

East Anglia TWO Offshore Windfarm

Appendix 26.1

Abnormal Indivisible Load Study

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Abnormal Indivisible Load Access to the Proposed East Anglia TWO and Proposed East Anglia ONE North Offshore Windfarm Substation

Prepared for ScottishPower Renewables





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Executive Summary

This report includes information on the land and marine transport required for achieving Abnormal Indivisible Load (AIL) access to the proposed onshore substation associated with the onshore transmission works for the proposed East Anglia TWO and East Anglia ONE North substation site for Special Order movements of above 150te gross loads considerable of a transformer transport weight of 282te.

Highways England (HE) have advised that Special Order deliveries should consider the feasibility of access via Belvedere Yard, Lowestoft in line with the Department for Transport's water preferred policy for using the nearest port. They would only permit access from an alternative ports such as Felixstowe if it can be proven that Belvedere Yard at Lowestoft was not suitable for any reason.

Associated British Ports (ABP) confirmed that the preferred offloading point for heavy load delivery at Lowestoft is Belvedere Yard and there is no value in offloading on the north bank as there are no suitable heavy load routes south over Lake Loathing.

Belvedere Yard is within the ownership of Sembmarine SLP (SLP) and used as a storage facility to support operations on the north pier. It is not part of the commercial docks. SLP have confirmed that in principle they would be willing to make the facility available for transformer deliveries. However, this would depend on what operations they have in progress at the time of requirement and they are not able to give assurances that they will remain able to accommodate the proposed deliveries. There is a risk that long term access cannot be secured and it is recommended that Scottish Power Renewables (SPR) seek to enter into more commercial discussions with SLP to secure the long term availability for transformer deliveries based on the timescales, and also lifetime support of the new substation development.

The Port of Felixstowe is also available as a marine delivery location for delivery via roll on-roll off (ro-ro), geared vessels or from coastal vessels and mobile cranes subject to specific loading arrangements being agreed with the port to adhere to maximum loads of 15te/m².

The routes from both Lowestoft and Felixstowe will require further detailed structural assessments to resolve access to the satisfaction of Suffolk County Council who require that all of their structures crossed by the proposed loads to be subject to a structural assessment.

There are presently structural restrictions on all proposed routes and Suffolk County Council will require detailed structural assessments to be carried out on all of their structures. It may also be feasible to appoint third party consulting engineers to undertake the assessment works although the methodology for assessment would need to be approved by Suffolk County Council.

Indicative costs for assessments of 29 structures on Route 1 from Lowestoft only have been provided by Suffolk County Council of between £100,000-£125,000. These costs are indicative and it is recommended that a meeting is arranged with Suffolk County Council, Highways England and the Department for Transport (DfT) to confirm the exact requirements for assessments and to clarify reasonable requirements for structural assessment costs. SPR should advise if they wish for this meeting to be arranged. No estimated timescale for carrying out the assessments have been provided by Suffolk County Council to date.

It is recommended that any assessments that are progressed are carried out as a collaborative exercise between SPR and other potential organisations within the Electricity Supply Industry who require heavy load access at Sizewell B Power Station, Sizewell Substation and Leiston Substation.



Network Rail have advised that their Bridge on the A1094 (Reference ESK/B/444) is unable to accommodate the proposed loads. After further discussions, Network Rail have indicated that a more detailed structural assessment is not worth pursuing and that the only way they would consider permitting loads over this structure would be after remedial works were carried out. This would be subject to further detailed discussions if this option was to be explored further. Therefore access to the proposed substation would not be feasible at this stage from the A12/A1094 and should be discounted, with the preferred access to be via the B1122 and Leiston. This is an extension of the historical heavy load route to the Sizewell Power Stations.

Route inspections have been carried out during June 2018 and the preferred route from Lowestoft is negotiable for 20 axle girder frame trailers subject to street furniture removal at the locations indicated within this report. This is based on the new access to the site being constructed from the B1069 to the south east of the proposed development area. In the event that access was required from the B1121 at Friston, to the south west of the proposed site remedial works including third party land take would be required to enable access at the B1069 and A1094 junction.

It is recommended that a Swept Path Assessment (SPA) is undertaken at Farnham on the A12 to confirm the alternative route from Felixstowe is negotiable should the port of Lowestoft be unavailable in the future.

Careful consideration of traffic management under police escort will be necessary prior to movements as there will be multiple locations where the entire carriageway will be taken up by the AILs on single carriageway sections of the road network. The exact requirements will depend on the trailer selected for movement and it will be necessary for the appointed haulage contractor to confirm street furniture removal requirements, escorts, movement timings and other logistical details prior to delivery.

In terms of onsite access requirements a more detailed assessment will need to be undertaken to confirm final installation methods as no specific review of site access from the public highway to the site and also within the substation has been included within this report.

This report is intended to be a summary of the AIL route access at the current time and is not a guarantee that the route will be cleared in the future. The issues highlighted in this report as risks to achieving Abnormal Indivisible Load (AIL) access in the future will need to be revisited and progressed as the project develops.



1. Introduction

- 1.1. The contents of this report include land and marine transport feasibility investigations into achieving access to the proposed East Anglia TWO and East Anglia ONE North substation site for Special Order movements of above 150te gross loads as part of a future substation project.
- 1.2. This will require the construction of a new substation in the vicinity of Sizewell and Leiston, Suffolk as part of the onshore transmission works presented in Drawing No EA1N-EA2-DEV-DRG-IBR-00TBC25 provided by ScottishPower Renewables (SPR). The drawing details the indicative East Anglia ONE North development area which requires that the delivery of large and heavy electrical transformers are considered.
- 1.3. The weight of plant considered in these investigations is based on the currently assumed maximum weight of a transformer of 282te. This weight is as advised by SPR at the commencement of the project as being indicative of the size of loads likely to require delivery to the site. The weight is subject to change following the award of final manufacturing contracts but is an assumed worst case for current project planning.
- 1.4. It is expected that the heavy loads will require delivery in the mid-term future and no definite movement dates are known at this time and this report is intended to provide a summary of the issues identified on heavy load access in terms of marine and road transport.
- 1.5. This investigation considers the possible land transport routes from potential heavy lift marine delivery berths at the ports of Lowestoft and Felixstowe. Formal movement applications will be necessary upon appointment of a haulage contractor by the transformer manufacturer with associated detailed movement programmes. The issues highlighted in this report as risks to achieving AIL access in the future will need to be revisited and progressed as the project progresses.
- 1.6. The report is intended to be a summary of the AIL route access at the current time and is not a guarantee that the route will be cleared in the future. Specific movements will need to be assessed at the time on an individual basis. If any further information is required, it is available on request.
- 1.7. The report considers access to the proposed East Anglia ONE North substation site in terms of AIL transportation of transformers only and no consideration has been given to wider Construction and Use (C&U) traffic requirements.

2. Highways England Agreement in Principle and Legislative Requirements

2.1. *Definition of Abnormal Indivisible Load (AIL)*

- 2.1.1. The Department for Transport, of which Highways England (HE), is a government-owned company with responsibility for managing the core road network in England, state that the strict definition of an 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).

2.1.2. All equipment should be stripped of their ancillaries before they are transported. HE will only accept that further dismantling is not required where it cannot be economically achieved due to the requirement for its construction within specific factory environments or where extremely high tolerances have to be maintained.

2.2. *Legislation*

2.2.1. Conventional heavy goods vehicles have an operating weight limit of 44 tonnes. The category known as Abnormal Indivisible Loads (AIL) covers those vehicles where the gross weight exceeds 44 tonnes. An Abnormal Load is defined as that which cannot be carried under C&U Regulations. Items which, when loaded on the load carrying vehicle 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 Highways England (HE) is required.

2.2.2. Special Order category AIL movements are authorised by the HE Abnormal Loads team, based in Birmingham.

2.3. *The Removal and Replacement of Street Furniture*

2.3.1. Where the removal and replacement of street furniture is required for the mobilisation of out of gauge vehicles into existing sites then these are generally managed under Temporary Traffic Regulation Order (TTRO) and Street Works Legislation. These are normally, but not necessarily, organised by the haulage contractor. These requirements are generally to ensure that the supervisors and operatives are competent and that the works will be carried out to a prescribed standard with the appropriate traffic management in place. In some circumstances the highway authority or local authority will insist that their preferred contractors carry out such work.

2.4. *Water Preferred Policy Requirements*

2.4.1. The DfT 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 width) by road, the Department, via HE, will turn down the application where it is feasible for a coastal or inland waterway route to be used instead of road. HE advise that 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 HE abnormal loads team is the department responsible for the authorisation of Special Order AIL's and government policy is that the closest available port of access should be used for the delivery of such oversize items.

2.4.2. In consideration of the water-preferred policy to maximise the use of water for the movement of Special Order (Above 150te gross) AIL's wherever practicable, Wynns has



sought confirmation from HE as to the port of access they would require to be utilised for the delivery of transformers to the proposed substation.

- 2.4.3. It was noted at the commencement of investigations that the existing Sizewell A and B Power Stations and adjacent National Grid (NG) substations which are in the general area of the proposed substation have historically been supported with heavy load access from Lowestoft but that in early 2018 a transformer of 166te nett was transported from Sizewell to Felixstowe. It is understood this movement took place via Felixstowe as Belvedere Yard, Lowestoft, was not available at the time of movement and agreement for its use could not be secured.
- 2.4.4. In this instance, HE were provided with information based on expected road mileages of possible routes from both Lowestoft and Felixstowe based on previous heavy load movements in the region and also were provided with information specific to the responses obtained from structural authorities as part of these investigations that are discussed later in the report.
- 2.4.5. HE have advised (letter dated 20.06.18 Agreement in Principle (AIP) Reference Number 490) that Special Order deliveries should consider the feasibility of access via Belvedere Yard, Lowestoft. HE would expect that this was utilised as the preferred port of delivery to minimise the road distance travelled by the AILs in line with the water preferred policy. They would only permit access from alternative such as Felixstowe if it can be proven that Belvedere Yard at Lowestoft was not suitable.
- 2.4.6. It should be noted that since the AIP from HE was received the situation at Belvedere Yard has changed as SLP are in the process of selling the facility. This is further discussed in Section 5.1. If Belvedere Yard does become unavailable it will be necessary to enter into further discussions with HE in respect to future delivery requirements and potentially updated AIP documentation.
- 2.4.7. The remainder of this report considers access from Lowestoft and also Felixstowe for the delivery of Special Order loads.

3. Transport Configurations

- 3.1. Based on the information available to date the transformers considered (2 in number) within this report are assumed to be 282te nett weight and the dimensions are as detailed in Drawing Number EAI-GRD-DA-ABBSVC-102328 (Appendix 2).
- 3.2. Due to the size of the components it is not possible to transport them under the regulations governing Construction and Use (C&U) vehicles (44 tonne gross, 18.65m long and 2.9m wide). It is also not possible to transport within the Special Types General Order (STGO) regulations as the gross load will be in excess of 150te. It will therefore be necessary to comply with legislation regarding Special Order movements.
- 3.3. Based on information currently available it is assumed that a typical road transport configuration for the transformer would consist of 2 ballast tractors 1 pulling and 1 pushing a minimum 20 axle Frame trailer with axle loads in the region of 18-21te over a track width of a minimum of 3m.

- 3.4. There are three haulage contractors currently operating girder frame trailers of sufficient capacity for the proposed 282te unit in the UK electricity supply industry with equipment able to carry a transformer of this weight and with the knowledge to position the unit correctly on the plinth. These are Abnormal Load Engineering (ALE), Allelys Heavy Haulage Ltd (Allelys) and Collett & Sons Heavy Haulage (Collett).
- 3.5. The trailer arrangements as provided by Collett, ALE and Allelys have been submitted to structural authorities for comment in terms of their suitability on various potential access routes. These have been considerate of the 282te transformer on 20, 24 and 28 axle girder frame trailers. The responses of the various structural authorities to these investigations are discussed in Section 8.
- 3.6. The specific trailer details are included in Appendix 3 of this report. However, it should be noted that the information provided by the potential haulage contractors is commercially sensitive and it should not be forwarded to other parties other than SPR for whom it is being provided as part of this work.

4. Historical Information

- 4.1. Belvedere Yard on the south bank of the River in Lowestoft is the historical delivery location for the Sizewell A and B Power Stations and the Sizewell and Leiston NG Substations. The facility is discussed in paragraph 5.1 however, Wynns are aware that it was most recently used in September 2016 when a 170te nett transformer was delivered to be transported to the NG Substation at Leiston (near Sizewell).
- 4.2. The facility was previously also used in 2010 and approximately 2013 for transformers of circa 166te nett transport weight destined for Sizewell B Power Station.



Library Photograph 1

14 axle girder frame trailer with circa 166te nett transformer at Belvedere Yard, Lowestoft in 2010.



Library Photograph 2

Ro-ro vessel Terra Marique with circa 166te nett transformer passing through Lowestoft Bascule Bridge on approach to Belvedere Yard, Lowestoft in 2010.

- 4.3. Belvedere Yard was previously subject to an access agreement between the successor companies to the Central Electricity Generating Board (CEGB) in terms of maintaining access for roll-on/roll-off (ro-ro) vessels with the berth area being designed to accommodate the former Fisher Vessels (Aberthaw and Kingsnorth) which were maintained on Charter to the CEGB prior to devolvement. Access from Belvedere Yard enables access from the south side of Lake Loathing. This is necessary as the Bascule Bridges at Lowestoft prevents access from the commercial quays on the North Quay at Lowestoft to the south.
- 4.4. Although in the past transformers were also offloaded at Belvedere Yard and transported to Norwich Main Substation (traveling north over the Bascule Bridge), the bridge is now understood to not be able to accommodate the Special Order category loads required by the electricity supply industry.
- 4.5. Wynns are aware that in the past, movements have also been approved over the Mutford Lock Bridge at Oulton Broad to the west, this structure was reassessed approximately 10 years ago by Suffolk County Council and is now limited to 100te gross loads. It is expected that this will be a permanent restriction to all Special Order category loads seeking to be delivered to sites south of Lowestoft.
- 4.6. It is therefore clear that the use of facilities on the south side of Lake Loathing at Belvedere Yard need to be understood in terms of heavy load delivery requirements to sites south of Lowestoft in the Sizewell and Leiston area, including those detailed within this report for the Proposed East Anglia ONE North substation site. Wynns are also aware that early in 2018 there were limitations at the time for access at Belvedere Yard. It was necessary for a transformer that was being removed from Sizewell B Power Station, to be transported by road to Felixstowe. This was a transformer of circa 166te nett transport weight which was moved on a 16 axle girder frame trailer.
- 4.7. The area therefore has a relatively well understood history of AIL access and this has been used to inform the proposed marine delivery options and heavy load routes detailed within the report.



5. Marine Access

5.1. Port of Lowestoft

- 5.1.1. A site visit and meeting with Associated British Ports (ABP) Lowestoft took place on 07.06.18 and ABP confirmed that the preferred offloading point for heavy load delivery continues to be Belvedere Yard. ABP confirmed that there is no value in offloading on the north bank as there are no suitable heavy load routes south over Lake Loathing. Unfortunately, ABP do not own any of the land on the south side port area and access needs to be agreed with private landowners. A plan of the port is attached within Appendix 4.
- 5.1.2. Belvedere Yard is within the ownership of Sembmarine SLP (SLP) who manufacture large offshore modules at their facility on the North Pier of Waveney Dock, in the outer harbour of ABP Lowestoft. Belvedere Yard is generally used by SLP as a storage facility to support their main operations on the north pier. It is not part of the commercial docks and main construction area and is not accessible to the public.
- 5.1.3. Over several years there has been inconsistent information available in terms of the long term availability of Belvedere Yard for marine delivery of heavy transformers due to the need to confirm any private access agreements with SLP by potential users. There has also been fear expressed as to the long term future of the facility with unconfirmed rumours that it could be sold for development. A meeting was also held with SLP on 07.06.18 at which they confirmed that in principle they would be willing to make the facility available for transformer deliveries. However, this would depend on what operations they have in progress at the time of requirement. As this specific enquiry for the proposed East Anglia ONE North project is in respect to deliveries some years in the future, SLP were not able to give concrete assurances that they will remain able to accommodate the proposed deliveries.
- 5.1.4. A formal written confirmation of the position of SLP was requested following the meeting. Unfortunately, they have now advised (email dated 02.07.18) that they cannot commit to the use of Belvedere Road for future use as they have decided to sell the asset, instigating a sale process through a local agent, which has generated a number of potential interests. They have advised that they will keep Wynns informed on the sale progress and advise when the sale has been completed so that the possible use of the facility can be investigated with the new owners. There is at present no indication as to what the land may be used for when it is sold and there is no guarantee that it will remain available as a marine facility.
- 5.1.5. There is a significant risk that long term access cannot be secured and it is recommended that SPR seek to enter into more commercial discussions with SLP, or the new owners of Belvedere Yard when they become known, to secure the long term availability for transformer deliveries based on the timescales, and also lifetime support of the new substation development. This is justified by the fact that Highways England presently requires access to be from Lowestoft in preference to Felixstowe as discussed in Section 2.4. The correspondence exchanged with SLP to date is included within Appendix 5.
- 5.1.6. In terms of technical operations the port of Lowestoft accepts vessels of up to 125m length, 22m beam and 5.7m draught on Mean High Water Neaps (MHWN) in the Inner harbour, which is sufficient for ro-ro vessels that could be used to delivery to Belvedere Yard. Mean

High Water Springs (MHWS) are 2.4m above chart datum. A plan of the port, including the location of Belvedere Yard is provided within Appendix 4.

- 5.1.7. It is understood that Belvedere Yard remains able to accommodate heavy load deliveries by ro-ro vessels only and is not suitable for delivery via coastal vessels and mobile cranes as there is insufficient water depth at the quay for vessels to get alongside. The berth has a cut area which is designed for access by ro-ro barges to enable discharge and has been used by the specialist barge Terra Marique several times. The water depth in the cut is currently approximately 2m below chart datum, having been dredged by the Port of Lowestoft in recent years. The berth can only be accessed at high water. The cut is known to silt up, in the past it has been as high as chart datum meaning spring tides were required to access the berth due to lack of water. Should the berth not continue to be maintained, it is likely to silt up again limiting available tides for discharge.
- 5.1.8. Ro-ro vessels generally make their approach in the channel which include opening the A12 Bascule Bridge and then layover on the North Quay opposite. When the tide is sufficient the barge is then manoeuvred over to the south side at Belvedere Yard to commence offloading.
- 5.1.9. There are limited mooring bollards on the quay, temporary mooring arrangements are required during discharge.
- 5.1.10. In approximately 2013, a geared vessel was used to deliver a transformer to a flattop barge located on the North Quay which was then used to tranship the transformer from the north side to Belvedere Yard.
- 5.1.11. Depending on where the transformers are being delivered from it may be feasible to have the road transport arrangement already on-board the ro-ro vessels. However, it is more likely that the transformer will be secured on the barge by stands and the road transport arrangement will pick up the load at Lowestoft. Depending on the size of the trailer required to obtain structural clearance (See Sections 8) it may be necessary to roll the transformer(s) off by flattop or Self Propelled Modular Trailers (SPMTs) to be then loaded onto Girder Frame trailers for onward road transport to the substation.



Photograph 1

Belvedere Yard. Cut area on the quay used for ro-ro vessels.



Photograph 2

Belvedere Yard. Agreement with SLP (or new land owners) is required to enable access and to ensure the quay is cleared of materials as it is used as a storage area.



Photograph 3

Belvedere Yard western access gate onto Belvedere Road.

- 5.1.12. Storage is expected to be available within Belvedere Yard in the short term subject to agreement with SLP (or the new land owners) prior to onward road transport. The site is adjacent to Belvedere Road and as it is not part of the formal port estate as such, security arrangements may need to be considered with SLP if transformers are stored for any length of time prior to onward road transport. The exact location for storage would be determined at the time of requirement through detailed discussions with the port and would also be dependent on the period that storage was required, but in principle short term storage is not envisaged to be a problem.

5.2. *Port of Felixstowe*

- 5.2.1. Historically Felixstowe has not been available for large heavy lift cargo, not due to technical limitations but due to it being a very busy container port and one off exceptional loads were traditionally considered to be a blight on core operational activities. However, in recent years a significant upgrade in container berth facilities has meant that older berths are now available for project cargo on a case by case basis. Container traffic still remains the ports core business and other activities are not permitted to impact on that business.
- 5.2.2. A site visit and meeting with Hutchison Ports Felixstowe took place on 06.06.18 and the preferred offloading point for heavy load delivery is Berth No 1. A plan of the port is attached within Appendix 6 with correspondence confirming the berth is available.

- 5.2.3. Felixstowe can accommodate vessels of up to 11.5m draft on Berth No 1. subject to tidal ranges and is available for ro-ro, geared vessels and also for delivery via coaster cranes and discharge via mobile cranes. The length of berth available is advised as 200m. The berth “box” generally extends to 50m off the quay but can be extended to 90m on request to accommodate ro-ro discharge.
- 5.2.4. The port would set aside a safe working area to ensure the project cargo operations do not interfere with day to day operations with the port.
- 5.2.5. The port advised that they do not operate a specific daily charge for berthing but would consider each specific project on its own merits in terms of the time required for loads, any storage requirements and impact on the resources of the port itself. Storage is available either short term on the project quay or longer term elsewhere in the port.
- 5.2.6. A standoff distance from the quay edge of approximately 3.5m is required and the pavement loading in front of the crane rail has no load bearing as it is essentially a capping. Loads can be accommodated between 100KN/m² and 150KN/m² landside from the front crane rail, but this load cannot be distributed over the entire area because there is the potential for the berth to collapse.
- 5.2.7. The front crane rail can accommodate loads of 32t, but requires a narrow spreader matt to ensure no load is transferred to the capping.



Photograph 4

Felixstowe Project Berth 1 looking west. Standoff is approx. 3.5m; the pavement loading landward of the front crane rail has no load bearing. Loads can be accommodated between 100KN/m² and 150KN/m² landside from the front crane rail.



Photograph 5
Felixstowe Project Berth 1 looking east.



Photograph 6
Felixstowe Project Berth 1



Library Photograph 3

Felixstowe Project Berth 1. Load out of 166te transformer February 2018 onto Terra Marique ro-ro vessel.

- 5.2.8. For the recent (February 2018) delivery which was carried out using the specialist heavy load barge Terra Marique, extension ramps were required for loading to avoid loading inside the crane rail. Load spreading mats will need to be placed on the quay and the extension ramps placed between the mats and the stern of the vessel. This will bridge the

area of the quay where loading is not permitted. It is likely that a small mobile crane (approx. 70te) will be required to install the extension ramps.

5.2.9. While the load into the quay will depend on the trailer configuration used, it is expected that any likely configuration will be under 10t/m²

5.2.10. The discharge can take place on any high tide subject to agreement with the port.



Photograph 7

Felixstowe Project Berth 1 looking inland at available quay space for project cargo handling.

5.2.11. Due to the fact that the specific loading requirements at Felixstowe are complicated by the need to be considerate of the front crane rail it will be necessary for contractors to develop detailed lift plans in consultation with the port prior to use. This is considered beyond the remit of this report at this stage and in principle the port confirm access is feasible for cranes. However, Wynns have sought a specific high level load plan from Radius Crane Management that details a concept to meet with the load requirements detailed above. This is attached with Appendix 6.

5.2.12. Should a geared vessel be considered, the trailer accepting the cargo would need to be at least 3.5m from the quay edge. The lifting radius of the on-board cranes would need to be sufficient to cover this.

5.2.13. There are understood to be further long term plans for further development of Berth No 1. for additional container facilities but the port expects to continue to maintain the availability of areas of up to 120m of quay space for heavy lift cargoes if required. There is no definitive plan for this upgrade and it is expected to be several years into the future but it should be monitored in case there is an impact on future heavy lift capacity and availability at Felixstowe.

5.2.14. There are various routes available to exit the port complex to the public highway to either of the main port gates 1 or 2 including different out of gauge load access points to the berthing area from the port estate roads. The exact route used will be determined by the appointed haulage contractor with the port based on numerous factors at the time of delivery. These will include the time of movement and its impact on port activities that are scheduled to take place, the availability of accessible road routes through the port complex and the exact size of trailer procured for transformer delivery. The port have confirmed that they would be able to enable removal of any necessary street furniture within the port and also designate specific heavy load routes at the time of requirement. In principle the port have confirmed that there will be an access route available at all times but the

specifics would be confirmed once an exact movement time and technical requirements are understood.

- 5.2.15. It should be noted that there are several level crossings within the port estate. The port advised that these are within their ownership and control and no problems are envisaged for AIL access.
- 5.2.16. As there are many various route options available within the actual port complex they are not specifically discussed in this report although further information can be made available if required. Section 9.3 discusses the onward route negotiability from the Port of Felixstowe Gates No 1 and No 2 where they join the public highway.

5.3. *Alternative Marine Access Lowestoft*

- 5.3.1. Due to the uncertainty of long term access at Belvedere Yard Lowestoft, high level enquires have also been made in respect to another privately owned facility on the south shore of Lake Loathing. This is the quay known as the former Jeld-Wen site which is accessed from the A146 Waveney Drive. This quay is understood to have been used for load outs associated with the offshore industry of unconfirmed weights in the past, although not in recent years.
- 5.3.2. The quay is a suspended quay and it has not been possible to confirm if it is available for use. Historical information suggests that cranes need to stand back at least 2m from the quay edge.
- 5.3.3. The former manufacturing facility is no longer operational. It is understood to be privately owned but subleased to some point in 2020. The site is presently being marketed by Land Agents Arnold Keys.
- 5.3.4. An approach has been made to Arnold Keys to ascertain whether in principle their client would be willing to consider access for heavy lifts and a response on this remains outstanding. It would be expected that specific commercial agreements would need to be entered into and also that there would be a requirement for geotechnical testing of the quay and road areas to confirm whether heavy loads are able to work at this location. The land owner and agent do not have structural engineers and would expect any potential users to confirm that it was feasible by way of appointment of third party consulting engineers. The correspondence exchanged with Arnold Keys is attached within Appendix 7.
- 5.3.5. Further discussions with ABP Lowestoft would be required to confirm available water depths at the berth and whether any dredging may be necessary.
- 5.3.6. The site has not been inspected in recent years and in addition to marine access, that needs to be confirmed. Before it can be proven for use it would also be necessary to review the egress from the berth to the public highway through the former factory site. There is no guarantee that road access for larger girder frame trailers of 20 axles or more would be available both in terms of structural clearance and also in terms of physical negotiability.
- 5.3.7. It is also noted from being able to inspect the site entrance during June 2018 from the public highway that there would be a large amount of street and site furniture requiring removal at the site entrance.

- 5.3.8. In summary, although there may be opportunities subject to engineering confirmation, the long term access remains doubtful due to land ownership and it is not considered feasible at this stage while alternative options exist. In the event that Belvedere Yard becomes unavailable in the future then access at this facility may be worth exploring further.

6. Physical Restrictions Affecting a Road Movement

6.1. General

- 6.1.1. The weight and/or dimensions of the transformers are such that they are only transportable on specialised transporters, the general arrangements of which are discussed further in Section 3. An abnormal indivisible load is one that is incapable of division into two or more loads by reason of expense or risk of damage, and which cannot be carried by a trailer complying in all respects with the Road Traffic; Road Vehicles (Construction and Use) Regulations 1986 (SI No. 1078) (C12) (S38) as amended (“the Construction and Use Regulations”) or where the trailer does so comply, the total laden weight exceeds 44 tonnes.

- 6.1.2. This section of the report examines the general factors that have to be considered when assessing the suitability of road routes for the movement of abnormal loads with a more specific appraisal of the current status of the possible land transport routes detailed in Sections 8 and 9.

6.2. Headroom

- 6.2.1. Movement is impossible unless sufficient headroom is available along the proposed route to accommodate the travelling height of the load. Generally maximum headroom of 5.03 metres (16’6”) is maintained within the UK on major motorway and trunk road routes, but this is not guaranteed and the actual height is posted on structures, such as bridges and gantries, which can be seen in library photograph 4 below. The UK electricity supply industry and plant manufacturers generally work to a travelling height of 4.95 metres (16’3”) to allow for a safe margin.



