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PROVISIONAL TRAFFIC MANAGEMENT PLAN (VERSION 3)

PROPOSED SOLAR FARM ON LAND AT FRANCIS LANE, WREXHAM

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FRANCIS LANE SOLAR FARM			
PROVISIONAL TRAFFIC MANAGEMENT PLAN			
Document Control			
Version	*Date*	*Status*	*Comment*
1	26 May 2015	Superseded	Accompanied planning application P/2015/0396
2	3 Sep 2015	Superseded	Amended following highways consultation. Route changed.
3	**9 Nov 2015**	**Current**	**Amended following latest highways comments.**

1.0 Introduction

This Provisional Traffic Management Plan (PTMP) accompanies an application for planning permission for a 4.38 MWp solar farm and associated development (the Proposals) on land off Francis Lane, Wrexham (the Site). The application is made by TGC Renewables Ltd (TGC).

Version 3 has taken into consideration the Highway Authority comments dated 10 September 2015, and includes the details of the drawings submitted to Wrexham Council on 9 November 2015 (refer to Appendices).

The proposed access route has been changed from the original proposal, with access now being taken via Hugmore Lane and approaching the Site on Francis Lane from the west. This reduces the length of time vehicles are on Francis Lane and allows easier manoeuvring into the accesses.

The purpose of this PTMP is to provide details of how construction and operation traffic associated with the Proposals would be managed. This PTMP details the vehicle numbers associated with the Proposals, taking a 'worst case scenario' in terms of timescales associated with the increased numbers of vehicles visiting the Site, impact on the local road network and total vehicle numbers. It is also assumed that the Proposals would be built entirely separately from the scheme at Bryn Lane, although in reality there would likely be reduced numbers on each scheme if they were built at the same time.

The scope of this PTMP includes access and parking arrangements for contractors and visitors to the Site, as well as arrangements for the delivery and removal of construction materials and consideration of the narrow roads on the approach to the Site. Appendix D shows the location and design of the proposed passing places on Francis Lane.

It should be noted that access via the adjacent solar farm is not possible as the separating hedge must be retained and enhanced.

During the construction period the following main areas of activity are envisaged:

- Site preparation and marking out the positioning of the Proposals on the Site;
- Erecting the security fence;
- Construction of access roads and substation areas;
- Affixing the frames onto the ground;
- Affixing the panels to the mounting frames;
- Cable works;
- Installation of the inverter and transformer cabinets; and
- Planting of approved landscaping works.

During the operation period, one visit per month by a van or similar sized vehicle is anticipated.

2.0 Access Arrangements

<u>Construction</u>

It is proposed to access the Site from the two existing accesses (east and west) on Francis Lane, as shown on the Site Design which accompanies the application.

The swept path analysis in Appendix A demonstrates that 10m rigid lorries can use these access points and this and the compound design in Appendix C show the access design/layout.

Operation

It is proposed to use the same access points. The same vehicle size limitation will apply (10m rigid lorry or smaller). The swept path analysis in Appendix A shows how 10m rigid lorries can use these access points and this and the compound design in Appendix C show the access design/layout.

3.0 Visibility Splays

Refer to the visibility splay drawings in Appendix B, which show suitable forward visibility at the access points. These have been based on a worst case scenario of 60mph / 160m forward visibility, however in practice, vehicles are unlikely to travelling at this speed.

At the east access, visibility to the west is suitable as it is over the verge of the road. To the east, there is substandard visibility, as the splay is over the field to the north of the Lane. However oncoming vehicles are likely to be visible once they are within 90m of the access, and are unlikely to be travelling at 60mph. Additionally, a warning sign will be in place at 100m from the access (as well as 50m, 150m and 200m). Radio connected banskmen can also ensure that traffic is released safely onto the public highway.

4.0 Access Design

The compound design drawing in Appendix C shows the following design details:

- Width;
- Location of gates in relation to highway; and
- Hard bound / crushed stone surfacing.

In terms of drainage, as the access arrangements would not involve the introduction of substantial areas of impermeable hard surfacing, no additional drainage measures are required beyond the Sustainable Drainage System (SuDS) proposed in the Flood Consequence Assessment (FCA) which accompanies the application (separate report). Nearby drainage facilities including private drainage facilities would be taken into account by the contractor and impacts avoided through any necessary protection or strengthening.

5.0 Construction vehicle details

Description	Vehicle type (up to 10m Long Rigid Truck)	Estimated number of vehicles
Temporary office/stores and welfare facilities	HGV	10
Generator	HGV	1
Excavator	HGV	2
Cranes (3)	Self-drive	3
Pile hammer	HGV	2
Readymix Cement	Cement mixer	7
Aggregates for access tracks and foundations	Aggregate Truck	27
Fencing	HGV	10
Cabling	HGV	18
PV Panels	HGV (at 300 modules per HGV)	48
Mounting Frames	HGV (at 125kW per HGV)	37

Description	Vehicle type (up to 10m Long Rigid Truck)	Estimated number of vehicles
Inverters, transformer, comms buildings, switchgear housing	HGV	8
Substation	HGV	1
Temporary fences and safety equipment	HGV	10
Waste containers and removal	Waste trucks	16
Workers and staff travelling to site	Minibus and cars (est. six per day)	504
	Total number of Vehicles	**704**
	Total number of Movements	**1,408**

Table 1: Estimated number of vehicles (one vehicle equates to two movements)

Week	Principal Activity	Number of Delivery Vehicles	Number of Workers' Vehicles	Number of Movements
1	Site establishment	29	36	130
2	Fencing and ducting	18	36	107
3	Access Roads	13	36	106
4	Fencing ; frame supports	12	36	99
5	Fencing; frame supports	13	36	96
6	Frame support module installation	13	36	97
7	Module Installation	15	36	97
8	Module Installation Inverters & Transformers	13	36	102
9	Module Installation	12	36	97
10	Module Installation	17	36	96
11	AC installation	11	36	94
12	Contingency	0	36	72
13	Test & Commissioning	14	36	100
14	Off Hire & reinstatement	21	36	114
	Total	**199**	**504**	**1,407**

Table 2: Principal Construction Activity and associated vehicle numbers (long rigids and workers)

