



Scottish & Southern
Electricity Networks

TRANSMISSION

TECHNICAL APPENDIX 11.2: ABNORMAL LOAD SWEPT PATH ANALYSIS REPORT



Netherton Hub SSEN

Abnormal Load Swept Path Analysis Report

On behalf of **SSEN**



Project Ref: 331201430 | Rev: C | Date: 7th February 2024

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: 5th Floor, Lomond House, 9 George Square, Glasgow G2 1DY
T: +44 (0)141 352 2360 E: info.Glasgow@stantec.com

Document Control Sheet

Project Number: 331201430
Project Name: Netherton Hub SSEN
Stantec Ref: 331201430-STN-84-XX-RP-XX-002
SSEN Ref: LT000052-STA-CIV-RPT-008
Report Title: Abnormal Load Swept Path Analysis Report
Date: 30th November 2023

	Name	Position	Signature	Date
Prepared by:	Olivia MacLaren	Graduate Civil Engineer	O. MacLaren	12/01/2024
Reviewed by:	Emma Towle	Associate Civil Engineer	E. Towle	12/01/2024
Approved by:	Ian Saunders	Project Manager	I. Saunders	15/01/2024
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
A	30.11.2023	First Issue	OM	ET	IS
B	15.01.2024	Report Updated following SSE review	OM	ET	IS
C	07.02.2024	Report Updated following SSE review	OM	ET	IS

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

Contents

1	Introduction.....	1
1.1	Overview.....	1
1.2	Definitions and Terminology.....	1
2	Proposed Development	2
2.1	Site Description and Location.....	2
3	Access Route Overview.....	3
3.1	Water Preferred Policy Requirements.....	3
3.2	Proposed Access Route	4
3.3	Land Ownership	4
4	Route Options.....	5
4.2	Option 1	5
4.3	Option 2	6
4.4	Option 3	7
5	National Highways Agreement in Principle and Legislative Requirements.....	8
5.1	Definition of Abnormal Indivisible Load (AIL)	8
5.2	Delivery Vehicle.....	8
6	Public Road Improvements.....	10
7	Existing Constraints.....	22
8	Recommendations for AIL Route	24
9	Summary	25
10	Further Actions and Recommendations.....	26

Figures

Figure 3-1 Peterhead Port Map	3
Figure 3-2 Overview of possible AIL routes	4
Figure 4-1 Option 1.....	5
Figure 4-2 Option 2.....	6
Figure 4-3 Option 3.....	7
Figure 7-1 Location of Route Constraints.....	23

Tables

Table 1-1 Definitions and Terminology.....	1
Table 5-1 AIL Drawings	9
Table 6-1: Description of Public Road Improvements	10
Table 7-1: Location of Route Constraints.....	22

This page is intentionally blank

1 Introduction

1.1 Overview

- 1.1.1 The purpose of this report is to provide additional information to support the findings of the swept path analysis undertaken for Abnormal Indivisible Load (AIL) deliveries from Peterhead Port to the Netherton Hub.
- 1.1.2 This report and swept path assessment has been undertaken for considering for Planning in Principal and will be revisited in further detail once a haulage contractor and transformer supplier has been selected.
- 1.1.3 This report identifies the key points and issues associated with the horizontal alignment of the proposed route that may require remedial works to accommodate the predicted loads and should be used as a guide only. This assessment identifies necessary further work, and it is the responsibility of the Contractor to ensure that the access route from the Point of Entry to the site access is fit for purpose and that appropriate consideration for all road users has been made in accordance with the relevant health and safety legislation and ruling transport requirements.
- 1.1.4 This report should be read in conjunction with the Construction Traffic Management Plan (CTMP).

1.2 Definitions and Terminology

- 1.2.1 The following table describes the various abbreviations and acronyms uses throughout this report.

Table 1-1 Definitions and Terminology

Abbreviation	Definition
AIL	Abnormal Indivisible Loads
TS	Transport Scotland
NH	National Highways
C&U	Construction and Use Regulations

2 Proposed Development

2.1 Site Description and Location

- 2.1.1 The site is located in the vicinity of Flushing village adjacent to the A950 Longside Road approximately 7.5km westbound from Peterhead. The site is approximately 230Ha of mostly greenfield.
- 2.1.2 The Netherton hub will involve the construction of:
 - 400 kV Substation;
 - 132 kV Substation;
 - High Voltage Direct Current (HVDC) Switching Station;
 - Spittal to Peterhead HVDC Converter Station;
 - Eastern Green Link 3 HVDC Converter Station; and
 - Operations Depot and Spares Buildings.
- 2.1.3 Additional land is required for access and environmental mitigation. There will be temporary land requirements during the construction period for laydown and contractor facilities.

3 Access Route Overview

3.1 Water Preferred Policy Requirements

- 3.1.1 The Department for Transport has adopted a 'water-preferred' policy for the Transport of AILs. This means that, where an application is sought for the movement of a Special Order or VR1 category load (more than 5.0m wide) by road, The Department, via National Highways (NH) and Transport Scotland (TS), will turn down the application where it is feasible for a coastal or inland waterway route to be used instead of road. This decision is based on a number of factors including whether the load is divisible, the availability of a suitable route, the amount of traffic congestion that is likely to be caused and the justification for the load to be moved. The NH Abnormal Loads Team is the department responsible for the authorisation of Special Order AILs and government policy is that the closest available port of access should be used for the delivery of such oversize items.
- 3.1.2 Peterhead port is considered the optimum point of entry and has been utilised in the past for a number of abnormal load deliveries. The port has sufficient quay strength and is approximately 8km from the proposed site. See **Appendix A** for Peterhead Port Authority Abnormal load and lifting operations management plan. The layout of the port is illustrated below in Figure 3-1

Peterhead Port Map

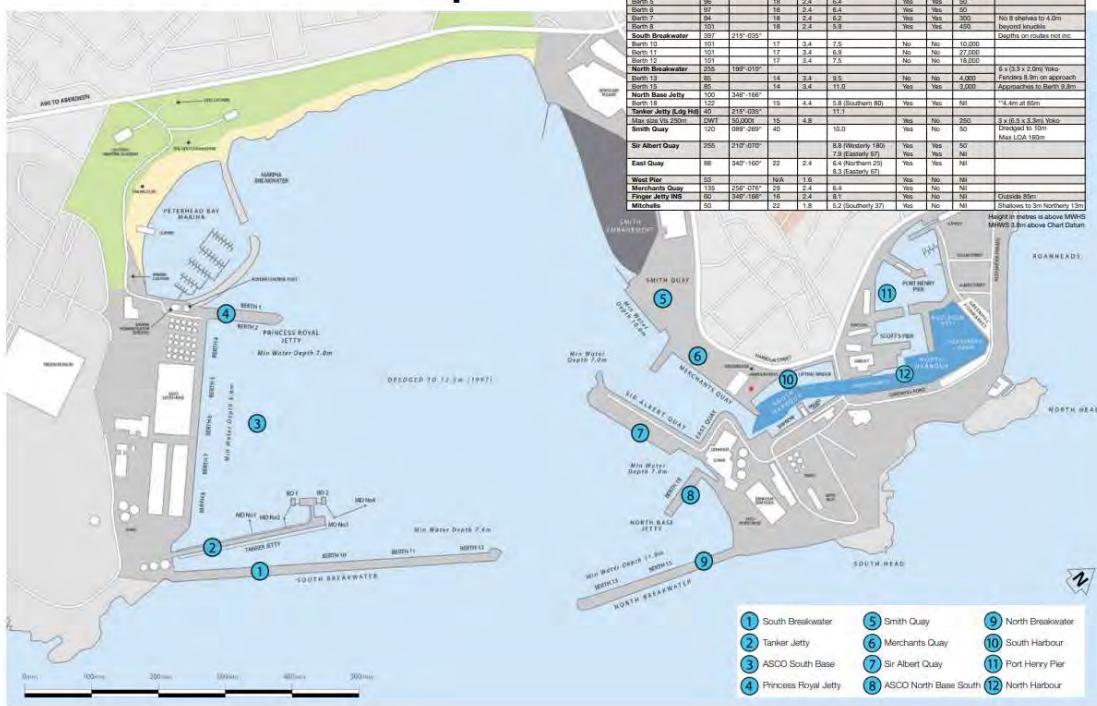


Figure 3-1 Peterhead Port Map

- 3.1.3 There are two locations as Peterhead Port that are used for Abnormal Loads. ASCO South Base Berth 8, and Smith Quay (Berth 5). Both of these location have been considered as part of the Abnormal Load Swept Path Analysis.

3.2 Proposed Access Route

- 3.2.1 Following desk studies and route drive through, three routes were identified as possible routes for transporting AILs between Peterhead Port and the Netherton Site. The suitability of each route will depend on what berth the Haulage Contractor and Port Operator deems suitable for delivery load and vehicle.

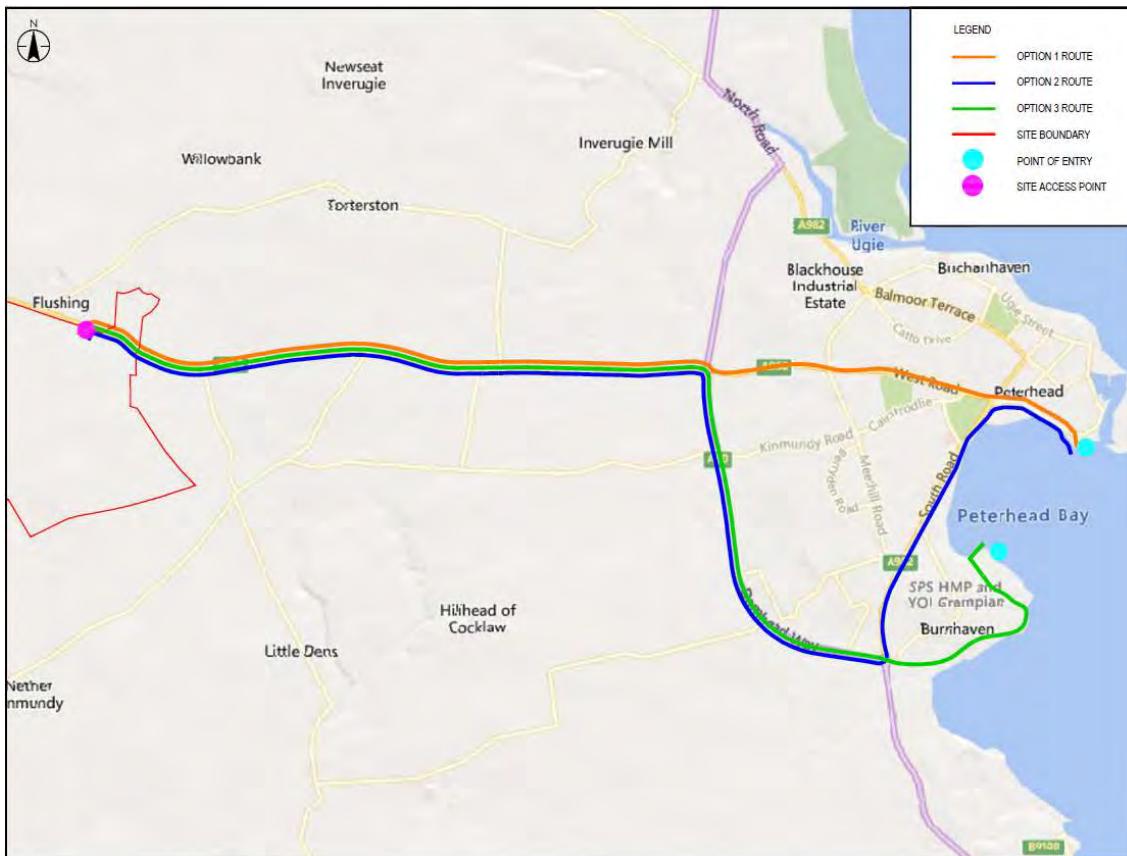


Figure 3-2 Overview of possible AIL routes

3.3 Land Ownership

- 3.3.1 The limits of road adoption can vary. The adopted area is generally defined as land contained within a defined boundary where the road agency holds the maintenance rights for the land. In urban areas, this is usually defined as the area from the footway back edge across the road to the opposing footway back edge. In rural areas the area of adoption can be open to greater interpretation as defined boundaries may not be readily visible. In these locations, the general rule is that the area of adoption is between established fence / hedges lines or a maximum 2m from the road edge. This can vary between areas and location.

4 Route Options

4.1.1 The following options have been identified as possible AIL routes.

4.2 Option 1

4.2.1 The route for Option 1 is as follows:

1. Exit Merchant Quay at Peterhead Port onto Bath Street
2. Left turn onto Charlotte Street
3. Left turn onto Kirk Street
4. Straight through the Roundabout onto the A950
5. Follow A950 to site Location

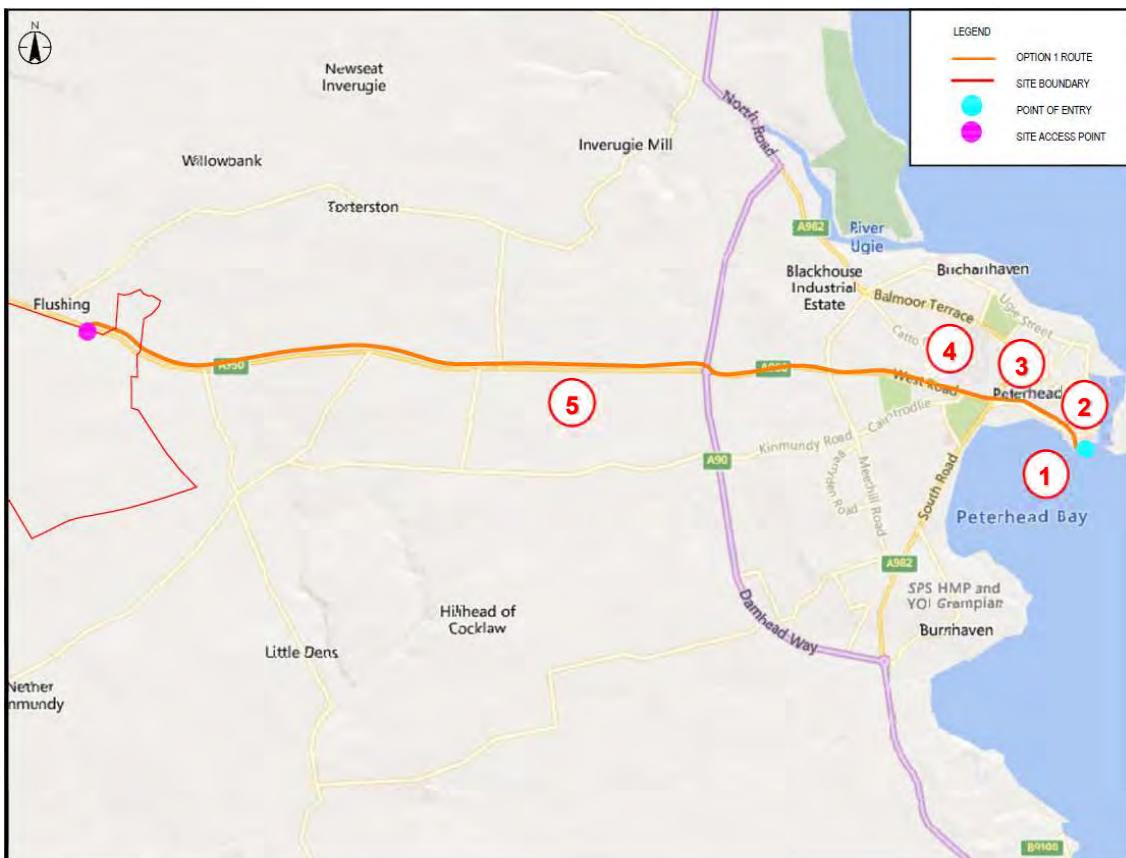


Figure 4-1 Option 1

4.3 Option 2

4.3.1 The route for Option 2 is as follows:

1. Exit Merchant Quay at Peterhead Port onto Bath Street
2. Left turn onto Charlotte Street
3. Left turn onto Kirk Street
4. Left turn at the roundabout onto the A982 Southbound
5. Turn right at Invernettie Roundabout onto the A90
6. Northbound on the A90 to Howe O'Buchan Roundabout
7. Left turn onto the A950 and follows the A950 to site location.

