CONSTRUCTION TRAFFIC MANAGEMENT PLAN

GOLDBOROUGH ROAD BATTERY ENERGY STORAGE SYSTEM
LAND SOUTH OF GOLDBOROUGH ROAD, HUNDLETON, PRMBROKE, NEAR SA71 5SH
P16-01-CTMP FEBRUARY 2024

Document Management

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Issued by:

Bristol
Cambridge
London
Oxford
Welwyn Garden City

Transport Planning Associates
25 King Street
Bristol
BS1 4PB

0117 925 9400
bristol@tpa.uk.com
www.tpa.uk.com

[a]
[b]

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1 Introduction

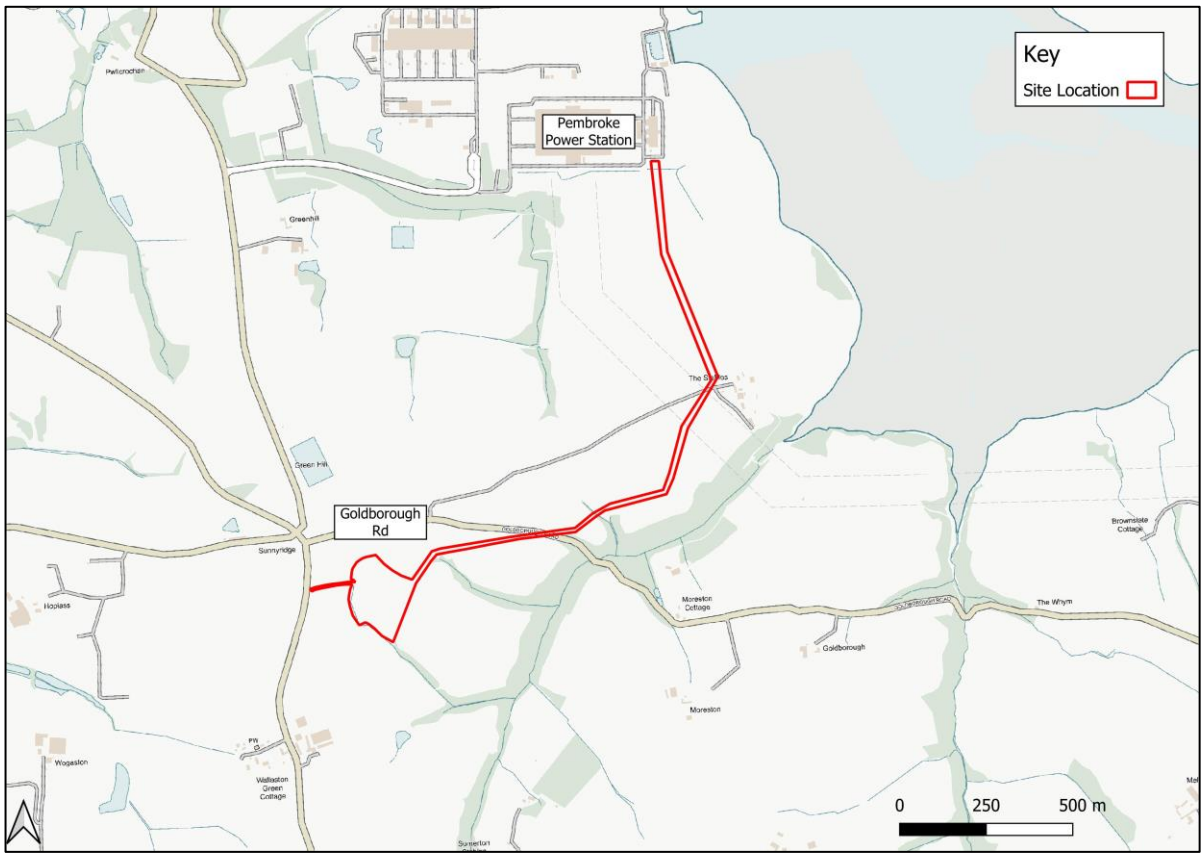
1.1 This Outline Construction Traffic Management Plan (CTMP) has been prepared by Transport Planning Associates (TPA) on behalf of Pembroke Green Limited (the 'Applicant') in relation to a proposed Battery Energy Storage System (BESS) facility (the 'Proposed Development) on land to the south of Goldborough Road, Pembrokeshire.

1.2 The local planning and highway authority is Pembrokeshire County Council.

Site Location

1.3 The Site location is shown in **Figure 1.1**.

Figure 1.1 Site Location



1.4 The Site is located approximately 500m to the north-east of Wallaston Green and 1.5km to the south of the Pembroke Power Station. The Site is comprised of a single parcel of existing agricultural land. In the context of the local highway network, the Site is located to the south of Goldborough Road and approximately 1.1km to the north of the B4320.