Library Photograph 4

Unmarked bridges provide a minimum height clearance $\geq 5.03\text{m}$. Below this height bridges are clearly marked and transport arrangements necessitating due diligence during the planning phase of a project need to account for low bridge heights. *Source: Colletts Heavy Haulage.*

- 6.2.2. The height of the load will be increased by the height of the trailer and any packing that may be utilised to give a gross travelling height.
- 6.2.3. Where restrictions are caused by overhead services such as telephone lines and local power distribution lines, it is feasible to raise or underground these along relatively short routes. Arrangements are made with the responsible undertakers. This is, however, not usually feasible over longer routes or where there are a large number of lines involved. It is usually impossible to do anything to raise low bridges, but steel gantries with bolted connections can sometimes be temporarily lifted.
- 6.2.4. Although there is no legal limit on the travelling height of a load, the Department for Transport does advise hauliers to inform the Regional Electricity Company's (REC), British Telecom and any other company with overhead service lines, of the route of proposed movements with a travelling height in excess of 5.0 metres. This enables arrangements to be made for temporary or permanent re-arrangement of facilities.
- 6.2.5. It should be noted, that the Electricity Supply Regulations 1988 refer to the minimum height for overhead lines. Part IV, Section 13 of these regulations states that the height above ground of any overhead line or wire shall not be less than a specific height at any point where the line is over a road depending on the voltages outlined below:
- Not Exceeding 33000 Volts – 5.8m
 - Exceeding 33000 Volts but Not Exceeding 66000 – 6.0m
 - Exceeding 66000 Volts but Not Exceeding 132000 – 6.7m
 - Exceeding 132000Volts but Not Exceeding 275000 – 7.0m
 - Exceeding 275000 Volts but Not Exceeding 400000 – 7.3m
- 6.2.6. It is recommended that overhead line authorities are approached to confirm recorded and safe height clearances for all wires above the often-referred to high load cut of point of 16'6" (5.03m). Just because a line is of a given height it does not mean that high loads will automatically be permitted to pass underneath due to flashover and safe height clearance requirements of the line owner. Further information can be obtained from the Health & Safety Executive Guidance note GS6 'AVOIDANCE OF DANGER FROM OVERHEAD ELECTRIC POWER LINES' (HSE Books 1997 ISBN 0717613488).



Library Photograph 5

Overhead services being lifted to accommodate the transit of a vehicle height in excess of 6.0m en-route between London Thamesport and Grain Power Station. *Source: Abnormal Load Engineering.*



6.2.7. The transformers considered in this report to are able to be carried at below 5.03m reducible transport height and therefore no specific difficulties with overhead wires are envisaged.

6.2.8. No liaison with national or regional electricity companies or with British Telecom has been carried out at this stage.

6.3. *Negotiability*

6.3.1. Assuming that sufficient headroom is available, or can be achieved, it is necessary to establish that the route can be negotiated in terms of the overall width and length of the transporter arrangement. Selection of transporter is often influenced by the load carrying capability of the route. If a large number of axles are needed in order to obtain the required load distribution on the road and bridge decks, this may result in a configuration that is unable to negotiate the particular route.

6.3.2. Where negotiability is restricted by the width or the curvature of the route, it can be increased by the temporary removal of 'street furniture' such as lamp posts, traffic signs etc., but normally little can be done if passage is restricted by more permanent objects such as buildings. These works are undertaken with the agreement of the relevant local and highway authorities.

6.3.3. The negotiability of the proposed routes are detailed within Section 11.

6.4. *Structural Capability and Highway Capacity*

6.4.1. The load carrying capability of roads depends to a great extent on axle loading rather than total weight of the load being transported. The load carrying capability of the route has to be assessed in relation to the loadings that would be imposed by the total gross weight of the load plus transporter for each item to be transported. The factors to be considered are the axle and wheel pair loadings; the road crust; the effect of such loadings on bridges; underground services and speed. The tractor unit is normally considered as a separate unit in terms of imposed axle and wheel loadings. Indemnities are given to highway and bridge authorities for any damage caused, usually by the appointed haulage contractor.

A. Road Crust

1. Road crust strength is important, but with the spread of load obtained with modern multi-wheeled transporters, it is not normally a problem, providing the road is maintained to a reasonable standard.
2. Damage of the road crust especially at the fringes of un-kerbed roads can become prevalent during the construction phase of projects within remote areas. This effect can have a damaging effect on the available track width for abnormal loads due to the risk of wheels becoming sunken into damaged road edges or soft verges. Prior to the delivery phase it would be advisable to inspect the road surface especially at pinch points to ensure its compatibility to the abnormal load transport configurations.

B. Bridges

1. Bridges in Great Britain are designed and constructed in accordance with the loading standard set down in British Standard BS 5400-2:2006 Steel, concrete and composite bridges. Specification for loads, which in 2006 replaced the British Standard BS 5400: Part 2: 1978. This Part of BS 5400 specifies nominal loads and their application, together with the partial factors, to be used in deriving design loads. The loads and



load combinations specified are for highway, railway and foot/cycle track bridges in the United Kingdom.

2. This standard provides for two types of loading: Type HA and Type HB. Older bridges may not have necessarily been designed to these standards but that does not prevent them from being assessed for abnormal load carrying capability.
3. Type HA is the normal design loading in Great Britain suitable for normal vehicles permitted under the Construction and Use Regulations rather than for those used for the carriage of abnormal loads.
4. Type HB loading is suitable for exceptional industrial loads likely to use the roads in the area. It takes account of the loading that would be imposed on to the highway by a "standard" 4 axle, 16 wheeled HB vehicle, conforming to the dimensions set down in the Standard.
5. The HB Vehicle is a theoretical vehicle that represents an abnormal vehicle and consists of a group of sixteen identical wheel loads. A unit of HB loading corresponds to four axles and should be taken as equal to 10kN per axle; each axle has four equally loaded wheels. The overall length of the HB vehicle is taken as 10, 15, 20, 25 and 30 metres corresponding to inner axle spacing of 6, 11, 16, 21 and 26 metres respectively. The effects of the most severe of these cases must be adopted. The overall vehicle width is taken as 3.5 metres. In all cases, the longitudinal axis of the HB vehicle is taken as parallel to the lane markings.
6. Unless the axle configuration of the transporter matches that of the "standard" exactly, it is not possible to say directly whether passage of a particular abnormal load would be permissible. Notwithstanding that it is known that a road meets a particular HB loading standard, it is necessary to assess routes with respect to individual loads. However, if bridges have been designed to meet a known standard this greatly assists the assessment process.
7. In general terms the UK motorway and trunk road network is nominally designed to be able to accommodate 45HB units. Depending on the class of roads, and the age of a structure, county roads are often lower rated at 37.5HB/30HB etc.
8. For example 45 units of HB therefore correspond to a 180 tonne vehicle on four axles at the worst case spacing of those given above and with the vehicle fully aligned with the structure. None of this is precisely duplicated within any of the transport configurations or in the track geometry during transit of structures hence the variations indicated. Further discussion of current HB ratings on the proposed routes as advised by highway authorities is highlighted in Section 9.

C. Underground Services

1. When assessing the effect of weight on underground services, such as water pipes, sewers and service ducts, the loading imposed by individual wheels is normally considered.
2. The weight that can be safely borne by underground services varies depending on their age and condition; the depth to which they are buried; and the strength of the road crust covering. All these factors have to be considered when assessing the suitability of a road for the passage of abnormal loads and assessment is usually carried out by the relevant authority or undertaker concerned.
3. Risk to services can be considered in relation to the weight to which they could be exposed by the passage of normal vehicles permitted by the Construction and Use Regulations. This can then be compared with that which would be imposed by the passage of the proposed abnormal load movements, and with the pressure to which they may have been subjected by previous movements of abnormal loads.

4. Experience gained by the heavy haulage industry generally is that underground services are not damaged providing that road crust strength is to a reasonable standard and that the depth of cover and condition of services are normal. In any event, the haulage contractor would be required to provide indemnities against possible damage as a result of the movements by the terms of the Special Orders.

6.4.2. The structural status of the proposed routes are detailed within Section 8.

6.5. *Speed*

- 6.5.1. A slow moving abnormal load can impose less impact loading than a relatively fastmoving vehicle permitted under the Construction and Use Regulations. This helps to mitigate the effect of the additional wheel loading imposed by the abnormal load.

7. **The Width of Highways, Fences and Verges, Overrun and Over-Sail**

7.1. *Width of Highway*

- 7.1.1. If the Highway Authority has maintained land at the side of the road, as well as the metalled road itself, that is strong evidence that the land is part of the highway. The rights of public passage and the consequential restrictions on the powers of owners to deal with their land as they see fit have meant that there have been plenty of disputes as to the width of particular highways. As well maintenance by Highway Authorities, the existence of statutory undertakers' apparatus such as telephone cables, electric cables and gas mains can indicate extent of highway.



Library Photograph 6

The services markers are a clear indicator that the wall forms the edge of the highway. Similarly manhole covers in the verge probably shows that the verge forms part of the highway.

- 7.1.2. If the undertakers have obtained wayleave consents from adjoining owners to place their apparatus in, say, a verge at the side of the road, that suggests that the verge is not part of the highway. If, on the other hand, they have not obtained any wayleaves, then this suggests that they are using their statutory powers and the Public Utilities Streetworks Code to lay services in the highway without the need to obtain consents of any private party.



7.2. *Fences and Verges*

- 7.2.1. The existence of a metalled road may be a good indication of the extent of the highway when such a road crosses unenclosed land such as a heath or common. It is no indication of the extent of the highway in other cases for example where there are fences or ditches on both sides of the highway the public right of passage will be taken to be the extent of the whole space between the fences or ditches even though the width of the highway may be varying and unequal and even though there may be a substantial amount of land lying between the metalled road and the fence. However it should be noted that the presumption that the fences mark the highway boundary can often be rebutted and confirmation of the highway boundary, where there exists ambiguity should be confirmed with the relevant highway authority.

7.3. *Over-sail*

- 7.3.1. Over-sail is a common occurrence when moving large components and therefore it is important to understand the law. The law that needs to be considered is the law of trespass which is defined as the unauthorised interference with the possession of someone's home, garden or other land interests. It is useful to note that trespass is not a criminal offence and trespassers cannot usually be prosecuted. They can, however, be sued as trespass is a civil offence.
- 7.3.2. The boundary of a property may be indicated by a physical marker such as a river, a wall, or a fence. The actual boundary may fall on either side of the boundary feature or fall along the median line through the boundary feature itself or bear no resemblance to the physical boundary feature. The starting point for establishing a boundary is the title deeds. Theoretically speaking, it is an established legal principle that a vertical boundary also extends from the subsoil beneath the boundary to the centre of the earth and also extends to the sky above. This means that ownership of property includes the airspace above it and also the ground beneath it.
- 7.3.3. There is established protocol for over-sail in the construction sector where an over-sail licence is issued as this is often an issue if, for example, a large crane is being used. An over-sail licence is an agreement which provides a land owner (and its developer) with the legal right to pass through another's air space. If a crane is used in a construction project the jib of the crane may well swing in and out of neighbouring airspace. Without an over-sail licence this could constitute a trespass and the land owner could be faced with an injunction. The licence should cover issues such as time of day (and night) that the item of plant may over-sail neighbouring land, the heights of the over-sail and the duration of the licence. An indemnity for any damage caused by the crane may also be included.
- 7.3.4. It is essential to try and negotiate an agreement for any financial compensation payable for the use of land which is either owned by another party or subject to rights in favour of a third party. As with any dispute, a reasonable approach can produce savings in terms of costs awards should the matter reach court even if the other party to the dispute refuses to negotiate with you.



8. Structural Route Information

8.1. Routes from Lowestoft

8.1.1. The two routes proposed to site from Lowestoft are shown below:

Proposed Route 1 from Lowestoft

Exit Belvedere Yard onto A146 Belvedere at approximate OS Ref TM 5454 9262

Travel west A146 Horn Hill

Turn left Tom Crisp Way

Turn left A1117 Bloodmoor Road

Continue A12 London Road

Turn left B1122 Middleton Road

Continue B1122 Yoxford Road

Continue B1122 past Lovers Lane junction (Sizewell Power Station route) to Leiston

Continue B1069 Park Hill, Haylings Road, Leiston Road, Snape Road

Turn right A1094 Aldeburgh Road

Turn right B1121

Continue via Friston to potential site access location of approx. OS Grid Ref TM 4048 6080

Proposed Route 2 from Lowestoft

As route 1 to B1122 then continue A12 south

Turn left A1094 onto Aldeburgh Road

Drive past B1121 and then reverse B1121 to Friston on Route 1

8.1.2. Suffolk County Council have advised (series of telephone conversations and emails as attached in Appendix 7) they are not currently able to confirm the proposed loads are structurally acceptable and more detailed structural assessments will be required to confirm whether access is feasible via all of their structures on the routes. It should be noted that there is no guarantee that an assessment will provide a positive result.

8.1.3. Wynns have asked for a formal cost proposal from the council for this assessment if this is procured via the councils existing framework consultants (Kier) and an initial high level proposal has been provided by the council. This would need further discussions and confirmatory quotations to confirm costs. The main points to note as detailed in the email provided on 18.06.18 are discussed below and Suffolk County Council have indicated that:

"looking at my current programme of inspections and reviews and looking at route 1 only which has 51 structures along its length of which 29 would need to have reviews depending on when they were last inspected they may also need to have a PI, reviews cost approx. £800 each with PI's ranging from £3K to £6K. I would therefore estimate the review process costing approx. £100k with assessments costing up to £25K each."

8.1.4. Wynns experience of commissioning surveys for other projects would indicate that the exact costs are uncertain and require detailed clarification but using the above figures the costs of initial reviews would be expected to be in the region of £23,200 as a minimum with further costs of up to £6,000 per structure for a Principle Inspection if necessary. Depending on the results of the initial review and inspection, it is possible that further detailed structural assessments of up to £25,000 per structure may be applicable.

8.1.5. No time scales have been provided but if this amount of works are required it will take a significant time to complete.



- 8.1.6. These potential costs seem excessive based on both financial cost and the number of assessments required. It is not uncommon for specific structures of concern to be in need of assessment but blanket requirements for all structures on a proposed AIL route is unusual although unfortunately not without precedent. Wynns are, under separate cover, seeking clarification from Highways England and Department for Transport on the legal obligations of highway authorities for AIL considerations and what requirements are necessary as part of a highway authorities statutory duty as this issue is becoming more common for heavy AIL movements.
- 8.1.7. There are also wider issues in respect to the fact that Lowestoft to Sizewell is on a recognised heavy load route as it is included in Roads Circular 61.72 as Route Number 100 (Capacity D, 260te gross on 12 axles and 295te gross on 14 axles). A current link is below.
- <http://webarchive.nationalarchives.gov.uk/20100303222626/http://www.dft.gov.uk/pgr/roads/tpm/tal/circulars/ular6172routesforheavyvan4064.pdf>
- 8.1.8. The statement by Suffolk County Council that sections of the A12 are not a heavy load route should therefore be questioned. Although the information in 61.72 can be out of date, it has never been withdrawn by the Department for Transport and the specific ways that routes should be financially managed and maintained are stated in paragraph 4.
- 8.1.9. As much of the route is shared with that required for Sizewell B Power Station there will be some common interest in route suitability with the power station and substation. This may be something to consider going forward if detailed assessments are progressed by way of a coordinated approach of the relevant stakeholders within the Electricity Supply Industry to reduce the overall exposure to assessment costs and prevent future repetition of similar assessments being needed.
- 8.1.10. It is recommended that a meeting is sought with Suffolk County Council Highways, Highways England, the Department for Transport, and possibly other stakeholders in the area to agree a suitable way forward in terms of structural assessments as it will not be possible to confirm access for heavy AILs to the site without further engagement on structural issues with Suffolk County Council.
- 8.1.11. Wynns have also asked Suffolk County Council if it would be acceptable for third party consulting engineers to be appointed to carry out any assessments. This has been acceptable in other areas of the UK for structural assessments in the past. The council have verbally advised that as long as they are suitably qualified, are assessing to the current Design Manual for Roads and Bridges (DMRB) codes then this should be acceptable but written confirmation of this is required. The council would require a checked copy of the assessment calculations for their records. Wynns could carry out a tender exercise to obtain compliant cost proposals for structural assessment if required by SPR. Previous experience has found that this approach can offer time and cost savings to the assessment program.
- 8.1.12. Network Rail have advised (series of telephone conversations and emails as attached in Appendix 7) they are not able to accept any of the proposed loads on Route 2 via the A1094. This is due to their structure crossing the railway line (Network Rail reference ESK/B/444) at Friday Street, Benhall (OS Grid Ref TM 3791 6002) not being able to accommodate the proposed heavy loads. Wynns have questioned whether alternative trailer arrangements or more detailed structural assessments would be worth undertaking to confirm whether access is feasible but Network Rail have advised that there are condition factors that cause



concern to the bridge due to longitudinal cracks on the bridge barrel and it is not thought that any assessments would change this result. Therefore if access needed to be via this route it would be necessary to enter into significant detailed discussions with Network Rail engineers with respect to potentially expensive remedial solutions. As an alternative route exists (Route 1) then the use of the A1094 should be discounted for heavy transformer delivery.

- 8.1.13. The absolute maximum capacity of the bridge has not been confirmed but Network Rail have advised that gross loads of 100te would also be problematic and therefore the failure is significant. Publically available information from Network Rail indicates that the bridge has a nominal STGO Category 3 capacity of 84te gross. Generally it can be assumed loads up to this weight will be acceptable to Network Rail and it may be possible to get heavier loads over subject to specific detailed review by Network Rail structural engineers of trailer arrangements including axle weights, spacings overall loads etc. but this is not certain to be the case. The information is subject to change following routine reviews and inspections by Network Rail and should be treated with caution.
- 8.1.14. The restriction could possibly have impacts on other access requirements for construction equipment to the site outside of the specific requirement for heavy transformer loads detailed within this report and it would be advisable to approach Network Rail to confirm any specific requirements as part of wider Construction and Use (C&U) traffic access to the site as part of wider Traffic Management Plans. This could include smaller AILs such as cable drums and heavy plant going to construction sites.
- 8.1.15. Network Rail have advised that Route 1 via Leiston is structurally acceptable via the B1122.
- 8.1.16. Network Rail have not raised any specific concerns in respect to the level crossings on route 1 at Darsham Station on the A12 (OS Ref TM 4050 6970), Middleton on the B1122 (OS Ref TM 4038 6850) and Leiston (OS Ref TM 4432 6286) in terms of their load bearing capacity. It is expected that any Special Order load will need to adhere to the standard caution when crossing level crossings in Special Order permissions as below:

"Before the trailer crosses any automatic half-barrier railway level crossing or any other railway level crossing, equipped with a telephone, the driver of the towing vehicle shall telephone the railway signaller of the intention to cross the railway with the trailer. The trailer and the vehicles used with it shall not cross except with the permission of and in accordance with the instructions of the railway signaller. After crossing the driver shall again telephone the signaller to inform him that the crossing is clear."

- 8.1.17. The remaining authorities who are statutory consultees on formal Special Order applications are detailed below. All the remaining authorities have confirmed that the route is structurally acceptable.
- Highways England Historical Railways Estate (Jacobs)
 - Canal and Rivers Trust
- 8.1.18. Suffolk Police have verbally advised that the exact route management requirements will need to be agreed in detail with the police by the appointed haulage contractor closer to the time of requirement and will be guided by which route is advised as structurally acceptable to Suffolk County Council. This will include, but not be limited to, confirmation of movement times, escort requirements, temporary hold areas and any wider traffic



management implications. The exact processes will be subject to the structural authorities previously highlighted confirming the route is acceptable structurally.

8.2. *Routes from Felixstowe*

8.2.1. The two potential routes from Felixstowe are shown below:

Proposed Route 3 from Felixstowe

Exact exit from port to be confirmed but assume Exit Port of Felixstowe at OS Ref TM 2777 3421 Trinity Avenue
Join A14 north
At 14/A12 junction exit onto A12 north
Continue to A12/A1094 Aldeburgh Road junction and turn right to join route 2

Proposed Route 4 from Felixstowe

As route 3 to A12/A1094 Aldeburgh Road junction then continue A12 north to B1112 Middleton Road and join route 1

8.2.2. As detailed in 6.1 Suffolk County Council have advised they are not currently able to confirm the proposed loads are structurally acceptable and more detailed structural assessments will be required to confirm whether access is feasible via all of their structures on the routes. An estimated cost for the assessments has not been provided by the council to date on routes from Felixstowe and if a route from Felixstowe is progressed it would be advisable to include discussions on possible structure issues within the proposed meeting recommended to be arranged with Suffolk County Council.

8.2.3. The remaining authorities who are statutory consultees on formal Special Order applications are detailed below. All the remaining authorities have confirmed that the route is structurally acceptable.

- Highways England Historical Railways Estate (Jacobs)
- Canal and Rivers Trust
- Network Rail
- Highways England Area 6 (Kier)

8.2.4. The Network Rail restriction on Route 2 from Lowestoft detailed in 8.1.2 also applies on Route 3.

8.2.5. Highways England Area 6 (Kier) have confirmed (email dated 05.06.18) that the A14, which is strategic trunk road owned by Highways England, has three structures and these have been determined as able to accommodate the proposed loads. This was based on initial assumptions that egress from the Port of Felixstowe was based on egress from the port being at Gate Number 2 at OS Ref TM 2777 3421 Trinity Avenue. As discussed in 5.2 this is possible. However, there are also heavy load routes out of the port via Gate number 1 which is Dock Road at OF Ref TM 2865 3360. The loads would then turn left onto A14 and available records suggest that this would involve crossing over two Area 6 structures known as Ferry Lane (ref S-TM283343-1) and Dooley Link (ref S-TM282346-1). Wynns have asked Highways England Area 6 (Kier) to confirm whether these two additional structures are also able to accommodate the proposed loads and the initial response, which is to be formally confirmed, is that more detailed assessments will be needed on the two structures on this additional short section of the A14. It is not seen as absolutely critical as the loads would also be able to route via Walton Avenue which provides a link to Gate 2 from Gate 1 to avoid this short section of the A14 if necessary subject to approval from the Suffolk County Council.

- 8.2.6. The comments of Suffolk Police as detailed in 6.1 should be referred to with the exact escort and traffic management requirements to be agreed by the appointed haulage contractor closer to the time of movement.

9. Route Negotiability Information

9.1. *Route 1 from Lowestoft*

- 9.1.1. As highlighted in 8.1, Route 1 will require structural assessments. The route was inspected and is detailed in the following notes and photographs in terms of physical route negotiability requirements. It should be noted that the work to date assumes that the trailers generally expected to be required for transport of 282te nett transformers will pass structural assessment (20/24 axles) and the current route survey assumes 20-24 axle trailers will be required. It is possible that the structural assessments required by Suffolk County Council could potentially identify restrictions that may for instance require reduced axle weight and therefore longer trailers. In this case it will be necessary to confirm negotiability for larger trailers.
- 9.1.2. The route below commences from the exit from Lowestoft at Belvedere Yard as discussed in 5.1.



Photograph 8

Belvedere Yard western access gate. Load approaches camera. Negotiable.



Photograph 9

Belvedere Road/Mill Road roundabout Vehicle moves away from camera and continues straight ahead. Centre island street furniture removal would be required subject to specific girder frame arrangement used for movement.



Photograph 10

Horn Hill/Tom Crisp Way roundabout Vehicle moves away from camera and continues straight ahead. Centre island street furniture removal would be required subject to specific girder frame arrangement used for movement.



Photograph 11

A12 Tom Crisp Way/Bloodmoor Road Roundabout. Load moves away from camera to exit roundabout. Traffic lights and railings are expected to require removal on the inside of the bend for trailers in excess of 20 axles. SPA could be undertaken to confirm access requirements if required but it will be negotiable with removal of street furniture and is not considered necessary at this stage of the project.



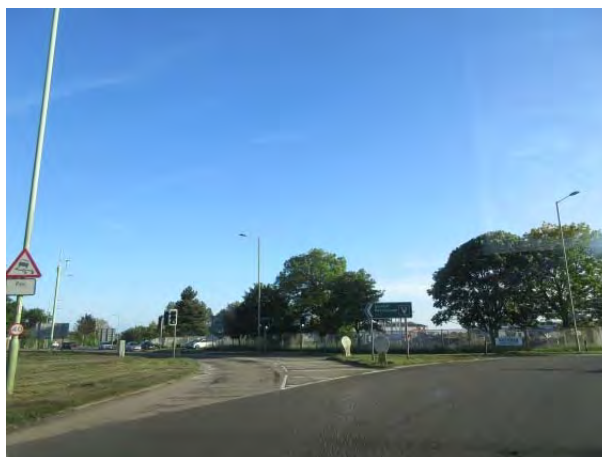
Photograph 12

Bloodmoor Road after Roundabout. SPA could be undertaken to confirm access requirements if required but it will be negotiable with removal of street furniture and is not considered necessary at this stage of the project.



Library Photograph 7

A12 Tom Crisp Way/Bloodmoor Road Roundabout. 20 axle trailer negotiating in the roundabout with 170te transformer in 2016. *Source: Colletts Heavy Haulage.*



Photograph 13

A12 London Road/Bloodmoor Road Roundabout. Load moves away from camera to exit roundabout. Traffic lights are expected to require removal on the inside of the bend for trailers in excess of 20 axles. SPA could be undertaken to confirm access requirements if required but it will be negotiable with removal of street furniture and is not considered necessary at this stage of the project.



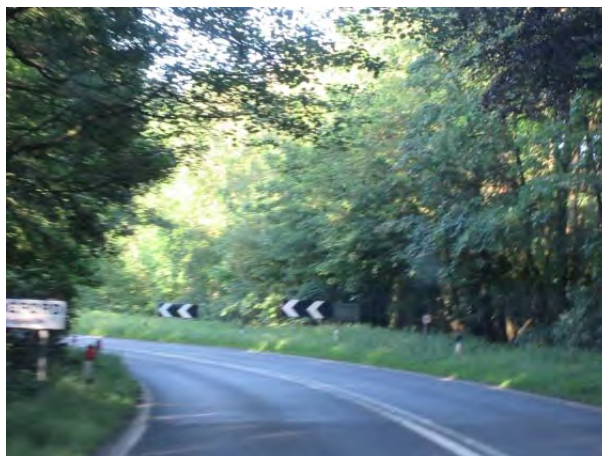
Photograph 14

A12 London Road/Tower Road Roundabout. Load moves away from camera. Negotiable.



Photograph 15

A12 at Wrentham. Load approaches camera. Negotiable with full occupation of highway.



Photograph 16

A12 at OS Ref TM 4579 7664. Load approaches camera. Full occupation of carriageway required. Tree pruning may also be required depending on growth at the time of movement.



Photograph 17

A12/A144 junction. Load approaches camera. Street furniture removal required.



Photograph 18

A12 at Darham Station level crossing. Load approaches camera. Standard cautions apply as detailed in 6.1.8



Photograph 19

A12/B1122 junction at Yoxford looking south. Load on Route 2 comes from behind camera and turns left. Route 4 from Felixstowe as described in 9.4 approaches from right, turning right away from camera. This is the point at which the existing heavy load route to Sizewell exits the A12. Note the widened kerb designed for trailer overrun on inside of the bend when on route from Lowestoft from its historical use as the Sizewell heavy load route. Street furniture removal will be required.

- 9.1.3. A SPA could be carried out to confirm access for trailers in excess of 20 axles but the junction is expected to be negotiable for the proposed loads at present with street furniture removal dependent on exactly which trailer arrangement is utilised for transport and a SPA is not considered necessary at this stage of the project.



Photograph 20

A12/B1122 junction viewed from B1122. Load on Route 2 comes from right and turns left towards camera. Route 4 approaches from left, turning right towards camera.



Photograph 21

B1122 south of Yoxford. Load moves away from camera. Caution with trees and full occupation of highway but considered negotiable with appropriate traffic management.



Photograph 22

B1122 Middleton Level Crossing. Load moves away from camera. Standard Network Rail cautions to apply as detailed in 6.1.8



Photograph 23

B1122 at Garden House (OS Ref TM 4173 6740). Load moves away from camera. Considered negotiable with appropriate traffic management and full occupation of highway. Caution also required with trees depending on growth at the time of movement.



Photograph 24

B1122 Leiston Road. Load moves away from camera. Caution with trees and full occupation of highway but considered negotiable with appropriate traffic management.



Photograph 25

B1122 Leiston Road. Load moves away from camera. Caution with trees and full occupation of highway but considered negotiable with appropriate traffic management.