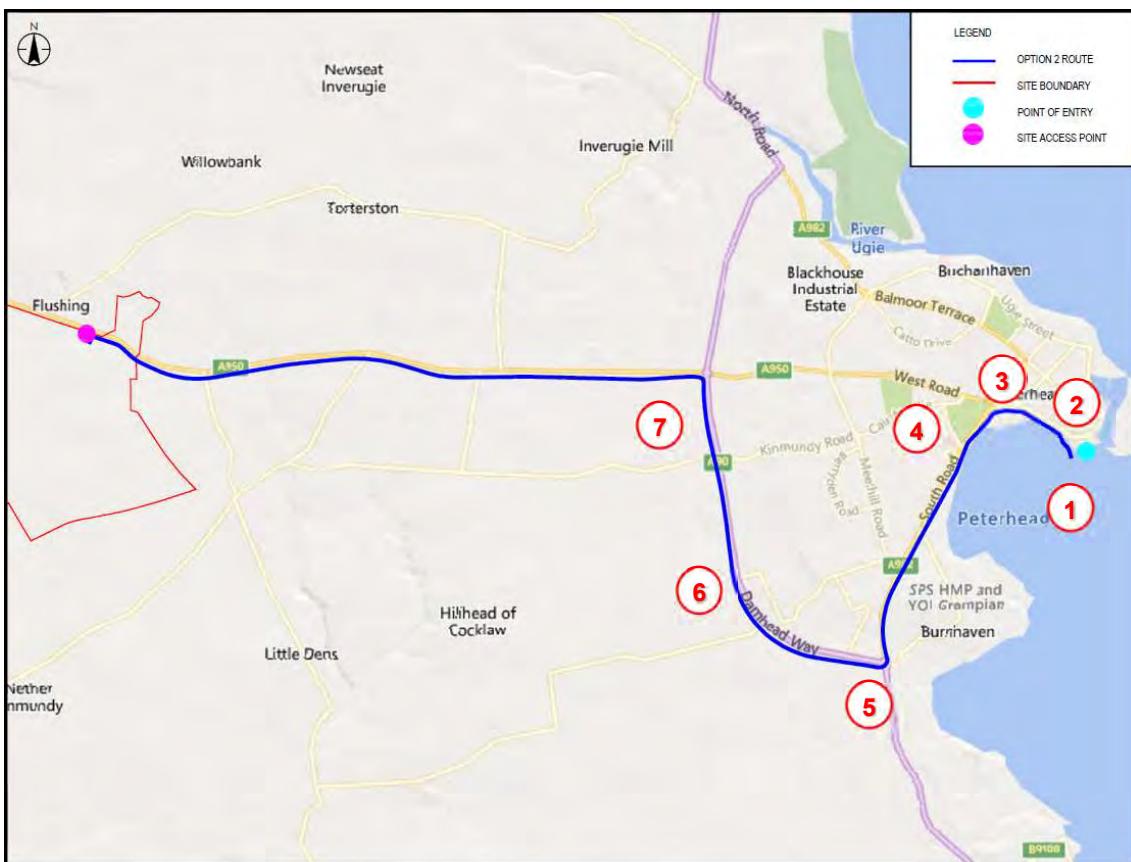


Figure 4-2 Option 2

4.4 Option 3

4.4.1 The route for Option 3 is as follows:

1. Exit ASCO South Base onto South Base Road
2. Straight through Inverugie Roundabout onto the A90
3. Northbound on the A90 to Howe O'Buchan Roundabout
4. Left turn onto the A950 and follows the A950 to site location

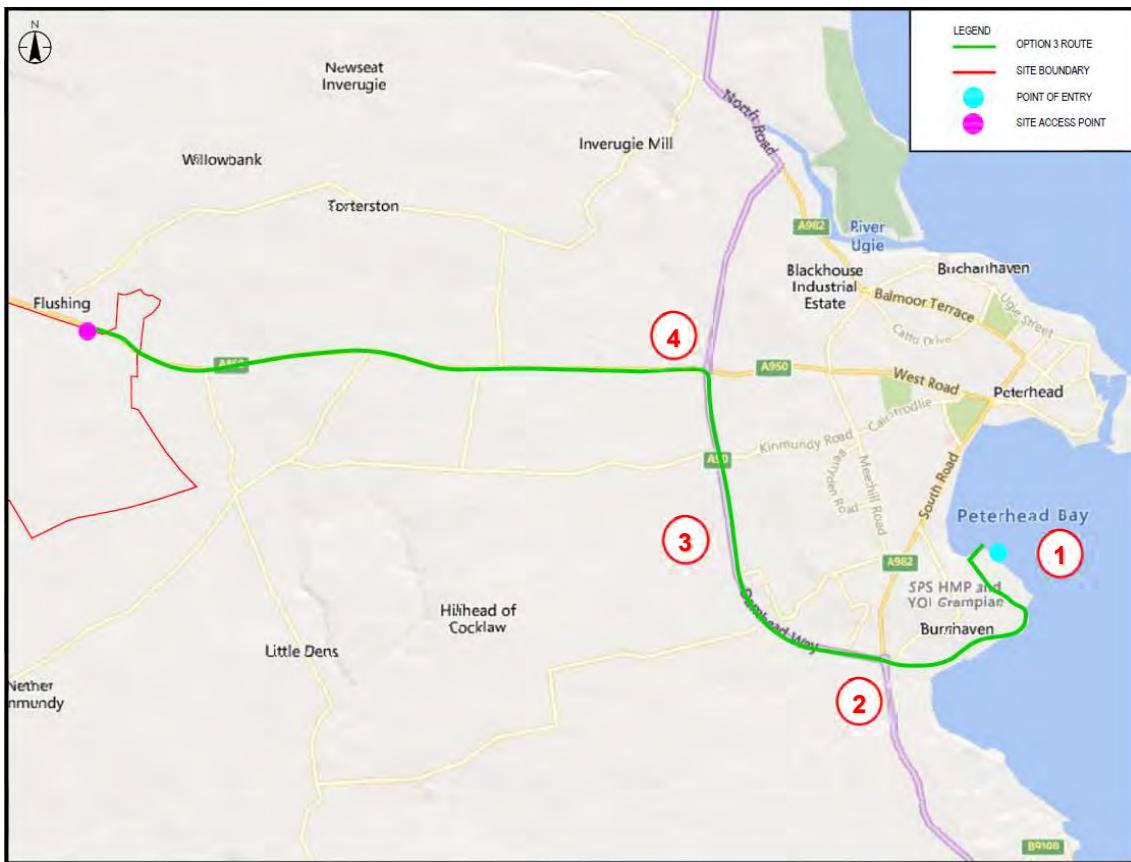


Figure 4-3 Option 3

5 National Highways Agreement in Principle and Legislative Requirements

5.1 Definition of Abnormal Indivisible Load (AIL)

- 5.1.1 The Department of Transport, of which NH is a government-owned company with responsibility for managing the core road network in England, TS within Scotland, state the strict definition of AIL refers to a load which cannot, without undue expense or risk of damage, be divided into two or more loads for the purpose of carriage on roads and which, owing to its dimensions or weight, cannot be carried on a vehicle which complies in all respects with the 'standard vehicle regulations' these are;
- The Road Vehicles (Construction and Use) Regulations 1986 (as amended)
 - The Road Vehicles (Authorised Weight) Regulations 1998 (as amended)
 - The Road Vehicles Lighting Regulations 1989 (as amended)
- 5.1.2 Conventional heavy goods vehicles have an operating weight limit of 44 tonnes. The category known as AILs covers those vehicles where the gross weight exceeds 44 tonnes. An Abnormal Load is defined as that which cannot be carried under Construction and Use (C&U) regulations. Items which, when loaded on the load carrying vehicles exceed the weights encompassed by the C&U Regulations, but do not exceed Special Order Permission Limits are governed by Special Types General Order (STGO) categories 1 to 3 depending on size. Where dimensions exceed 6.1m in width, 30m in rigid length or 150 tonnes gross weight, Special Order from NH/TS is required.
- 5.1.3 Special Order category AIL movements are authorised by the NH Abnormal Loads team based in Birmingham. For movements commencing and ending in Scotland, Special Order loads are administered of behalf of NH by TS.
- 5.1.4 An Agreement in Principle has been obtained from NH. See Appendix D. A full Special Order application is to be submitted via the haulage contractor nearer the time to confirm route suitability.

5.2 Delivery Vehicle

- 5.2.1 Swept Path Analysis (SPA) was carried out to give an indication of the behaviour of the design vehicle based on its geometry and the route corridor. The design vehicle was defined based on the vehicle specification provided by SSE for the Alleys 290 Te Transformer 32 Ax F5.5 Girder Frame 8m Beam w/ 4.5 Neck Extension TA as a 'worst case scenario' vehicle. This vehicle with load has a Gross Weight of 491.16Te, 24 axles with 16Te axle line load. See **Appendix B** For vehicle details.
- 5.2.2 Assumed dimensions and weight of transformer are as follows;
- Width-5800mm
Length-8710mm
Height – 4861mm
Weight- 290 Te
- Actual dimensions may vary depending on manufacturer.
- 5.2.3 The alignment of the chosen route influences the movement of the design vehicle – specifically at tight bends, roundabouts and other junctions. The drawing package provided for Netherton Hub shows lines representing the wheel tracks in red and lines showing the vehicle body outline (over sail) in purple. The over sail is the outer extents of the body of the vehicle, this is not in contact with the carriageway and would in this case likely not collide with

a standard kerb but could potentially clash with street furniture such as bollards, traffic signs, signals, etc.

- 5.2.4 The purpose of this analysis was to identify sections of the route that may require improvements to the highway network to facilitate the movements of the design vehicle. This is done by assessing the extents of the red and purple lines and studying sections where this overruns the edge of the carriageway to understand what could be affected. From this point we can determine what improvements would be required to existing infrastructure, for example roundabouts, changes to surfacing to be suitable for a vehicle of this size and weight if the vehicle overruns out with the extent of the carriageway, removal of traffic signs, bollards and lighting columns and temporary utility diversions.
- 5.2.5 It is important to note that the swept path assessments have been undertaken based on Ordnance Survey Map data. The swept paths assessments are based on a computer model of the likely vehicles and configurations that may be used, which also build in a degree of safety margin that tends to provide a conservative estimate of the required area. Engineering judgement has been used to determine the best path for the vehicle to take and the model has replicated this, however what may have been achieved on the desktop review may not necessarily be replicated in reality.
- 5.2.6 The future Works Contractor would present the final detailed design drawings to the relevant road authority for approval prior to the development commencing. All appropriate permits and consents for temporary works would be the responsibility of the Contractor. Prior to any road improvement works commencing the areas should be checked for underground utilities equipment. It is likely that all modifications carried out to the public road network will require to be reinstated to the relevant road department's satisfaction. The future works contractor is to discuss and agree with the roads department as required.
- 5.2.7 Each route is shown on detail on the following drawings. Drawings are shown in **Appendix C**:

Table 5-1 AIL Drawings

LT000052-STA-0808-DET-001-01	Public Road – Swept Path Analysis Sheet 1
LT000052-STA-0808-DET-001-02	Public Road – Swept Path Analysis Sheet 2
LT000052-STA-0808-DET-001-03	Public Road – Swept Path Analysis Sheet 3
LT000052-STA-0808-DET-001-04	Public Road – Swept Path Analysis Sheet 4
LT000052-STA-0808-DET-001-05	Public Road – Swept Path Analysis Sheet 5
LT000052-STA-0808-DET-001-06	Public Road – Swept Path Analysis Sheet 6
LT000052-STA-0808-DET-001-07	Public Road – Swept Path Analysis Sheet 7
LT000052-STA-0808-DET-001-08	Public Road – Swept Path Analysis Sheet 8
LT000052-STA-0808-DET-001-09	Public Road – Swept Path Analysis Sheet 9
LT000052-STA-0808-DET-001-10	Public Road – Swept Path Analysis Sheet 10
LT000052-STA-0808-DET-001-11	Public Road – Swept Path Analysis Sheet 10
LT000052-STA-0808-DET-001-12	Public Road – Swept Path Analysis Sheet 12
LT000052-STA-0808-DET-001-13	Public Road – Swept Path Analysis Sheet 13
LT000052-STA-0808-DET-001-14	Public Road – Swept Path Analysis Sheet 14

6 Public Road Improvements

- 6.1.1 Through the SPA of the three routes, the following potential Public Road Improvements were identified as detailed in Table 6-1: These cover all constraints from the port access gate to the proposed site access point.

The colours illustrated on the swept paths are:

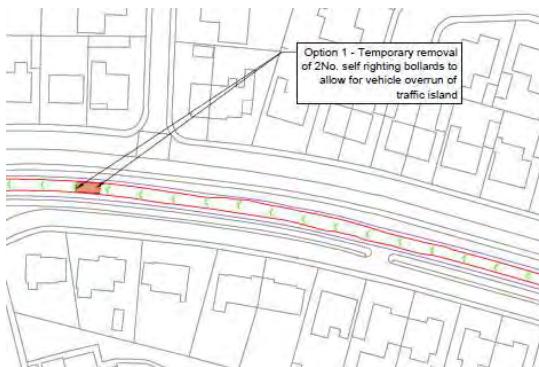
Grey – OS mapping

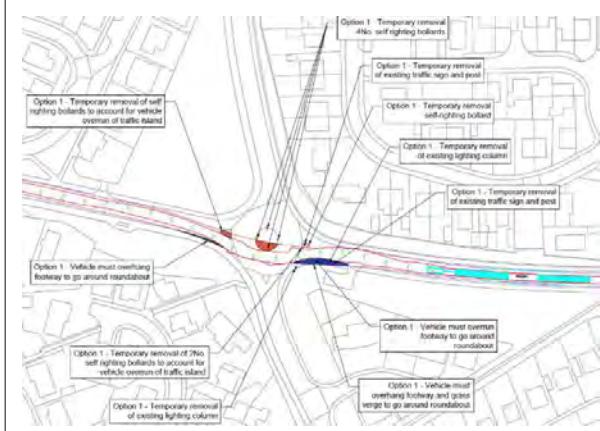
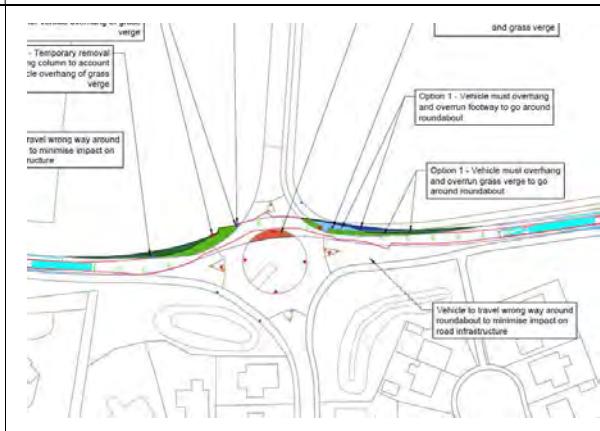
Cyan – Vehicle body

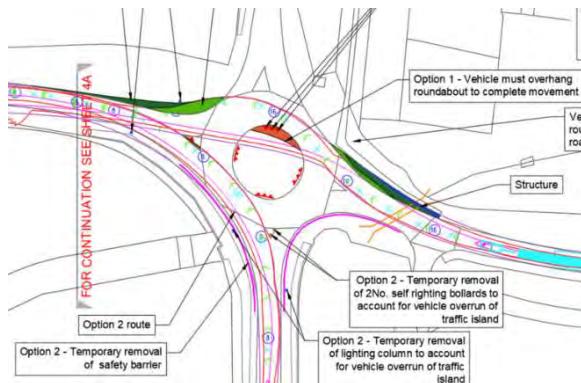
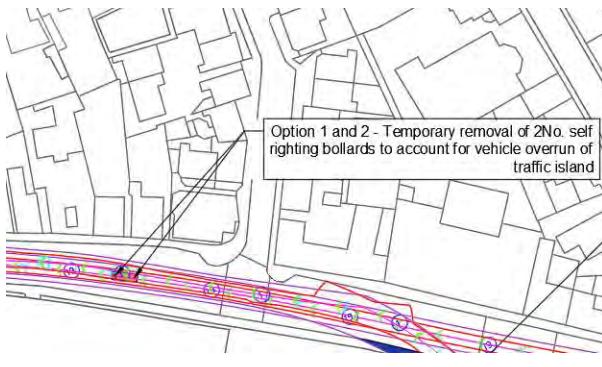
Red – Tracked path of vehicle wheels (wheel swept path)

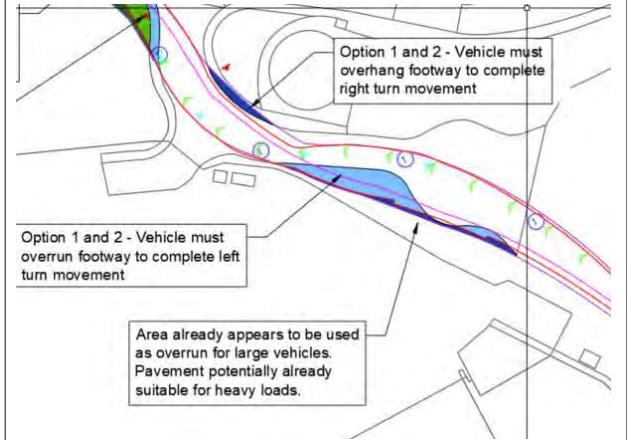
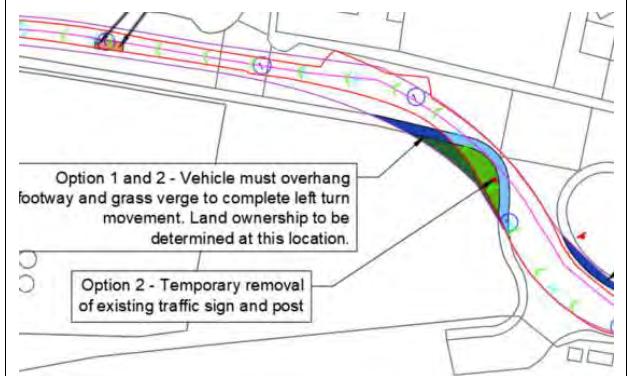
Purple – The over-sail tracked path of the load where it encroaches out with the trailer (body swept path)

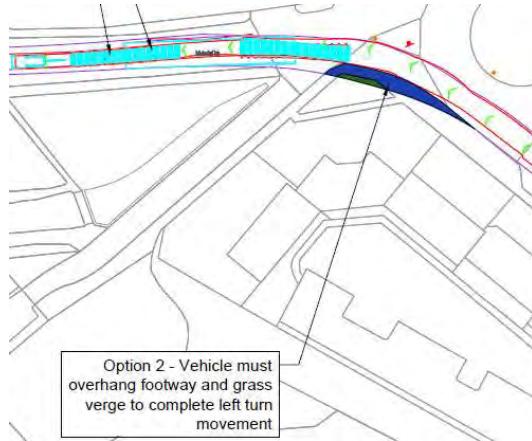
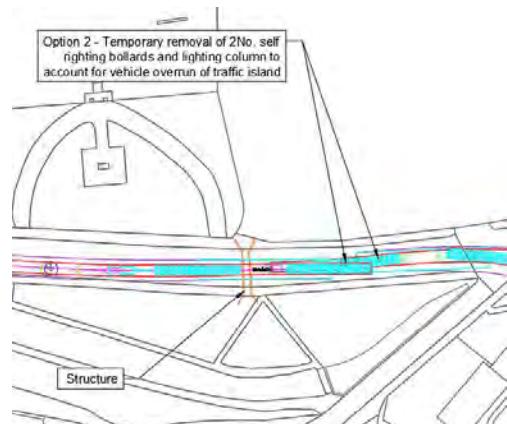
Table 6-1: Description of Public Road Improvements

Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
Option 1				
1	A950 temporary removal of self righting bollards		Bollards appear to be on removal sockets.	

