

Technical Memorandum

29 August 2023

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From	Matthew East	Project No.	12578580
Project Name	DFDS Traffic Impact Study - Immingham		
Subject	IERRT – DFDS Written Response Addendum – Annual Throughput and Terminal Capacity		

1. Introduction

Associated British Ports (ABP) are looking to expand RoRo operations at Immingham via undertaking the Immingham Eastern Ro-Ro Terminal (IERRT) project. The IERRT would likely facilitate Stena, who are aiming to shift sailings from Killingholme to Immingham, which requires a major upgrade to the Immingham Port. DFDS would like to test the level of effort, assumptions and conclusions being advised by ABP and the effects this may have on the existing operations at the port.

To address the concerns DFDS have on ABPs proposed plans the following areas have been assessed and compared to the ABP assumptions to test the level of effort and conclusions being advised:

- Implications of current and known future developments within the local community, including business parks and residential projects;
- Impacts upon the existing operation of the Port of Immingham and congestion at east and west gate houses;
- Behavioural implications of drivers, including consideration of how drivers will utilise entry gates to the port, local truck stops, location of major transport companies and other amenities;
- Capacity of the proposed IERRT terminal and associated daily and annual estimated throughputs;
- Environmental and social implications of increased traffic within the local area;
- Interoperability of hauliers within the terminal, particularly on the way hauliers and units move around the terminal; and
- Secondary facilities for hauliers.

1.1 Purpose of this Memorandum

This technical memorandum provides assessments and analysis associated DFDS assessment of the IERRT annual throughput and terminal capacity to support elements highlighted in DFDS written response.

1.2 Scope and limitations

This technical memorandum has been prepared by GHD for DFDS Seaways PLC and may only be relied on by DFDS Seaways PLC for the purpose agreed between GHD and DFDS Seaways PLC.

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The opinions, conclusions and any recommendations in this technical memorandum are based on assumptions made by GHD described in this technical memorandum. GHD disclaims liability arising from any of the assumptions being incorrect.

1.3 Accessibility of documents

If this Technical Memorandum is required to be accessible in any other format this can be provided by GHD upon request and at an additional cost if necessary.

2. Annual Throughput

2.1 Background

The following statement is in response to the Applicants Written Oral comments¹. During the Issue Specific Hearing 2, CLdN identified that the Transport Assessment had averaged the annual movements into an average daily figure, rather than determining a peak day. DFDS agree with CLdN's position that the applicant has utilised an average day value rather than a peak value, and provide the following in justification of this point.

Part 4, point 1 of the draft Development Consent Order (dDCO) identifies that the applicant is seeking to establish a harbour facility in connection with the import and export of Ro-Ro units to include all forms of accompanied and unaccompanied wheeled cargo units up to a maximum of 660,000 Ro-Ro units a year².

The 660,000 Ro-Ro units per year is the only figure quoted within the dDCO regarding maximum Ro-Ro unit volumes that will pass through the terminal (noting provision is also made for passenger movements in the dDCO) and is the only control on throughput provided.

In section 5.2.3 and 5.2.4 of the Transport Assessment, the applicant has utilised the following equation for determining their position regarding the daily peak figures³:

$$\text{Peak Daily Volume} = \frac{\text{Annual Throughput (660,000 RoRo Units)}}{\text{Operational Days (52 weeks x 7 days)}} \times \text{Number of HGV movements per freight unit}$$

The applicant has stated that this approach assumes, as stated in 5.2.6 of the Transport Assessment⁴, that the facility is fully utilised to the 1,800 unit level every day of the year, with no allowance for seasonal or daily fluctuations.

2.2 Daily and Seasonal Fluctuations

In reality, the flow of trade through a port is susceptible to fluctuations due to seasonality and weekly working conditions (i.e. Christmas goods have a higher demand in the lead up to the Christmas period, and a higher number of hauliers typically work during the normal working days and lower volumes on the weekend).

The drivers of these fluctuations vary by a number of factors, such as traders, origin of goods and consumer demand. As such the peaking profiles at every port is unique.