1.5 The Proposed Development comprises the construction, operation, and management of a BESS facility and associated infrastructure.

1.6 Once operational, BESS developments generate very few traffic movements. Maintenance vehicles (likely to be a transit van) will visit the Site approximately twice a month.

Construction Traffic Management Plan

1.7 This Outline CTMP provides a framework for the management of construction vehicle movements to and from the Site, to ensure that the effect of the construction phase on the local highway network is minimised.

1.8 This CTMP sets out the strategy for the following;

- Summary of Construction Methodology;
- Construction Vehicle Trip Generation;
- Vehicle Site Access;
- Construction Vehicle Routing;
- Management Measures.

1.9 It will be the responsibility of the appointed contractor to comply with all statutory regulations and guidelines in relation to construction and movement activities.

1.10 A Final CTMP, based on the principles set out in this Outline CTMP, will be agreed with the local highway authority prior to construction commencing in the event planning permission is granted. The appointed contractor's details will be provided as part of the Final CTMP.

2 Summary of Proposed Development and Construction Methodology

2.1 This Section provides an overview of the Proposed Development and the construction programme.

Battery Energy Storage System

2.2 The Proposed Development is for a Battery Energy Storage System ('BESS') Facility. The BESS Facility is designed to provide peak generation and grid balancing services to the electricity grid by allowing excess electricity imported from the electricity grid to be stored in batteries and dispatched when required.

Grid Connection

2.3 The electricity generated by the Development will be exported to the Pembroke Substation via a direct electrical connection. This connection will also facilitate the import of electricity to be stored within the energy storage system.

Construction Programme

2.4 The construction programme is anticipated to last approximately 12 months.

Construction Compound and Internal Access Track

2.5 A construction compound will be set up within the Site. The construction will include the following facilities:

- Appropriate car parking spaces;
- Welfare facilities, including toilets, a canteen, changing rooms and offices. These will be in the form of temporary mobile units;
- A storage area for equipment, including storage crates;
- A refuse and recycle store;
- A turning area to ensure vehicles arrive and depart in a forward gear.

2.7 An internal access track will be constructed throughout the Site allowing for the movement of construction and maintenance vehicles.

2.8 The access track and construction compound will be constructed using a hard-standing bound material of permeable design to ensure suitable drainage and that it can be easily sprayed (if required) to prevent mud, debris and muddy water being tracked onto the highway.

2.9 The Site will be secured using a perimeter fence. Heras fencing (or similar) may be required to secure the construction compound and any other areas of the site until the perimeter fence is completed.

2.10 The compound will include a wheel wash facility. Excess water from the wheel wash facility will be appropriately disposed of. A visual inspection of vehicles will be undertaken before they depart the Site, to ensure that they are not carrying any residual debris onto the highway. Should significant mud be carried onto the highway after the washing then a road sweeper will clean the affected area of highway.

3 Construction Trip Generation

3.1 The section sets out the trip generation associated with the construction, operation, and decommissioning phase of the Scheme.

3.2 It is anticipated that the construction phase will last for approximately 12 months (253 working days). Construction activities and deliveries will be carried out Monday to Friday 08:00-18:00 and between 08:00 and 13:30 on Saturdays. No construction activities or deliveries will occur on Sunday or Public Holidays. Where possible, construction deliveries will be coordinated to avoid construction vehicle movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00).

3.3 The construction period will include the use of HGVs to bring the equipment onto the Site and this will be strictly managed to ensure that vehicle movement is controlled and kept to a minimum. The vast majority of deliveries by HGV will be by 16.5m articulated vehicles or 8-10m rigid vehicles.

3.4 Deliveries to the Site will be reported to the Site Manager and will be made by the smallest possible vehicle for that particular item of plant or material.

3.5 It should be noted that during the construction period, the two largest vehicles that will be accessing the site are the 33.5m long lorry associated with installation of the substation and a 16.5m long articulated lorry (used for standard construction deliveries). The exact routing of these vehicles is to be agreed with PCC Highways prior to the commencement of the development

HGV Movements

3.6 A summary of the construction activity that requires HGV movements is as follows:

- Delivery of inverters and transformers;
- Delivery of substation equipment;
- Delivery of battery modules;
- Delivery of material for the construction compound and access track construction;
- Other deliveries for items such as waste, fencing, sand and gravel, and for non-grid connection elements such as landscaping.

3.7 **Table 3.1** sets out a summary of the HGV movements that will be associated with the construction phase of the Scheme.