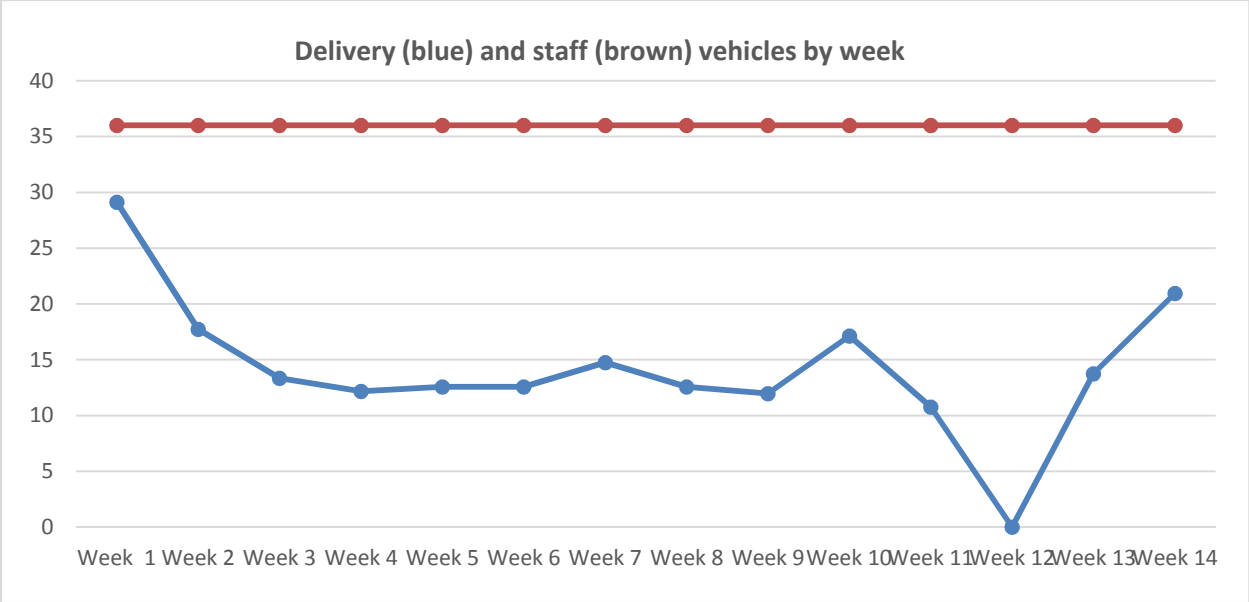


Figure 1: Vehicles Per Week

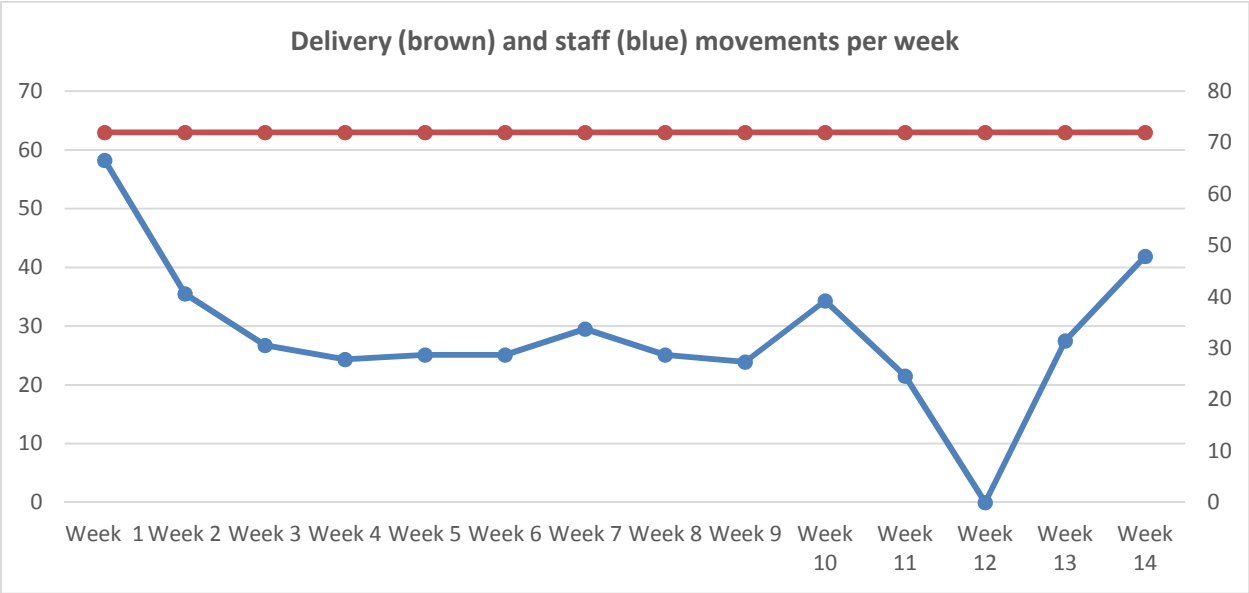


Figure 2: Movements Per Week

It should be noted that the estimated vehicle movement numbers set out in the above tables and figures have been calculated using the number of movements for an existing solar farm. As a contractor has yet to be appointed for the Proposals, vehicle movements are liable to change although the following is a conservative estimate suitable for the purposes of preparing this PTMP and fully considering highways issues.

6.0 Size of Vehicles

Having considered the nearby road network, the proposed access route (refer to Section 16.0 below) and the access points (including the swept path analysis in Appendix A), it is concluded that, overall, the proposed route can accommodate standard 10m Long Rigid Lorries (or vehicles of the same or smaller length).

7.0 Duration of Construction Period

It is envisaged that the construction phase would last for approximately 14 weeks based on the size of the Proposals (this is subject to constructors' timescales). Tables 1 and 2, and Figures 1 and 2, above, show approximately how many vehicles / movements per week are anticipated. Based on this, it is estimated that between 12 and 22 movements per day are anticipated. However, frequency of deliveries would vary.

The initial stages of the construction programme would experience higher volumes of construction traffic as materials are delivered to the Site and the construction compound is established. The remainder of the programme would be less intense in terms of vehicle movements (refer to Figures 1 and 2).

Due to the short, temporary nature of the construction period for the Proposals and the low level of movements as a result of it, no adverse effects on the local road network are anticipated.

8.0 Delivery Hours and Timing

Delivery times would typically be between 8am and 6pm from Monday to Saturday, with no deliveries on Sundays or Public Holidays. Consideration would be given to avoiding particularly sensitive periods through further consultation with Highways Officers once the application has been submitted.

9.0 Construction Compound, Maximum Vehicle Numbers and Parking

Temporary site compounds would be located entirely off of the public highway, in the locations shown in Appendix C, close to the entrances to the Site. Construction workers would use the western compound to park private cars and small vans to ensure there is no parking outside of the Site or on the public road. Where practical, a car sharing scheme would be used, however adequate parking would be provided to avoid overspill onto the public highway.

Based on the information in Section 5.0, it is considered that the maximum number of vehicles in the compound and on the Site (combined) would be 20. This is on the basis of seven construction vehicles (i.e. self-drive excavators), seven workers vehicles (car / 4x4 / van) and an allowance of six delivery vehicles on site at any time.

This scenario (of 20 vehicles on site at the same time) is unlikely. However, the compounds shown in Appendix C make provision for 20 parking spaces in the western field. Each compound has sufficient space for a turning/holding area for a number of 10m rigid lorries, the largest size of vehicle proposed. The combination of car parking, HGV turning, waiting and holding areas and the areas for parking machinery will ensure that all vehicles can be accommodated on the Site, outside the public highway. The site design shows turning heads which will allow such vehicles to turn within the Site and prevent reversing out of the Site onto the public highway. The compounds also show sufficient space for laydown and assembly areas, storage and welfare facilities.

10.0 Health and Safety

Site safety would be detailed within the Site Construction Health and Safety Plan, prepared post-consent. This would include details of site management, site speed limits and control of vehicle access to the Site. If necessary, a banksman can be present at the entrance to the Site for assistance with deliveries and to ensure vehicles are released safely onto the public road. The Principal Contractor is responsible for site health and safety.

11.0 Warning Signs

Warning signs would be sited in advance of the access points along the single lane portion of Francis Lane. These will be at 50m, 100m, 150m and 200m distances from the entrances. Additionally, warning signs will be placed at the junction of Francis Lane and Hugmore Lane. TGC requested advice from Darren Green on 30 October 2015, however a response is outstanding. It is considered that this information could be secured by use of planning condition.

12.0 Condition Survey

A pre-start condition survey, post construction survey and dilapidations report can be undertaken/prepared, with any material damage made good to the Highway Authority's satisfaction. It is anticipated that this will entail re-seeding the verge.

13.0 Wheel Washing Facilities

A wheel wash would be used and placed as close to the public highway as practicable (refer to Appendices A and C). This would ensure, as far as possible, that debris from the Site is not deposited on the local highway network. It is anticipated that the wheel wash would comprise an operator removing excess mud and debris using a high-pressure washer at the site access point.

14.0 Passing Places

There are a number of existing passing places on Francis Lane, as shown below in Figure 3. Additionally, the wide verges on both sides of Francis Lane are noted. The existing passing places are generally inter-visible. As advised by the Highways Authority, additional passing places can be placed on the broad verge in the positions shown in Appendix D. As such, the use of existing and proposed passing places will avoid conflict between vehicles. Construction programming and radio connected banksmen will also avoid, as best possible, construction and delivery vehicles meeting on Francis Lane.

15.0 Additional Controls

During the first two weeks of construction it is anticipated that there would be the greatest number of traffic movements, due to the delivery of the crushed stone for the Site access and compound areas as well as the haul roads across the construction site (refer to the build programme delivery timetable above). Banksmen would assist with vehicles entering and leaving the Site as need be and appropriate.