¹ REP1-009: Deadline 1 Submission – 10.2.8 Written Summary of the Applicant's Oral Case at Issue Specific Hearing 2 – Item 15

² REP1-005: Associated British Ports – Deadline 1 Submission – 3.1 Draft Development Consent Order (clean) – Ver. 2

³ AS-008: Associated British Ports – Additional Submission accepted at the discretion of the Examining Authority – 8.4.17(a) Environment Statement – Volume 3 Appendix 17.1 Transport Assessment

⁴ AS-008: Associated British Ports – Additional Submission accepted at the discretion of the Examining Authority – 8.4.17(a) Environment Statement – Volume 3 Appendix 17.1 Transport Assessment

Figure 1 and Figure 2 provide an example profile of these daily and weekly fluctuations for goods passing through the DFDS terminal.

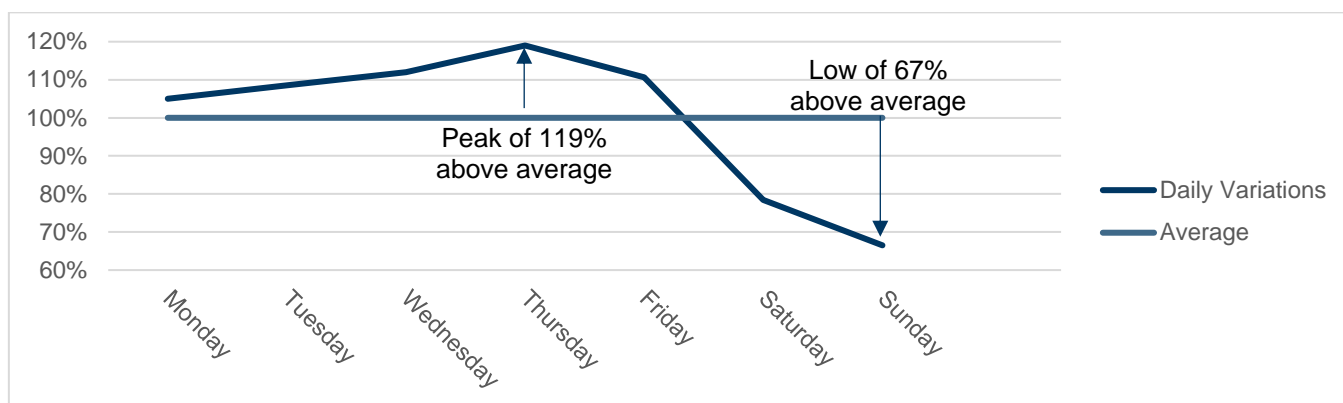


Figure 1 Example Daily Variations

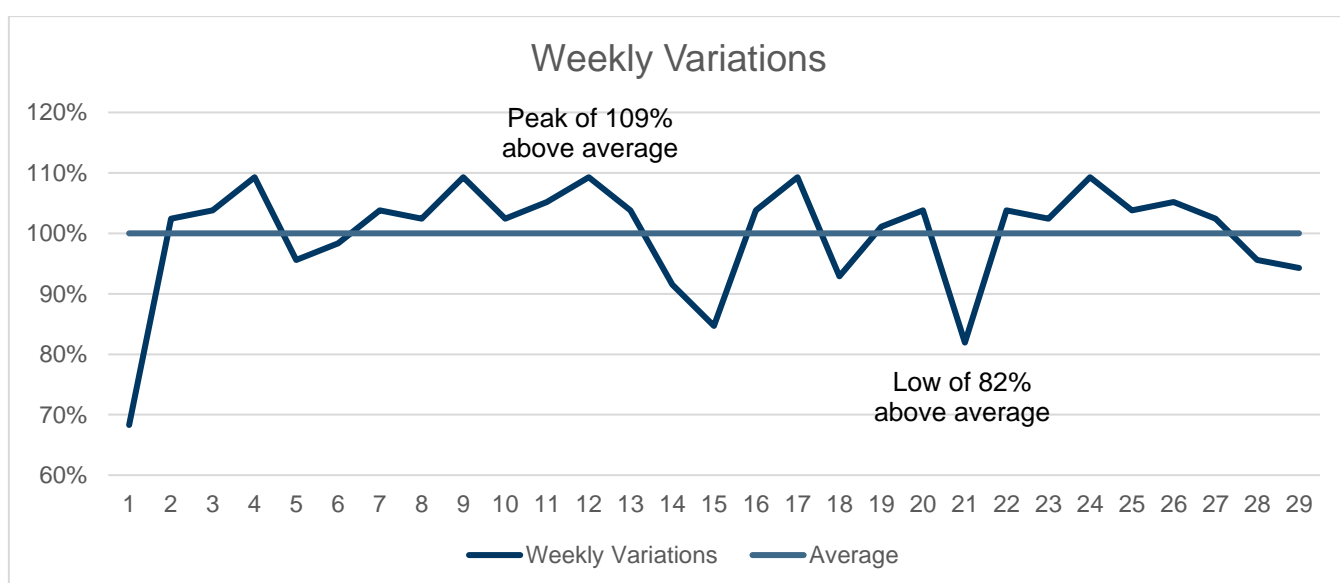


Figure 2 Example Weekly Variations

2.3 Implications of Seasonality on IERRT Daily Peaks

Figure 1 indicates a daily range of between 67% up to 119% of the average volumes. Figure 2 indicates a range of 82% up to 109% of the average volumes. These two figures need to be combined as the daily fluctuations occur within a week, meaning that for DFDS operations at the Riverside facility the total fluctuations can range between 55%, up to 122% of the yearly daily average. If these ranges are applied to the IERRT annual volume of 660,000 RoRo units as quoted within the dDCO, the true daily peak volume (without adjustments for tractor only movements (refer to DFDS response to Action Point 12 from ISH2⁵), and other factors) would equate to:

$$Peak\ Daily\ Volume = \frac{660,000}{52 \times 7} \times 122\% = 2,212\ RoRo\ Units$$

The above ranges are relevant to DFDS operations and would likely need adjustment to reflect the IERRTs intended operator including consideration for operational approach and trade behaviours. The applicant should seek to determine the respective fluctuation extents prior to defining the peak day.

2.4 Summary

It is DFDS position that the peak daily volume as presented within the Transport Assessment is actually a reflection of the average day volume. With the addition of weekly and daily fluctuations to replicate

⁵ REP1-030: DFDS Seaways Plc – Deadline 1 Submission – Issue Specific Hearing 2 (ISH2) – Response to Action Item 12

