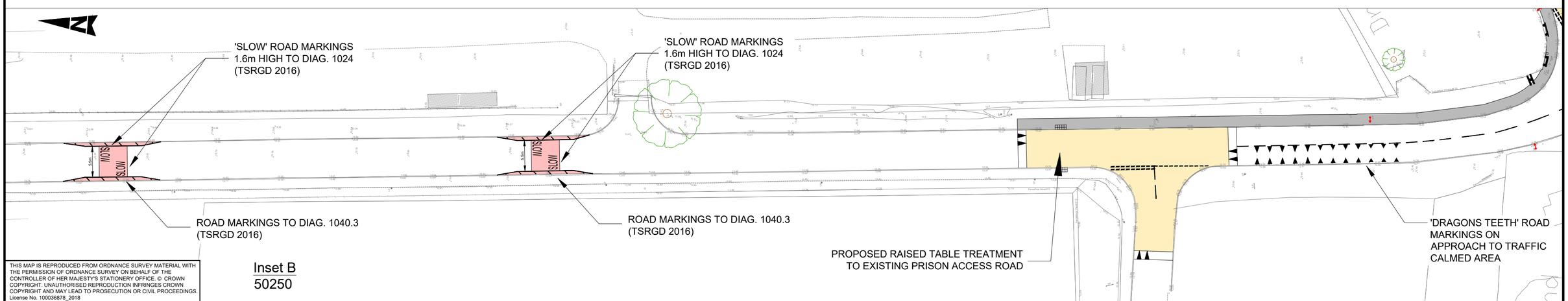
Millimetres 0 10 100



Site Plan
Scale 1:1000



Inset A
Scale 1:500



Inset B
50250

Key:

- Red carriageway surfacing
- Proposed footway
- Raised table
- Proposed / Existing 90m visibility splay

Notes:

1. Layout is preliminary design 'for information' only and subject to approval from Highway Authority.
2. Layout is based on Ordnance Survey. Subject to detailed design on Topographical Survey base.
3. All proposed road markings and signage to be in accordance with the 'Traffic Signs Regulations and General Directions 2016'.
4. On completion of works all affected infrastructure including hedging, fencing, ditches, footways, kerbing, verges and road surfacing shall be reinstated in accordance with the Overseeing Organisation's requirements.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION
NONE

MAINTENANCE/CLEANING
NONE

DECOMMISSIONING/DEMOLITION
NONE

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

Rev.	Date	Description	By	Chk'd	App'd
P4	30.08.23	TRAFFIC CALMING FEATURES MODIFIED	AE	TR	SY
P3	27.01.23	TRAFFIC CALMING FEATURES MODIFIED	JA	PDE	TG
P2	05.07.21	TRAFFIC CALMING FEATURES MODIFIED	AE	PDE	
P1	30.03.21	DRAWING CREATED	AE	PDE	

Drawing Status: FIT FOR INFORMATION
Suitability: S2

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Client: MINISTRY OF JUSTICE

Project Title: HMP GARTH

Drawing Title: PROPOSED NEW TRAFFIC CALMING

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	AE	AE	PDE	
Original Size	**Date**	**Date**	**Date**	**Date**
A2	30.03.21	30.03.21	30.03.21	

Drawing Number: HA PIN GARTH MOSS | Originator - ATK | Volume - HGN | Location | Type - DR | Role - D | Number - 0002 | -

Project Ref. No.: 5200124

Revision: P4

P:\GBCFA\TP\KU\Projects\Public Realm & Design\Birmingham support\HMP Garth\CAD\DR\GARTH_ATK_HGN_MOSS_DR_D_0002_P4.dwg

Appendix D - Rule 170 and Rule 221 of the Highway Code (Extracts)

Rule 170

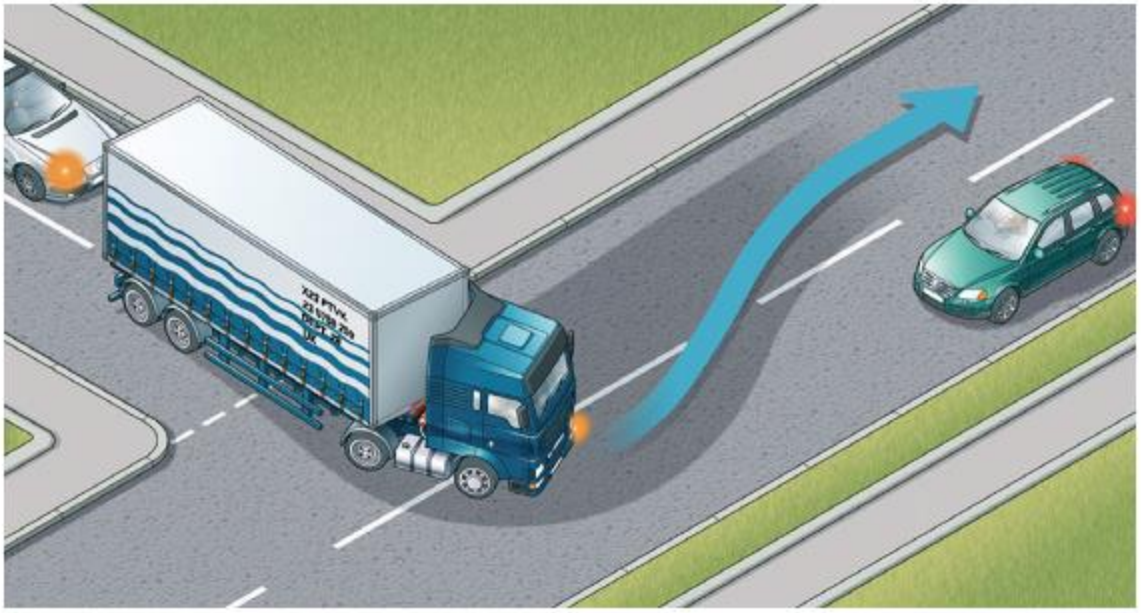
Take extra care at junctions. You should

- watch out for cyclists, motorcyclists and pedestrians including powered wheelchairs/mobility scooter users as they are not always easy to see. Be aware that they may not have seen or heard you if you are approaching from behind
- give way to pedestrians crossing or waiting to cross a road into which or from which you are turning. If they have started to cross they have priority, so give way (see Rule H2)
- remain behind cyclists, horse riders, horse drawn vehicles and motorcyclists at junctions even if they are waiting to turn and are positioned close to the kerb
- watch out for long vehicles which may be turning at a junction ahead; they may have to use the whole width of the road to make the turn (see Rule 221)
- watch out for horse riders who may take a different line on the road from that which you would expect
- not assume, when waiting at a junction, that a vehicle coming from the right and signalling left will actually turn. Wait and make sure
- look all around before emerging. Do not cross or join a road until there is a gap large enough for you to do so safely.

Rule 170: Give way to pedestrians who have started to cross

Rule 221

Large vehicles. These may need extra road space to turn or to deal with a hazard that you are not able to see. If you are following a large vehicle, such as a bus or articulated lorry, be aware that the driver may not be able to see you in the mirrors. Be prepared to stop and wait if it needs room or time to turn.



Rule 221: Large vehicles need extra room

Appendix E - Oxfordshire County Council's Technical Specification – Kerb Upstand

OXFORDSHIRE COUNTY COUNCIL

TECHNICAL DESIGN INFORMATION SHEET

STANDARD DETAILS

- All kerbing, edging, channel blocks and gullies are to be laid on and backed up with ST2. ST4 with dowel bars at 450mm centres is to be used where there is commercial use or a bus service. Kerbing concrete to be laid within 45mins of delivery to site.
- All kerbing and channel blocks to be laid on a minimum of 350mm wide haunch. Edging to be laid on a minimum of 250mm wide haunch.
- Minimum 150mm thick layer of Type 1 is to be laid 150mm beyond and below the bedding and haunch.
- All kerb faces (except detailed below) are to have a 125mm upstand.
    - All kerbs at vehicle crossovers are to have a maximum 25mm upstand.
    - All kerbs at pedestrian crossings to have a 0-6mm upstand.
    - All channel blocks are to be laid flush.
    - All kerbs (other than pedestrian access and vehicular access) on shared surfaces are to have a 50mm upstand.
- Roadside Footway or footways subjected to vehicular traffic construction to be a minimum of 20mm surface course, 60mm binder course, 150mm compacted lean mix and 75mm Type 1.
- Isolated footway construction to be a minimum of 20mm surface course, 60mm binder course and 150mm GSB Type 1.
- Carriageway Capping and subbase to be in line with OCC Foundation CBR Table. Ground stabilisation is required for CBRs of 2.5% or lower.
- Surface PSV at junctions, roundabouts and pedestrian crossings to conform with HD 28/15 and IAN 156. Please note, OCC no longer accepts Anti-skid surface dressing.
- Tactile paving – See DETR ‘Guidance on the use of Tactile Paving Surfaces’
- Ramps are to be constructed out of Macadam. When blockwork is proposed on the table top a flush 10x5”/ 225x125mm CS1 channel at the top of the ramp is required.
- Controlled or uncontrolled pedestrian refuses island crossings are to conform with LTN 2/95.
- Yellow road markings are to be colour No.353 Deep Cream yellow.

DRAINAGE DETAILS

- Side hinged gullies only (with hinge facing oncoming traffic).
- Frames and gulley grating to be D400 standard.
- OCC adopted surface water manholes in the highway should be of the catchpit type with a 300mm sump.
- Gulley connectors to have a maximum 12m pipe length.
- Gulley surround to be ST2 concrete.
- Gulley spacing to be as per DMRB.

- Pipes must have concrete cover if within 1200mm of surface level in carriageway or within 900mm of surface level in footway or verge.
- Services and foul sewers need to be adopted by a statutory authority/utility company for OCC to entertain adoption of the street.
- Surface water sewers either need to be adopted by a statutory authority/utility company or by OCC if the road is going to considered for highway adoption.
- OCC can only entertain adoption of ~~a~~ surface water sewer and drainage features that take solely highway surface water (i.e. swale, soakaway, permeable paving or piped system), this is OCCs preference. If the system takes combined highway and private water, OCC cannot adopt the surface water sewer and drainage feature but has a vested interest in the system and its maintenance. Drainage easements maybe required.

HIGHWAY DESIGN

- MfS, MfS2 and DMRB along with Oxfordshire Residential/cycling/walking Design Guides are to be used.
- Maximum carriageway longitudinal gradient is 1:20 (where there isn't a roadside footway/ shared surface RAT could consider gradient up to 1:15 avoiding junctions).
- Minimum carriageway longitudinal gradient is based on the road surface type. 1 in 80 Blockwork, 1 in 100 Asphalt and 1 in 120 where a concrete channel is provided.
- Maximum footway crossfall gradient to be 1:40.
- Minimum width of a two-way carriageway is 4.8m – residential.
- Service corridors are to be 2m in width and to be impermeable when inside the highway corridor. Where service cross permeable carriageway, corridor needs to be impermeable and distinguishable from the surface. Service corridors are also acceptable in grass verges.
- Bus routes minimum width is 6.75m.
- Shared surfaces width is to be a minimum of 6m.
- In the absence of a footway directly adjacent to carriageway/ shared surface, an 800mm maintenance margin is required.
- Tracking is required to evidence a refuse vehicle can enter, turn and exit entirely in the carriageway/ surface area when proposed for adoption. Tracking will need to work with parked cars that are 2.0x5.0m.
- Where Street Lighting cannot be situated in footways, a 1.5m margin is required.
- Footways to be 2m in width.
- Parking bays adjacent to the carriageway will require a 1m adopted hardstanding behind them with a dropped kerb at both ends.
- Parallel visitor parking bays directly adjacent to adopted carriageway can be offered for adoption. Echelon, perpendicular or allocated parking bays cannot and must be positioned outside of the adoptable highway.
- Adoptable areas are confirmed at the technical audit stage and should not be inferred from planning drawings.
- Brass/stainless steel studs (DDA and DETR compliant) on hard surfacing and marker blocks on verges are required to delineate highway extent.
- Vision splays for junctions adjoining existing roads to be determined from speed survey results and are required for adoption.

STREET LIGHTING

- Street lighting cables to be within proposed highway.
- Private networks are to be avoided where possible. Where they cannot be avoided and are acceptable to OCC, additional commuted sums will be secured.
- There should be no trees within 10m longitudinally of a streetlighting column.
- It is understood that trees are needed to create certain spaces, where there is likely to be conflict between trees and lighting, OCC recommend early engagement with Street Lighting Team to ascertain what is adoptable. Street lighting will take priority over trees for highway safety, but spacing acceptability could be dependent on species of tree.

CONSULTATIONS

- Controlled crossings, including zebra crossings, require a consultation and incur a cost.
- Speed calming and bus stops also require consultations. And incur a cost.
- TROs incur a cost, must be implemented within 2 years and OCC must be made aware 28 days prior to implementation.

ROUNDABOUTS/ GHOSTED ISLAND JUNCTIONS

- To be designed in accordance with the DMRB.
- Departure from standards to be detailed and fully justified on OCCs departure form.
- All roundabout designs to include details of:
    - Inscribed Circle Diameter Entry Path Curvature on each arm.
    - Entry Angle (s)
    - Entry Width
    - Approach Half Width
    - Entry Kerb Radius
    - Exit Kerb Radius
    - Effective Flare Length
    - Visibility (s)
- All ghosted islands junction designs to include details of:
    - Design speed limit
    - SSD
    - Turning length (a)
    - Deceleration length (b)
    - Through Lane width (c)
    - Turning lane width (d)
    - Direct taper length (e)
    - Central island taper length (paragraph 7.30)

Appendix F – Junctions 10 User Guide (Extract)

TRL Software

Junctions 10 User Guide

APPLICATION GUIDE 74

Written by James C Binning, Graham Burtenshaw

Software manufactured under an ISO 9001 registered quality management system

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Junctions 10 User Guide

March 2021, Issue B (to accompany Junctions 10.0.1)

For advice on the use of the software, sales and distribution information and consultancy please contact:

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ABSTRACT OF APPLICATION GUIDE 74

Junctions 10 is the latest version of the internationally recognised software application for predicting capacities, queue lengths and delays (both queueing and geometric) at non-signalised roundabouts and priority intersections. It can also be used to predict accident frequencies or indices for a particular layout from information about traffic flow and site data. The product is used as a tool by intersection design engineers to help them to assess their designs and is used primarily for modelling peak periods.

This User Guide describes in detail the features this new version of the program has to offer.

Other topics in the guide include a description of the theory and research incorporated into the product, how the model should be specified and guidance on how to measure and enter data. Also described is the output and how it should be interpreted.

14.2 Mini-roundabouts

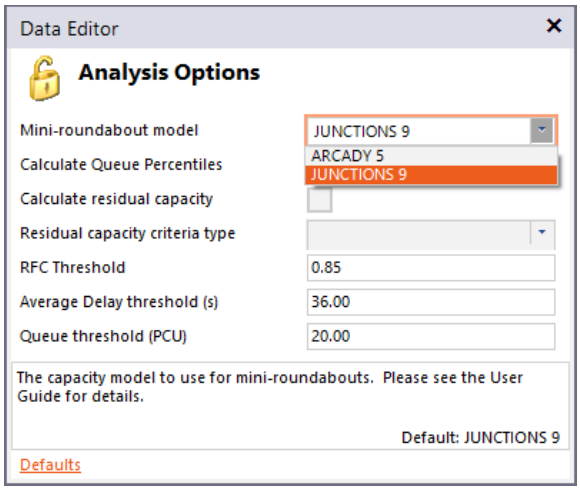
Mini-roundabouts are selected by setting the *Junction Type* to *Mini-roundabout*.

The mini-roundabout model is based on research carried out in the late 1990s and first appeared in ARCADY 5. Some users noted a tendency for this model to underestimate capacity. The reasons for this are unknown but during the development of Junctions 10 the original research datasets were re-analysed using the same assumptions as the original researchers but with improved analysis techniques including the exclusion of suspect data points.

This led to a revised version of the mini-roundabout model which uses the same geometric parameters and inputs, and is of the same form, but which explains 68% of the variation in the entry flows of the raw data, compared to 60% for the original model.

The revised model tends to predict higher capacity for any given arm of a mini-roundabout. The maximum queues on any given arm are, on average, around 40% smaller than with the previous model and tend to be more in line with user expectations. Please note however that the actual difference that you see for any given file will depend on the geometries and flows and in some cases you will see no difference compared to the original model. As with any aspect of the ARCADY and PICADY models, if you have any feedback relating to the performance of this model, please contact TRL.

Junctions 10 uses the revised mini-roundabout model by default but the original model is also available if required (for example if wishing to match results from previous versions of ARCADY). The data input process is exactly the same for both models. To select which model to use, go to *Data Outline>Options>Analysis Options* and change the *Mini-roundabout model* field. The revised model, referred to as "JUNCTIONS 10" is the default choice, with the original model being referred to as "ARCADY 5".

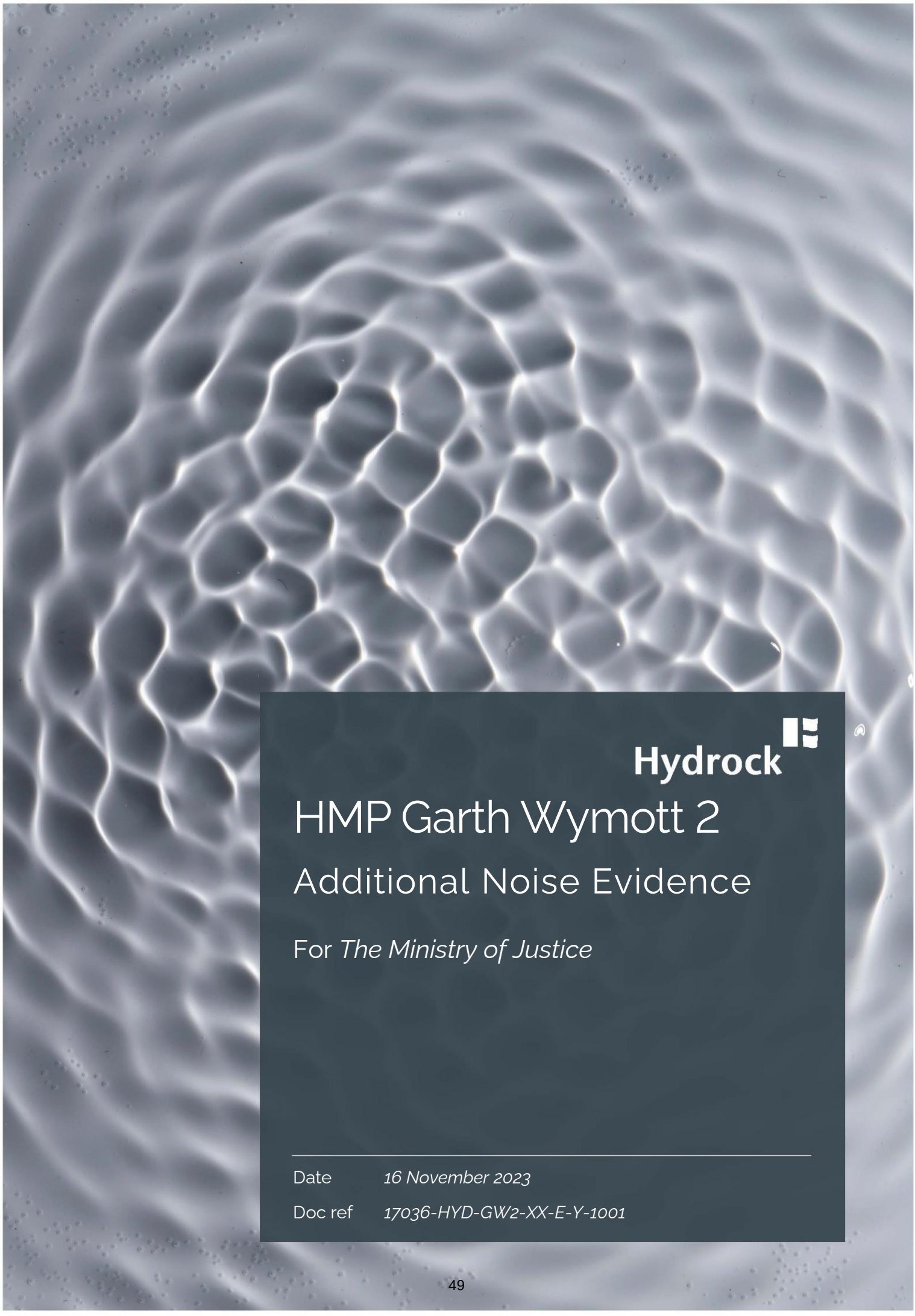


14.2.1 T-shaped mini-roundabouts

Some mini-roundabouts have a T-shape with unbalanced flows and may behave more like priority junctions than roundabouts, and as a result are difficult to evaluate accurately with any traffic model. The results associated with such mini-roundabouts should be treated with caution.

This also applies to any mini-roundabout that has a dominant 'through' movement. The most common case is where the junction has a T-shape, particularly if a mini-roundabout replaces an older T-junction and has little or no deflection for the straight-ahead movement(s). At such sites, some drivers may continue to treat the junction as if the original priority system is still partially in place. If this is the case, consider adding a suitable intercept correction to the relevant arms. Otherwise the capacity of these arms may be underestimated by the model.

Appendix G - Hydrock Report (Noise)



Hydrock

HMP Garth Wymott 2

Additional Noise Evidence

For *The Ministry of Justice*

Date	*16 November 2023*
Doc ref	*17036-HYD-GW2-XX-E-Y-1001*

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Contents

Figures

Appendices

1. Introduction

1.1 Overview

1.1.1 This report has been prepared as supplementary evidence to the previous Noise Proof of Evidence submitted in support of this appeal, together with 'Additional Highways Evidence' produced by Atkins, as a response to the 'minded to grant' decision made by Lee Rowley MP, the Parliamentary Under Secretary of State for Local Government and Building Safety, on behalf of the Secretary of State. The 'minded to grant' decision is outlined in the letter addressed to Cushman & Wakefield on the 19 January 2023 (APP/D2320/W/22/3295556).

1.2 Scope of Evidence

1.2.1 Since the previous Noise Proof of Evidence (9th June 2022) and Rebuttal Proof of Evidence (22nd June 2022) provided by Hydrock in support of the planning appeal, changes to the arrival times of vehicles associated with the construction phase of the development are proposed, which form part of the Highways mitigation scheme.

1.2.2 The key change, with regards to potential noise impacts, is the proposal to allow construction vehicles to arrive at the Site during the night-time period, from 0600. Therefore, additional consideration of potential night time noise impacts associated with construction vehicles on the surrounding local road network is required.

1.2.3 This report provides an assessment of potential night-time impacts associated with construction vehicles in accordance with current policy and guidance.

1.2.4 This report is technical in nature; therefore, a glossary is provided in **Appendix A**.

2. Policy Considerations

2.1 Policy Summary

2.1.1 Relevant current policy documents considered herein are as follows:

- National Planning Policy Framework, 2023 (NPPF);
- Noise Policy Statement for England, 2010 (NPSE);
- Planning Practice Guidance – Noise, 2014 (PPG);
- Central Lancashire Core Strategy, 2012; and,
- Chorley Local Plan 2012-2026, 2015.

2.2 National Planning Policy Framework (NPPF)

2.2.1 Paragraph 174 of the NPPF states:

> *174. Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *…*
>
> *e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
>
> *…*

2.2.2 Paragraph 185 of the NPPF states:

> *185. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
>
> *a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
>
> *…*

2.2.3 With regard to 'adverse impacts' this paragraph of the NPPF refers to the NPSE.

2.3 Noise Policy Statement for England (NPSE)

2.3.1 The aims of the NPSE are:

> *Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*
>
> *avoid significant adverse impacts on health and quality of life;*
>
> *mitigate and minimise adverse impacts on health and quality of life; and*
>
> *where possible, contribute to the improvement of health and quality of life.*

2.3.2 With regard to 'adverse impacts' the NPSE defines three categories, as follows:

NOEL - No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life can occur.

2.3.3 The first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided. The second states that where impacts are placed between the LOAEL and SOAEL, all reasonable steps should be taken to mitigate and minimise the adverse effects of noise. However, the requirement to mitigate and minimise the adverse effects of noise does not mean that such adverse effects cannot occur.

2.3.4 With regard to health and quality of life the NPSE refers to the World Health Organisation, who have published 'Guidelines for Community Noise, 1999' which provides health-based guidance on evaluating potential noise impacts, namely Guidelines for Community Noise 1999, which is applicable to "noise emitted from all sources except noise at the industrial workplace."

2.4 Planning Practice Guidance (PPG) - Noise

2.4.1 PPG is provided by the government as supplementary guidance to the NPSE and national policies. It provides detail on how the 'adverse' and 'significant adverse' effect levels described by NPPF and the NOEL, LOAEL and SOAEL described by the NPSE can be recognised, as follows:

- Noise levels above the NOEL become noticeable, however they have no adverse effect as they do not result in any change in behaviour or attitude.
- Noise levels above the LOAEL (adverse) begin to have an adverse effect and therefore consideration needs to be given to mitigating and minimising associated effects, taking account of the economic and social benefits being derived from the activity causing the noise.
- Noise levels above the SOAEL (significant adverse) should be avoided. The planning process should be used to avoid the effect occurring by use of appropriate mitigation such as by altering the design and layout. Such decisions must be made taking account of the economic and social benefit of the noise source and associated development, but it is undesirable for such exposure to be caused.
- Should noise exposure increase further, at the highest extreme, the situation should be prevented from occurring regardless of the associated economic and social benefits.

2.4.2 PPG summarises noise exposure and the associated effect levels within the noise exposure hierarchy, shown in **Table 1**.

Table 1 Planning Practice Guidance Noise Exposure Hierarchy

Response	Example of Outcomes	Increasing Effect Level	Action
	No Observed Effect Level		
Not Present	No Effect	No Observed Effect	No specific measures required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in quality of life.	No Observed Adverse Effect	No specific measures required
	Lowest Observed Adverse Effect Level		
Present and intrusive	Noise can be heard and causes a small change in behaviour, attitude or other physiological response, e.g. turning up the volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
	Significant Observed Adverse Effect Leve		
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished sue to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening' loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

2.5 Chorley Local Plan 2012 – 2026

2.5.1 Policy BNE1 of the Chorley Local Plan is considered to be relevant to Garth Wymott 2 as it sets out design criteria for new developments.

2.5.2 The relevant parts of Policy BNE1 are shown below:

> *Planning permission will be granted for new development, including extensions, conversions and free standing structures, provided that, where relevant to the development:*
>
> *…*
>
> *g) The proposal would not cause an unacceptable degree of noise disturbance to surrounding land uses;*
>
> *…*

3. Methodology and Significance Criteria

3.1 Methodology Overview

3.1.1 This proof of evidence considers the following potential noise impacts, in accordance with current policy and guidance:

- Potential noise impacts associated with construction vehicles during the night-time (2300 to 0700);
  - Average night-time noise levels; and,
  - Maximum noise levels.

3.1.2 Relevant current guidance documents which provide recommended significance criteria for evaluating potential noise impacts are as follows:

- World Health Organisation (WHO) 1999: Guidelines for Community Noise;
- BS 8233:2014 - Guidance on sound insulation and noise reduction for buildings (BS8233);
- Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7, 2011 (DMRB);

3.2 Existing Sensitive Receptors

3.2.1 Existing Sensitive Receptors (ESRs) have been selected based on their proximity to the adjacent local road network and proposed site access. Any noise impacts at other ESRs located further away from the site are likely to be less, due to the increased dispersion of traffic over the local road network. Therefore, impacts predicted at this sample of ESRs is considered to be representative of all nearby ESRs.

3.2.2 ESRs are summarised in **Table 2**.

Table 2 Existing Sensitive Receptors

Receptor	Description	Building Occupancy	Bearing from Site	Approximate distance from Site
ESR1	5 The Maples	Residential	East	25m
ESR2	7 Willow Road	Residential	North east	55m
ESR3	Windy Harbour	Residential	East	30m
ESR4	2 Ulnes Walton Lane	Residential	South	250m

3.2.3 ESR locations are presented in **Figure 1.**

3.3 Embedded Mitigation

3.3.1 During the construction period it is proposed to enforce a 20mph speed limit along Moss Lane, in order to alleviate any potential noise and highways issues. Therefore, this has been implemented in to all noise predictions for any 'with construction' scenarios.

3.4 Significance Criteria

World Health Organisation (WHO) 1999: Guidelines for Community Noise

3.4.1 The NPSE refers to the WHO Guidelines for Community Noise 1999, which provides guideline values for internal noise exposure which take into consideration identified health effects and are set, based on the lowest effect levels for general populations i.e. the LOAEL.

3.4.2 With regards to night-time noise, the following guideline values are recommended by WHO:

- 30dB $L_{Aeq, 8hour}$ Internal average ambient noise level in bedrooms; and,
- 45 dB $L_{Aeq, T}$ Approximately 1m from the façade of bedrooms, so that people may sleep with bedroom windows open (assuming 15dB attenuation though an open window); and,
- 45dB L_{AFmax} Internal maximum noise level from regular discrete noise events e.g. passing vehicles, in bedrooms.

3.4.3 The above guideline values are considered to represent the LOAEL, the threshold above which adverse effects on health and quality of life can be detected, as defined by the NPSE. Noise levels that do not exceed these values are therefore considered to have no detectable adverse health impacts, for the majority of the population, according to national noise policy.

British Standard 8233:2014 Guidance on Sound Insulation and Noise Reduction in Buildings (BS8233)

3.4.4 BS 8233 bases its recommendation upon WHO health-based guidance and provides guidance for the control of noise in and around buildings.

3.4.5 With regards to night-time noise, the following guideline value is recommended by BS8233:

- 30dB $L_{Aeq, 8hour}$ Internal average ambient noise level in bedrooms.

3.4.6 Whilst BS 8233:2014 recognises that a guideline value may be set in terms of SEL or L_{AFmax} for the assessment of regular individual noise events that can cause sleep disturbance during the night-time, a specific criterion is not stipulated.

Design Manual for Roads and Bridges, LA 111, Revision 2, May 2020 (DMRB)

3.4.7 The Design Manual for Roads and Bridges (DMRB), published by National Highways, is a suite of documents which contains requirements and advice relating to works on motorway and all-purpose trunk roads for which one of the Overseeing Organisations is highway or road authority.

3.4.8 The proposed works in the case of this development are to MoJ land and are facilitated by public roads. While the proposed development itself does not fall within the remit of the highway or road authority, DMRB is considered to provide a good methodology for the determination of noise impacts associated with road traffic noise from the proposed development.

3.4.9 It provides guidance on evaluating the magnitude of impact associated with development generated road traffic during both operational and construction phases of a development, based on any predicted change in 18hour noise level $L_{A10, 18hour}$ (0600 and 2400).

3.4.10 Magnitude of impact at ESRs associated with noise from construction road traffic should be determined in accordance with the criteria recommended by DMRB guidance (Table 3.17 of DMRB), as shown in **Table 3**.

Table 3 DMRB Magnitude of Impact at Receptors Associated with Construction Road Traffic

Magnitude of Impact	Increase in noise level of closest public roads used for construction traffic, dB
Major	Greater than or equal to 5.0
Moderate	Greater than or equal to 3.0 and less than 5.0
Minor	Greater than or equal to 1.0 and less than 3.0
Negligible	Less than 1.0

3.4.11 The threshold of significant effect is typically between minor and moderate impact categories i.e. an increase of 3dB or more, as recommended by DMRB. Furthermore, DMRB recommends that construction traffic noise shall constitute a significant effect where it is determined that a major or moderate magnitude of impact will occur for a duration exceeding:

1. 10 or more days or nights in any 15 consecutive days or nights;
2. a total number of days exceeding 40 in any 6 consecutive months.

Summary of Night-time LOAEL values

3.4.12 The LOAEL defined by NPSE is "the level above which adverse effects on health and quality of life can be detected". Therefore, it is considered that an external level of 45dB, recommended by WHO health-based guidance, in order to avoid adverse health impacts in the context of dwellings, provides a suitable LOAEL which accords with the aims of national policy, in the context of the proposed development.

