




DOGGER BANK
CREYKE BECK

April
2013

Environmental Statement Chapter 28 Appendix A - Transformer Abnormal Load Feasibility Study

Title: Dogger Bank Creyke Beck Environmental Statement Chapter 28 Appendix A - Transformer Abnormal Load Feasibility Study		Contract No. (if applicable) Forewind
Document Number: F-ONC-CH-028 Appendix A	Issue No: 1	Issue Date: 27-Mar-12
Status: Issued for 1st. Technical Review <input type="checkbox"/> Issued for PEI3 <input checked="" type="checkbox"/> Issued for 2nd. Technical Review <input type="checkbox"/> Issued for Application Submission <input type="checkbox"/>		
Prepared by: ALE	Checked by: (Forewind) Andrew Riley	
Approved by: ALE	Signature / Approval (Forewind)  Mark Thomas	Approval Date: 10-Apr-12

Revision History

Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
27-Mar-12	1	Issued for Approval			ALE

ALE CONTRACT 11768

CREYKE BECK CONVERTER STATION

TRANSFORMER ABNORMAL LOAD FEASIBILITY STUDY

AUTHOR: R. BEARDMORE
DATE OF SURVEY: 27th March 2012
REV – 0



CONTENT

1.0	EXECUTIVE SUMMARY	_____	(P3-4)
1.1	Port Review		
1.2	Route Review		
1.3	Street Furniture		
1.4	Traffic Management		
1.5	Permits And Authorities		
2.0	PROJECT GENERAL INFORMATION	_____	(P5)
2.1	Project Name		
2.2	Key Cargo Information		
2.3	Transport Specifications		
3.0	PORT OF IMPORT ANALYSIS	_____	(P6-7)
3.1	Hull Docks		
3.2	Hull Docks - Overview		
4.0	ROUTE SURVEY AND STREET FURNITURE REMOVAL	_____	(P8-32)
4.1	Route Overview		
4.2	Route Survey/ Street furniture Removal		
4.3	Height Restrictions		
4.4	Location Of Overbridges - Photos		
5.0	TRANSPORT ARRANGEMENT		
6.0	SWEPT PATH		
7.0	SUMMARY		

1.0 EXECUTIVE SUMMARY

Abnormal Load Engineering Limited (ALE) has been requested by Royal Haskoning to complete a High level routing assessment into the delivery and logistics restrictions for the planned Creyke Beck Converter Station.

This is a high level review of our findings into the potential logistical issues for 1 No. 300 tonne Transformer to Creyke Beck Converter Station.

1.1 Port review

In line with the current UK Government transport policy, the use of the nearest port facilities for the discharge of 1 No. Transformer has been identified as **Hull Docks**.

1.2 Route review

Detailed in this document is a high level review of a direct route from Hull docks to proposed Creyke Beck Converter Station. This review details identified restrictions along the route.

The route from Hull Docks is 17 miles in length. The route has been approved in principle for the movement of 1 No. 300 tonne Transformer. As part of this process the local council (East Riding of Yorkshire) have assessed the height restriction on this route from Hull Docks is to be 5.0m for overhead foot bridges on the A1079. In this document we have listed ways to overcome this issue.

This route is the lowest risk route we could find in terms of manoeuvrability of trailers and amount of civil work that would be required.

1.3 Street Furniture

Although the majority of the route is using dual carriageways which benefit from being wide, lowering the potential amount of street furniture to be removed, there is a requirement for street furniture removal along the route from Hull Dock. This issue can be overcome by employing the Council to remove / reinstall at the time of movement. We have not yet made any contact with the council regarding this issue as it is considered too early in the project.

1.4 Traffic Management

Due to the nature of the load, we will require police escort vehicles for the time of movement to help with the management of other road users and the negotiability of the load during manoeuvres.

1.5 Permits and Authorities

A special order permit and agreed route from the Highways Agency are both required for the Transformer due to its dimensions and weight.

A minimum of 8 weeks' notice would be required for this and the application is to be made by the appointed haulier.

1.0 EXECUTIVE SUMMARY continued...

What loads require a Special Order Permit?

The Highways Agency criteria for movement with a Special Order Movement Permit are as follows:

Anything over the following criteria;

- Weight: 150 tonnes gross (item and trailer – including tractor if using a neck trailer).
- Axle weight: 16.5 tonnes.
- Length: 30m rigid length including trailer.
- Width: 5.0m.
- Height: No direct limitation except that of the route.
- ANYTHING over these limits requires a full Special Order Permit and will be required to be delivered to site using the closest facility which can be access by water.

2.0 PROJECT GENERAL INFORMATION

2.1 Project Name

Creyke Beck Converter Station; Transformer Abnormal Load Routing Feasibility Study.

2.2 Cargo Information

Item;	1 No. Transformer Unit.
Dimensions;	14.00 x 3.50 x 4.70 m.
Weight;	300 tonne.

2.3 Transport specifications

The current UK Government transport policy states that we must use the nearest port facilities as feasibly possible for the discharge of the Abnormal Indivisible Load (AIL) which is why we would utilise Hull Docks.

The route suggested is the most direct route whilst still avoiding any problematic structures.

The transport we are using is our AL100 Girder Frame, we deem this to be the best option when looking at the weight and dimensions of this Transformer.



3.0 PORT OF IMPORT ANALYSIS

3.1 Hull Docks

The Port of Hull is owned and operated by ABP and being one of the UK's leading foreign trading ports has benefited from a constant programme of capital investment in the development of new facilities and services.

The port's position on the north bank of the River Humber also provides a major geographical advantage for transport links in to and out of the UK. As a result, the port has very strong short-sea trade links with Europe, Scandinavia and the Baltic, in addition to world-wide deep-sea services.

Key services offered by the Port of Hull include:

- World-class facilities developed through major capital investment schemes.
- Competitive stevedoring offering excellent levels of service and with experience in handling a wide range of cargoes.
- 24-hour port security ensuring peace of mind.

Providing the discharge of the project cargo for the Project would be undertaken on the North Quay within the King George Docks (Hull).

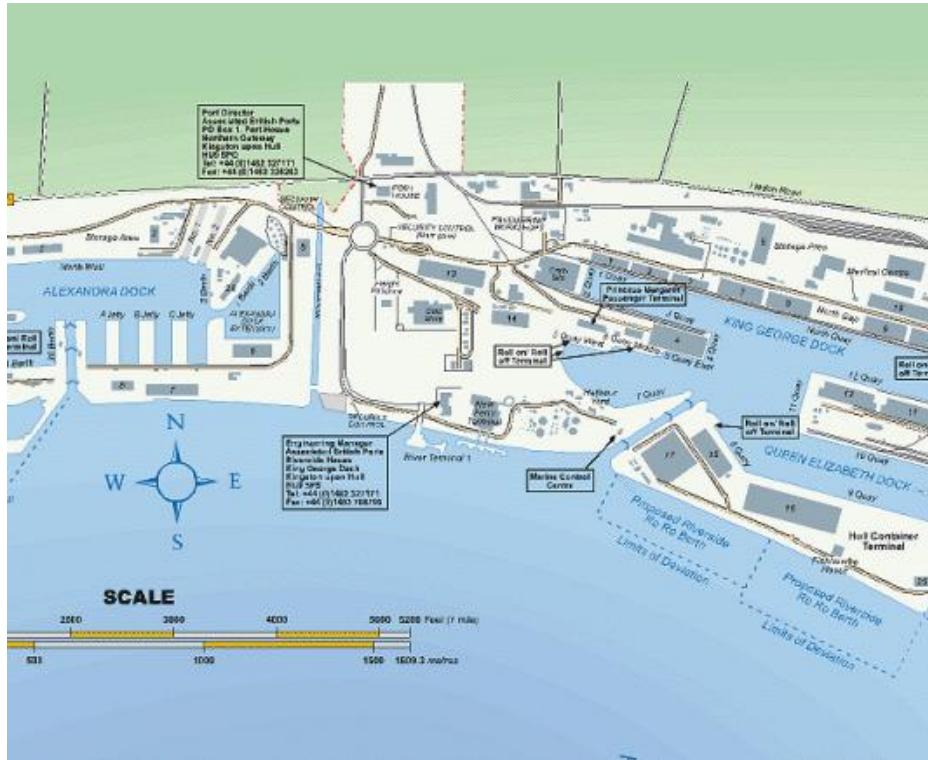
Vessel operational restrictions on the use of this facility are as follows:

Maximum L.O.A	-	199m
Maximum Beam	-	25.5m
Maximum Draught	-	10.4m
Maximum D.W.T.	-	34,000

Hull Docks is able to offer the storage of some heavy and super heavy cargoes. In all, 40 transit sheds provide a total of 230,000 sq m of storage for a full range of cargoes together with a further 65 ha of open storage.

