PORT OF TILBURY LONDON

PLANNING ACT 2008
INFRASTRUCTURE PLANNING
(APPLICATIONS: PRESCRIBED FORMS AND PROCEDURE) REGULATIONS 2009

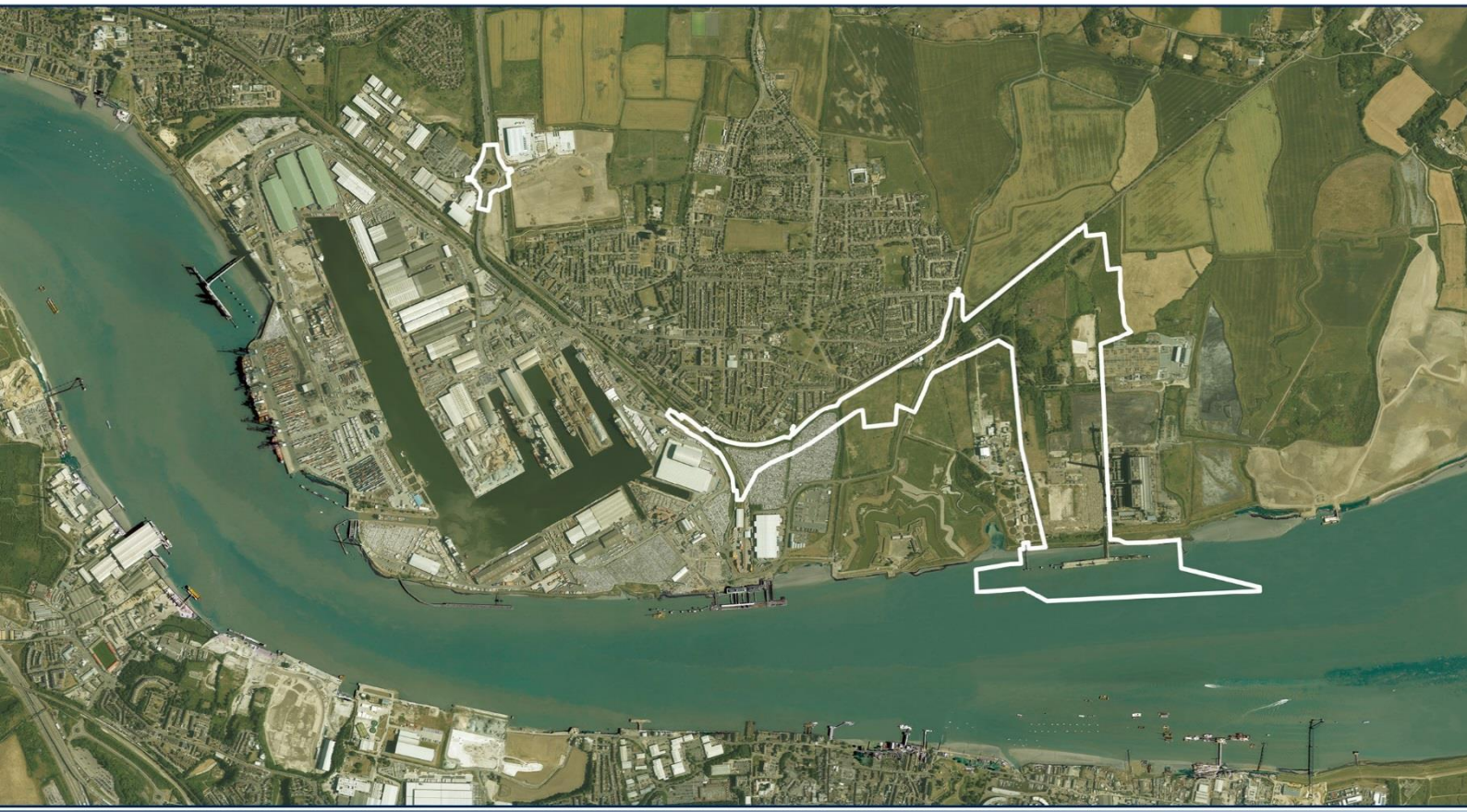
PROPOSED PORT TERMINAL AT FORMER TILBURY POWER STATION

TILBURY2

TRO30003

RESPONSE TO RELEVANT REPRESENTATIONS

DOCUMENT REF: PoTLL/T2/EX/32



TILBURY2

PORT OF TILBURY

PROPOSED PORT TERMINAL AT FORMER TILBURY POWER STATION 'TILBURY2'

RESPONSE TO RELEVANT REPRESENTATIONS

DOCUMENT REFERENCE: PoTLL/T2/EX/32

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APPENDICES

1.0 INTRODUCTION

Purpose of this document

1.1 This document provides a written comment and response by Port of Tilbury London Limited (PoTLL) to the relevant representations made by Interested Persons under section 56 of the Planning Act 2008 (as amended) (PA2008) following notification of acceptance of the Tilbury2 Development Consent Order (DCO) application. It has been prepared to assist both Interested Parties and the Examining Authority by clarifying the position of PoTLL in relation to matters raised in the relevant representations.

1.2 Sections 3-21 sets out in tabular form the representations of Interested Parties and PoTLL's written comment and response to them. These tables have been split into topic headings which correspond to the 'Principal Issues' identified in the Examining Authority's 'Rule 6' letter of 22 January. In many cases, PoTLL's response indicates where the matter raised is considered to have been already dealt with in the application documents; in some cases, the response indicates where PoTLL is undertaking work to provide additional targeted clarification to assist the Interested Party(s) concerned and in turn the Examining Authority.