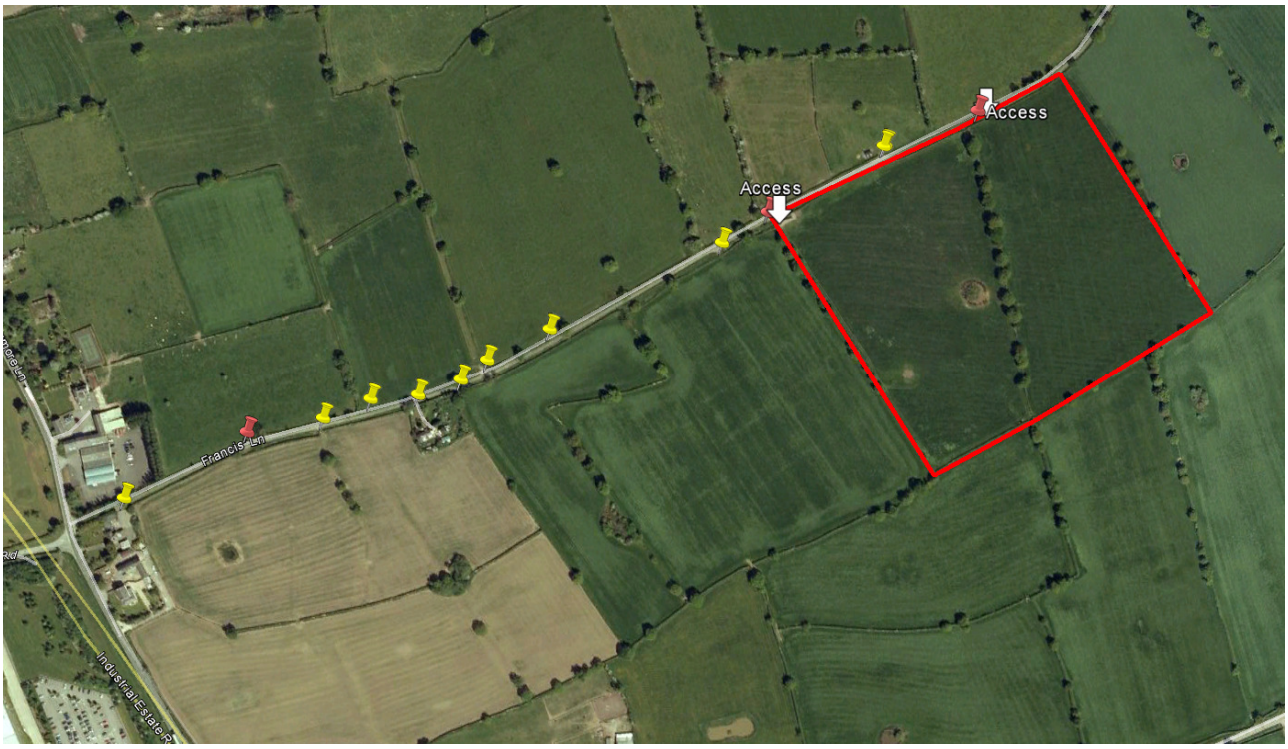


Figure 3: Existing (yellow markers) and Indicative Location of Proposed (red marker – refer to Appendix D) Passing Places

16.0 Vehicle Route Information

16.1 Proposed Route for construction vehicles

It is likely that construction vehicles would access the Site from the A534, which connects to the rest of the trunk road network, as detailed and shown below in Figure 4:

- Turn off the A534 onto Hugmore Lane;
- After 900m turn left onto Francis Lane;
- West field access is on the right after 750m; and
- East field access is on the right after a further 240m.

Figure 4: Route to the Site from A534, along B5130 and Francis Lane (Source: Google Maps)

The above route largely avoids heavily built up areas, bypassing Nantwich to the north and Holt to the south. Furthermore, there are few settlements through which the route directly passes. Where the route does pass through built up areas or close to dwellings, this should not cause an issue for residents as the roads used for access are wide enough to accommodate the transportation vehicles and allow other traffic to pass by, having minimum impact on local residents. In addition to this advance warning signs can advise traffic of any likely disruption.

The above route minimises the length of time vehicles will spend on Francis Lane, access via sharp bends or tight corners, which may prove problematic for construction vehicles during deliveries. It is the most straightforward and least disruptive, minimising the possibility of potential traffic congestion. It is anticipated that any congestion would be minimal and as previously stated efforts can be made to avoid deliveries at sensitive times.

It is anticipated that radio connected banksmen would control the access and egress of lorries from the Site and onto Francis Lane, which would help to ensure road safety around the Site accesses.

Although the Francis Lane is single lane, there is excellent forward visibility, broad verges and existing passing places. These combined with the proposed passing places (refer to Appendix D) will avoid conflict between road users. It is also noted there are few dwellings or other traffic generating uses along the single lane portion of Francis Lane.

Noise and vibration impacts are unlikely to be adverse due to the temporary and short nature of the construction phase as well as the nature of the roads. In addition, advance warning signs can advise traffic of any likely disruption.

Once the Proposals have been constructed TGC do not envisage that use of the road by vehicles would be more intensive than at present.

Care would be taken during the construction phase to ensure no trees or hedges are damaged in line with the recommendations of the Ecological Appraisal which accompanies this planning application.

TGC and the electrical component suppliers provide detailed instructions for the safe sequencing and carrying out of the installation and commissioning works. All works would comply with the relevant UK and EU regulations to ensure a safe working and post installation environment would be achieved.

TGC will discuss the traffic management process with the Highways Department during the planning process to comply with an appropriate condition ensuring safe working procedures during the construction process.

Overall, it is considered that the temporary and short term nature of the construction process, combined with the above existing and proposed mitigation measures, would ensure minimum disruption within the surrounding area.

17.0 Conclusion

It is considered that the proposed route and access to the Site are capable of accommodating the traffic requirements for construction and operation of the Proposals. Review of the proposed route and entrance to the Site demonstrates that the access points can accommodate the vehicles proposed.

The information requested by the Highways Authority has been provided in this PTMP and the route has been changed to reduce impacts on Francis Lane.

Careful management of the vehicles coming to and from the Site would avoid any serious disruptions on the roads surrounding the Site. Further information can be provided through the use of conditions, with the appointed contractor setting out the proposed mitigation measures and likely construction timetable in more detail.

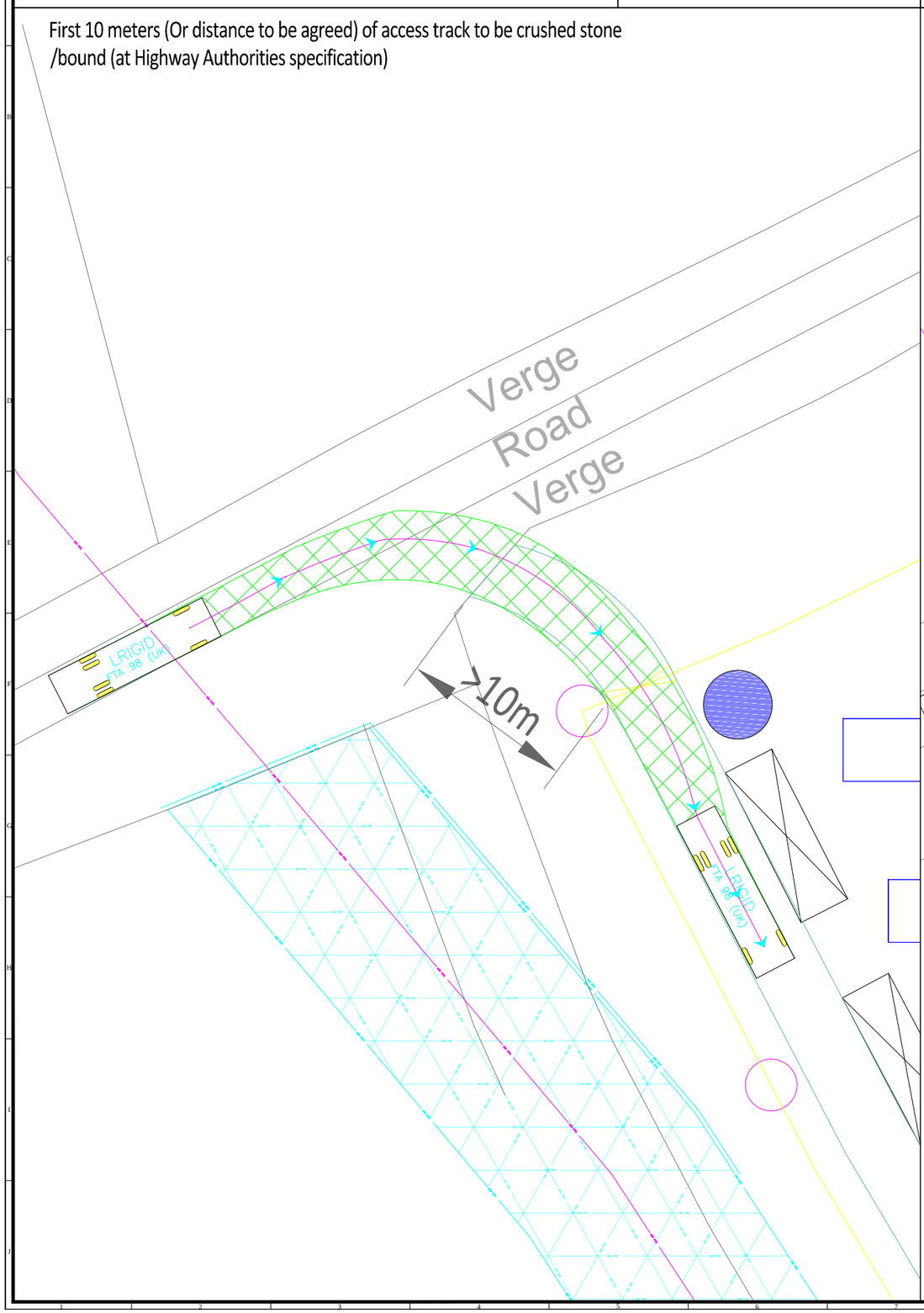
APPENDIX A – SWEPT PATH ANALYSIS AND ACCESS DESIGN

Turn #1 - Right Turn from Francis' Lane into the Western entrance of Site

Scale: 1:300

Direction: Traveling toward site
Vehicle: LRIGID FTA 98 (UK) (Long Rigid Lorry)