3.0 PORT OF IMPORT ANALYSIS continued...

3.2 Hull Docks – Overview



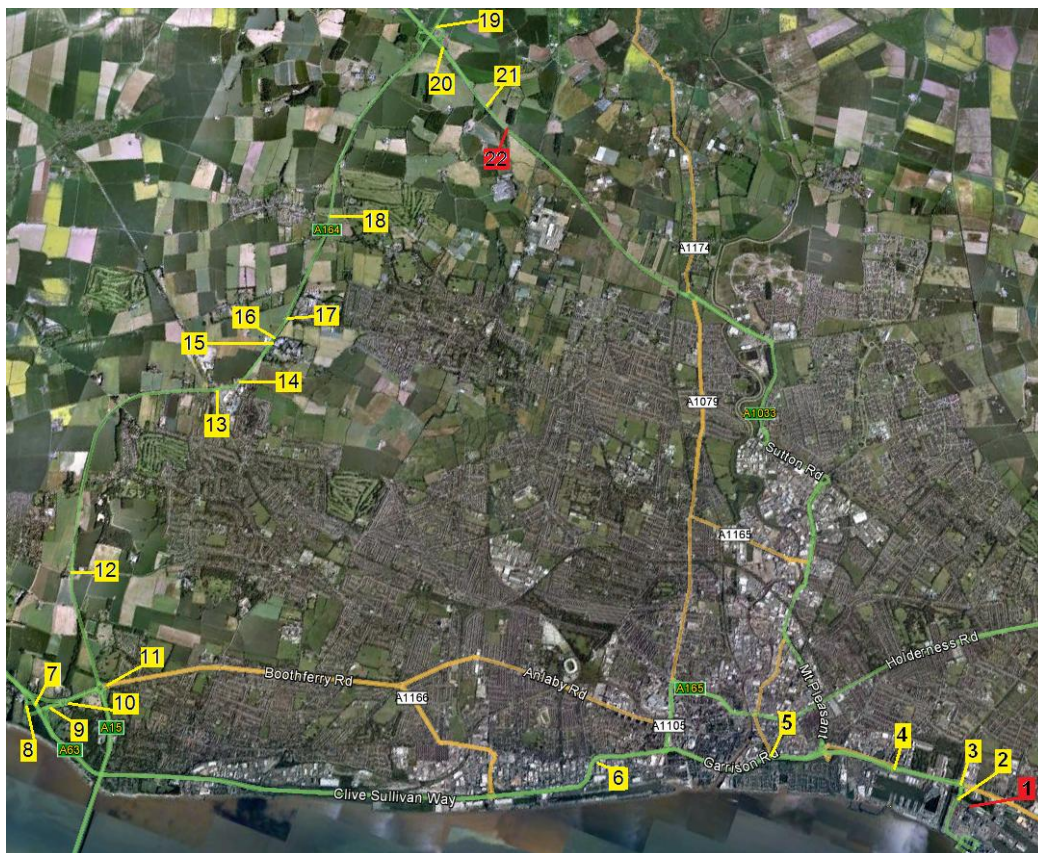
ABOVE: Aerial View of Hull Docks.

4.0 ROUTE SURVEY AND STREET FURNITURE REMOVAL

4.1 Route Overview




ABOVE: Road map of Route.

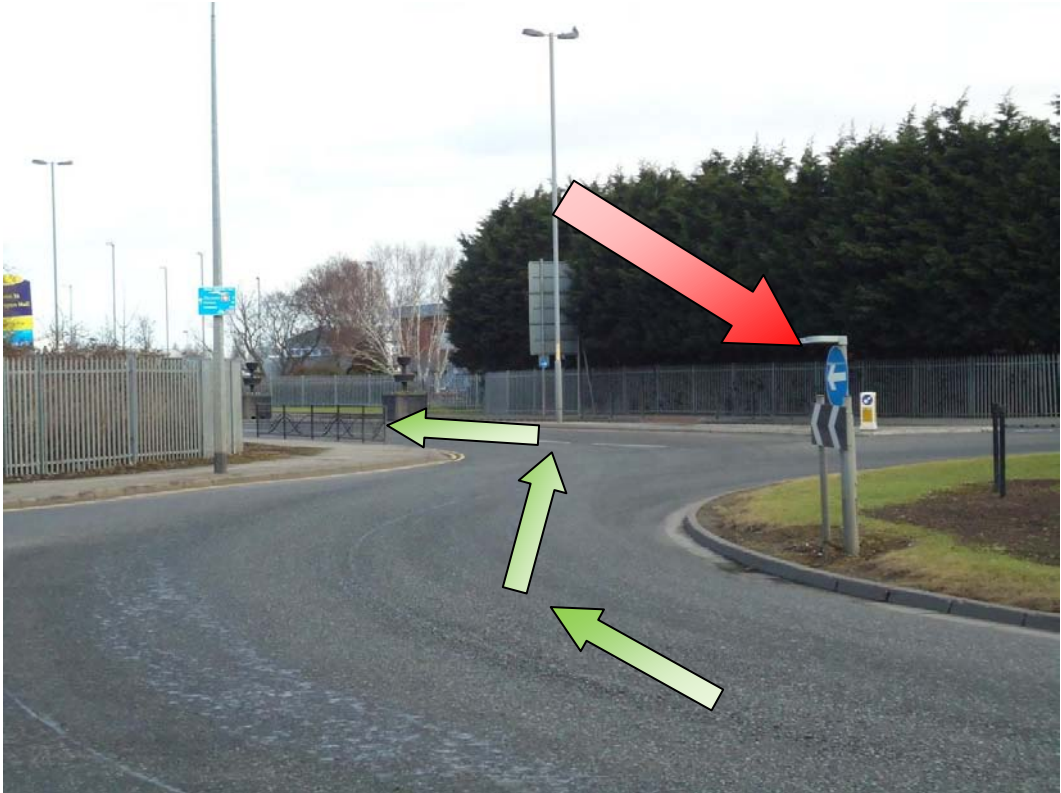


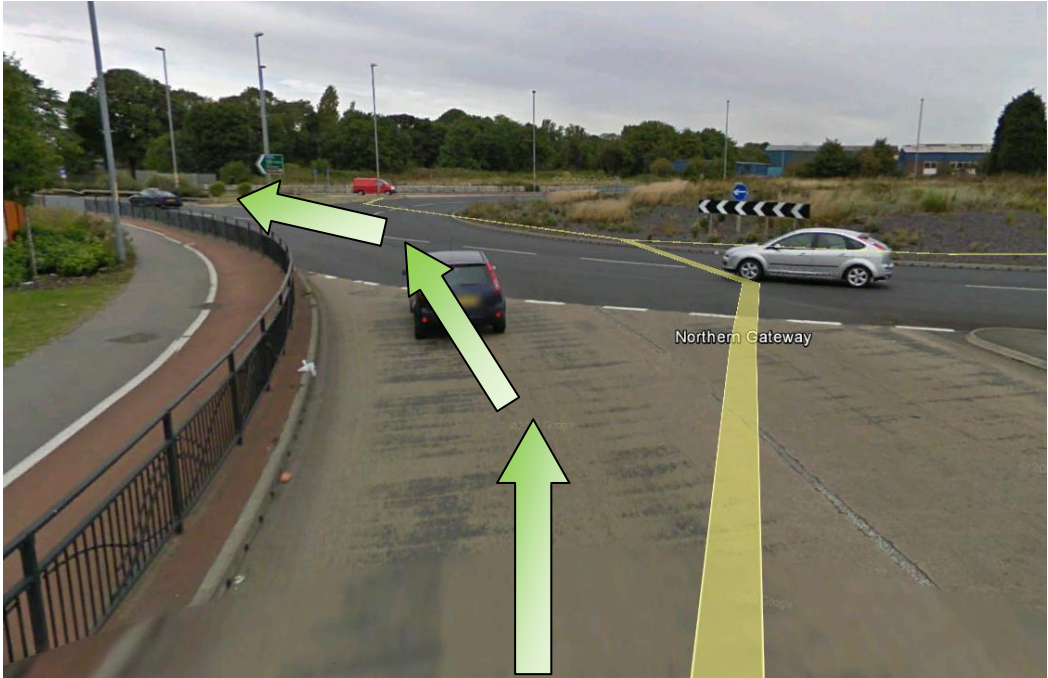
ABOVE: Satellite image of route including reference points.