Photograph 26

B1122 Leiston Road. Load moves away from camera. Caution with trees and full occupation of highway but considered negotiable with appropriate traffic management.



Photograph 27

B1122 Abbey Road in Leiston. Load moves away from camera. Full occupation of highway but considered negotiable with appropriate traffic management.



Photograph 28

B1122 Abbey Road Level Crossing in Leiston. Load moves away from camera. Standard Network Rail cautions to apply as detailed in 6.1.8. Full occupation of highway required but considered negotiable with appropriate traffic management.



Photograph 29

B1069 in Leiston. Load moves away from camera. Bridge is not marked as low and therefore will be 5.03m headroom clearance minimum. No difficulties expected.

- 9.1.4. Caution with overhead wires is required in Leiston, and indeed on the entire route as per the general observations detailed in Section 6.2 but as loads do not exceed 4.95m reducible height no significant issues are expected.



Photograph 30

B1069 in Leiston. Load moves away from camera. Negotiable. Caution overhead wires.



Photograph 31

B1069 in Leiston. Load moves away from camera. Negotiable. Parking restrictions to be enforced to enable clear passage of the load that will be taking up the full carriageway width.



Photograph 32

B1069 Snape Road. Load moves away from camera. Negotiable. Potential new site access road to be created at some point on this road to the west.



Photograph 33

B1069 Snape Road. Load moves away from camera. Negotiable. Proposed Substation Access Road to be created at some point on this road to the west.

- 9.1.5. The final design of the Proposed Substation Access Road will need to be considerate of girder frame trailers. The exact size of trailer required to secure structural clearance will be determined by the structural assessments identified as necessary by Suffolk County Council discussed in section 8.

- 9.1.6. It is recommended that if access to the new substation is to involve construction of a Proposed Substation Access Road from the east of the site that it takes place in and around the vicinity of Snape Road detailed above.
- 9.1.7. The next junction to the south at the B1069/A1094 is not accessible for 20 axle girder frame trailers and will require land take and remedial works to enable the turn to be negotiated.



Photograph 34

A1094/B1069 Snape Road junction. Loads on route 1 needing to get to the B1121 at Friston rather than Snape Road move away from camera and turn right. Loads on route 2 needing to get to Snape Road and B1069 to turn left towards camera. Not negotiable. Third party land take would be required.



Photograph 35

A1094/B1069 Snape Road junction. Loads on route 1 needing to get to the B1121 at Friston rather than Snape Road move towards camera and turn right. Loads on route 2 needing to get to Snape Road and B1069 to turn left away from camera. Not negotiable. Third party land take required.

- 9.1.8. A SPA should be undertaken to confirm land access requirements if access from Snape Road to the east of the substation is discounted.

9.2. *Route 2 from Lowestoft*

- 9.2.1. The A12 from the Sizewell historical route at Yoxford discussed in 9.1 to the A1094 is negotiable subject to removal of centre island street furniture. This route is shown in the opposite direction in 7.4 for loads approaching Yoxford from Felixstowe. It is not

considered suitable for further consideration at this stage due to the Network Rail structural restriction on the A1094 discussed in 8.2 which makes this route unsuitable for the proposed loads.

9.3. *Route 3 from Felixstowe*

9.3.1. As discussed in Section 8.1.2 Network Rail have advised that the A1094 is not accessible due to the structural status of the railway bridge. Therefore Route 3 is not specifically discussed in this report in terms of physical negotiability.

9.4. *Route 4 from Felixstowe*

9.4.1. As discussed in Section 5.2 there are various routes available to exit the port complex to the public highway to either of the main port gates 1 or 2. The exact route used will be determined by the appointed haulage contractor with the port based on numerous factors at the time of delivery. This section discusses the onward route negotiability from the Port of Felixstowe Gates No 1 and No 2.



Photograph 36

Dock Road Gate No 1. Load moves away from camera. Street furniture removal can be facilitated by the port to enable access in contraflow.



Photograph 37

Exit from Gate No 1 to public highway at Dock Road. Load approaches camera in contraflow with street furniture removal facilitated by the port. To get to the correct carriageway the central reservation crossover area will need to be used as the load will contraflow port gates.



Photograph 38

Trinity Road Gate No 2 exit. Load moves away from camera. Street furniture can be removed if required by the port to enable egress in contraflow.



Photograph 39

Trinity Road Gate No 2 exit. Load moves away from camera. Alternative exit is also feasible via wide loads gate.



Photograph 40

Trinity Road Gate No 2 exit. Load approaches camera onto roundabout.

- 9.4.2. Once out of the port via gates 1 or 2 the routes merge to join the A14 trunk road which is negotiable to the A12 roundabout. The A12 then becomes a mixed dual carriageway and single carriageway route and is discussed in terms of negotiability in the following notes and photographs.



Photograph 41

A12/Foxhall Road Roundabout (OS Ref TM 2646 4390). Centre island chevrons to be removed subject to which transport frame is selected.



Photograph 42

A12/Eagle Way Roundabout (OS Ref TM 2472 4522). Centre island chevrons to be removed subject to which transport frame is selected.



Photograph 43

A12/A1079 Roundabout. Load moves away from camera. Centre island chevrons to be removed subject to which transport frame is selected.



Photograph 44

A12. Load moves away from camera. Example of where tree pruning may be required depending on growth at the time of movement. Also full occupation of single carriageway road required.



Photograph 45

A12 Stratford St Andrew. Load moves away from camera. Street furniture removal required.



Photograph 46

A12 Stratford St Andrew. Load moves away from camera. Street furniture removal required (bollards). Full occupation of the highway.



Photograph 47

A12 Stratford St Andrew. Load moves away from camera. Centre island street furniture removal required.



Photograph 48

A12 Stratford St Andrew. Load moves away from camera. Centre island street furniture removal required.



Photograph 49

A12 at Farnham left bend. Load moves away from camera. Swept Path Assessment required to confirm access for trailers of 20 axles or greater.



Photograph 50

A12 at Farnham left bend. Load approaches camera. Swept Path Assessment required to confirm access for trailers of 20 axles or greater.

- 9.4.3. The route from Felixstowe via the B1122 (Route 3) is limited in terms of physical negotiability by the left bend at Farnham on the A12 and it is recommended that a SPA is carried out to confirm access at this location. This should be based on topographical survey data to obtain actual measurements rather than OS Mastermap information for more accurate reporting. It should be noted that the response of Suffolk County Council in terms of structural clearance as discussed in Section 8 will impact what size of trailer is required to utilise the route which in turn will impact on the physical suitability, or not, of the route.
- 9.4.4. Route 4 continues north from the A12/A1094 junction (Route 3) to the B1122 junction at Yoxford. This section of the A12 is discussed in the following notes and photographs.



Photograph 51

A12 at Carlton (OS Ref TM 3765 6565). Load approaches camera on Route 2. Moves away from camera on Route 4. Street furniture removal required.



Photograph 52

A12 at Carlton (OS Ref TM 3765 6474). Load approaches camera on Route 2. Moves away from camera on Route 4. Street furniture removal required.



Photograph 53

A12 at Yoxford looking north. Caution wires.



Photograph 54

A12 at Yoxford looking north. Load approaches camera on Route 2. Moves away from camera on Route 4. Considered negotiable for 20/24 axle trailers.



Photograph 55

A12/B1122 junction at Yoxford looking north. Load approaches camera on Route 2 and turns left away from camera. Moves away from camera turning right on Route 4 from Felixstowe. This is the point at which the existing heavy load route to Sizewell exits the A12. Street furniture removal will be required.

- 9.4.5. A SPA could be carried out to confirm access for trailers in excess of 20 axles but the junction is expected to be negotiable for the proposed loads at present with street furniture removal dependent on exactly which trailer arrangement is utilised for transport and a SPA is not considered necessary at this stage of the project.
- 9.4.6. The route then joins Route 1 as discussed in 9.1 to site.

10. Summary and Conclusions

- 10.1. Highways England has provided Agreement in Principle for future Special Order deliveries to the substation to be facilitated at Belvedere Yard, Lowestoft. They would only permit access from other locations including Felixstowe via Route 4 if it can be demonstrated that Lowestoft is not feasible. If Belvedere Yard does become unavailable it will be necessary to enter into further discussions with HE in respect to future delivery requirements and potentially updated Agreement in Principle documentation.
- 10.2. ABP have confirmed that the preferred offloading point for heavy load delivery continues to be Belvedere Yard which is within the ownership of SLP and generally used as a storage facility to support their main operations on the north pier. It is not part of the commercial docks and main construction area and is not accessible to the public.
- 10.3. There has been inconsistent information available in terms of the long term availability of Belvedere Yard for marine delivery of heavy transformers due to the need to confirm any private access agreements with SLP by potential users. SLP have advised (email dated 02.07.18) that they cannot commit to the use of Belvedere Road for future use as they have decided to sell the asset. There is at present no indication as to what the land may be used for when it is sold and there is no guarantee that it will remain available as a marine facility. There is therefore a significant risk that long term access cannot be secured and it is recommended that SPR seek to enter into more commercial discussions with SLP, or the new owners of Belvedere Yard when they become known, to secure the long term availability for transformer deliveries.



- 10.4. In terms of technical operations the port of Lowestoft advises that ro-ro vessels are required be used for delivery to Belvedere Yard and delivery via coastal vessels and mobile cranes is not feasible due to lack of water depth alongside the berth. Ro-Ro vessels generally layover on the North Quay and wait for the tide to be sufficient for the delivery vessel to be manoeuvred to Belvedere Yard for offloading.
- 10.5. The Port of Felixstowe can accommodate heavy load deliveries at Berth No 1 and is available for ro-ro, geared vessels and also for delivery via coaster cranes and discharge via mobile cranes. A standoff distance from the quay edge of approximately 3.5m is required. Loads can be accommodated between 100KN/m² and 150KN/m² landside from the front crane rail. The front crane rail can accommodate loads of 32t, but requires a narrow spreader matt to ensure no load is transferred to the capping. Due to the fact that the specific loading requirements at Felixstowe are complicated by the need to be considerate of the front crane rail it will be necessary for contractors to develop detailed lift plans in consultation with the port prior to use.
- 10.6. There are various routes available to exit the Felixstowe port complex to access the public highway from either of the main port gates 1 or 2. The exact route used will be determined by the appointed haulage contractor with the port based on numerous factors at the time of delivery including the time of movement and its impact on port activities. In principle, the port have confirmed that there will be an access route available at all times.
- 10.7. The road route information has considered access to site from both Belvedere Yard, Lowestoft and Felixstowe. There are presently structural restrictions on the routes and Suffolk County Council will require detailed structural assessments to be carried out on all of their structures on the proposed routes. It may also be feasible to appoint third party consulting engineers to undertake the assessment works although the methodology for assessment would need to be approved by Suffolk County Council.
- 10.8. Indicative costs for assessment of 29 structures on Route 1 have been provided by Suffolk County Council of between £100,000-£125,000. These costs appear to be excessive based on previous similar undertakings elsewhere in the UK and it is recommended that a meeting is arranged with Suffolk County Council, Highways England and the Department for Transport to confirm the exact requirements for assessments and to clarify reasonable costs. SPR should advise if they wish for this meeting to be arranged. No estimated timescale for carrying out the assessments has been provided by Suffolk County Council to date.
- 10.9. It is recommended that any assessments that are progressed are carried out as a collaborative exercise between SPR and other potential organisations within the Electricity Supply Industry who require heavy load access at Sizewell B Power Station and Sizewell and Leiston Substations.
- 10.10. Network Rail have advised that they are not able to accept any of the proposed loads on Routes 2 or 3 via the A1094. This is due to their structure crossing the railway line (Network Rail reference ESK/B/444) not being able to accommodate the proposed heavy loads. Network Rail have advised that there are condition factors that cause concern to the bridge and it is not thought that any more detailed assessments would change this result. Therefore if access is needed to be via this route it would be necessary to enter into significant detailed discussions with Network Rail engineers with respect to potentially expensive remedial solutions. As an alternative exists (Route 1) then the use of the A1094 should be discounted for heavy transformer delivery.

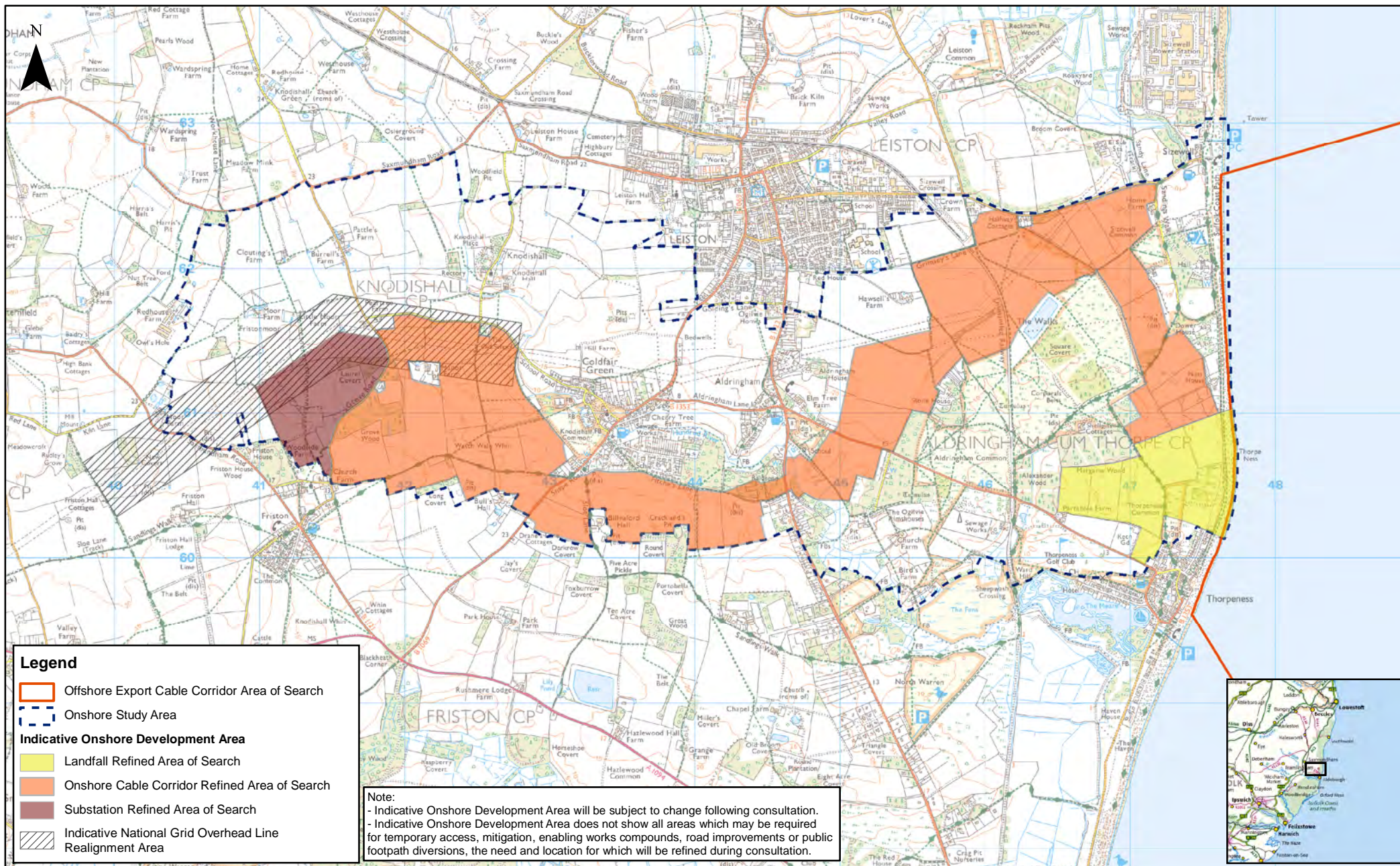


- 10.10.1. Network Rail have advised that Routes 1 and 3 via Leiston are structurally acceptable via the B1122.
- 10.10.2. The position of Suffolk County Council in terms of the impact on their network will be crucial to understanding which route could ultimately be developed for access to the proposed East Anglia ONE North substation site. Based on the historical use of the B1122 as the heavy load route to Sizewell it is expected that this would be the preferred access but this needs to be confirmed by structural assessment.
- 10.11. The routes from Lowestoft and Felixstowe have been inspected in terms of physical route negotiability requirements and the work to date assumes that the trailers generally expected to be required for transport of 282te nett transformers will pass structural assessment (20/24 axles). It is possible that the structural assessments required by Suffolk County Council could potentially identify restrictions that may require reduced axle weight and therefore longer trailers. In this case it will be necessary to confirm negotiability for larger trailers.
- 10.12. The route from Lowestoft via the B1122 (Route 1) is generally considered negotiable subject to street furniture removal as identified within this report and no specific third party land access agreements are expected to be required. Although Swept Path Assessments could be carried out to confirm street furniture removal these are not considered necessary at this stage of the project as the roundabouts and junctions will be accessible with removal of street furniture where stated within the public highway boundary. This preferred route assumes that access to the proposed substation will be developed to the east of the site from the B1069 Snape Road. Access south and west of this location via the B1069 and A1094 and B1121 to Friston would require remedial works at the B1069/A1094 junction.
- 10.13. There will need to be careful consideration given to overall traffic management of the AIL and other traffic due to the fact that much of the route will be taking place on single carriageway roads where full occupation of the highway by the AIL will be required.
- 10.14. The route from Felixstowe via the B1122 (Route 3) is limited in terms of physical negotiability by the left bend at Farnham on the A12 and it is recommended that a SPA is carried out to confirm access at this location. This should be based on topographical survey data to obtain actual measurements rather than OS Mastermap information for more accurate reporting. This is not currently required due to the fact Highways England's preferred port of access is Belvedere Yard, Lowestoft but the access from Felixstowe could be reviewed in the future if it is not possible to confirm access agreements at Belvedere Yard with SLP.
- 10.15. Careful consideration of traffic management under police escort will be necessary prior to movements. The exact requirements will depend on the trailer selected for movement and it will be necessary for the appointed haulage contractor to confirm street furniture removal requirements, escorts, movement timings and other logistical details prior to delivery.
- 10.16. No specific work has been undertaken within this report in terms of onsite access requirements which will need to be considerate of the final trailer arrangements that are able to be structurally cleared on the route following the assessments detailed in this report.



Appendix 1

Maps



3	14/05/18	AB	Fourth Issue.		
2	11/05/18	AB	Third Issue.	Prepared:	AB
1	08/05/18	AB	Second Issue.	Checked:	PW
Rev	Date	By	Comment	Approved:	AH

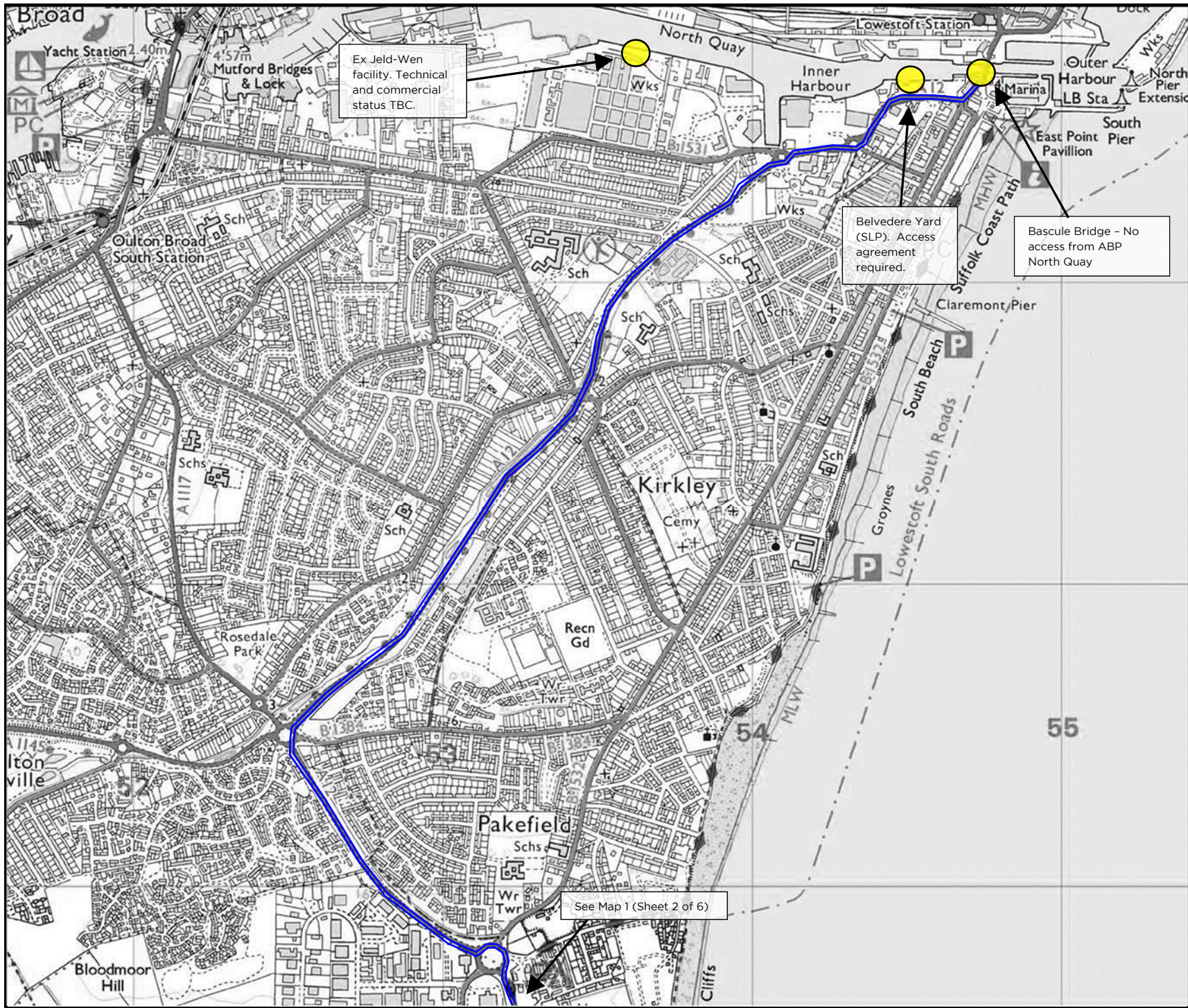
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East Anglia ONE North and East Anglia TWO

Indicative Onshore Development Area

Drg No	EA1N-EA2-DEV-DRG-IBR-00TBC25	
Rev	3	Coordinate System: BNG
Date	14/05/18	Datum: OSGB36
Figure	1	



Key

Route 1 from Lowestoft

Route 2 from Lowestoft

Route 3 from Felixstowe

Route 4 from Felixstowe

Point of Interest

Proposed Substation Approximate Location

B		
A	19.10.18	Second Issue
O	19.06.18	First Issue
Rev	Date	Amendments:

Revisions

WYNNs

ENGINEERS

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Independent
Transportation
Engineers

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Stafford, ST21 6BZ. Tel: (01785) 850411

Client:

SCOTTISHPOWER
RENEWABLES

ScottishPower House
320 St Vincent St
Glasgow
G2 5AD

Project:

East Anglia TWO & East Anglia ONE
North Windfarm

Title:

Map 1 - Routes to Proposed
Substation

Drawing Status:

Final Report

Scale (A4):

Drawn by:

Checked by:

NTS

DMW

ARP

Ref No.:

Sheet:

Rev.:

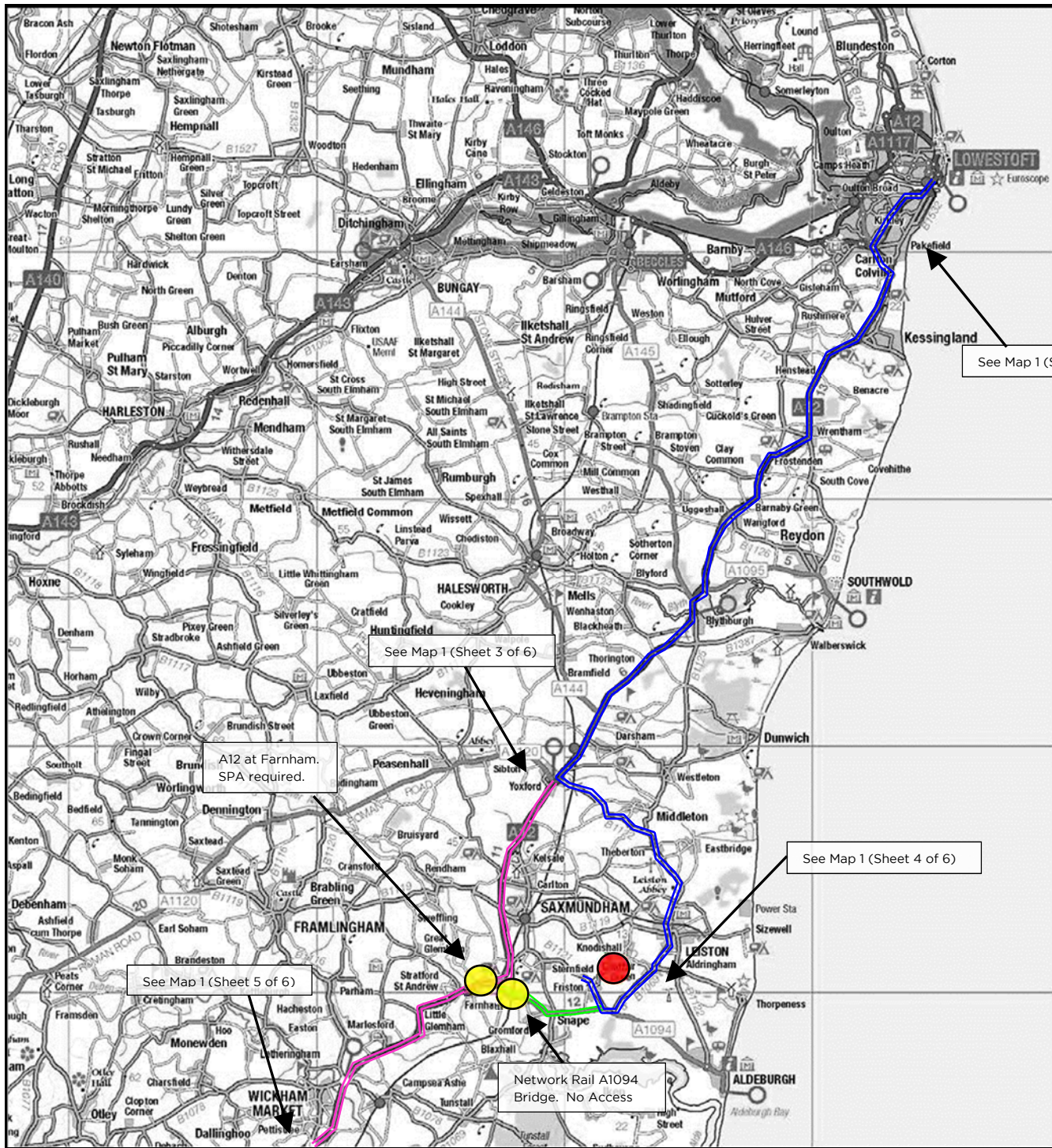
SPR-EA--Map1

1 of 6

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Key

Route 1 from Lowestoft

Route 2 from Lowestoft

Route 3 from Felixstowe

Route 4 from Felixstowe

Point of Interest

Proposed Substation Approximate Location

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Map 1 – Routes to Proposed
Substation