3.4.13 Based on WHO and BS8233 health-based guidance, the night-time LOAEL for this assessment is set as summarised in **Table 4**. These night-time LOAEL values were also established in Section 7 of the Noise Proof of Evidence submitted as part of this appeal.

Table 4 Summary of Night-time LOAEL Values

Descriptor	Internal Average Level $L_{Aeq, 8hour}$ dB	External Average Level $L_{Aeq, T}$ dB
LOAEL	30	45

4. Noise Modelling

4.1 Overview

4.1.1 Predicted noise levels associated with the construction phase of the proposed development, considered in this proof of evidence, have been predicted using SoundPLAN V8.2 software, incorporating OS mapping, ground absorption and topography of the site and surrounding areas to create a 3D study area.

4.1.2 An update to the previous noise model, carried out as part of the Proof of Evidence, has been undertaken as a result of an update in available traffic information associated with night-time construction vehicles.

4.1.3 The following current data sets have been considered within the noise prediction model:

- 18hour AAWT (0600 to 2400) traffic data provided by Atkins, as shown in **Appendix A**, for the following scenarios:
  - 2027 Baseline (2021 Baseline factored to 2027 using TEMPro); and,
  - Construction Traffic Only (Personnel & Deliveries).

4.2 Modelling Assumptions

4.2.1 The noise prediction model incorporates the following:

- The base map of the acoustic model is derived from Ordinance Survey vector mapping of the surrounding areas;
- A Digital Terrain Model (DTM) has been created within the acoustic model based on 5m resolution topographical data of the Site and surrounding areas;
- Existing buildings, that will not be demolished as part of the proposed development, are incorporated within the acoustic model, to allow prediction of screening effects. Buildings are assumed to have fully reflective facades;
- Noise propagation is predicted in accordance with ISO 9613-2:1996 'Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation' (ISO9613);
- To reflect the local ground cover, ground absorption is set to G = 0.9 for majority soft ground (90% acoustically absorptive ground);
- Road surfaces are assumed to be fully reflective;
- Road traffic is assumed to travel at the known speed limits on each road; and,
- 1st order reflections included in predictions of transportation noise.

5. Assessment of Night-time Construction Road Traffic Noise

5.1 Overview

5.1.1 Noise assessment scenarios associated with the assessment of night-time construction generated road traffic are as follows:

- Scenario 1 – 2027 Baseline
- Scenario 2 – 2027 Baseline + Construction Traffic (inc. 20mph Speed Limit on Moss Lane)

5.1.2 Noise levels have been calculated at the western and southern facades of ESR3 Windy Harbour because it is known to be the property most affected by development generated road traffic noise.

5.1.3 Ground floor (1.5m height) and 1st floor (4.5m height) noise levels have been calculated in order to provide additional detail, in particular 1st floor noise levels are pertinent during the night-time period, where bedrooms are typically located.

5.1.4 Predicted noise levels associated with baseline and development generated road traffic are provided in the following Figures:

- **Figure 2** – Change in 18hour (0600 to 2400) Noise Levels $L_{A10, 18hour}$ – Ground Floor Level (1.5m height)
- **Figure 3** – Change in 18hour (0600 to 2400) Noise Levels $L_{A10, 18hour}$ – 1st Floor Level (4.5m height)
- **Figure 4** – Average Night-time (2300 to 0700) Noise Levels $L_{Aeq, 8hour}$ – Ground Floor Level (1.5m height)
- **Figure 5** – Average Night-time (2300 to 0700) Noise Levels $L_{Aeq, 8hour}$ – 1st Floor Level (4.5m height)

5.2 Predicted Impacts

5.2.1 As set out in WHO and BS8233 health-based guidance, potential adverse impacts within bedrooms during the night-time correspond to average $L_{Aeq, 8hour}$ and regular maximum L_{AFmax} noise levels.

Night-time Maximum Noise Levels

5.2.2 Two key factors in night-time maxima caused by passing vehicles are typically vehicle speed and vehicle size. For example, passing HGVs at a relatively high-speed cause significantly higher maximum noise levels than cars and LDVs.

5.2.3 The additional vehicles to be introduced to Moss Lane during the night-time, as a result of construction phase generated traffic, are known to only be cars and LDVs i.e. relatively small and light vehicles.

5.2.4 Furthermore, as part of the embedded mitigation scheme, a 20mph speed limit will be enforced along Moss Lane throughout the construction period. This will ensure that any vehicles travelling along Moss Lane will be at lower speeds, relative to the current 30mph speed limit on the road. Maximum noise levels associated with individual vehicle movements are predicted to be reduced as a result of a reduction in vehicle speeds.

5.2.5 Therefore, it is considered that the increased vehicle volume of vehicles along Moss Lane during the construction phase, with the implementation of a 20mph speed limit, is unlikely to result in any significant change in the baseline level of night-time maximum noise levels.

Night-time Average Noise Levels

5.2.6 A comparison of predicted $L_{A10,\ 18hour\ noise}$ levels from Scenario 1 and Scenario 2, at ESRs, is provided in **Table 5** below, in accordance with DMRB. Also presented on **Figure 2** and **Figure 3**.

Table 5 Calculated Change in Road Traffic Noise Level (0600 to 2400)

Existing Sensitive Receptors	Floor Level	Predicted Road Traffic Noise Level at ESRs, $L_{10\ 18hour}$ dB(A)		Change in Noise Level associated with the Proposed Development
		Scenario 1 – 2027 Baseline	Scenario 2 – 2025 With Development	
ESR1	GF	46.4	45.8	-0.6
	1st Floor	48.2	47.6	-0.6
ESR2	GF	43.9	44.5	0.6
	1st Floor	46.3	46.5	0.2
ESR3 (West Façade)	GF	48.2	52.2	4.0
	1st Floor	50.1	54.0	3.9
ESR3 (South Façade)	GF	44.6	49.0	4.4
	1st Floor	46.6	50.8	4.2
ESR4	GF	60.1	61.0	0.9
	1st Floor	61.9	62.8	0.9

5.2.7 **Table 5** indicates that the predicted change in road traffic noise at ESR1, ESR2 and ESR4 is less than 1dB. This provides an indication of negligible impact in accordance with DMRB.

5.2.8 The predicted change in road traffic noise at ESR3 is up to 4.4dB at ground floor level of the southern façade, which is an indication of Moderate impact in accordance with DMRB. This suggests a significant impact has the potential to occur.

5.2.9 However, DMRB recognised that local circumstance should be considered when arriving at conclusions with regards to final potential noise impacts.

5.2.10 In addition to the predicted change in 18hour L_{A10} noise level, an assessment of calculated average night-time noise levels has been undertaken with regards to the LOAEL, derived from WHO and BS8233 health-based guidance, shown in **Table 4**.

5.2.11 **Table 6** presents the predicted average night-time noise levels during the construction period, at ESR3, together with the corresponding external LOAEL level. These calculated levels are also presented in **Figure 4** and **Figure 5**.

Table 6 Calculated average Night-time Noise Levels (2300 to 0700)

Receptor	Floor Level	Height	Predicted Night-time Average Level $L_{Aeq, 8hour}$	LOAEL
ESR3 (west façade)	Ground Floor	1.5m	43	45
	1st Floor	4m	45	
ESR3 (south façade)	Ground Floor	1.5m	40	45
	1st Floor	4m	42	

5.2.12 **Table 6** indicates that the predicted daytime levels do not exceed the LOAEL set for this assessment, which corresponds to the threshold above which adverse effects on health and quality of life can be detected recommended by WHO and BS8233 guidance.

5.2.13 In accordance with PPG this indicates that noise may be present and not intrusive. Based on local circumstances it is therefore considered that night-time noise levels associated with the construction phase of the development are not likely to be significant. Therefore, no additional mitigation is required.

6. Conclusion

6.1.1 When considering the potential impacts associated with night-time construction road traffic associated with the development, the initial assessment of change in road traffic noise level, in accordance with DMRB, indicates that moderate impacts have the potential to occur at Windy Harbour, to the east of the proposed site access. Impacts at the remainder of existing receptors were identified as negligible.

6.1.2 However, when comparing calculated night-time noise levels associated with the construction phase with the LOAEL thresholds set for this assessment, based on WHO and BS8233 health-based guidance, no exceedances are predicted. This demonstrates that night-time levels are relatively low, and are unlikely to result in any detectable adverse effects on health and quality of life.

6.1.3 Furthermore, night-time maximum noise levels associated with road traffic on Moss Lane are likely to be reduced as a result of the implementation of a 20mph speed limit. However, these are unlikely to change significantly when considering the increased number of vehicle movements during the construction phase.

6.1.4 In accordance with PPG this indicates that noise may be present and not intrusive and no change in quality of life due to the noise is anticipated. This demonstrates compliance with the aims of national noise and planning policy, the NPSE and NPPF, respectively.

Hydrock

Project Title: Garth Wymott 2	Drawing Title: Approximate Existing Sensitive Receptor (ESR) Locations 65	Job Number: 17036	By: EG	Rev	Description	Date	By	Drawing No.: Figure 1
		Date: 16.11.23	Checked: EG	-	-	-	-	
		Scale: NTS	Status: A1	-	-	-	-	Issue: P01
				-	-	-	-	
				-	-	-	-	

Legend

- Existing Buildings
- Road
- General Industrial
- ESRs

Change in Noise Level
$L_{A10, 18hour}$ dB

	<=	0.0
0.0 <	<=	1.0
1.0 <	<=	2.0
2.0 <	<=	3.0
3.0 <	<=	4.0
4.0 <	<=	5.0
5.0 <	<=	6.0
6.0 <		

Client

The Ministry of Justice

Project

Garth Wymott 2

Title

Predicted Change in Road Traffic Noise Level
Associated with Construction Road Traffic
- 18 hour noise level (0600 to 2400)
- Ground Floor (1.5m height)

Figure	Date		
FIGURE 2	15/11/2023		
Revision	Scale	Drawn	Approved
REV 1	1:2000	EG	LS

Hydrock

Legend

- Existing Buildings
- Road
- General Industrial
- ESRs

Change in Noise Level
$L_{A10, 18hour}$ dB

	<=	0.0
0.0 <	<=	1.0
1.0 <	<=	2.0
2.0 <	<=	3.0
3.0 <	<=	4.0
4.0 <	<=	5.0
5.0 <	<=	6.0
6.0 <		

Client

The Ministry of Justice

Project

Garth Wymott 2

Title

Predicted Change in Road Traffic Noise Level
Associated with Construction Road Traffic
- 18 hour noise level (0600 to 2400)
- First Floor (4.5m height)

Figure	Date		
FIGURE 3	15/11/2023		
Revision	Scale	Drawn	Approved
REV 1	1:2000	EG	LS

Hydrock

Legend

- Existing Buildings
- Road
- General Industrial
- ESRs

Night-time $L_{Aeq, 8hour}$, dB

		<=	40.0
40.0 <		<=	45.0
45.0 <		<=	50.0
50.0 <		<=	55.0
55.0 <		<=	60.0
60.0 <			

Client

The Ministry of Justice

Project

Garth Wymott 2

Title

Predicted Night-time Average Noise Levels
- 8hour noise level (2300 to 0700)
- Ground Floor (1.5m height)
- 20mph Speed Limit on Moss Lane

Figure	Date		
FIGURE 4	15/11/2023		
Revision	Scale	Drawn	Approved
REV 1	1:2000	EG	LS

Hydrock

Legend

- Existing Buildings
- Road
- General Industrial
- ESRs

Night-time $L_{Aeq, 8hour}$, dB

	<=	40.0
40.0 <	<=	45.0
45.0 <	<=	50.0
50.0 <	<=	55.0
55.0 <	<=	60.0
60.0 <		

Client

The Ministry of Justice

Project

Garth Wymott 2

Title

Predicted Night-time Average Noise Levels
- 8hour noise level (2300 to 0700)
- First Floor (4.5m height)
- 20mph Speed Limit on Moss Lane

Figure	Date		
FIGURE 5	15/11/2023		
Revision	Scale	Drawn	Approved
REV 1	1:2000	EG	LS

Hydrock

Appendix A Glossary

Term	Description
dB (decibel)	The scale on which sound pressure level is expressed. Sound pressure level is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure ($2x10^{-5}$Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' - weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq,T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	L_{AFmax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{AFmax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L_{10} and L_{90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L10 is the level exceeded for 10% of the time, and the L90 is the level exceeded for 90% of the time.
R_w	R_w is the single-number quantity which characterizes the sound insulating properties of a given material over a range of frequencies. This is typically measured in a laboratory in accordance with BS EN ISO 717-1.
$D_{n,e,w}$	$D_{n,e,w}$ is the single number quantity which characterizes the airborne sound insulation performance across a given 'element' and is typically used to describe the acoustic performance of trickle ventilators etc.
C_{tr}	C_{tr} is a correction term applied to single-number sound insulation values (R_w, $D_{n,e,w}$ etc.) to afford additional weighting against low frequency performance.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and at least 3m from buildings.

Appendix B Traffic Data

2027 Baseline

ID	Location	2027 Baseline (2021 Baseline factored to 2027 using TEMPro)		
		18hr AAWT		
		Total Veh.	HGVs	%HGVs
D	Ulnes Walton Lane, north of Ulnes Walton Lane / Moss Lane Junction	4722	83	2%
E	Ulnes Walton Lane, south of Ulnes Walton Lane / Moss Lane Junction	4593	89	2%
I	Moss Lane, north of Ulnes Walton Lane / Moss Lane Junction	2789	84	3%
J	Moss Lane between existing HMP Garth Wymott Site Access and Proposed Prison Site Access	853	9	1%
L	Moss Lane between Proposed Prison Site Access and Willow Road	853	9	1%

Construction Traffic

ID	Location	Construction Traffic Only (Personnel & Deliveries)		
		18hr AAWT		
		Total Veh.	HGVs	%HGVs
D	Ulnes Walton Lane, north of Ulnes Walton Lane / Moss Lane Junction	670	0	0%
E	Ulnes Walton Lane, south of Ulnes Walton Lane / Moss Lane Junction	979	129	13%
I	Moss Lane, north of Ulnes Walton Lane / Moss Lane Junction	1648	129	8%
J	Moss Lane between existing HMP Garth Wymott Site Access and Proposed Prison Site Access	1648	129	8%
L	Moss Lane between Proposed Prison Site Access and Willow Road	0	0	0%

2027 Baseline + Construction Traffic

ID	Location	2027 Baseline + Construction Traffic		
		18hr AAWT		
		Total Veh.	HGVs	%HGVs
D	Ulnes Walton Lane, north of Ulnes Walton Lane / Moss Lane Junction	5392	83	2%
E	Ulnes Walton Lane, south of Ulnes Walton Lane / Moss Lane Junction	5572	218	4%
I	Moss Lane, north of Ulnes Walton Lane / Moss Lane Junction	4437	212	5%
J	Moss Lane between existing HMP Garth Wymott Site Access and Proposed Prison Site Access	2501	138	6%
L	Moss Lane between Proposed Prison Site Access and Willow Road	853	9	1%

Appendix H – Construction Route Assessment – Garth Wymott

Garth Wymott 2

Construction Route Assessment

MACE (on behalf of the Ministry of Justice)

March 2022

Security Classification: OFFICIAL – SENSITIVE
GHX0000 Project Wide
S3 – Suitable for Review and Comment

Notice

This document and its contents have been prepared and are intended solely as information for MACE (on behalf of the Ministry of Justice) and use in relation to Garth Wymott 2.

Atkins Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 48 pages including the cover.

Document history

Document title: Construction Route Assessment

Document reference: Construction Route Assessment

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	DRAFT for Comments	TR	TR	SY	SY	17/12/2021
2.0	Final Report	TR	TR	SY	SY	08/03/2022

Client signoff

Client	MACE (on behalf of the Ministry of Justice)
Project	Garth Wymott 2
Job number	5200124
Client signature/date	

Contents

Tables

Figures

1. Introduction

1.1. Background

The Ministry of Justice (MoJ) and the National Offender Management Service (NOMS) have appointed consultants to support the submission of a Hybrid Planning Application seeking outline planning permission for a new prison (referred to as Garth Wymott 2) within a secure perimeter fence, outline planning permission for a replacement boiler house, and full planning permission for a replacement bowling green and club house. Garth Wymott 2 is proposed to be a Category C Adult Male resettlement prison with a capacity of up to 1,715 located on land north of HMP Wymott, in Lancashire.

The site location is outlined on Figure 1-1.

Figure 1-1 – Site Location Plan

1.2. Report Purpose

As part of the Hybrid Planning Application, Atkins has prepared a Transport Assessment (TA), Outline Travel Plan (OTP), and Framework Construction Traffic Management Plan (CTMP). At the time of preparing the documents required for the submission of the Hybrid Planning Application, the Contractor responsible for the construction of the new Prison had not been appointed. However, since the submission of the Hybrid Planning Application, the A4NP Alliance has been established under the New Prisons Programme FAC-1 contract to deliver the four new prisons faster, better, and greener. The A4NP is referred to from this point forward as the 'Contractors Alliance'.

As part of the CTMP, designated Construction Access Routes were selected to minimise the potential for adverse impacts on the local highway network. The primary considerations when selecting the routes were to use the shortest approved construction traffic route, to avoid settlements and any other sensitive receptors to reduce congestion and minimise effects in cities, towns and villages, and to minimise travel where possible.

The Contractors Alliance has undertaken a review of the designated Construction Access Routes identified within the CTMP and identified additional routes for consideration. The purpose of this report is to review the proposed Construction Access Routes and to identify any existing constraints which may require mitigation to facilitate use by the proposed Construction Vehicles during the construction phase of the development, some of which are non-standard Abnormal Indivisible Loads (AILs). The purpose of this report is to identify existing constraints only. It is not the purpose of this report to provide recommendations for potential highway mitigation and/or advise the Contractors Alliance which route(s) should be used during the Construction Phase of the development.

1.3. Structure of Report

This report includes the following sections:

- **Section 2**: provides details of the proposed development, including site access arrangements;
- **Section 3**: provides details of the proposed construction programme including trip generation;
- **Section 4**: provides a summary of the proposed Construction Access Routes to be reviewed;
- **Section 5**: outlines the methodology for reviewing the proposed Construction Access Routes; and
- **Section 6**: presents the findings of the Construction Access Route assessment.

2. Development Proposals

2.1. Introduction

This section of the report provides a description of the proposed development.

2.2. Development Description

Hybrid planning application seeking: Outline planning permission (with all matters reserved except for access, parking and landscaping) for a new prison (up to 74,531.71 sqm GEA) (Class C2A) within a secure perimeter fence following demolition of existing buildings and structures and together with associated engineering works; Outline planning permission for a replacement boiler house (with all matters reserved except for access); and Full planning permission for a replacement bowling green and club house (Class F2(c)). The indicative site layout is provided in Appendix A.

2.2.1. Garth Wymott 2

The indicative site layout proposes a range of buildings and facilities typical of a Category C resettlement prison, including:

- Seven new houseblocks each accommodating up to 245 prisoners (1,715 prisoners in total), totalling c.53,472 sqm GEA.
- Supporting development including kitchen, workshops, kennels, Entrance Resource Hub, Central Services Hub and support buildings, totalling c. 21,060 sqm GEA.
- Ancillary development including car parking (c. 525 spaces), internal road layout and perimeter fencing totalling 1326 linear meters enclosing a secure perimeter area of 10.5 ha.

The house blocks will be four storeys (plus pitched roof) in height, whilst the other buildings will range from one to three storeys.

The new prison will be designed and built to be highly sustainable and to exceed local and national planning policy requirements in terms of sustainability. MoJ's aspirations include targeting near zero carbon operations, 10% biodiversity net gain, and at least BREEAM 'Excellent' certification, with endeavours to achieving BREEAM 'Outstanding'.

The prison will accommodate up to 1,715 adult male prisoners and will be designed and constructed to Category C working prison standard. Based on a prisoner to staff ratio of 0.5, there will be up to 858 staff employed at the site (uniformed and non-uniformed).

Safe access will be designed into the development proposals in accordance with BREEAM Hea07[1] requirements.

2.2.2. Boiler House

The replacement boiler house is referred to as Land between HMP Wymott and HMP Garth. The footprint of the proposed boiler house and associated service yard is approximately 14m x 41m, height approximately 9m, and combined flue height approximately 22m.

2.2.3. Bowling Green and Club House

The proposed Bowling Green and Club House replaces the existing Bowling Green located off Pump House Lane and forms part of this hybrid planning application. It is proposed to relocate the Bowling Green to land to the south of HMP Wymott as shown on Figure 1-1.

The relocated Bowling Green and Club House will be single storey in height, floorspace of 72 sqm GEA, and 37 car parking spaces.

[1] Hea 07 Safe and healthy surroundings (breeam.com)

2.3. Site Access Arrangements

2.3.1. Construction Access

The construction access for Garth Wymott 2 will be provided via a new temporary construction access off Moss Lane to the north of the HMP Garth and HMP Wymott internal access road. Once the construction phase has finished, the temporary construction access will be converted into the operational site access. The layout of the temporary construction access is shown in Appendix B (DWG: GARTH-ATK-HGN-MOSS-DR-D-0001).

3. Construction Traffic

3.1. Construction Traffic Flows

The forecast construction traffic information has been estimated based on observed construction information from a recent Prison provided by the MoJ. The construction information has been verified by the Contractor's Alliance. The full information is provided in Appendix C.

The construction traffic information presented below outlines the number of construction trips forecast during the peak month and the number of construction trips forecast during an average month.

3.1.1. Peak Construction Month

The number of construction trips forecast during the peak construction month are outlined in Table 3-1. The construction information presents the forecast number of HGVs (deliveries associated with the construction phase) and Cars (construction personnel). It is assumed that one HGV trip is equal to one 16 tonne Max Articulated Vehicle. It is assumed that there are 4 weeks and 20 working days in a month.

Table 3-1 – Number of Construction Vehicles on Site (Peak Month)

Vehicle	Per Day	Per Week	Per Month
Cars	1,011	5,057	20,228
HGVs	51	254	1,014
Total	**1,062**	**5,311**	**21,242**

3.1.2. Average Construction Month

The number of construction trips forecast during an average construction month are outlined in Table 3-2. The construction information presents the forecast number of HGVs (deliveries associated with the construction phase) and Cars (construction personnel). It is assumed that there are 4 weeks and 20 working days in a month.

Table 3-2 - Number of Construction Vehicles on Site (Average Month)

Vehicle	Per Day	Per Week	Per Month
Cars	426	2,129	8,514
HGVs	73	365	1,459
Total	**499**	**2,494**	**9,973**

The proposed duration of the construction phase is 36 months, with the peak construction period occurring for a 6-week period.

4. Construction Access Routes

4.1. Routing Strategy

As part of the CTMP, designated Construction Access Routes were selected to minimise the potential for adverse impacts on the local highway network. The primary considerations when selecting the routes were to use the shortest approved construction traffic route, to avoid settlements and any other sensitive receptors to reduce congestion and minimise effects in cities, towns and villages, and to minimise travel where possible.

The following factors were also considered:

- Height, width and weight restrictions;
- Road layout, where possible to avoid sensitive receptors (schools, churches, equestrian areas and areas of high pedestrian movements);
- Visibility constraints;
- Restricted access;
- Junctions at or near capacity during peak periods;
- Road gradients; and
- No-go areas (including certain villages, junctions, and other sensitive receptors).

The Contractors Alliance has undertaken a review of the designated Construction Access Routes identified within the CTMP and identified additional routes for consideration. The purpose of this report is to review the proposed Construction Access Routes and to identify any existing constraints which may require mitigation to facilitate use by the proposed Construction Vehicles during the construction phase of the development, some of which are non-standard Abnormal Indivisible Loads (AILs).

4.2. Construction Access Routes

The Contractors Alliance has identified the following Construction Access Routes for consideration:

- Route 1 (Moss Lane to M6 J28)
- Route 2 (Moss Lane to M6 J27)
- Route 3 (Moss Lane to M6 J29/ M61 J9)

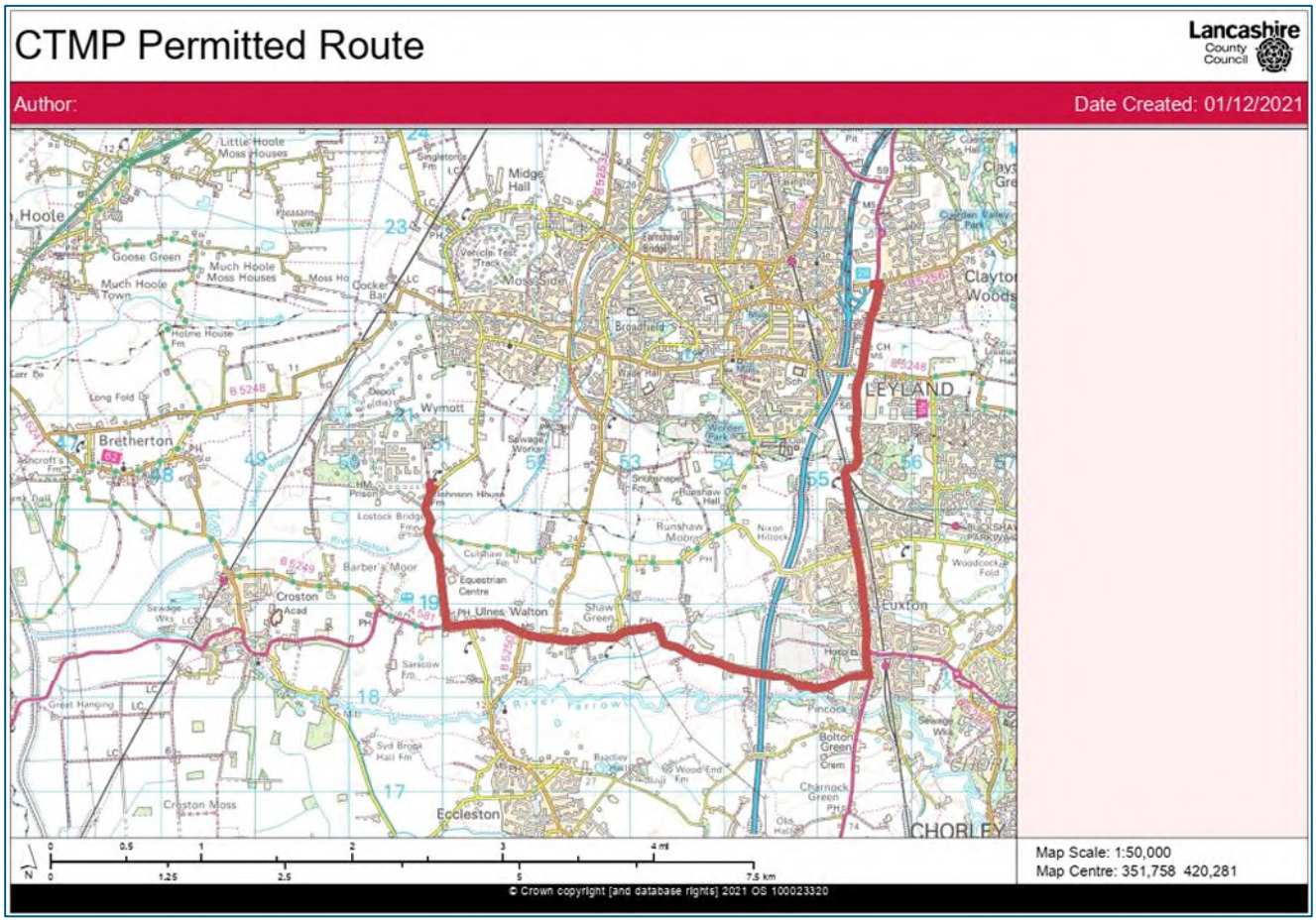
Consideration has also been given to an alternative point of access via the existing Boiler House to the west of Garth Wymott 2 following a request from the Contractors Alliance.

Please note that during pre-application scoping discussions with the Local Highway Authority, Lancashire County Council identified a preferred Construction Access Route between Garth Wymott 2 and the M6. Lancashire County Council provided an overview of the preferred route (see Figure 4-1) and stated:

"To the north of Ulnes Walton Lane is a Primary School and Residential Area. HGVs and general construction vehicles should embark southbound from the site to avoid conflict with the residential area and schoolchildren. The preferred route is the most appropriate route, assuming access to be gained from the M6, avoiding St James' and Runshaw College. This route adequately considers the impact during the construction period, restricting the route to that necessary. This ensures the proposal will not exacerbate existing issues or present new safety issues."

This report has only considered the Construction Access Routes identified by the Contractors Alliance. However, it is important to note that the preferred Construction Access Route identified by Lancashire County Council requires Construction Vehicles to travel along the A49 Wigan Road to the east of the M6. Along this section of the A49 there is an existing railway overbridge which reduces the carriageway to a single lane and restricts vehicle heights to less than 4.0m. This is a significant highways constraint for Construction Vehicles.

Figure 4-1 - Lancashire County Council Preferred Construction Route



5. Assessment Methodology

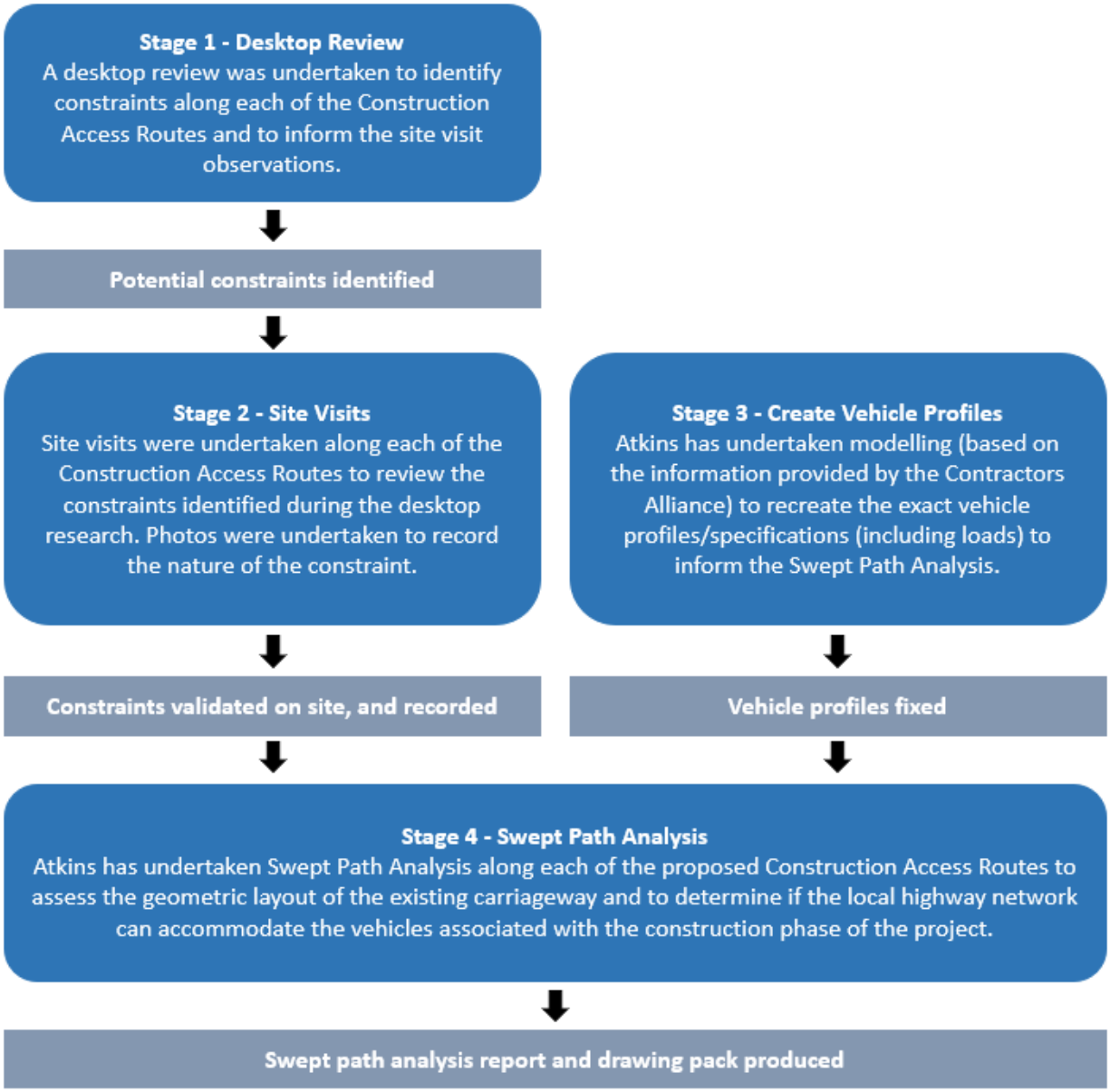
5.1. Introduction

The purpose of this report is to review the proposed Construction Access Routes and to identify any existing constraints which may require mitigation to facilitate use by the proposed Construction Vehicles during the construction phase of the development, some of which are non-standard Abnormal Indivisible Loads (AILs).