No Over-Run

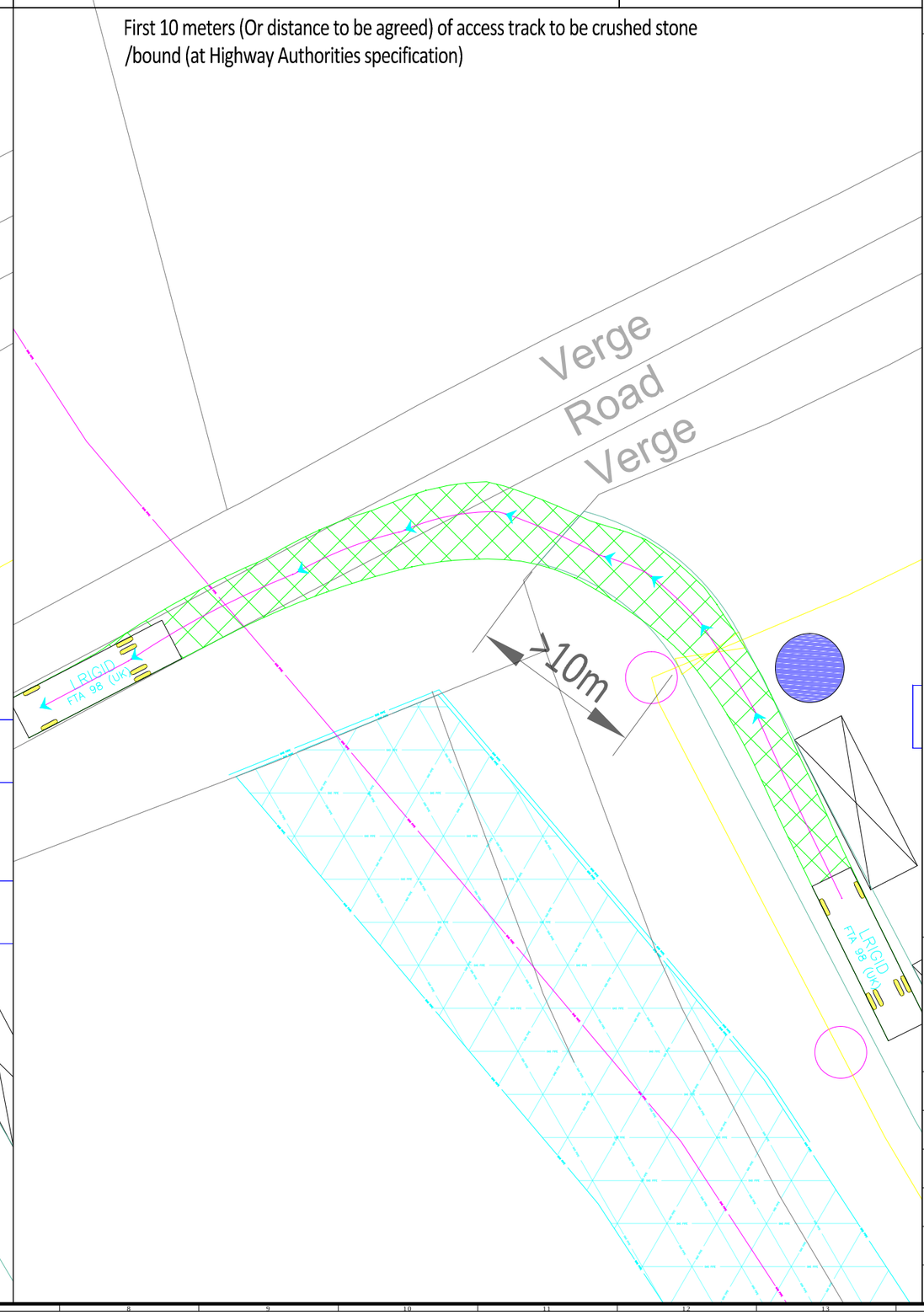


Turn #2 - Left Turn from the Western entrance of site onto Francis' Lane

Scale: 1:300

Direction: Traveling from site
Vehicle: LRIGID FTA 98 (UK) (Long Rigid Lorry)

No Over-Run



TGC-SITE-DESIGN

GENERAL NOTES

A. DO NOT SCALE FROM THIS DRAWING
B. ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.

Legend:

Path of Vehicle

Vehicle: Rigid Truck

Wheel wash Location

Rev	Details
A8	Amended PROW and Hedging
A9	Eastern Entrance changed to double gate

0m 12 m

TGC renewables

Designed by TGC Renewables

Project Title
226-01-PV Francis Lane

Drawing Title
Swept Path - Site Entrance - Western Gate

Drawing Path

Drawn	Checked	Approved
SC	JJ	RA
Scale	Paper Size	Status
1:300	A3	Draft

Date
2/9/2015 12:06 PM

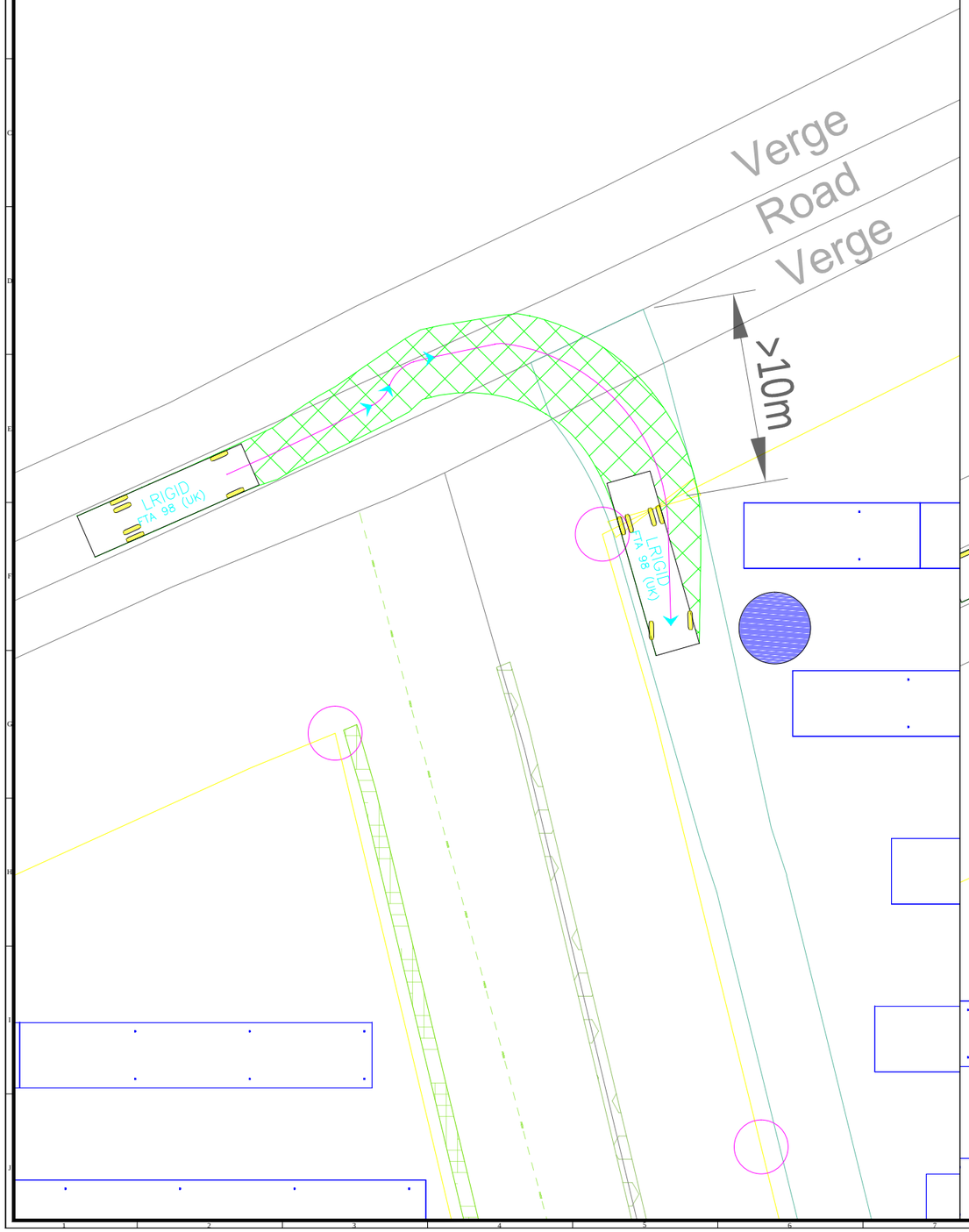
Turn #1 - Right Turn from Francis' Lane into the Eastern entrance of the Site

Scale: 1:300

Direction: Traveling toward site
Vehicle: LRIGID FTA 98 (UK) (Long Rigid Lorry)