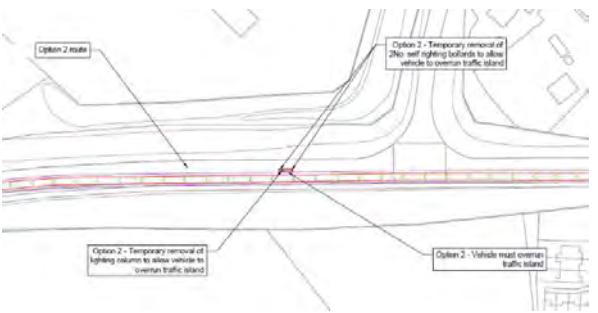
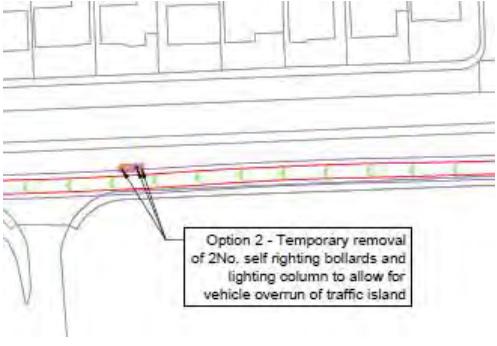
Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
2	Roundabout at Windmill Road A950. Vehicle overruns areas of grass verge. Signs, bollards and lighting columns to be removed.	 <ul style="list-style-type: none"> Option 1 - Temporary removal of self-lighting bollards to account for vehicle overrun of traffic island Option 1 - Temporary removal of existing traffic sign and post Option 1 - Temporary removal of existing lighting column Option 1 - Temporary removal of self-lighting bollard Option 1 - Vehicle must overhang footway to go around roundabout Option 1 - Temporary removal of 2x self-lighting bollards to account for vehicle overrun of traffic island Option 1 - Vehicle must overhang footway and grass verge to go around roundabout Option 1 - Temporary removal of existing lighting column 	<p>Bollards appear to be on removal sockets. Signs and Lighting columns require further investigation. It is assumed grass verge is not suitable for heavy loads. Substantial works would be required at this location</p>	
3	Roundabout at Waterside Road A950. Vehicle overruns areas of grass verge. Signs, bollards and lighting columns to be removed. Potential utilities diversions.	 <ul style="list-style-type: none"> - Temporary removal column to account for overhanging grass verge Vehicle to travel wrong way around roundabout to minimise impact on road infrastructure Option 1 - Vehicle must overhang and overrun grass verge to go around roundabout Option 1 - Vehicle must overhang footway and overrun grass verge to go around roundabout 	<p>Bollards appear to be on removal sockets. Signs and Lighting columns require further investigation. It is assumed grass verge is not suitable for heavy loads. Substantial works would be required at this location</p>	

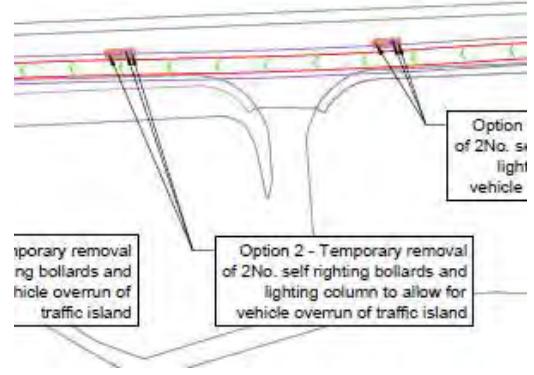
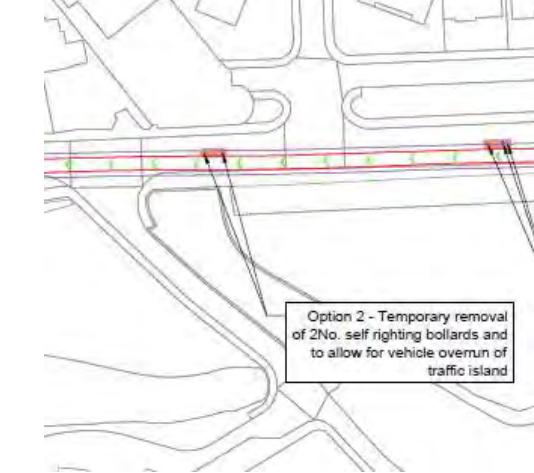
Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
4	Howe O-Buchan Roundabout. Vehicle overruns areas of grass verge. Signs, bollards and lighting columns to be removed.	 <p>FOR CONTINUATION SEE SHEET 4A</p> <p>Option 1 - Vehicle must overhang roundabout to complete movement</p> <p>Vel rou roa</p> <p>Structure</p> <p>Option 2 route</p> <p>Option 2 - Temporary removal of safety barrier</p> <p>Option 2 - Temporary removal of 2No. self righting bollards to account for vehicle overrun of traffic island</p> <p>Option 2 - Temporary removal of lighting column to account for vehicle overrun of traffic island</p>	<p>Bollards appear to be on removal sockets. Signs and Lighting columns require further investigation. It is assumed grass verge is not suitable for heavy loads. Substantial works would be required at this location</p>	
Option 1 and 2				
5	Clash with self righting bollards on Charlotte Street	 <p>Option 1 and 2 - Temporary removal of 2No. self righting bollards to account for vehicle overrun of traffic island</p>	<p>Bollards appear to be on removable sockets</p>	

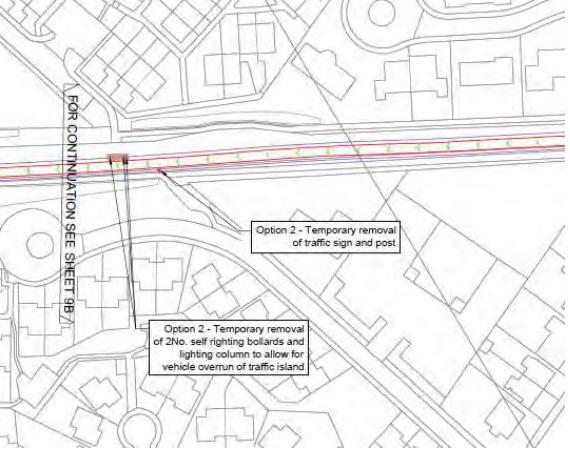
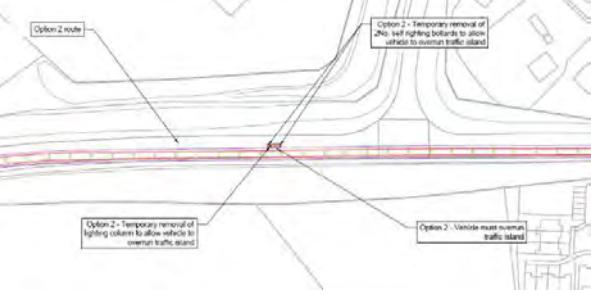
Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
6	Footway overrun at Merchant Quay	 <p>Option 1 and 2 - Vehicle must overhang footway to complete right turn movement</p> <p>Option 1 and 2 - Vehicle must overhang footway to complete left turn movement</p> <p>Area already appears to be used as overrun for large vehicles. Pavement potentially already suitable for heavy loads.</p>	<p>The footway appears to already be utilised as an overrun area for larger vehicles. It is assumed that the pavement makeup in this area may already be suitable for heavy loads. Further investigation is required.</p>	
7	Grass verge and footway overrun required at the junction of Merchant Quay and Bath Street.	 <p>Option 1 and 2 - Vehicle must overhang footway and grass verge to complete left turn movement. Land ownership to be determined at this location.</p> <p>Option 2 - Temporary removal of existing traffic sign and post</p>	<p>The grass verge and footway area will require upgrades to accommodate AIL traffic. It is currently unknown if this verge area is adopted or private land. Further investigations required.</p>	

Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
Option 2				
8	Overhang of grass verge and footway on South Road exit from roundabout		Vehicle wheel path within carriageway extents. Overhang only	
9	Clash with numerous bollards and lighting column on crossing islands on A982 South Road		Bollards appear to be on removable sockets. Lighting columns require further investigation.	

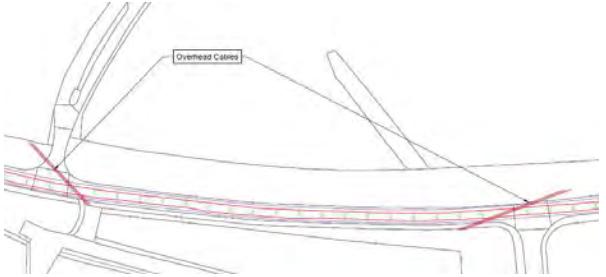
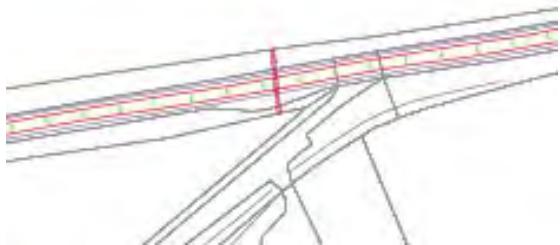
Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
10	Vehicle overrun to traffic island and centre of roundabout at Invernettie Roundabout	 <p>Option 2 and 3 - Temporary removal of traffic sign and post to allow for vehicle movement</p> <p>Option 2 and 3 - Vehicle must overhang grass verge and footway to complete left turn</p> <p>Option 2 and 3 - Vehicle must overrun traffic island to complete movement</p> <p>Option 2 and 3 - Temporary removal of 2No. self righting bollards to allow vehicle movement</p>	<p>Centre of roundabout appears to have an area for vehicle overrun. Further investigation required to determine if suitable for AIL. It is assumed all works are within the highway boundary and that no private land will be encroached on.</p>	
11	Clash with self righting bollards on A982	 <p>Option 2 - Temporary removal of 2No. self righting bollards to account for vehicle overrun of traffic island</p>	<p>Bollards appear to be on removable sockets</p>	

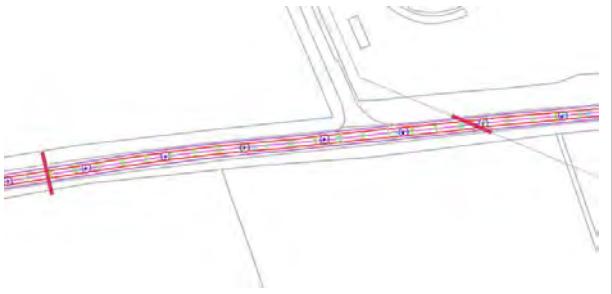
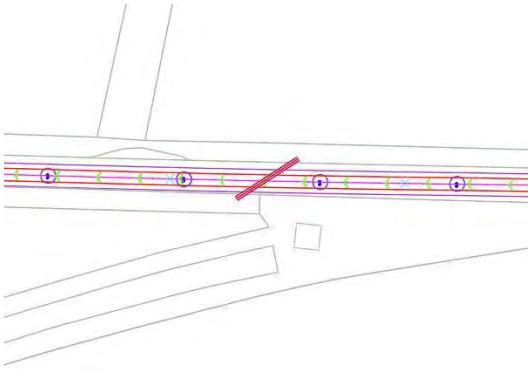
Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
11	Clash with self righting bollards and lighting column on A982		<p>Bollards appear to be on removable sockets. Lighting columns require further investigation.</p>	
12	Clash with self righting bollards and lighting column on A982		<p>Bollards appear to be on removable sockets. Lighting columns require further investigation.</p>	

Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
13	Clash with self righting bollards and lighting column on A982		<p>Bollards appear to be on removable sockets. Lighting columns require further investigation.</p>	
14	Clash with self righting bollards on A982		<p>Bollards appear to be on removable sockets.</p>	

Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
15	Clash with self righting bollards and lighting column on A982	 <p>FOR CONTINUATION SEE SHEET 9B</p> <p>Option 2 - Temporary removal of traffic sign and post</p> <p>Option 2 - Temporary removal of 2No. self righting bollards and lighting column to allow for vehicle overrun of traffic island</p>	<p>Bollards appear to be on removable sockets. Lighting columns require further investigation.</p>	
16	Clash with self righting bollards and lighting column on A982		<p>Bollards appear to be on removable sockets. Lighting columns require further investigation.</p>	

Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
Option 2 and 3				
17	Vehicle overrun to traffic island and centre of roundabout at Invernettie Roundabout	 <p>INSET A (OPTION 3 ROUTE)</p>	Centre of roundabout appears to have an area for vehicle overrun. Further investigation required to determine if suitable for AIL.	
Option 3				
18	South Base Road. Vehicle overhang at grass verge. Potential clash with Traffic Sign		Traffic sign may need to be relocated.	

Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
Option 1, 2 and 3				
19	Overhead Cables on A950		Heights of overhead cables to be determined by Haulage contractor to determine route suitability.	
20	Overhead Cables on A950		Heights of overhead cables to be determined by Haulage contractor to determine route suitability.	

Item	Location	Vehicle Tracking Plan	Interventions	Site Photos
21	Overhead Cables on A950		Heights of overhead cables to be determined by Haulage contractor to determine route suitability.	
22	Overhead Cables on A950		Heights of overhead cables to be determined by Haulage contractor to determine route suitability.	

7 Existing Constraints

- 7.1.1 Aberdeenshire council have advised that there are a number of structures on the proposed routes. The loading and capacity of these structures is currently unknown and Aberdeenshire Council Structures team have advised that they cannot provide loading information on any of their structures and have asked for surveys to be undertaken.

The table below summarises the identified constraints on the routes, including the structures described above:

Table 7-1: Location of Route Constraints

Ref.	Restriction Type	Route Option	Easting	Northing	Location	Description
1	Weight	2	412730	846017	A982, Kirkburn	1.08m deck, plastic pipe
2	Weight	2	411890	844260	A982, Damhead	3.2m deck, corrugated steel pipe
3	Weight	1	410555	846346	A950, Howe of Buchan	1.8m deck, corrugated steel pipe
4	Weight	1,2,3	410034	846365	A950, Longside	1.05m deck, Concrete Pipe
5	Weight	1,2,3	408100	846472	A950, Longhill Culvert	2m deck, corrugated steel pipe
6	Weight	1,2,3	406604	846382	A950, Bridge of Faichfield	2.5m deck, RC Slab
7	Weight	3	412510	844110	U190B, Sandford	3.63m deck, corrugated steel arch
8	Height	1,2,3	409889	846367	A950	Overhead Cables
9	Height	1,2,3	406519	846370	A950	Overhead Cables
10	Height	1,2,3	406311	846382	A950	Overhead Cables
11	Height	1,2,3	406843	846420	A950	Overhead Cables
12	Height	1,2,3	407161	846483	A950	Overhead Cables
13	Height	1,2,3	407337	846502	A950	Overhead Cables
14	Width	1,2	412803	846118	A950 /A982 Roundabout	Roundabout
15	Width	2,3	411935	844053	Invernettie Roundabout	Roundabout
16	Width	1	411491	846361	Meethill Road/A950 Roundabout	Roundabout
17	Width	1	410733	846325	Richmondhill Road/A950 Roundabout	Roundabout
18	Width	1,2,3	410519	846359	Howe O'Buchan Roundabout	Roundabout

7.1.2 The location of the existing Route Constraints are detailed on the below figure.

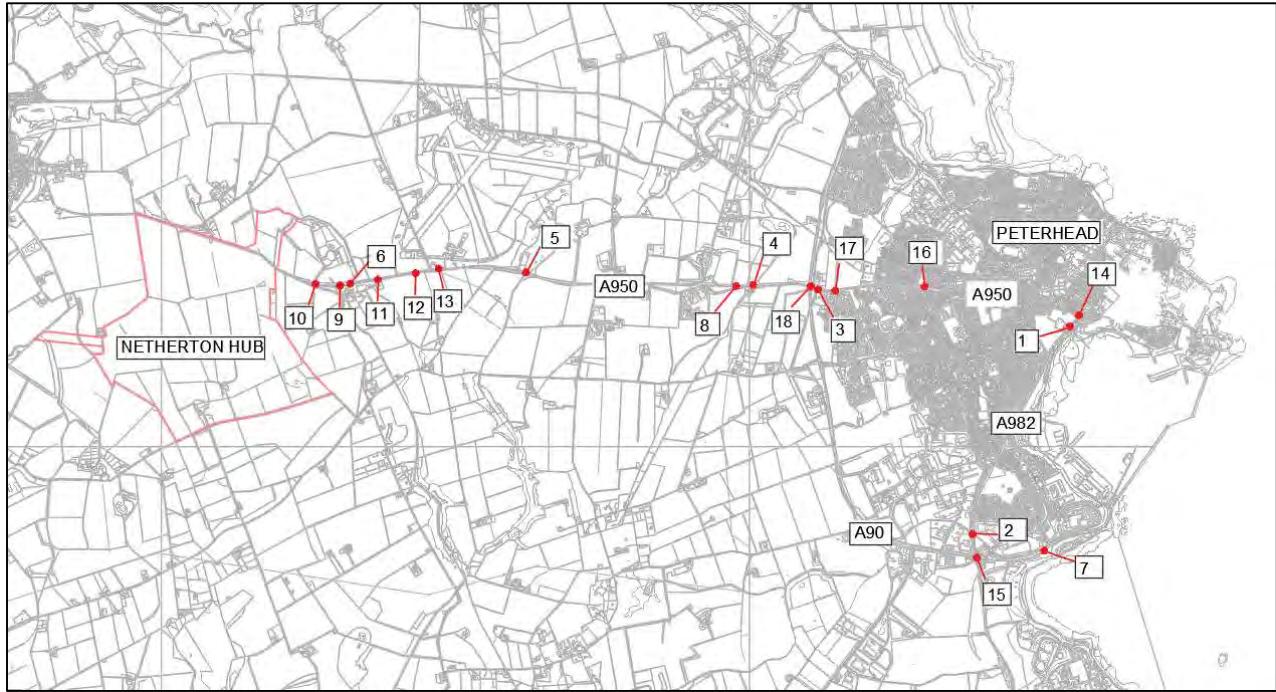


Figure 7-1 Location of Route Constraints

8 Recommendations for AIL Route

- 8.1.1 The following measures are recommendations that could help reduce the impact of the abnormal load delivery. These measures are presented as indicative and are to be confirmed with the Local Authority and Police Scotland.

8.1.2 Convoy System

A police escort could be required to facilitate the delivery of the predicted loads. It is proposed that an advanced escort would warn oncoming vehicles ahead of the convoy. The time at which the convoys would travel would need to be agreed with Police Scotland. Typical delivery times for similar projects has seen the early morning periods used in constrained sections, as traffic levels are generally lighter than those found in the afternoon.

A full convoy operation plan would be developed in consultation with the various roads and constabulary agencies along the route and agreed before deliveries commence to the site.