This section of the report outlines the assessment methodology used to review the proposed Construction Access Routes and identify any existing constraints. It is not the purpose of this report to provide recommendations for potential highway mitigation and/or advise the Contractors Alliance which route(s) should be used during the Construction Phase of the development.

A summary of the assessment methodology undertaken is provided in Figure 5-1. Further information regarding each of the stages is provided in the following sections of this report.

Figure 5-1 - Assessment Methodology Process



5.2. Desktop Review

Atkins has undertaken a desktop review to identify the existing constraints along each of the proposed Construction Access Routes. The desktop review has been used to inform the site visits and identify any specific constraints which may need investigating further out on site.

5.3. Site Visits

Atkins undertook a site visit to Gartree 2 on the 5th November 2021 and reviewed each of the proposed Construction Access Routes to further consider the existing constraints identified during the desktop review. Photos were undertaken along each of the proposed Construction Access Routes and georeferenced in GIS to validate the findings of the Swept Path Analysis. A copy of the GIS shapefile and the site visit photos undertaken can be provided upon request.

Figure 5-2 provides an overview of the site visit photos undertaken in relation to Route 1 between Moss Lane and M6 J28.

Figure 5-2 - Route 1 – Site Visit Photos

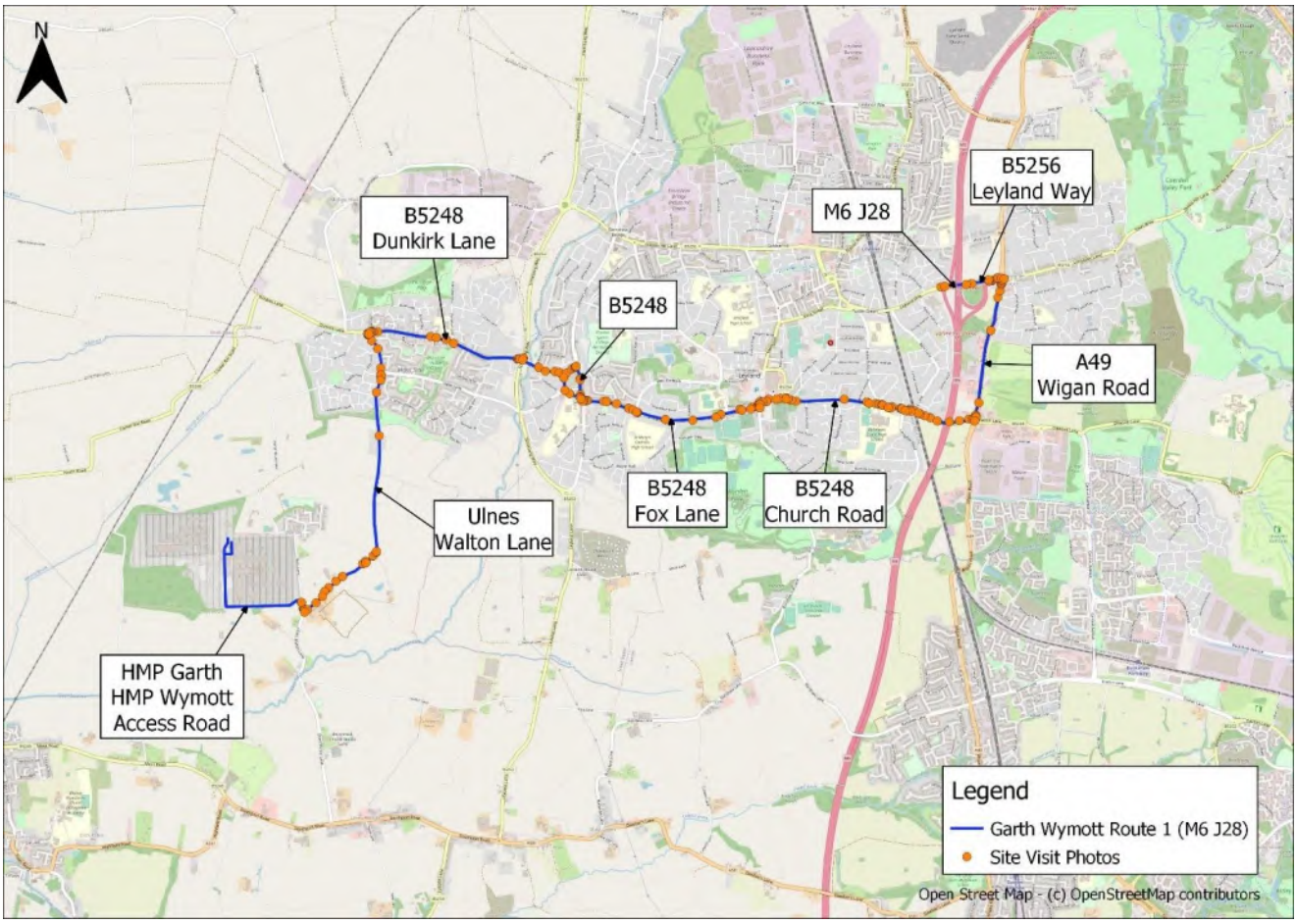


Figure 5-3 provides an overview of the site visit photos undertaken in relation to Route 1 between Moss Lane and M6 J27.

Figure 5-3 - Route 2 – Site Visit Photos

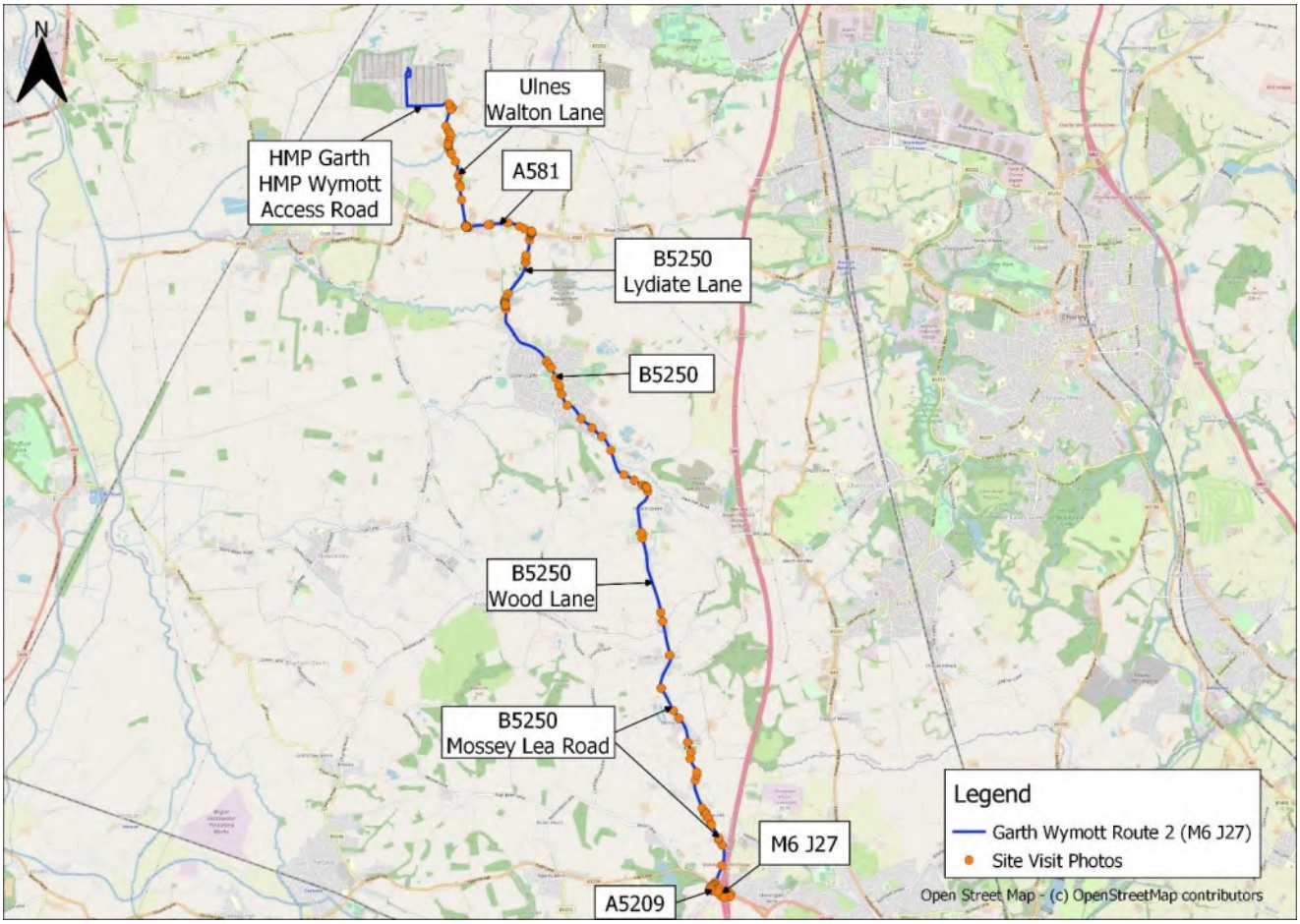
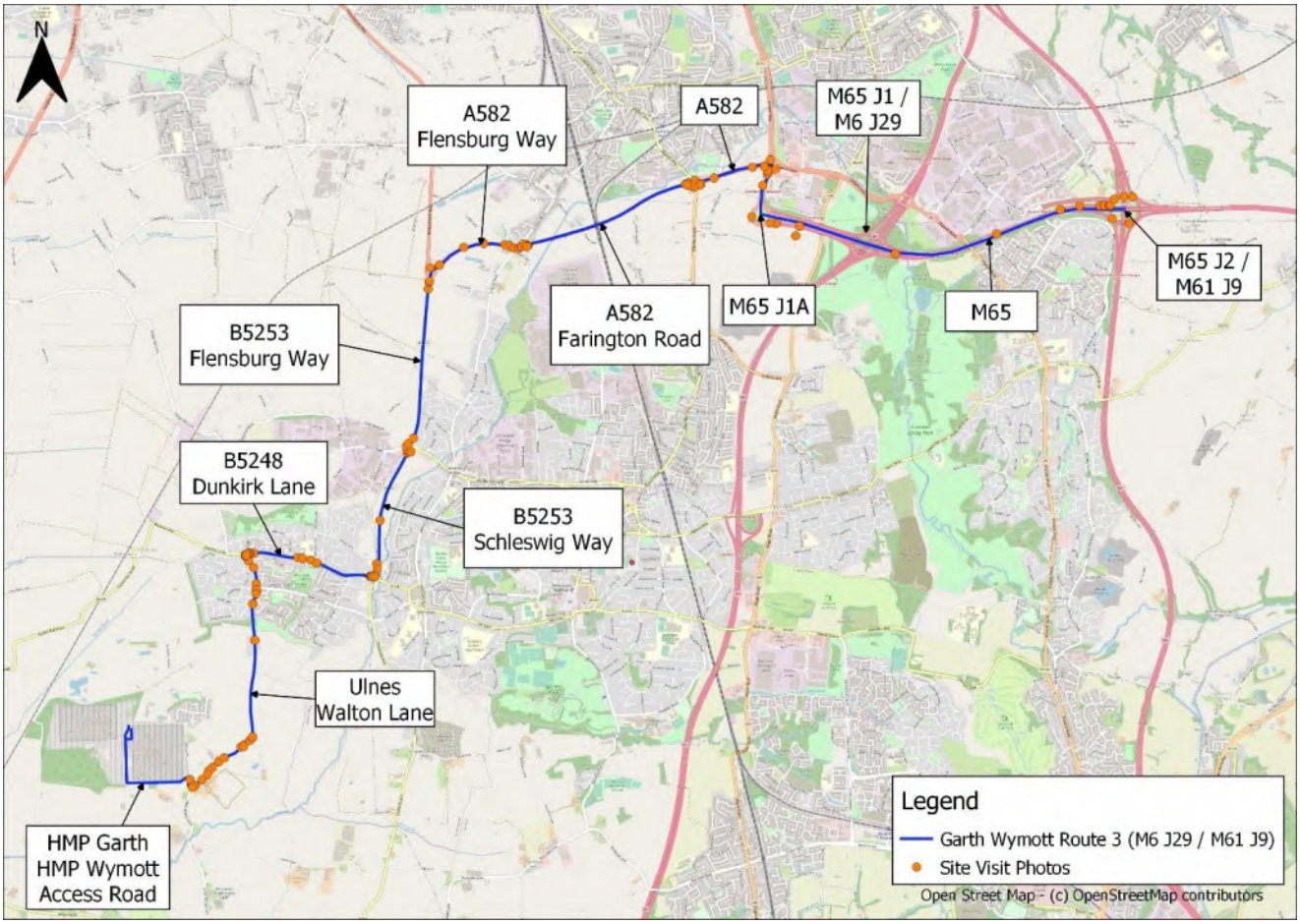


Figure 5-4 provides an overview of the site visit photos undertaken in relation to Route 1 between Moss Lane and M6 J29/ M61 J9.

Figure 5-4 - Route 3 – Site Visit Photos



5.4. Vehicle Types

The construction of Garth Wymott 2 will require a combination of Light Goods Vehicles (LGVs), Heavy Goods Vehicles (HGVs) and Abnormal Indivisible Loads (AILs). Further information with regards to each vehicle type is provided below.

5.4.1. HGVs

Any vehicle over 3.5 tonne is considered an HGV. HGVs will be used for the movement of bulky or large materials and are likely to be wagons but may also include other vehicles, such as lorries as low loaders delivering plant materials.

5.4.2. LGVs

Any vehicle up to 3.5 tonne, excluding cars, is considered an LGV. These vehicles will predominantly be used to move small plant and materials. Other LGVs will include long and short wheelbase vans and any minibuses (with no more than 9 seats including the driver) used to transport construction personnel between the construction compound and public transport hubs.

5.4.3. Abnormal and Indivisible Loads

An Abnormal Indivisible Load (AIL) is defined as a load that cannot, without undue expense or risk of damage, be divided into two or more loads for the purpose of being carried on a road and that owing to its dimensions and/or weight cannot be carried on a vehicle complying with the Road Vehicles (Construction and Use) Regulations 1986.

5.5. Vehicle Profiles

The Contractors Alliance has provided Atkins with details of the most onerous construction vehicles required during the construction of Garth Wymott 2. It is important to note that some of the proposed Construction Vehicles are non-standard AILs which are not available within AutoTrack. Therefore, Atkins has undertaken modelling (based on the information provided by the Contractors Alliance) to recreate the exact profiles/specifications (including loads) to inform the Swept Path Analysis.

The 4 most onerous vehicles required during the construction of Garth Wymott 2 are listed below:

- Vehicle 1 (Standard 16.5m Flatbed Articulated Lorry for Precast Delivery)
- Vehicle 2 (AIL for LR1160 Crawler Crane)
- Vehicle 3 (AIL for Piling Rig)
- Vehicle 4 (AIL for Plant Room Delivery)

Figure 5-5 provides details of the profile/specification for Vehicle 1, Figure 5-6 provides details of the profile/specification for Vehicle 2, Figure 5-7 provides details of the profile/specification for Vehicle 3, and Figure 5-8 provides details of the profile/specification for Vehicle 4.

Figure 5-5 - Vehicle 1 (Standard 16.5m Flatbed Articulated Lorry for Precast Delivery)

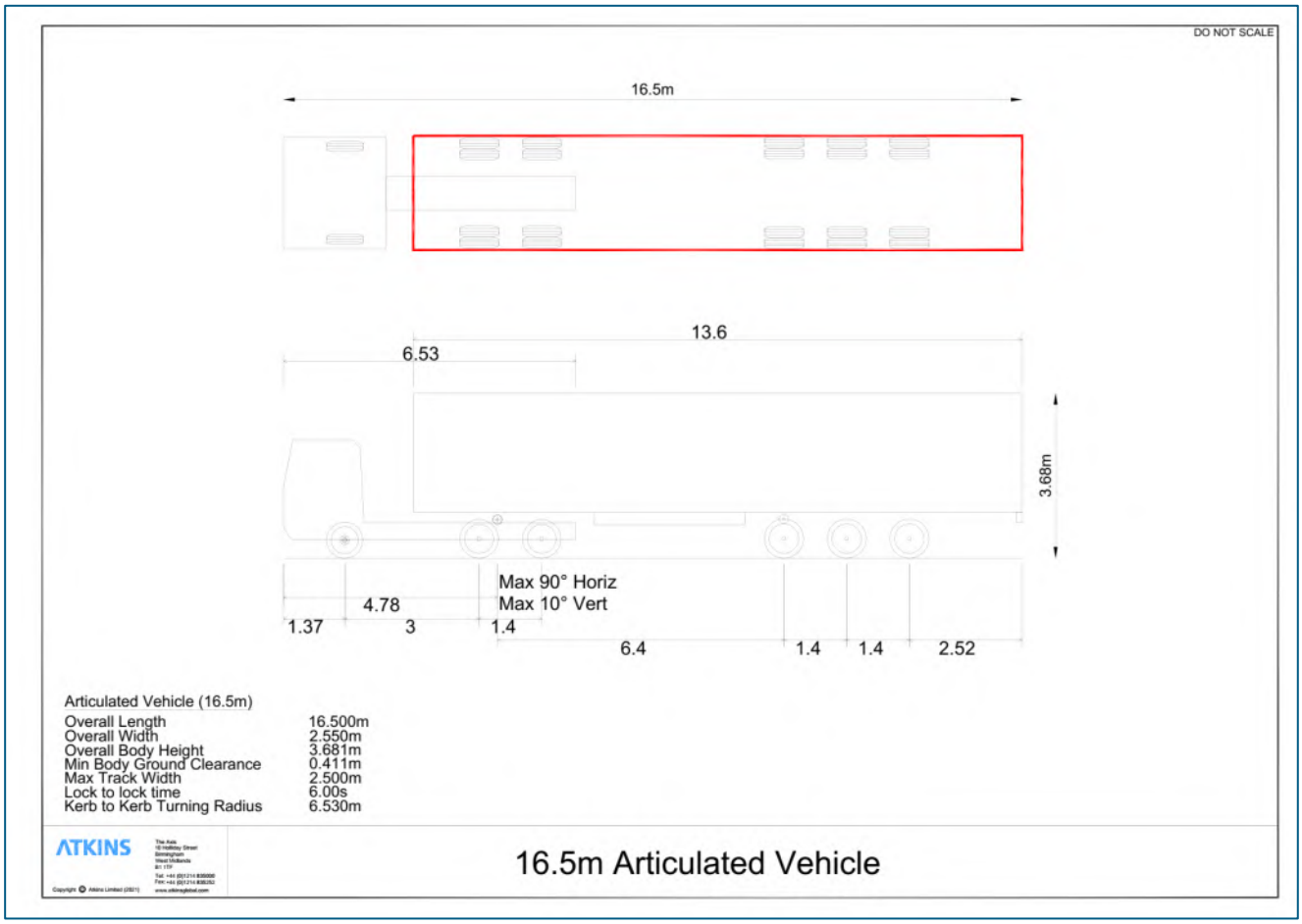


Figure 5-6 – Vehicle 2 (AIL for LR1160 Crawler Crane)

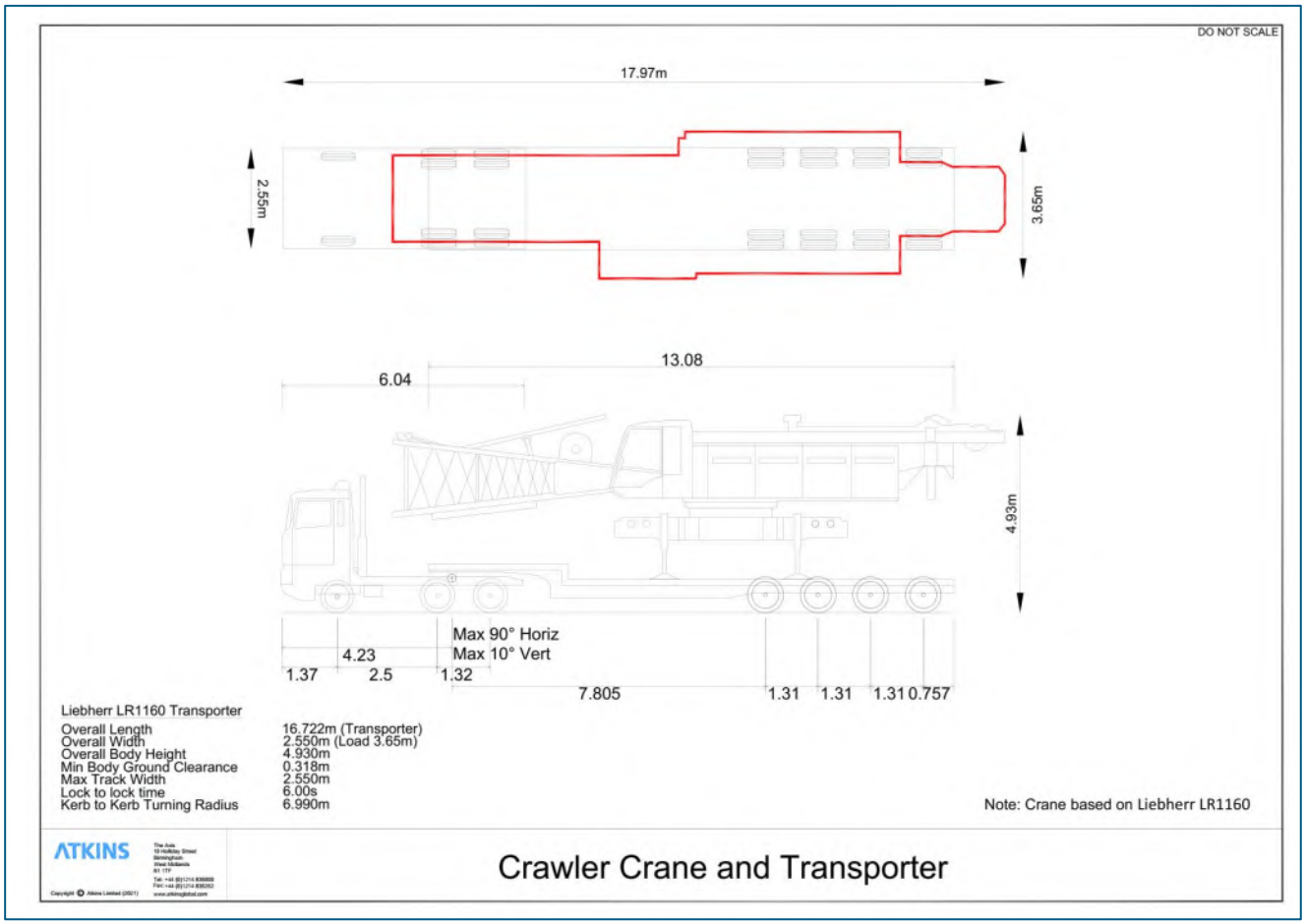


Figure 5-7 - Vehicle 3 (AIL for Piling Rig)

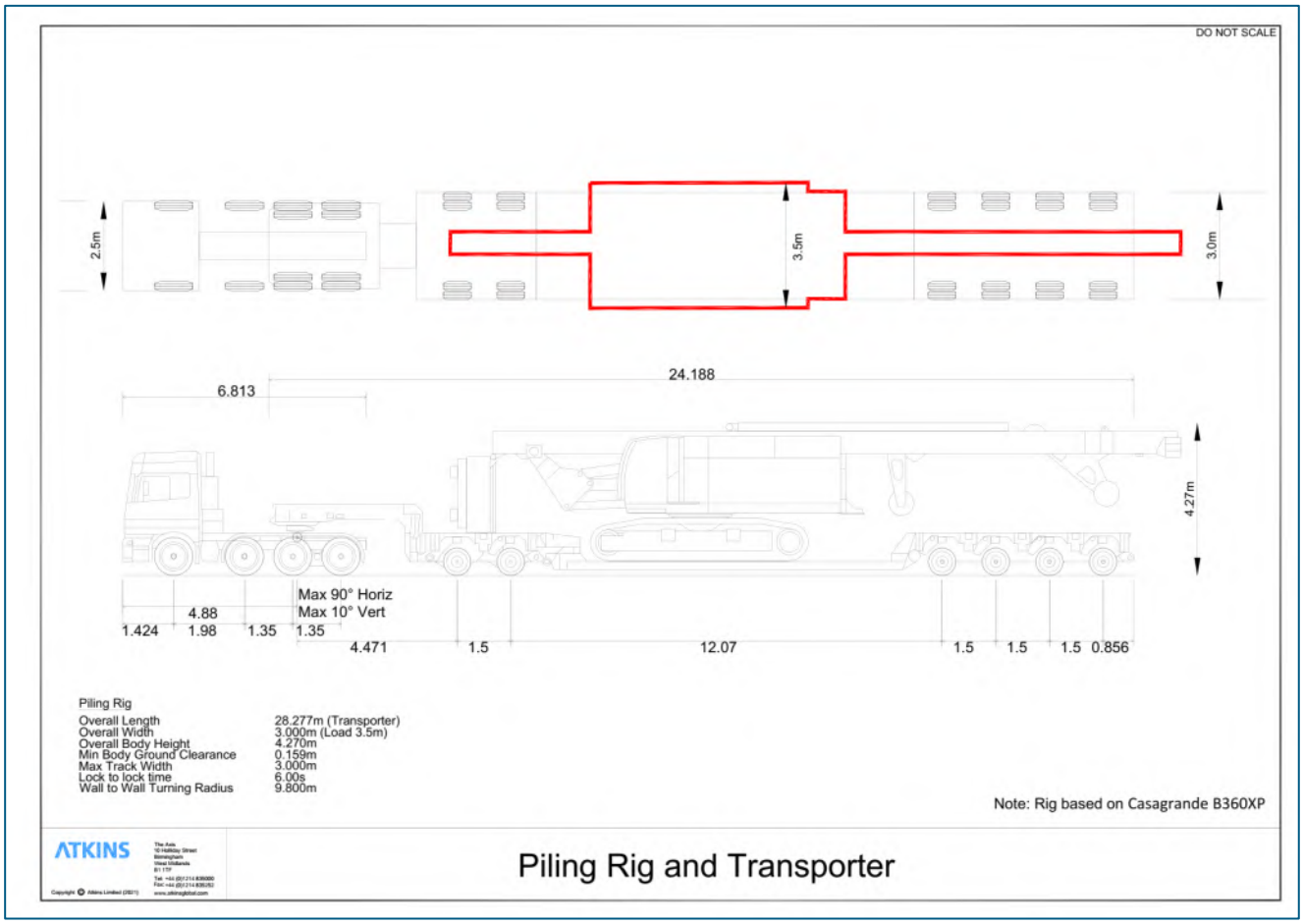
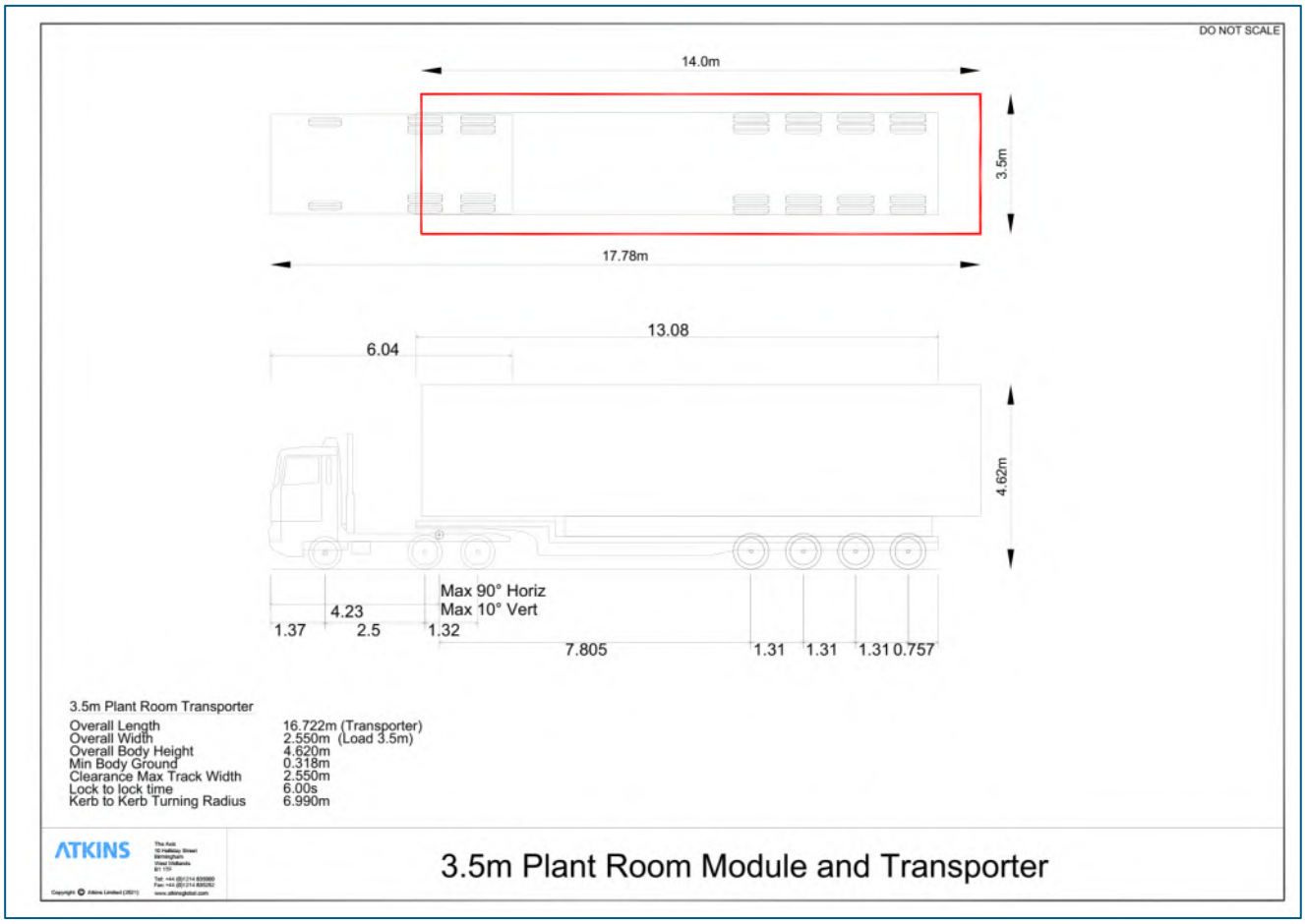


Figure 5-8 - Vehicle 4 (AIL for Plant Room Delivery)



5.6. Swept Path Analysis

Atkins has undertaken Swept Path Analysis along each of the proposed Construction Access Routes to assess the geometric layout of the existing carriageway and to determine if the local highway network can accommodate the vehicles associated with the construction phase of the project. The Swept Path Analysis has been undertaken using AutoTrack.

AutoTrack is a vehicle swept path analysis software program used for analysing the movements of steered and wheeled vehicles. The software tracks a vehicle's simulated movements in relation to geometry, based upon vehicle dimensions, chassis and steering specification. Please note that the Swept Path Analysis has been undertaken on Ordnance Survey Base Mapping. Therefore, it is recommended that the Contractors Alliance undertake further analysis on a Topographical Survey base to ensure accuracy.

Further information regarding the results of the swept path analysis is provided in Section 6 of this report.