Table 3.1 Goldborough Road BESS HGV Deliveries

Activity	Type of Vehicle (Max)	Total Number of Deliveries
Battery Modules	16.5m Articulated	96 (192 two-way movements)
Invertor and TX Container	16.5m Articulated	48 (96 two-way movements)
132kV Substation	Abnormal Load	1 (2 two-way movements)
Client Control Room and Switchroom	16.5m Articulated	2 (4 two-way movements)
Storage Containers	16.5m Articulated	1 (2 two-way movements)
Water Towers	16.5m Articulated	1 (2 two-way movements)
Miscellaneous (fencing, cable, gravel, landscaping etc.).	10m Rigid and 16.5m Articulated	200 (400 two-way movements)
Total		**349** (698 two-way movements)

3.8 As set out in **Table 3.1,** it is anticipated that a maximum of 349 deliveries could be made by during the construction of the BESS facility, at an average of approximately three deliveries per day.

3.9 There will be a relatively flat programme for deliveries of equipment to the Site. Notwithstanding this, there is likely to be a small peak in deliveries early in the construction process, for Site set-up, including the construction of the access track. From previous experience, this should be no more than 10 deliveries per day during this period, which will last for two or three weeks.

3.10 It should be noted that there would be movements associated with the existing agricultural use of the land that will no longer occur as a result of the Proposed Development.

Construction Worker Trips

3.11 In addition to the HGV movements identified in **Table 3.1**, there will also be a number of construction movements associated with smaller vehicles for the transportation of construction workers and sub-contractors.

3.12 Approximately 30 construction workers are anticipated to be required on Site on an average day. This may increase slightly during peak construction. The location where staff will travel from is unknown at this stage as it will depend on the appointed contractor. However, it is envisaged that the majority of non-local workforce will stay at local accommodation and be transported to the Site by minibuses to minimise the impact on the strategic and local highway network.

Construction Vehicle Movements Timings

3.13 Where possible, construction deliveries will be coordinated to avoid construction vehicle movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00).

3.14 Due to the Site operational hours (08:00-18:00), construction worker travel will occur outside of the peak hours.

4 Site Access

4.1 This section sets out the details of the construction phase access arrangements.

Main Access

4.2 Vehicles will enter the Site via an existing gated field access located to the west of the Site. The field access currently provides access for agricultural vehicles. It will be widened and formalised for use by construction vehicles. The access arrangement is shown at **Drawing SK01** contained in **Appendix A**.

4.3 Drawing SK01 provides information on the achievable visibility splays. It also shows the swept-path analysis of a 16.5m articulated vehicle accessing and egressing the Site access in a forward gear. Swept-path analysis for the abnormal loads will be competed by specialist contractor.

4.4 Banksmen will be deployed at the Site access whenever construction vehicles are accessing or egressing the Site. This is the ensure the safety of all road users.

4.5 The access will be retained for the operational phase, for use by maintenance vehicles, who will visit approximately twice per month.

4.6 Temporary signage will be erected in the vicinity of the junction during the construction phase. Diagram 7301 'WORKS TRAFFIC' in the Traffic Signs Regulations and General Directions (TSRGD) will be used to indicate the access and will read 'WORKS TRAFFIC LARGE VEHICLE TURNING'. These signs will be white text and red background 1050 x 750 mm mounted in 'A' frames. The temporary signs will be in place for the duration of the construction phase.

Public Rights of Way

4.7 There are no Public Rights of Way within the boundary of the BESS Site. However, the cable route associated with the BESS does cross under Public Rights of Way.