8.1.3 Advance Warning Signs

Advance warning signs would be installed on the approaches to the affected roads network. Temporary signage advising drivers that abnormal loads would be operating could be erected on the route to help assist drivers. The purpose of the advance warning signage would be to help improve driver information and allow drivers of oncoming traffic to consider proceeding to the nearest convenient passing bay, or breaking their journey until the convoy has moved on. To further improve driver information, it is suggested that Variable Message Signs (VMS), operated by Transport Scotland, are used to warn drivers of abnormal loads operating on the trunk road sections of the route. This would display information warning of possible delays and would allow drivers to consider alternative routes, if possible

9 Summary

- 9.1.1 All 3 routes should be viable, with varying levels of interventions required. The appointed Haulage Contractor should liaise with Aberdeenshire Council and Peterhead Port Authority to establish the preferred route to site.

10 Further Actions and Recommendations

10.1.1 STANTEC has undertaken a high-level review only of the access route from the POE to the proposed site access. The following must be undertaken prior to the delivery of the abnormal loads, to ensure load and road user safety:

- Haulage Contractor to liaise with Aberdeenshire Council and Peterhead Port Authority to determine preferred AIL route to site.
- Record site specific topographical survey data and reassess the swept path assessments.
- Further review of maximum axle loading on structures along the proposed route in consultation with the relevant roads agencies.
- Undertake discussion with the utility providers and establish clearance distances with any overheads and any temporary diversions required.
- Final detailed design drawings will need to be presented to Aberdeenshire Council and Transport Scotland for approval prior to the development commencing with all appropriate permits and consents for temporary works the responsibility of the Contractor.
- All works must be carried out to the approval of Aberdeenshire Council and Transport Scotland and all modifications carried out to the public road must be reinstated to their satisfaction.
- Ensure any vegetation which may foul the loads is trimmed back to allow passage (this is of concern once the load is on the local road network and should be assessed for summer conditions)
- Confirm there are no roadworks or closures that could affect the passage of the loads.
- Check no new or diverted underground services on the proposed route are at risk from the abnormal loads.
- Confirm that Police Scotland are satisfied with the route being used.
- Undertake a condition survey to determine the extents of any existing road defects and agree this in advance of any load movements with the roads agencies to protect the client group from unrelated damage claims.
- Undertake a test run once haulage contractor is established.
- Develop a detailed Transport Management Plan once haulage contractor is appointed.
- Contact the appropriate agencies to ensure that the above points are reviewed before the transport of the components commences.

APPENDIX A

PETERHEAD PORT AUTHORITY ABNORMAL LOAD AND LIFTING MANAGEMENT PLAN

No.	Revision/Issue	Date
-----	----------------	------



Firm Name and Address	Project Name and Address
Abnormal Load and Lifting Operations Management Plan	

Project	Street
Date	
Scale	

LIFTING OPERATIONS

Permitted pad loads and ground pressures are indicated at all locations

Areas with no loading shown are deemed unsuitable for lifting operations

on account of the unknown soil properties or stability of the quay wall.

Where possible loads are taken down to the rock through the quay walls

Surcharge behind the quay wall is to be minimized by distance

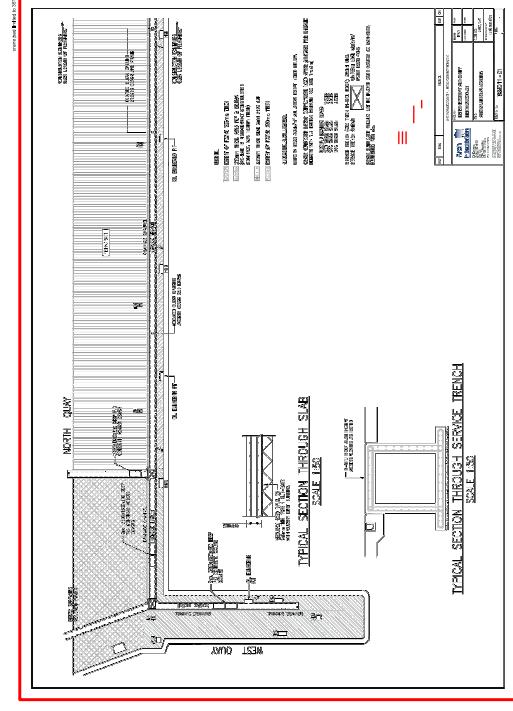
and load spreading using mats of sufficient area beneath outrigger pads

All pads used for load spreading are to have sufficient stiffness

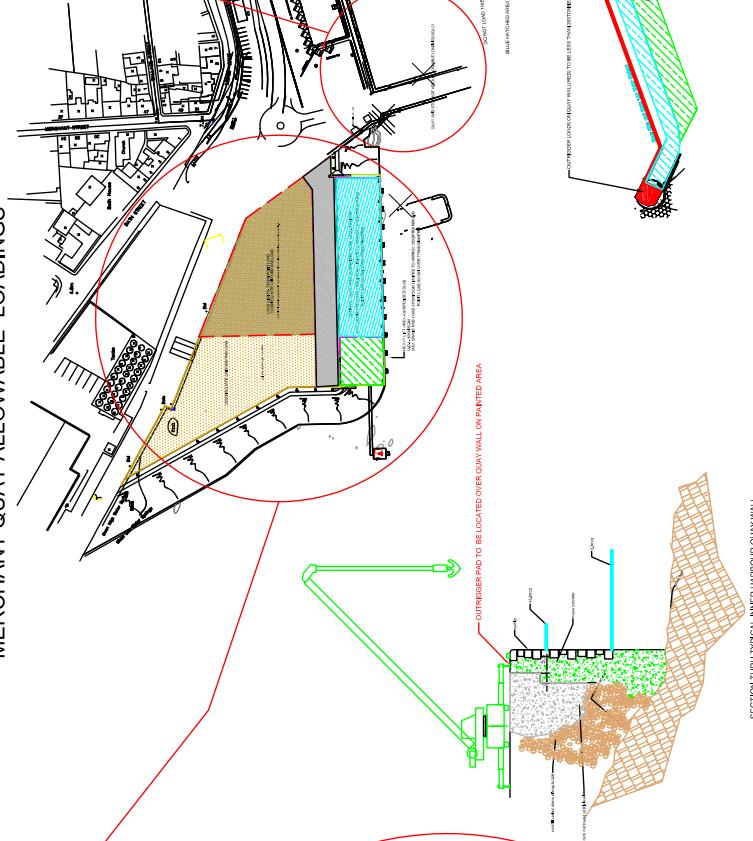
NOTE: All Crane operators must provide PPA with a Lift Plan for all lifts within the harbour estate in excess of 25 Tonnes

Abnormal Load Transport

NOTE: All transport operators are to provide PPA with a Risk Assessment and Transport Plan for movement of all abnormal loads through the Port Estate



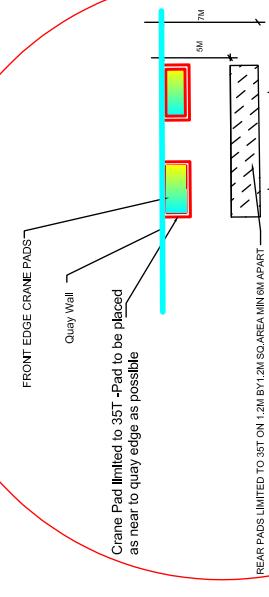
MERCHANT QUAY ALLOWABLE LOADINGS



SECTION THRU TYPICAL INNER HARBOUR QUAY WALL



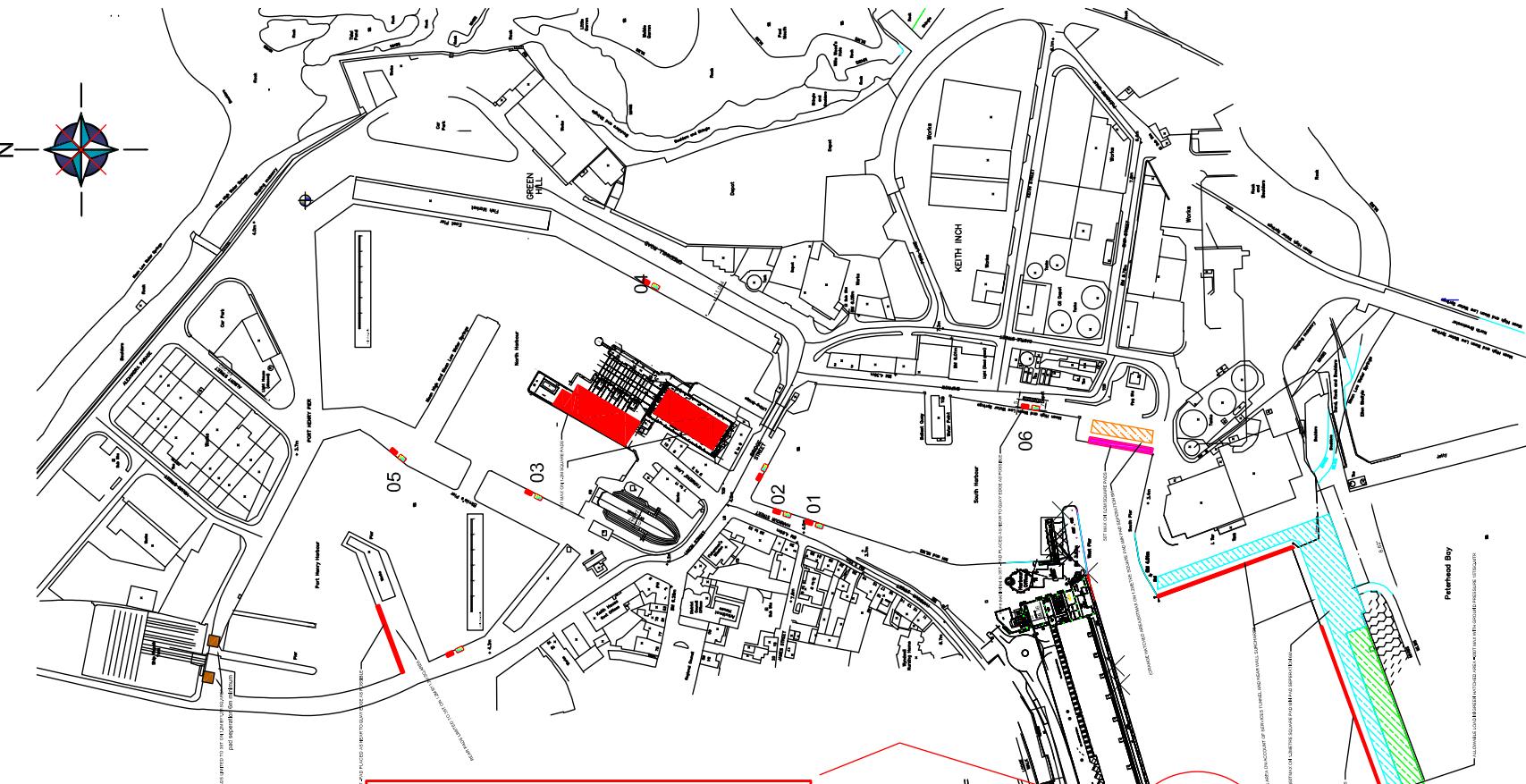
SMITH QUAY ALLOWABLE LOADINGS



Location Nos 01-06

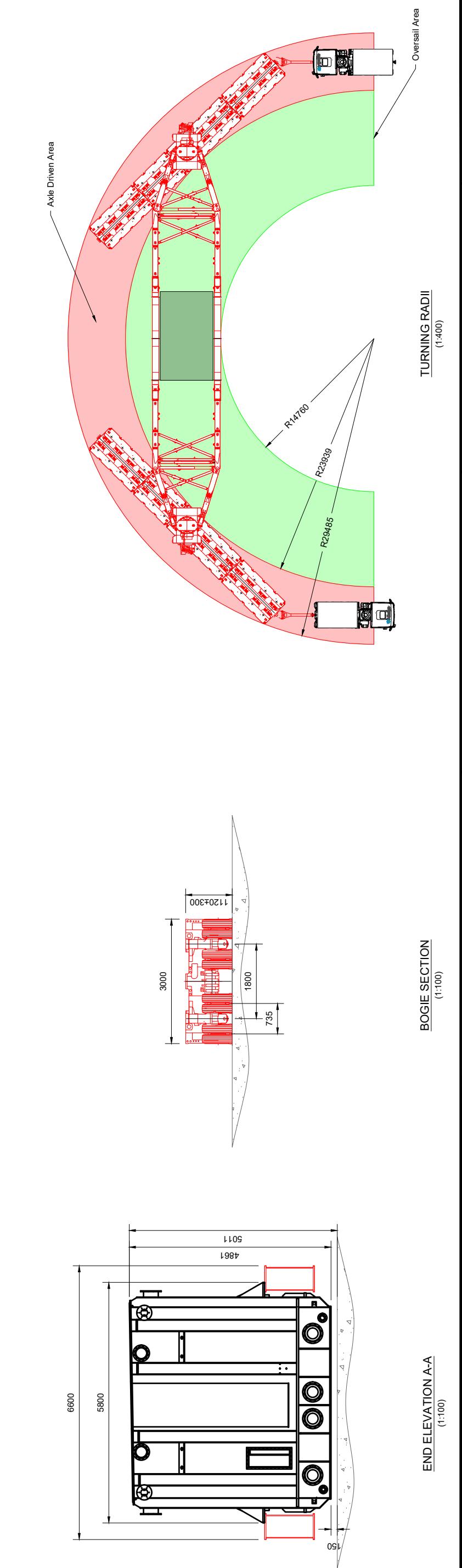
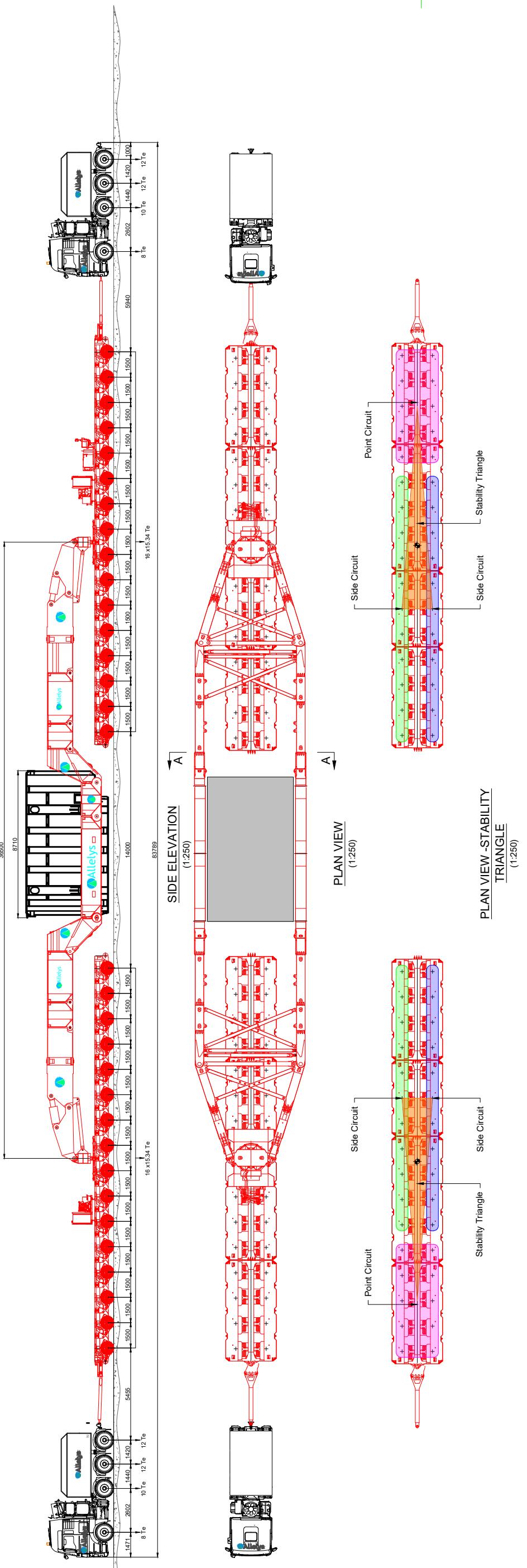
PLAN VIEW

INNER HARBOUR CRANE PADS AND ALLOWABLE LOADINGS



APPENDIX B

DELIVERY VEHICLE



Load Table

Applied Load Weight (Te)	290.00
Trailer Tare Weight (Te)	201.16
Auxiliary Steel Work (Te)	0.00
Trailer Gross Weight (Te)	491.16
Load per Axle (Te)	15.34
Block Ground Loading (Te/m ²)	3.41

TECHNICAL NOTES:
1. Suitable trailer lashings to be applied, not drawn.
2. All weights are in metric tonnes unless otherwise stated.
3. All details are provisional and are subject to confirmation.
4. Tractor unit(s) dimensions and axle spacing's may vary depending on the type of tractor unit(s) used.

DRAWING NOTES:
1. All dimensions are in mm unless otherwise stated.
2. All weights are in metric tonnes unless otherwise stated.
3. All details are provisional and are subject to confirmation.
4. Tractor unit(s) dimensions and axle spacing's may vary depending on the type of tractor unit(s) used.