6. Construction Access Route Assessment

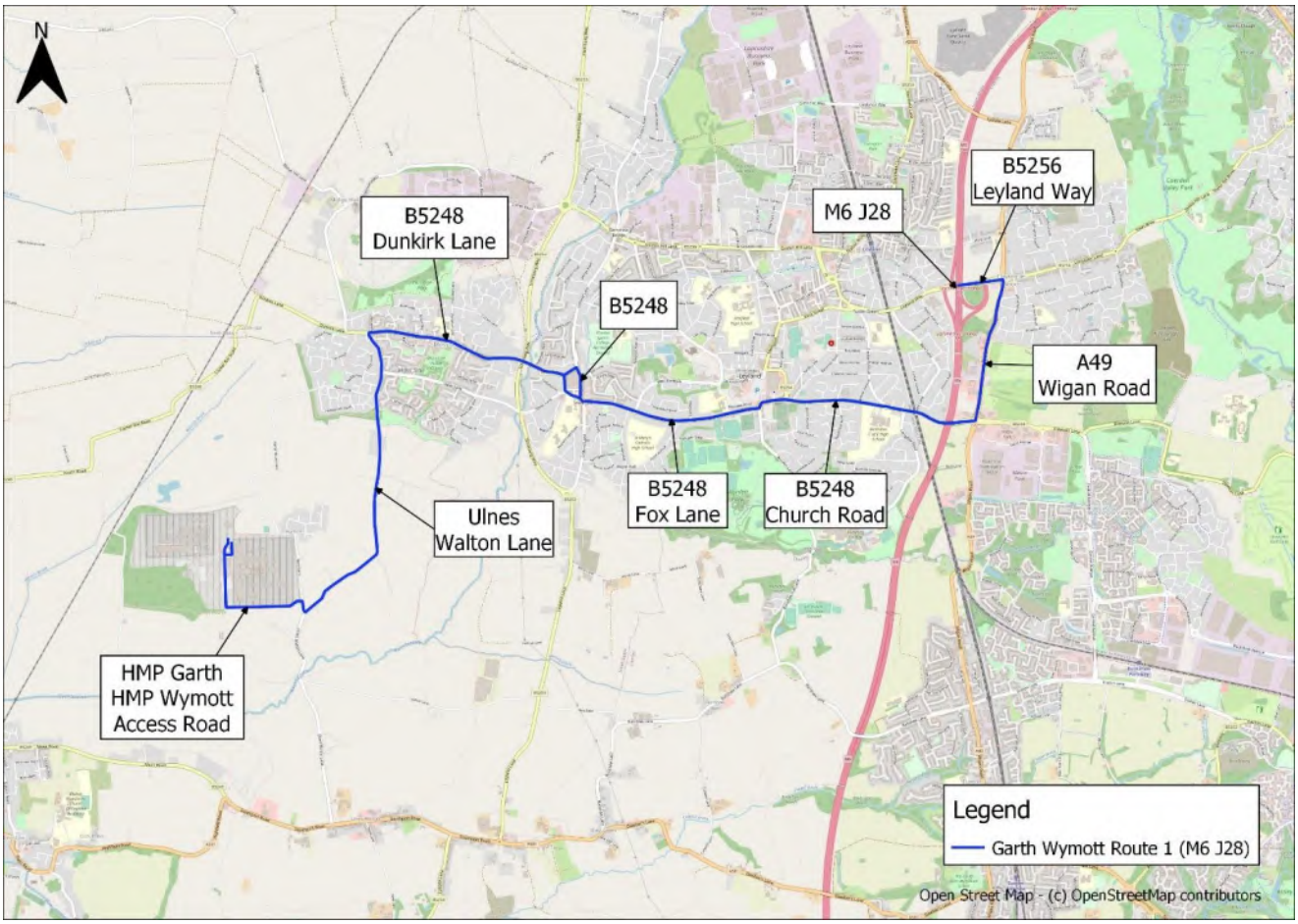
6.1. Introduction

This section of the report presents an overview of the three Construction Access Routes identified by the Contractors Alliance (see Section 4.2). It also presents the findings of the Swept Path Analysis based on the vehicle profiles/ specifications for the four most onerous vehicles required during the construction of Garth Wymott 2 (see Section 5.5). It is important to note that some of the Construction Access Routes identified use the same sections of carriageway and therefore some of the constraints identified apply to multiple routes.

6.2. Route 1 (Moss Lane to M6 J28)

Route 1 proposes to provide access to M6 J28 from Moss Lane via Ulnes Walton Lane, the B5248 Dunkirk Lane, the A49 Wigan Road and the B5256 Leyland Way (see Figure 6-1). Please refer to Route 3 for the existing constraints identified along Ulnes Walton Lane and the B5248 Dunkirk Lane.

Figure 6-1 - Route 1 (Moss Lane to M6 J28)



6.2.1. Route 1 (Vehicle 1)

Table 6-1 presents a summary of the existing highway constraints identified along Route 1 based on the Swept Path Analysis for Vehicle 1.

Table 6-1 - Route 1 (Vehicle 1) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT1-V1-001	Appendix D.1	B5248	KERBLINE OVERRUN
G002-RT1-V1-002	Appendix D.1	B5248 Fox Lane	CENTRAL ISLAND OVERRUN

6.2.2. Route 1 (Vehicle 2)

Table 6-2 presents a summary of the existing highway constraints identified along Route 1 based on the Swept Path Analysis for Vehicle 2.

Table 6-2 - Route 1 (Vehicle 2) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT1-V2-001	Appendix D.2	B5248	KERBLINE OVERRUN
G002-RT1-V2-002	Appendix D.2	B5248 Fox Lane	CENTRAL ISLAND OVERRUN
G002-RT1-V2-003	Appendix D.2	B5248 Church Road	CENTRAL ISLAND OVERRUN
G002-RT1-V2-004	Appendix D.2	B5248 Church Road	CENTRAL ISLAND OVERRUN
G002-RT1-V2-005	Appendix D.2	A49 Wigan Road	CENTRAL ISLAND OVERRUN
G002-RT1-V2-006	Appendix D.2	B5256 Leyland Way	CENTRAL ISLAND OVERRUN

6.2.3. Route 1 (Vehicle 3)

Table 6-3 presents a summary of the existing highway constraints identified along Route 1 based on the Swept Path Analysis for Vehicle 3.

Table 6-3 - Route 1 (Vehicle 3) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT1-V3-001	Appendix D.3	B5248	POTENTIAL COLLISION WITH LIGHTING COLUMN AND COMMERCIAL PROPERTY
G002-RT1-V3-002	Appendix D.3	B5248	KERBLINE OVERRUN
G002-RT1-V3-003	Appendix D.3	B5248 Church Road	CENTRAL ISLAND OVERRUN
G002-RT1-V3-004	Appendix D.3	B5248 Church Road	CENTRAL ISLAND OVERRUN
G002-RT1-V3-005	Appendix D.3	B5248 Church Road	CENTRAL ISLAND OVERRUN
G002-RT1-V3-006	Appendix D.3	A49 Wigan Road	CENTRAL ISLAND OVERRUN
G002-RT1-V3-007	Appendix D.3	A49 Wigan Road	CENTRAL ISLAND OVERRUN
G002-RT1-V3-008	Appendix D.3	B5256 Leyland Way	KERBLINE OVERRUN

6.2.4. Route 1 (Vehicle 4)

Table 6-4 presents a summary of the existing highway constraints identified along Route 1 based on the Swept Path Analysis for Vehicle 4.

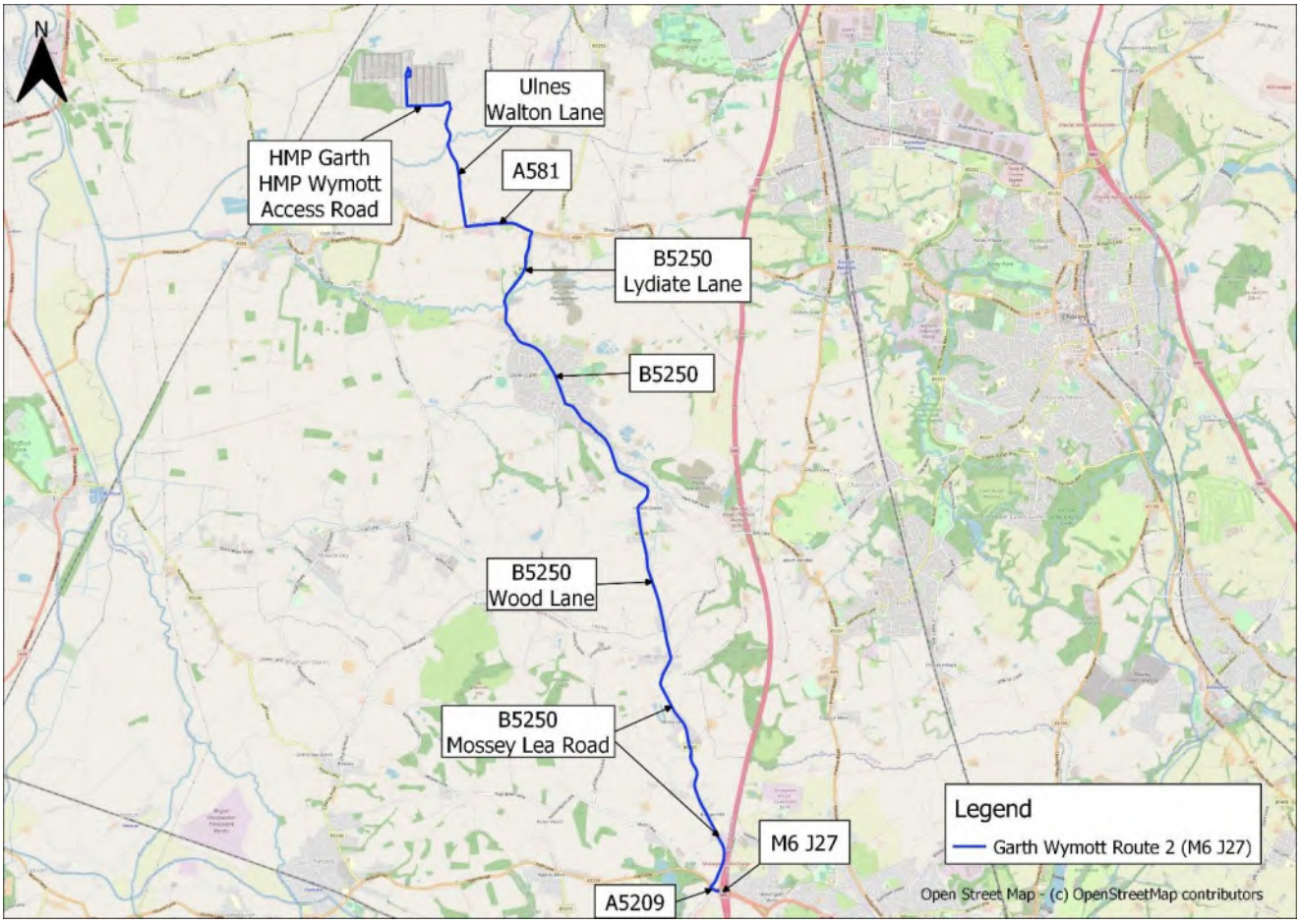
Table 6-4 - Route 1 (Vehicle 4) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT1-V4-001	Appendix D.4	B5248	KERBLINE OVERRUN
G002-RT1-V4-002	Appendix D.4	B5248 Church Road	CENTRAL ISLAND OVERRUN
G002-RT1-V4-003	Appendix D.4	B5248 Church Road	CENTRAL ISLAND OVERRUN
G002-RT1-V4-004	Appendix D.4	B5248 Church Road	CENTRAL ISLAND OVERRUN
G002-RT1-V4-005	Appendix D.4	A49 Wigan Road	CENTRAL ISLAND OVERRUN
G002-RT1-V4-006	Appendix D.4	B5256 Leyland Way	CENTRAL ISLAND OVERRUN

6.3. Route 2 (Moss Lane to M6 J27)

Route 2 proposes to provide access to M6 J27 from Moss Lane via Ulnes Walton Lane, A581, B5250, and A5209 (see Figure 6-2).

Figure 6-2 - Route 2 (Moss Lane to M6 J27)



6.3.1. Route 2 (Vehicle 1)

The Swept Path Analysis did not identify any geometric constraints along Route 2 for Vehicle 1 (Standard 16.5m Flatbed Articulated Lorry for Precast Delivery).

6.3.2. Route 2 (Vehicle 2)

Table 6-5 presents a summary of the existing highway constraints identified along Route 2 based on the Swept Path Analysis for Vehicle 2.

Table 6-5 - Route 2 (Vehicle 2) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT2-V2-001	Appendix E.1	B5250 Lydiate Lane	KERBLINE OVERRUN
G002-RT2-V2-002	Appendix E.1	A581/ Ulnes Walton Lane Junction	KERBLINE OVERRUN

6.3.3. Route 2 (Vehicle 3)

Table 6-6 presents a summary of the existing highway constraints identified along Route 2 based on the Swept Path Analysis for Vehicle 3.

Table 6-6 - Route 2 (Vehicle 3) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT2-V3-001	Appendix E.2	B5250 Lydiate Lane	KERBLINE OVERRUN
G002-RT2-V3-002	Appendix E.2	A581/ B5250 Lydiate Lane Junction	KERBLINE OVERRUN
G002-RT2-V3-003	Appendix E.2	A581/ Ulnes Walton Lane Junction	KERBLINE OVERRUN
G002-RT2-V3-004	Appendix E.2	Ulnes Walton Lane	KERBLINE OVERRUN
G002-RT2-V3-005	Appendix E.2	Ulnes Walton Lane	KERBLINE OVERRUN

6.3.4. Route 2 (Vehicle 4)

Table 6-7 presents a summary of the existing highway constraints identified along Route 2 based on the Swept Path Analysis for Vehicle 4.

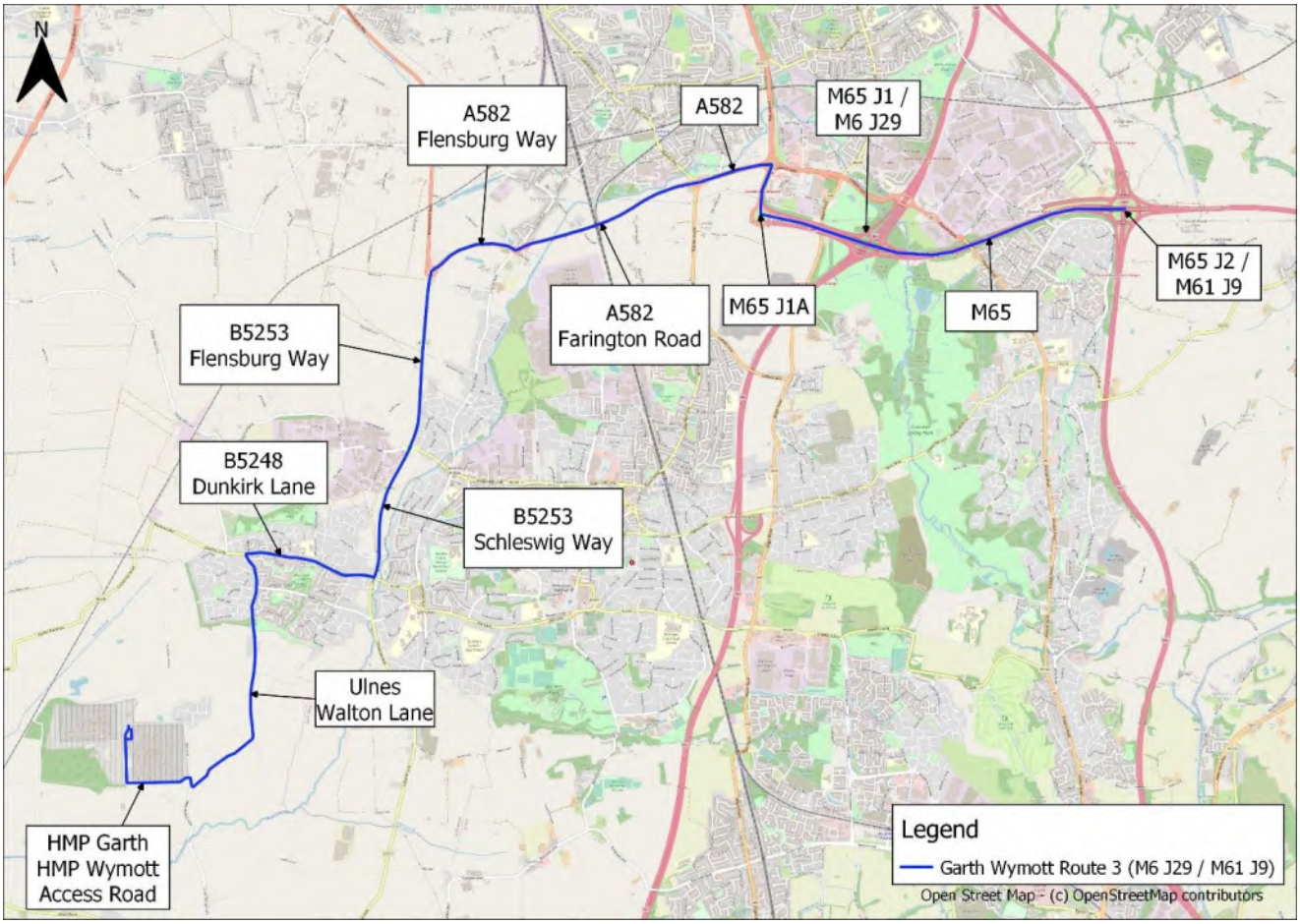
Table 6-7 - Route 2 (Vehicle 4) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT2-V4-001	Appendix E.3	B5250 Lydiate Lane	KERBLINE OVERRUN
G002-RT2-V4-002	Appendix E.3	A581/ Ulnes Walton Lane Junction	KERBLINE OVERRUN

6.4. Route 3 (Moss Lane to M6 J29/ M61 J9)

Route 3 proposes to provide access to M6 J29/ M61 J9 from Moss Lane via Ulnes Walton Lane, B5248, B5253, and A582 (see Figure 6-3).

Figure 6-3 - Route 3 (Moss Lane to M6 J29/ M61 J9)



6.4.1. Route 3 (Vehicle 1)

The Swept Path Analysis did not identify any geometric constraints along Route 3 for Vehicle 1 (Standard 16.5m Flatbed Articulated Lorry for Precast Delivery).

6.4.2. Route 3 (Vehicle 2)

Table 6-8 presents a summary of the existing highway constraints identified along Route 3 based on the Swept Path Analysis for Vehicle 2.

Table 6-8 - Route 3 (Vehicle 2) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT3-V2-001	Appendix F.1	A582	CENTRAL ISLAND OVERRUN
G002-RT3-V2-002	Appendix F.1	B5253 Schleswig Way	CENTRAL ISLAND OVERRUN
G002-RT3-V2-003	Appendix F.1	B5248 Dunkirk Lane	KERBLINE OVERRUN
G002-RT3-V2-004	Appendix F.1	Ulnes Walton Lane	KERBLINE OVERRUN

6.4.3. Route 3 (Vehicle 3)

Table 6-9 presents a summary of the existing highway constraints identified along Route 3 based on the Swept Path Analysis for Vehicle 3.

Table 6-9 - Route 3 (Vehicle 3) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT3-V3-001	Appendix F.2	A582	CENTRAL ISLAND OVERRUN
G002-RT3-V3-002	Appendix F.2	A582	CENTRAL ISLAND OVERRUN
G002-RT3-V3-003	Appendix F.2	B5253 Schleswig Way	CENTRAL ISLAND OVERRUN
G002-RT3-V3-004	Appendix F.2	B5248 Dunkirk Lane	KERBLINE OVERRUN
G002-RT3-V3-005	Appendix F.2	Ulnes Walton Lane	KERBLINE OVERRUN
G002-RT3-V3-006	Appendix F.2	Ulnes Walton Lane	KERBLINE OVERRUN
G002-RT3-V3-007	Appendix F.2	Ulnes Walton Lane/ Moss Lane Junction	KERBLINE OVERRUN

6.4.4. Route 3 (Vehicle 4)

Table 6-10 presents a summary of the existing highway constraints identified along Route 3 based on the Swept Path Analysis for Vehicle 4.

Table 6-10 - Route 3 (Vehicle 4) Highway Constraints

Location Reference	Appendix Location	Location	Constraint Description
G002-RT3-V4-001	Appendix F.3	A582	CENTRAL ISLAND OVERRUN
G002-RT3-V4-002	Appendix F.3	B5253 Schleswig Way	CENTRAL ISLAND OVERRUN
G002-RT3-V4-003	Appendix F.3	Ulnes Walton Lane	CENTRAL ISLAND OVERRUN

6.5. Alternative Point of Access

Consideration has also been given to an alternative point of access via the existing Boiler House to the west of Garth Wymott 2 following a request from the Contractors Alliance (Figure 6-4).

Figure 6-4 – Alternative Point of Access (via Boiler House)

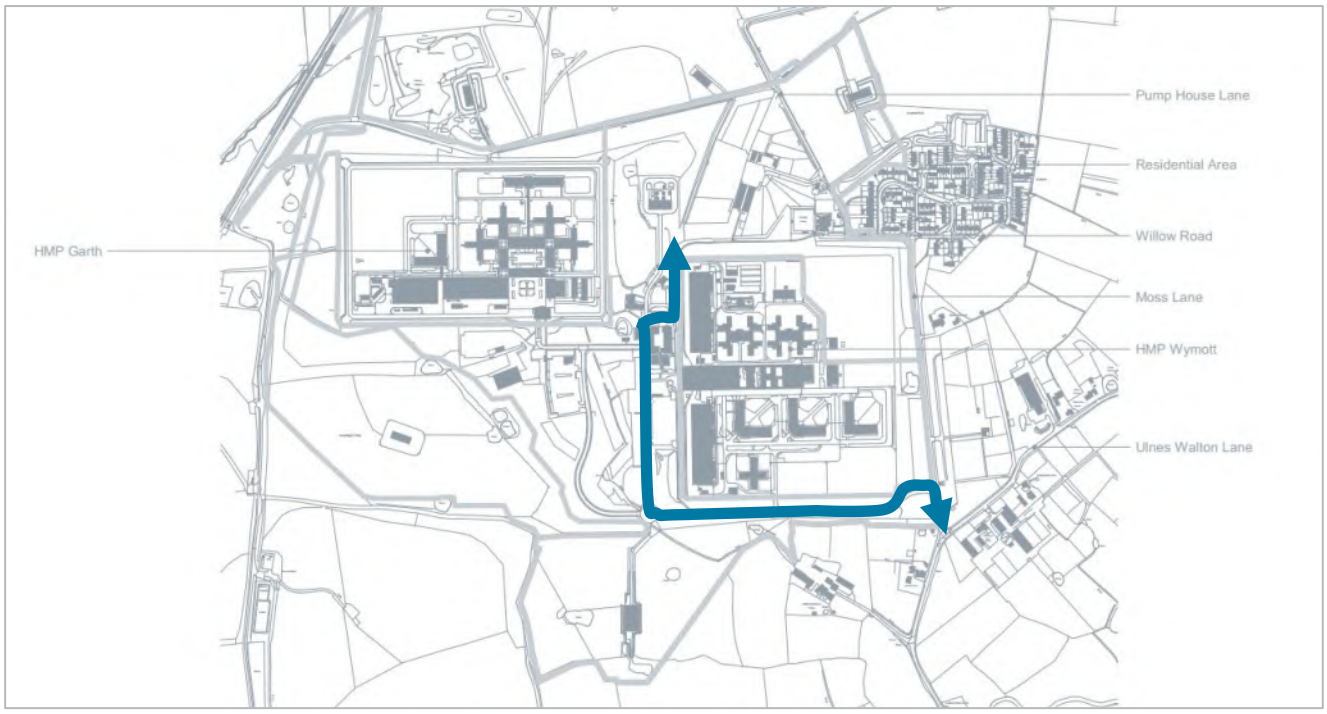


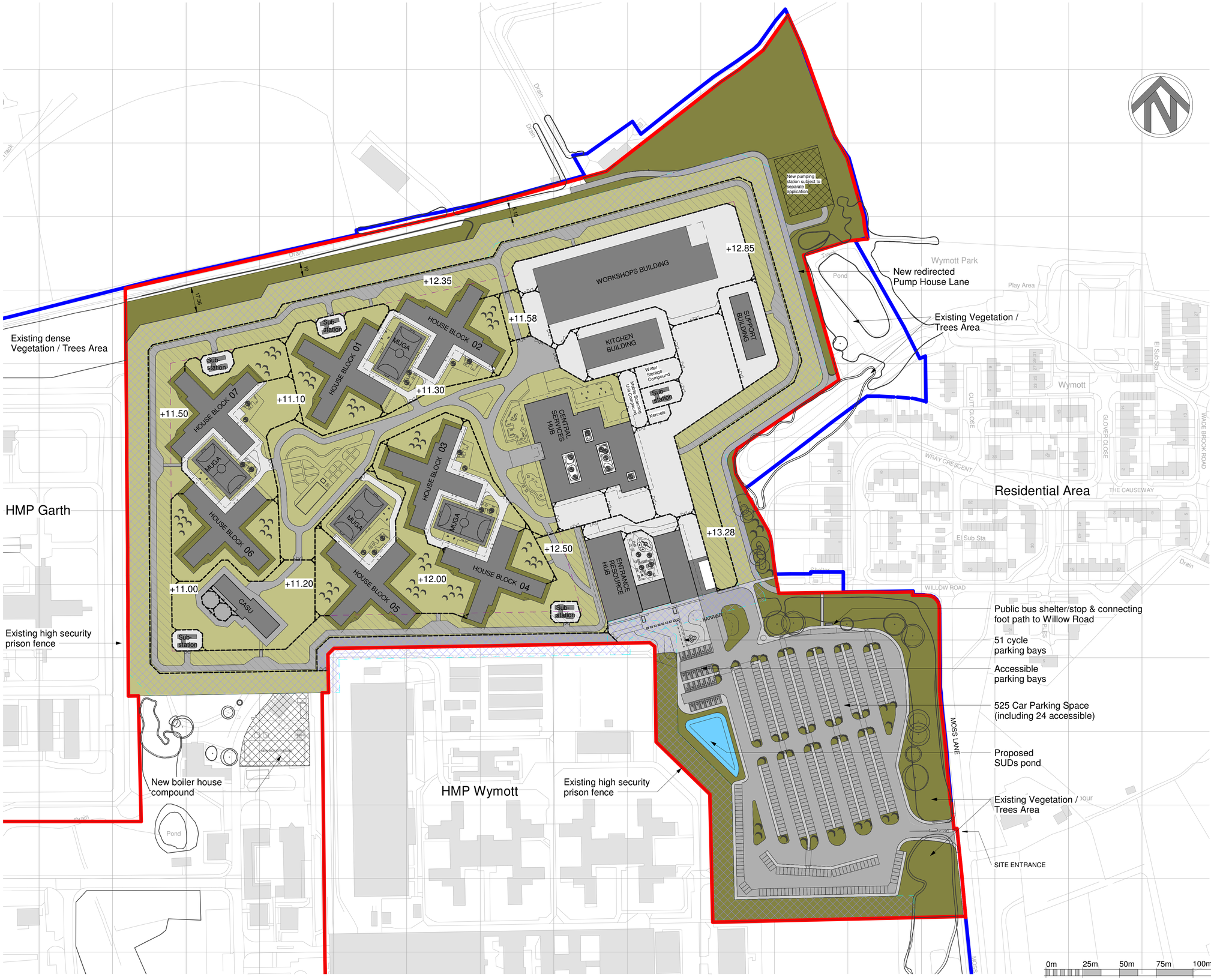
Table 6-11 presents a summary of the existing highway constraints identified along the alternative point of access (via the existing Boiler House) based on the Swept Path Analysis for all Construction Vehicles.