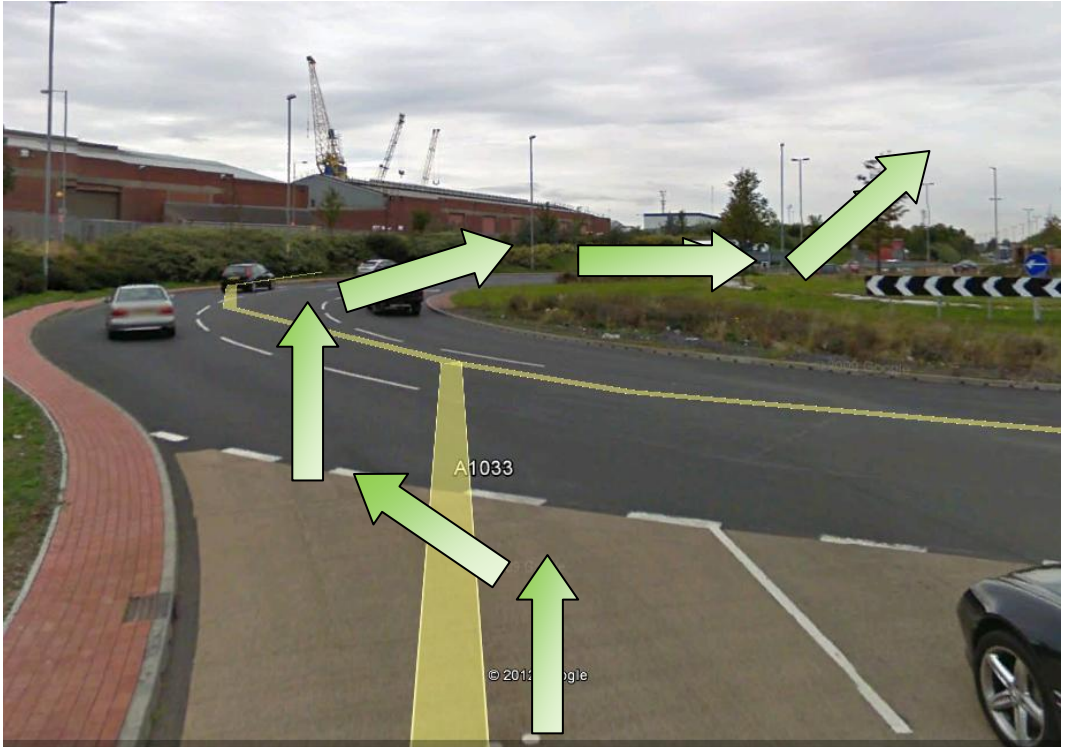
4.0 ROUTE SURVEY AND STREET FURNITURE REMOVAL continued...


4.2 Route Survey/ Street furniture Removal

Reference	1
Location/ Direction (Green)	Hull Dock's, Start of route
Removal Requirements (Red)	NA
Photo Ref	

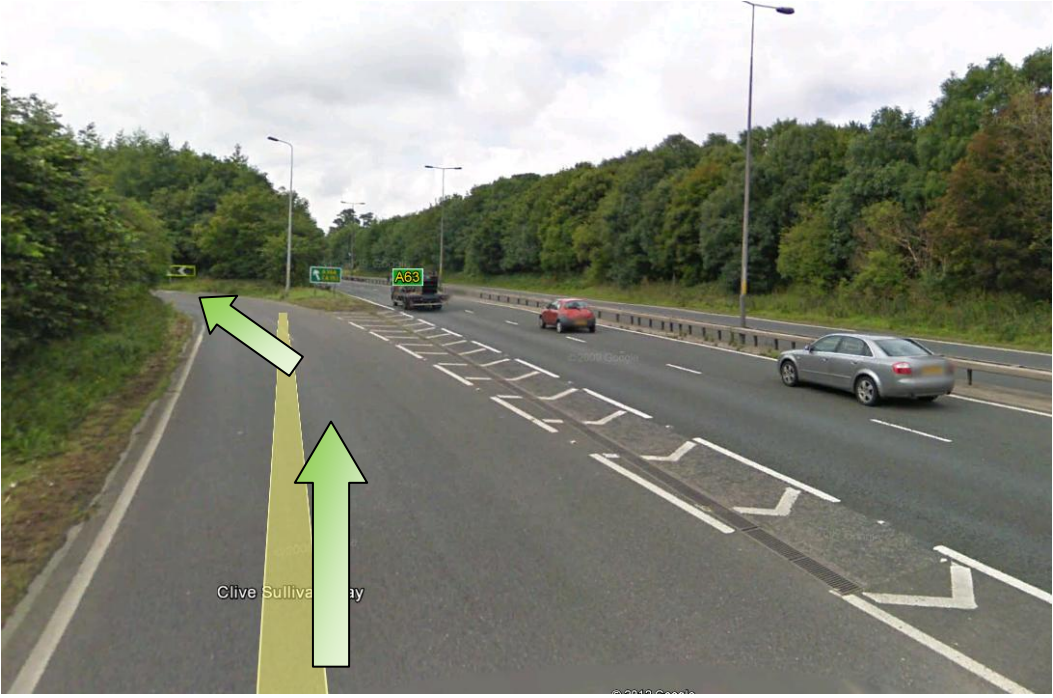
Reference	2
Location/ Direction (Green)	Roundabout on leaving dock, 3 rd exit
Removal Requirements (Red)	1 x chevron. 1 x Keep Left sign (KLS)
Photo Ref.	

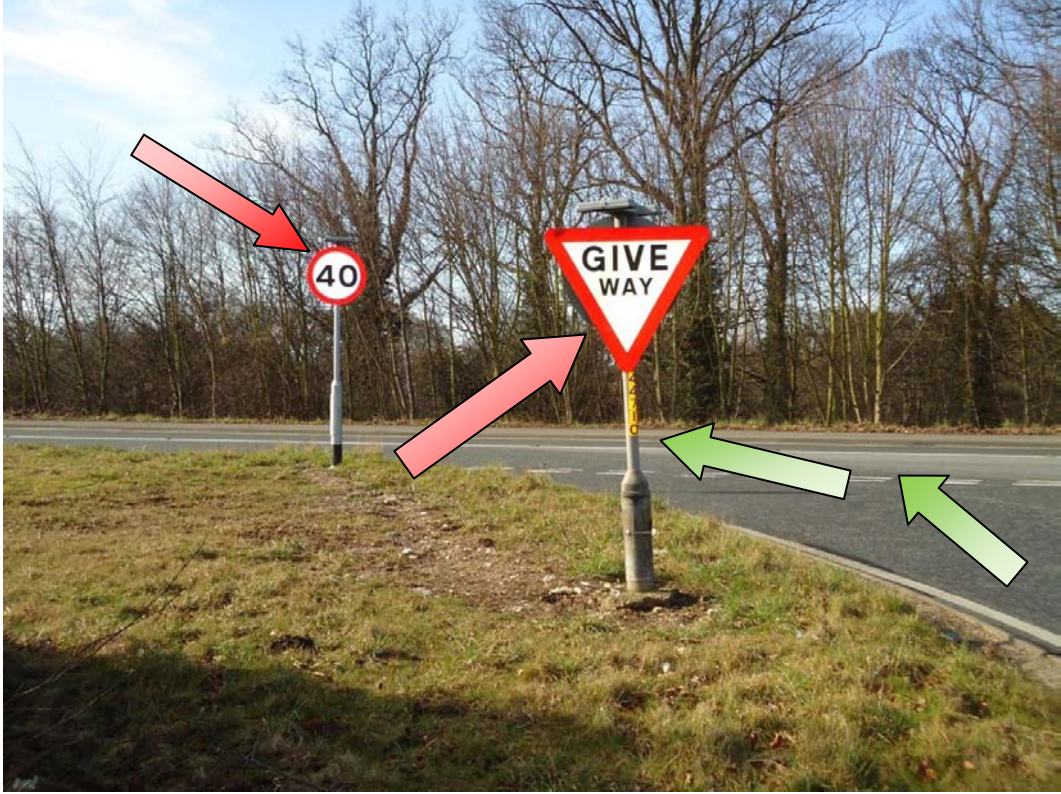
Reference	3
Location/ Direction (Green)	Roundabout, A63, 1 st exit
Removal Requirements	NA
Photo Ref	