Client	GE (Grid Solutions)
Project	Tailing Substation
Title	290 Te Transformer
Scale (A3)	1:100
Draw No	All-TTA-A220571-01-Sh.01
Drawn	AJR
Checked	MJC
Revisions	0
Revision	0

APPENDIX C

AIL ROUTING PLANS

1. DO NOT SCALE FROM THIS DRAWING. USE ONLY PRINTED DIMENSIONS.
2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.

LEGEND
OPTION 1 ROUTE
OPTION 2 ROUTE
OPTION 3 ROUTE



REV	DATE	REASON FOR ISSUE	BY	CHK	APP
01	25/08/23	ISSUED FOR REVIEW	OM	ET	RH
02	13/09/23	ISSUED FOR REVIEW	MH	ET	IS
03	10/11/23	ISSUED FOR REVIEW	OM	ET	ET
04	12/01/24	ISSUED FOR REVIEW	OM	ET	ET



SCOPE: ALL VEHICLE TRACKING
PROJECT ID: L100052

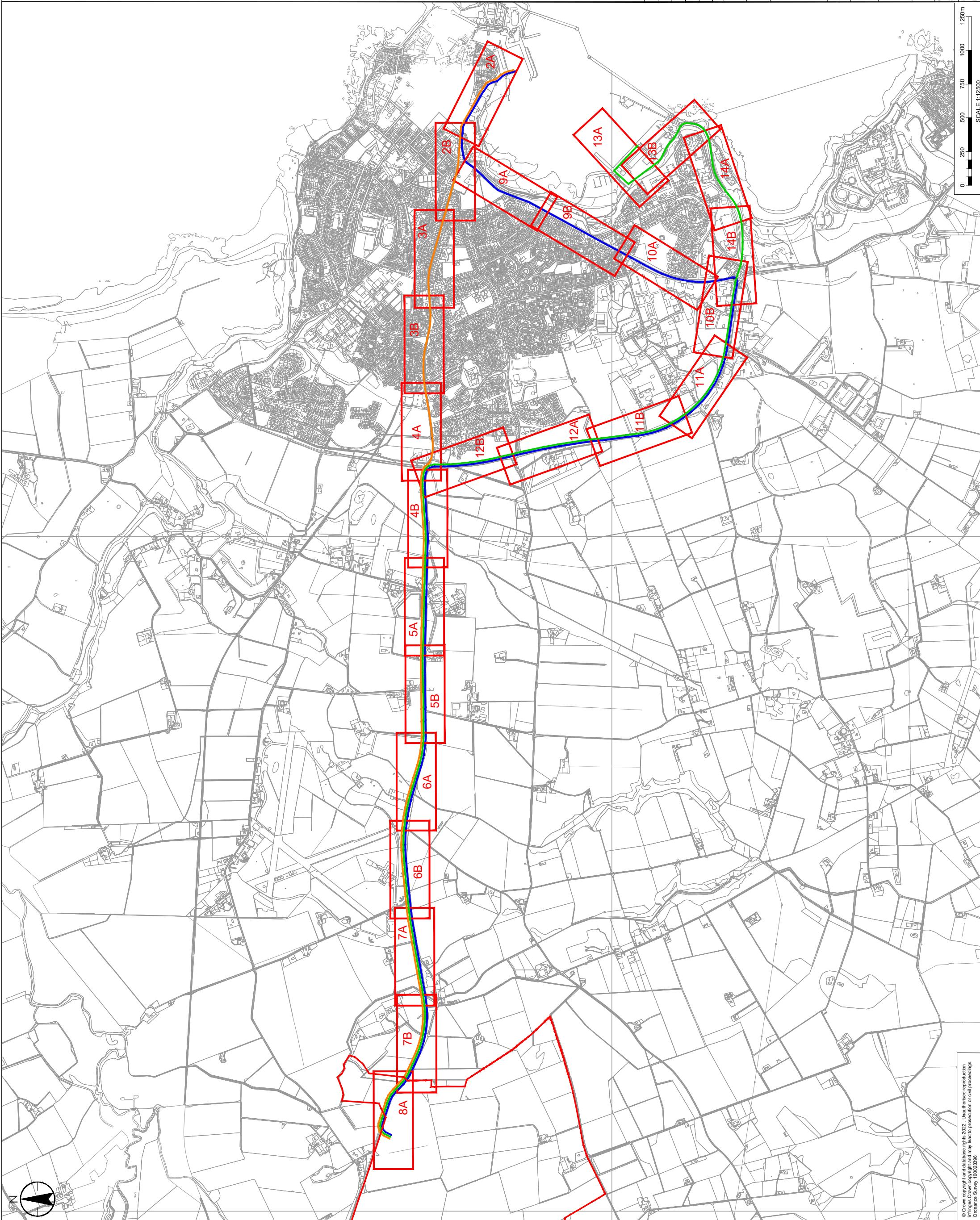
PROJECT TITLE: SSE NETHERTON HUB

DRAWING TITLE: Public Road - Swept Path Analysis (Sheet 1)

DRAWING STATUS: ISSUED FOR REVIEW
SCALE: 1:12500

CONTRACTOR DRAWING NUMBER: 33120130-STN-84-XXLAY-CE-001
SHEET NO: 1 OF 14
REVISION: 04

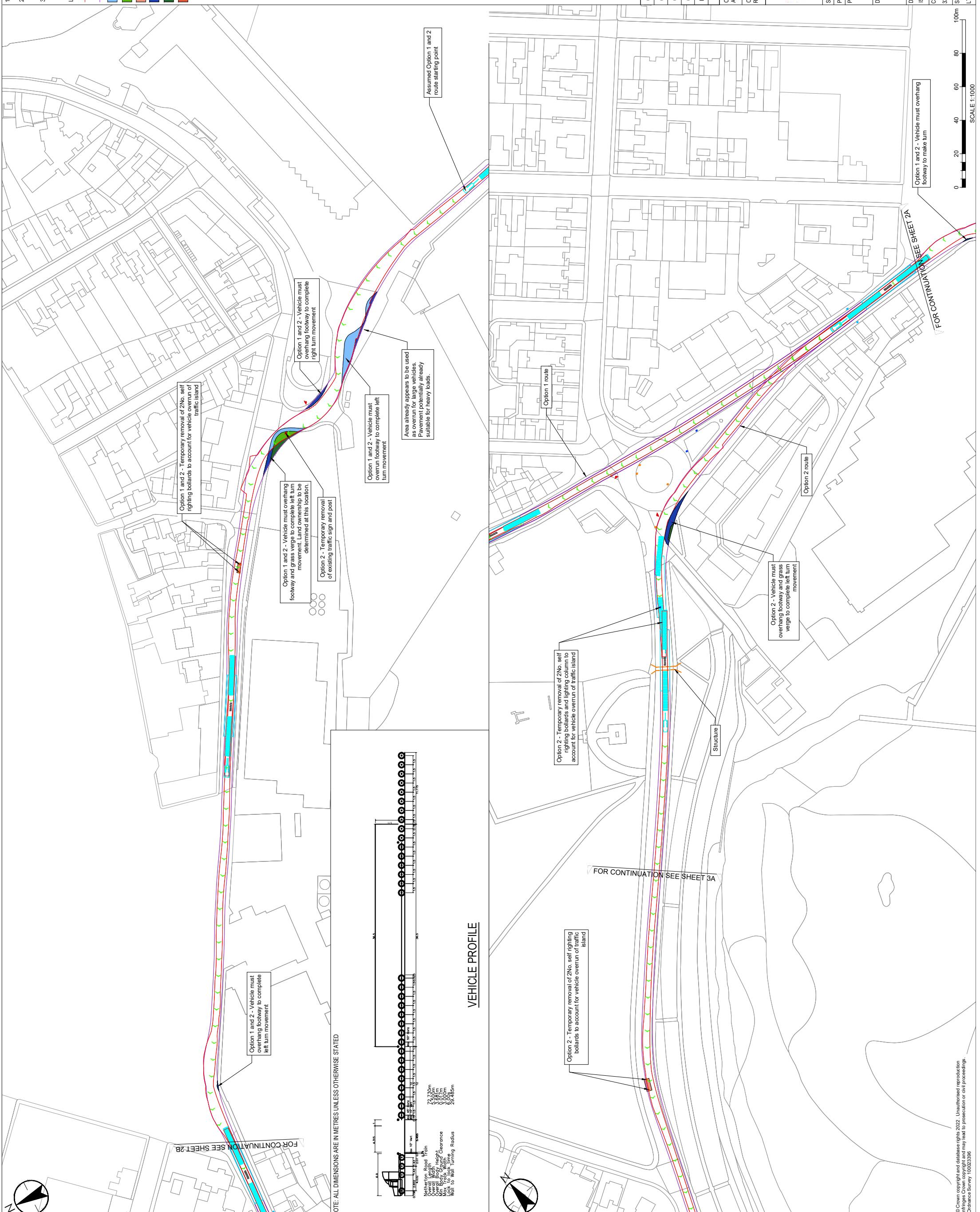
SSEN DRAWING NUMBER: L100052-STA-0808-DET-001-01
REVISION: 04



1. DO NOT SCALE FROM THIS DRAWING. USE ONLY PRINTED DIMENSIONS.
 2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
 3. THE UPPER VIEWPORT ON EACH SHEET IS CONSIDERED "A". THE LOWER VIEWPORT ON THE EACH SHEET IS CONSIDERED "B".

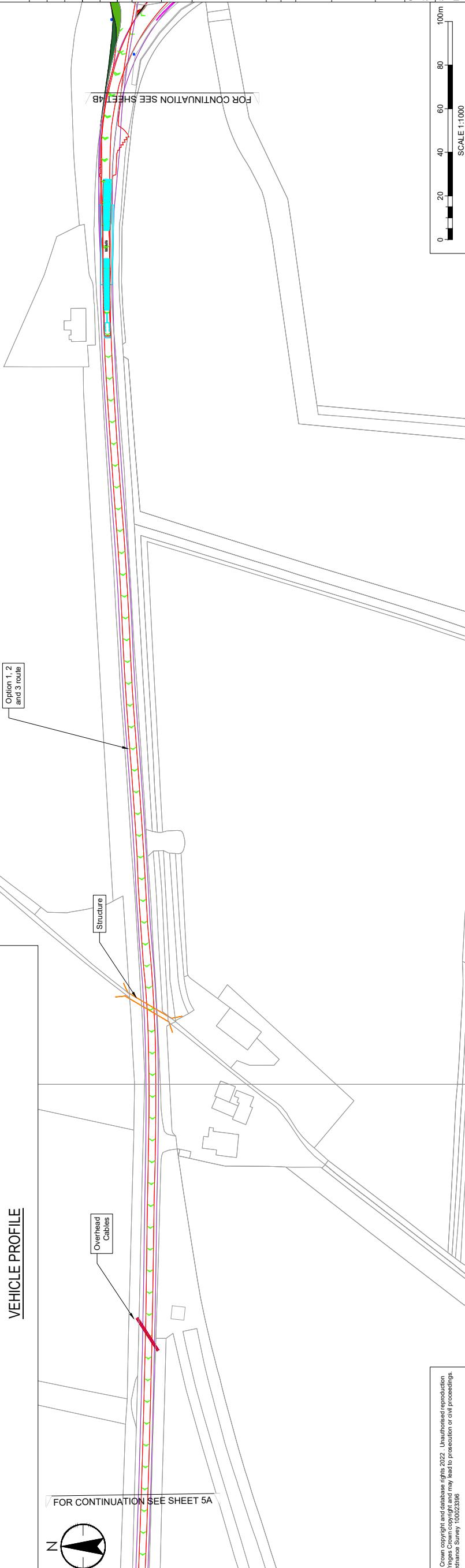
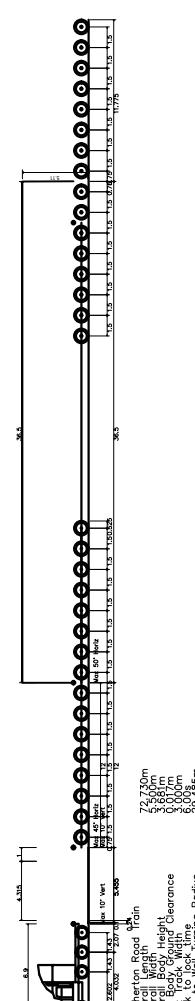
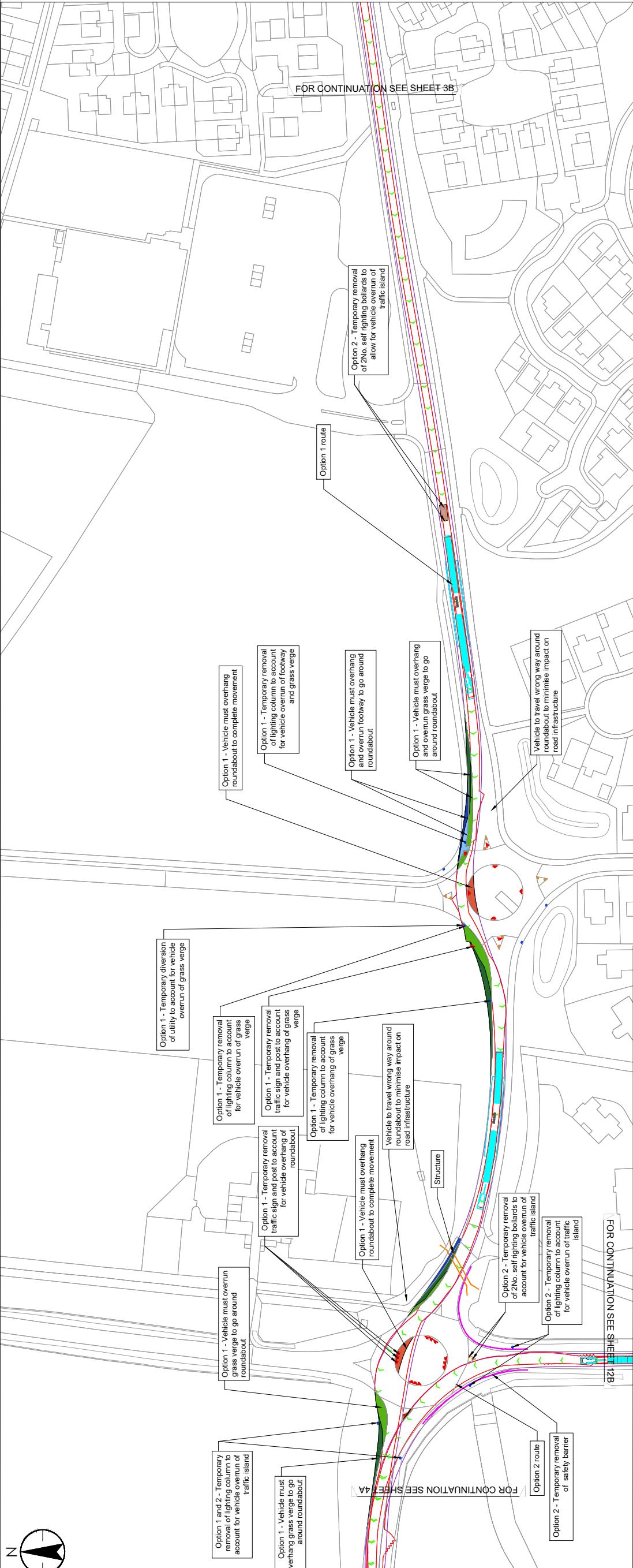
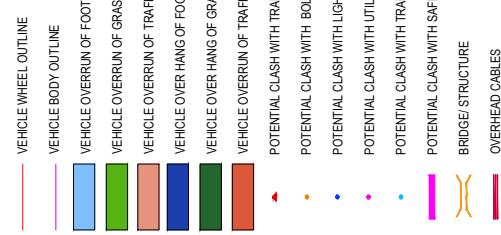
LEGEND:

	VEHICLE BODY OUTLINE
	VEHICLE OVERRUN OF FOOTWAY
	VEHICLE OVERRUN OF GRASS VERGE
	VEHICLE OVERHANG OF FOOTWAY
	VEHICLE OVERHANG OF GRASS VERGE
	POTENTIAL CLASH WITH TRAFFIC SIGN
	POTENTIAL CLASH WITH BOLLARD
	POTENTIAL CLASH WITH LIGHTING COLUMN
	POTENTIAL CLASH WITH UTILITIES
	POTENTIAL CLASH WITH TRAFFIC SIGNALS
	BRIDGE/STRUCTURE
	OVERHEAD CABLES



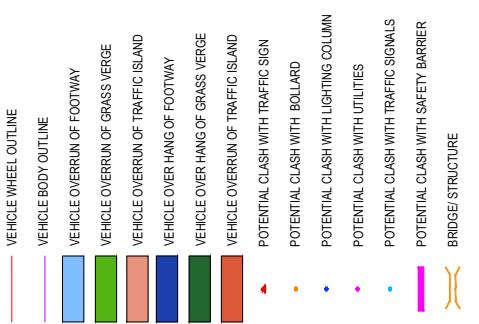


1. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS
 2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS
 3. THE UPPER VIEWPORT ON EACH SHEET IS CONSIDERED "A", THE LOWER VIEWPORT ON THE EACH SHEET IS CONSIDERED "B"
 LEGEND:

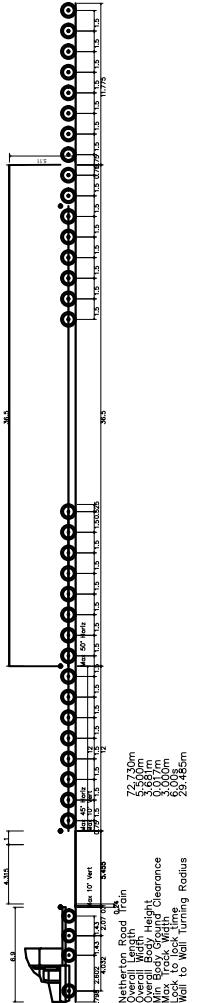


1. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
 2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
 3. THE UPPER VIEWPORT ON EACH SHEET IS CONSIDERED 'A', THE LOWER VIEWPORT ON THE EACH SHEET IS CONSIDERED 'B'.