Over-Run - Grass verge

First 10 meters (Or distance to be agreed) of access track to be crushed stone /bound (at Highway Authorities specification)



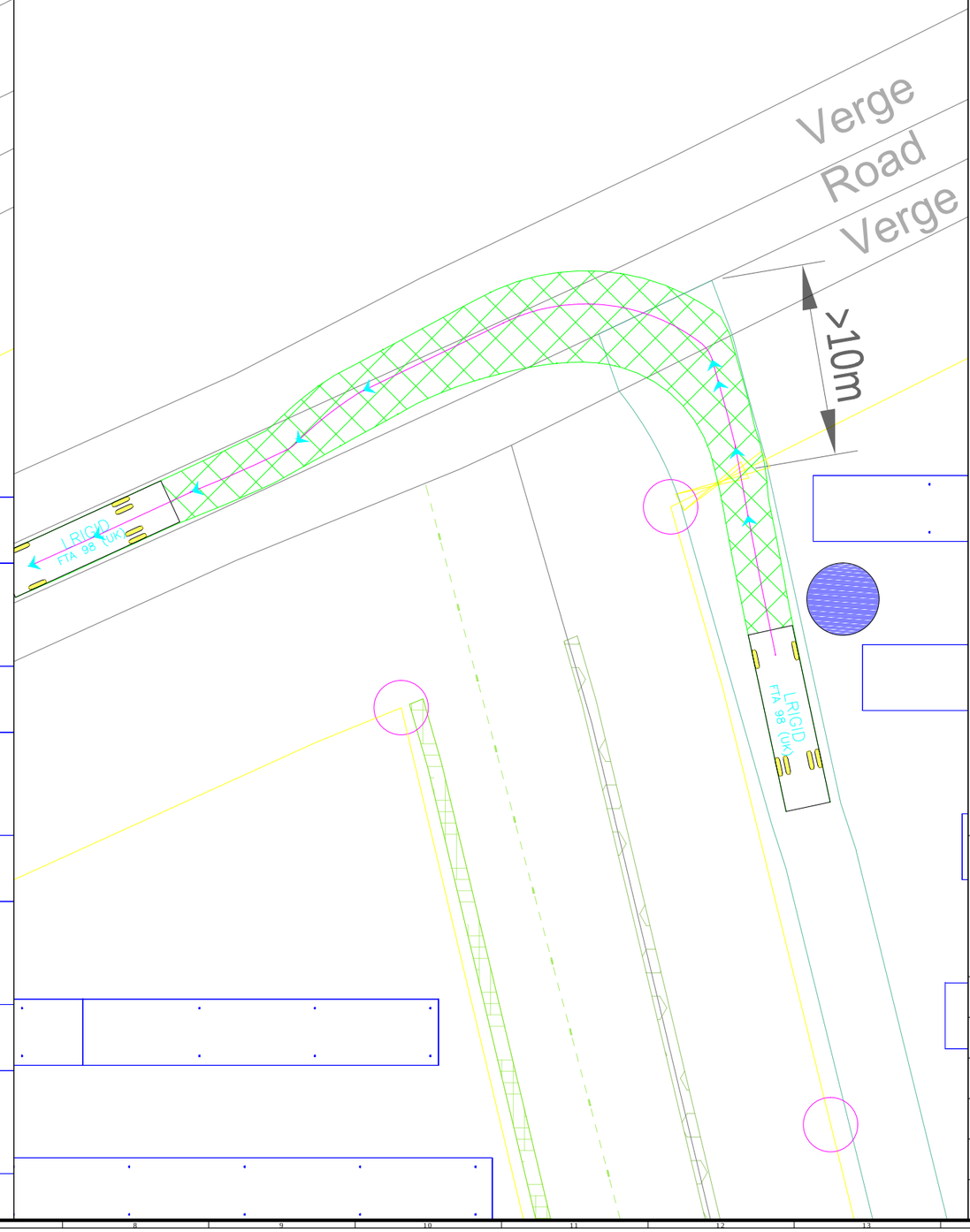
Turn #2 - Left Turn from the Eastern entrance of the Site onto Francis' Lane

Scale: 1:300

Direction: Traveling from site
Vehicle: LRIGID FTA 98 (UK) (Long Rigid Lorry)

Over-Run - Grass verge

First 10 meters (Or distance to be agreed) of access track to be crushed stone /bound (at Highway Authorities specification)



TGC-SITE-DESIGN

GENERAL NOTES

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Legend:

Path of Vehicle

Vehicle: Rigid Truck

Wheel wash Location

Rev	Details
A8	Amended PROW and Hedging
A9	Eastern Entrance changed to double gate