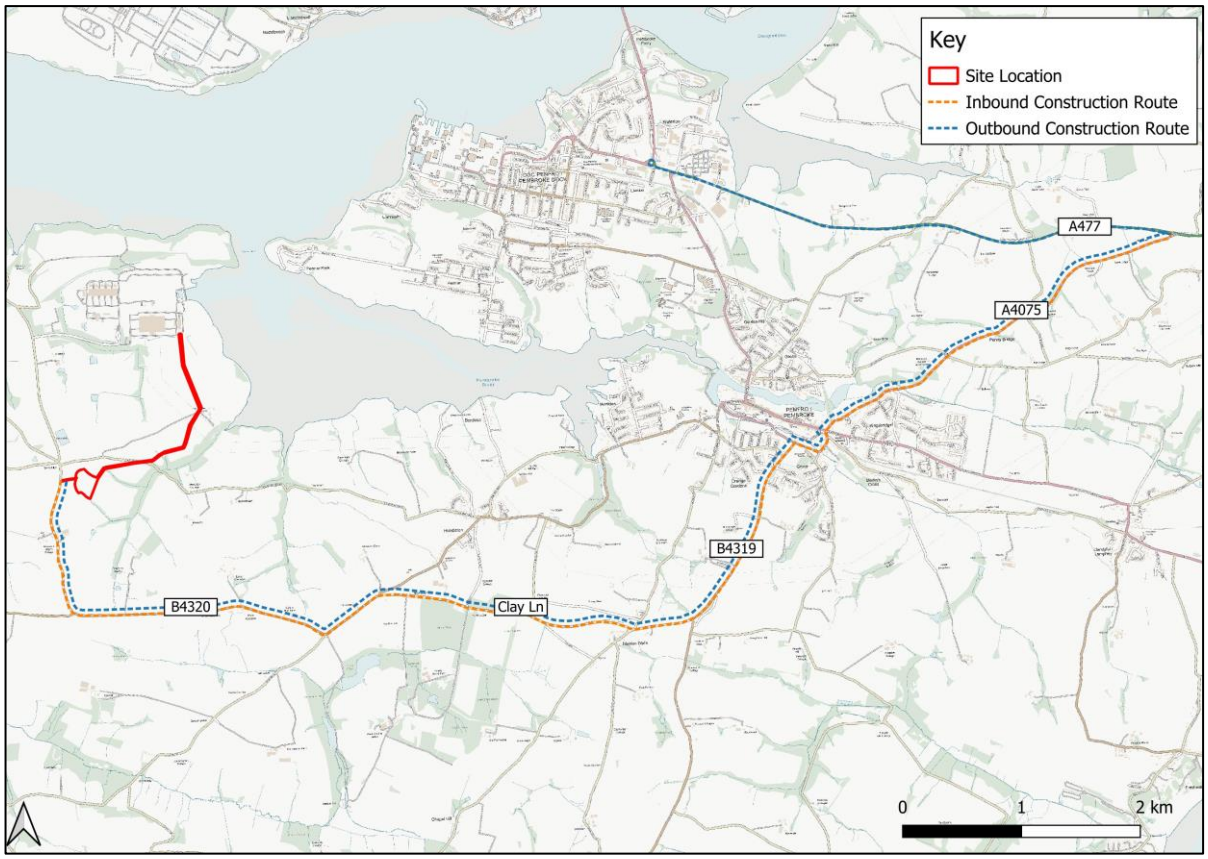
5 Construction Vehicle Routing

5.1 The details of the construction vehicle route are set out below. Drivers will be made aware of the route in advance of driving to the Site.

Route Overview

5.2 The designated route for all construction vehicles associated with the construction period is illustrated in **Figure 5.1**. This accords with the route was used for vehicles during the construction of the Wogaston Farm Solar Farm (Planning Reference 12/0906/PA and appeal reference APP/N6845/A/13/2203220).

Figure 5.1 Construction Vehicle Route



5.3 The route includes the following roads:

A477 → A4075 → B4319 → Clay Ln → B4320 → Unnamed Road → Site Access

5.4 Vehicles will route to the Site from the A477 to the east. The A477 is a single carriageway road, which is subject to a 60mph speed limit. Vehicles will turn onto the A4075 from the A477 and continue in a

south-west direction for 3.5km towards Pembroke. Vehicles will continue on the A4075 until they reach the A4075/A4139 roundabout where they will continue straight onto Well Hill.

5.5 Vehicles will continue to travel along Well Hill before joining the B4319. The B4319 is a single carriageway road with varying speeds limits up to the national speed limit (60mph). Vehicles will travel along the B4319 for 4.4km where it becomes the B4320. Construction vehicles will continue along the B4320 for a further 2.7km. At this point, the B4320 bends to the north. The Site access point is located 1.2km to the north of the bend.

5.6 Upon egressing the Site, outbound construction vehicles will follow the reverse of the above-described route. However, upon their return to the A477 from the A4075, construction vehicles will turn left and follow the A477 westbound until they reach the A477/London Rd roundabout where they will turn around to travel eastbound on the A477. This is to avoid right turn manoeuvres at the A4075/A477 junction.

5.7 There is no posted weight restriction along the proposed construction vehicle route. Vehicles do need to pass under a railway bridge on the A4075. The height restriction here is 4.5m, which is sufficient to accommodate construction vehicles associated with the Proposed Development.

Route Signage

5.8 Temporary road signage will be implemented along the designated route to inform background traffic of the ongoing construction works and to direct construction traffic to and from the Site. The signs will be located at key points on the route, such as at junctions.

5.9 All signage will be compliant with Chapter 8 of the Traffic Signs Manual where applicable. The following points will be considered when locating signage:

- The position of the sign in relation to the highway;
- Possible distraction to drivers; and
- The proximity to junctions.