seasonal and operational variations, the true daily peak could raise to over 2,200 RoRo units per day before consideration of modification factors to account for other elements such as tractor only movements.

This increase in daily peak volume will influence:

- The terminal capacity;
- Queuing and traffic volumes on the internal port road network, and associated mitigations;
- Gatehouse capacity, and associated mitigations; and
- Junction and local road network capacity.

2.4.1 Maintaining 660,000 RoRo units in DCO

If the applicant was to maintain the current description provided within the dDCO⁶, it is DFDS recommendation that the applicant identifies the appropriate peaking factors with the intended operator, revise the peak day volume, and reassess all relevant components of the Transport Assessment.

2.4.2 Introducing a daily limit in the DCO

During a meeting between the applicant (represented by ABP and DTA), DFDS (represented by DFDS and GHD) and CLdN (represented by Royal Haskoning DSV), the applicant suggested that rather than amending the Transport Assessment to a revised daily peak volume, the applicant would consider adding a further control to the dDCO that limits the IERRT project to 1,800 RoRo units per day⁷.

DFDS consider this to be a feasible approach, though would like to highlight that the annual volume should be reduced to reflect the realistic annual volume when considering the seasonal and weekly fluctuations. For example, based on the 122% peaking factor, the yearly annual throughput based on a limit of 1,800 RoRo units for a peak day would be around 300,000 RoRo units, including allowance for all operational parameters (refer section 3.5 of this note for further details).

3. Terminal Capacity

3.1 Background

The following statement is in response to points raised by the applicant that the internal layout of the IERRT facility provides sufficient capacity for the peak day, and annual operating throughputs. DFDS and GHD are concerned that the terminal footprint and configuration does not provide sufficient capacity to handle the throughputs quoted by the applicant. Overutilisation of the IERRT yard could lead to queuing and congestion on the port internal road network, and potentially to gatehouses and onto the local road network. The capacity of the terminal needs to be assessed and justified accordingly.