0m 12 m

TGC renewables

Designed by TGC Renewables

Project Title
226-01-PV Francis Lane

Drawing Title
Swept Path - Site Entrance - Eastern Gate

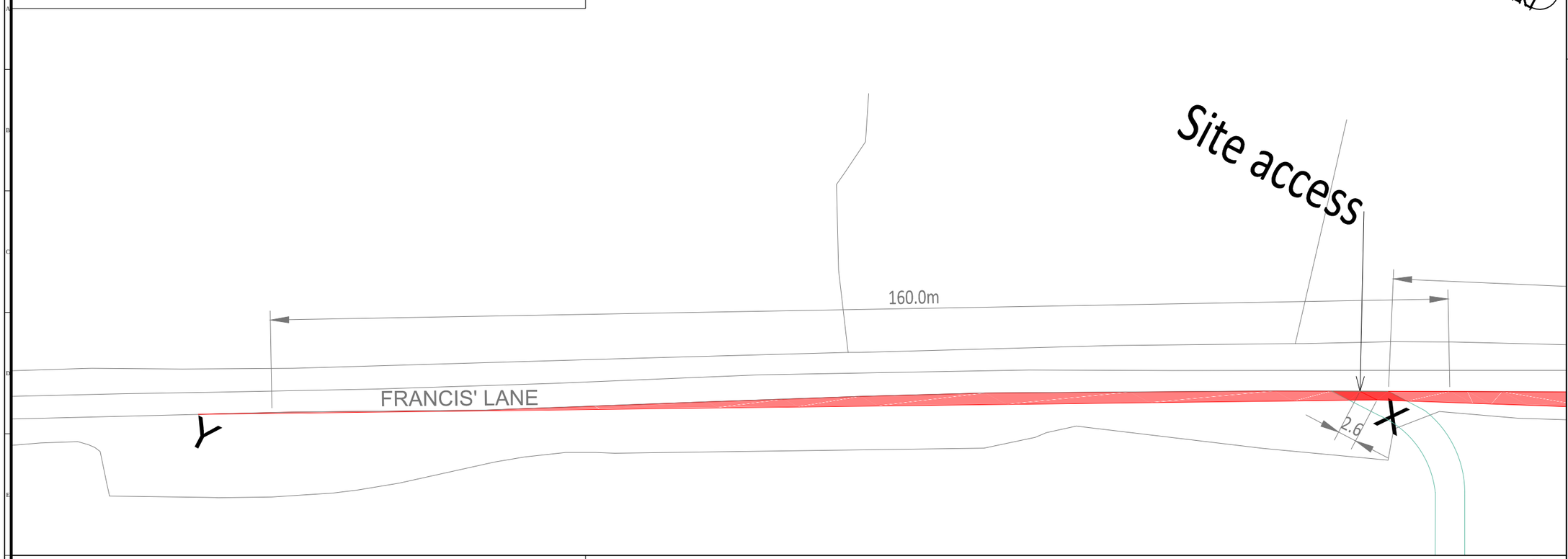
Drawing Path

Drawn	Checked	Approved
SC	JJ	RA
Scale	Paper Size	Status
1:300	A3	Draft

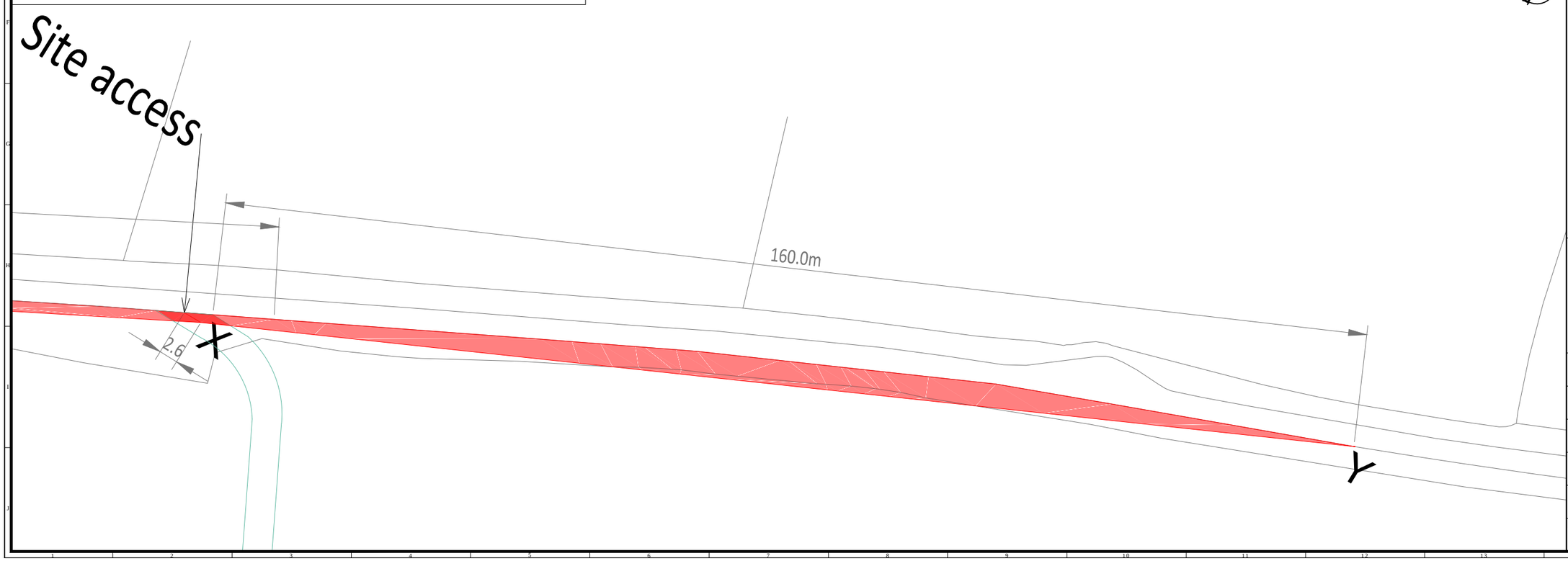
Date
2/9/2015 12:09 PM

APPENDIX B – VISIBILITY SPLAY DRAWINGS

View 1: Visual Splay - Western Entrance - Looking SW Scale 1:500



View 2: Visual Splay - Western Entrance - Looking NE Scale 1:500



TGC-SITE-DESIGN

GENERAL NOTES

A. DO NOT SCALE FROM THIS DRAWING
B. ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.

Legend:

Visibility Envelope

Rev	Details
A8	Amended PROW and Hedging
A9	Eastern Entrance changed to double gate
B1	Temporary Construction compounds added and Visibility splay edits

0m 20 m

TGC renewables

Designed by TGC Renewables

Project Title
226-01-PV Francis Lane

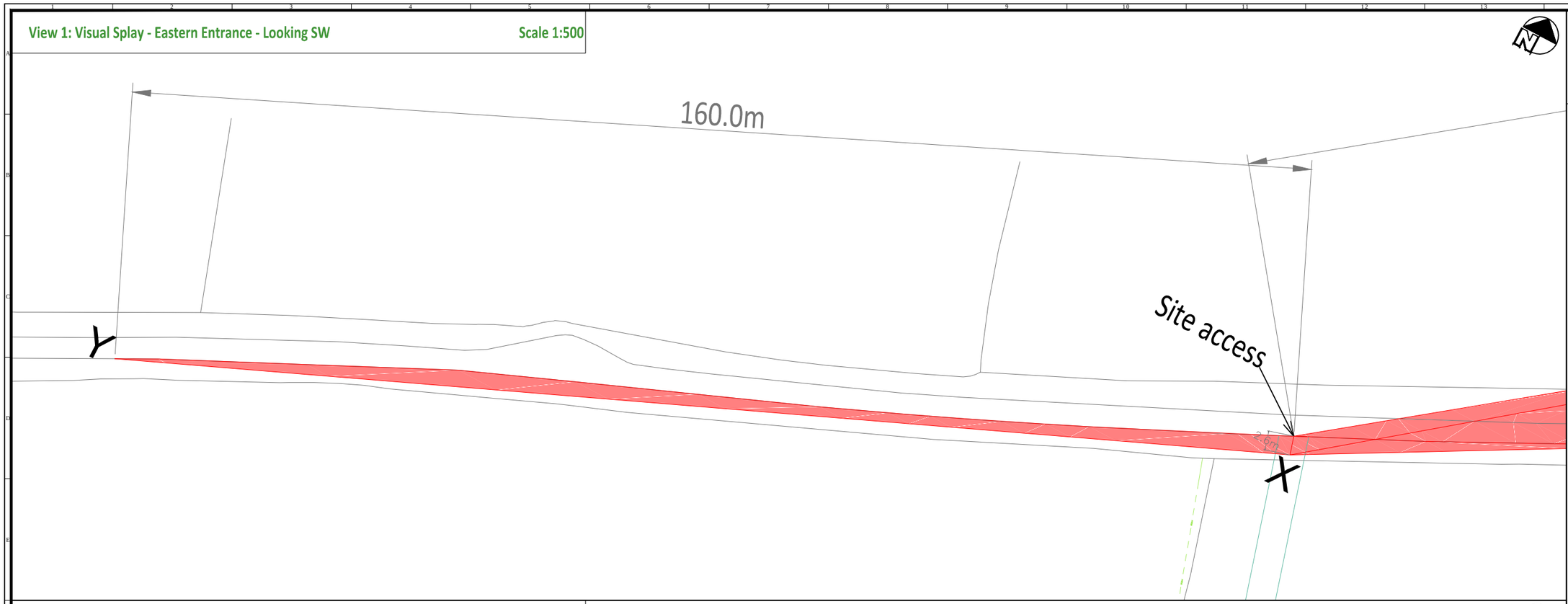
Drawing Title
Visibility Splay - Western Entrance

Drawing Path

Drawn	Checked	Approved
SC	JJ	RA
Scale	Paper Size	Status
1:500	A3	Draft
Date		Rev
9/3/2015 10:59 AM		B1

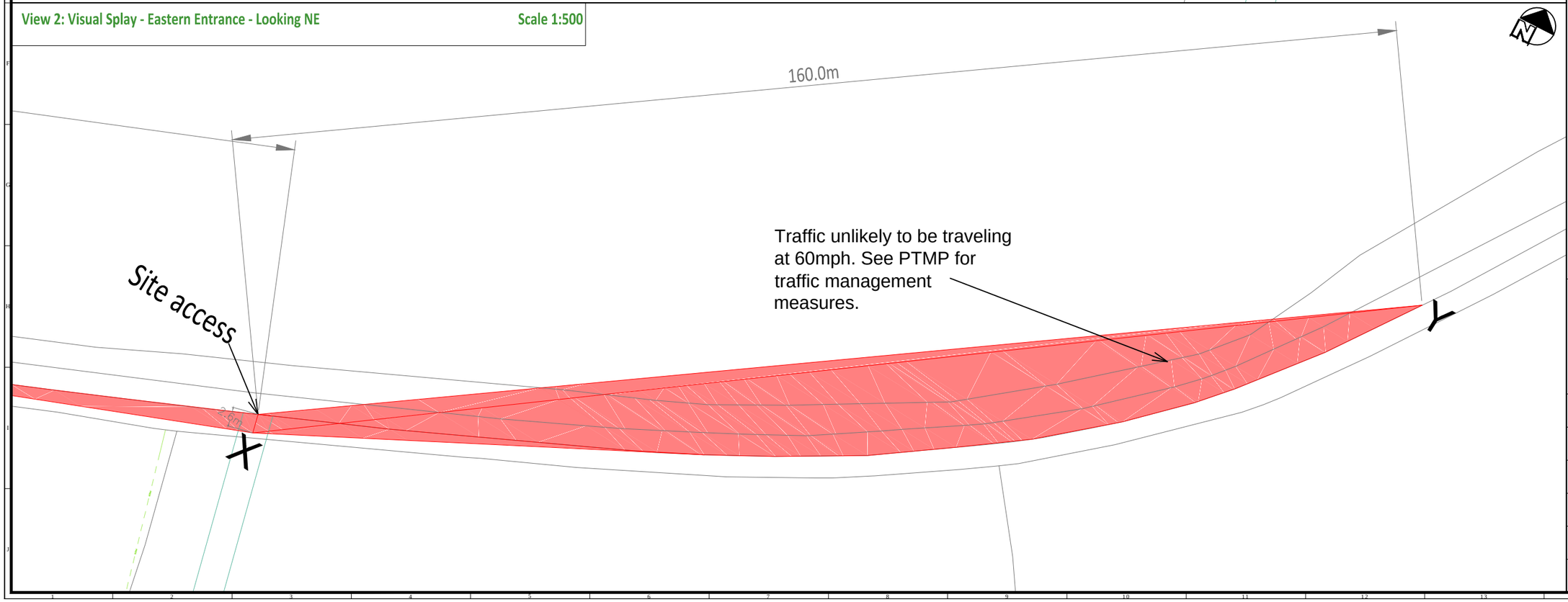
View 1: Visual Splay - Eastern Entrance - Looking SW