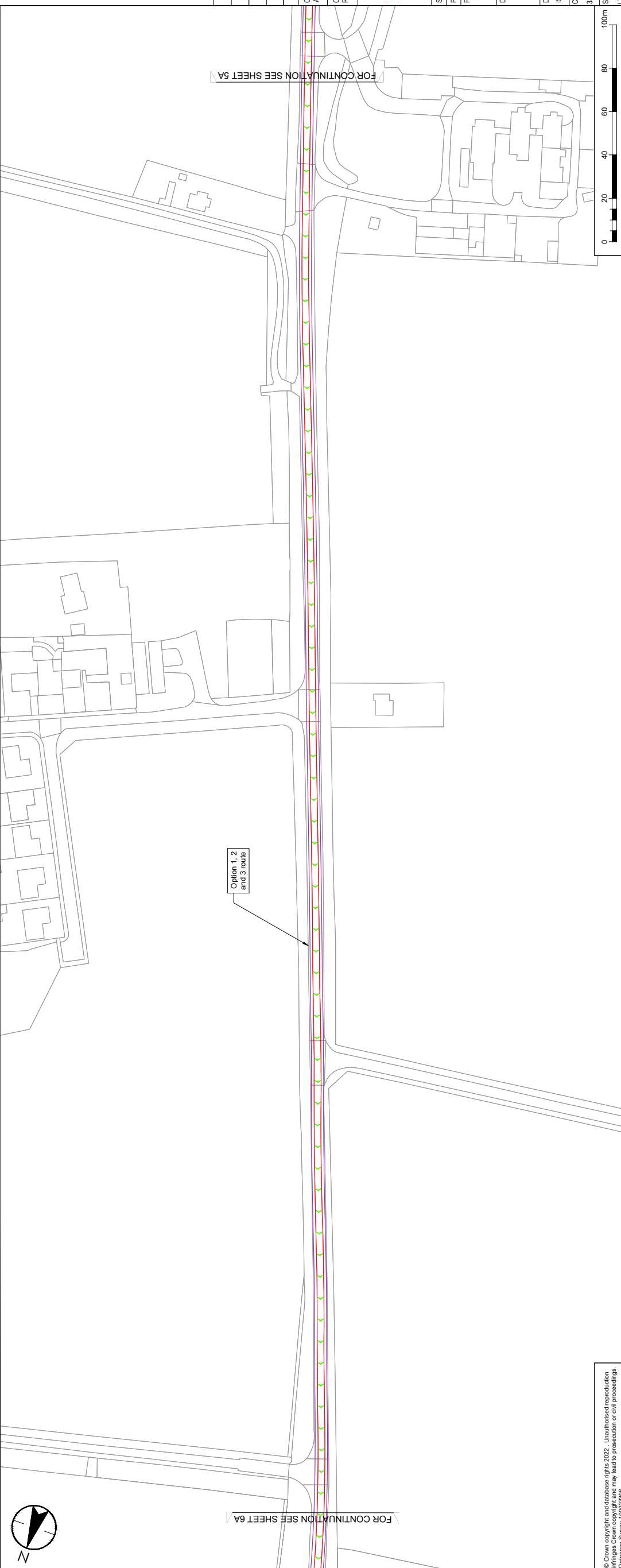
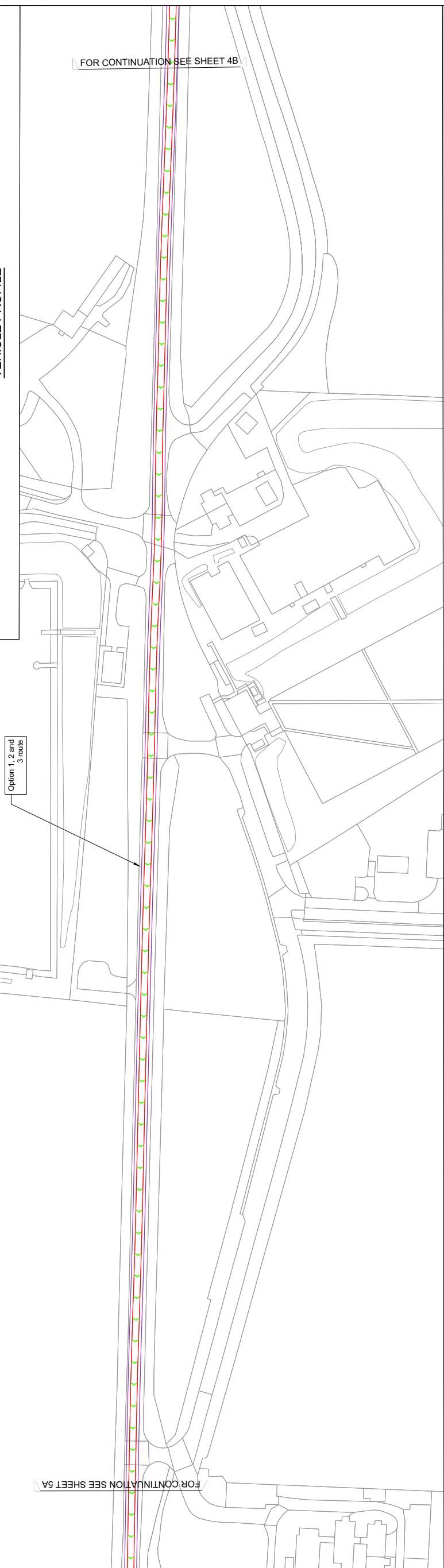
LEGEND:



NOTE: ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED



VEHICLE PROFILE

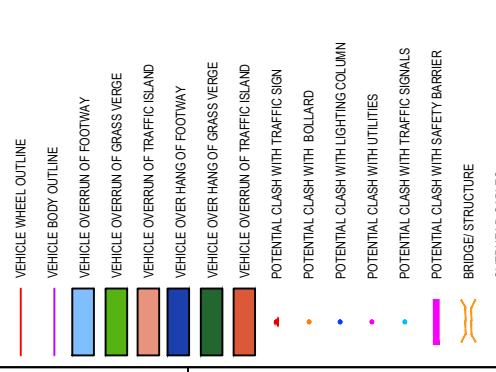


REV	DATE	REASON FOR ISSUE	BY	CIRK	APP	ACCEPTANCE OF DRAWING
01	26/08/23	ISSUED FOR REVIEW	OM	ET	RH	Code 1 - Accepted
02	13/09/23	ISSUED FOR REVIEW	MH	ET	IS	Code 2 - Further info Required
03	10/11/23	ISSUED FOR REVIEW	OM	ET	ET	Code 3 - Rejected

SCOPE / ALL VEHICLE TRACKING	
PROJECT ID	L700052
PROJECT TITLE	
DRAWING STATUS	1:1000
CONTRACTOR DRAWING NUMBER	33120130-STN-84-XXLAY-CE-005
SHEET NO	5 OF 14
REVISION	03
Public Road - Swept Path Analysis (Sheet 5)	
SSEN DRAWING NUMBER	L700052-STA-0808-DET-001-05
REVISION	03

1. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS
2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
3. THE UPPER VIEWPORT ON EACH SHEET IS CONSIDERED 'A', THE LOWER VIEWPORT ON EACH SHEET IS CONSIDERED 'B'.

LEGEND:



NOTE: ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED

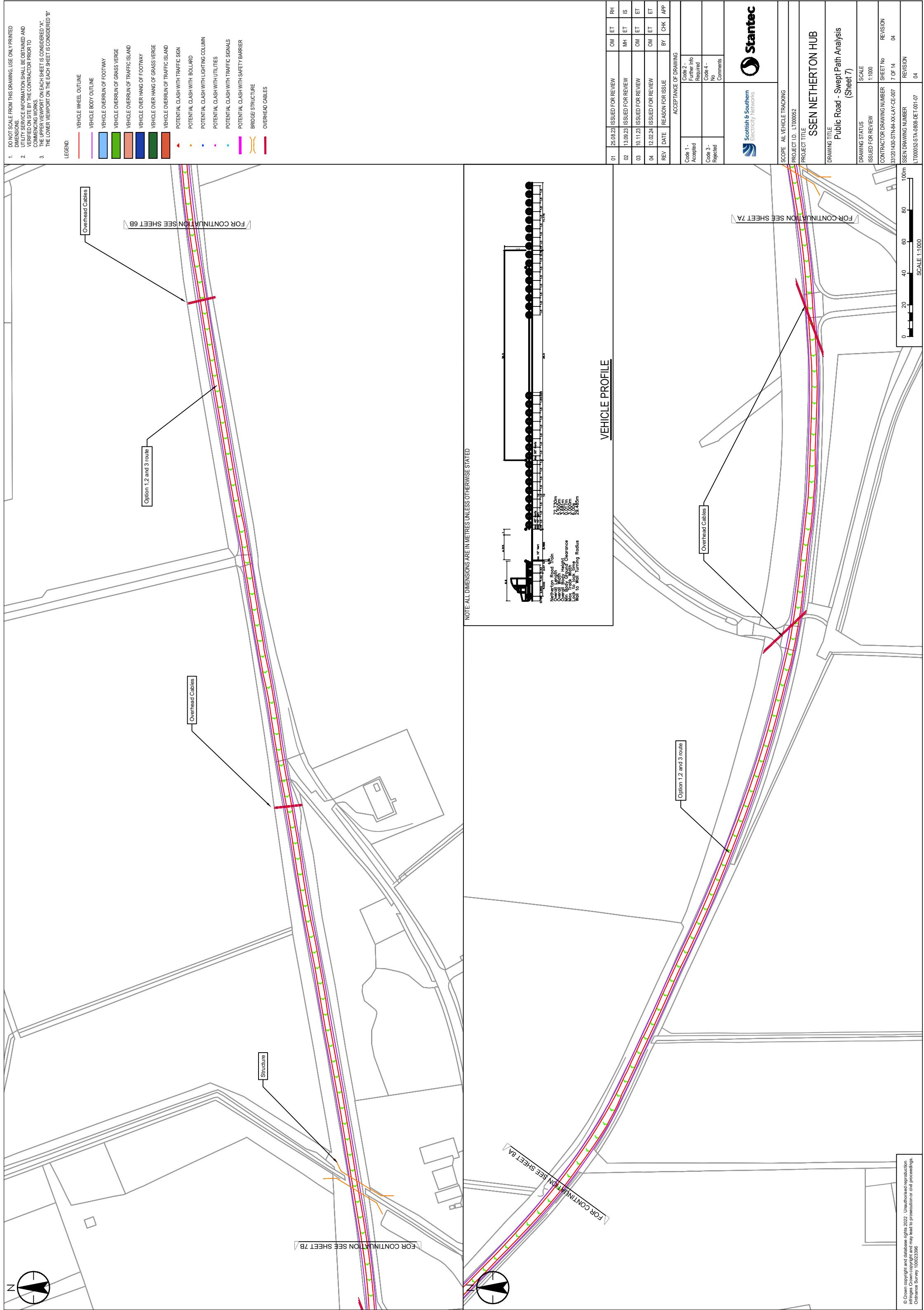


01	25.08.23	ISSUED FOR REVIEW	OM	ET	RH
02	13.09.23	ISSUED FOR REVIEW	MH	ET	IS
03	10.11.23	ISSUED FOR REVIEW	OM	ET	ET
04	12.02.24	ISSUED FOR REVIEW	OM	ET	ET
REV	DATE	REASON FOR ISSUE	BY	CHK	APP

ACCEPTANCE OF DRAWING

Code 1 - Accepted	Code 2 - Future Info Required
Code 3 - Rejected	Code 4 - No Comments

SCOPE: ALL VEHICLE TRACKING
PROJECT ID: L700052
PROJECT TITLE: SSE N NETHERTON HUB
DRAWING TITLE: Public Road - Swept Path Analysis (Sheet 6)
DRAWING STATUS: ISSUED FOR REVIEW
SCALE: 1:1000
CONTRACTOR DRAWING NUMBER: 3512043/STN84-XX-LAY-CE-006
REVISION: 04
SHEET NO: 6 OF 14
DRAWING NUMBER: L700052-STA-9808-DET-00136
REVISION: 04

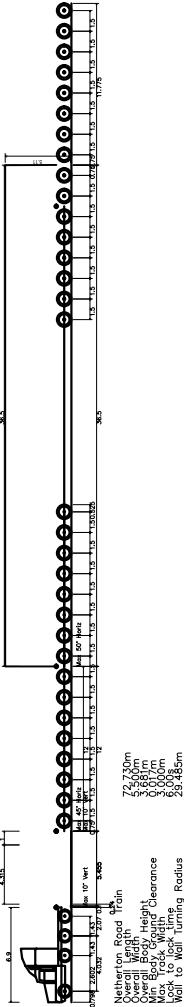


1. DON'T SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS
 2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
 3. THE LOWER VIEWPORT ON THE EACH SHEET IS CONSIDERED 'B'.

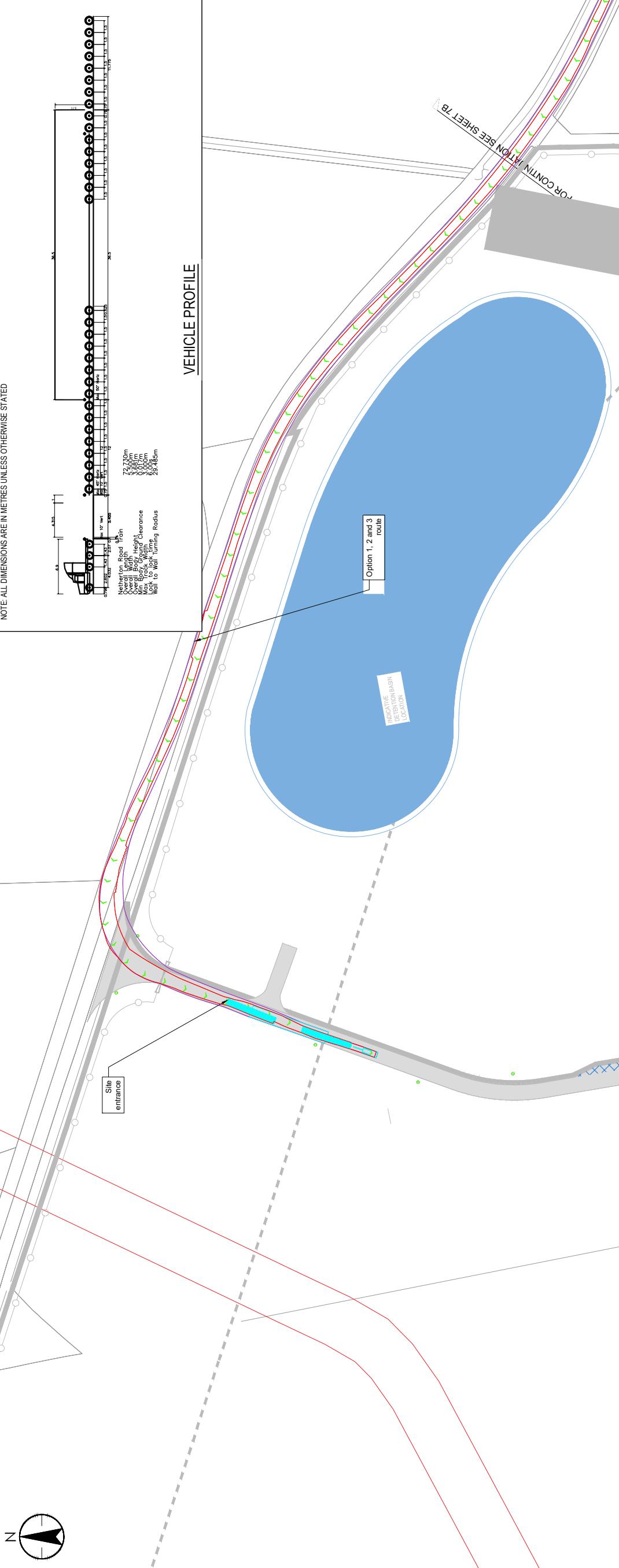
LEGEND:

	VEHICLE WHEEL OUTLINE
	VEHICLE BODY OUTLINE
	VEHICLE OVERRUN OF FOOTWAY
	VEHICLE OVERRUN OF GRASS VERGE
	VEHICLE OVERRUN OF TRAFFIC ISLAND
	VEHICLE OVER HANG OF FOOTWAY
	POTENTIAL CLASH WITH TRAFFIC SIGN
	POTENTIAL CLASH WITH LIGHTING COLUMN
	POTENTIAL CLASH WITH UTILITIES
	POTENTIAL CLASH WITH TRAFFIC SIGNALS
	POTENTIAL CLASH WITH SAFETY BARRIER
	BRIDGE STRUCTURE
	OVERHEAD CABLES

NOTE: ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED



VEHICLE PROFILE



REV	DATE	REASON FOR ISSUE	BY	CIRK	APP	ACCEPTANCE OF DRAWING
01	25/08/23	ISSUED FOR REVIEW	OM	ET	RH	Code 2 - Further info Required
02	13/09/23	ISSUED FOR REVIEW	MH	ET	IS	Code 3 - Rejected
03	10/11/23	ISSUED FOR REVIEW	OM	ET	ET	Code 4 - No Comments
04	12/01/24	ISSUED FOR REVIEW	OM	ET	ET	