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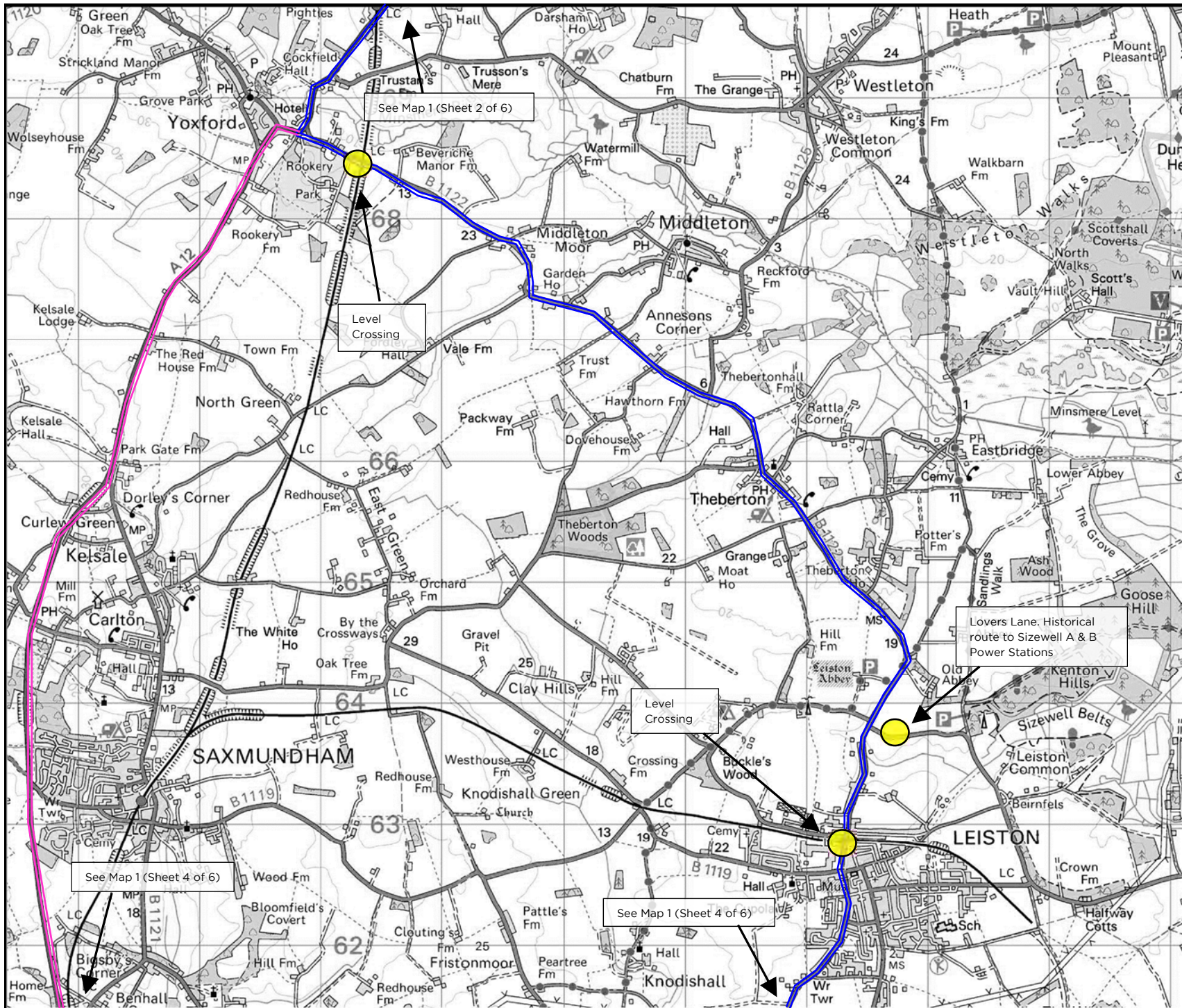
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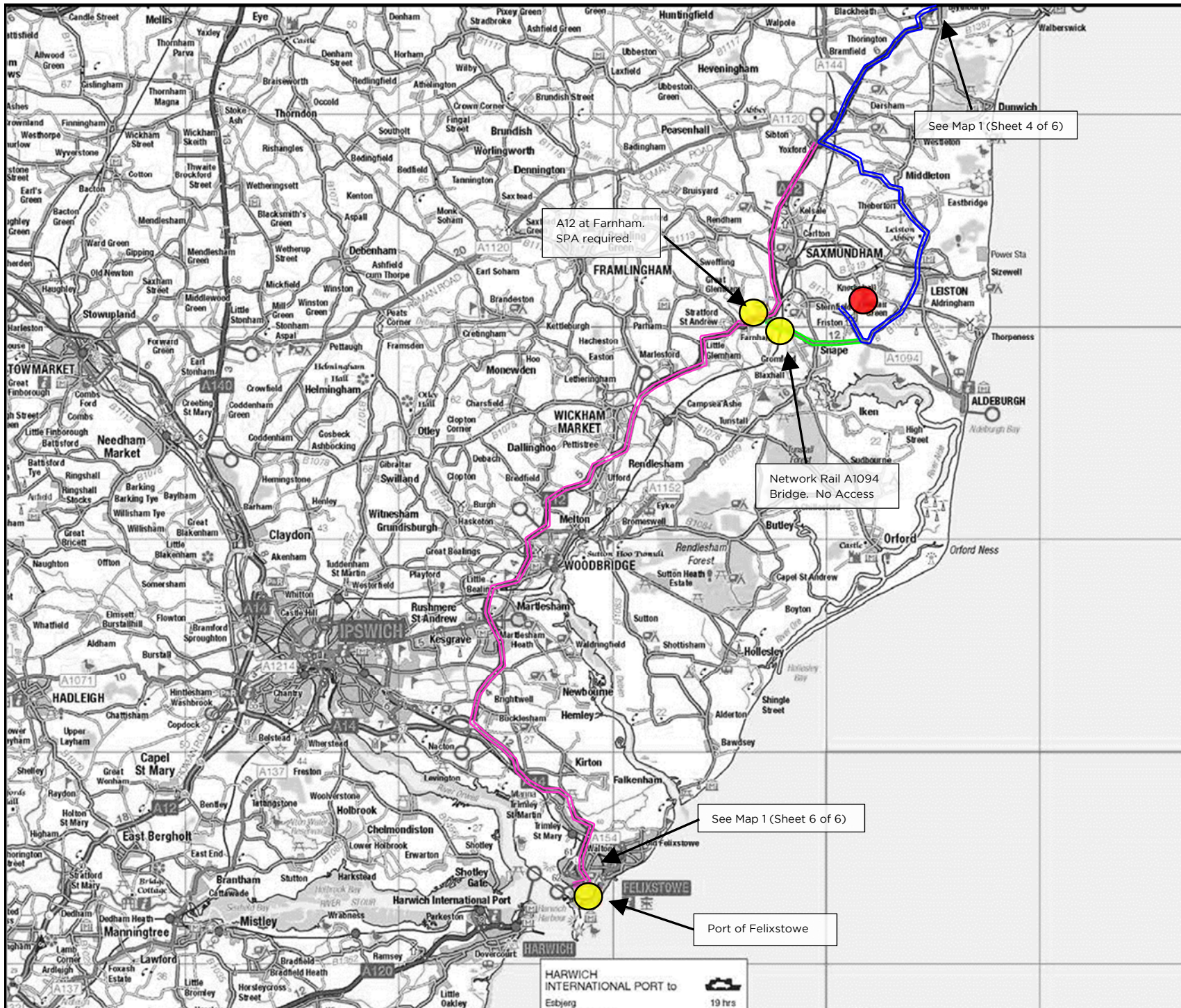
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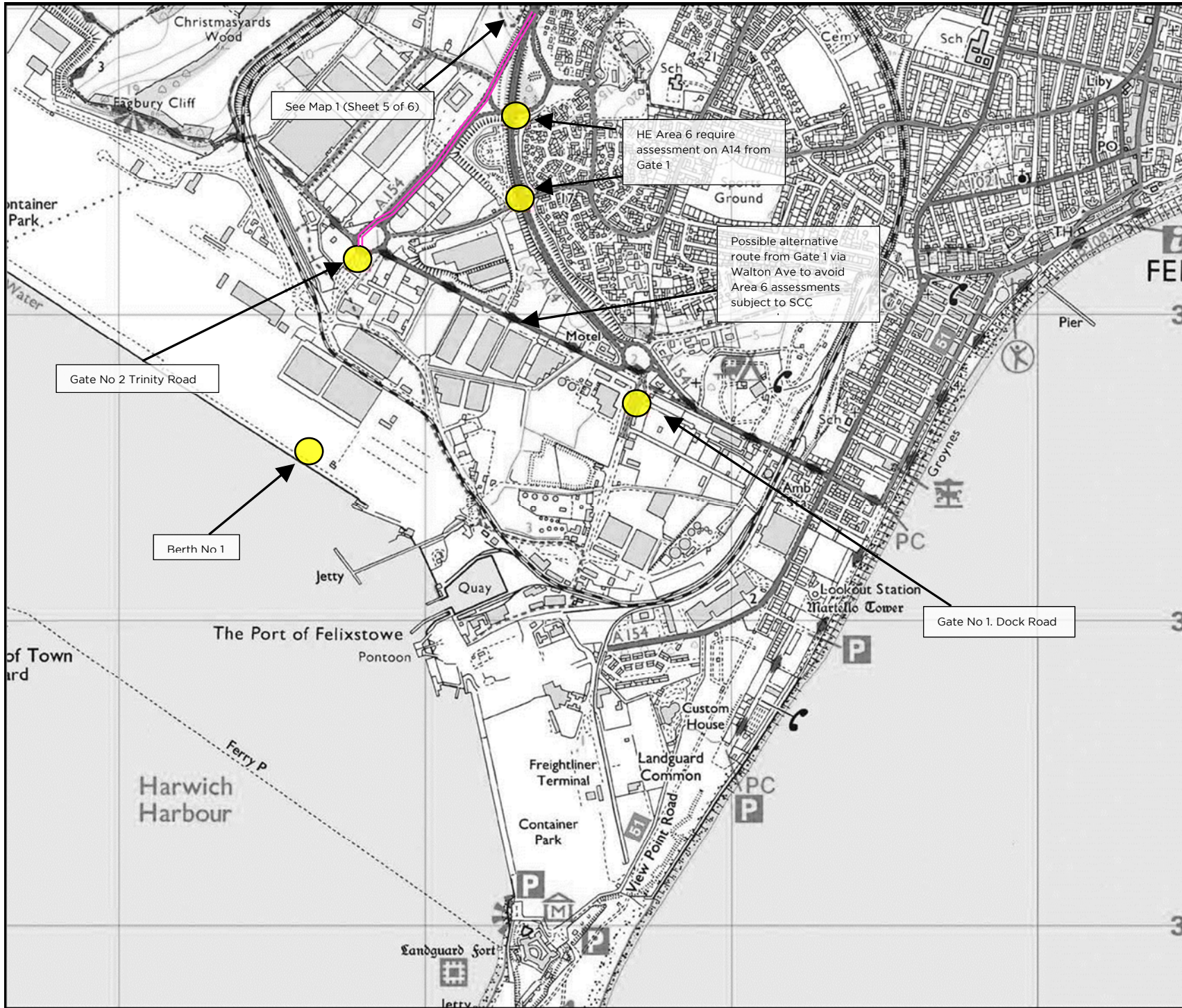
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Key		
	Route 1 from Lowestoft	
	Route 2 from Lowestoft	
	Route 3 from Felixstowe	
	Route 4 from Felixstowe	
	Point of Interest	
	Proposed Substation Approximate Location	
</		



Key		
	Route 1 from Lowestoft	
	Route 2 from Lowestoft	
	Route 3 from Felixstowe	
	Route 4 from Felixstowe	
	Point of Interest	
	Proposed East Anglia North Substation Approximate Location	
B		
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O	20.06.18	First Issue
Rev	Date	Amendments:
Revisions		
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Client: <div><div><div>ScottishPower House 320 St Vincent St Glasgow G2 5AD</div></div></div>		
Project: East Anglia TWO & East Anglia ONE North Windfarm		
Title: Map 1 - Routes to Proposed Substation		
Drawing Status: Final Report		
Scale (A4): NTS	Drawn by: DMW	Checked by: ARP
Ref No.: SPR-EA--Map1	Sheet: 5 of 6	Rev.: 0
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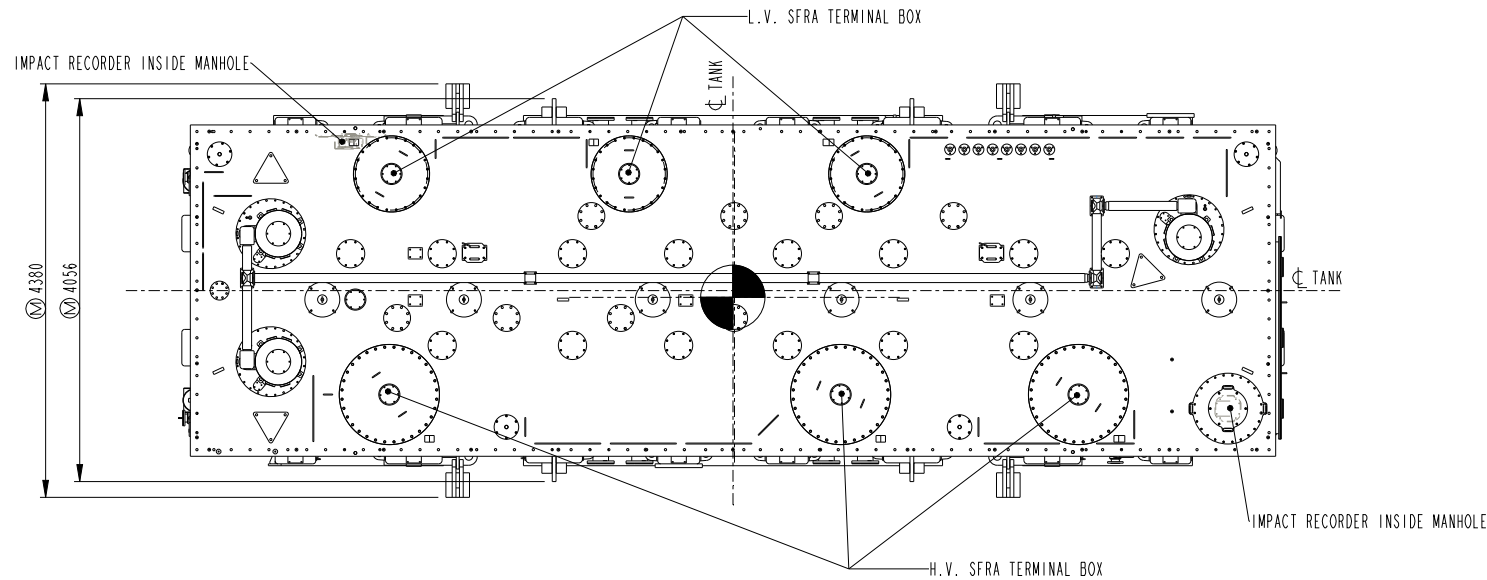
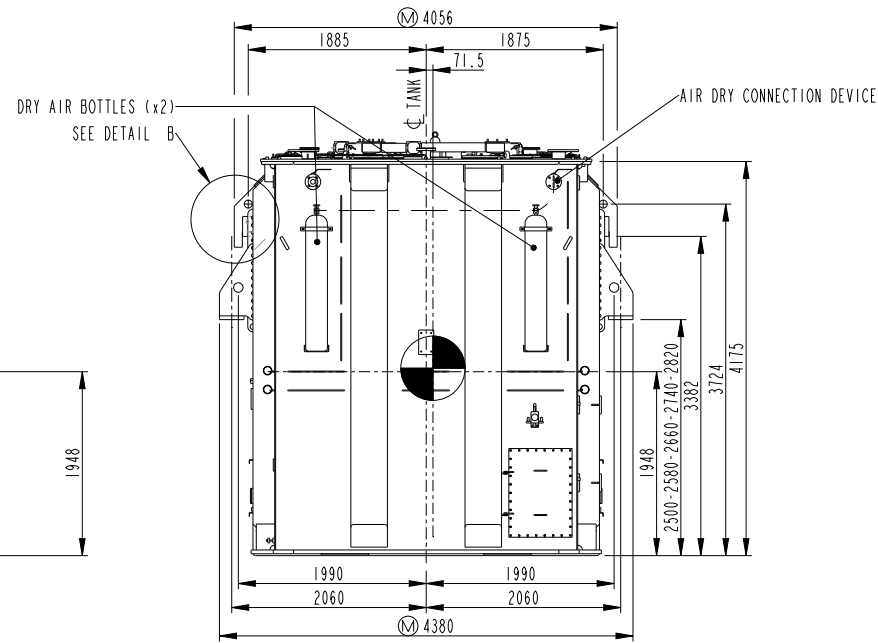
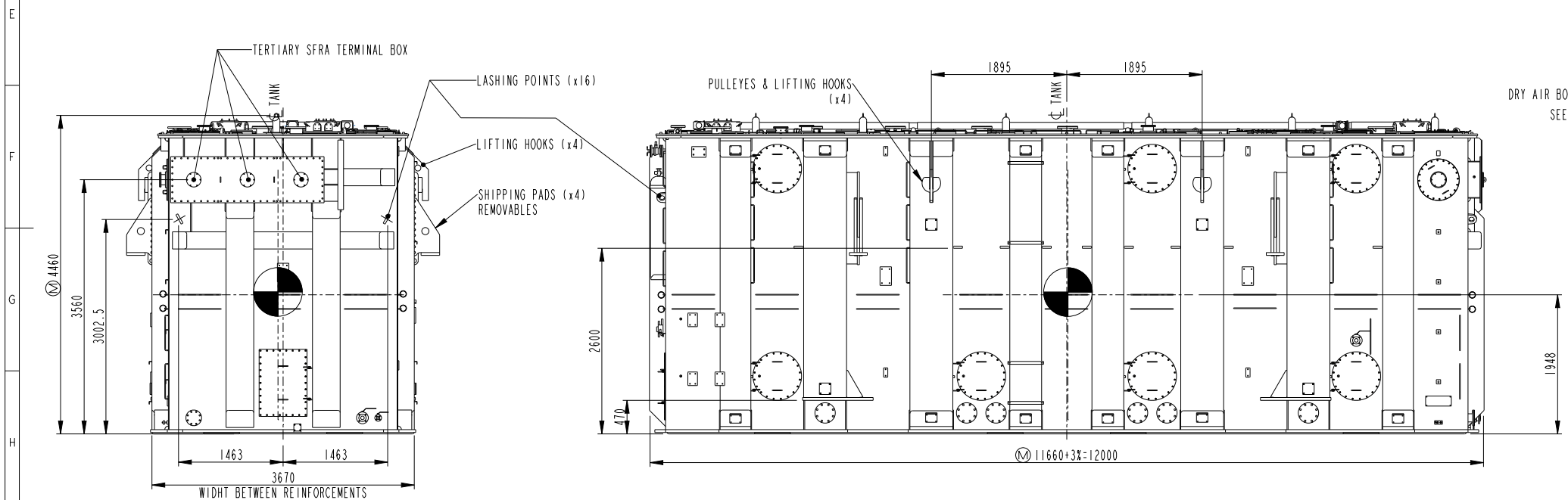
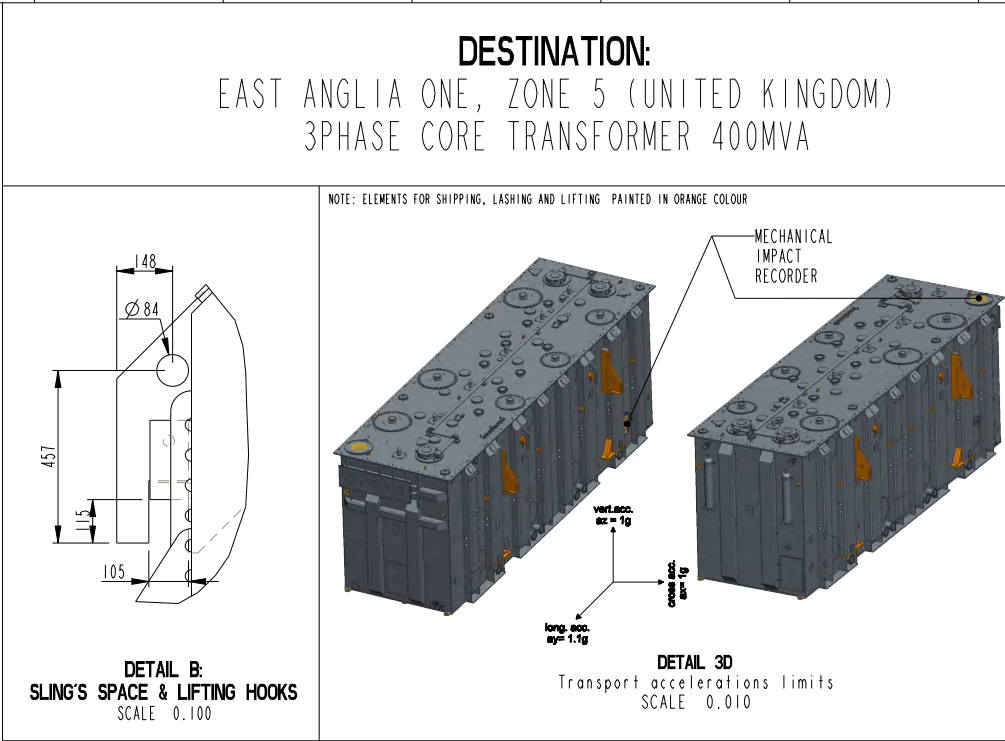
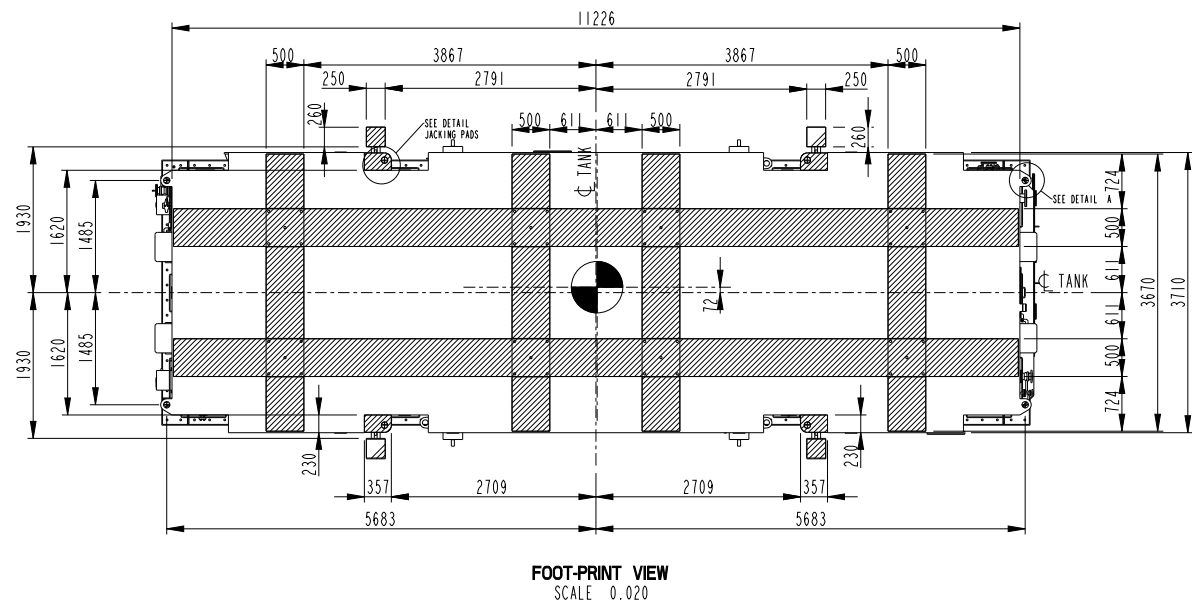
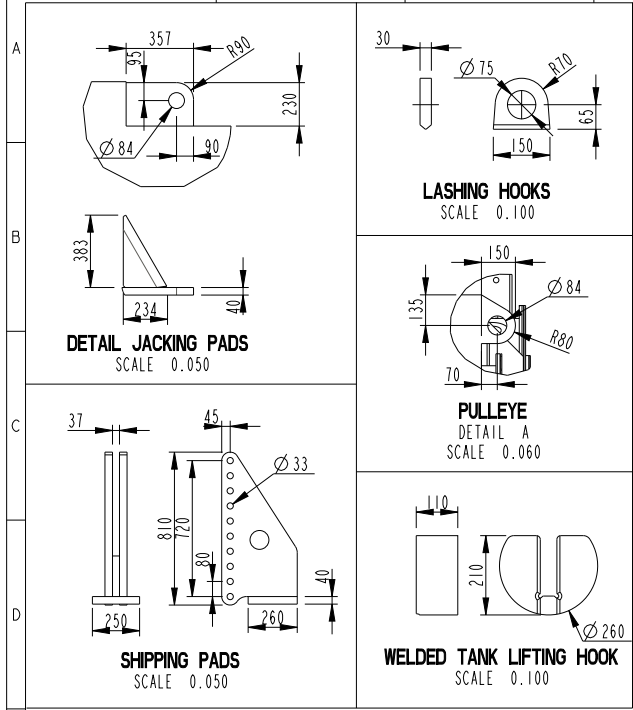


Key		
	Route 1 from Lowestoft	
	Route 2 from Lowestoft	
	Route 3 from Felixstowe	
	Route 4 from Felixstowe	
	Point of Interest	
	Proposed East Anglia North Substation Approximate Location	
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O	20.06.18	First Issue
Rev	Date	Amendments:
Revisions		
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Client:		
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Project:		
East Anglia TWO & East Anglia ONE North Windfarm		
Title:		
Map 1 – Routes to Proposed Substation		
Drawing Status:		
Final Report		
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NTS	DMW	ARP
Ref No.:	Sheet:	Rev.:
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Appendix 2

Drawings



SHIPPING RANGE MASS CALCULATED WITHOUT OIL (268510±5%) = (255,08-281,95) Tn.
OO.TT. 240400-410

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REV.	DATE	Drawn	Prep.	Checked	Approv.	REASON, STATUS OF REVISION
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Type:						OUTLINE DIMENSIONS 400MVA-AUTOTRANSFORMER DRAWINGS
File:						EAI-GRD-DA-ABBSVC-102328
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Client: SCOTTISH POWER RENEWABLES						
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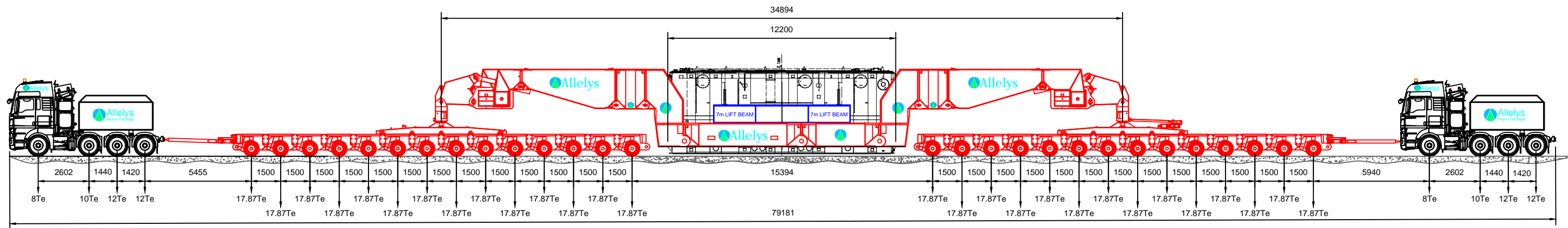


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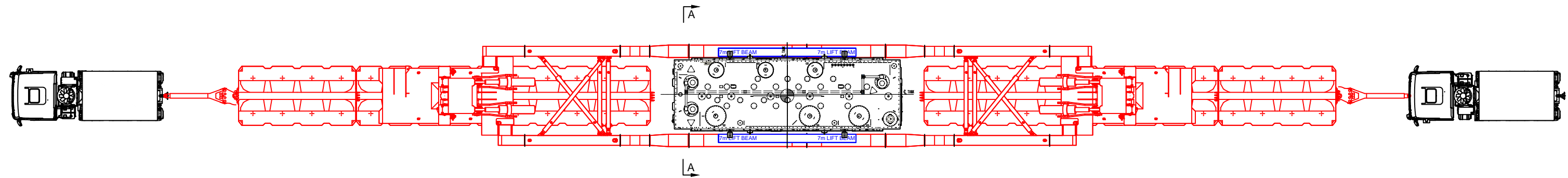
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Collett and Sons Ltd