Table 6-11 - Alternative Point of Access (via Boiler House) Highway Constraints

Location Reference	Appendix Location	Constraint Description
G002-RT4-V1-001	Appendix G	EXISTING TRACK TOO NARROW / CONFLICT WITH EXISTING INFRASTRUCTURE
G002-RT4-V2-001	Appendix G	EXISTING TRACK TOO NARROW / CONFLICT WITH EXISTING INFRASTRUCTURE
G002-RT4-V3-001	Appendix G	WHEEL OVER RUN AND OVERSAIL AT EXISTING 'T' JUNCTION
G002-RT4-V3-002	Appendix G	WHEEL OVER RUN AND OVERSAIL AT EXISTING ROUNDABOUT
G002-RT4-V3-003	Appendix G	EXISTING TRACK TOO NARROW / WHEEL OVER RUN AND OVERSAIL AT EXISTING JUNCTION
G002-RT4-V4-001	Appendix G	EXISTING TRACK TOO NARROW

Appendices

Appendix A. Site Block Plan

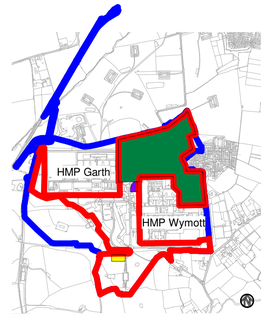


0m 25m 50m 75m 100m 125m

VISUAL SCALE 1:1250 @ A1

- Road
- MUGA (Multi Use Games Area)
- Building Footprint
- 15m inner open space
- 15m outter open space
- Application Red Line Boundary
- Ownership Boundary
- Security Fence
- Vegetation / Trees

For proposed & existing hard and soft landscaping please refer to drawing:
608623-0000-PEV-GHX0011-XX-DR-L-0301_ Comprehensive Landscape Masterplan



Rev	Date	Description
P06	13.07.2021	Amendments following review
P05	09.07.2021	Amendments following review
P04	05.07.2021	Amendments following review
P03	25.06.2021	Amendments following review
P02	13.05.2021	Minor amendments following review
P01	14.04.2021	First issue

This document references the following linked files

File Reference	Status	Revision
608623-0000-PEV-GHX0011-ZZ-M3-A-0001-D0200	S1	P 00

Project Status
RIBA Stage 2

Client
Ministry of Justice

Project
New Prisons Programme

Ministry of Justice, 102 Petty France, London, SW1H 9AJ

Project Description / Site
New Prisons Programme
Garth Wymott 2

Project Address
Site Adjacent to HMP Garth & HMP Wymott

Building Type
Site Infrastructure

Drawing Title
Site-Block Plan-Proposed-PLANNING

Originator Logo
PICK EVERARD

Drawn By	MDA	Date	14.04.2021
Checked By	RPP	Date	14.04.2021
Approved By	RPP	Date	14.04.2021

Drawing Number: 608623-0000-PEV-GHX0011-ZZ-DR-A-9100
Delref: B0700

Sheet No.: 1 of 1
Scale: As indicated
Orig. Sheet Size: @ A1
Rev.: P06

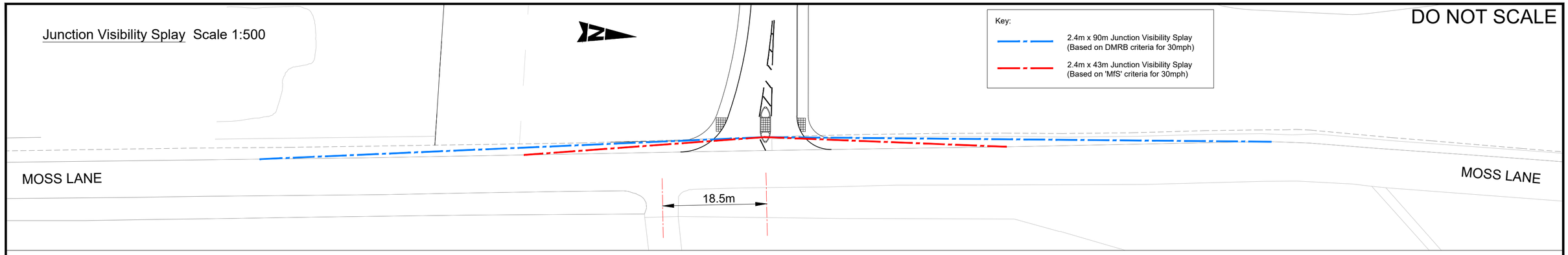
Data Security Classification: OFFICIAL
Suitability: S3

Appendix B. Construction Access Drawing

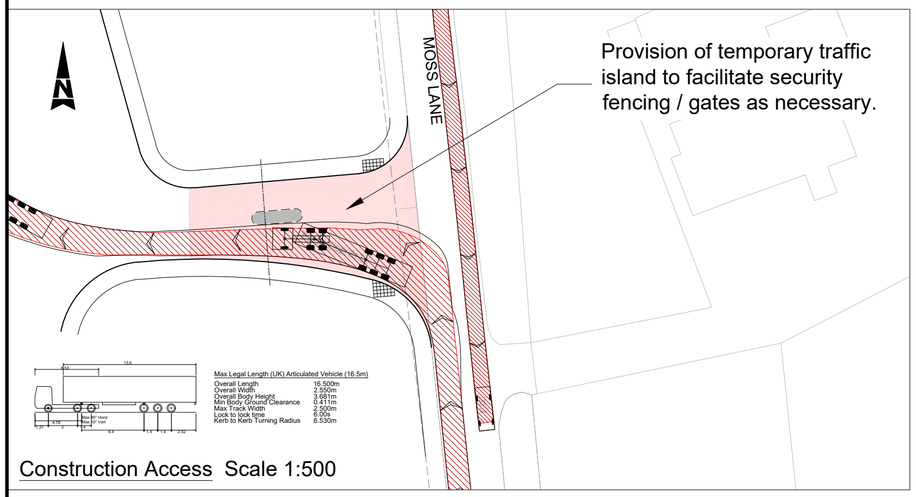
DO NOT SCALE

Millimetres 0 10 100

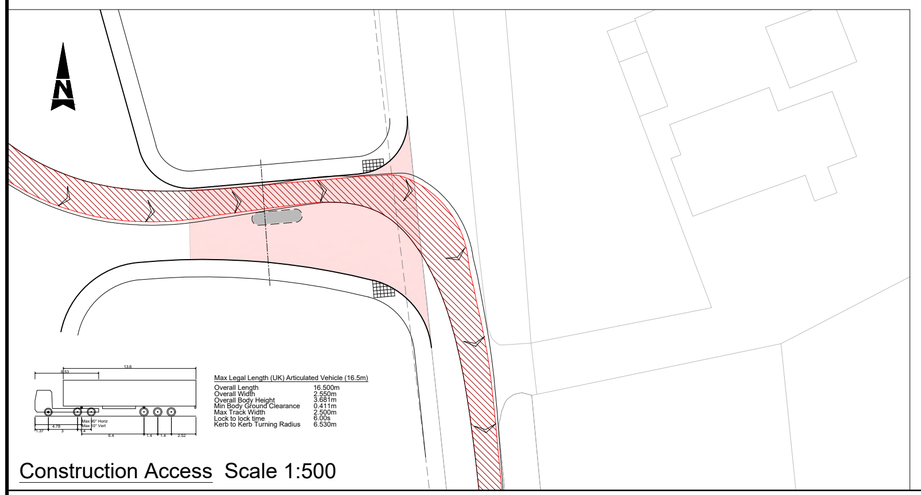
Junction Visibility Splay Scale 1:500



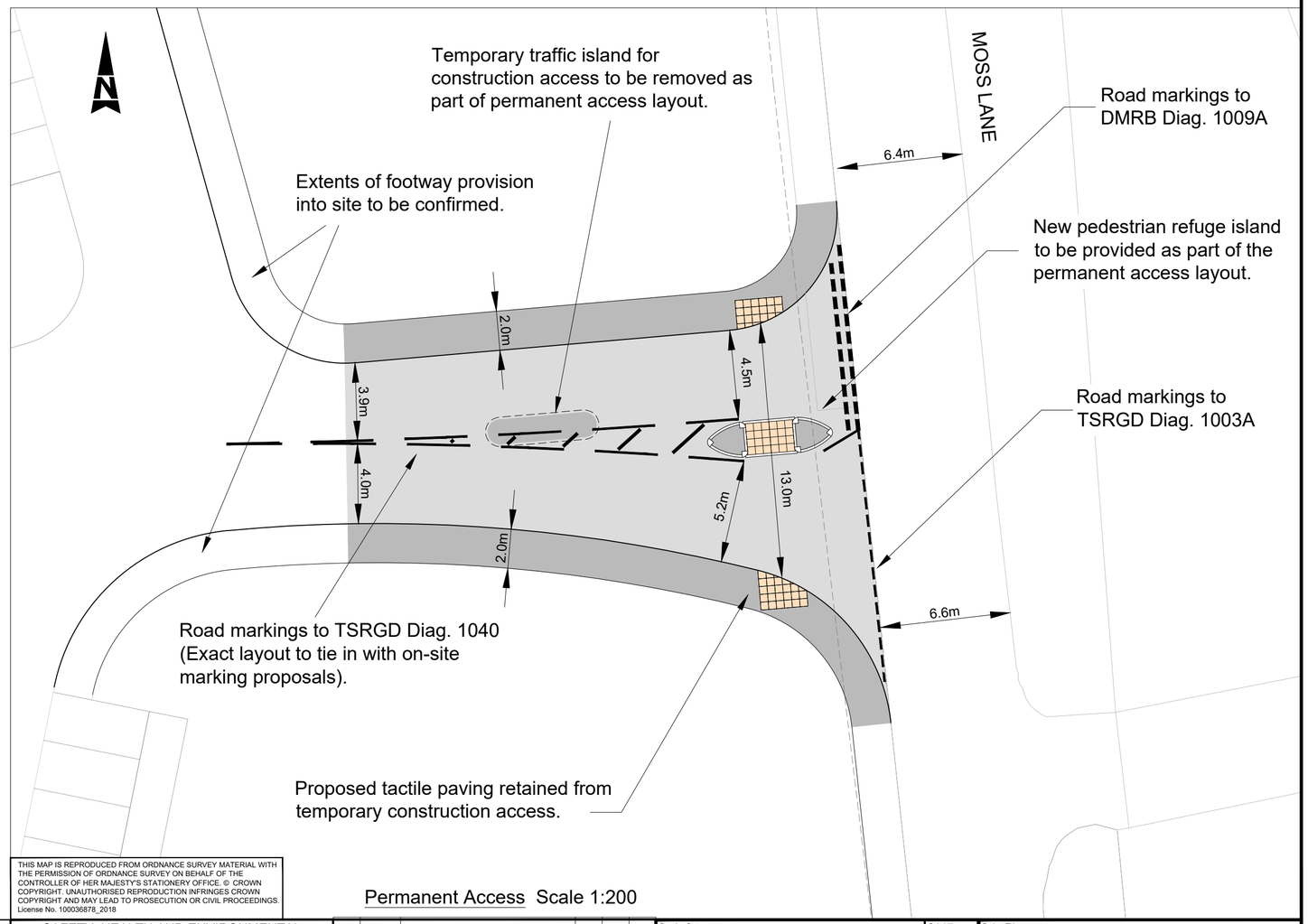
Construction Access Scale 1:500



Construction Access Scale 1:500



Permanent Access Scale 1:200



Key:

- Temporary construction surfacing
- Permanent carriageway surfacing
- Permanent Footway surfacing
- Tactile paving
- Vehicle Swept Path

Notes:

1. Layout is preliminary design 'for information' only and subject to approval from Highway Authority.
2. Layout is based on Ordnance Survey. Subject to detailed design on Topographical Survey base.
3. Proposed junction visibility splays to be checked against existing Highway boundary information to confirm minimum standards are achieved.
4. All proposed road markings and temporary signage to be in accordance with the 'Traffic Signs Regulations and General Directions 2016'.
5. On completion of works all affected infrastructure including hedging, fencing, ditches, footways, kerbing, verges and road surfacing shall be reinstated in accordance with the Overseeing Organisation's requirements.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION

NONE

MAINTENANCE/CLEANING

NONE

DECOMMISSIONING/DEMOLITION

NONE

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

Rev.	Date	Description	By	Chk'd	App'd
P2	21.06.21	90m VISIBILITY REMOVED	AE	PDE	
P1	30.03.21	DRAWING CREATED	AE	PDE	

Drawing Status: FIT FOR INFORMATION

Suitability: S2

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Fax: +44 (0)1214 835252
www.atkinsglobal.com

Client: MINISTRY OF JUSTICE

Project Title: HMP GARTH

Drawing Title: PROPOSED NEW ACCESS

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	AE	AE	PDE	
Original Size	Date	Date	Date	Date
A2	30.03.21	30.03.21	30.03.21	

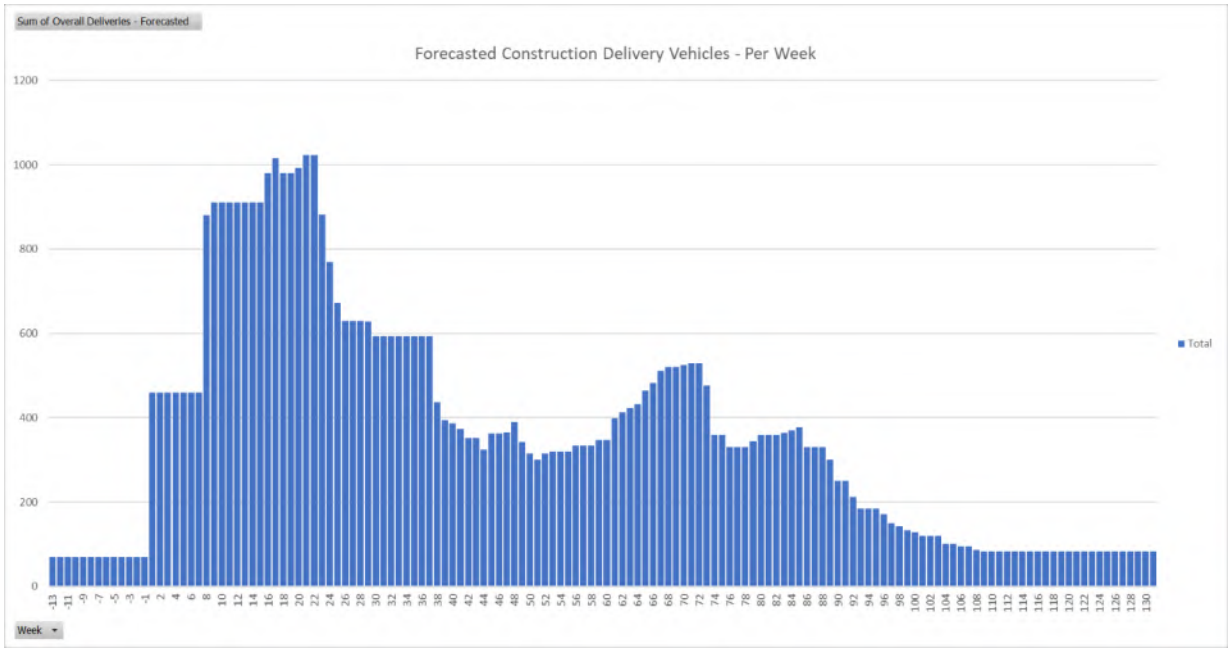
Drawing Number: HA PIN GARTH - ATK - HGN - MOSS - DR - D - 0001 (Location - Originator - Volume - Type - Role - Number)

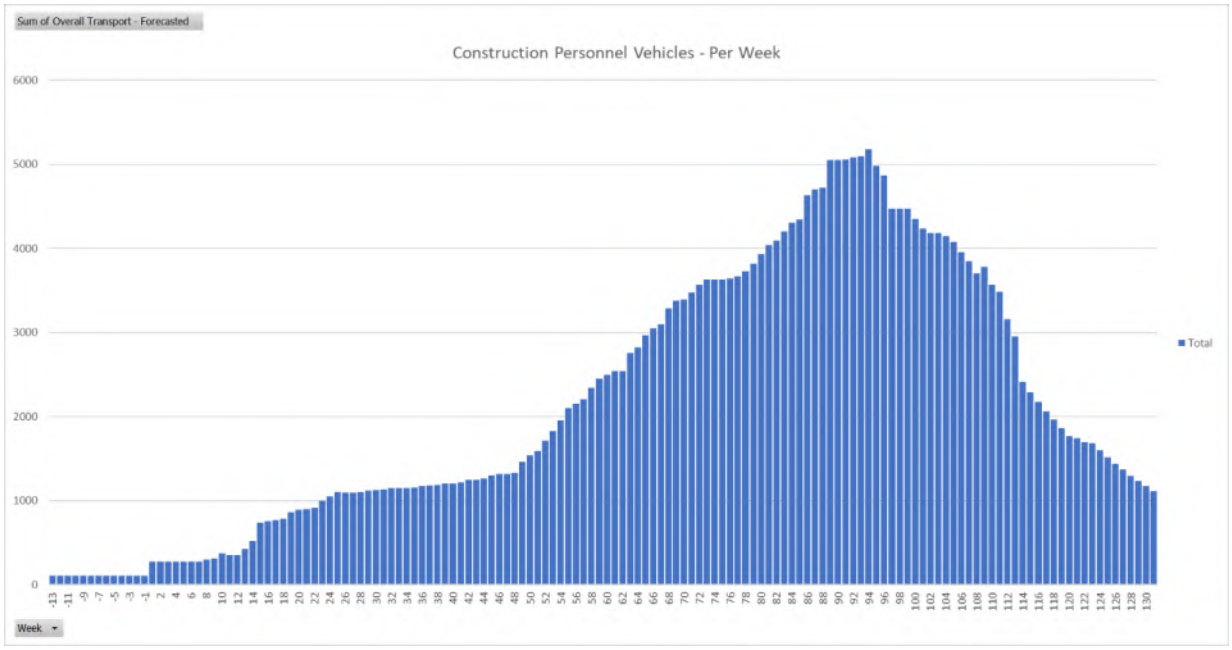
Project Ref. No.: 5200124

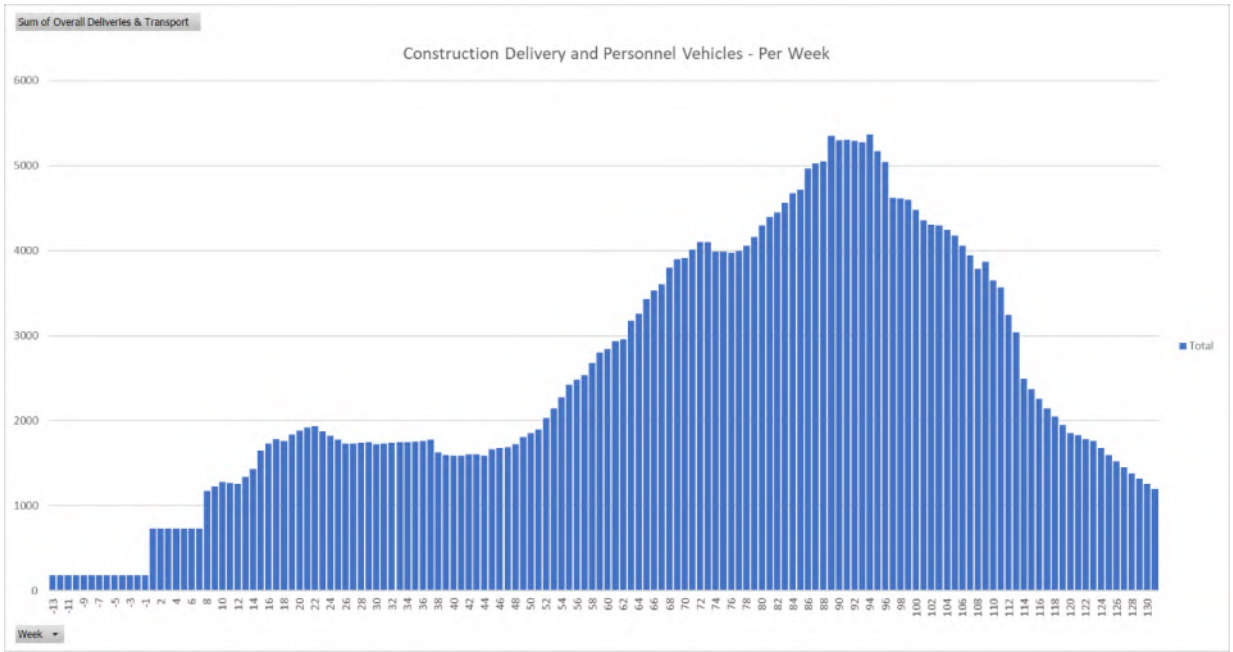
Revision: P2

P:\GBCFA\TP\KU\Projects\Public Realm & Design\Birmingham support\HMP Garth\CAD\DR\GARTH_ATK_HGN_MOSS_DR_D_0001_P2.dwg

Appendix C. Construction Traffic Trips


Sum of Overall Deliveries - Forecasted
Forecasted Construction Delivery Vehicles - Per Week
Total
Week


Sum of Overall Transport - Forecasted
Construction Personnel Vehicles - Per Week
Total
Week


Sum of Overall Deliveries & Transport
Construction Delivery and Personnel Vehicles - Per Week
Total
Week

Appendix D. Route 1 (Moss Lane to M6 J28)

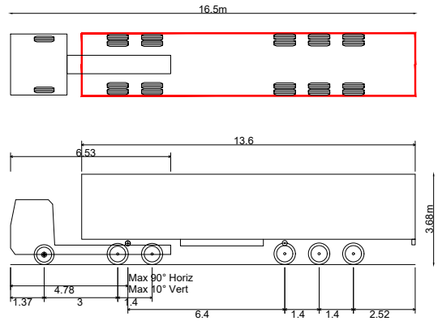
D.1. Vehicle 1 (Standard 16.5m Flatbed Articulated Lorry for Precast Delivery)


G002-RT1-V1-001
G002-RT1-V1-002

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

KERBLINE OVERRUN

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Birmingham
West Midlands
B1 1TF
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Fax: +44 (0)1214 835252
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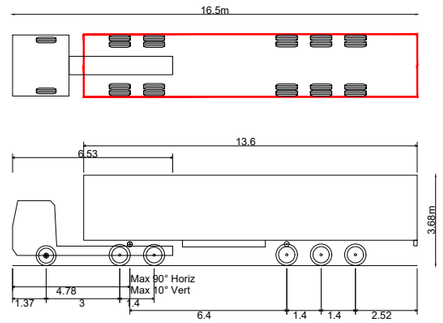
Location Reference	G002-RT1-V1-001
Direction	OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

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Fax: +44 (0)1214 835252
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Location Reference	G002-RT1-V1-002
Direction	IN / OUT

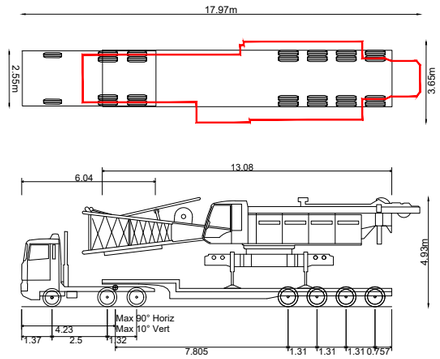
D.2. Vehicle 2 (AIL for LR1160 Crawler Crane)


G002-RT1-V2-006
G002-RT1-V2-005
G002-RT1-V2-004
G002-RT1-V2-003
G002-RT1-V2-002
G002-RT1-V2-001

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



KERBLINE OVERRUN

BROOK CLOSE

Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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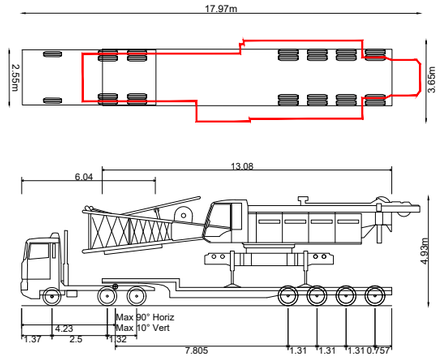
Location Reference	G002-RT1-V2-001
Direction	OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

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West Midlands
B1 1TF
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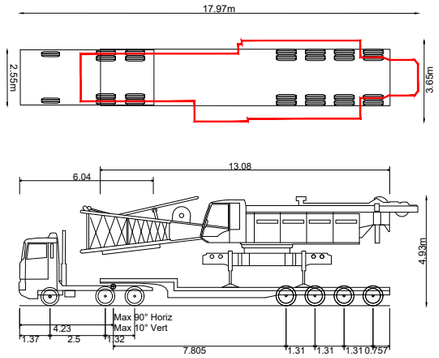
Fax: +44 (0)1214 835252
www.atkinsglobal.com

Location Reference	G002-RT1-V2-002
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

CENTRAL ISLAND OVERRUN

ATKINS

The Axis
10 Holliday Street
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B1 1TF

Tel: +44 (0)1214 835000
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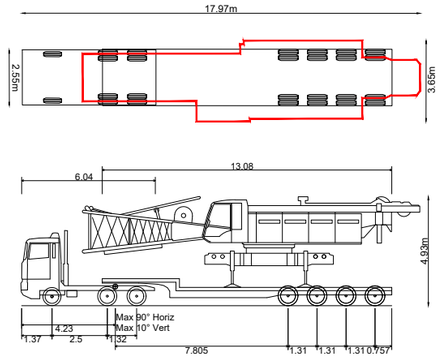
Location Reference	G002-RT1-V2-003
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



CENTRAL ISLAND OVERRUN

Bent Bridge

Shelter

12

132

Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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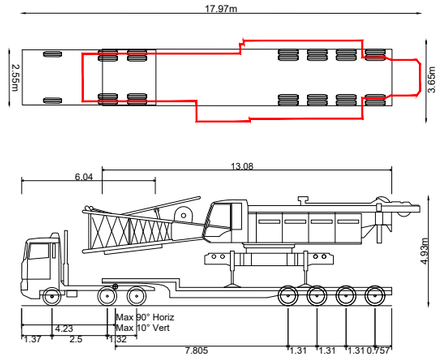
Location Reference	G002-RT1-V2-004
Direction	IN

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

Tracey's Industrial Estate

CENTRAL ISLAND OVERRUN

Drain

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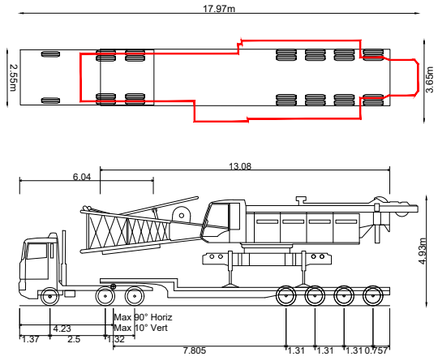
Location Reference	G002-RT1-V2-005
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

54.6m

CENTRAL ISLAND OVERRUN

The Woods (PH)

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Location Reference	G002-RT1-V2-006
Direction	IN

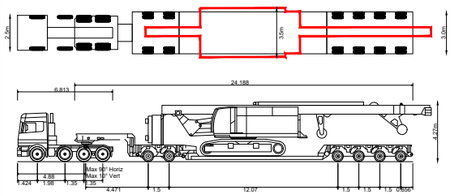
D.3. Vehicle 3 (AIL for Piling Rig)


N
G002-RT1-V3-008
G002-RT1-V3-007
G002-RT1-V3-006
G002-RT1-V3-005
G002-RT1-V3-004
G002-RT1-V3-003
G002-RT1-V3-002
G002-RT1-V3-001

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

KERBLINE OVERRUN

POTENTIAL COLLISION WITH LIGHTING COLUMN AND COMMERCIAL PROPERTY

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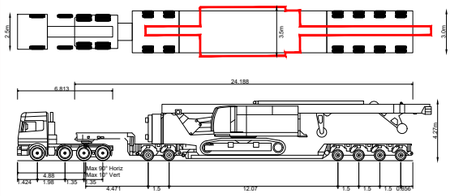
Location Reference	G002-RT1-V3-001
Direction	OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

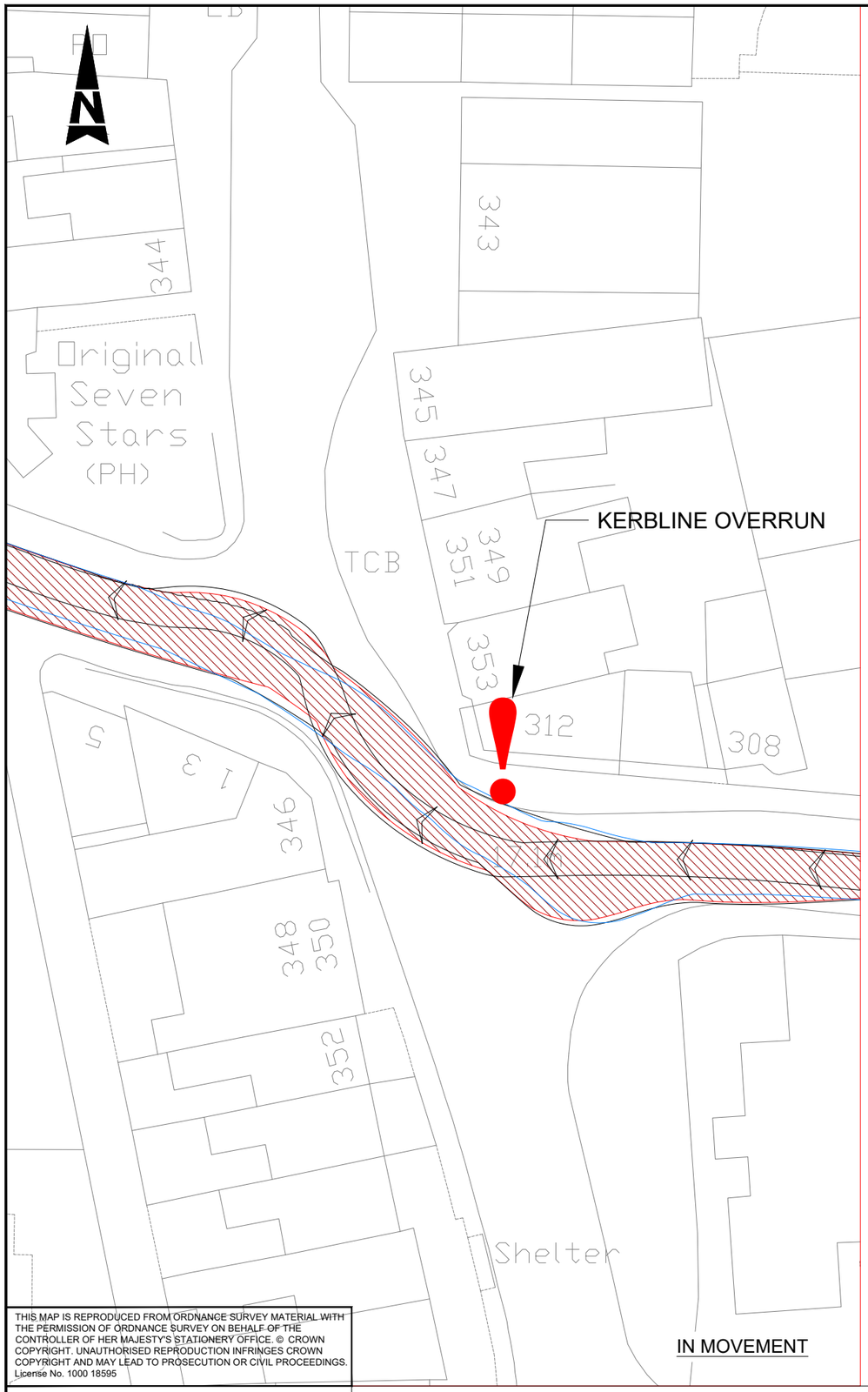
Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

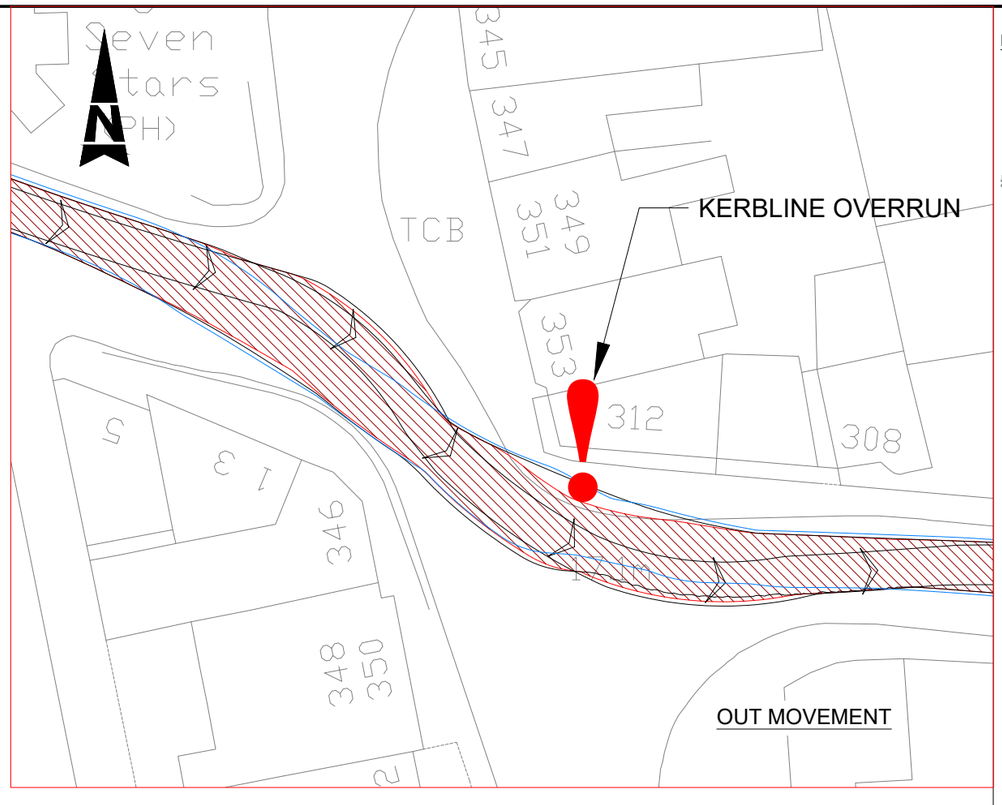
Swept path of vehicle body

Swept path of load

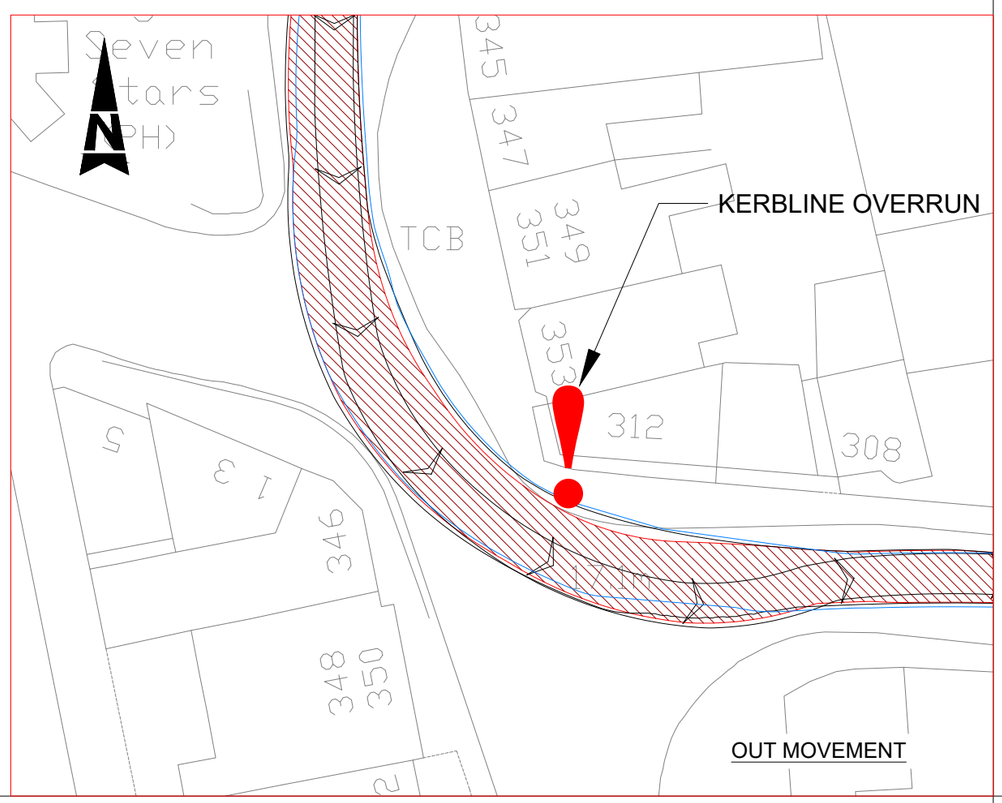
Denotes forwards movement



IN MOVEMENT



OUT MOVEMENT



OUT MOVEMENT

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Location Reference	G002-RT1-V3-002
Direction	IN / OUT