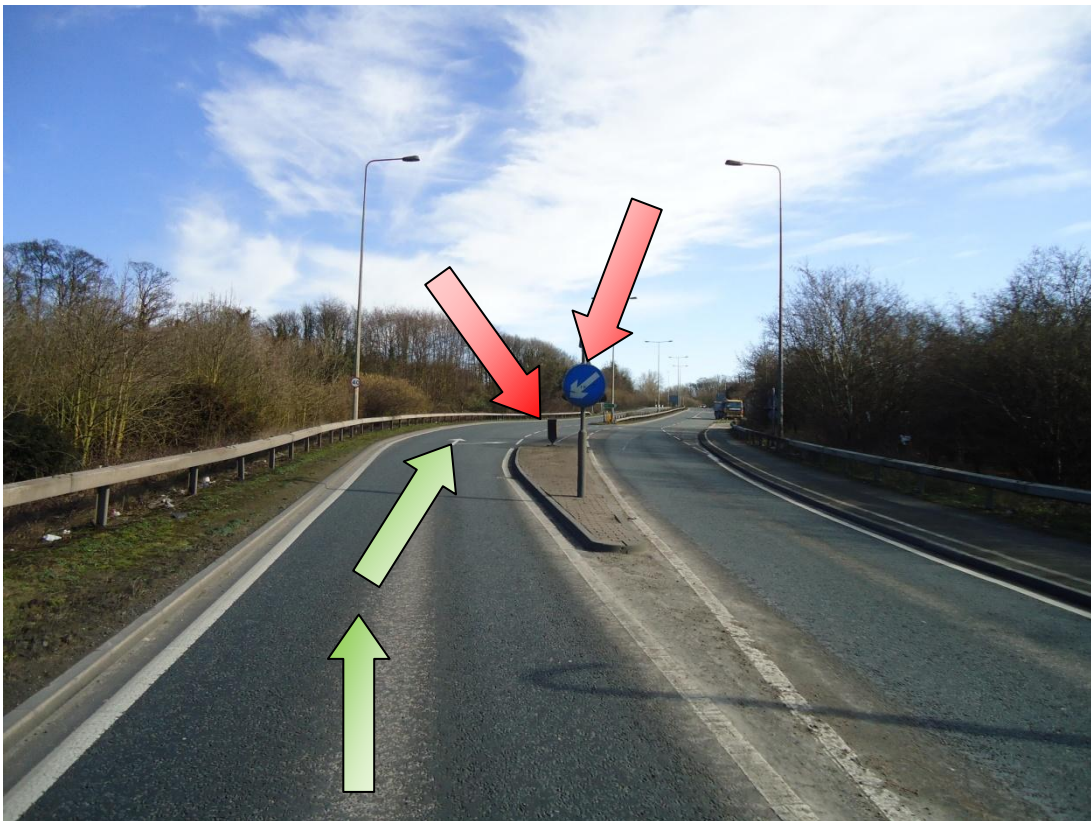
Reference	4
Location/ Direction (Green)	Roundabout, Continue A63, 1 st Exit
Removal Requirements (Red)	NA
Photo Ref	

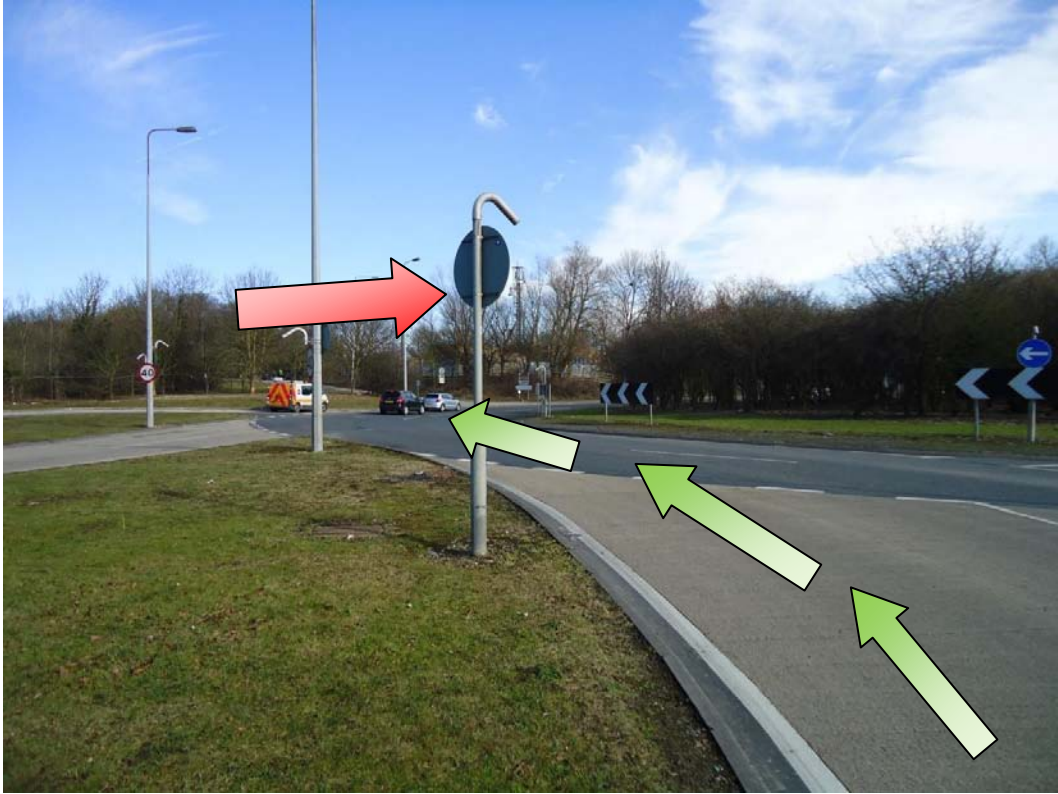
Reference	5
Location/ Direction (Green)	Roundabout, Continue A63, 2 nd Exit.
Removal Requirements (Red)	NA
Photo Ref	

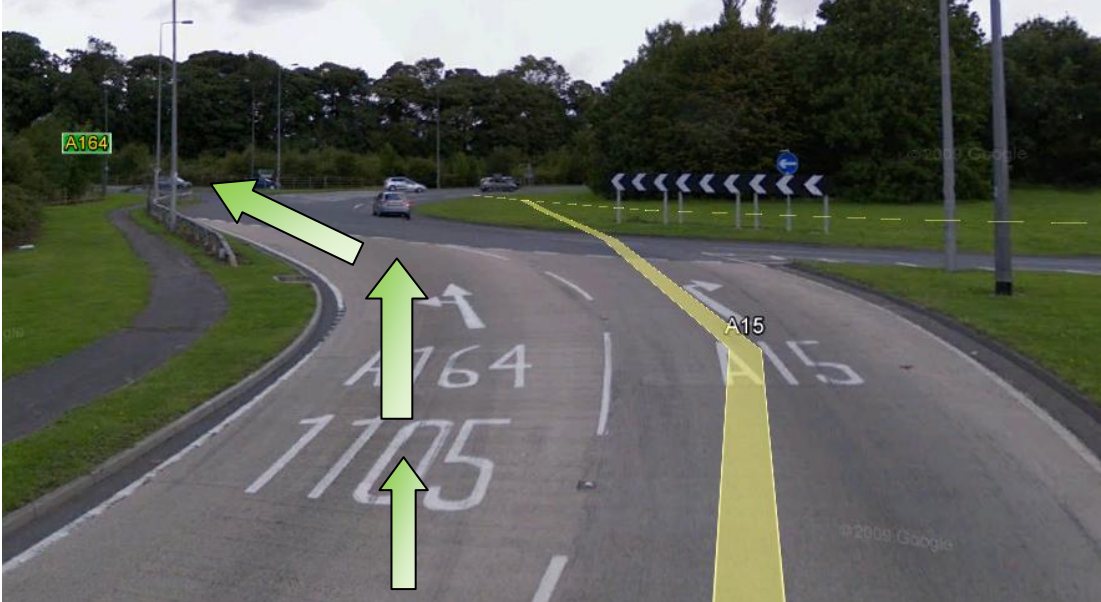
Reference	6
Location/ Direction (Green)	Daltry Flyover, using slip road
Removal Requirements (Red)	1 x KLS, 1 x Sign (Reads 'NEW CROSSING AHEAD')
Photo Ref	 <p>Reverse view ></p>