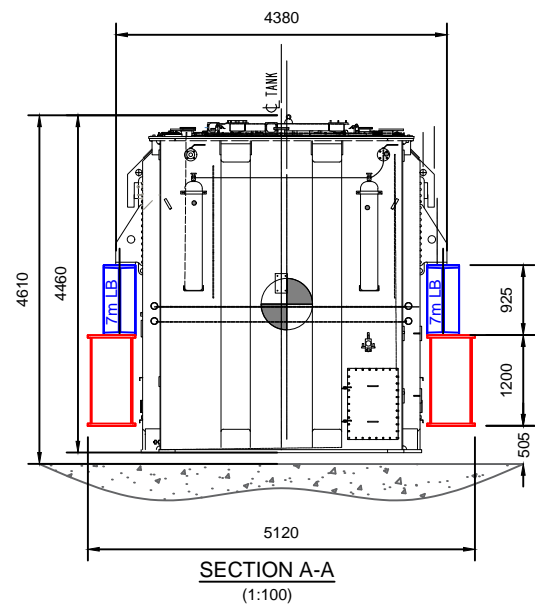
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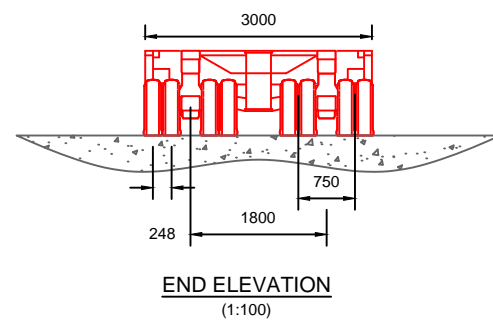
SIDE ELEVATION
(1:200)



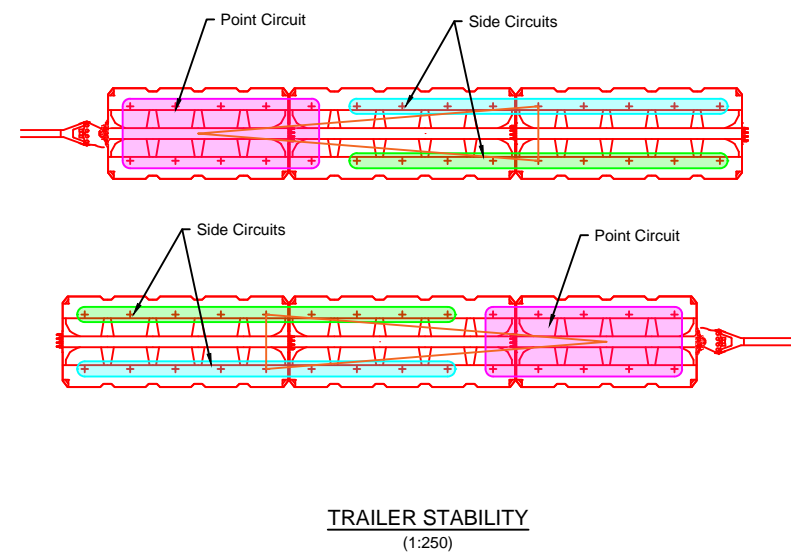
PLAN VIEW
(1:200)



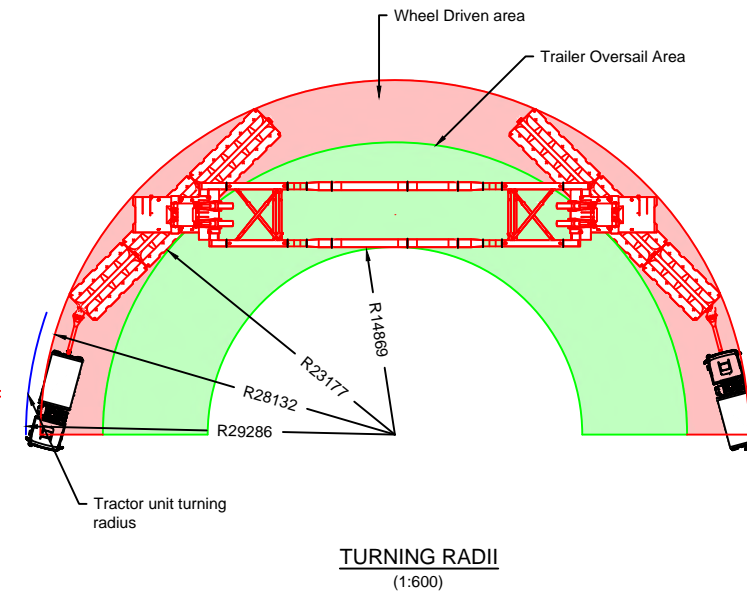
SECTION A-A
(1:100)



END ELEVATION
(1:100)



TRAILER STABILITY
(1:250)




TURNING RADII
(1:600)

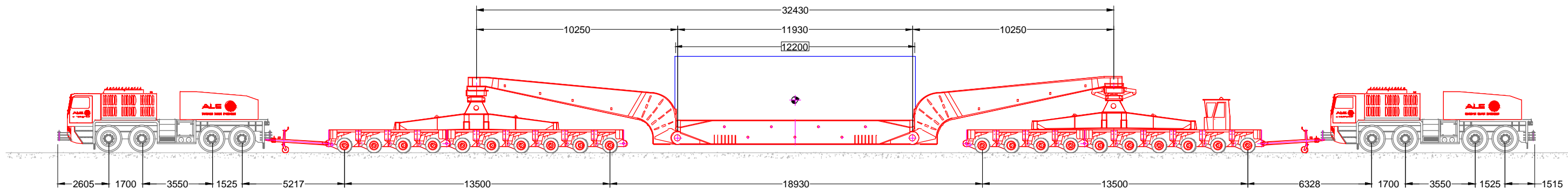
- DRAWING NOTES:**
1. All dimensions are in mm unless otherwise stated
 2. All weights are in metric tonnes unless otherwise stated
 3. All details are provisional and are subject to confirmation
 4. Tractor unit(s) dimensions and axle spacings may vary depending on the type of tractor unit(s) used.

TECHNICAL NOTES:

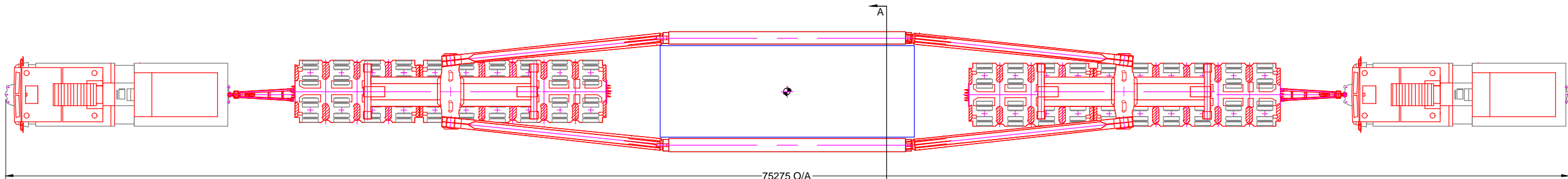
Load Table	
Applied Load Weight (Te)	281.95
Trailer Tare Weight (Te)	213.00
Auxiliary Steel Work (Te)	5.44
Trailer Gross Weight (Te)	500.39
Load per Bogie (Te)	250.19
Load per Axle (Te)	17.87
Block Ground Loading (Te/m ²)	3.97

Revisions			
0	17/05/18	HW	Issued for comment
Rev.	Date	Drawn	Ammendments

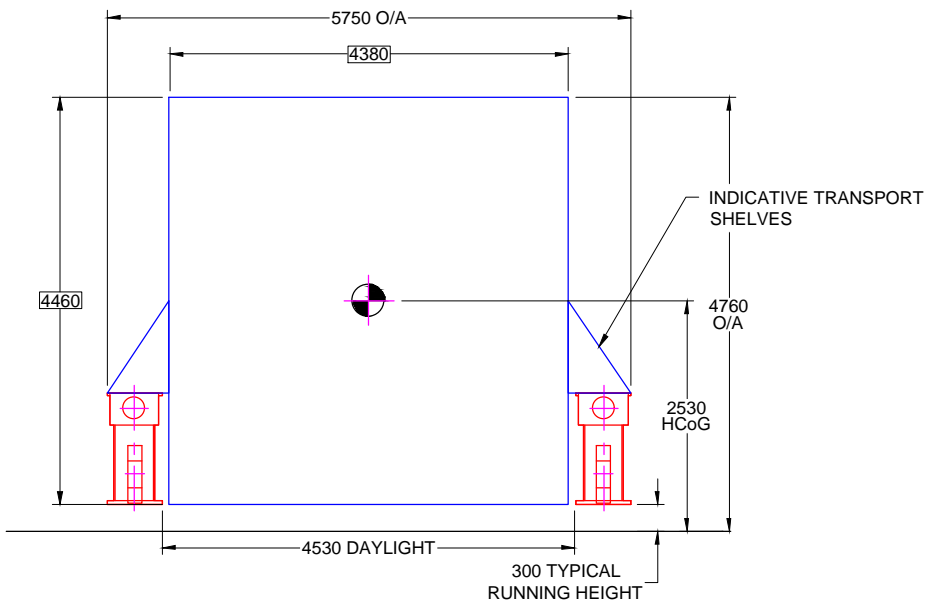
 <div>The Slough, Studley, Warwickshire, B80 7EN Tel: +44 (0) 1527 852 408 e-mail: enquiries@allelys.co.uk</div>			
Client Wynns			
Project East Anglia One			
Title 281.95Te Transformer Transport Arrangement - 28 Axle 500Te Girder Frame			
Scale (A3) 1:100, 1:200, 1:250, 1:600	Drawn HW	Checked MJC	
Dwg. No WWPN-18-035-00	Sheet 1 of 1	Revision 0	



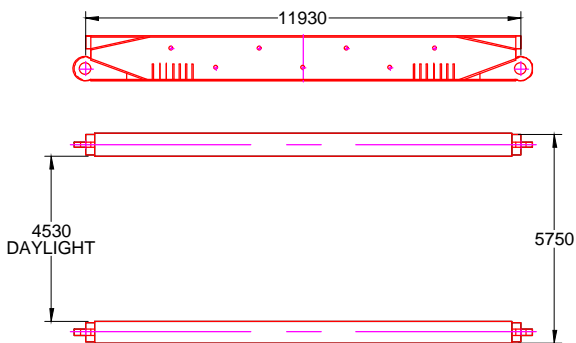
ELEVATION



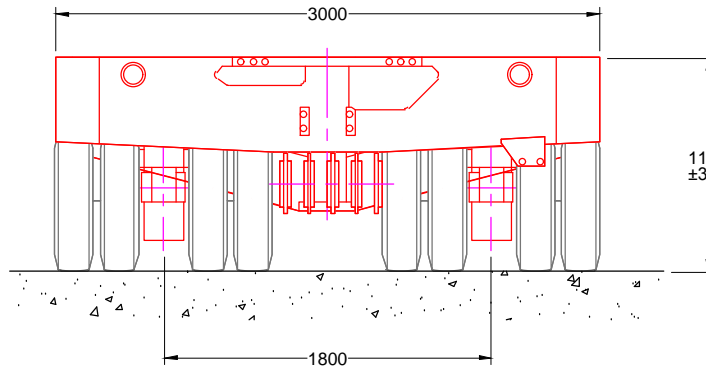
PLAN



SECTION A-A



BEAM DETAILS



TRAILER DETAILS

DRAWING NOTES:

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

TECHNICAL NOTES:

- TRANSFORMER WEIGHT AND DIMENSIONS TAKEN FROM RECEIVED EMAIL ON 10/05/2018 FROM ANDY PEARCE.
- CoG DETAILS ASSUMED CENTRAL TO TRANSFORMER.
- INDICATIVE TRANSPORT SHELVES, TO BE CONFIRMED BY OTHERS.
- REDUCIBLE RUNNING HEIGHT = 4530mm

TRAILER SPECIFICATION						
AL100 WITH 20No. 1.5m GOLDHOFER AXLES						
all weights in t (metric tonnes)	Total					
NUMBER OF AXLE LINES	20	A	17/05/2018	JJP	-	DRAFT ONLY - FEASIBILITY STUDY
NUMBER OF FILES	2	Rev.	Date	Drawn	Check	Description QF19 (Issue 5)
LOAD DETAILS						
PAY LOAD	282.0					
TRANSPORTER WEIGHT	127.0					
ENGINE WEIGHT	-					
AUXILIARY STEEL WEIGHT	-					
TOTAL LOAD	409.0					
LOAD PER AXLE LINE / TRAILER	20.5					
LOAD PER FILE	10.3					
LOAD PER WHEEL	2.6					
GROUND BEARING PRESSURE t/m²	4.55					

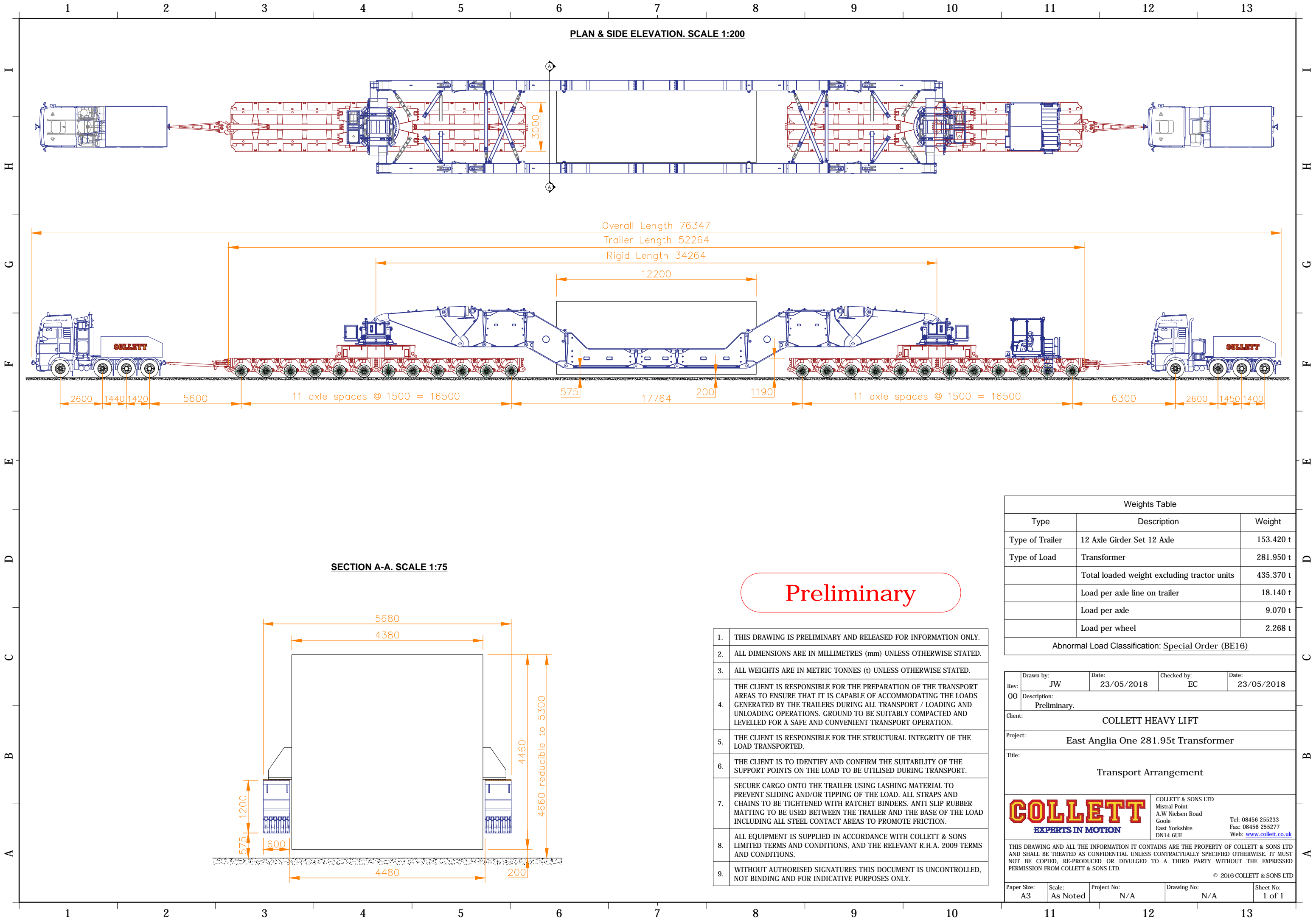
ALE Abnormal Load Engineering Ltd.
New Road, Hixon, Staffordshire, ST18 0PE, U.K.
Tel: +44 (0) 1889 272 500
Fax: +44 (0) 1889 271 750
Web: www.ale-heavylift.com

Client
WYNNS

Project Title
FEASIBILITY STUDY FOR 1No. 282t TRANSFORMER

Drawing Title
TRANSPORT ARRANGEMENT FOR AL100
ON 1.5m GOLDHOFER (20-AXLE)

Date 17/05/2018	Drawn JJP	Checked -	Scale (A1) N.T.S.	Sheet 1 of 1
Project No. N/A	Drawing No. N/A	Rev. A		

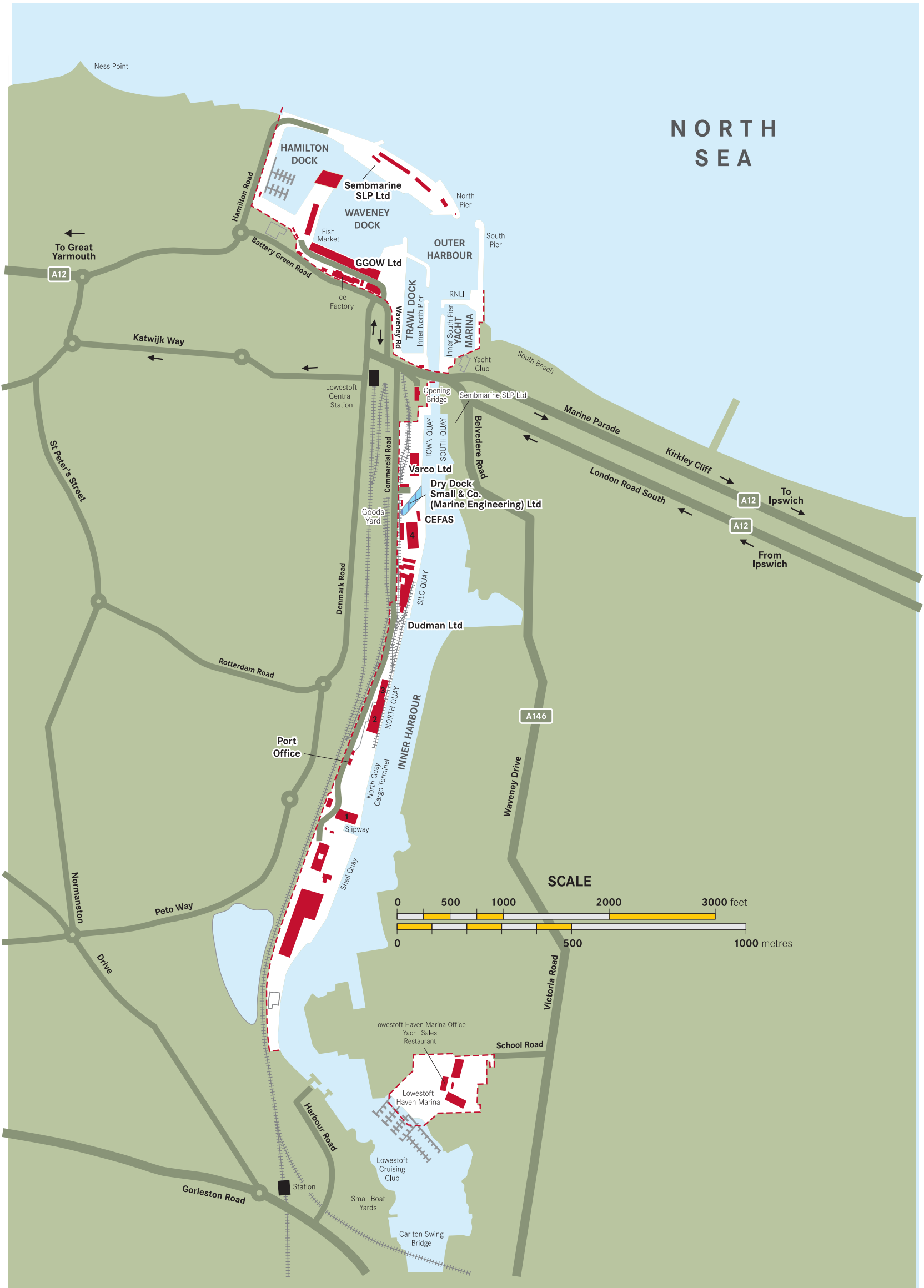




Appendix 4

Port of Lowestoft information

With thanks to:
ABP Lowestoft





Appendix 5

Correspondence with SLP reference Belvedere Yard

Andrew Pearce

From: Paul Thomson <Paul.Thomson@sembmarineslp.com>
Sent: 02 July 2018 08:24
To: Andrew Pearce
Cc: Andy Manners; Peter Wynn; Colin Yaxley
Subject: RE: AIL Access to East Anglia One Offshore Wind Farm Onshore Substation – Delivery of Transformers at Belvedere Yard

Dear Andy,

Thank you for your note below and letter as a follow up to our meeting on the 7th June.
I'm afraid at this time we cannot commit to the use of Belvedere Road for future use / projects as we have decided to sell the asset.

We have just instigated the sale process through a local agent, and have a number of potential interests, however I will keep you posted and advise when the sale has been completed such that you can follow up with the new owners.

Regards

Paul Thomson
Managing Director
Sembmarine SLP Ltd
DDI: 01502 548057
Switchboard: 01502 548000
Email: paul.thomson@sembmarineslp.com



From: Andrew Pearce <Andy.Pearce@wynnslimited.com>
Sent: 13 June 2018 17:13
To: Paul Thomson <Paul.Thomson@sembmarineslp.com>
Cc: Andy Manners <andy.manners@robertwynnandsons.co.uk>; Peter Wynn <Peter.Wynn@wynnslimited.com>; Sam Taylor <sam.taylor@rhdhv.com>
Subject: AIL Access to East Anglia One Offshore Wind Farm Onshore Substation – Delivery of Transformers at Belvedere Yard

Dear Mr Thomson,

Thank you very much for seeing Andy Manners and myself last week at Lowestoft during what was obviously a busy period for you. I hope the load out operation all goes smoothly and that future work is on the horizon. As agreed I am writing to you to seek to formalise the situation in respect to the use of Belvedere Yard for the delivery of transformers and I attach a letter including an outline of the project we are currently looking at.

Please note that this is in respect to this specific new substation connection only. I am not party to any future requirements that may be relevant to the existing Sizewell Power Station and Substations which are owned and operated by EDF Energy and National Grid but if you felt it appropriate I could communicate any matters arising to them as necessary.

If you need any further information please do not hesitate to contact me. I look forward to hearing from you in due course.



Date/13.06.18
Ref/W/2018/AP/0066

Mr Paul Thomson
Managing Director
Sembmarine SLP Ltd
Hamilton Road
Lowestoft
Suffolk
NR32 1XF

By email

Dear Mr Thomson,

Subject: AIL Access to East Anglia One Offshore Wind Farm Onshore Substation - Delivery of Transformers at Belvedere Yard

Thank you for your time during our meeting in Lowestoft on Thursday 7th June which was very much appreciated. As discussed I would be grateful if you could advise with respect to the enquiry detailed below. As I explained there are two "Wynns" businesses with an interest in Abnormal Indivisible Load (AIL) access at Lowestoft. These are Robert Wynn and Sons, for whom Andy Manners is the General Manager, operators of the Terra Marique, and Wynns Limited, which is a separate business I manage working as an independent consultancy. Wynns Limited often work for clients as part of future planning requirements, sometimes many years in advance of actual delivery of AILs. In this case we are working for Royal Haskoning in terms of heavy load delivery options for new substation transformers.

Wynns Limited have been appointed to assess the feasibility of heavy load access to a new onshore substation in Suffolk around the Saxmundham area which is proposed to connect to an offshore wind project. Part of our work is considering the situation at ports with regard to facilitating heavy lifts for the onward land movement of AILs and we need to consider all potential marine access options.

We are of course familiar with the SLP facility at Belvedere Yard, Lowestoft and the requirements of ABP Lowestoft for access for suitable vessels to the port from previous operations to Sizewell Power Station and local substations. However, as the land is privately owned by SLP we need to understand and confirm what the status is for use by our clients.

The transformers (2 in number) that we are investigating delivery of are advised as being up to 282te nett transport weight and we need to confirm the suitability of offloading facilities at Belvedere Yard. The delivery date for the transformers is not confirmed at present but will be at least 2-3 years away based on my current understanding. In consideration of this, I would appreciate your comments on the following matters as appropriate on the following;

Technical Requirements

- i. Confirmation of whether access for ro/ro vessels continues to be available including the Terra Marique. Please see attached a generic drawing of the Terra Marique. The loading under the ro/ro ramp will be in the order of 5 tonnes per square metre.
- ii. Quay strength and maximum permissible ground loadings including any set back distances required. I understand from our meeting that there has not been any significant change to the berth in recent years but also that it has not specifically been maintained and as such clarification of loadings that remain acceptable would be useful.

- iii. Restrictions on times available for operations (if applicable).
- iv. Confirmation that short term storage to hold heavy loads prior to onward road transport would be feasible. For example if 2 transformers are delivered in one shipment it may envisaged that the first transformer would be accommodated on or offloaded to road transport vehicles for immediate road transport to site and it may be necessary to store the second unit on the quay for a few days/weeks to wait for the second movement requirement.
- v. Availability of road access from offloading point to the public highway through the berth area to Belvedere Road. We do not see this as a problem but there will be a need to open the gates and provide secure access during operations.
- vi. Based on our knowledge of the available water in the port we do not expect that it will be feasible for use by geared vessels or Coasters/Mobile Cranes but if there are any specific requirements for working with cranes on the quay this would also be useful.

Commercial Requirements

In addition to the technical clarifications noted, which we hope will be confirmatory based on the previous use of the facility for loads to Sizewell I would be grateful if you could confirm the following:

- i. We are aware that the former CEGB Successor companies had a "Berths Agreement" which allowed for them to facilitate access to other companies' facilities at ports throughout the UK of which the ro-ro facility at Belvedere Yard was one. Unfortunately I have not been able to source any information that confirms the access rights of the CEGB successor companies, in this case EDF Energy via the former British Energy and Nuclear Electric organisations, as to any specific local access agreements with SLP as the landowner. I understand from our meeting that SLP are not aware of any formal access agreement but would welcome confirmation on this matter.
- ii. Would SLP in principle be willing to facilitate AIL access at Belvedere Yard and if so what would be the associated costs for use?
- iii. Is any formal agreement required to enable access or can this be confirmed at the time of requirement?
- iv. What notice period is required to enable access to be accommodated?
- v. As the movements are sometime in the future are you able to confirm that the long term plan remains for SLP to retain ownership of the berthing area as we are aware from historical records that there has been discussion within Waveney District Councils Local Plan for future changes to land use although I understand at present from information available on line that it remains identified as "Inner Harbour Port Area".

The project is presently in planning and development only at this stage and no movements are imminent, this enquiry should therefore remain confidential. I hope this is clear. If you require any further information, please do not hesitate to contact me. I look forward to hearing from you.