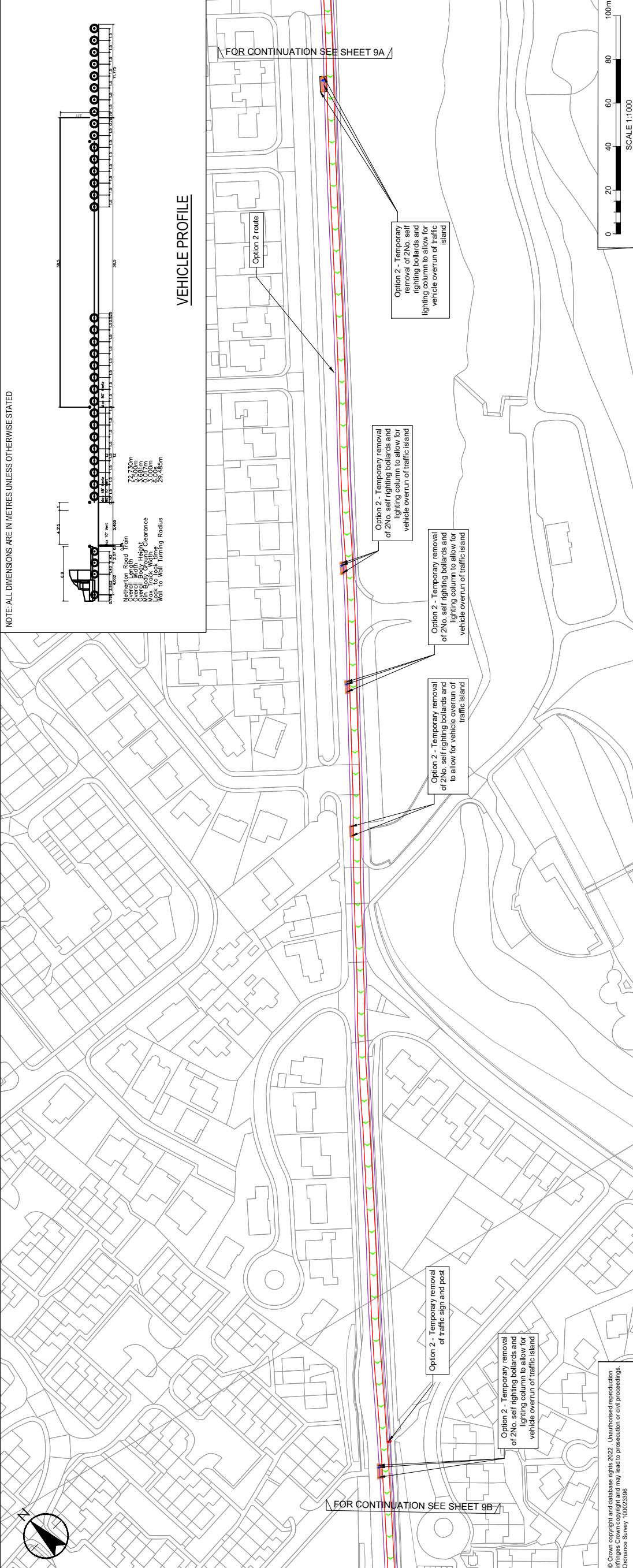
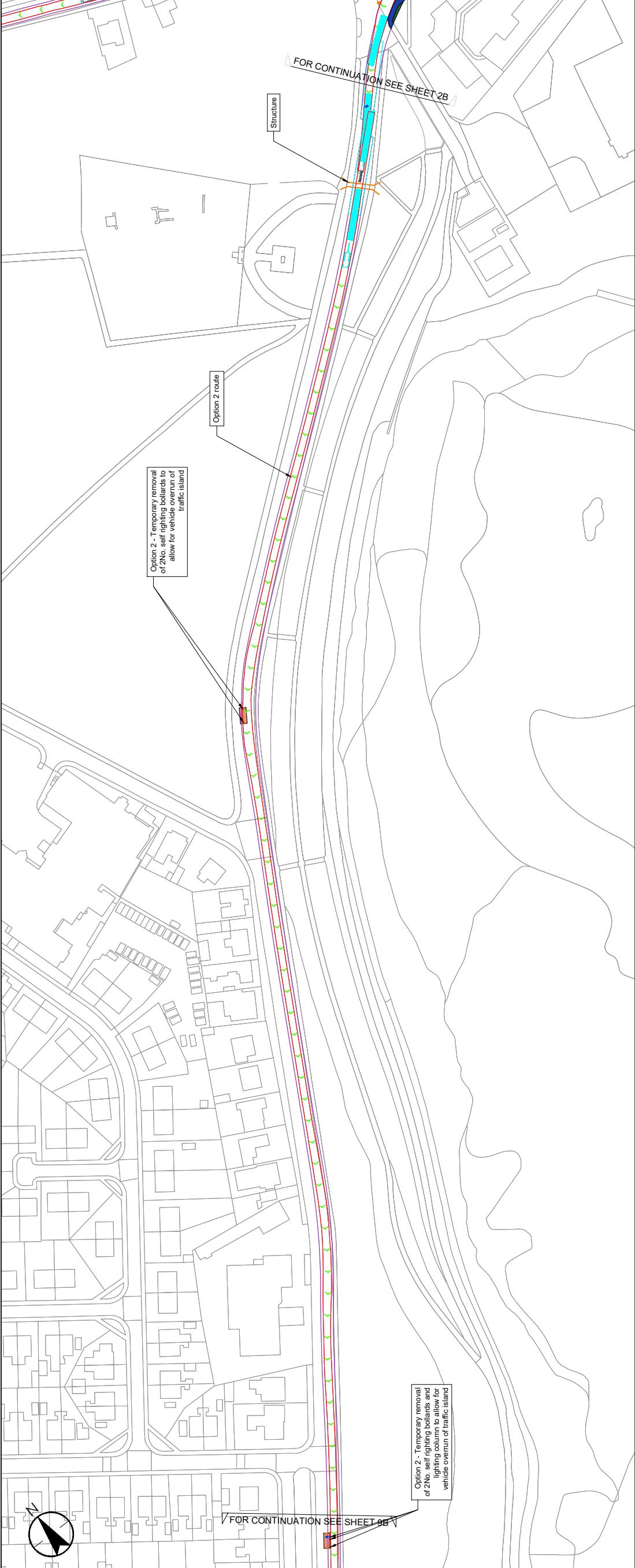
SCOPE / ALL VEHICLE TRACKING	PROJECT ID: L700052	PROJECT TITLE: SSEN NETHERTON HUB	DRAWING TITLE: Public Road - Swept Path Analysis (Sheet 8)
DRAWING STATUS ISSUED FOR REVIEW	SCALE 1:1000	CONTRACTOR DRAWING NUMBER 33120130-STN-84-XXLAY-CE-003	REVISION SHEET No 8 OF 14
			REVISION 04
			SSEN DRAWING NUMBER L700052-STA-0808-DET-1001-08



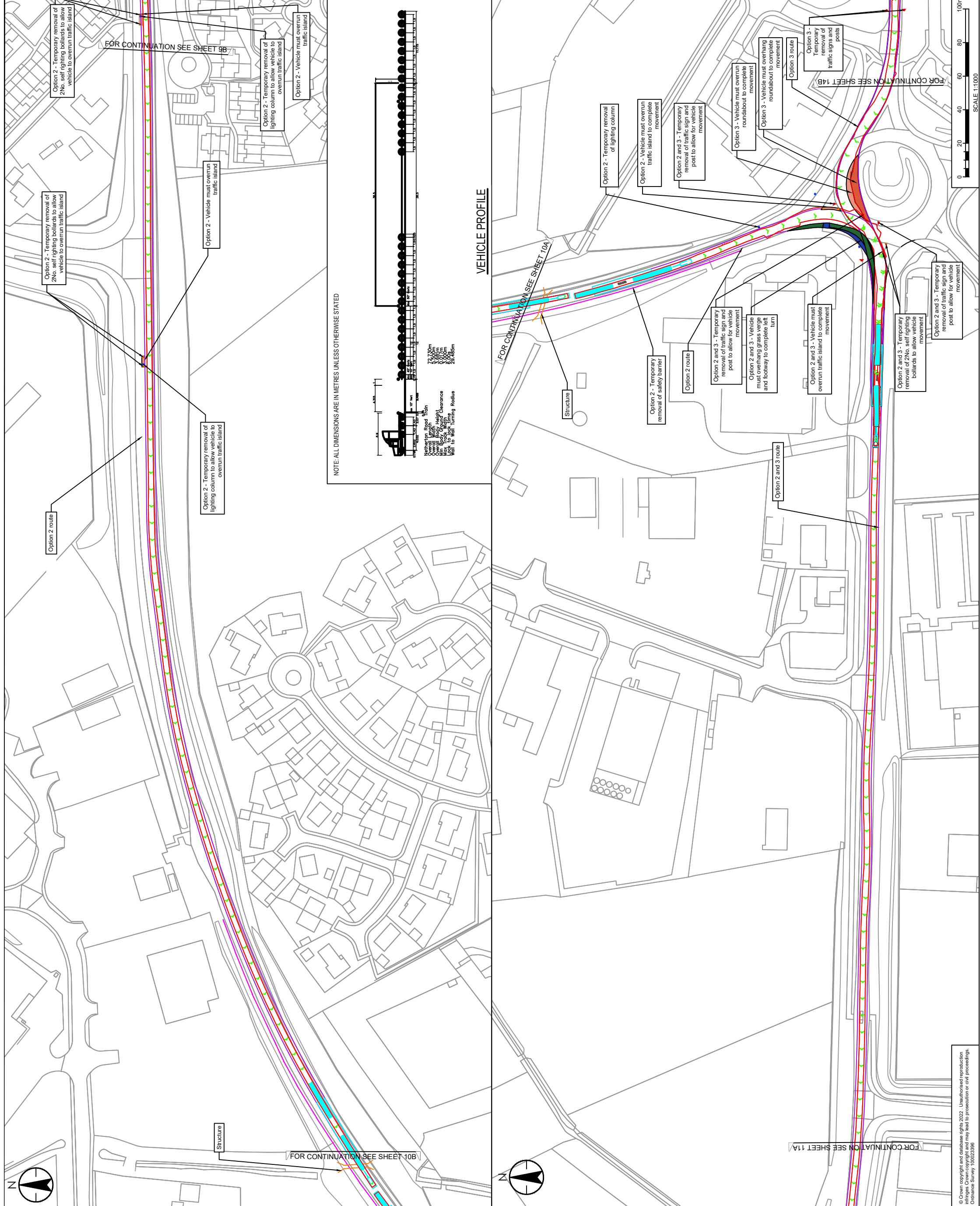
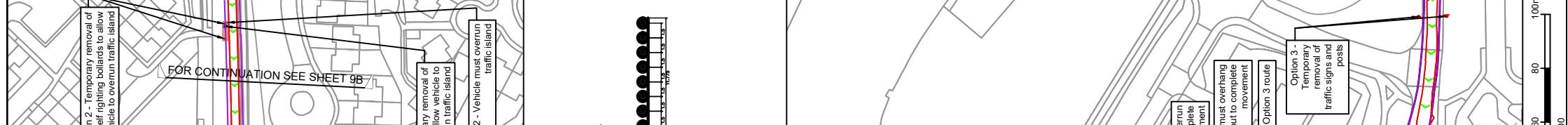
1. DON'T SCALE FROM THIS DRAWING. USE ONLY PRINTED DIMENSIONS
 2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
 3. THE UPPER NEWPORT ON EACH SHEET IS CONSIDERED 'X'. THE LOWER NEWPORT ON EACH SHEET IS CONSIDERED 'Y'.

LEGEND:

	VEHICLE WHEEL OUTLINE
	VEHICLE OVERRUN OF FOOTWAY
	VEHICLE OVERRUN OF GRASS VERGE
	VEHICLE OVERRUN OF TRAFFIC ISLAND
	VEHICLE OVERHANG OF FOOTWAY
	VEHICLE OVERHANG OF GRASS VERGE
	VEHICLE OVERHANG OF TRAFFIC ISLAND
	POTENTIAL CLASH WITH TRAFFIC SIGN
	POTENTIAL CLASH WITH BOLLARD
	POTENTIAL CLASH WITH LIGHTING COLUMN
	POTENTIAL CLASH WITH UTILITIES
	POTENTIAL CLASH WITH TRAFFIC SIGNALS
	POTENTIAL CLASH WITH SAFETY BARRIER
	BRIDGE/STRUCTURE
	OVERHEAD CABLES

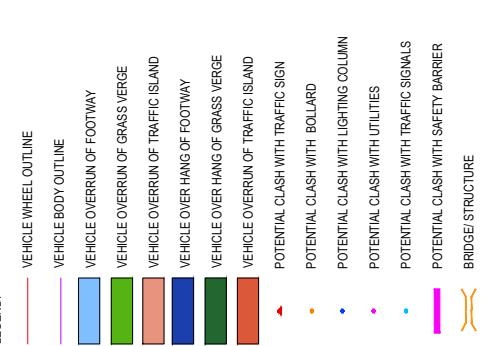


1. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
3. THE LOWER VIEWPORT ON EACH SHEET IS CONSIDERED 'A', THE UPPER VIEWPORT ON EACH SHEET IS CONSIDERED 'B'.

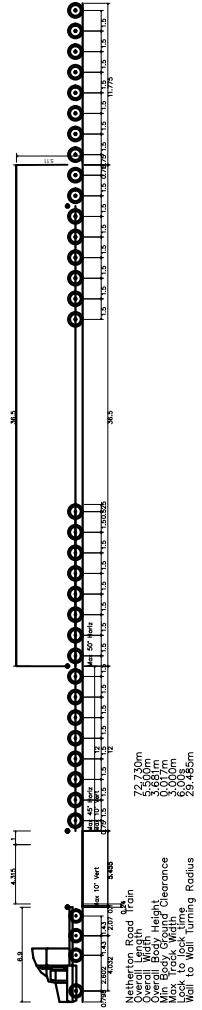


1. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
 2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
 3. THE UPPER VIEWPORT ON EACH SHEET IS CONSIDERED 'A', THE LOWER VIEWPORT ON THE EACH SHEET IS CONSIDERED 'B'.

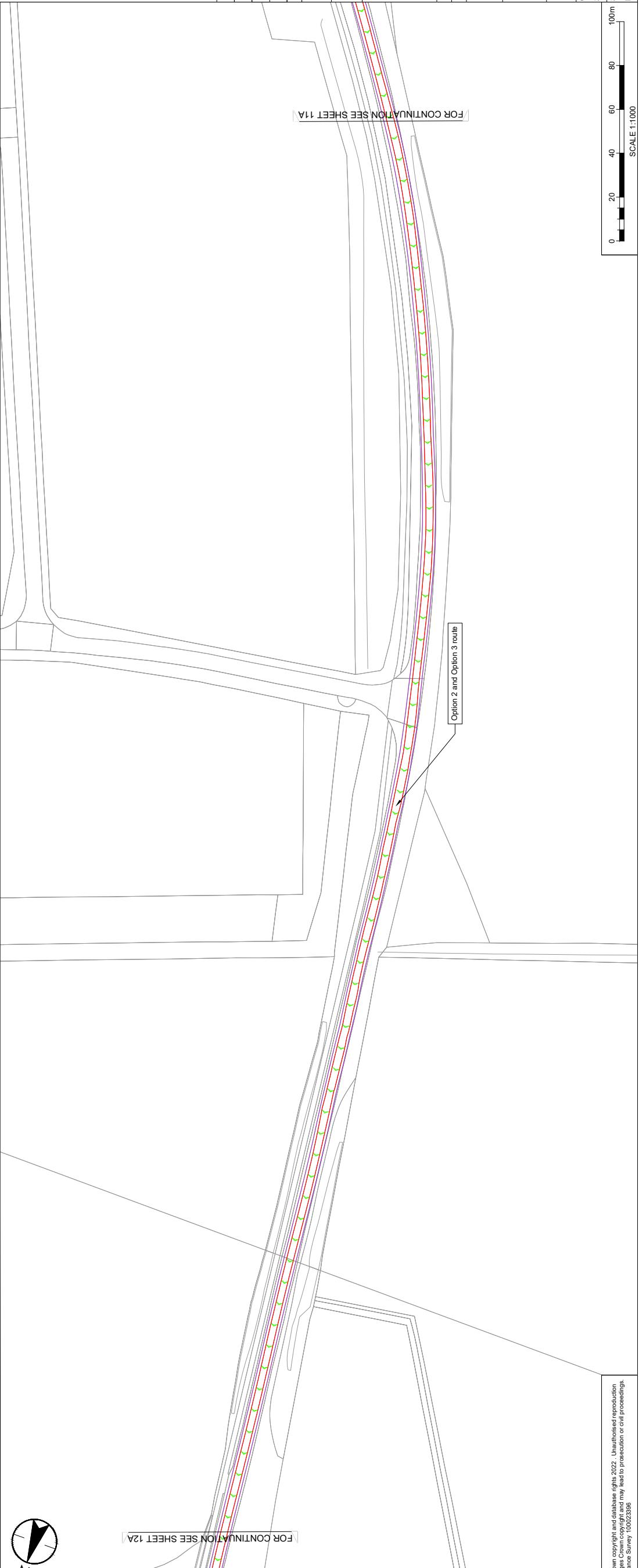
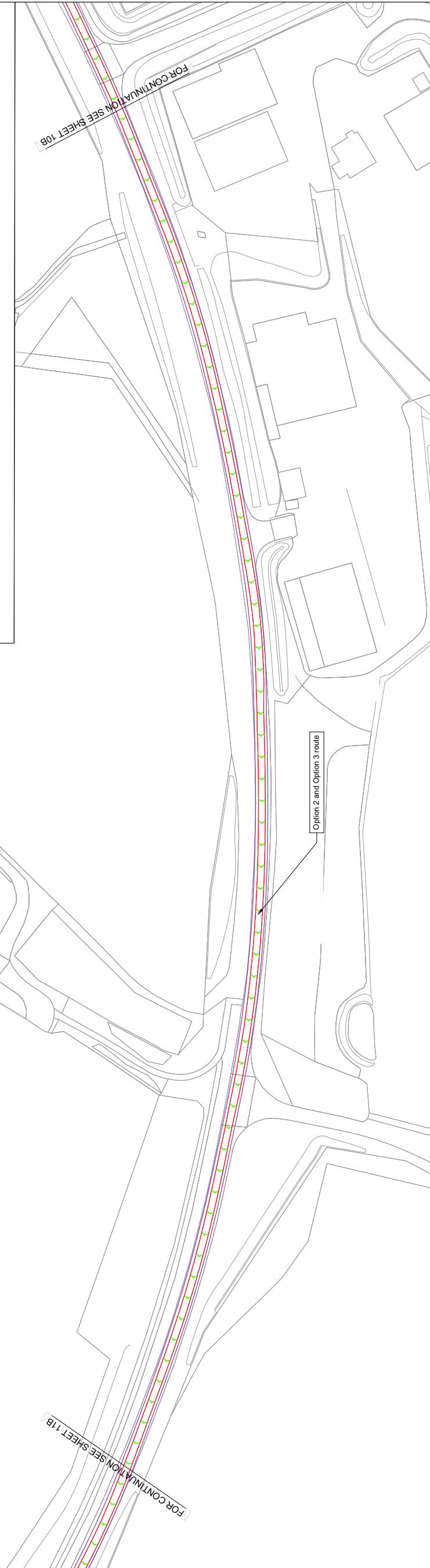
LEGEND:



NOTE: ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED



VEHICLE PROFILE



	01	26/08/23	ISSUED FOR REVIEW	OM	ET	RH
	02	10/11/23	ISSUED FOR REVIEW	OM	ET	ET
	03	16/01/24	ISSUED FOR REVIEW	OM	ET	ET
REV	DATE	REASON FOR ISSUE	BY	ETIK	APP	ACCEPTANCE OF DRAWING
						Code 2 - Further info Required
						Code 3 - Rejected
						Code 4 - No Comments



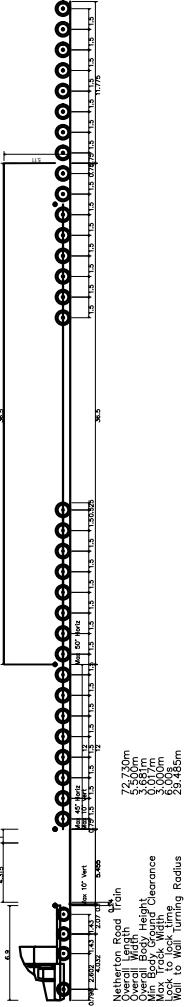
SCOPE: ALL VEHICLE TRACKING
 PROJECT ID: L700052
 PROJECT TITLE: SSEN NETHERTON HUB

DRAWING TITLE: Public Road - Swept Path Analysis
 (Sheet 11)
 DRAWING STATUS: ISSUED FOR REVIEW
 SCALE: 1:1000
 CONTRACTOR DRAWING NUMBER: 33120130-STN-84-XXLAY-CE-011
 SHEET NO: 11 OF 14
 REVISION: 03

DRAWING TITLE: Public Road - Swept Path Analysis
 (Sheet 11)
 DRAWING STATUS: ISSUED FOR REVIEW
 SCALE: 1:1000
 CONTRACTOR DRAWING NUMBER: L700052-STA-0808-DET-001-11
 SHEET NO: 03
 REVISION: 03

1. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
 2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
 3. THE UPPER VIEWPORT ON EACH SHEET IS CONSIDERED 'A', THE LOWER VIEWPORT ON THE EACH SHEET IS CONSIDERED 'B'.