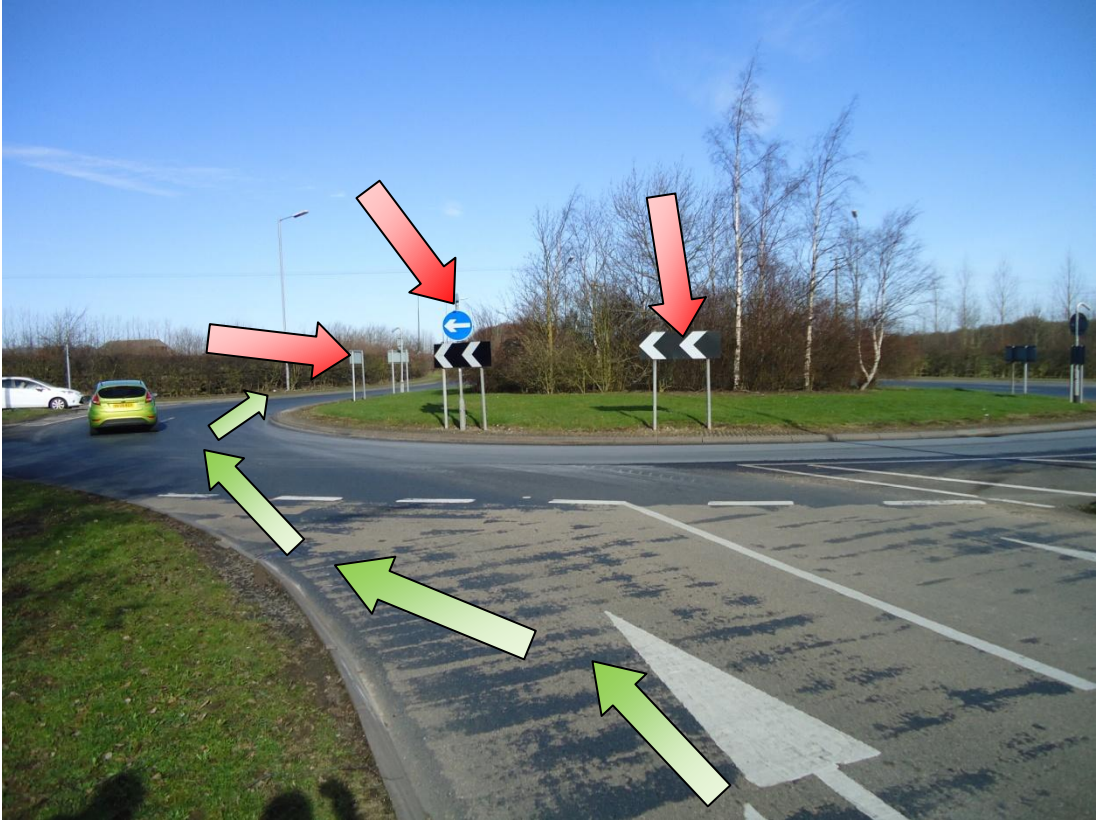
Reference	7
Location/ Direction (Green)	Left turn off A64 onto A15
Removal Requirements (Red)	NA
Photo Ref	

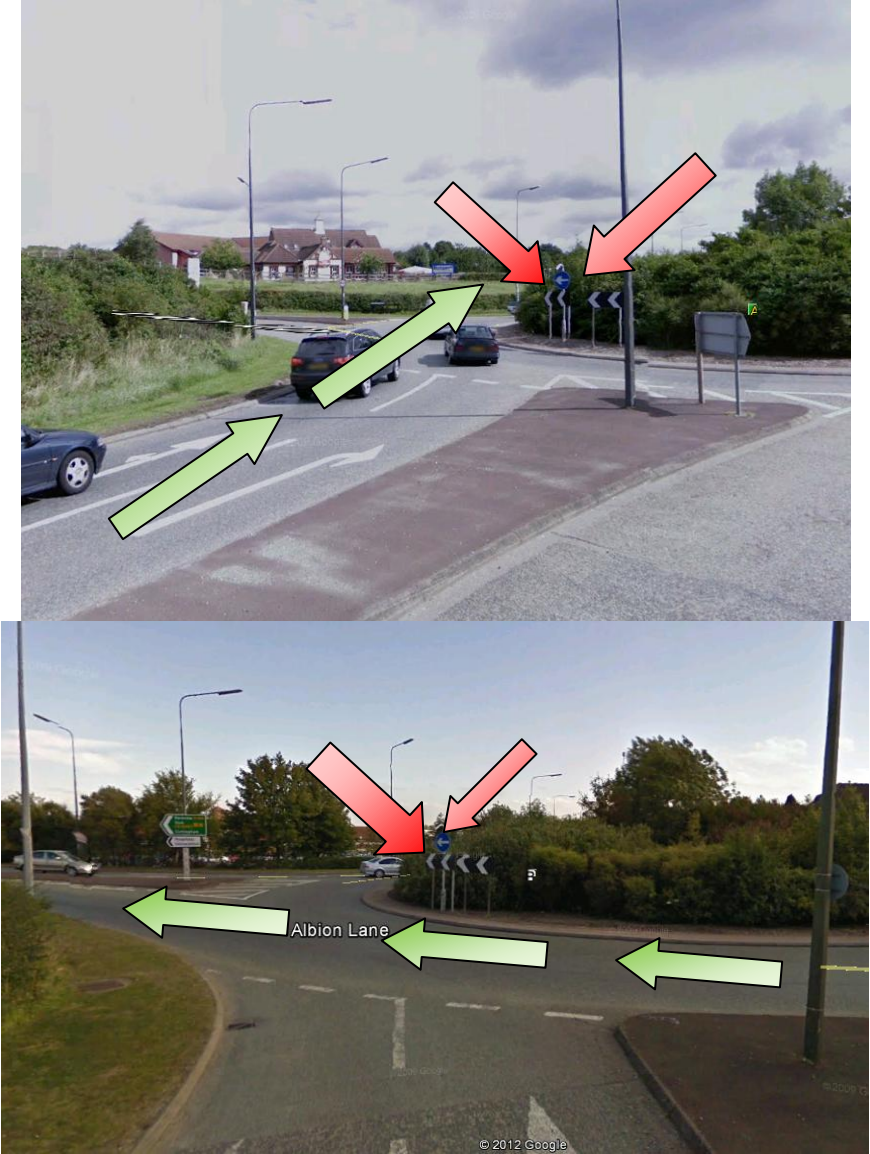
Reference	8
Location/ Direction (Green)	T-junction, Turn Left off A64 onto A15
Removal Requirements (Red)	1 x speed limit sign (SLS), 1 x Give way sign (GW)
Photo ref.	