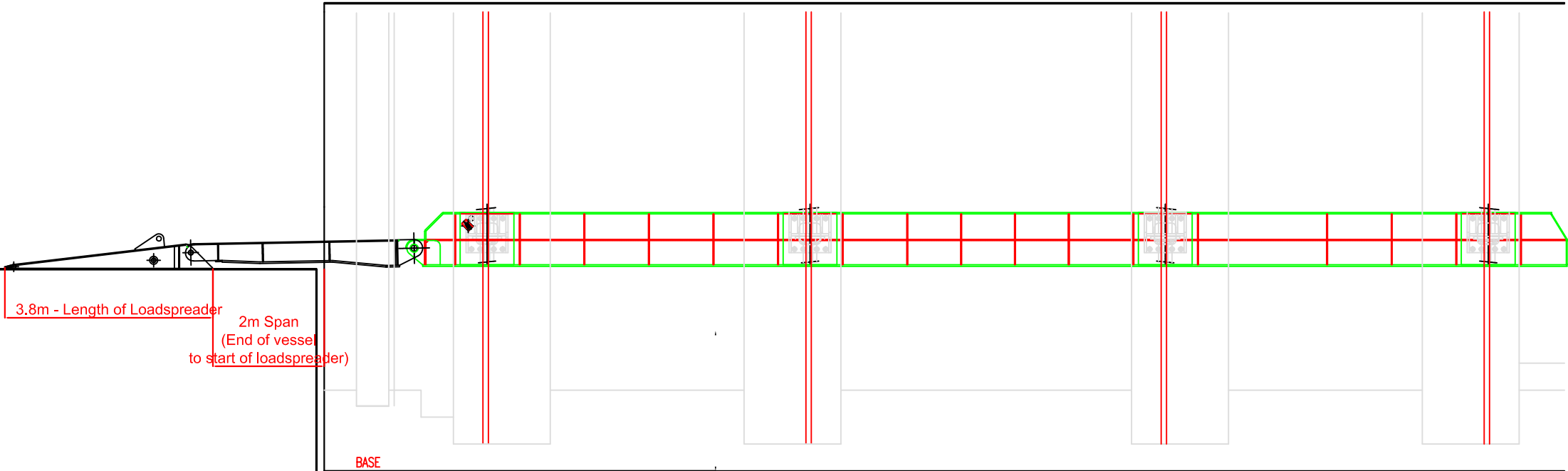
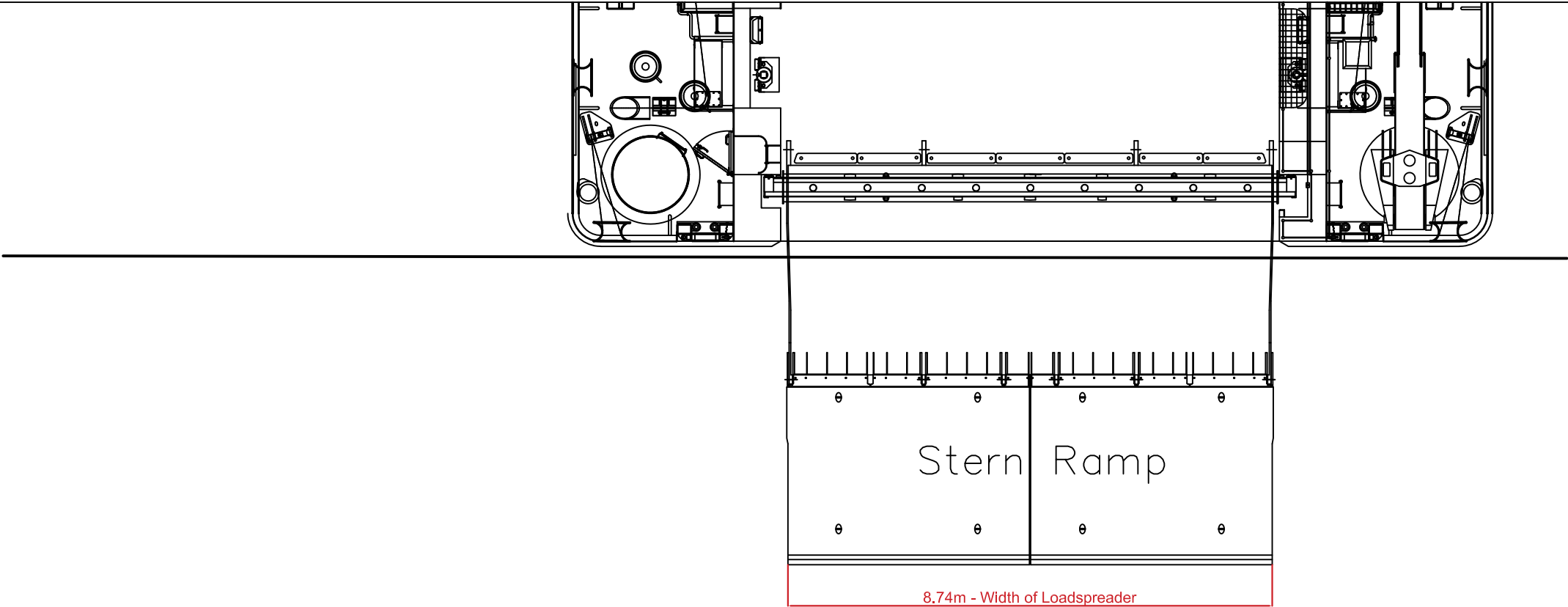
Kind Regards



Andy Pearce
General Manager, Wynns Limited


Enclosed:
Terra Marique Generic Load Plan

CC Sam Taylor, Royal Haskoning



0		
Rev.	Date	Ammendments

Revlslons



ROBERT WYNN & SONS LTD.
ESTABLISHED 1863
Albany House, 4 High Street, Eccleshall,
Stafford, ST21 6BZ
Tel: (01785) 850411 Fax: (01785) 851886

Client:

Project:

Title:
**Terra Marique
Ramp Information**

	Drawing Status: --	
Scale (A4): 1:100	Drawn by: AM	Checked by: --
Dwg. No: TM-GEN-RAMP	Sheet: 1 of 1	Rev: 0

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P:\Robert Wynn & Sons\Terra Marique\Generic Drawings\Ramp.dwg



Appendix 6

Port of Felixstowe information

With thanks to:
Port of Felixstowe
Radius Crane Management

Andrew Pearce

From: Howlett, Neil <howlettne@fdrc.co.uk>
Sent: 22 May 2018 07:56
To: Andrew Pearce
Subject: RE: AIL Delivery for Substation Transformers

Andy,

There are several access / egress routes that could be used; selecting the most suitable would be dependent on the width and length of the overall transport and cargo. The approach to both Dock gates are dual carriage ways, most internal roadways are dual or exceptionally wide to account for the heavy plant. All height or width restricting barriers are removable or can be swung out of position. Movement of such cargos is preferred (*but not limited to*) Sundays, as there is no haulage operation (*usually c3500 trucks per day*) and no Rail operation (*66 trains per day*).

As you suggest, this will be easy to demonstrate on the site visit.

Kind regards

Neil

From: Andrew Pearce [mailto:Andy.Pearce@wynnslimited.com]
Sent: 21 May 2018 17:16
To: Howlett, Neil
Subject: RE: AIL Delivery for Substation Transformers

Neil,

Thank you for the rapid response. We will consider the loadings and get back to you if we have any further questions.

One immediate thing does spring to mind though in that I cannot see the proposed route away from the quay to the public highway marked on the berth 1 access plan. Is there a specific route you would require to be used for the onward road transport vehicles or would this depend on what operations are taking place at the time. This is perhaps something we could look at further on a site visit.

Many thanks.

Andy Pearce

From: Howlett, Neil [mailto:howlettne@fdrc.co.uk]
Sent: 21 May 2018 15:31
To: Andrew Pearce <Andy.Pearce@wynnslimited.com>
Subject: RE: AIL Delivery for Substation Transformers

Good afternoon Andy,

Berth capabilities are as follows:

- Standoff is approx. 3.5 meters; the pavement loading landward of the front crane rail has no load bearing as it is essentially a capping
- Loads can be accommodated between 100KN/m² and 150KN/m² landside from the front crane rail, but this load cannot be distributed over the entire area (*as a UDL load*) because there is the potential for the berth to collapse
- Front Crane rail can accommodate loads of 32 t per meter, but requires a narrow spread matt to ensure no load is transferred to the capping

- Draft alongside is 11.5m
- Length of berth available is 200m
- Berth Box is 50m but can be extended 90m on request
- Distance between bollards is 24m, pull integrity is 50t
- There is 2500m² of storage available alongside the Berth

I have attached a recent 'laydown drawing' as an indication of requirements, as the document was submitted by a 3rd party I respectfully request that it is treat as confidential. Also attached is a PDF of the available Project Berth (*known as Berth 1*)

I hope this information is of use, but if you require anything please let me know.

Best regards

Neil

Neil Howlett
Container Division Support Manager
Container Division

Port of Felixstowe
T +44 (0)1394 604544
M +44 (0)7848 015486
howlettne@fdrc.co.uk

www.port-of-felixstowe.co.uk

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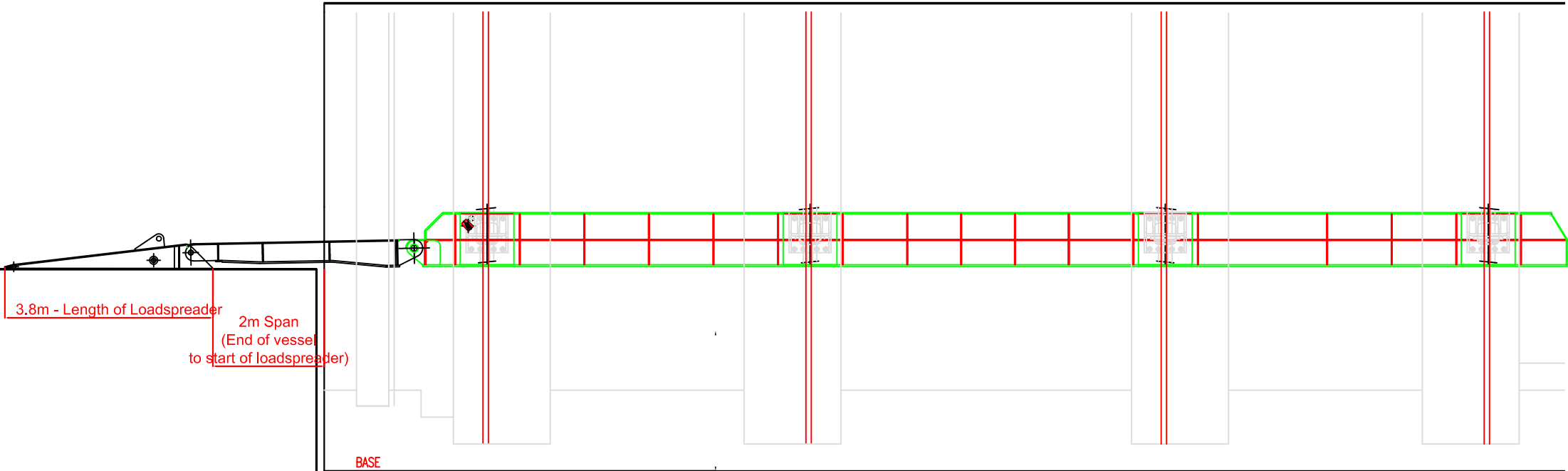
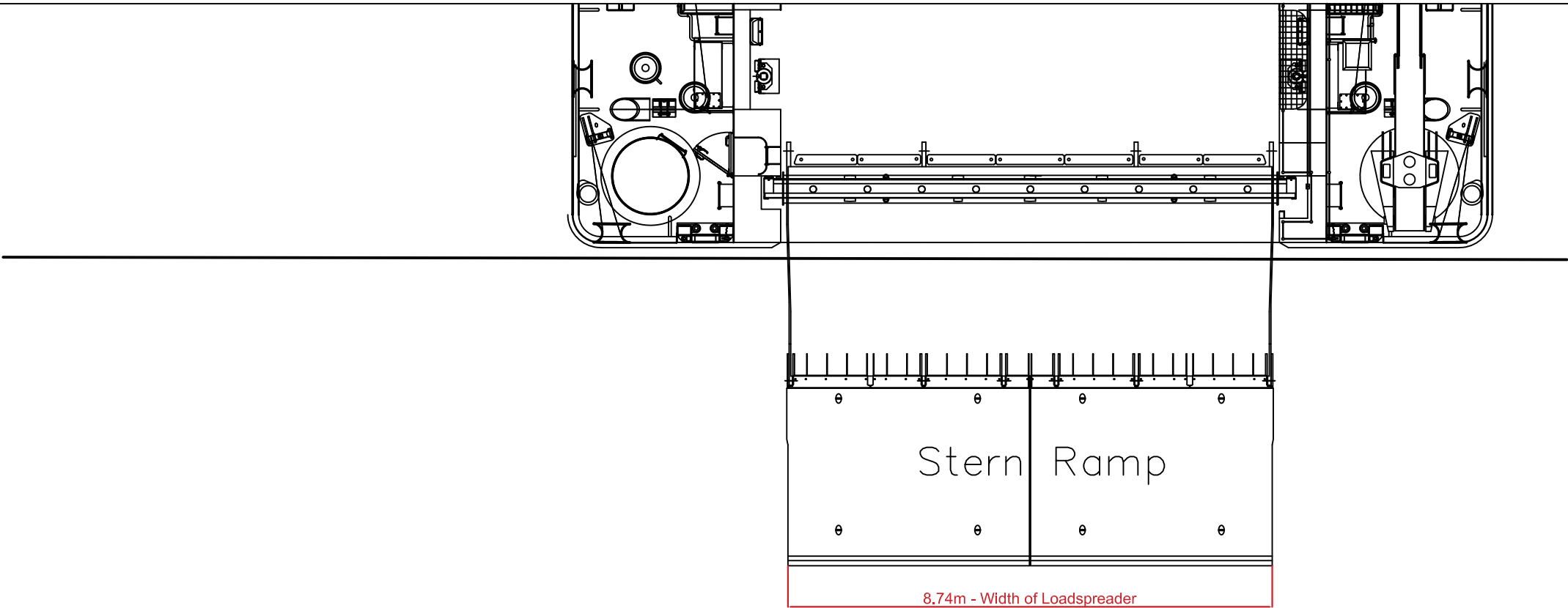
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From: Andrew Pearce [<mailto:Andy.Pearce@wynnslimited.com>]
Sent: 21 May 2018 14:47
To: Howlett, Neil
Subject: AIL Delivery for Substation Transformers

Dear Neil,



0		
Rev.	Date	Ammendments

Revlslons



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Albany House, 4 High Street, Eccleshall,
Stafford, ST21 6BZ
Tel: (01785) 850411 Fax: (01785) 851886

Client:

Project:

Title:
**Terra Marique
Ramp Information**

	Drawing Status: --	
Scale (A4): 1:100	Drawn by: AM	Checked by: --
Dwg. No: TM-GEN-RAMP	Sheet: 1 of 1	Rev: 0

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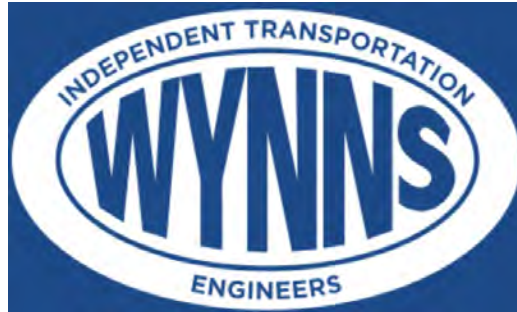
P:\Robert Wynn & Sons\Terra Marique\Generic Drawings\Ramp.dwg



Lifting Operations Concept Drawing

CL-0551

CLIENT :



CLIENT CONTACT :

Andy Pearce | General Manager |

SITE OWNER:



SITE LOCATION:

Felixstowe Docks

Quay one

Felixstowe

IP11 3SY

ACTIVITY:

Concept drawing to unload one number electrical transformer from vessel to road transportation positioned on the quay next to the cranes rigging position.

Supper lift tray to be utilised for lifting the transformer from within the vessel, once the transformer is lifted clear of the vessel and the working radii is reduced to 12.00 metres the supper lift tray may be disconnected to allow the lifted transformer to be slewed to the road transportation.

PREPARED BY:

Adam Thomas

07887 802292

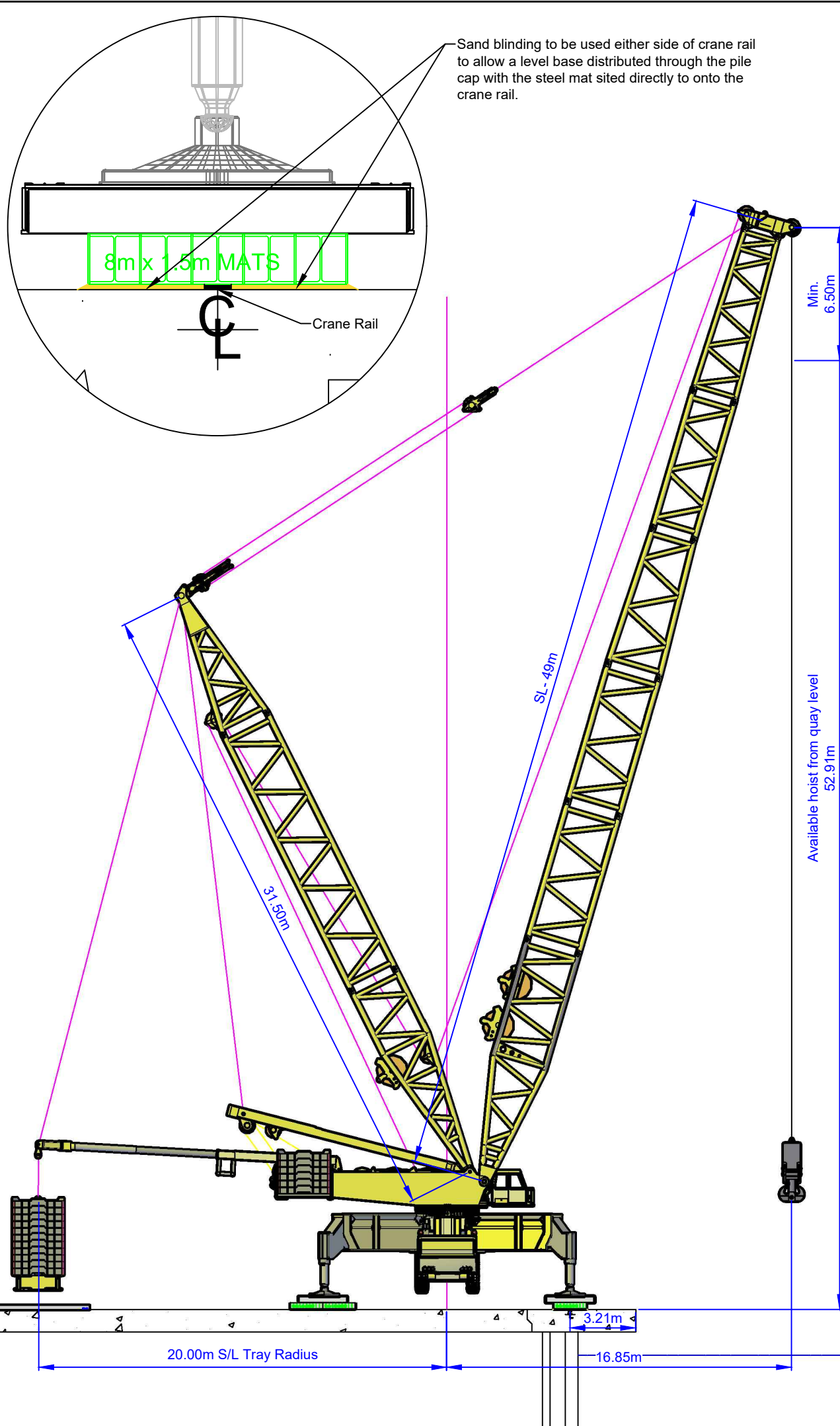
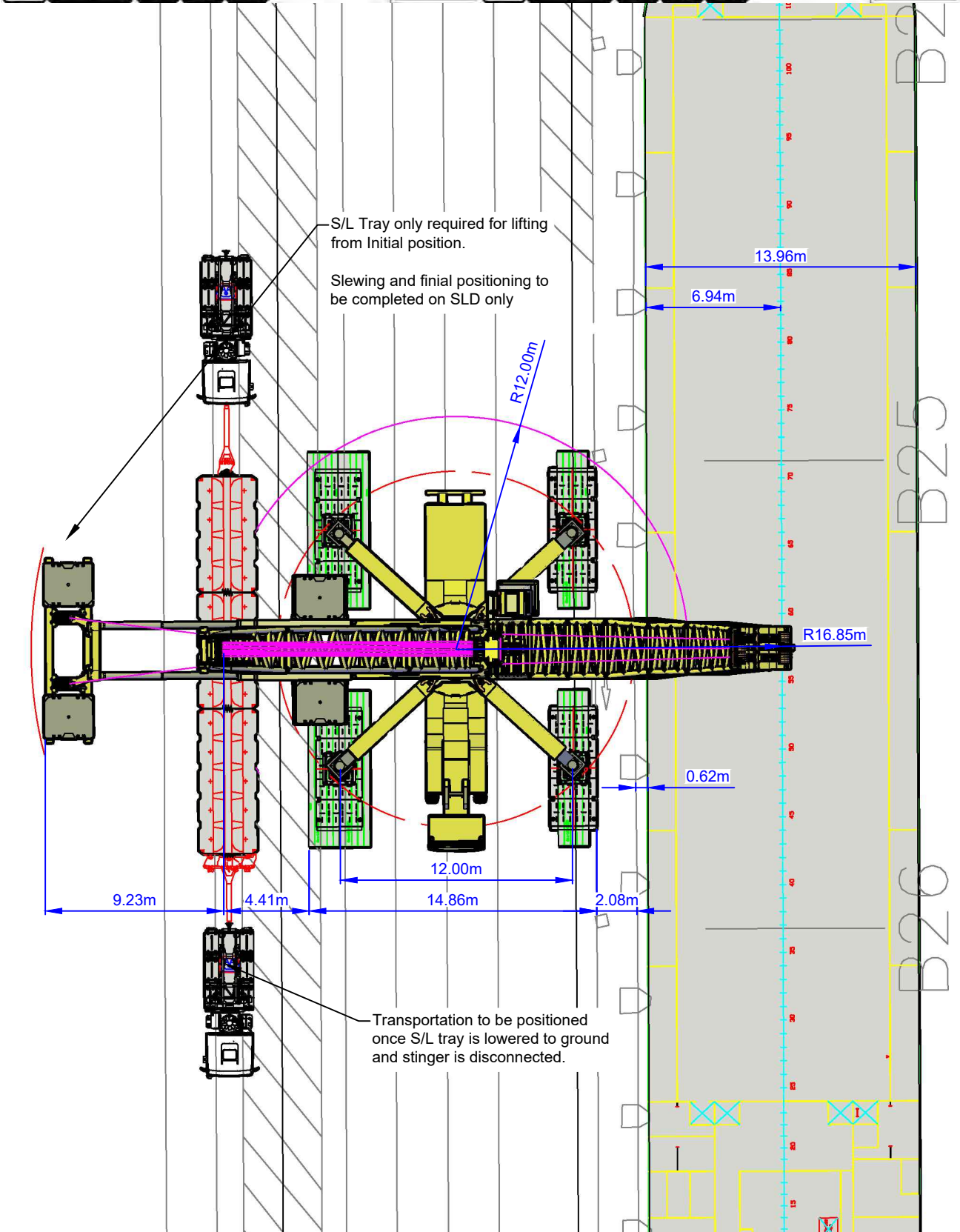
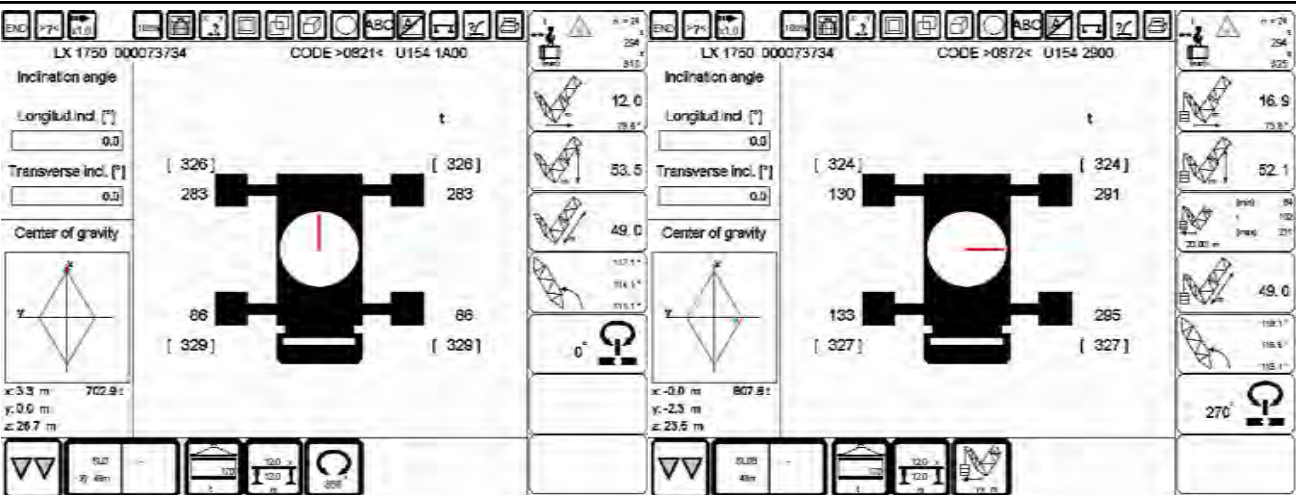
adamthomas@radiusgroup.co.uk

SUMMARY OF ATTACHMENTS:

Crane Drawing CL-0551, revision P0 consisting of a single sheet

Liebherr LG1750 Dimensions

SLDB duty chart



Notes

- Client to ensure that the access, egress and working area is cleared sufficiently to accommodate the crane and transport.
- Client to ensure a suitable hard standing and level area to be provided to support all crane and transport loads imposed.
- The Lifting Accessories shown are subject to availability and it may be necessary to substitute components for suitable alternatives.
- Client is responsible for the structural integrity of the load to be lifted.
- Client is to identify and confirm the suitability of the lifting points to be utilised during the lifting of the load(s).
- The average residual ground bearing pressure figure is based upon the detailed mat arrangements. This figure can be potentially reduced using additional outrigger mats.
- All dimensions in metres and all weights and capacities in metric tonnes (te) unless otherwise stated. If in doubt - ASK!
- Drawing to be printed in colour only.