5.10 The signage strategy will be agreed with the local highway authority.

Management of Deliveries

5.11 All deliveries will be scheduled in advance using a booking system. Drivers will be instructed to stop in an appropriate layby or service station and make contact if they are likely to miss their allotted slot to allow the schedule to be adapted in as much as possible.

5.12 The following procedure will be initiated when deliveries are made to the Site:

Procedure for Arrival to Site

- Drivers to be notified of scheduled arrival time ahead of delivery to the Site;
- When the delivery vehicle is due, operators will be mobilised and will go to position at the Site access;
- All operatives will communicate with each other, as necessary; and
- Banksmen will assist HGVs to manoeuvre into the Site access.

5.13 The following procedure will be initiated when HGVs are leaving the Site:

Procedure for Leaving the Site

- Before drivers depart, the Site Manager will be notified. They will then mobilise the banksmen at the Site access;
- Drivers will be advised when the banksmen are in place; and
- Banksmen will guide the drivers out of the Site access.

Summary

5.14 The proposed construction vehicle route provides the most appropriate route between the strategic highway network and the Site.

5.15 The use of any roads other than the designated and signposted route shall not be permitted and this shall be enforced through the agreement of the CTMP.

5.16 Appropriate management measures will be provided throughout the construction phase in order to manage the arrival and departure of HGVs at the Site. This is set out further in **Chapter 6**.

6 Management Measures

6.1 The contractor will introduce measures to manage the impact resulting from construction activities. It will be the responsibility of the Project Manager and Site Manager to oversee the implementation of the management measures.

6.2 The management measures are set out below.

Signage

(i) Signs to direct construction vehicles associated with the development will be installed along the construction traffic route. Delivery drivers, contractors and visitors will be provided with a route plan in advance of delivering to Site to ensure that vehicles follow the identified route;

(ii) All signage on the designated route will be inspected daily by the Site Manager, to ensure they are kept in a well-maintained condition and located in safe and appropriate locations;

Vehicle Movement

(iii) Where possible, construction deliveries by HGV will be coordinated to avoid the network peak hours of 08:00-09:00 and 17:00-18:00;

(iv) Banksmen will be provided at the Site accesses to indicate to construction traffic when it is safe for them to enter and exit the Site;

Booking System

(v) A booking system will be set up to manage arrivals and departures to the Site. A log will be kept as part of the booking system;

Parking

(vi) Advisory signs informing contractors and visitors that parking is not permitted on-street in the vicinity of the Site or on the Site access track. Contractors and visitors will be advised that parking facilities will be provided on-Site in advance of visiting the Site and that they should not park on-street;

Wheel Wash Facility

(vii) A wheel washing facility will be provided. This will be located on the access track. In the unlikely case the wheel wash facility breaks down for a short period, construction workers will spray wheels using a power hose, before they re-enter the public highway;

(viii) A visual inspection of vehicles will be undertaken before they depart the Site, to ensure that they are not carrying any residual debris onto the highway;

Noise Reduction and Air Quality

(ix) When on Site and when not in use, vehicle engines will be switched off;

(x) Vehicles carrying material off-Site will be sheeted to prevent the spread of dust;

(xi) In dry conditions, areas near to the Site access will be sprayed with water supplied to prevent the spread of dust;

Site Security

(xii) The Site will be secured at all times via a perimeter fence or temporary fencing. CCTV will be operational within the construction compound;

Community Engagement

(xiii) The details of the Construction Site Manager will be provided to the local highway authority in advance of any work being carried out.

(xiv) The Construction Site Managers details will also be provided on a Site-board at the Site access. If anyone in the local community has any issues during the construction phase, the Site Manager will be available to discuss.

Figures

A3
ORIGINAL
PLOT SIZE

NOTES:

Key

Site Location

Rev	Date	Details	Drawn by	Checked by	Approved by

Bristol
Cambridge
London
Oxford
Welwyn Garden City

tpa Transport Planning Associates

25 King Street
Bristol
BS1 4PB

0117 925 9400
www.tpa.uk.com

CLIENT:
Pembroke Green Limited

PROJECT:
Wallaston BESS, Pembrokeshire

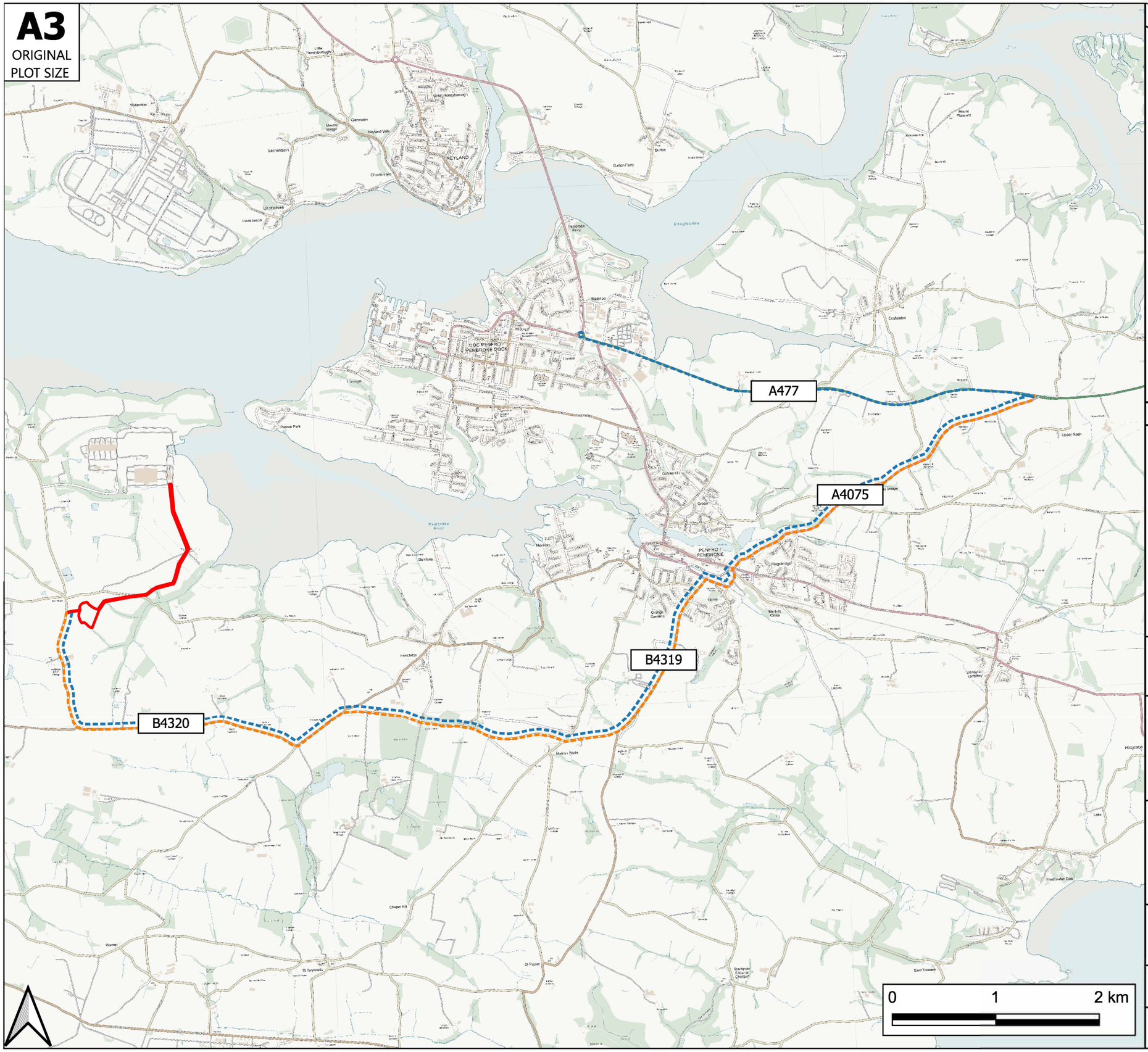
TITLE:
Site Location Plan

STATUS:
FOR INFORMATION

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
NTS	01/02/24	AG	RR	JD

JOB NO:	DRAWING NO:	REVISION:
2301-008	Figure 1.1	-

A3
ORIGINAL
PLOT SIZE



NOTES:

Key

- Site Location
- Inbound Construction Route
- Outbound Construction Route

Rev	Date	Details	Drawn by	Checked by	Approved by

Bristol
Cambridge
London
Oxford
Welwyn Garden City

Transport Planning Associates

25 King Street
Bristol
BS1 4PB

0117 925 9400
www.tpa.uk.com

CLIENT:
Pembroke Green Limited

PROJECT:
Goldborough Road BESS

TITLE:
Construction Vehicle Routing Plan

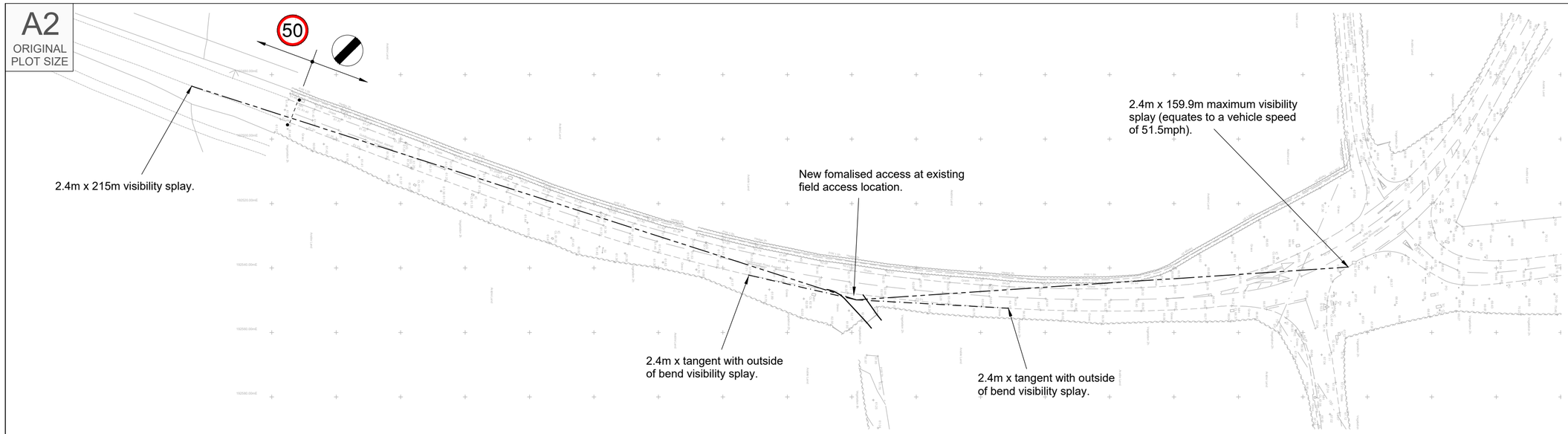
STATUS:
FOR INFORMATION

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
NTS	01/02/24	AG	RR	JD

JOB NO:	DRAWING NO:	REVISION:
2301-008	Figure 5.1	-

APPENDIX A

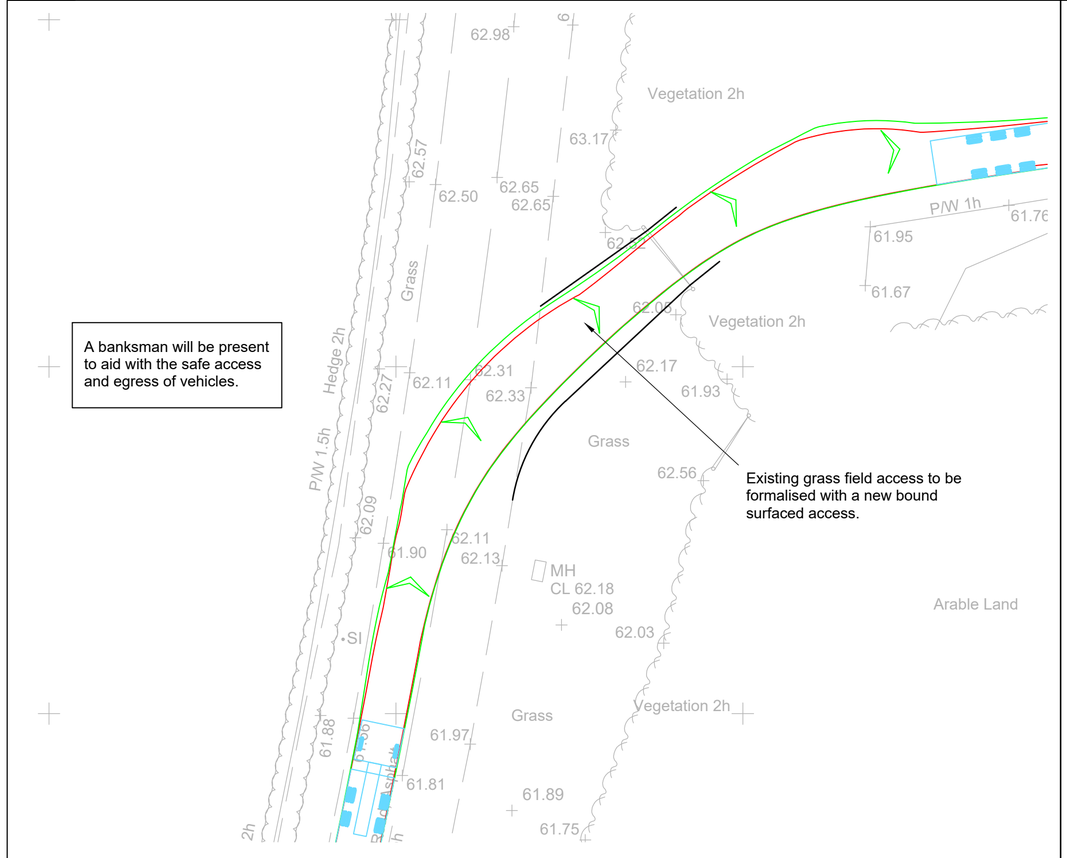
A2
ORIGINAL
PLOT SIZE



Proposed Site Access Arrangement

Scale 1:1,000

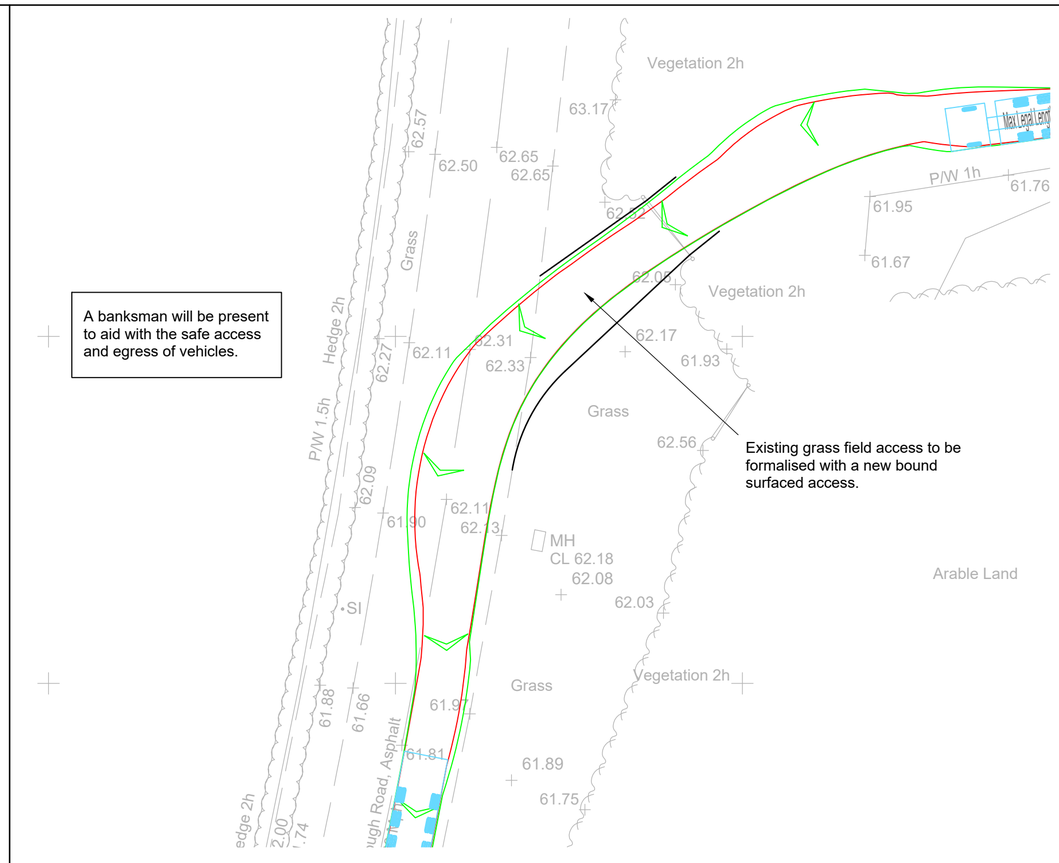
INDICATIVE



Articulated HGV Turning Right Into Site Access

Scale 1:250

INDICATIVE



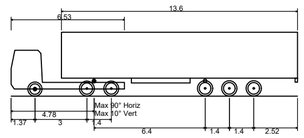
Articulated HGV Turning Left Out Of Site Access

Scale 1:250

NOTES:

1. The existing posted speed limit is as shown on the drawing.

2. The construction traffic route is via the B4320 to the south of the access.



Max Legal Length (UK) 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

Rev	Date	Details	Drawn by	Checked by	Approved by
A	20.12.23	Updated project name	KVT	RR	JD

Bristol
Cambridge
London
Oxford
Welwyn Garden City

tpa Transport Planning Associates

25 King Street
Bristol
BS1 4PB
0117 925 9400

www.tpa.uk.com

CLIENT:
PEMBROKE GREEN LIMITED

PROJECT:
GOLDBOROUGH ROAD
BESS

TITLE:
Proposed Site Access Arrangement

STATUS:
PRELIMINARY

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
As Shown	14.09.23	PSW	RR	JD

JOB NO:	DRAWING NO:	REVISION:
2301-008	SK01	A