Reference	9
Location / Direction (Green)	A15
Removal Requirements (Red)	2 x KLS
Photo ref	

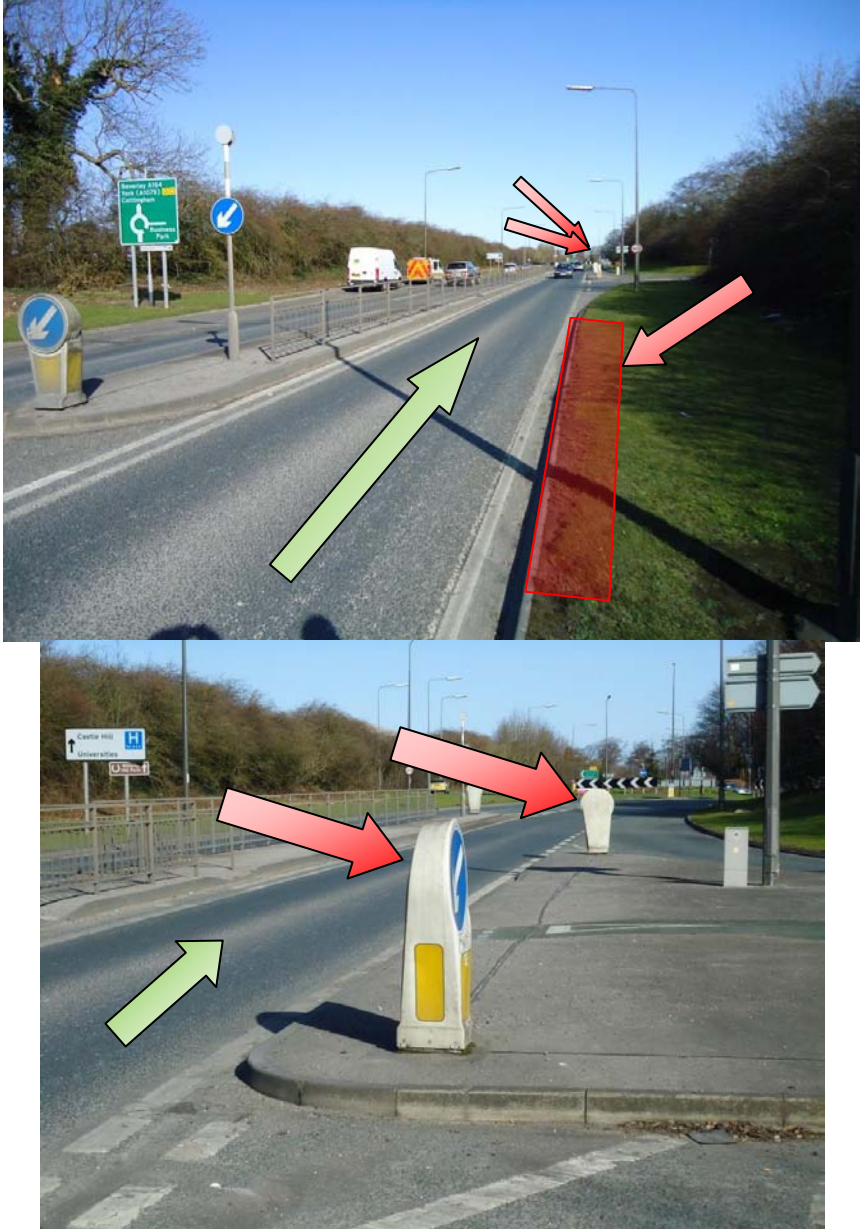
Reference	10
Location/ Direction (Green)	Round about, Continue A15, 2 ND Exit
Removal Requirements (Red)	1 x Sign
Photo Ref	

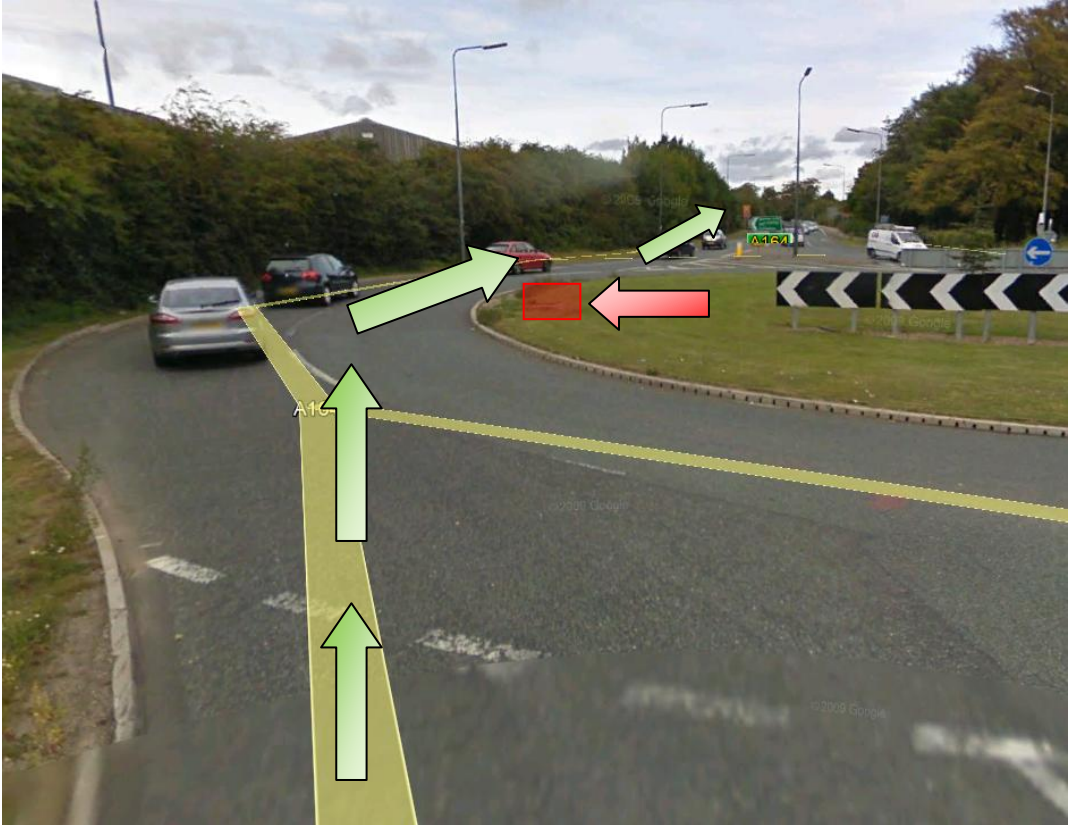
Reference	11
Location/ Direction (Green)	Roundabout, A15, 1 st Exit A164
Removal Requirements (Red)	NA
Photo Ref	


Reference	12
Location/ Direction (Green)	Tranby Roundabout, Continue A164, 2 nd Exit
Removal Requirements (Red)	2 x Turn Left Signs (TLS), 3 x chevron
Photo ref	

Reference	13
Location/ Direction (Green)	Albion lane Roundabout, Continue A164 2 nd Exit
Removal Requirements (Red)	2 x TLS, 2 x chevron
Photo ref	

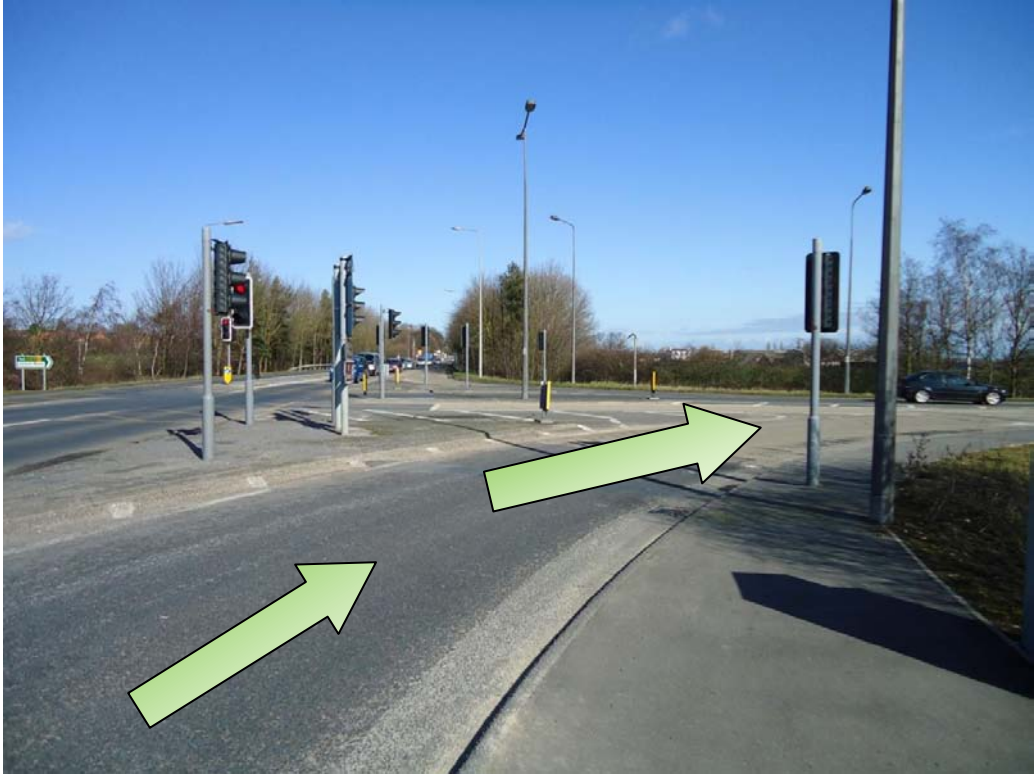
Reference	14
Location/ Direction (Green)	A164
Removal Requirements (Red)	3 x KLS
Photo Ref	