Crane Data : Main Lift Crane			
Make, Model, Capacity:	Liebherr LG1750		n/a
Configuration:	SLDB		n/a
Boom Length:	49.00		m
Boom Combination:	SL		%
Jib Length:	n/a		m
Outrigger Centres:	12.00 x 12.00		m
Counterweight:	170.00te plus 101.50te S/L cwt		te
Hook Block Type:	320.00te SWL 2 x 5 sheave bank		n/a
Min Number of Falls:	24		n/a

Load Data: Electrical Transformer			
Given Weight of Load:	280.00	te	
Hook Block Weight:	12.00	te	
Accessories Weight:	2.50	te	
Ancillaries Deductions:	n/a	te	
Gross Lift Weight:	294.50	te	

Lifting Radii:			
16.85	12.00	12.00	m
325.80	310.90	310.90	te
90.39	94.72	94.72	%

Maximum Ground Loadings Crane rail			
Item	Details		Unit
Max Outrigger Load:	329.00	10%	361.90 te
Outrigger Mat Dims:	8.00	1.50	0.31 m
Effective Surface Area:	12.00		m ²
Bearing Pressure:	30.16		te/m ²
Max Axle Load:	14.50	te	8 No

Maximum Ground Loadings Quay			
Item	Details		Unit
Max Outrigger Load:	329	10%	361.90 te
Outrigger Mat Dims:	8.00	3.00	0.31 m
Effective Surface Area:	24.00		m ²
Bearing Pressure:	15.08		te/m ²
Max Axle Load:	14.50	te	8 No

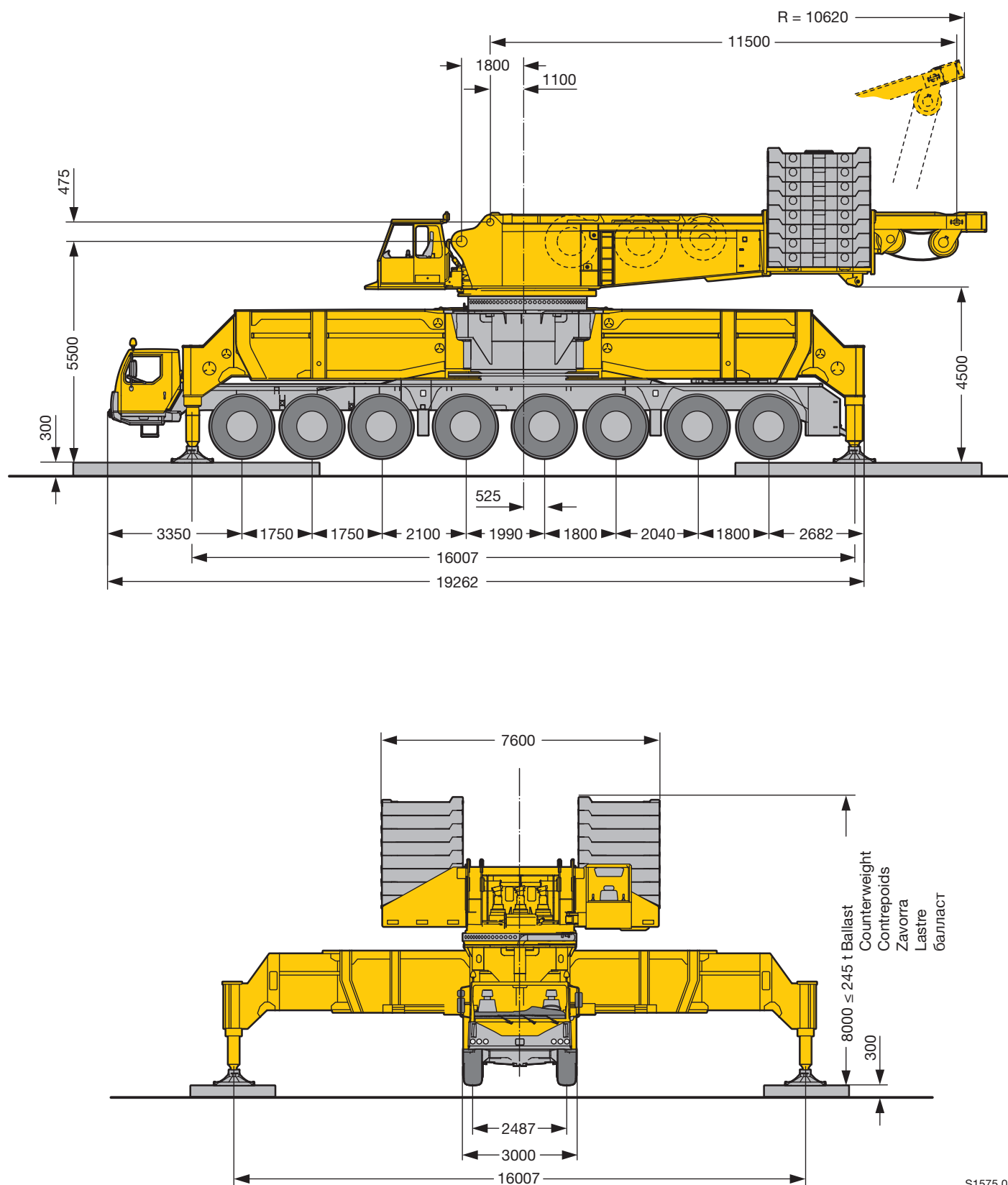
Rev: 05/06/18 First concept issue

Rev: [Date] Reason For Revision

Radius Crane Management Ltd
Equilibrium House, Mansion Close, Moulton Park
Northampton, NN3 6RU
Tel: 01604 622865
Email: info@radiuscm.com Web: www.radiuscm.com

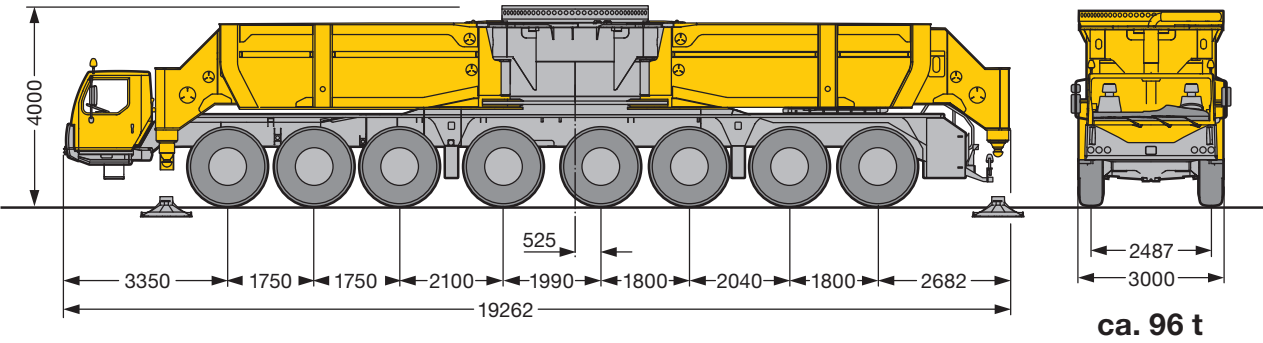
FS 588667 EMS 666003 OHS 588666

Client:	Wynns Limited		
Project:	Port of Felixstowe Electrical transformer discharge		
Title:	Lifting plan concept Using Liebherr LG1750		
Status:	For Discussion		
Drawn by:	A Thomas	Date:	05/06/18
Checked by:	N/A	Date:	n/a
Scale:	NTS @ A1	Sheet No.	1 of 1
Drawing No.	CL-0551-P0	Rev	P0



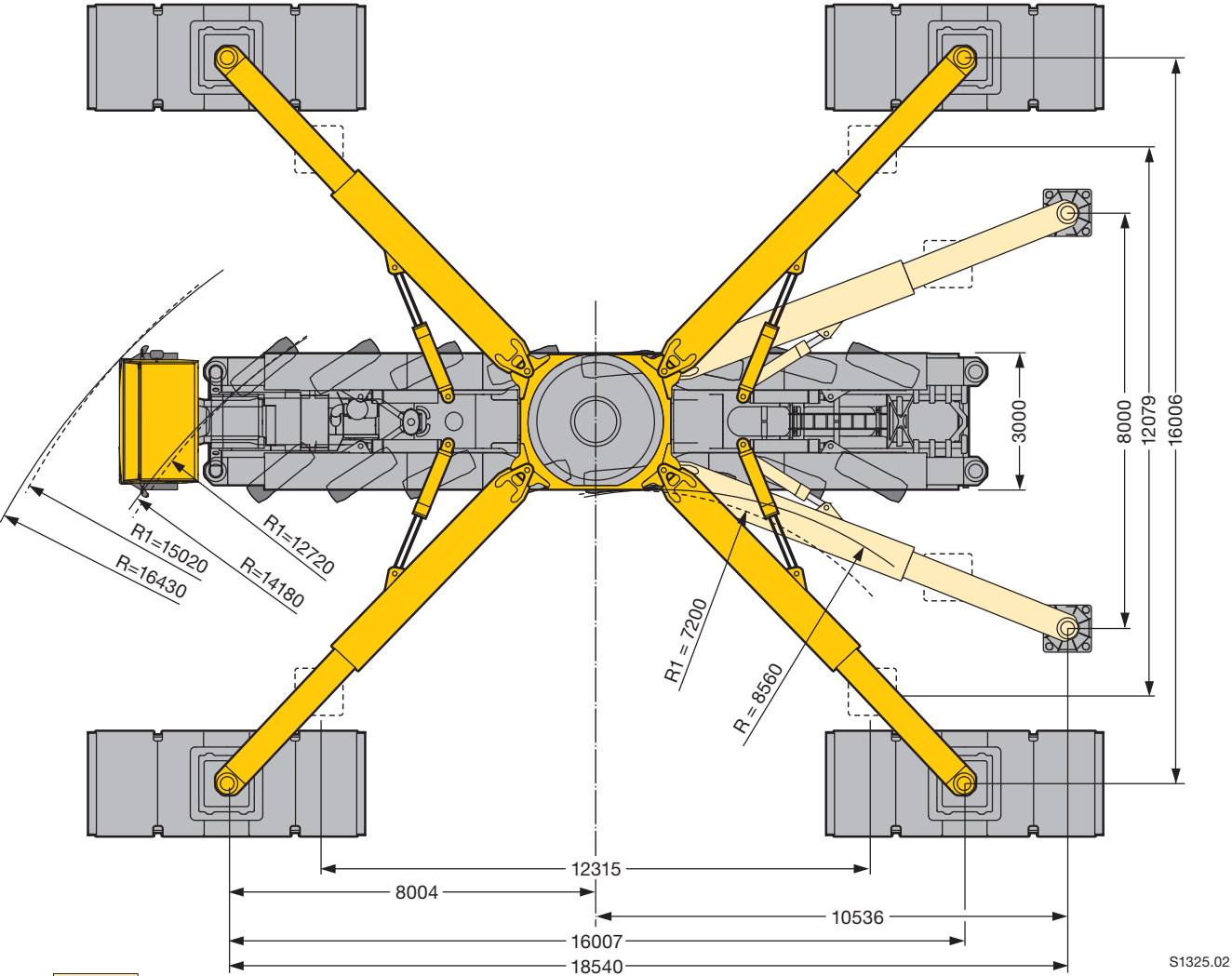
S1575.02

Maße
Dimensions
Encombrement • Dimensioni
Dimensiones • Габариты крана











Bei Straßenfahrt hintere Klappholme 300 mm ausgefahren.
On-road travel rear outriggers 300 mm extended.
Pour déplacement sur route sortir les poutres de calage
arrières de 300 mm.

Durante la movimentazione su strada i travi stabilizzatori
posteriori arrivano fino a 300 mm.
Para circular en carretera los largueros de apoyo traseros deben
de estar extraídos 300 mm.
В транспортном положении задние опорные балки выдвинуты
на 300 мм.



R_i = Allradlenkung · All-wheel steering · Direction toutes roues · Tutti gli assi sterzanti · Dirección en todos los ejes · Поворот всеми колесами

 Achse · Axle Essieu · Asse Eje · мост t	1	2	3	4	5	6	7	8	Gesamtgewicht t · Total weight t Poids t · Peso totale t Peso t · Вес т 96 t
	12	12	12	12	12	12	12	12	

	 35 – 133 m SL	 31,5 m D	 360°	 12 x 12 m	 170 t	 B	max. 400 t x 20 m									
 m	35 m	42 m	49 m	56 m	63 m	70 m	77 m	84 m	91 m	98 m	105 m	112 m	119 m	126 m	133 m	 m
7	400															7
8	400	400	400													8
9	400	400	400	400												9
10	400	400	400	400	393	371										10
11	400	400	400	400	392	370	328	301								11
12	400	400	400	400	391	370	328	301	246	223						12
14	400	400	400	400	389	368	327	301	244	221	181	162	132			14
16	400	400	400	398	387	367	326	300	243	218	179	161	131	119	100	16
18	400	400	400	396	385	366	326	299	242	217	178	160	130	118	100	18
20	400	400	400	394	384	365	325	290	239	215	176	159	130	117	100	20
22	395	400	395	381	373	361	322	281	231	213	175	158	129	116	100	22
24	357	375	371	357	348	339	313	272	224	210	174	157	128	116	100	24
26	321	346	345	337	328	322	300	264	218	205	172	157	128	115	99	26
28	286	321	320	319	312	306	290	257	212	201	170	156	127	114	99	28
30	254	293	300	299	297	291	280	249	206	197	165	154	127	114	98	30
32	225	267	281	280	279	278	268	237	201	191	161	150	126	113	97	32
34		242	263	264	263	262	255	230	191	186	157	146	126	112	95	34
36		219	242	250	249	248	242	222	186	181	153	143	123	112	93	36
38		198	224	230	236	235	225	213	181	176	149	140	120	111	90	38
40		177	207	214	220	225	212	204	176	171	145	137	118	109	88	40
44			174	190	189	197	190	187	167	162	137	129	113	105	84	44
48				165	172	168	169	170	159	155	130	124	108	101	81	48
52				141	152	153	151	152	149	143	124	119	104	98	78	52
56					134	139	138	135	134	132	118	113	99	93	75	56
60						124	128	123	120	120	113	109	95	90	71	60
64						110	116	114	109	107	108	104	91	86	68	64
68							104	105	101	97	98	97	87	83	65	68
72							93	95	94	90	89	88	83	80	63	72
76								86	86	84	83	79	79	77	60	76
80									78	78	77	74	73	71	58	80
84										71	72	69	68	66	55	84
88										65	66	64	63	61	53	88
92											60	59	59	57	51	92
96											55	54	54	53	49	96
100												49	49,5	48,5	45,5	100
104													45,5	44,5	41,5	104
108													41	40,5	38,5	108
112														36,5	35	112
116															30	116
120															26	120

TAB 154349 / 154350 / 154351 / 154352



Appendix 7

Other Selected Correspondence



Our ref: HE AIP490
Your ref: East Anglia One Offshore Wind Farm
Onshore Substation

Andy Pearce
Wynns Limited
Shaftesbury House
Eccleshall
Staffs
ST21 6BZ

John Powell
Assistant Strategy & Customer Manager
9th Floor
The Cube
199 Wharfside Street
Birmingham B1 1RN

Direct Line: 0300 470 3306
20 June 2018

Dear Andy,

**AGREEMENT IN PRINCIPLE: - EAST ANGLIA ONE OFFSHORE WIND FARM
ONSHORE SUBSTATION-HE REF: 490**

Further to your email dated 23 May 2018, requesting provision of an AIP for future abnormal load moves into East Anglia One Offshore Wind Farm Onshore Substation.

I can confirm that an AIP can be provided for 2nr. Transformer moves from Lowestoft to East Anglia One Offshore Wind Farm Onshore Substation, the dimensions, weight and number of pieces as detailed below.

2nr. Transformers with a nett weight of 282te each (gross weight –approx. 409-500te gross on a 20-28axle trailer)

Delivery is expected in 2021 but to be confirmed.

This will of course be subject to formal application nearer the time at which the Highways England 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.

The AIP is valid for a period of at least seven years but with the proviso that should nearer, suitable access become apparent or feasible in that time, Royal Haskoning would undertake to investigate and assess its potential for future use, with a view to that new facility becoming the agreed access.





It would be helpful if you could ask the designated haulier to quote the above AIP reference when applying for the Special Order permit.

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

A handwritten signature in black ink, appearing to read "John Powell", written in a cursive style.

John Powell
Assistant Strategy & Customer Manager
Abnormal Loads
Email: john.powell@highwaysengland.co.uk



INVESTORS
IN PEOPLE

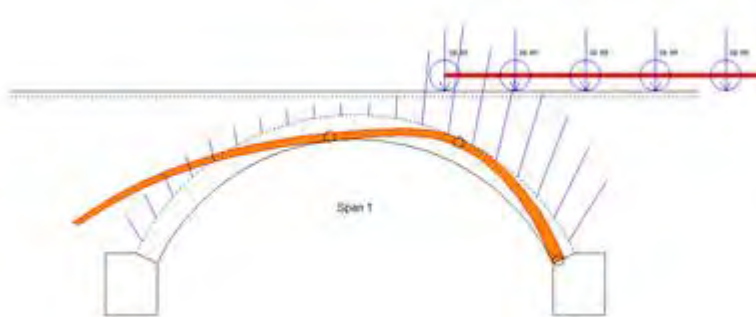
Andrew Pearce

From: Nicholson Katie <Katie.Nicholson@networkrail.co.uk> on behalf of Network Rail Abnormal Loads <NetworkRailAbnormalLoads@networkrail.co.uk>
Sent: 13 June 2018 07:52
To: Andrew Pearce
Subject: RE: Q-634 AIL Access Study – East Anglia One Offshore Windfarm Substation

Good morning Andy,

Please see the response from the engineer below. I hope this will be sufficient but if you need anything further please let us know.

I have used an Archie-M model to analyse this arch bridge with the proposed vehicle. As you can see on the picture below, the thrust lines are out of the arch barrel. Based on the information provided, at one time there will be approximately 100T weight on the bridge which is not acceptable on this structure considering its condition and the presence of longitudinal cracks on the barrel.



Many Thanks

Katie Nicholson
Abnormal Loads Assistant
Abnormal Loads Help Desk: 01908 783 140



Abnormal Loads | National Records Group | Route Services

The Quadrant | Elder Gate | Milton Keynes | MK9 1EN

D 01908 783 140 | E Katie.Nicholson@networkrail.co.uk W [Network Rail Abnormal Loads](http://NetworkRailAbnormalLoads)

From: Andrew Pearce [mailto:Andy.Pearce@wynnslimited.com]
Sent: 08 June 2018 14:28
To: Network Rail Abnormal Loads
Cc: Sam Taylor; Daisy Wynn; Peter Wynn
Subject: RE: Q-634 AIL Access Study – East Anglia One Offshore Windfarm Substation

Hello Sunil,

Thank you for your email. Although this is disappointing it is not a great surprise at this stage. Can you advise by how much the loads have failed and whether there is any scope for carrying out a more detailed structural assessment. I would be happy to speak to your engineers directly to understand further if this was something that we could look at or whether there are any specific concerns such as axle load, axle spacing's, gross weight etc. We would expect based on previous similar discussions that any more detailed assessments would need to be carried out by third party engineers if it was to be progressed. If this were a possible way forward would you be able to provide copies of the most recent bridge inspection and assessment reports?

We do not see any specific issue with the level crossings involved from a negotiability perspective and would expect the haulage contractor to cross using standard cautions but for the record can you advise who at Network Rail in terms of the regional team we should contact reference the level crossings should we wish to discuss any specific arrangements in more detail?

I look forward to hearing from you again soon.

Kind Regards

Andy Pearce

From: Maniraj Sunil [mailto:Sunil.Maniraj@networkrail.co.uk] **On Behalf Of** Network Rail Abnormal Loads

Sent: 08 June 2018 09:21

To: Andrew Pearce <Andy.Pearce@wynnslimited.com>

Subject: RE: Q-634 AIL Access Study – East Anglia One Offshore Windfarm Substation

Dear Andy

After sending your proposed movement off to our engineers for assessment I can confirm the following for all three vehicle configurations.

Structure: ESK/B/444

Road Name: Friday Street, Benhall ([View Map](#))

Police Authority: Suffolk Constabulary

This structure is **UNSUITABLE**

Please note this response only applies to Route 2 and 3. Route 1 does not appear to be affected by this structure.

We advise you that crossing any bridge(s) noted above as being unacceptable, or failing to comply with any restrictions detailed above, could constitute a breach of your duties under section 3 of the Health and Safety at Work Act 1974.

We check the load carrying capacity of Network Rail owned road over rail bridges affected.

We do not check anything else, including:

- Load carrying capacity of level crossings
- Clearance to bridge parapets
- Clearance under a rail bridge
- Clearance to overhead wires at level crossings

We regularly inspect and assess our bridges and occasionally we have to revise the permitted load carrying capacity, as such I suggest that you contact us again closer to the movement to ensure that our bridges are still adequate;

Many Thanks

Sunil Maniraj

Abnormal Loads Clerk

Abnormal Loads Help Desk: 01908 783 140



Abnormal Loads | National Records Group | Route Services

The Quadrant | Elder Gate | Milton Keynes | MK9 1EN

From: Andrew Pearce [<mailto:Andy.Pearce@wynnslimited.com>]

Sent: 23 May 2018 17:08

To: 'RSGBRB@jacobs.com'; AbLoads; Lisa Wheelwright-Brown; Abloads.Area6@kier.co.uk; Hughes, John; Chimwemwe Banda; 'AIL@suffolk.gov.uk'; 'abnormalloads@norfolk.pnn.police.uk'

Cc: Daisy Wynn; Hyde, Nicolas; Teeluck, Precilia

Subject: Q-634 AIL Access Study – East Anglia One Offshore Windfarm Substation

Dear All,

Please see attached a feasibility study that should be self-explanatory in terms of AIL access. I look forward to your response as soon as possible.

Please do not hesitate to contact me if you require any additional information.

Kind Regards



Andy Pearce
General Manager

Tel: +44 (0)1785 850411

| andy.pearce@wynnslimited.com

Shaftesbury House, High Street, Eccleshall, Staffordshire ST21 6BZ, UK

Mobile: + 44 (0)7834 621269

wynnslimited.com

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Andrew Pearce

From: Hughes, John <John.Hughes@kier.co.uk>
Sent: 18 June 2018 16:23
To: Andrew Pearce
Cc: Chimwemwe Banda
Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation
Attachments: AIL Access Study – East Anglia One Offshore Windfarm Substation

Andy

I was in ignorant bliss about

- [09933 A14/209.90// Ferry Lane 628320E 234360N](#)

And

- [09934 A14/209.60// Dooley Link 628290E 234660N](#)

But having now looked at some details I am seeing phrases and statements in the records that are not encouraging.

Both are Box structures with close wingwalls.

Dooley link is a closed box but Ferry Lane has a simply supported top slab.

From a strength assessment point of view. Both have historic problems with the wing walls and both had initial early (in the 1980's) HB assessments of the top slab limited to 25 units of HB (100te)

The record then shows a trail for both of further assessment and recommendation for Study.

This means that there is no quick answer to your question.

I will pass this over to Chimwemwe

but I doubt that he will want to do more than understand what the current capacities are of these two structures in terms of HB, without a formal 'Special Order' from HE.

The reluctance being that we will only get paid by HE if there is a 'Special Order' .

We concede that we should be able to obtain the current HB capacity without a special Order but from what I have seen even that will take some careful reading and piecing together of the assessment history of these structures.

Regards

John Hughes Bsc. C.Eng MICE

Project Manager Structures

Abnormal Loads Coordinator Highways England Areas 6 and 8

Kier Services | Highways | Woodlands Annexe , Manton Lane, Bedford, Bedfordshire, MK41 7NU

T: 01223 255 255 | www.kier.co.uk

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Our values are enthusiastic, collaborative and forward-thinking

Kier Highways Limited | Registered in England No. 5606089
Registered Office: Tempsford Hall, Sandy, Bedfordshire, SG19 2BD

From: Andrew Pearce [mailto:Andy.Pearce@wynnslimited.com]

Sent: 18 June 2018 11:59

To: Hughes, John <John.Hughes@kier.co.uk>

Cc: Chimwemwe Banda <Chimwemwe.Banda@kier.co.uk>; Hyde, Nicolas <Nicolas.Hyde@highwaysengland.co.uk>

Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Hello John,

Thank you for your email below which is positive news. I have one additional check if I may. My initial proposal was based on egress from the port being at Gate Number 2 at OS Ref TM 2777 3421 Trinity Avenue. We met the Port of Felixstowe recently and this is indeed possible which is good. However, there are also heavy load routes out of the port via Gate number 1 which is Dock Road at OF Ref TM 2865 3360. The loads would then turn left onto A14 and my records suggest that this would involve crossing over two Area 6 structures known as Ferry Lane (ref S-TM283343-1) and Dooley Link (ref S-TM282346-1). This is assuming I have got the point at which Area 6 responsibility ends/meets with Suffolk CC at Felixstowe correctly identified. Can you advise as to whether these bridges would also be acceptable or the loads previously provided or not?

I do not see this as absolutely critical as the loads could probably route via Walton Avenue which links back to Gate 2 to avoid this short section of the A14 if necessary subject to approval from the local council but I wanted to confirm whether this would be the case.

As ever thank you for your help.

Kind Regards

Andy Pearce

From: Hughes, John [<mailto:John.Hughes@kier.co.uk>]
Sent: 05 June 2018 14:28
To: Andrew Pearce <Andy.Pearce@wynnslimited.com>
Cc: Chimwemwe Banda <Chimwemwe.Banda@kier.co.uk>
Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Andy

AIL Route Investigation

Re: AIL Access Study – East Anglia One Offshore Windfarm Substation

Areas 6 and 8 only have three structures affected/loaded by your proposals (Routes 1 to 4) and that is only for route no.3 The other routes do not use Area 6 and 8 structures.

All three structures affected/loaded have been considered and found to pass early assessment.
All four routes are therefore acceptable to Area 6 and 8 Kier Highways.

Regards

John Hughes Bsc. C.Eng MICE
Project Manager Structures
Abnormal Loads Coordinator Highways England Areas 6 and 8

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T: 01223 255 255 | www.kier.co.uk

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Registered Office: Tempsford Hall, Sandy, Bedfordshire, SG19 2BD

From: Andrew Pearce [<mailto:Andy.Pearce@wynnslimited.com>]
Sent: 23 May 2018 17:08
To: 'RSGBRB@jacobs.com' <RSGBRB@jacobs.com>; 'AbLoads (Abnormal.Loads@networkrail.co.uk)' <Abnormal.Loads@networkrail.co.uk>; Lisa Wheelwright-Brown <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>; Abloads.Area6 <Abloads.Area6@kier.co.uk>; Hughes, John <John.Hughes@kier.co.uk>; Chimwemwe Banda

Andrew Pearce

From: Stuart Heald <Stuart.Heald@suffolk.gov.uk>
Sent: 18 June 2018 17:31
To: Andrew Pearce
Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Andrew,

I'm sorry but I've not had a chance to look at this in detail, however looking at my current programme of inspections and reviews and looking at route 1 only which has 51 structures along its length of which 29 would need to have reviews depending on when they were last inspected they may also need to have a PI, reviews cost approx. £800 each with PI's ranging from £3K to £6K. I would therefore estimate the review process costing approx. £100k with assessments costing up to £25K each.

Hope that helps.

Stuart Heald BEng CEng MCIHT
Structures Asset Manager

Suffolk Highways | Desk 39 (Block 1GF), Phoenix House, 3 Goddard Road, IPSWICH, Suffolk, IP1 5NP
M: 07776190869 | www.suffolk.gov.uk/highways



From: Andrew Pearce <Andy.Pearce@wynnslimited.com>
Sent: 18 June 2018 16:57
To: Stuart Heald <Stuart.Heald@suffolk.gov.uk>
Subject: FW: AIL Access Study – East Anglia One Offshore Windfarm Substation

Hello Stuart,

Are you able to revert ref my email below as I am now looking to complete my report to my client, an indication of what the costs may be should they wish to proceed would be very useful.

Kind Regards

Andy Pearce

From: Andrew Pearce
Sent: 05 June 2018 12:36
To: 'Stuart Heald' <Stuart.Heald@suffolk.gov.uk>
Cc: John Pitchford <John.Pitchford@suffolk.gov.uk>; Colin Godfrey <Colin.Godfrey@suffolk.gov.uk>; Steve Merry <Steven.Merry@suffolk.gov.uk>; Nicolas.Hyde@highwaysengland.co.uk; Daisy Wynn <Daisy.Wynn@wynnslimited.com>; 'Sam Taylor' <sam.taylor@rhdhv.com>
Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Andrew Pearce

From: Stuart Heald <Stuart.Heald@suffolk.gov.uk>
Sent: 04 September 2018 14:59
To: Sam Taylor; Hassan Alloub
Cc: Andrew Ross; Philip Rew-Williamson; Andrew Pearce
Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation
Attachments: Route 4.pdf; PI & Review Programme Sheet.xlsx; Route 1.pdf; Route 2.pdf; Route 3.pdf

Dear Sam,

Please accept my apologies for the delay in responding to you, unfortunately we are currently short staffed and I could not prioritise this work until I could bring in an additional resource.

I've now reviewed the structures on all of the 4 proposed routes and have attached a draft table indicating that there are 49 structures that need to be reviewed to BD101, of which 26 structures require inspecting and currently 3 have been identified as requiring a further AIL assessment.

Hassan will be starting with us from the 10th September and will be your contact for this project going forward.

Stuart Heald BEng CEng MCIHT
Structures Asset Manager

Suffolk Highways | Desk 39 (Block 1GF), Phoenix House, 3 Goddard Road, IPSWICH, Suffolk, IP1 5NP
M: 07776190869 | www.suffolk.gov.uk/highways



From: Sam Taylor <sam.taylor@rhdhv.com>
Sent: 11 July 2018 12:58
To: Stuart Heald <Stuart.Heald@suffolk.gov.uk>
Cc: Andrew Ross <andrew.ross@rhdhv.com>; Philip Rew-Williamson <philip.williamson@rhdhv.com>; 'andy.pearce@wynnslimited.com' <andy.pearce@wynnslimited.com>
Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Hi Stuart,

You have been engaging with our AIL specialists Wynns on the proposed East Anglia ONE North and East Anglia TWO project. Following your latest email, my client has asked me to engage with you further on this.

With regards to route 1, I note that there are 51 structures along the route, as detailed in the attached. You have previously advised that we need to look at 29 of these. I'm not entirely clear as to the rationale for why you've eliminated 22 of these but my thoughts are that all gantry's and footbridges and structures of 0.9m and less do not need to be considered? By my reckoning though this still leaves 31? Therefore, for the avoidance of doubt can you confirm exactly which of the 51 structures you consider require further consideration and the rationale for this?

In order to allow us to start to think about these structures my structural engineer is asking for the following from yourselves for all 29 structures:

- Locations, co-ordinates or a plan
- Copies of any design information (where available)
- Copies of the latest General Inspection report
- Copies of the latest Principal Inspection report

We appreciate that some of these reports may be getting old but irrespective of age we would still like to see them please.

If you could consider my request and provide me with a timescale for when you'll be able to provide this data please. My client has asked me to let you know that we have a planning performance agreement on this project and as such there is the opportunity for you to bring in extra resource to undertake some of this work and recharge costs.