Part 4, item 1 of the draft DCO indicates that the Company may operate and use the authorised development for the specified operations up to a maximum of 660,000 units per year, with additional use for passengers⁸. In addition, paragraph 7.3.1 of the Transport Assessment⁹ that “*The number of HGV parking and storage provided on site means that all vehicles will be catered for on-site and there will not be any queuing on the local highway network. The facility includes for a significant amount of waiting areas and check in lanes, to specifically ensure that the design throughput of HGVs can be accommodated on site. There is no need therefore for mitigation.*”

No further evidence has been provided within the Transport Assessment to justify the annual throughput capacity as stated in the dDCO, or to justify the statement made within the Transport Assessment. The

⁶ REP1-005: Associated British Ports – Deadline 1 Submission – 3.1 Draft Development Consent Order (clean) – Ver. 2 – Part 4, point 1

⁷ Meeting Note – DFDS CLdN ABP DTA 100823 for issue – GHD review and revision

⁸ REP-005: Associated British Ports – Deadline 1 Submission – 3.1 Draft Development Consent Order (clean) – Ver. 2

⁹ AS-008: Associated British Ports – Additional Submission accepted at the discretion of the Examining Authority – 8.4.17(a) Environmental Statement – Volume 3 Appendix 17.1 Transport Assessment

Examining Authority has requested the applicant to provide suitable evidence as part of their written questions¹⁰.

3.2 Terminal Configuration

The intended configuration of the IERRT terminal is described within the Engineering Sections Drawings and Plans¹¹. These drawings identify:

- The location, stack height and number of slots for containers (slots are described in twenty foot equivalent units (TEU));
- The number of bays for trailer parking;
- Swimlanes for accompanied unit parking prior to boarding vessels; and
- Waiting areas external to the terminals security gates which are within the terminals boundary.

GHD have reviewed these drawings and identified the following approximate figures (note, as the files are only provided in pdf format, counting and measuring has had to be completed manually potentially leading to minor discrepancies in values presented).

Table 1 IERRT Terminal Configuration

Area	Lane Meters (m)	Container Slots (TEU)	Trailer Spaces (Units)
Northern	0	38	239
Central	0	0	157
Southern	1,420	0	355
Western	0	0	635
Total	1,420	38	1,386

Assuming a provision of 18 metres for each accompanied unit, and a stack height of three (3) containers per slot (as shown in the Engineering Drawings), the current terminal provides static capacity for:

- 79 spaces for waiting export accompanied units within the terminal, and a further 78 waiting spaces outside of the terminals gates (it is assumed imported accompanied units will not reside at the terminal, therefore spaces would only be utilised for exports);
- 114 TEU's (containers) for imports and exports; and
- 1,386 spaces for unaccompanied trailers for imports and exports.

3.3 Operating Assumptions

The following parameters have been identified as operational assumptions for the port:

- 364 days of operation per year¹²;
- Three separate vessels will operate from the terminal, each sailing once per day (i.e. total of three sailings).
- Vessels will arrive in the morning, and depart in the evening¹³;
- For this assessment, it is assumed that the vessels arrive over a two hour window between 08:00 to 10:00, and depart over a two hour window between 18:00 and 20:00 based on the 24hr traffic generation profiles provided within the Transport Assessment;
- Dwell rates of unaccompanied and containerised units within the terminal of between 1.75 days to 3.5 days¹⁴;

¹⁰ PD-010: The Examining Authority's written questions and requests for information (ExQ1)

¹¹ AS-007: Associated British Ports – Additional Submission accepted at the discretion of the Examining Authority – Response to the Planning Inspectorates s51 advice – 2.6 Engineering Sections and Drawings and Plans – V2

¹² AS-008: Associated British Ports – Additional Submission accepted at the discretion of the Examining Authority – 8.4.17(a) Environmental Statement – Volume 3 Appendix 17.1 Transport Assessment

¹³ REP-005: Associated British Ports – Deadline 1 Submission – 3.1 Draft Development Consent Order (clean) – Ver. 2

¹⁴ REP1-009: Associated British Ports – Deadline 1 Submission – 10.2.8 Written Summary of the Applicant's Oral Case at Issue Specific Hearing 2, item 6

- Facility peaking factor of 122% (refer section 2.3);
- Paragraph 5.2.5 of the Transport Assessment identifies that imports and exports will be equally split (i.e. 50% import, 50% export)¹⁵; and
- Accompanied versus unaccompanied distribution of 72% to 28% respectively¹⁶.