DO NOT SCALE

CENTRAL ISLAND OVERRUN

KERBLINE OVERRUN

IN MOVEMENT

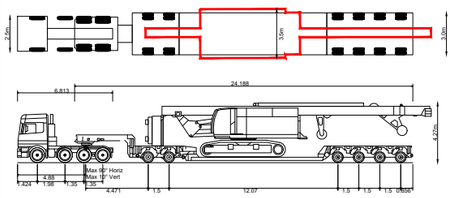
CENTRAL ISLAND OVERRUN

KERBLINE OVERRUN

OUT MOVEMENT

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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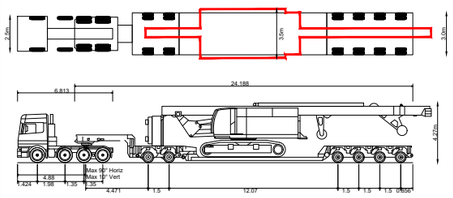
Location Reference	G002-RT1-V3-003
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

CENTRAL ISLAND OVERRUN

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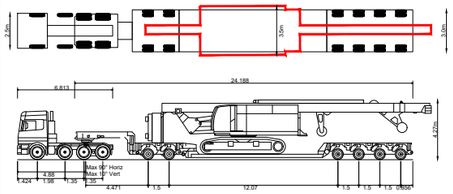
Location Reference	G002-RT1-V3-004
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

Bent Bridge

Shelter

151

12

2

132

134

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Location Reference	G002-RT1-V3-005
Direction	IN

DO NOT SCALE

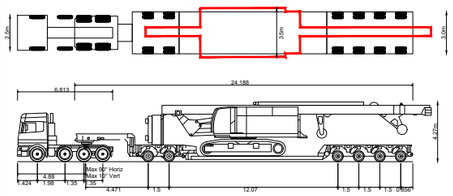
CENTRAL ISLAND OVERRUN

CENTRAL ISLAND OVERRUN

New Inn Farm

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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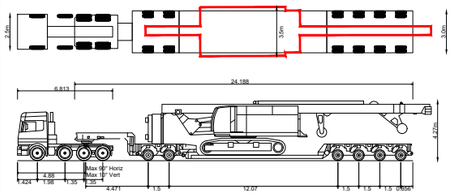
Location Reference	G002-RT1-V3-006
Direction	OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

Tracey's Industrial Estate

CENTRAL ISLAND OVERRUN

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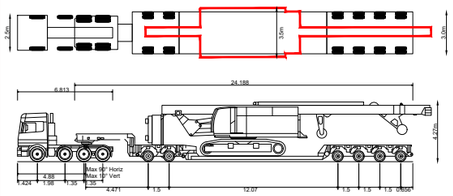
Location Reference	G002-RT1-V3-007
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

54.6m

KERBLINE OVERRUN

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Location Reference	G002-RT1-V3-008
Direction	IN

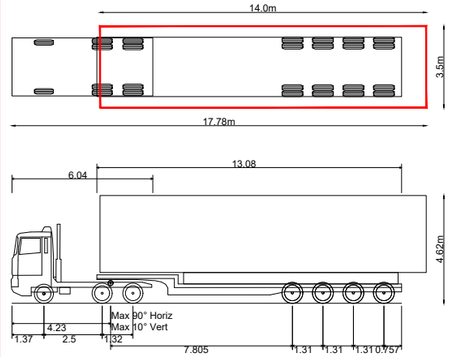
D.4. Vehicle 4 (AIL for Plant Room Delivery)


G002-RT1-V4-006
G002-RT1-V4-005
G002-RT1-V4-004
G002-RT1-V4-003
G002-RT1-V4-002
G002-RT1-V4-001

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



KERBLINE OVERRUN

3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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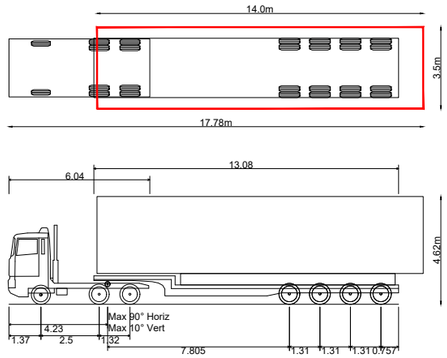
Location Reference	G002-RT1-V4-001
Direction	OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

TOWNGATE

Roebuck Hotel (PH)

38.4m

IN MOVEMENT

CENTRAL ISLAND OVERRUN

TOWNGATE

Roebuck Hotel (PH)

38.4m

OUT MOVEMENT

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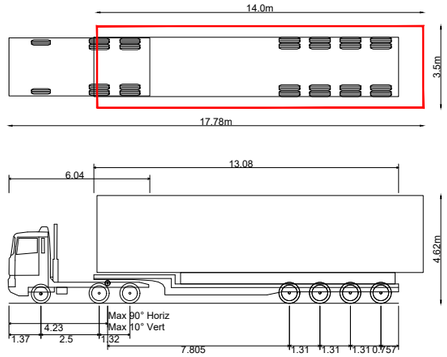
Location Reference	G002-RT1-V4-002
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

CENTRAL ISLAND OVERRUN

CHURCH ROAD

CLAREMONT AVENUE

El Sub Sta

Shelter

TCB

129

16

12

108

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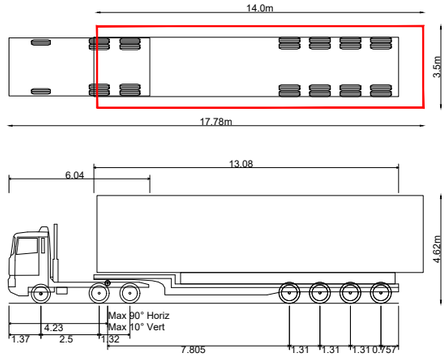
Location Reference	G002-RT1-V4-003
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

Bent Bridge

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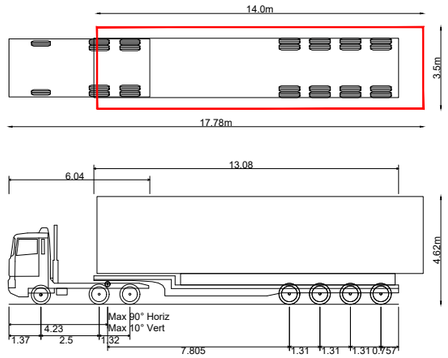
Location Reference	G002-RT1-V4-004
Direction	IN

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



CENTRAL ISLAND OVERRUN

3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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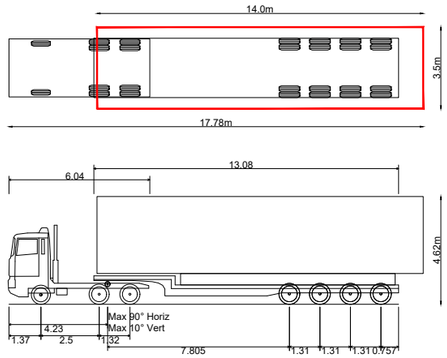
Location Reference	G002-RT1-V4-005
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

54.6m

CENTRAL ISLAND OVERRUN

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Location Reference	G002-RT1-V4-006
Direction	IN

Appendix E. Route 2 (Moss Lane to M6 J27)

E.1. Vehicle 2 (AIL for LR1160 Crawler Crane)

WRIGHTINGTON

M6

SHEVINGTON MOOR

HESKIN

WRIGHTINTON BAR

G002-RT2-V2-001

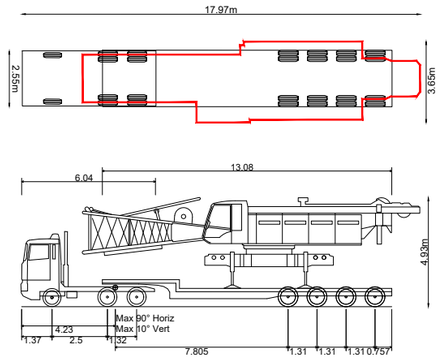
ECCLESTON

G002-RT2-V2-002

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

KERBLINE OVERRUN

IN MOVEMENT

KERBLINE OVERRUN

OUT MOVEMENT

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Fax: +44 (0)1214 835252
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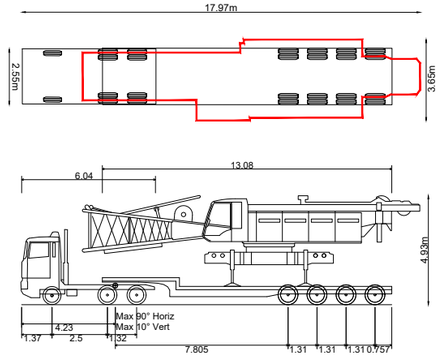
Location Reference	G002-RT2-V2-001
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

A 581

KERBLINE OVERRUN

Sandlewood

241

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Birmingham
West Midlands
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Tel: +44 (0)1214 835000
Fax: +44 (0)1214 835252
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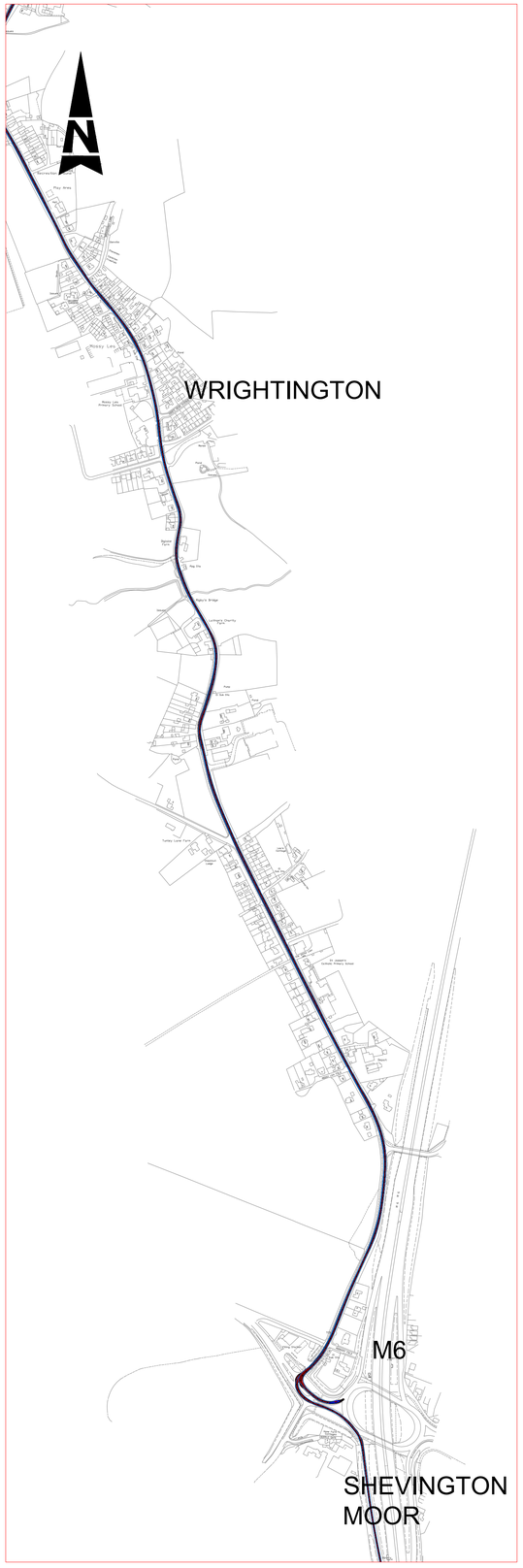
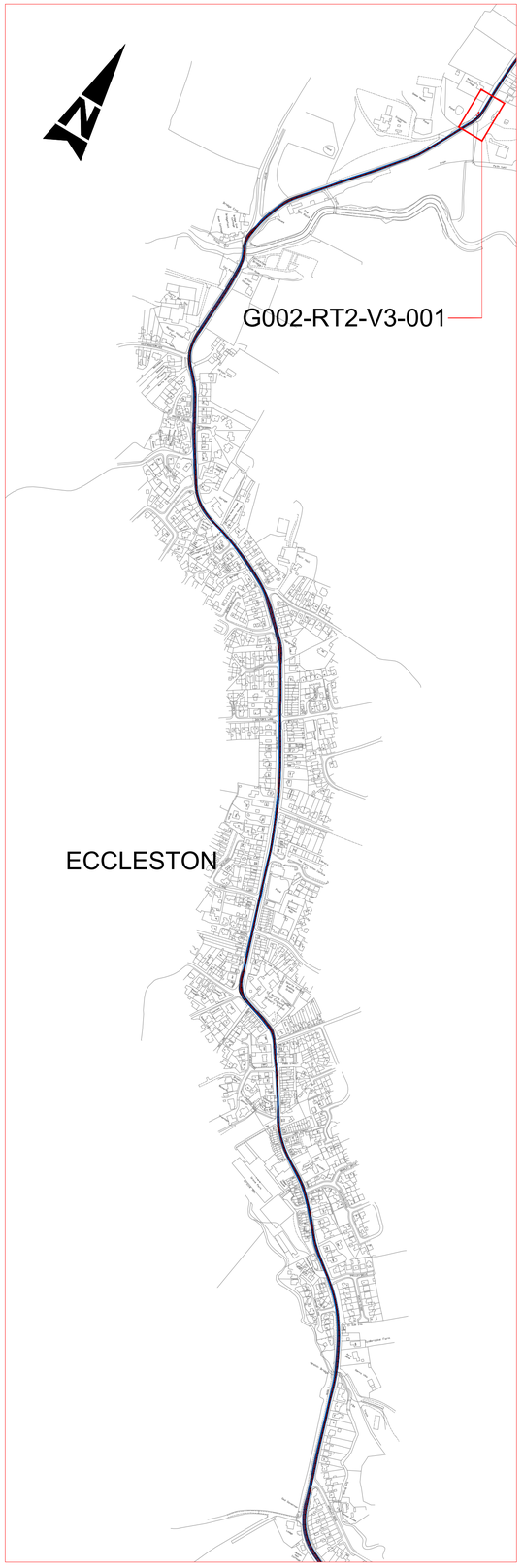
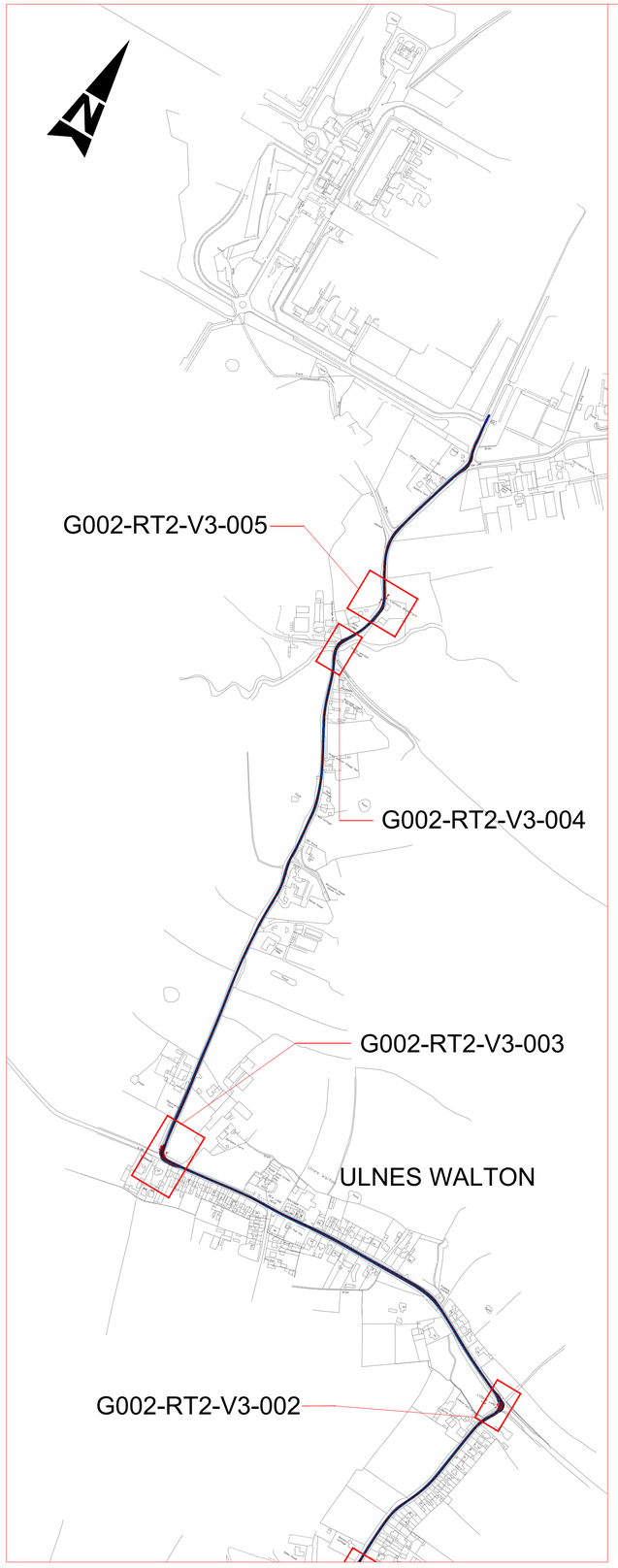
Location Reference	G002-RT2-V2-002
Direction	OUT

E.2. Vehicle 3 (AIL for Piling Rig)


WRIGHTINGTON
M6
SHEVINGTON
MOOR


HESKIN
WRIGHTINTON
BAR

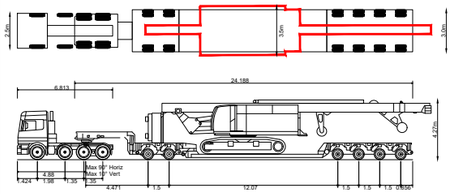

G002-RT2-V3-001
ECCLESTON


G002-RT2-V3-005
G002-RT2-V3-004
G002-RT2-V3-003
ULNES WALTON
G002-RT2-V3-002

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

KERBLINE OVERRUN

IN MOVEMENT

KERBLINE OVERRUN

OUT MOVEMENT

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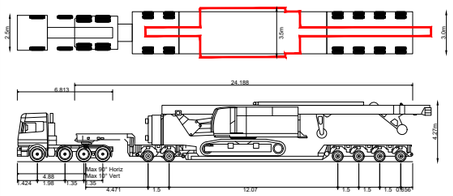
Location Reference	G002-RT2-V3-001
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

KERBLINE OVERRUN

IN MOVEMENT

KERBLINE OVERRUN

OUT MOVEMENT

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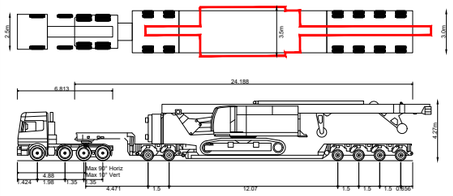
Location Reference	G002-RT2-V3-002
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

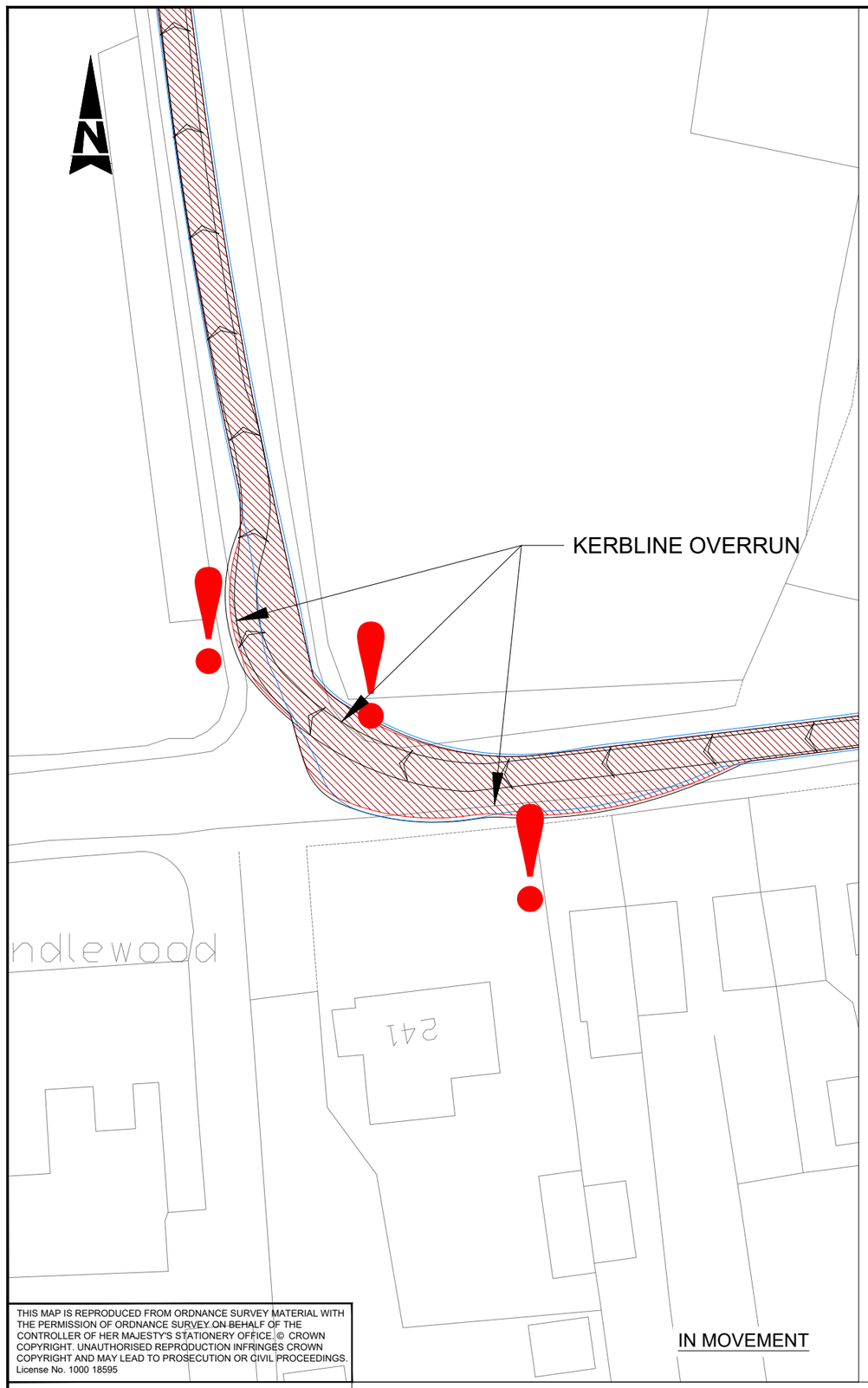
Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

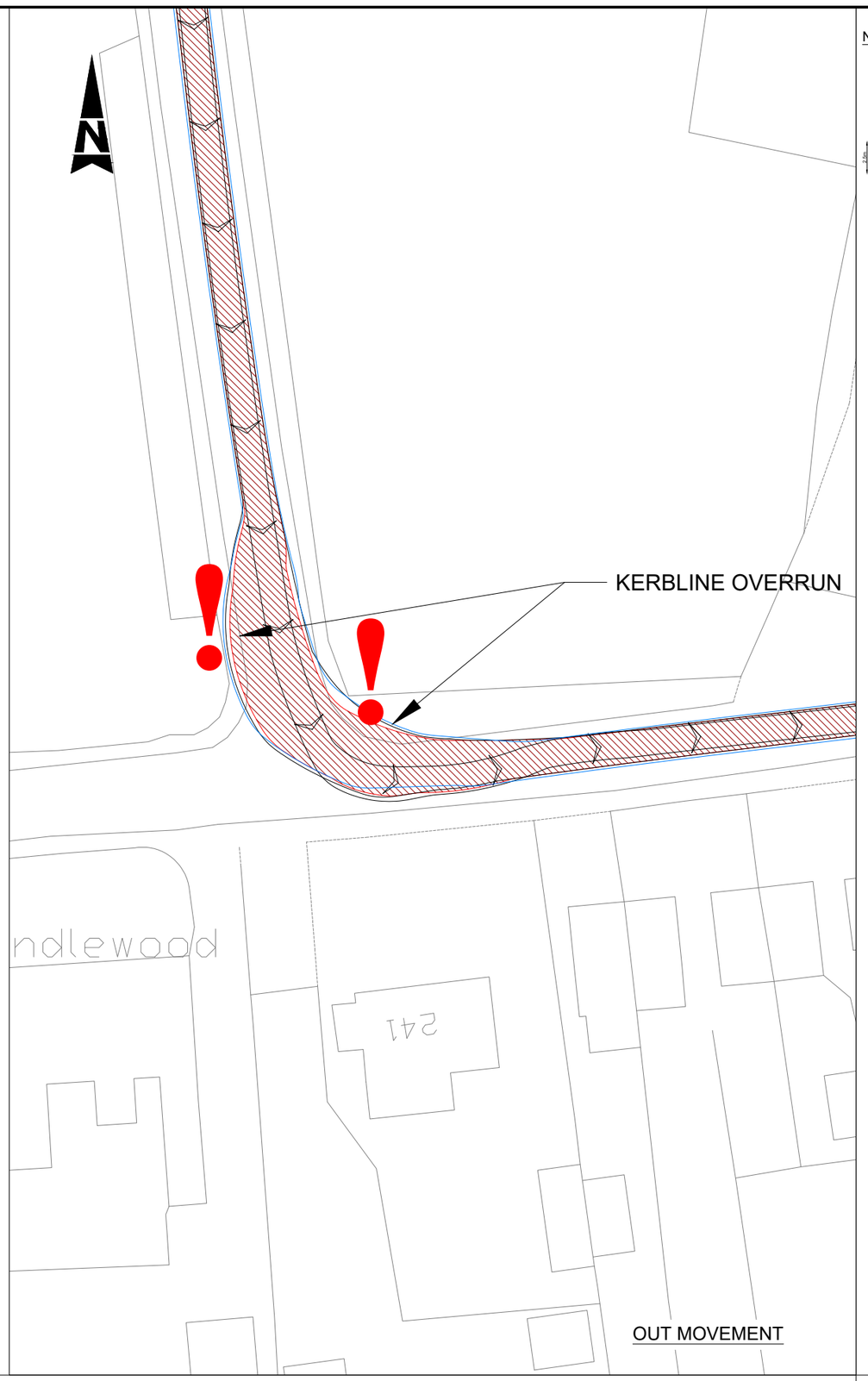
Swept path of vehicle body

Swept path of load

Denotes forwards movement



IN MOVEMENT



OUT MOVEMENT

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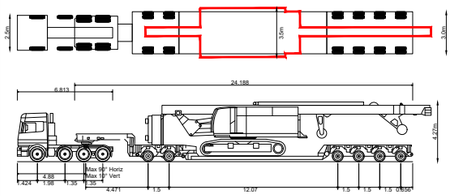
Location Reference	G002-RT2-V3-003
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

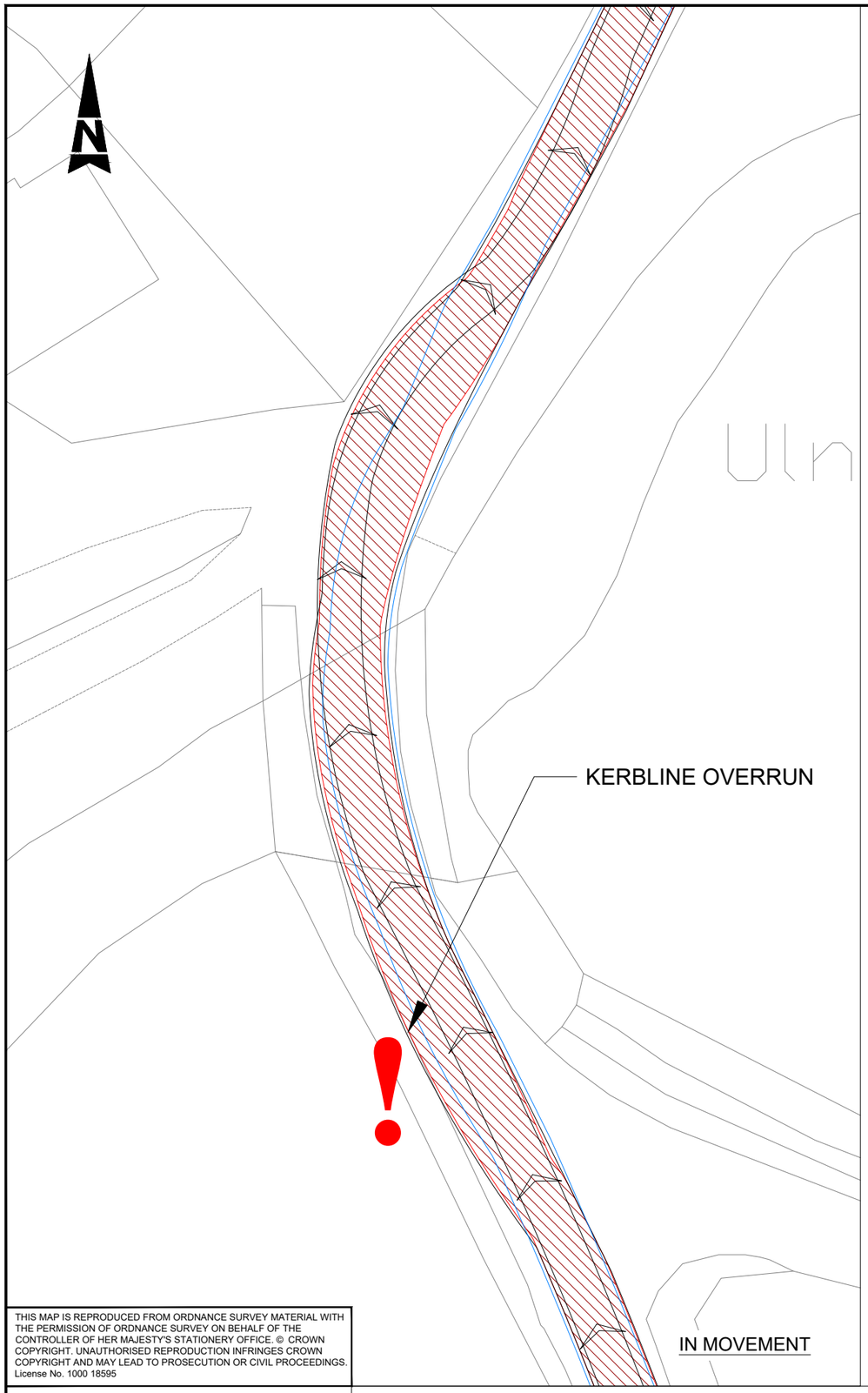
Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