Scale 1:500



View 2: Visual Splay - Eastern Entrance - Looking NE

Scale 1:500



TGC-SITE-DESIGN

GENERAL NOTES

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Legend:

Visibility Envelope

Rev	Details
A8	Amended PROW and Hedging
A9	Eastern Entrance changed to double gate
B1	Temporary Construction compounds added and Visibility splay edits

0m 20 m

Designed by TGC Renewables

Project Title
226-01-PV Francis Lane

Drawing Title
Visibility Splay - Eastern Entrance

Drawing Path

Drawn	Checked	Approved
SC	**JJ**	**RA**
Scale	Paper Size	Status
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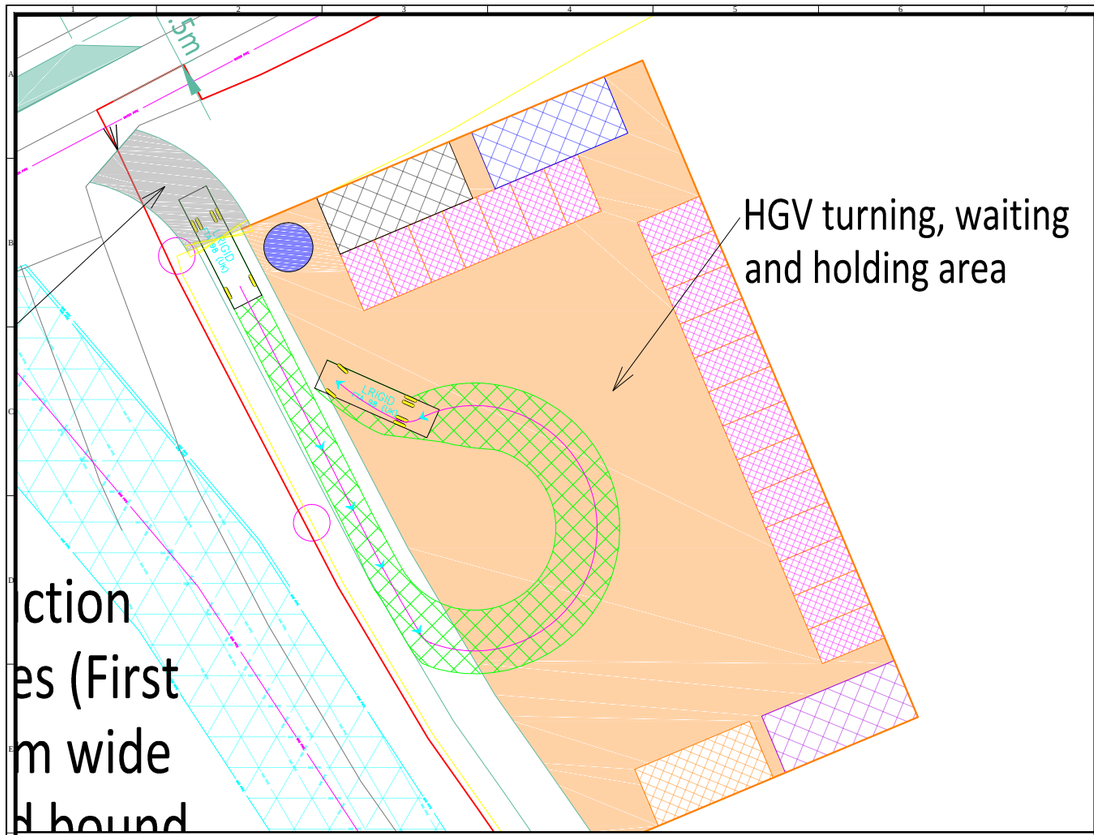
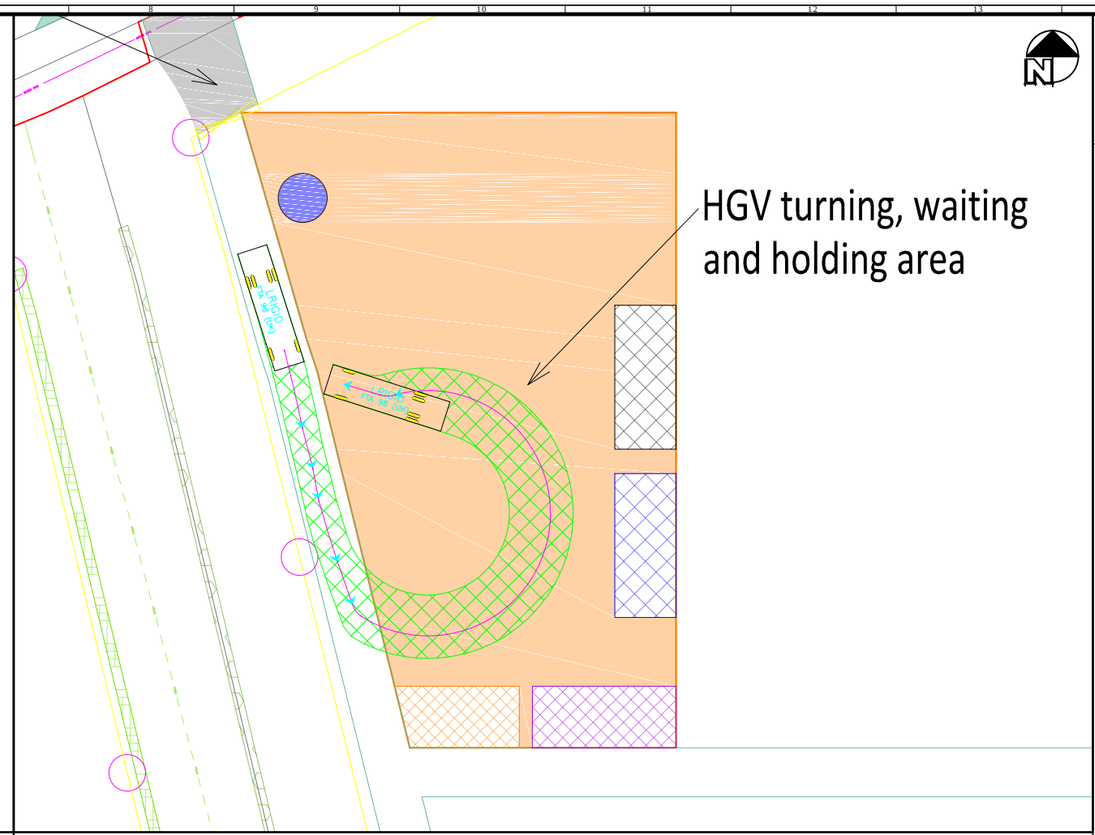
Date		Rev
9/3/2015 11:01 AM		**B1**

APPENDIX C – TEMPORARY COMPOUND DRAWINGS



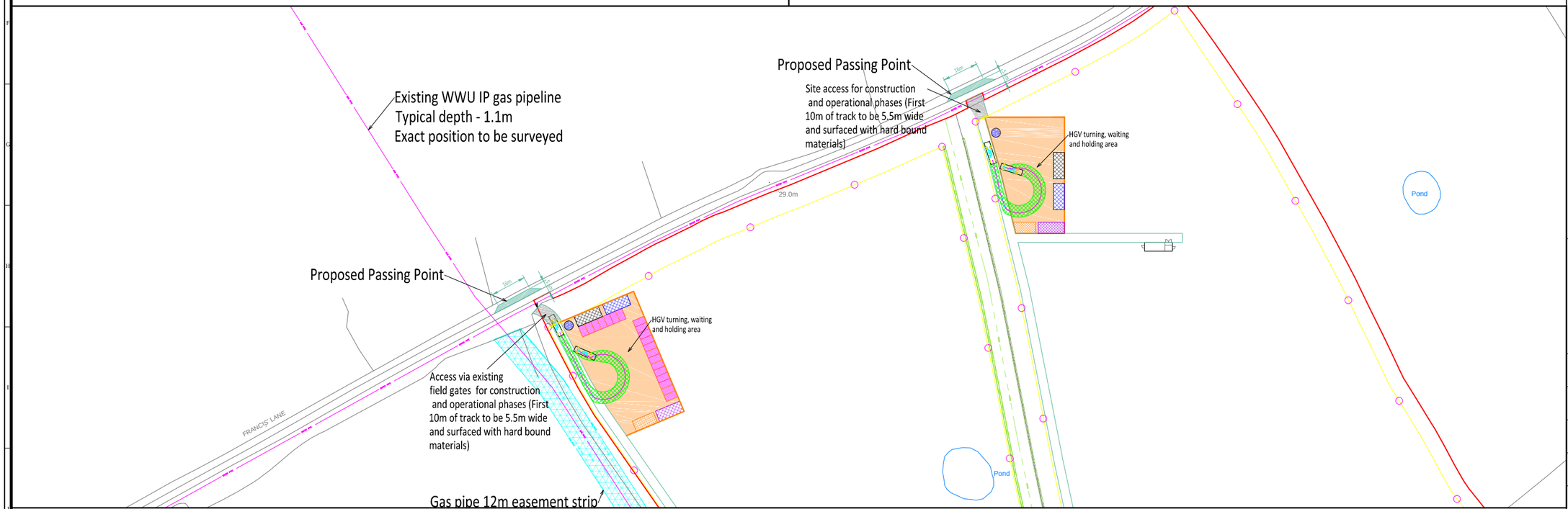
Temporary Construction Compound - Western Entrance

Scale 1:500



Temporary Construction Compound - Eastern Entrance

Scale 1:500



Plan View showing proposed locations of Temporary Construction Compounds

Scale 1:2500

TGC-SITE-DESIGN

GENERAL NOTES

A. DO NOT SCALE FROM THIS DRAWING
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System Info:

Module Rating:	280Wp	320Wp
System Size*:	3.83MWp	4.38MWp
Area Bounded by Fence:	7.8ha	
Area of Site:	10.2ha	

*Precise module rating cannot be specified at this stage and will be selected based on market availability post consent. Site capacity above shows system size based on typical low and high panel rating specification being used. Range of panel ratings are achieved with the same physical panel dimensions given above.