3.4 Peak day demand

The applicant has identified that on a peak day, the terminal will handle 1,800 RoRo units¹⁷ leading to 900 units being discharged from the arriving vessels in the morning, and 900 units being loading onto the vessels across the course of the day prior to departure. Of these 900 units being discharged or loaded, 648 units would be unaccompanied or containerised, with the remaining 252 units being accompanied (to maintain the 72% to 28% ratio).

Paragraph 5.3.3 of the Transport Assessment identifies that the applicant is anticipating the majority of accompanied units to depart from, or arrive at the terminal closely following the vessel arrival or just before the vessel departure.

Using the identified terminal configuration and operating assumptions, and assuming that on a peak day that all spaces are utilised within the terminal, the terminal configuration only has sufficient capacity if the dwell rate of unaccompanied and containerised is an average of around 2 days.

However, under the circumstance that all unaccompanied and containerised spaces are utilised, there is likely to be operational challenges generating congestion at the terminal gatehouse, which will in turn create delays for vehicles entering the terminal, leading to queuing back onto the port road network.

Further, for the terminal to handle 252 accompanied units to be loaded onto the departing vessel, the swimlanes provided to would need to be replenished in excess of 3 times (i.e. once per vessel). This would mean that the applicant would need to ensure that boarding of the vessels is completed against a controlled schedule. This is also operationally complex and has a high potential of resulting in congestion and queuing on the port road network.

3.5 Terminal Capacity

The applicant has identified that the IERRT facilities can accommodate up to a maximum of 660,000 RoRo units per year.

Based on operational parameters identified and carrying over the average dwell rate of 2.1 whilst factoring in the estimated peaking factor based on DFDS operations of 122%, the terminal is estimated to have an annual capacity of just under 300,000 RoRo units per year¹⁸. In a simplified view, this is determined by the following equation:

$$\text{Units per year} = \frac{(\text{unaccompanied spaces} + \text{TEU}) \times \frac{\text{Operating Days}}{\text{Avg. Dwell}} \times \frac{1}{\text{Peaking Factor}}}{\text{ratio of unaccompanied units}}$$

This is substantially less than the quoted maximum of 660,000 units per year. This supports the applicants consultant view that the terminal acts as a physical control on the annual throughput and the maximum volume in the dDCO would not be achievable.

However, through operational reconfiguration, the terminal could be enhanced to achieve a higher annual throughput, which would then influence maximum peak day throughputs.

¹⁵ AS-008: Associated British Ports – Additional Submission accepted at the discretion of the Examining Authority – 8.4.17(a) Environmental Statement – Volume 3 Appendix 17.1 Transport Assessment

¹⁶ AS-008: Associated British Ports – Additional Submission accepted at the discretion of the Examining Authority – 8.4.17(a) Environmental Statement – Volume 3 Appendix 17.1 Transport Assessment

¹⁷ AS-008: Associated British Ports – Additional Submission accepted at the discretion of the Examining Authority – 8.4.17(a) Environmental Statement – Volume 3 Appendix 17.1 Transport Assessment

¹⁸ Note: a more detailed approach has been used to estimate the 303,000 unit capacity for the site considering specifics of each area of the terminal, and the various variables.

3.6 Summary

No evidence has been provided within the applicants Transport Assessment regarding how the terminal is to achieve the nominal maximum throughput, with an action currently outstanding on the applicant from the Examining Authority to justify the terminal capacity to ensure all HGVs will be catered for on-site.

As this information will not be made available until after Deadline 2, DFDS has conducted an independent review. This review has considered the terminal configuration and identified operational parameters, concluding that the capacity of the terminal as being approximately 300,000 units. With the applicants aspirations to achieve a maximum throughput of 660,000 units (the control as currently stipulated in the dDCO) the terminal would regularly exceed capacity leading to potential implications on the port road network from congestion and queuing of vehicles entering the terminal.

The applicant has also identified that the terminal could operate up to a peak throughput of 1,800 units per day. The review has identified that this can be achieved if the terminal was operating at 100% utilisation of the yard, with dwell rates at the lower bound for unaccompanied units, and coordinated arrival and loading of accompanied units. Given the operational complexities of achieving this, there are likely to be operational challenges generating congestion at the terminal gatehouse, which will in turn create delays for vehicles entering the terminal, leading to queuing back onto the port road network.

Regards

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