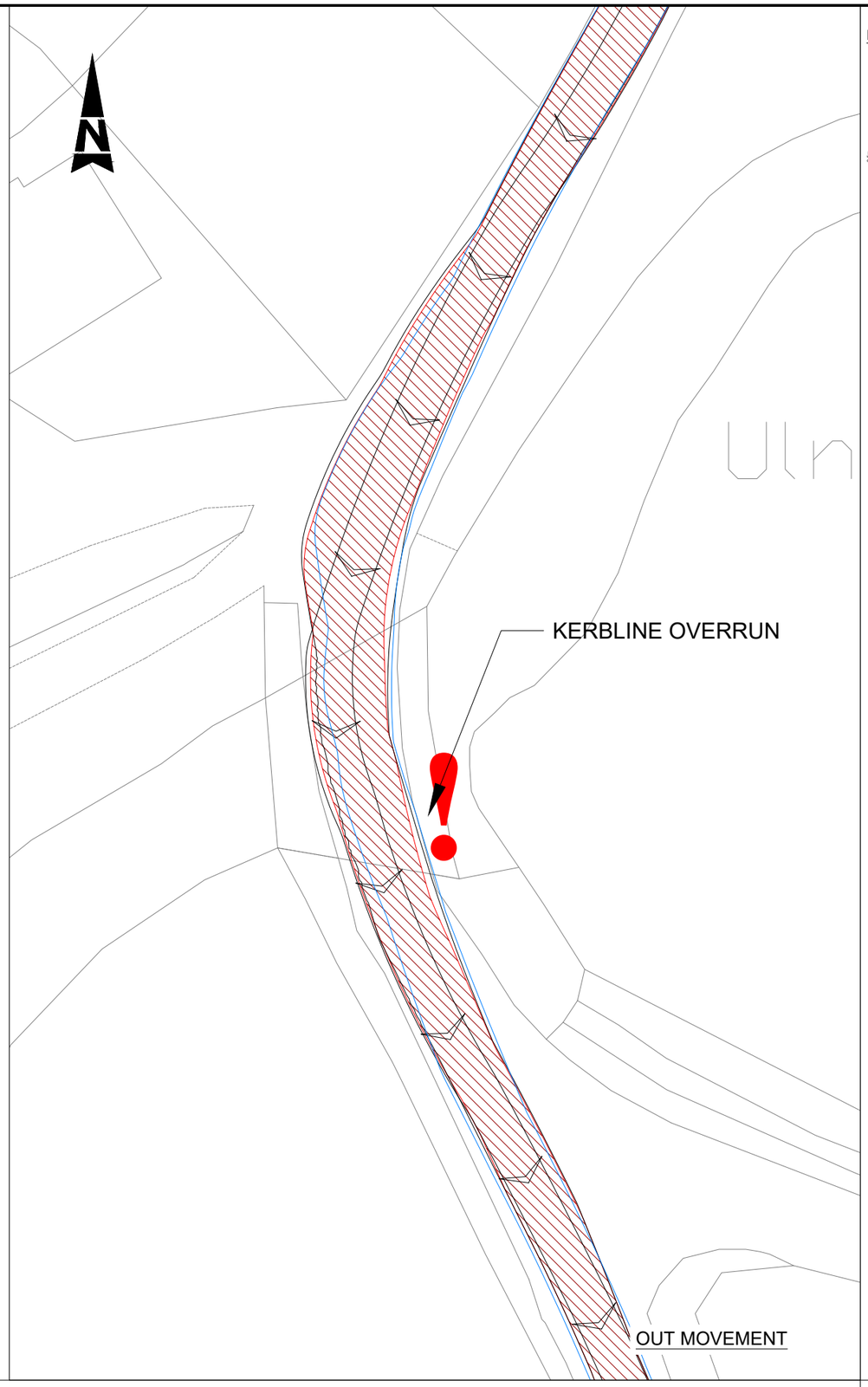
Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement





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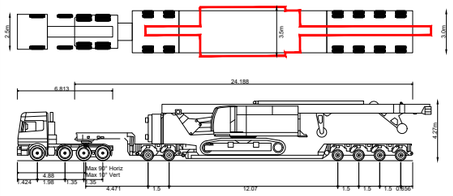
Location Reference	G002-RT2-V3-004
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

Lostock Brow

KERBLINE OVERRUN

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Fax: +44 (0)1214 835252
www.atkinsglobal.com

Location Reference	G002-RT2-V3-004
Direction	IN

E.3. Vehicle 4 (AIL for Plant Room Delivery)

WRIGHTINGTON

M6

SHEVINGTON
MOOR

HESKIN

WRIGHTINTON
BAR

G002-RT2-V4-001

ECCLESTON

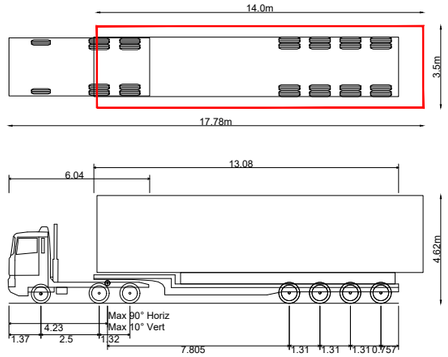
G002-RT2-V4-002

ULNES WALTON

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



KERBLINE OVERRUN

IN MOVEMENT

KERBLINE OVERRUN

OUT MOVEMENT

3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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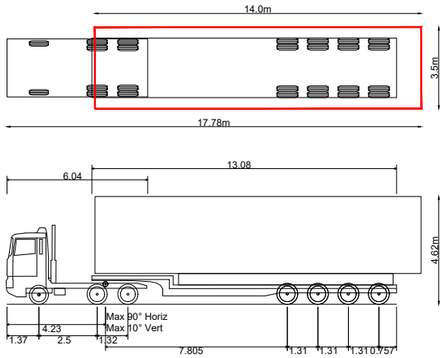
Location Reference	G002-RT2-V4-001
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

KERBLINE OVERRUN

andlewood

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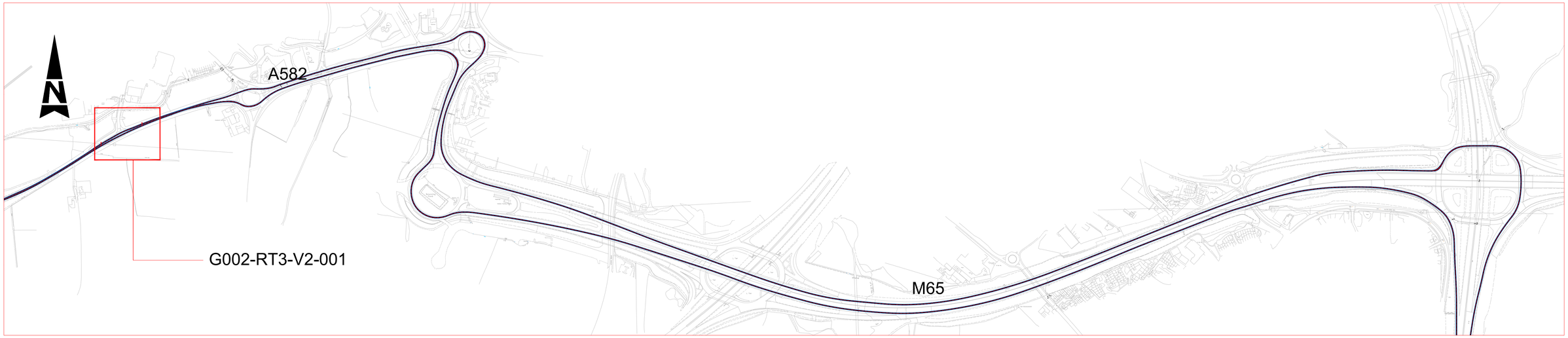
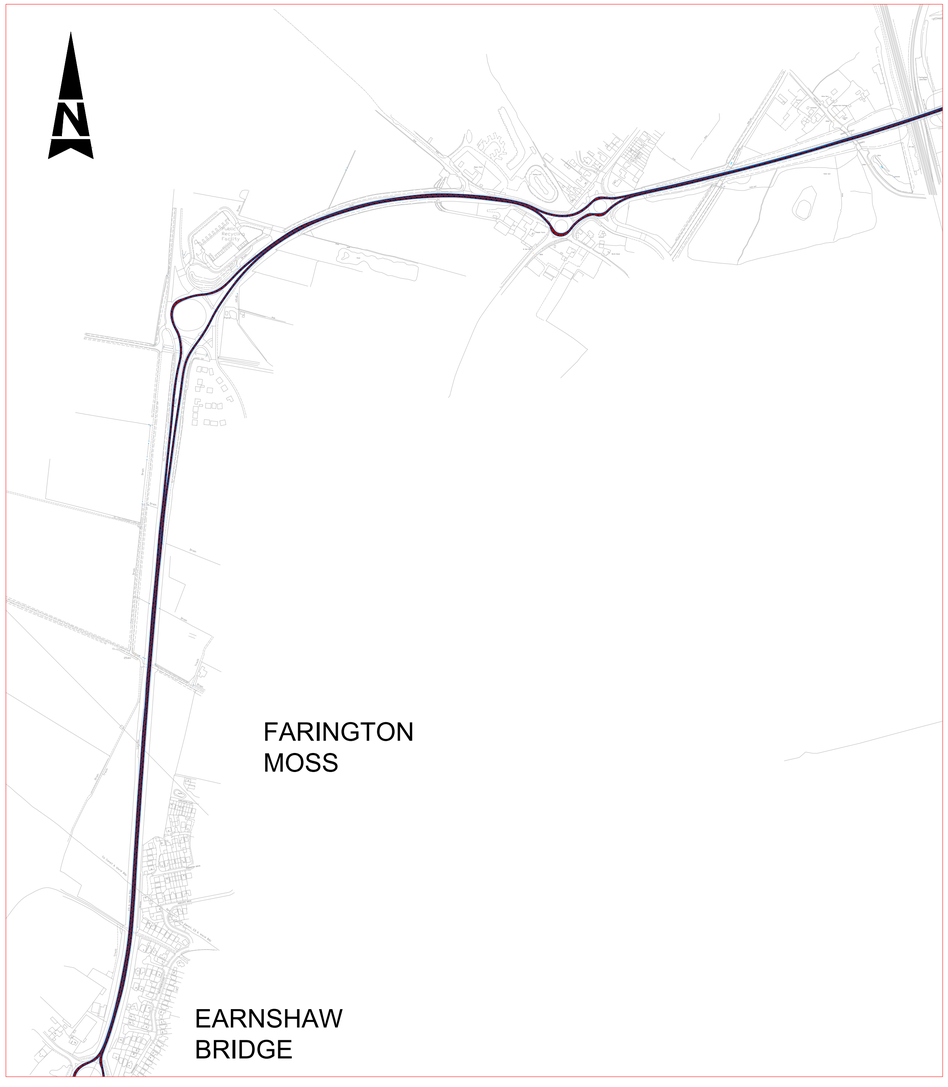
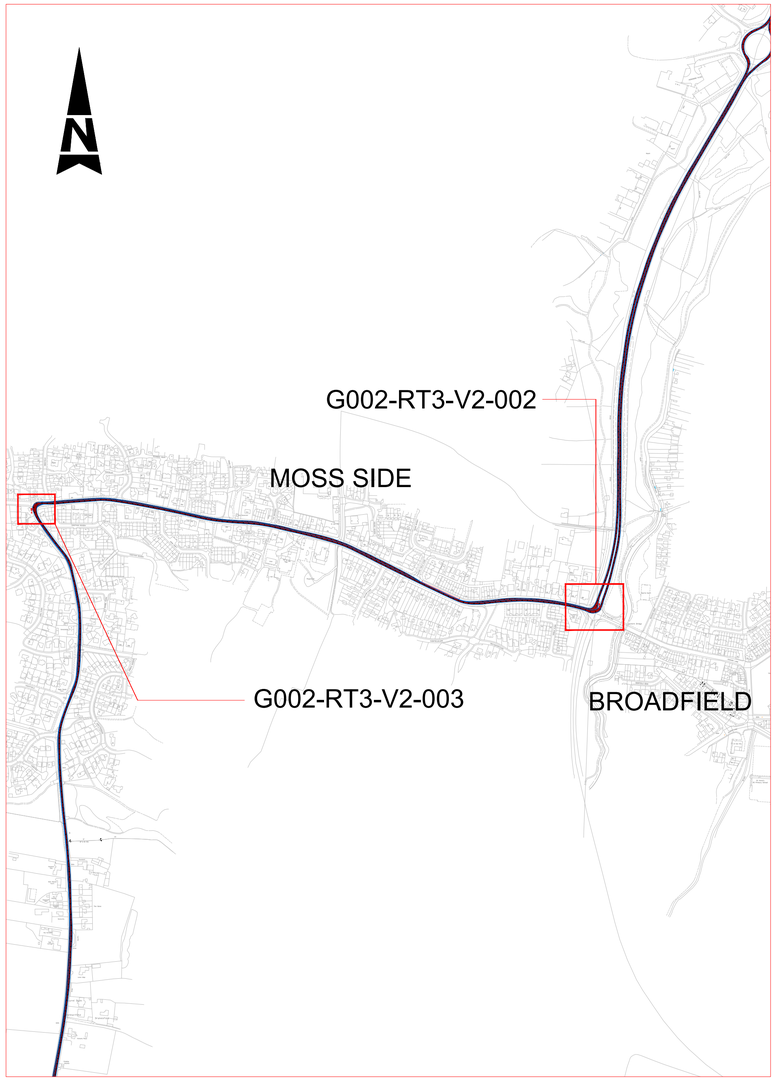
Location Reference	G002-RT2-V4-002
Direction	OUT

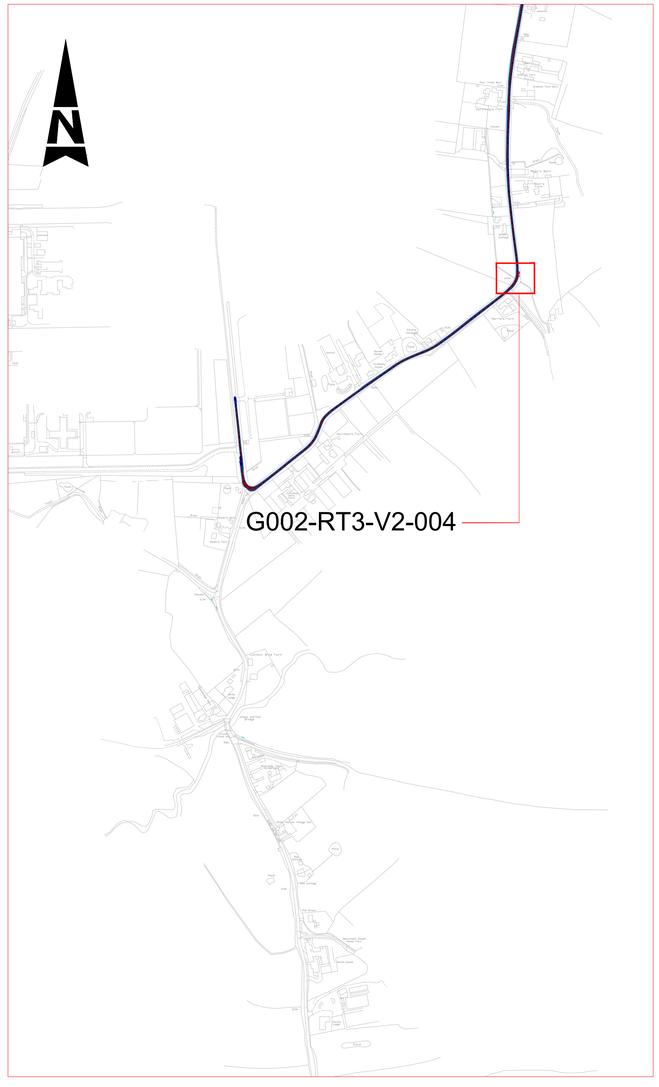
Appendix F. Route 3 (Moss Lane to M6 J29/ M61 J9)

F.1. Vehicle 2 (AIL for LR1160 Crawler Crane)


A582
G002-RT3-V2-001
M65


FARINGTON
MOSS
EARNSHAW
BRIDGE

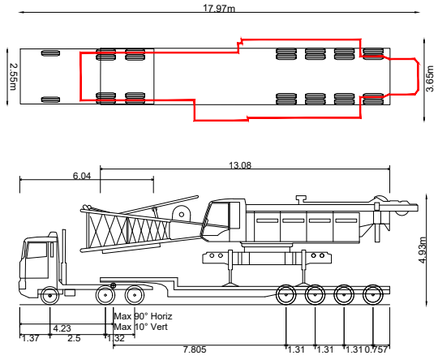

G002-RT3-V2-002
MOSS SIDE
G002-RT3-V2-003
BROADFIELD


G002-RT3-V2-004

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND

CENTRAL ISLAND

CR

HARRINGTON ROAD

Drain

Path (um)

ATKINS

The Axis
10 Holliday Street
Birmingham
West Midlands
B1 1TF

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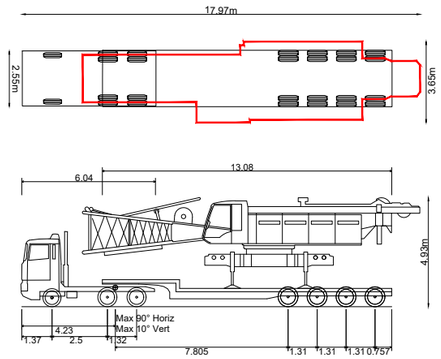
Fax: +44 (0)1214 835252
www.atkinsglobal.com

Location Reference	G002-RT3-V2-001
Direction	OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

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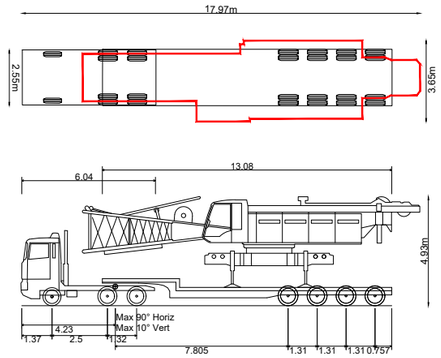
Location Reference	G002-RT3-V2-002
Direction	OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

KERBLINE OVERRUN

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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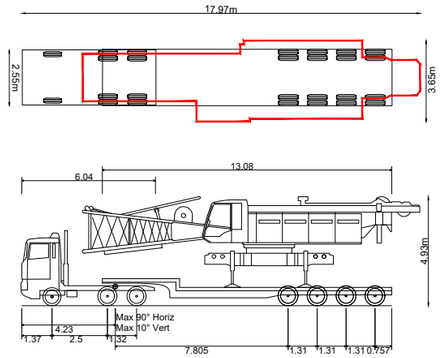
Location Reference	G002-RT3-V2-003
Direction	IN

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



KERBLINE OVERRUN

14.9m

Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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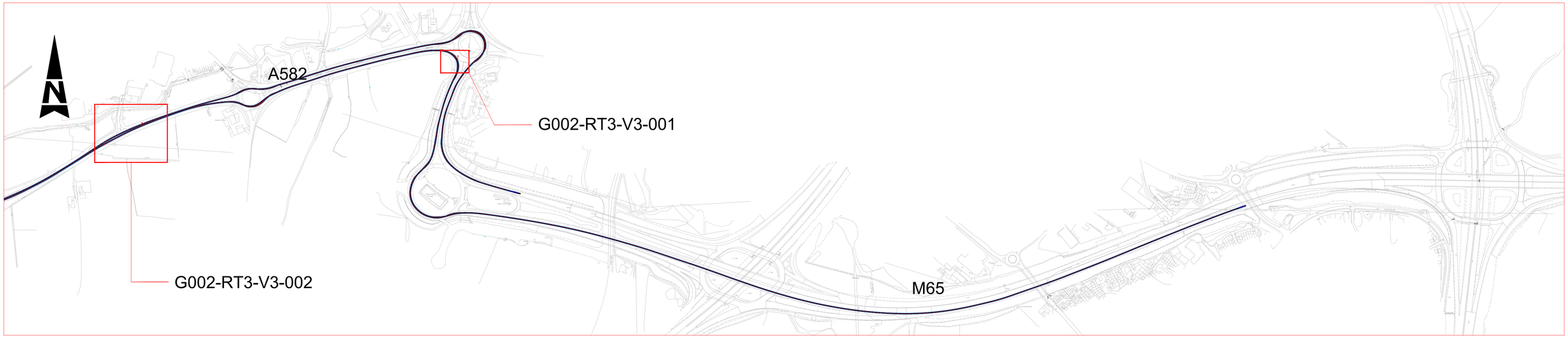
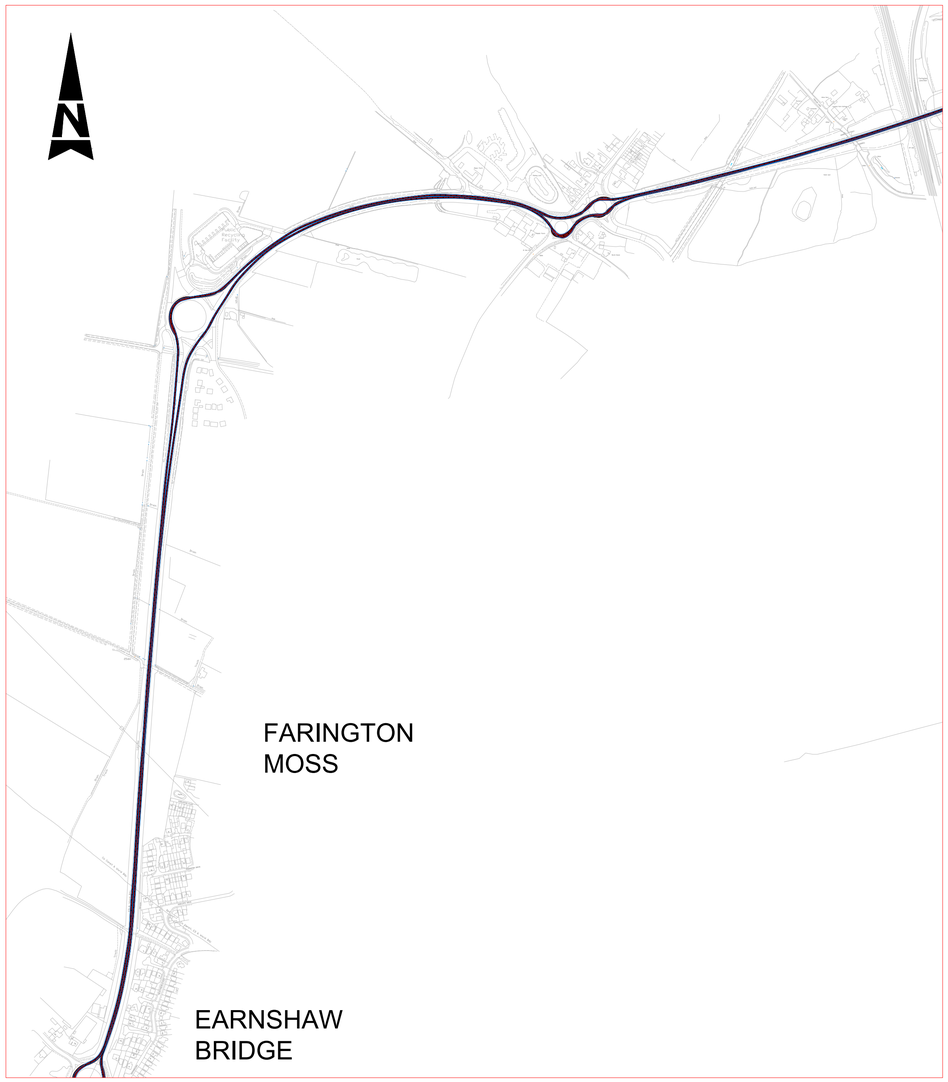
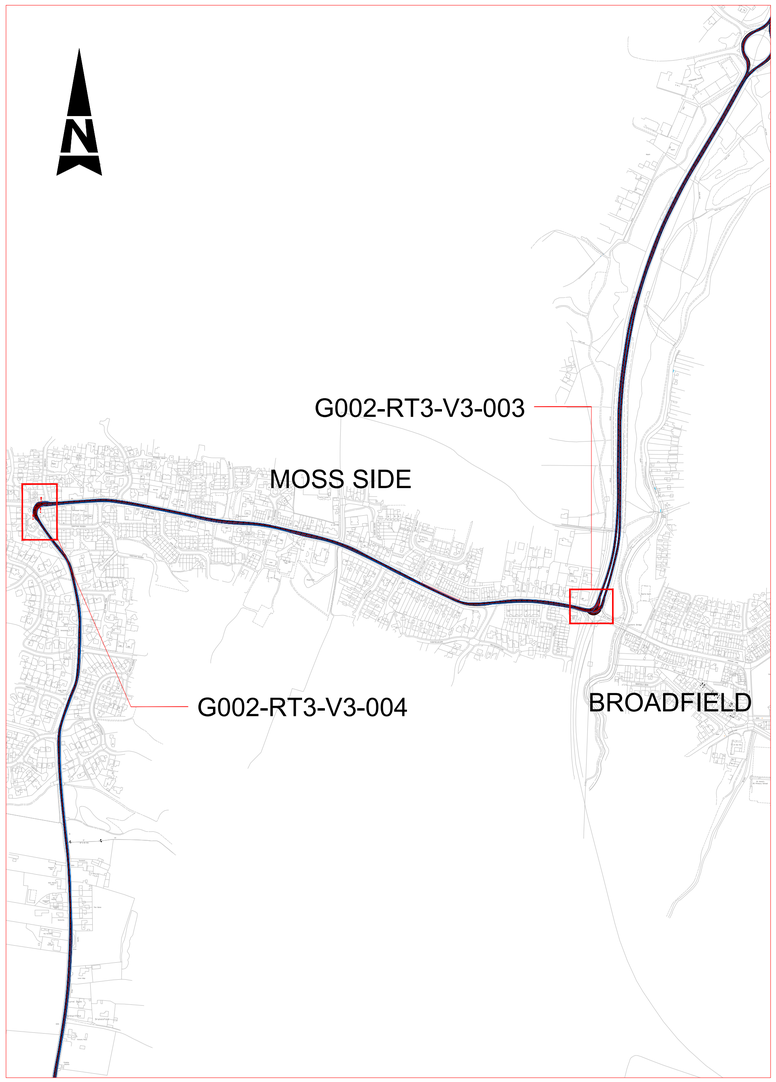
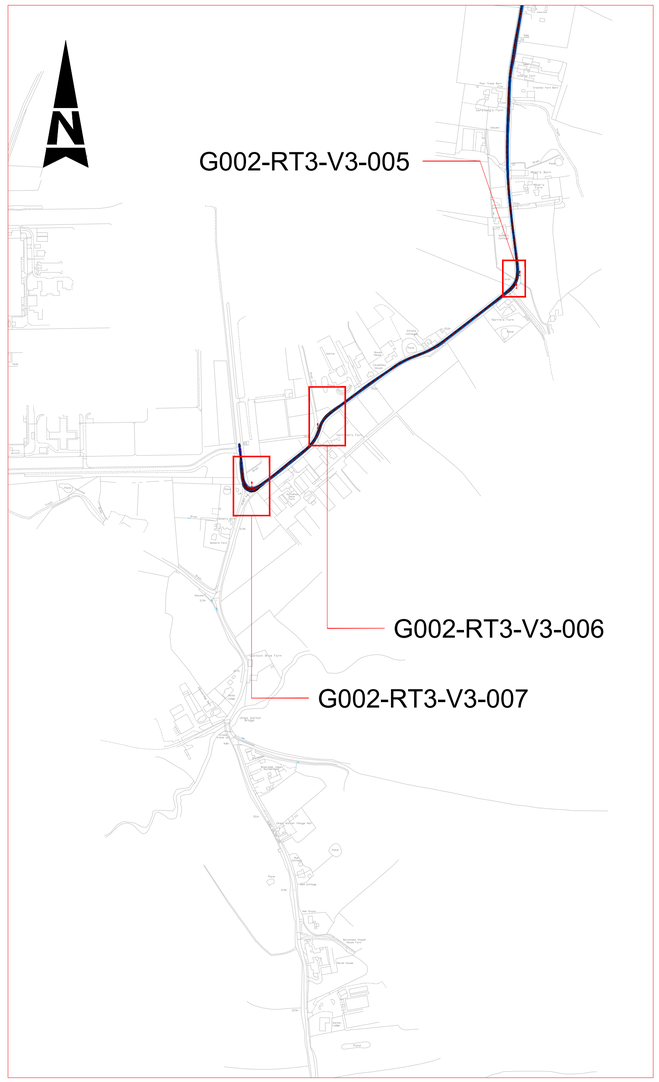
Location Reference	G002-RT3-V2-004
Direction	OUT

F.2. Vehicle 3 (AIL for Piling Rig)


N
A582
G002-RT3-V3-001
G002-RT3-V3-002
M65


N
FARINGTON
MOSS
EARNSHAW
BRIDGE


N
G002-RT3-V3-003
MOSS SIDE
G002-RT3-V3-004
BROADFIELD

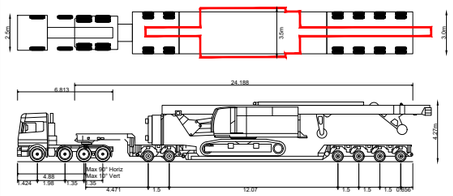

N
G002-RT3-V3-005
G002-RT3-V3-006
G002-RT3-V3-007

DO NOT SCALE

ISLAND OVERRUN

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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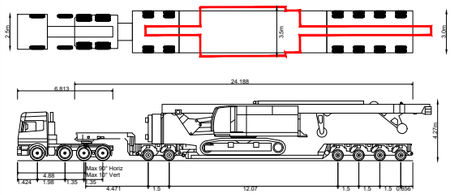
Location Reference	G002-RT3-V3-001
Direction	IN

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND

CENTRAL ISLAND

Drain

Path (um)

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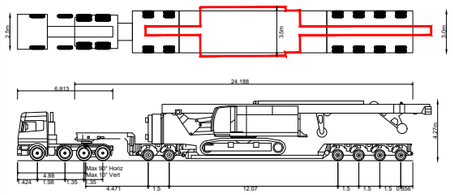
The Axis
10 Holliday Street
Birmingham
West Midlands
B1 1TF
Tel: +44 (0)1214 835000
Fax: +44 (0)1214 835252
www.atkinsglobal.com

Location Reference	G002-RT3-V3-002
Direction	IN & OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

106

102

Dunkirk Hall (PH)

ED & Ward Bdy

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Birmingham
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B1 1TF

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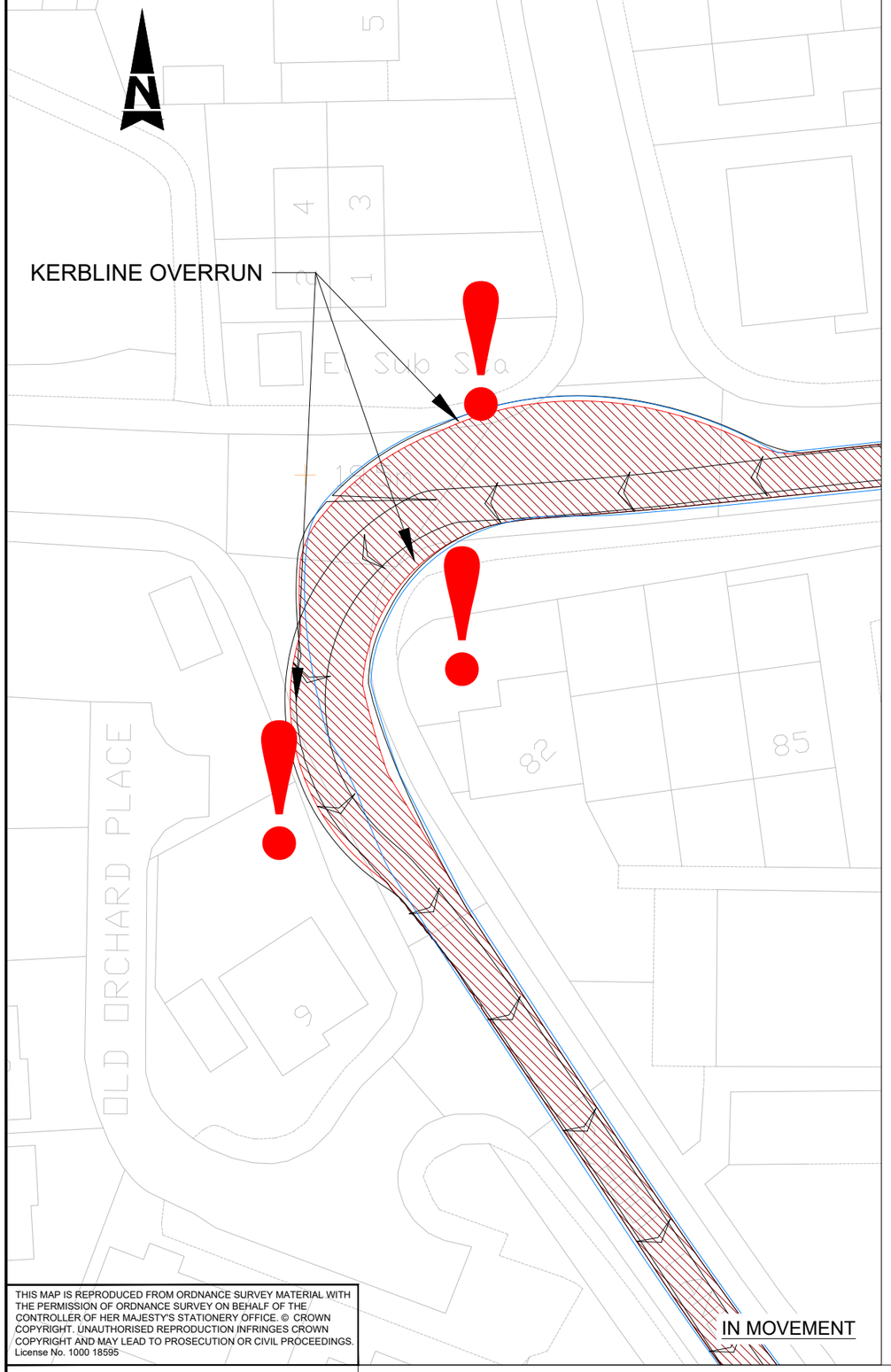
Fax: +44 (0)1214 835252
www.atkinsglobal.com