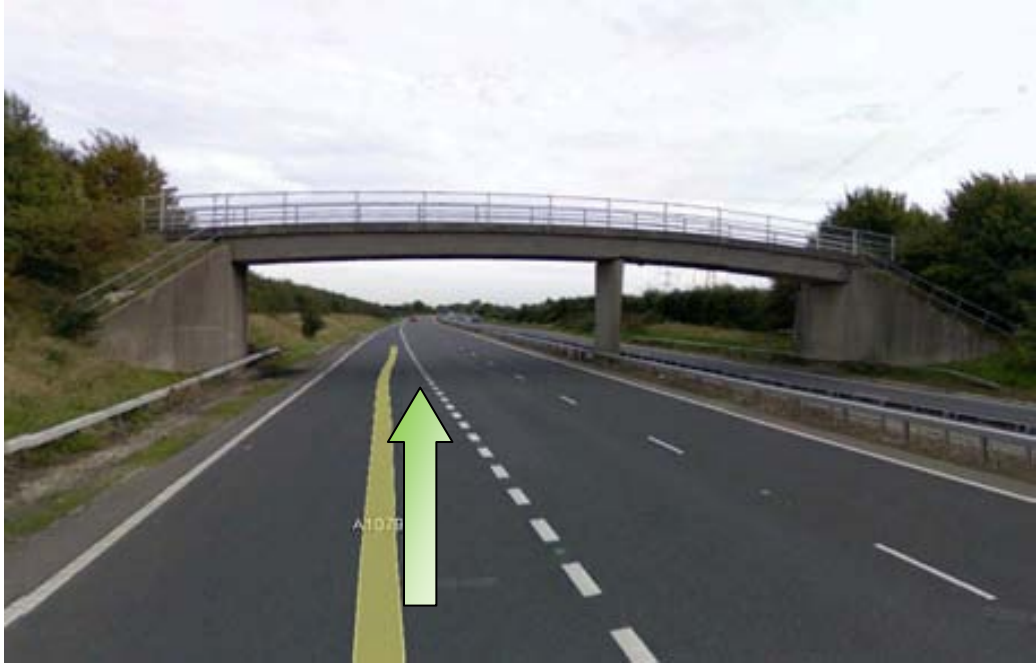
Reference	15
Location/ Direction (Green)	A164
Removal Requirements (Red)	Wrong side of the road, plate 20m of grass verge, remove 2 KLS
Photo ref	 <p>The first photograph shows a road with a grass verge on the right. A red rectangle highlights a section of the grass verge, with red arrows pointing to it. A green arrow points to the road surface. The second photograph shows a signpost with a blue and white sign, with red arrows pointing to it and a green arrow pointing to the road surface.</p>

Reference	16
Location/ Direction (Green)	Roundabout, Continue A164, 1 st Exit
Removal Requirements (Red)	Plate manhole on roundabout
Photo Ref	


Reference	17
Location/ Direction (Green)	Roundabout, Continue A164, 1 st Exit
Removal Requirements (Red)	NA
Photo ref	

Reference	18
Location/ Direction (Green)	Roundabout, Continue A164, 2 nd Exit
Removal Requirements (Red)	1 x TLS, 1 x chevron
Photo ref	

Reference	19
Location/ Direction (Green)	Right turn from A164 onto A1079 Transport to join A1079 contra-flow
Removal Requirements (Red)	
Photo Ref	

Reference	20
Location/ Direction (Green)	A1079, Manor Farm Bridge
Removal Requirements (Red)	5.10m Clearance
Photo Ref	

Reference	21
Location/ Direction (Green)	A1079, Poplar Farm Bridge
Removal Requirements (Red)	5.28m Clearance
Photo Ref	

Reference	22
Location/ Direction (Green)	Proposed site entrance (A1079)
Removal Requirements (Red)	NA
Photo Ref	



4.0 ROUTE SURVEY AND STREET FURNITURE REMOVAL

4.3 Height Restrictions

There are 2 bridges along the route that have been suggested as possible risks. The first being **5.10m** (Manor Farm Bridge) and the second **5.28m** (Poplar Farm Bridge). With this in mind the council have specified that the transport arrangement is to run no higher than **5.00m**.

Presuming the transformer build includes transports shelves as most do, the overall running height would total **4.9m** keeping it under council's specified height.

4.0 ROUTE SURVEY AND STREET FURNITURE REMOVAL

4.4 Locations Of Overbridges – Photos



ABOVE: Over view of 2 bridges



ABOVE: Road View Of Manor Farm Bridge (5.10m)

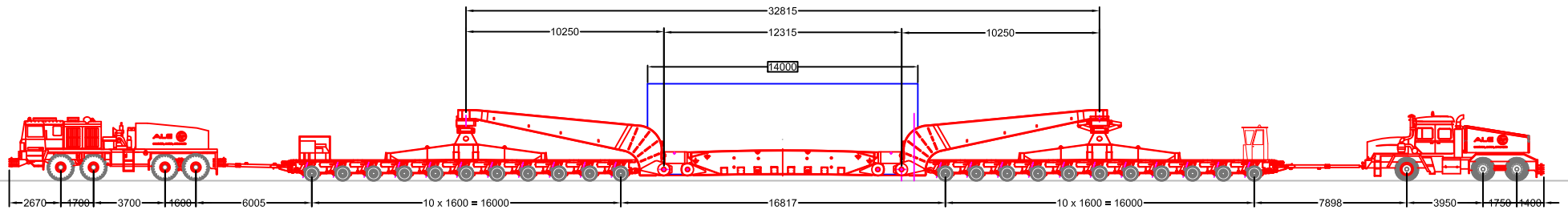


ABOVE: Road View Of Poplar Farm Bridge (5.28m)

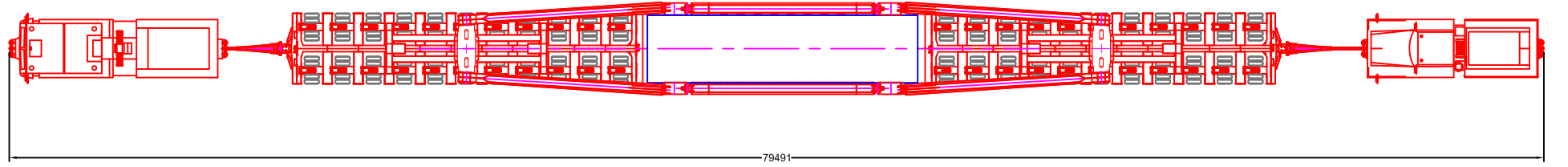


5.0 TRANSPORT ARRANGEMENT

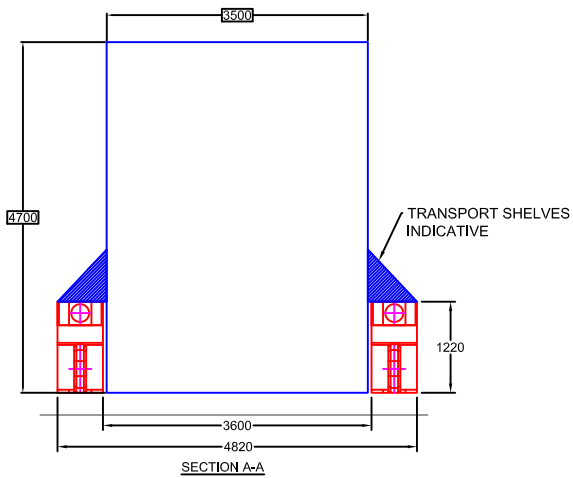
As previously advised the use of AL100 Girder Frame is preferable. This drawing displays a box to replicate 1No. Transformer of the dimensions and weight supplied to us. It also includes the transport shelves discussed earlier in the report.