Legend:

- Existing Services
- Inverter Cabin
- 33kV Substation
- Switchgear Housing
- Comms Building
- 4m CCTV Poles
- Site Boundary
- Fence
- Track
- Public Rights of Way
- Gas Easement Area
- New/Enhanced Landscaping
- Existing Landscaping
- Temporary Construction Area
- Storage Area
- Waste Management Area
- Site office
- Construction Compound building
- Parking
- Wheel wash Location

Rev	Details
A8	Amended PROW and Hedging
A9	Eastern Entrance changed to double gate
B1	Temporary Construction compounds added
C1	2 spaces added to the Western construction compound
C2	Access tracks widened

0m 12 m

Designed by TGC Renewables

Project Title
226-01-PV Francis Lane

Drawing Title
Visibility Splay - Eastern Entrance

Drawing Path

Drawn	Checked	Approved
SC	JJ	RA
Scale	**Paper Size**	**Status**
1:2500	A3	Draft
Date		**Rev**
4/11/2015 2:52 PM		C2

APPENDIX D – PASSING PLACES

TGC-SITE-DESIGN

GENERAL NOTES

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System Info:

Module Rating:	280Wp	320Wp
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Legend:

- Existing Services
- Inverter Cabin
- 33kV Substation
- Switchgear Housing
- Comms Building
- 4m CCTV Poles
- Site Boundary
- 80 PV Modules
- 40 PV Modules
- 20 PV Modules
- Fence
- Track
- Public Rights of Way
- Gas Easement Area
- New/Enhanced Landscaping
- Existing Landscaping

Rev	Details
A8	Amended PROW and Hedging
A9	Eastern Entrance changed to double gate
B1	Site compound drawings created
B2	Existing and proposed landscaping added
C1	Passing places added as advised by the council

0m 40 m

TGC renewables

Designed by TGC Renewables

Project Title
226-01-PV Francis Lane

Drawing Title
Site Design

Drawing Path
P:\226-01-PV FRANCIS LANE\SITE DESIGN\02-ALL SITE DESIGN\01-FRANCIS LANE.DWG

Drawn	Checked	Approved
SC	JJ	RA
Scale	Paper Size	Status
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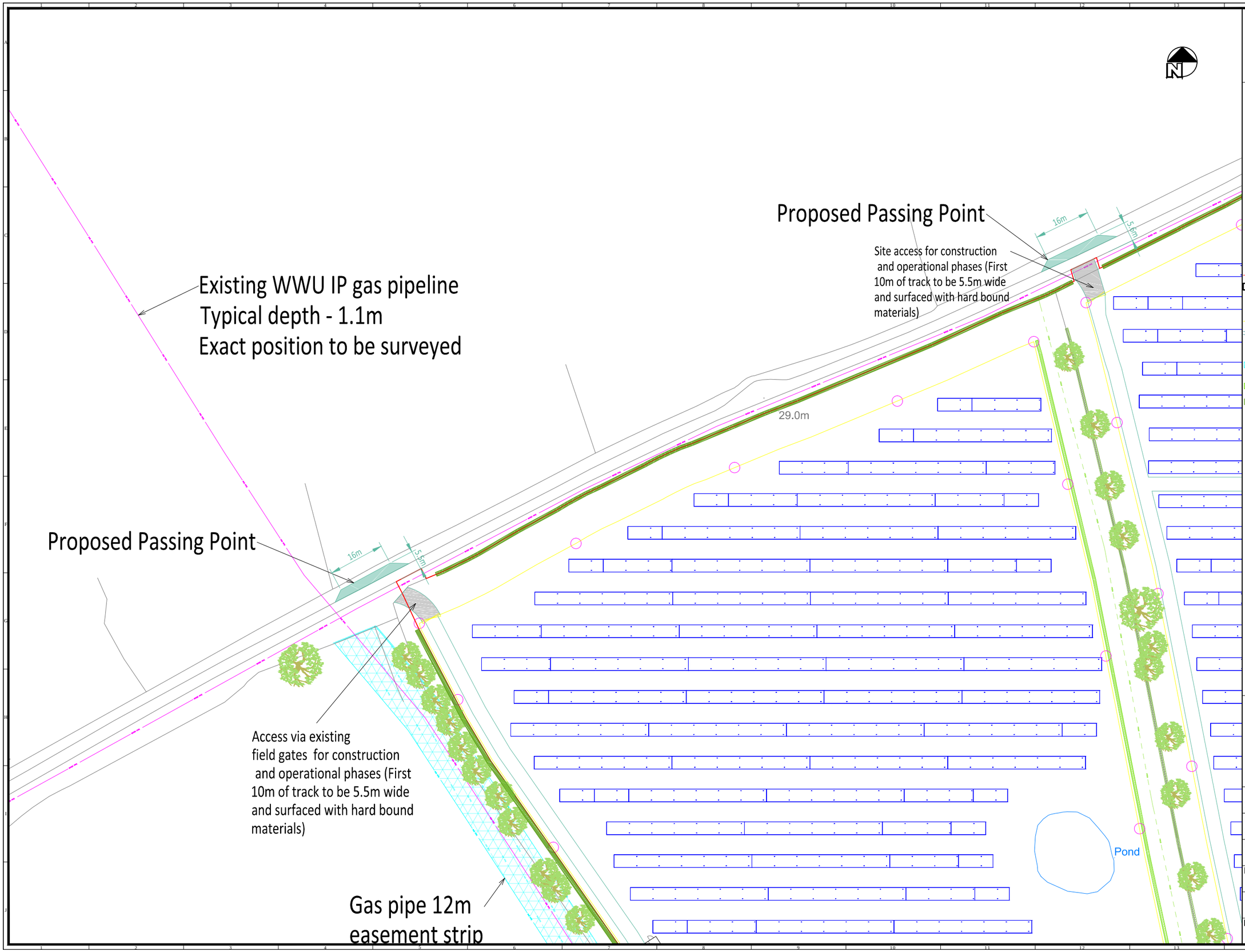
Date		Rev
04/11/2015 14:39:01		C1



TGC-SITE-DESIGN

GENERAL NOTES

A. DO NOT SCALE FROM THIS DRAWING
B. ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.

System Info:

Module Rating:	280Wp	320Wp
System Size*:	3.83MWp	4.38MWp
Area Bounded by Fence:	7.8ha	
Area of Site:	10.2ha	

*Precise module rating cannot be specified at this stage and will be selected based on market availability post consent. Site capacity above shows system size based on typical low and high panel rating specification being used. Range of panel ratings are achieved with the same physical panel dimensions given above.

Legend:

- Existing Services
- Inverter Cabin
- 33kV Substation
- Switchgear Housing
- Comms Building
- 4m CCTV Poles
- Site Boundary
- 80 PV Modules
- 40 PV Modules
- 20 PV Modules
- Fence
- Track
- Public Rights of Way
- Gas Easement Area
- New/Enhanced Landscaping
- Existing Landscaping

Rev	Details
A8	Amended PROW and Hedging
A9	Eastern Entrance changed to double gate
B1	Site compound drawings created
B2	Existing and proposed landscaping added
C1	Proposed Passing places added as advised by the council
C2	Access tracks widened

0m 40 m

TGC renewables

Designed by TGC Renewables

Project Title
226-01-PV Francis Lane

Drawing Title
Site Design

Drawing Path
P:\01-MRDWARF\BLPI-FRANCIS LANE\PLB DESIGN\01-ALL FILES\C02-01 FRANCIS LANE C2

Drawn	Checked	Approved
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04/11/2015 14:38:21		C2