I hope this is all clear but please feel free to revert if not. I'll try and call you later in the week to check on progress.

Regards, Sam

Sam Taylor, BEng (Hons), MCIHT, MSoRSA
Principal Transport Planner, Transport UK

T 01733 373607 | E sam.taylor@rhdhv.com | W www.royalhaskoningdhv.com

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Registered Office: Rightwell House, Bretton, Peterborough PE3 8DW | Registered in England 1336844



From: Stuart Heald [<mailto:Stuart.Heald@suffolk.gov.uk>]

Sent: 09 July 2018 13:22

To: Peter Wynn <Peter.Wynn@wynnslimited.com>; Andrew Pearce <Andy.Pearce@wynnslimited.com>

Cc: Colin Godfrey <Colin.Godfrey@suffolk.gov.uk>

Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Peter,

As requested the following list of 55 structures on all four of your proposed routes (90 structures identified) either have or will need a structural review (structural details of each structure on each route are also attached for reference).

Structural reviews are required on highways structure that carry the road on which the load is traveling and have spans greater than 0.9m or have a retained height greater than 1.35m. The level and complexity of the review will dependent on the size and structural form of the asset and may need to be preceded by a Principal Inspection (PI) to determine if the assets condition has altered significantly enough to invalidate its design or assessed capacity. Structural reviews will then determine if the current design or assessment capacity is still valid and set the parameters of any further assessment if needed.

The above procedure follows guidance contained in the ACOP 'Well-Managed Highways Infrastructure' as well as the DMRB. While 'Suffolk Highways' has a PI, Structural Review and Assessment programme following this guidance any acceleration required to accommodate your clients requirements would need to be financed by them. As Andrew has correctly noted below, you can either commission 'Suffolk Highways' to undertake this work or another consultant, however my costs as TAA will need to be reimbursed, whichever route they propose.

Bridge Code
1
103
110
114
151
153
166
183
354
384
479
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559
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632
633
643
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693
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Stuart Heald BEng CEng MCIHT
Structures Asset Manager

Suffolk Highways | Desk 39 (Block 1GF), Phoenix House, 3 Goddard Road, IPSWICH, Suffolk, IP1 5NP
M: 07776190869 | www.suffolk.gov.uk/highways



From: Peter Wynn <Peter.Wynn@wynnslimited.com>
Sent: 05 July 2018 11:49
To: Stuart Heald <Stuart.Heald@suffolk.gov.uk>
Cc: Andrew Pearce <Andy.Pearce@wynnslimited.com>; Daisy Wynn <Daisy.Wynn@wynnslimited.com>; sam.taylor@rhdhv.com
Subject: FW: AIL Access Study – East Anglia One Offshore Windfarm Substation
Importance: High

Good morning Stuart,

Thank you for your time on the telephone earlier. As I mentioned, we have an urgent request from our client.

Can you please provide a list of the 29 structures you are concerned about and also, what your rationale is for selecting these structures, or alternatively, deselecting the others.

If there is any chance of getting me an answer on this by midday Monday that would be great!

Many thanks and kind regards

Peter



Peter Wynn
Managing Director

Mobile: + 44 (0)7831 711474 | peter.wynn@wynnslimited.com

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Tel: +44 (0)1785 850411

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From: Stuart Heald [<mailto:Stuart.Heald@suffolk.gov.uk>]

Sent: 18 June 2018 17:31

To: Andrew Pearce <Andy.Pearce@wynnslimited.com>

Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

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Stuart Heald BEng CEng MCIHT
Structures Asset Manager

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Sent: 18 June 2018 16:57

To: Stuart Heald <Stuart.Heald@suffolk.gov.uk>

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Kind Regards

Andy Pearce

From: Andrew Pearce

Sent: 05 June 2018 12:36

To: 'Stuart Heald' <Stuart.Heald@suffolk.gov.uk>

Cc: John Pitchford <John.Pitchford@suffolk.gov.uk>; Colin Godfrey <Colin.Godfrey@suffolk.gov.uk>; Steve Merry <Steven.Merry@suffolk.gov.uk>; Nicolas.Hyde@highwaysengland.co.uk; Daisy Wynn <Daisy.Wynn@wynnslimited.com>; 'Sam Taylor' <sam.taylor@rhdhv.com>

Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Stuart,

Thank you for your email below and your time during our telephone conversation this morning. As we discussed there are many aspects to heavy load access routes on a strategic level nationwide that warrant further detailed discussions over time. If you wanted to outline some of your thoughts specific to those in Suffolk for Sizewell and Bramford Substations I would be willing to forward them to National Grid under separate cover.

In respect to the specific enquiry for the East Anglia One Offshore Windfarm Substation that has led to our discussions I understand that it is not at presently possible to confirm the status of the potential routes to the new substation as far as Suffolk County Council is concerned unless a more detailed review of the structural capacity of the routes is carried out. With this in mind can you please advise on the following two possible ways forward:

1. Could you please provide a cost proposal including time scales to carry out a structural review of the routes and structures for the loads previously provided. I understand that this would be carried out by consultants working on behalf of Suffolk Highways.
2. If as an alternative to using the councils own consultants, potentially for costs or timescale reasons, we and our client were to approach third party consulting engineers to undertake the necessary assessments we would aim to utilise the scope of work outlined below which is a model we have used elsewhere when assessments have been necessary. We would not wish to progress any detailed works without an indication that what we are proposing is acceptable to Suffolk County Council and I would be grateful if you could confirm that this approach would be suitable in principle.

Proposed Scope of Work for assessment

1. *Retrieve and review all available information made available by Suffolk County Council/Suffolk Highways in terms of historical design and assessment records of the structure known as Haven Bridge in Boston.*
2. *Confirm and agree the process to achieve technical approval on the manner in which the assessment will be carried out to the satisfaction of Suffolk County Council/Suffolk Highways in as Technical Approval Authority including production of Approval In Principle (AIP) and Check Certificate information.*
3. *Carry out assessment of the structures and an assessment check of that structure against the vehicle details provided (See 4) based on the AIP to be agreed with Suffolk County Council/Suffolk Highways in.*
4. *Account for potential loading requirements considerate of 282te transformers. Please base your quotation on the need to consider the potential trailer arrangements attached which are highlighted below for*

quotation purposes. The exact trailer arrangements to be included in the assessment will be reconfirmed with potential haulage contractors prior to formal commencement of works.

- TRAILER ARRANGMENTS TBC but for current purposes assume as already provided
5. In the event that the structure(s) lacks capacity to accept the proposed loadings then advise as to the feasibility of temporary measures that may be considered to enable access, for example temporary removal of pulling tractor unit or increasing the length of the drawbar. Note this option will only be needed if the initial assessment does not produce a satisfactory result.
 6. Provide a written report detailing and interpreting the assessment results including advice on any actions required to enable access and along with the appropriate assessment check certificates.

Could you please provide a breakdown of costs to account for the works to be considered.

Could you also advise of expected timescales for this work to be completed from any formal instruction to proceed.

Although we do not at this stage anticipate a specific project meeting to commence this work could you also provide a separate cost for attendance at a single meeting (assume Ipswich) to discuss assessment methodology with Suffolk County Council/Suffolk Highways in.

Would it be possible for you to send additional information on the bridges you advise we will need to consider in terms of their location and initial design information in terms of length of span, method of support, HB rating and skew angle. Ideally if we are able to have sight of any previous inspection and assessment reports this may help us get a better understanding of the bridges.

I trust that this is acceptable and look forward to hearing from you again soon but I am happy to discuss further if you wish.

Kind Regards



Andy Pearce
General Manager

Tel: +44 (0)1785 850411 | andy.pearce@wynnslimited.com

Shaftesbury House, High Street, Eccleshall, Staffordshire ST21 6BZ, UK
Mobile: + 44 (0)7834 621269

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Registered in England & Wales No. 3162297

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From: Stuart Heald [<mailto:Stuart.Heald@suffolk.gov.uk>]

Sent: 24 May 2018 15:30

To: Andrew Pearce <Andy.Pearce@wynnslimited.com>; Nicolas.Hyde@highwaysengland.co.uk

Cc: John Pitchford <John.Pitchford@suffolk.gov.uk>; Colin Godfrey <Colin.Godfrey@suffolk.gov.uk>; Steve Merry <Steven.Merry@suffolk.gov.uk>

Subject: FW: AIL Access Study – East Anglia One Offshore Windfarm Substation
Importance: High

Dear Andy,

I'm more than happy to assist you with this feasibility study, but would need to recharge you / or your client for our time. Could you please consider this and get back to us.

Since the national abnormal load routes seem to have become obsolete, in light of the Highways England's 'Water Preferred Policy' Suffolk County Council alongside other highway authorities will need to look at how we manage the movement of SO vehicles in the future.

Since our highway structures have not been designed, assessed or maintained to accommodate such loads, we would insist that each structure affected by any proposed movement should be Structurally Reviewed to BD101 following a Principal Inspection. The structural review will then determine if further assessment for abnormal load movements to BD86 is required.

We are currently undertaking a rolling programme of PI's, Structural Reviews and assessments on our strategic structures. However, if structures affected by a proposed movement do not have a valid review, the haulier can commission a review and possible assessment, but we would retain our technical approval role under BD2.

Nick,

It would be useful for us to explore this approach throughout Suffolk, East Anglian and possibly nationally your thoughts would be appreciated.

Stuart Heald BEng CEng MCIHT
Structures Asset Manager

Suffolk Highways | Desk 39 (Block 1GF), Phoenix House, 3 Goddard Road, IPSWICH, Suffolk, IP1 5NP
M: 07776190869 | www.suffolk.gov.uk/highways



From: Andrew Pearce <Andy.Pearce@wynnslimited.com>
Sent: 23 May 2018 17:08
To: 'RSGBRB@jacobs.com' <RSGBRB@jacobs.com>; 'AbLoads (Abnormal.Loads@networkrail.co.uk)' <Abnormal.Loads@networkrail.co.uk>; Lisa Wheelwright-Brown <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>; Abloads.Area6@kier.co.uk; Hughes, John <John.Hughes@kier.co.uk>; Chimwemwe Banda <Chimwemwe.Banda@kier.co.uk>; RM Abnormal Loads <AIL@suffolk.gov.uk>; 'abnormalloads@norfolk.pnn.police.uk' <abnormalloads@norfolk.pnn.police.uk>
Cc: Daisy Wynn <Daisy.Wynn@wynnslimited.com>; Hyde, Nicolas <Nicolas.Hyde@highwaysengland.co.uk>; Teeluck, Precilia <Precilia.Teeluck@highwaysengland.co.uk>
Subject: AIL Access Study – East Anglia One Offshore Windfarm Substation

Dear All,

Please see attached a feasibility study that should be self-explanatory in terms of AIL access. I look forward to your response as soon as possible.

Bridge Code	Ref	Name	Road Number	Easting	Northing	Route	PI Level	BD101 Review	C&U Assessment	BD86 Assessment
							Carrys or retains road SOV travelling on Span >1.49m or retaining Ht >1.49m (Level depends on size and structural complexity)	Carrys or retains road SOV travelling on, span >0.9m or retained Ht >1.35m	Assessment requirements specified within BD101 review	
1	3/92//	MARLESFORD	A12	632722	257730	3,4	High (15/16)	✓		
103	/60/04/	SNAPE WATERING	A1094	638273	259888	2,3	High (15/16)	✓		
110	/29/09/	VALLEY FARM	A12	648229	281588	1,2	N/A	✓		
114	3/100//	LODGE BRIDGE YOXFORD	A12	639981	269050	1,2	Medium (14/15)	✓		
151	/19/20/	BLACK ARCH WRENTHAM	A12	649907	283187	1,2	Low (20/21)	✓		
153	3/86/5/	BEACON HILL FARM ACC	A12	624520	247658	3,4	High (16/17)	✓		
166	3/95/3/	KELSALE CULVERT	A12	637612	264452	2,4	Low (21/22)	✓		
183	3/105//	RIVER WANG	A12	646389	279062	1,2	High (17/18)	17/18	✓	✓
207	T3/80/8/	MARTLESHAM FOOTBRDGE	0	624681	245385	3,4	N/A	N/A		
216	/50/37/	LEISTON COMMON CLVT	U2822	645449	263501	4	N/A	N/A		
346	/60/16/F	HAYLINGS RD F'BRIDGE	0	644334	262564	1	N/A	N/A		
354	/60/09/	FRISTON CULVERT	B1121	641282	260197	1,2,3	N/A	✓		
384	3/86/1/	KESGRAVE UNDERPASS	A12	624219	246265	3,4	High (16/17)	✓		
435	3/112/2/S	PIER TERR SGN GTY B	0	654737	292665	1,2	N/A	N/A		
445	/50/33/	MIDDLETON CROSSING	B1122	640680	268327	1,4	N/A	N/A		
479	3/94//	FARNHAM	A12	636014	260117	3,4	High (15/16)	✓		
538	/39/07/	DARSHAM STATION	A12	640422	269616	1,2	N/A	✓		
555	/29/01/	FROSTENDEN CULVERT	A12	647815	280298	1,2	N/A	N/A		
559	3/99//	EAST MINSMERE	A12	639965	268920	1,2	Medium (16/17)	✓		
579	3/102//	HOLLYHILL CULVERT	A12	643412	273569	1,2	Medium (18/19)	✓		
632	/50/12/	THEBERTON CHURCH	B1122	643640	265984	1,4	N/A	✓		
633	/50/08/	MILLHOUSE	A12	639422	268347	2,4	N/A	✓		
642	/19/21/	BLUE ARCH WRENTHAM	A12	649866	283750	1,2	N/A	N/A		
643	3/86/6/	RIVER FYNN CULVERTS	A12	624831	247800	3,4	High (14/15)	✓		
671	3/89/5/	FOWLS WATERING	A12	630912	255602	3,4	High (14/15)	✓		
693	T3/80/9/	MARTLESHAM SUBWAY	A12	624526	245926	3,4	Medium (16/17)	✓		
746	/59/40/	LITTLE GLEMHAM CLVRT	A12	634111	258385	3,4	Low (21/22)	✓		
796	/28/47/	WANGFORD	A12	646472	279221	1,2	N/A	N/A		
826	/39/33/	THORINGTON CULVERT	A12	642988	273030	1,2	Low (24/25)	✓		
861	3/86/2/	BEALINGS CULVERT	A12	624070	247042	3,4	Low (20/21)	✓		
894	3/89/1/	BYNG HALL ROAD	A12	629185	253343	3,4	High (14/15)	✓		
1016	/39/08/	DARSHAM DIP	A12	641175	270776	1,2	N/A	N/A		
1035	/29/02/	PETMARSH COTTAGES	A12	648489	281835	1,2	N/A	✓		
1040	3/105/A/	RIVER WANG EXTENSION	A12	646379	279085	1,2	High (17/18)	17/18	✓	✓
1041	3/104//	BLYTHBURGH	A12	645236	275584	1,2	High (18/19)	18/19		
1094	3/110/1/	KESSINGLAND PED. U/P	A12	651952	286669	1,2	Medium (20/21)	✓		
1109	3/104/2/	WANGFORD FLOOD CLVRT	A12	646359	279013	1,2	Low (19/20)	✓		
1115	/50/09/	MIDDLETON CULVERT	B1122	641730	267380	1,4	N/A	✓		
1123	/19/22/	LATYMER DAM SOUTH	A12	650914	286049	1,2	N/A	✓		
1125	3/86/7/	CHERRY TREE FARM ACC	A12	624908	247832	3,4	High (16/17)	✓		
1151	3/89/6/	RIVER DEBEN	A12	630967	255822	3,4	High (15/16)	✓		
1175	/50/43/	CHURCH FARM CLVRT	C227	643626	265962	4	N/A	N/A		
1201	T45/0/11/	SEVEN HILLS INT EAST	A14	623431	241352	3,4	N/A	N/A		
1224	/28/35/	WANGFORD SCHOOL	A12	646313	278877	1,2	N/A	✓		
1334	/50/05/	KELSALE CULVERT	A12	638294	266004	2,4	N/A	✓		

1337	/19/14/	FOXBARROW COVERT	A12	650543	285686	1,2	N/A	N/A		
1338	3/86/3/	MARTLESHAM RD BRIDGE	C328	624212	247357	3,4	N/A	N/A		
1354	3/95/1/	BENHALL CULVERT	A12	637815	261059	2,4	N/A	✓		
1370	3/89/2/	BING BROOK CULVERT	A12	629350	253566	3,4	High (18/19)	18/19		
1386	T3/80/6/	BUCKLESHAM RD OVERBR	C321	623614	242401	3,4	N/A	N/A		
1418	/28/14/	HENHAM CULVERT	A12	645800	276676	1,2	N/A	✓		
1486	/39/09/	HIGH STREET,DARSHAM	A12	641299	271028	1,2	N/A	✓		
1492	3/110//	LATYMER DAM MIDDLE	A12	651014	286123	1,2	High (15/16)	✓		
1493	/106//	WRENTHAM	A12	649817	282603	1,2	Medium (20/21)	✓		
1543	/60/07/	COLDFAIR GREEN	B1069	643391	260838	1	Low (20/21)	✓		
1574	3/110/2/	KESSINGLAND AGRIC UP	A12	652632	287683	1,2	High (16/17)	✓		
1600	/19/23/	LATYMER DAM NORTH	A12	651241	286197	1,2	Low (19/20)	✓		
1603	3/86/8/	SECKFORD CULVERT	A12	625193	247932	3,4	N/A	N/A		
1637	3/89/7/	FLOOD CULVERT	A12	631037	256081	3,4	High (15/16)	✓		
1650	/59/08/	GLEMHAM PARK CULVERT	A12	634728	259575	3,4	Low (19/20)	✓		
1693	T45/0/12/	SEVEN HILLS INT WEST	A14	623306	241444	3,4	N/A	N/A		
1828	/50/10/	VALLEY FARM	B1122	642772	266787	1,4	N/A	N/A		
1829	/50/06/	LONG CULVERT	A12	638377	266367	2,4	Medium (18/19)	✓		
1836	3/86/4/	MARTLESHAM RWAY BDGE	A12	624418	247584	3,4	High (16/17)	✓		
1857	3/95/2/	SAXMUNDHAM CULVERT	A12	637588	263648	2,4	Low (23/24)	✓		
1870	3/89/3/	JAVA LODGE OVERBRIDG	B1438	629886	253891	34	N/A	N/A		
1893	T3/80/7/	MILL RIVER CULVERT	A12	624149	243354	3,4	High (18/19)	18/19		
1899	/50/36/	YEWTREE CORNER CLVRT	B1122	643246	266542	1,4	N/A	N/A		
2109	3/112/1/S	PIER TERR SGN GTY A	0	654709	292631	1,2	N/A	N/A		
2129	3/89/8/	HACHESTON OVERBRIDGE	B1078	631283	256693	3,4	N/A	N/A		
2166	3/95/4/R	DORLEY'S RET WALL		638095	265650	2,4	N/A	N/A		
2167	3/112/3/S	ROYAL TERRACE S.GANT		654753	292676	1,2	N/A	N/A		
2183	/10/28/F	BLOODMOOR LN F'BRDGE		652757	290059	1,2	N/A	N/A		
2219	/60/19/	FIRS FARM	A1094	641136	259367	2,3	N/A	✓		
2258	RAIL/379/600/	ROSE HILL,FARNHAM	A1094	637919	260015	2,3	N/A	N/A		
2513	/50/52/R	A12 PARK FARM R/WALL	A12	638321	266012	2,4	Low (27/28)	✓		
2518	/59/49/R	FARNHAM STREET R/WLL	A12	636291	260156	3,4	N/A	N/A		
2567	/50/54/R	GAS HILL RET/WALL		644320	262600	1	N/A	N/A		
2607	PRIV/19/25/R	WRENTHAM RET/WALL	A12	649912	282929	1,2	N/A	N/A		
2817	/10/42/	BLACKHEATH RD CULV	A12	653429	291640	1,2	High (17/18)	17/18	x	✓
2818	/10/43/	BIRDS LANE CULVERT	A12	653516	291839	1,2	High (23/24)	✓		
2829	/10/51/S	AKD GANTRY		654142	292428	1,2	N/A	N/A		
2830	/10/52/S	KINGS GANTRY		654262	292447	1,2	N/A	N/A		
2831	/10/53/S	HORN HILL GANTRY		654353	292479	1,2	N/A	N/A		
2832	/10/54/S	GLUE POT GANTRY	U9999	654423	292588	1,2	N/A	N/A		
2833	/10/55/S	ST JOHNS GANTRY	U9999	654613	292615	1,2	N/A	N/A		
2835	PRIV/10/56/	BELVEDERE RD TANK	A12	654640	292610	1,2	N/A	✓		
2877	/10/49/	SOUTHWELL RD SLAB	A12	653944	292278	1,2	N/A	✓		
2898	/50/35/	GARDENHOUSE FARM	B1122	642092	267289	1,4	N/A	N/A		
6557	/28/235/R	BLYTH SHEET WALL		645190	275770	1,2	N/A	N/A		

Andrew Pearce

From: Howell, Tania <Tania.Howell@jacobs.com>
Sent: 25 May 2018 09:57
To: Andrew Pearce
Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Hi Andy,

Apologies for the delay in getting back to you.

I've looked at all the route options, and happy to say there's no problem for me with any of them – no HRE structures "in the way"!

Regards
Tania

Tania Howell
Abnormal Loads Officer
Jacobs
DDI: 0118 946 8911

If your mail concerns abnormal load movements, please reply to RSGBRB@jacobs.com

From: Andrew Pearce [mailto:Andy.Pearce@wynnslimited.com]
Sent: 23 May 2018 17:09
To: RSGBRB@jacobs.com; 'AbLoads (Abnormal.Loads@networkrail.co.uk)' <Abnormal.Loads@networkrail.co.uk>; Lisa Wheelwright-Brown <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>; Abloads.Area6@kier.co.uk; Hughes, John <John.Hughes@kier.co.uk>; Chimwemwe Banda <Chimwemwe.Banda@kier.co.uk>; 'AIL@suffolk.gov.uk' <AIL@suffolk.gov.uk>; 'abnormalloads@norfolk.pnn.police.uk' <abnormalloads@norfolk.pnn.police.uk>
Cc: Daisy Wynn <Daisy.Wynn@wynnslimited.com>; Hyde, Nicolas <Nicolas.Hyde@highwaysengland.co.uk>; Teeluck, Precilia <Precilia.Teeluck@highwaysengland.co.uk>
Subject: [EXTERNAL] AIL Access Study – East Anglia One Offshore Windfarm Substation

Dear All,

Please see attached a feasibility study that should be self-explanatory in terms of AIL access. I look forward to your response as soon as possible.

Please do not hesitate to contact me if you require any additional information.

Kind Regards

Andrew Pearce

From: Lisa Wheelwright-Brown <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>
Sent: 13 June 2018 10:08
To: Andrew Pearce
Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Hi Andrew

Sorry for the delay in responding. I thought I had responded but I have just seen that I had replied to myself and not you!!

These proposed routes do not affect any of the Canal & River Trusts infrastructure.

Yes I will be around next Tuesday in the office until 3pm, yes stop and say hello ☺ I sit on the 3rd floor at the end of the office.

Kind Regards

Lisa Wheelwright-Brown

Technical Administrator

T 0113 2005759

Operations & Asset Management Directorate

Canal & River Trust, Fearn's Wharf, Neptune Street, Leeds LS9 8PB

Please visit our [website](#) to find out more about the Canal & River Trust.

From: Andrew Pearce <Andy.Pearce@wynnslimited.com>
Sent: 13 June 2018 09:54
To: Lisa Wheelwright-Brown <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>
Subject: FW: AIL Access Study – East Anglia One Offshore Windfarm Substation

Hi Lisa,

I presume that this one is OK but do not appear to have had this confirmed by you?

Just as an aside I may be at CRT Leeds on Tuesday next week for a meeting. If you are around maybe I could stop by and say hello?

Sorry for chasing.

Regards

Andy

From: Andrew Pearce
Sent: 23 May 2018 17:08
To: 'RSGBRB@jacobs.com' <RSGBRB@jacobs.com>; 'AbLoads (Abnormal.Loads@networkrail.co.uk)' <Abnormal.Loads@networkrail.co.uk>; 'Lisa Wheelwright-Brown' <Lisa.Wheelwright-

Brown@canalrivertrust.org.uk>; 'Abloads.Area6@kier.co.uk' <Abloads.Area6@kier.co.uk>; 'Hughes, John' <John.Hughes@kier.co.uk>; 'Chimwemwe Banda' <Chimwemwe.Banda@kier.co.uk>; 'AIL@suffolk.gov.uk' <AIL@suffolk.gov.uk>; 'abnormalloads@norfolk.pnn.police.uk' <abnormalloads@norfolk.pnn.police.uk>
Cc: Daisy Wynn <Daisy.Wynn@wynnslimited.com>; 'Hyde, Nicolas' <Nicolas.Hyde@highwaysengland.co.uk>; 'Teeluck, Precilia' <Precilia.Teeluck@highwaysengland.co.uk>
Subject: AIL Access Study – East Anglia One Offshore Windfarm Substation

Dear All,

Please see attached a feasibility study that should be self-explanatory in terms of AIL access. I look forward to your response as soon as possible.

Please do not hesitate to contact me if you require any additional information.

Kind Regards

	Andy Pearce General Manager Tel: +44 (0)1785 850411 andy.pearce@wynnslimited.com
Shaftesbury House, High Street, Eccleshall, Staffordshire ST21 6BZ, UK Mobile: + 44 (0)7834 621269	
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Cadw mewn cysylltiad

Cofrestrwch i dderbyn e-gylchlythyr Glandŵr Cymru <https://canalrivertrust.org.uk/newsletter>

Cefnogwch ni ar <https://www.facebook.com/canalrivertrust>

Dilynwch ni ar <https://twitter.com/canalrivertrust> ac <https://www.instagram.com/canalrivertrust>

Mae'r e-bost hwn a'i atodiadau ar gyfer defnydd y derbynnydd bwriedig yn unig. Os nad chi yw derbynnydd bwriedig yr e-bost hwn a'i atodiadau, ni ddylech gymryd unrhyw gamau ar sail y cynnwys, ond yn hytrach dylech eu dileu heb eu copïo na'u hanfon ymlaen a rhoi gwybod i'r anfonwr eich bod wedi eu derbyn ar ddamwain. Mae unrhyw farn neu safbwynt a fynegir yn eiddo i'r awdur yn unig ac nid ydynt o reidrwydd yn cynrychioli barn a safbwyntiau Glandŵr Cymru.

Mae Glandŵr Cymru yn gwmni cyfyngedig drwy warant a gofrestrwyd yng Nghymru a Lloegr gyda rhif cwmni 7807276 a rhif elusen gofrestredig 1146792. Swyddfa gofrestredig: First Floor North, Station House, 500 Elder Gate, Milton Keynes MK9 1BB.

Andrew Pearce

From: Abnormal Loads (NC & SC) <AbnormalLoads@norfolk.pnn.police.uk>
Sent: 31 May 2018 12:21
To: Andrew Pearce
Subject: RE: AIL Access Study – East Anglia One Offshore Windfarm Substation

Good Afternoon

Further to our telephone conversation I confirm the preferred route is to avoid the centre of Leiston due to obstructions such as parked cars.

Kind regards.

Philippa Humby

Abnormal Loads & Voice Recording

RPFOU

Norfolk Constabulary

Room 2-1-7

OCC, Falconer's Chase

Wymondham, Norfolk, NR18 0WW

Tel: 01953 424672

www.norfolk.police.uk

From: Andrew Pearce [mailto:Andy.Pearce@wynnslimited.com]
Sent: 23 May 2018 17:08
To: 'RSGBRB@jacobs.com'; 'AbLoads (Abnormal.Loads@networkrail.co.uk)'; Lisa Wheelwright-Brown; Abloads.Area6@kier.co.uk; Hughes, John; Chimwemwe Banda; 'AIL@suffolk.gov.uk'; Abnormal Loads (NC & SC)
Cc: Daisy Wynn; Hyde, Nicolas; Teeluck, Precilia
Subject: AIL Access Study – East Anglia One Offshore Windfarm Substation

Dear All,

Please see attached a feasibility study that should be self-explanatory in terms of AIL access. I look forward to your response as soon as possible.

Please do not hesitate to contact me if you require any additional information.

Kind Regards