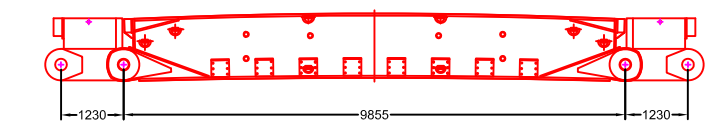
SIDE ELEVATION



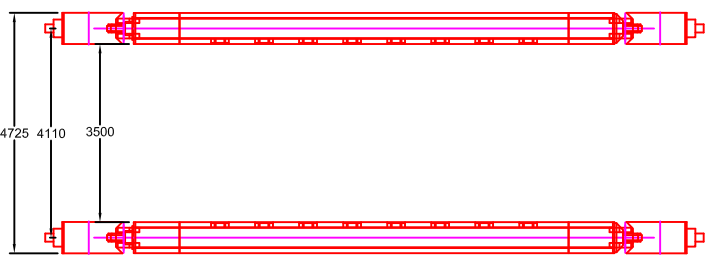
PLAN



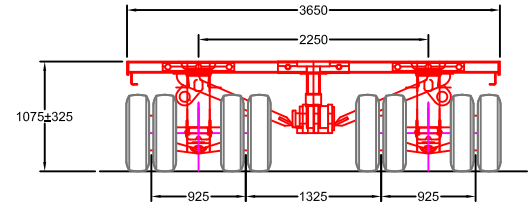
SECTION A-A



ELEVATION - BEAM DETAILS



PLAN - BEAM DETAILS



END ELEVATION TRAILER DETAILS

DRAWING NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE STATED.
- ALL WEIGHTS ARE IN METRIC TONNES (t) UNLESS OTHERWISE STATED.
- ALL DETAILS ARE PROVISIONAL AND ARE SUBJECT TO CONFIRMATION.

TECHNICAL NOTES:

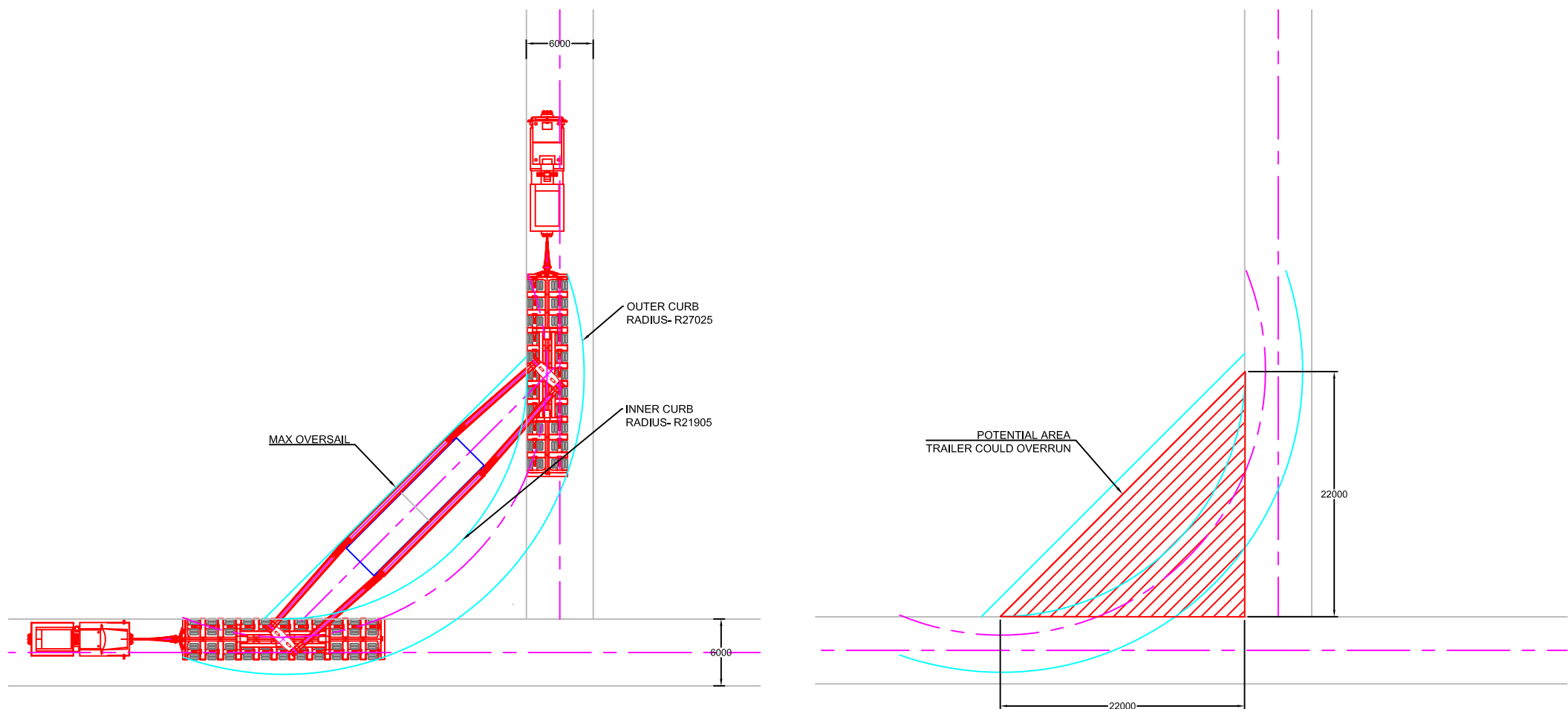
- THIS TRANSPORT ARRANGEMENT IS BASED ON LIMITED INFORMATION AND IS THEREFORE ONLY A PROVISIONAL DRAWING. WITHOUT EXACT DIMENSIONS OF TRANSFORMER AND LOCATION OF COG A FINAL ARRANGEMENT CANNOT BE APPROVED

0	24/02/12	RJ	XX	PROVISIONAL ISSUE
Rev.	Date	Drawn	Check	Description
				QF19 (Issue 5)
		Abnormal Load Engineering Ltd. New Road, Htkon, Staffordshire, ST18 0PE, U.K. Tel: +44 (0) 1889 272 500 Fax: +44 (0) 1889 271 750 Web: www.ale-heavylift.com		
Client		ROYAL HASKONING		
Project Title		CREYKE BECK FEASIBILITY STUDY		
Drawing Title		TRANSPORTATION ARRANGEMENT AL100		
Date	Drawn	Checked	Scale (A1)	Sheet
24/02/12	RJ	XX	NTS	1 of 1
Project No.		Drawing No.		Rev.
11768		11768-XXX		0





6.0 SWEPT PATH



DRAWING NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE STATED.
- ALL WEIGHTS ARE IN METRIC TONNES (t) UNLESS OTHERWISE STATED.
- ALL DETAILS ARE PROVISIONAL AND ARE SUBJECT TO CONFIRMATION.

TECHNICAL NOTES:

- THIS SWEEPED PATH IS BASED ON LIMITED INFORMATION AND IS THEREFORE ONLY A PROVISIONAL ESTIMATE OF THE PATH THIS GIRDER FRAME TRAILER WOULD HAVE TO MAKE.

0	24/02/12	RJ	XX	PROVISIONAL ISSUE
Rev.	Date	Drawn	Check	Description
				QF19 (Issue 5)
		Abnormal Load Engineering Ltd. New Road, Htcon, Staffordshire, ST18 0PE, U.K. Tel: +44 (0) 1889 272 500 Fax: +44 (0) 1889 271 750 Web: www.ale-heavylift.com		
Client		ROYAL HASKONING		
Project Title		CREYKE BECK FEASIBILITY STUDY		
Drawing Title		PROVISIONAL SWEEPED PATH AL100		
Date	Drawn	Checked	Scale (A1)	Sheet
24/02/12	RJ	XX	NTS	1 of 1
Project No.		Drawing No.		Rev.
11768		11768-XXX		0





7.0 Summary

ALE has provided a detailed route investigation report into the transport of 1No. 300 tonne transformer from Hull Docks to Creyke Beck Converter Station. In doing so we have received provisional approval for a movement of this type, the receipt of this approval is very encouraging and would suggest that this movement is acceptable to the local authorities.

In addition to this and based solely upon the identified route we have then completed an in depth survey looking into the associated restrictions and also the removal of street furniture, which is quite normal for items of this size.

To conclude, following the completion of a high level survey ALE can confirm that this route has no major issues, however this is still subject to approval from the High Ways Agency and a special order permit is to be completed.