NOTE: ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED



VEHICLE PROFILE



	01	26/08/23	ISSUED FOR REVIEW	OM	ET	RH
	02	10/11/23	ISSUED FOR REVIEW	OM	ET	ET
	03	16/01/24	ISSUED FOR REVIEW	OM	ET	ET
REV	DATE	REASON FOR ISSUE	BY	C/H	APP	
						ACCEPTANCE OF DRAWING
Code 1 - Accepted						Code 2 - Further Info Required
Code 3 - Rejected						Code 4 - No Comments

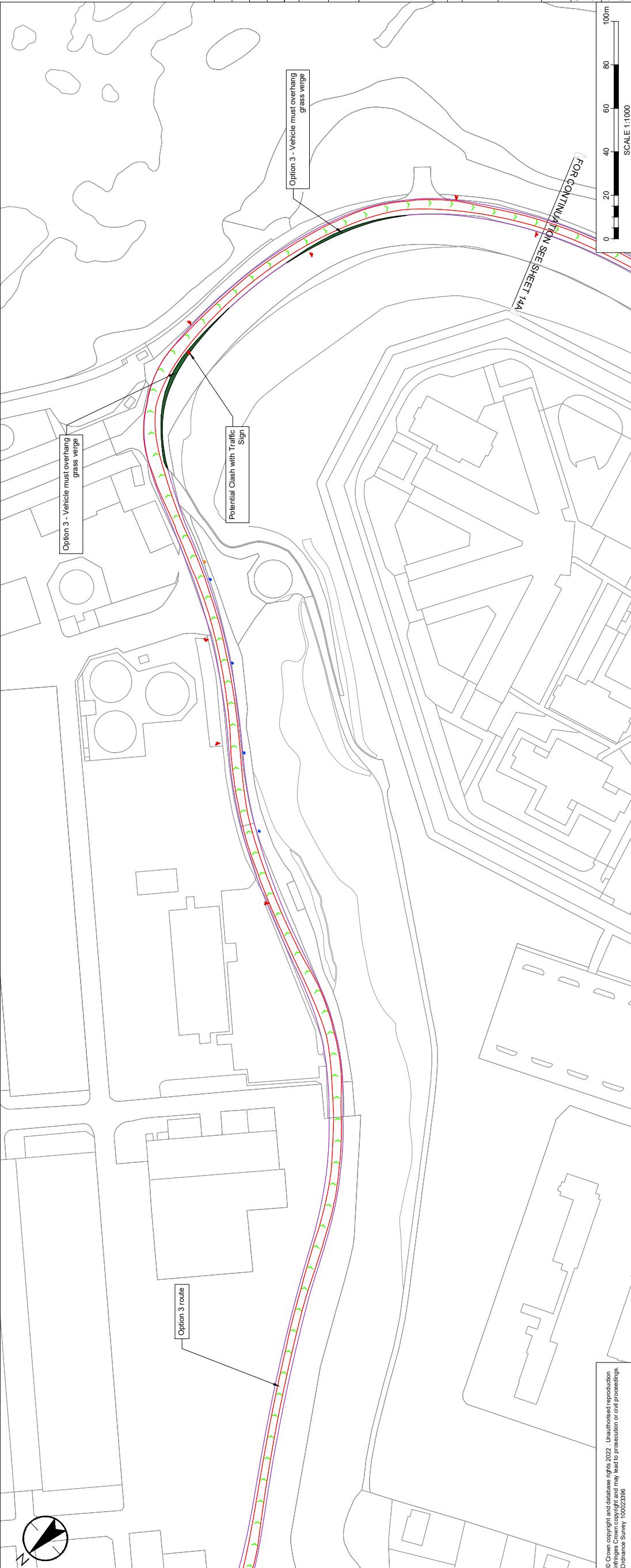
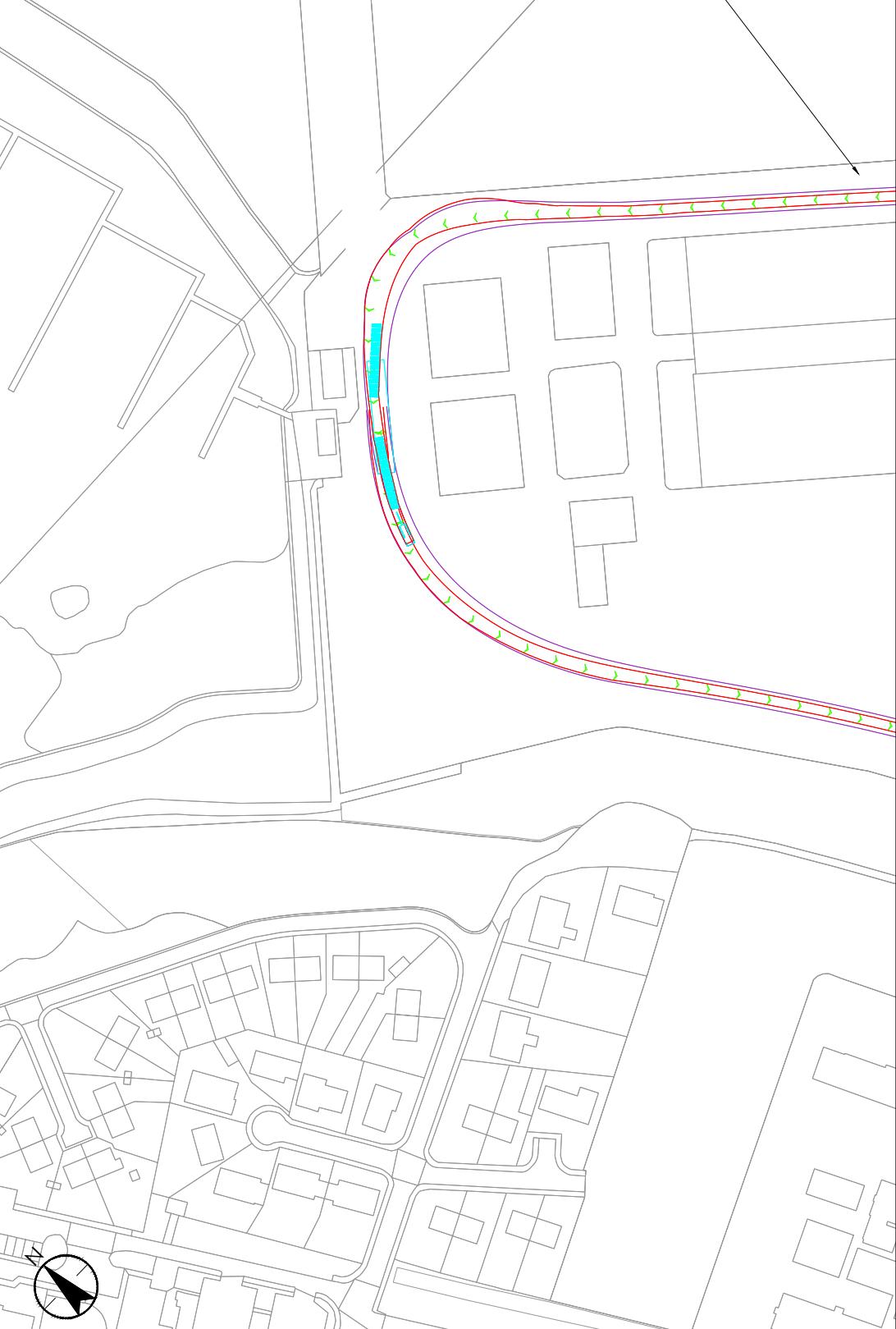
SCOPE: ALL VEHICLE TRACKING						
PROJECT ID: L100052						
PROJECT TITLE: SSEN NETHERTON HUB						
DRAWING STATUS	ISSUED FOR REVIEW	CONTRACTOR DRAWING NUMBER	SHEET NO	SCALE	REVISION	
				1:1000		

1. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS
 2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS
 3. THE UPPER VIEWPORT ON EACH SHEET IS CONSIDERED 'A', THE LOWER VIEWPORT ON THE EACH SHEET IS CONSIDERED 'B'

LEGEND:

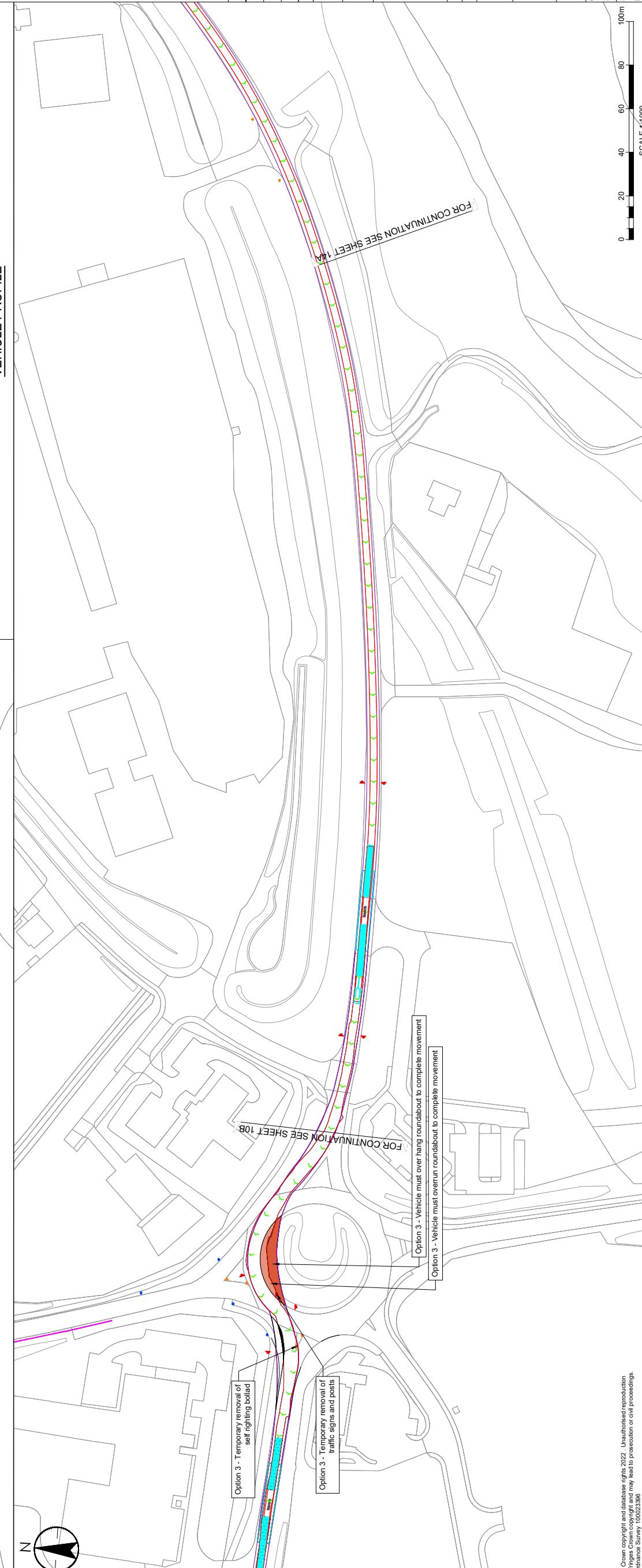
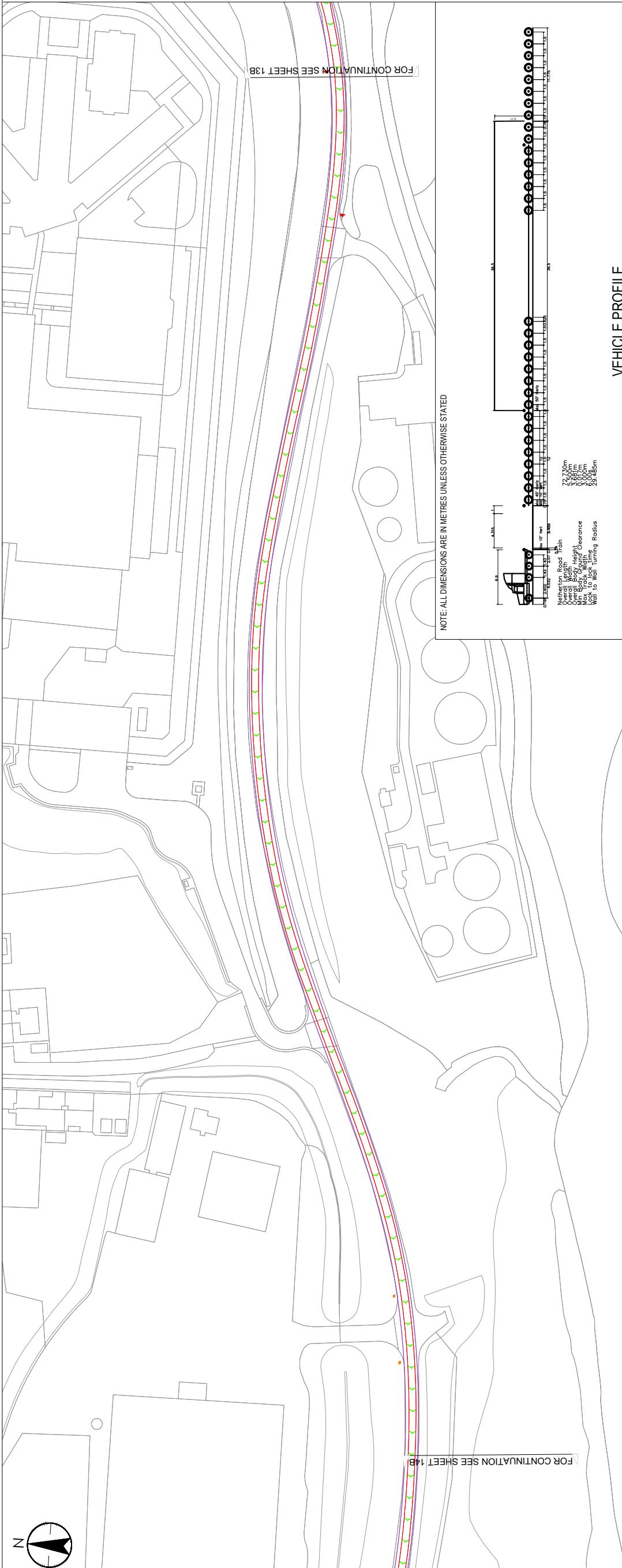
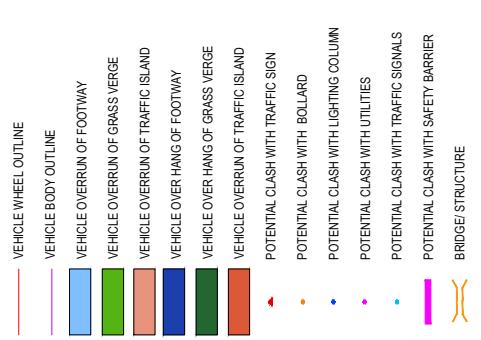
	VEHICLE BODY OUTLINE
	VEHICLE OVERRUN OF FOOTWAY
	VEHICLE OVERRUN OF GRASS VERGE
	VEHICLE OVERRUN OF TRAFFIC ISLAND
	POTENTIAL CLASH WITH TRAFFIC SIGN
	POTENTIAL CLASH WITH BOLLARD
	POTENTIAL CLASH WITH LIGHTING COLUMN
	POTENTIAL CLASH WITH UTILITIES
	POTENTIAL CLASH WITH TRAFFIC SIGNALS
	POTENTIAL CLASH WITH SAFETY BARRIER
	BRIDGE STRUCTURE
	OVERHEAD CABLES

NOTE: ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED



1. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
 2. UTILITY SERVICE INFORMATION SHALL BE OBTAINED AND VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCING WORKS.
 3. THE UPPER VIEWPORT ON EACH SHEET IS CONSIDERED 'A', THE LOWER VIEWPORT ON THE EACH SHEET IS CONSIDERED 'B'.

LEGEND:



APPENDIX D

AGREEMENT IN PRINCIPLE AIP 871



Our ref: AIP 871

Your ref: SSE Netherton Hub Project

Emma Towle
Stantec c/o SSEN

Sarah Hollender
Strategy and Customer Manager National
Highways
9th Floor, The Cube
199 Wharfside Street
Birmingham
B1 1RN

7th February 2024

Dear Emma,

AGREEMENT IN PRINCIPLE AIP 871

Further to your email dated 6th February 2024, requesting provision of an AIP for future abnormal load moves into the proposed SSEN Netherton Project, Scotland (OS Grid Reference NK 05416 46036).

I can confirm that an AIP can be provided for the movement of transformers from the Port of Peterhead.

- Movement of up to 12 Abnormal Loads (Transformers approx. 290te nett),
- Date of Movement 2029 – 2032.

AIPs are subject to formal application nearer the time at which time National Highways/Transport Scotland will consult with all relevant parties and take into consideration their views and requirements.

Consequently, any Special Order issued is likely to include specific requirements relating to the day(s) on which movements will be authorised. The Special Order may also prescribe specific times during the day or night when movement will be permitted (which may take into account seasonal variations in traffic) in order to minimise traffic congestion, and disruption to other road users.

It is proposed that this AIP should be valid for a period of least seven years but with the proviso that should a nearer, suitable access become apparent, or prove to be feasible in that time, SSEN will undertake to investigate and assess its potential for future use, with a view to that new facility becoming the agreed access point for any future deliveries.

I trust this information is sufficient for your purposes, but please do not hesitate to get in touch if you require anything further.

Yours sincerely
Sarah Hollender
Email: sarah.hollender@nationalhighways.co.uk