Location Reference	G002-RT3-V3-003
Direction	OUT

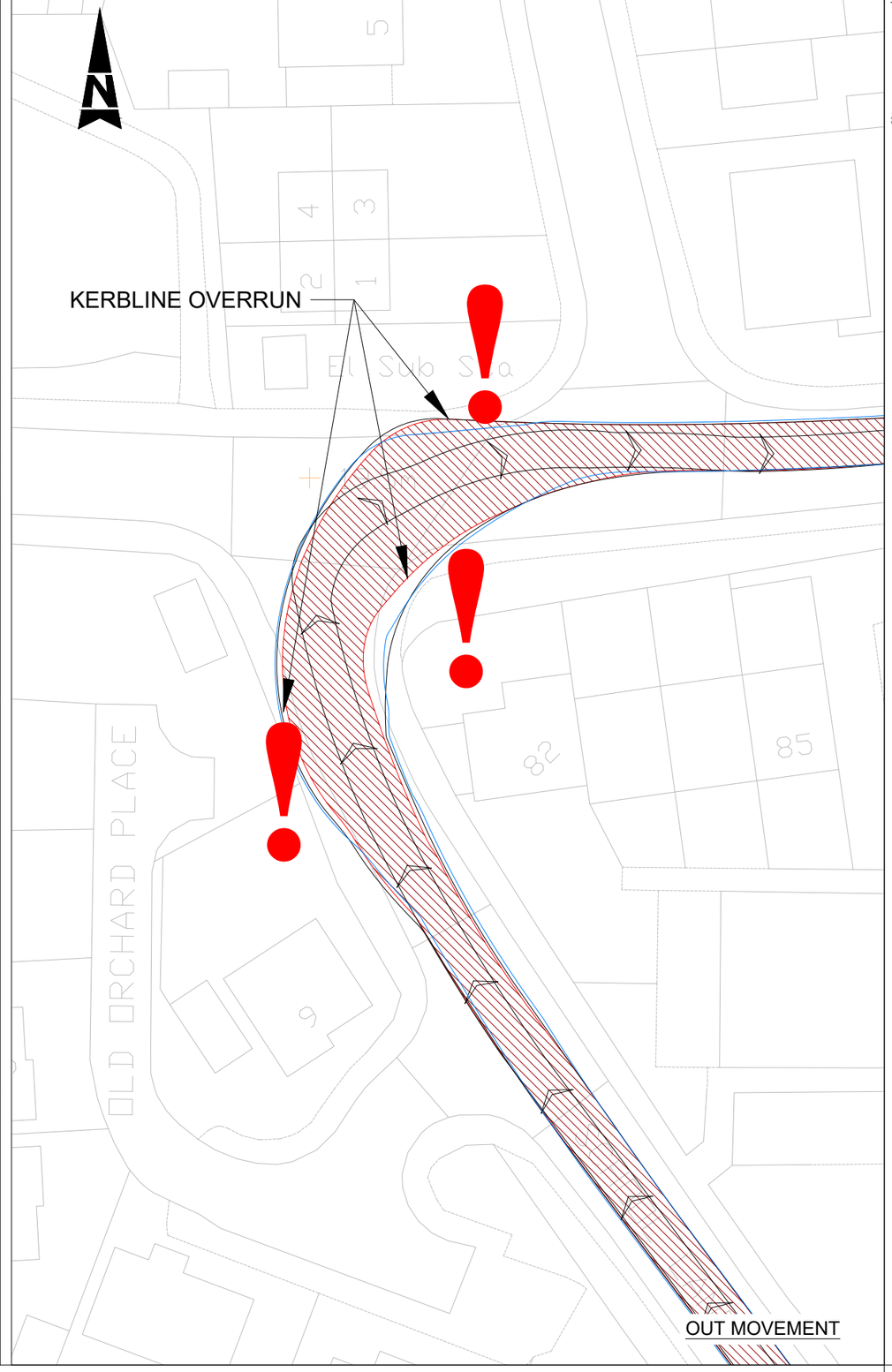
DO NOT SCALE

KERBLINE OVERRUN



IN MOVEMENT

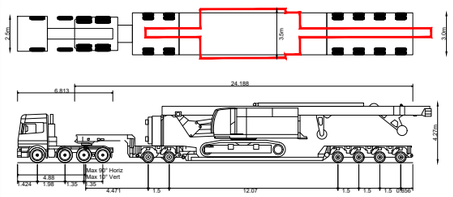
KERBLINE OVERRUN



OUT MOVEMENT

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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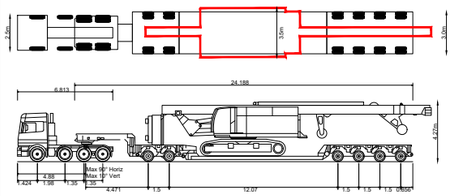
Location Reference	G002-RT3-V3-004
Direction	IN & OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

KERBLINE OVERRUN

14.9m

IN MOVEMENT

KERBLINE OVERRUN

14.9m

OUT MOVEMENT

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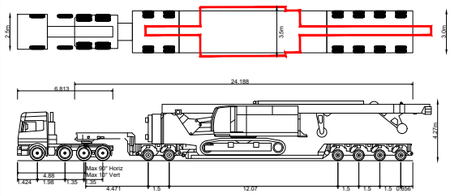
Location Reference	G002-RT3-V3-005
Direction	IN & OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

KERBLINE OVERRUN

IN MOVEMENT

KERBLINE OVERRUN

OUT MOVEMENT

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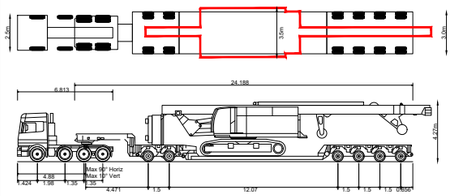
Location Reference	G002-RT3-V3-006
Direction	IN & OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

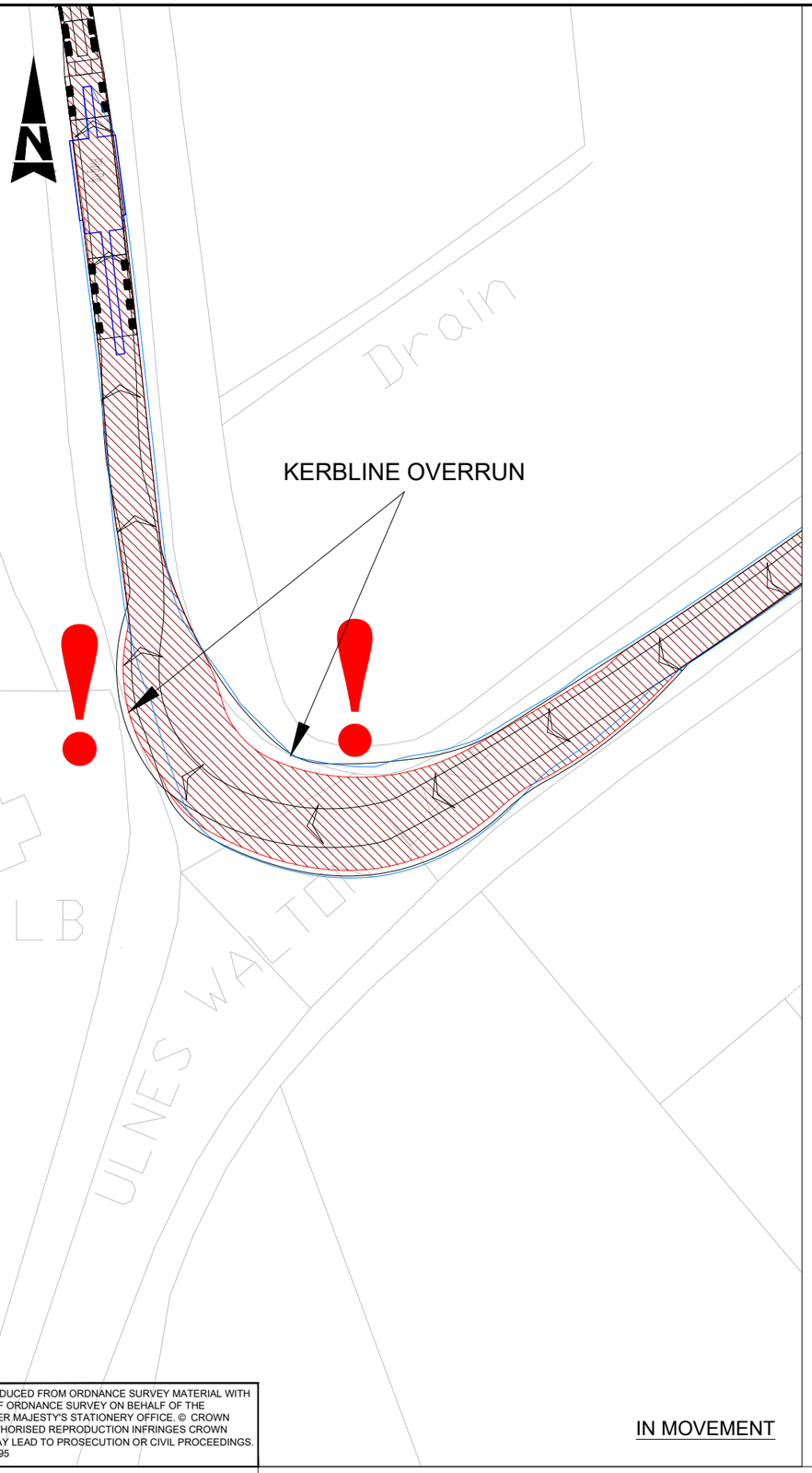
Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

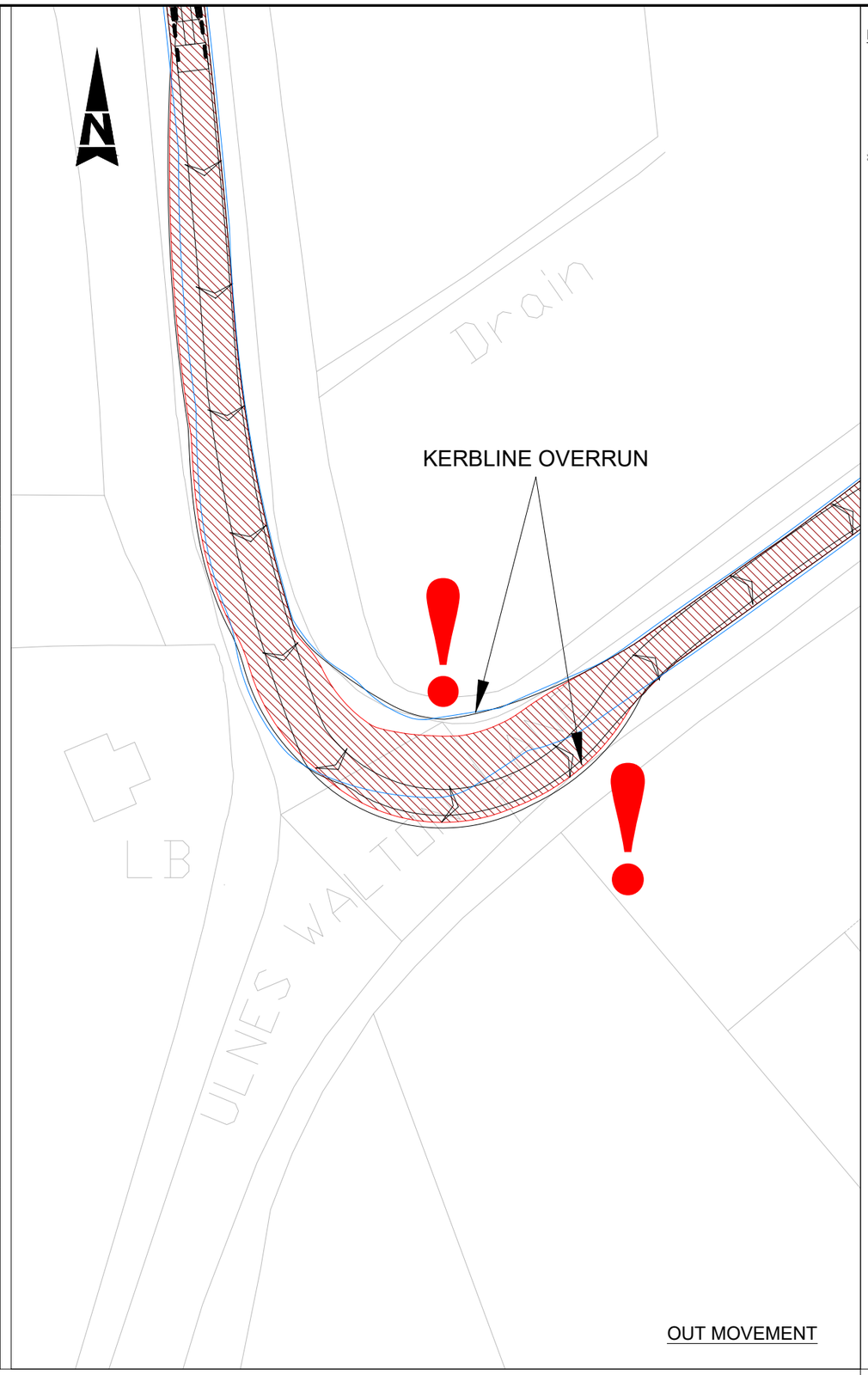
Swept path of vehicle body

Swept path of load

Denotes forwards movement



IN MOVEMENT



OUT MOVEMENT

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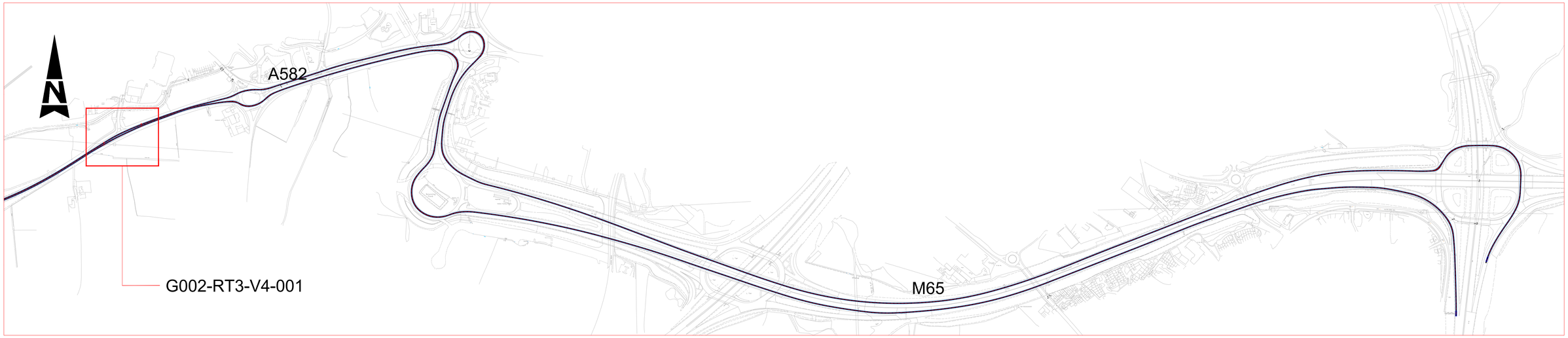
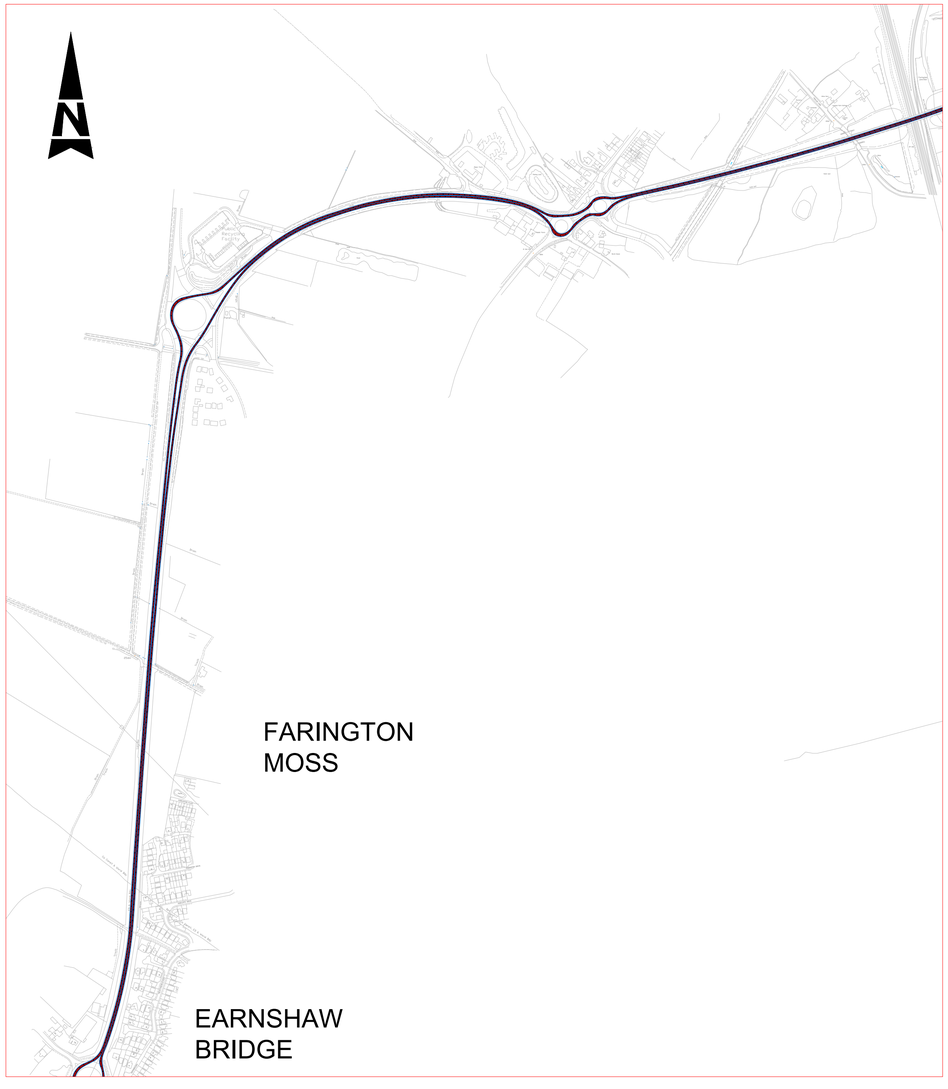
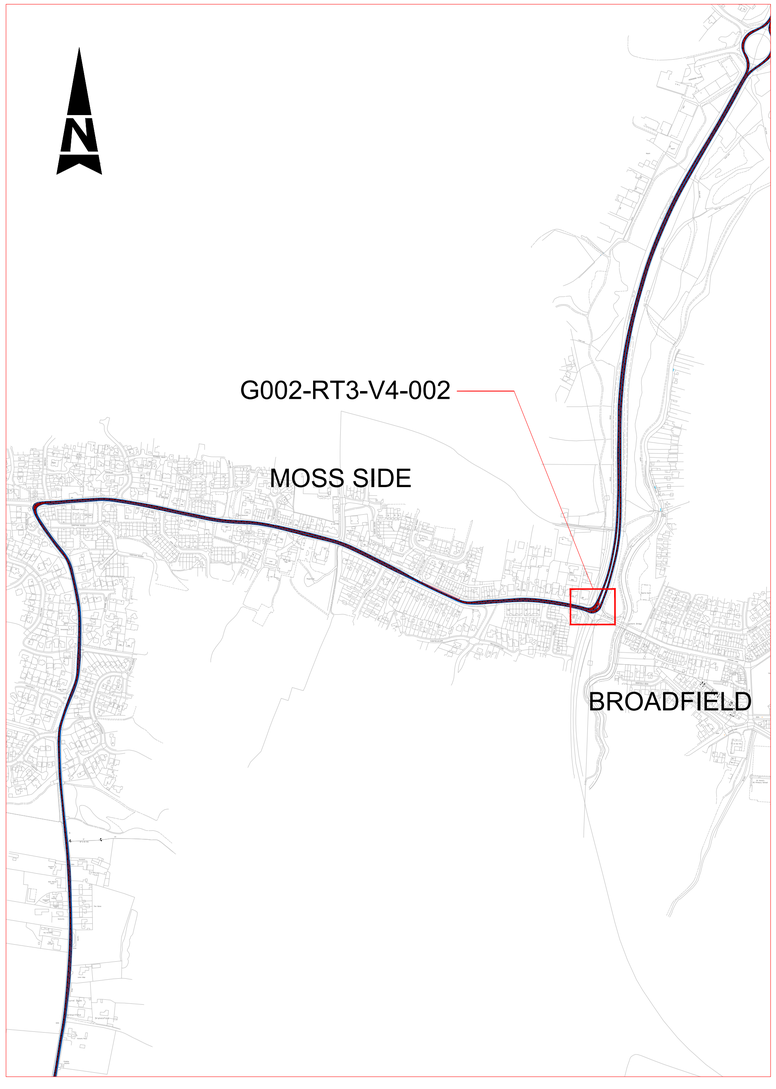
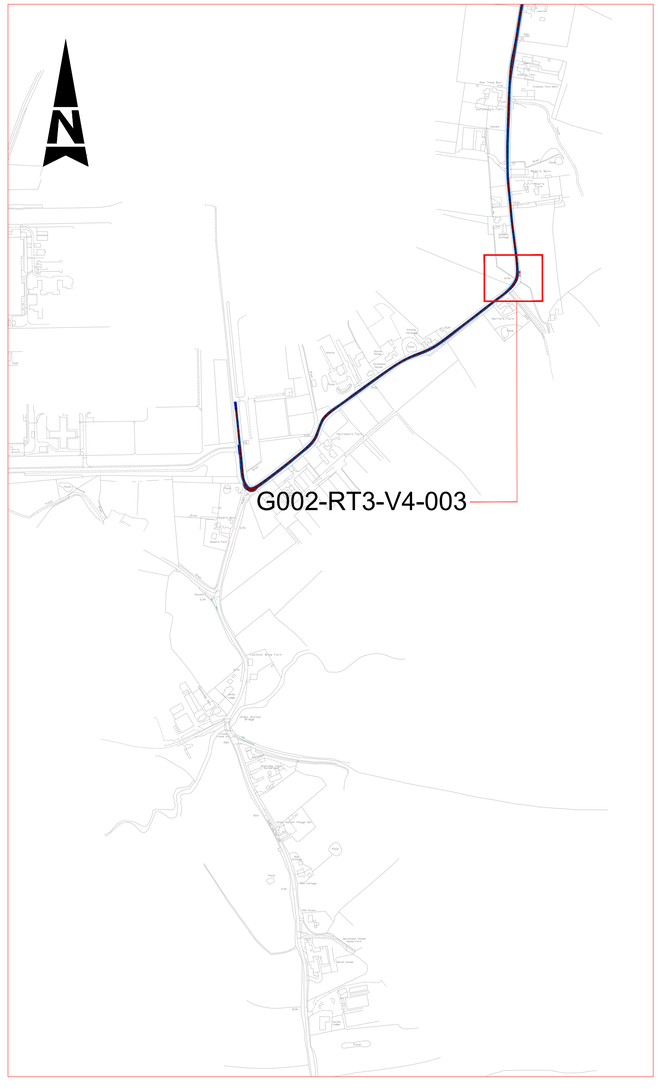
Location Reference	G002-RT3-V3-007
Direction	IN & OUT

F.3. Vehicle 4 (AIL for Plant Room Delivery)


A582
G002-RT3-V4-001
M65


FARINGTON
MOSS
EARNSHAW
BRIDGE

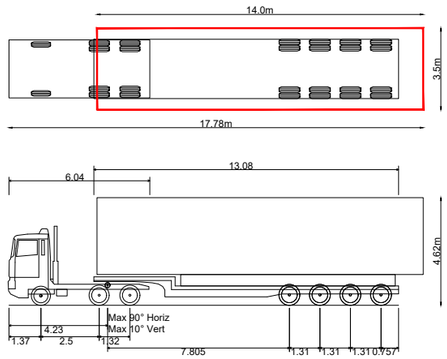

G002-RT3-V4-002
MOSS SIDE
BROADFIELD


G002-RT3-V4-003

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND

CENTRAL ISLAND

Drain

Path (um)

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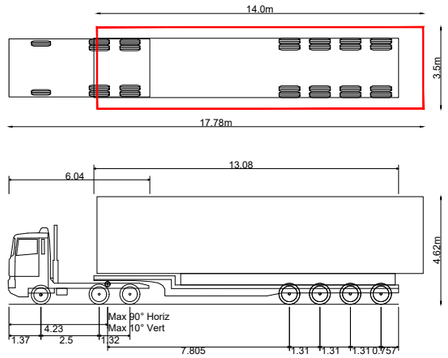
Location Reference	G002-RT1-V4-001
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

CENTRAL ISLAND OVERRUN

106

102

Dunkirk Hall (PH)

ED & Ward Bdy

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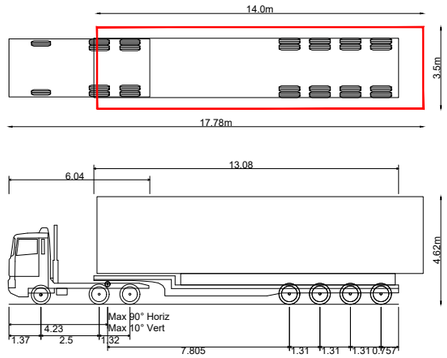
Location Reference	G002-RT1-V4-002
Direction	OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

14.9m

CENTRAL ISLAND

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Location Reference	G002-RT1-V4-003
Direction	OUT

Appendix G. Alternative Point of Access (via Boiler House)

DO NOT SCALE

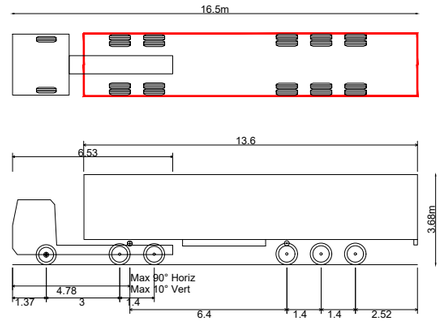
EXISTING TRACK TOO NARROW

CONFLICT WITH EXISTING INFRASTRUCTURE

EXISTING TRACK TOO NARROW

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

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Location Reference	G001-RT4-V1-001
Direction	IN / OUT

DO NOT SCALE

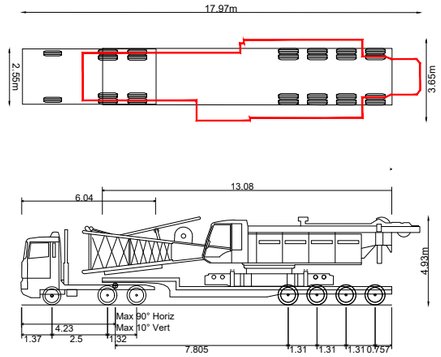
EXISTING TRACK TOO NARROW

CONFLICT WITH EXISTING INFRASTRUCTURE

EXISTING TRACK TOO NARROW

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Liebherr LR1160 Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.65m)	2.550m
Overall Body Height	4.930m
Min Body Ground Clearance	0.318m
Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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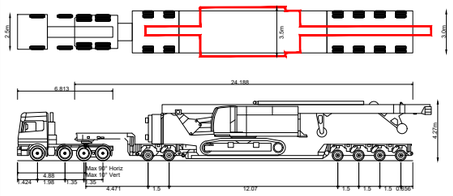
Location Reference	G002-RT4-V2-001
Direction	IN / OUT

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

WHEEL OVER RUN AND OVERSAIL AT EXISTING 'T' JUNCTION

WHEEL OVER RUN AND OVERSAIL AT EXISTING 'T' JUNCTION

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Location Reference	G002-RT4-V3-001
Direction	IN / OUT

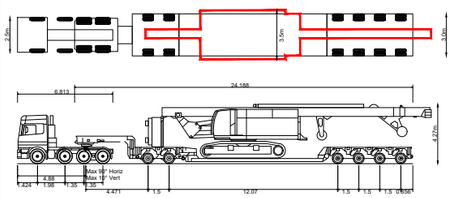
DO NOT SCALE

WHEEL OVER RUN AND OVERSAIL AT EXISTING ROUNDABOUT

POSSIBLE ALTERNATIVE CONTRA FLOW MOVEMENT UNDER CONTROLLED WORKING

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
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Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
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Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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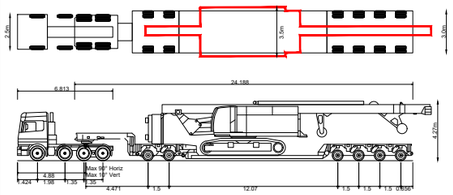
Location Reference	G002-RT4-V3-002
Direction	IN

DO NOT SCALE

Notes:

1. Preliminary design only - based on Ordnance Survey data.



Piling Rig

Overall Length (Transporter)	28.277m
Overall Width (Load 3.5m)	3.000m
Overall Body Height	4.270m
Min Body Ground Clearance	0.159m
Max Track Width	3.000m
Lock to lock time	6.00s
Wall to Wall Turning Radius	9.800m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

EXISTING TRACK TOO NARROW

WHEEL OVER RUN AND OVERSAIL AT EXISTING JUNCTION

EXISTING TRACK TOO NARROW

WHEEL OVER RUN AND OVERSAIL AT EXISTING JUNCTION

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Direction	IN / OUT

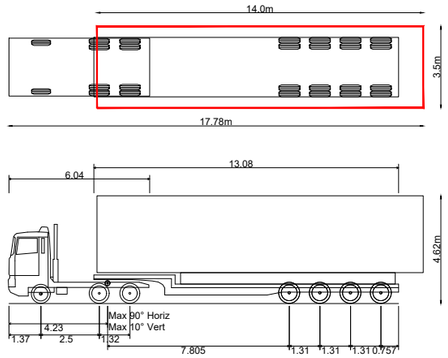
DO NOT SCALE

EXISTING TRACK TOO NARROW

EXISTING TRACK TOO NARROW

Notes:

1. Preliminary design only - based on Ordnance Survey data.



3.5m Plant Room Transporter

Overall Length (Transporter)	16.722m
Overall Width (Load 3.5m)	2.550m
Overall Body Height	4.620m
Min Body Ground	0.318m
Clearance Max Track Width	2.550m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

Swept path of wheel track

Swept path of vehicle body

Swept path of load

Denotes forwards movement

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Location Reference	G002-RT4-V4-001
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