1.3 Such work is being undertaken as part of on-going dialogue with all stakeholders and the preparation, where appropriate, of Statements of Common Ground.

1.4 Section 2 addresses and deals specifically with the cumulative effects of the Lower Thames Crossing and Tilbury Energy Centre as this is an issue raised in a number of separate representations.

2.0 CUMULATIVE AND COMBINED IMPACTS

2.1 A number of consultees have raised the issue of the relationship between Tilbury2 and the NSIP proposals for the Lower Thames Crossing ("LTC") and the proposed Tilbury Energy Centre ("TEC") and whether these proposals should be included as 'Other Development' and considered in the Cumulative Effects Assessment (CEA) for Tilbury2. This follows on from the comments in a similar vein from PINS in its section 51 advice at acceptance, and the Examining Authority in its Rule 6 letter. This section sets out those comments raised by consultees, describes what is known about those proposals at the present time and then explains PoTLL's position with regard to this matter and the reasoning supporting this submission.

Relevant Representations

2.2 Those Interested Parties that commented on the Cumulative Effects Assessment in relation to LTC and TEC did so as set out in Table 1 below.

Table 1: Representations regarding LTC and TEC

Relevant Representation	Comment
General comments or comments covering both schemes	
Thurrock Council (Landscape/Ecology)	While the argument presented by PoTLL regarding cumulative assessment is noted there is still a major concern that the number of NSIP projects in this area will have significant adverse ecological effects that will be hard to mitigate. The piecemeal approach restricts the ability to achieve a mitigation/compensation package at the scale necessary for the scale of development in this area.
Kent County Council (Ecology)	If off-site compensatory habitat provision is required, it would be beneficial to work closely with other strategic developments nearby to utilise opportunities that can deliver a more ecologically coherent outcome than that which could be achieved working independently
Natural England	Natural England is aware that significant major infrastructure development is proposed for this area, most prominently the Lower Thames Crossing and Tilbury Energy Centre Nationally Significant Infrastructure Projects ('NSIP') developments. We understand that the applicants for the Tilbury2 project do not consider that there is a need to consider cumulative impacts for these two specific projects due to temporal separation and the absence of detail relating to proposed development. However, we consider that, in keeping with the Planning Inspectorate's Advice Note 17, an EIA cumulative effect assessment would be appropriate with

	these two additional projects beyond those listed currently in the ES. Given the potential combined level of impact on similar high value ecological features (including for brownfield invertebrate ecology) Natural England considers that there is a need for a joint strategy for mitigation. In our view, the PINS Advice Note 17 has not been given due regard as a key guiding reference and advice note. Whilst we recognise that it does not strictly form part of NSIP Policy, it has been produced by PINS as an Advice note for the benefit of all parties, and in our view reflects the spirit of EIA cumulative assessment process, which should be applied in view of the known scale of multiple NSIP development in the Tilbury area, affecting similar terrestrial ecological receptors. Consistent with that advice note, the Lower Thames Crossing is already a "Tier 2" project, and the Tilbury Energy Centre is we understand shortly to also become a "Tier 2" project, for which EIA cumulative impact assessment is recommended. Whilst much of the Advice Note is relevant, we particularly highlight paragraph 3.4.12 "where possible, applicants should consider opportunities to develop holistic mitigation strategies in collaboration with other developers identified in the CEA". Overall Natural England is concerned that the EIA cumulative assessment should be fit for purpose in the context and the spirit of the future outcomes of multiple strategic development projects in the Tilbury area in terms of the future of biodiversity in this part of the Thames Estuary. The assessment of known major infrastructure projects in isolation from each other does not assist stakeholders in providing advice that seeks a co-ordinated outcome for common impacts, and in ensuring that decision makers meet their duties and obligations towards nature conservation. As such, the consideration of projects on a strictly sequential basis does not best serve this purpose. In our view, sufficient detail may be available (either in the public domain or currently held by relevant projects) to inform a cumulative impact assessment. In discussion with stakeholders, we understand that the Environment Agency, Thurrock Council, and the Marine Management Organisation are of a similar view, with respect to their own remits
Marine Management Organisation	It is the opinion of the MMO that the cumulative impact assessment should screen in the Lower Thames Crossing and the Tilbury Energy Centre. The Applicant uses the reason that the projects are not yet established and information is not sufficient to inform assessment on these however, the MMO would advise that this is not a valid reason form screening out. The MMO would like to see the cumulative impact assessment include these two projects and that they be screened in using the worst case scenario

	until such a time that they can reasonably be screened out.
Lower Thames Crossing-specific comments	
Essex County Council (Highways)	ECC expect Tilbury 2 & LTC to take account of respective proposals to ensure junction capacity.
Gravesham Borough Council	GBC is anticipating that the PoTLL will agree a SoCG with Highways England to ensure that the traffic impacts on Gravesham, generated by the Port of Tilbury, by virtue of the LTC once built, are comprehensively modelled and mitigated for and don't fall between these 2 NSIP projects
Public Health England	In addition, the cumulative impact from other significant developments in the area such as the Lower Thames Crossing / London Resort does not appear to have been considered within the provided reports which could also impact on local air quality.
Tilbury Energy Centre-specific comments	
RWE	RWE has recently announced that it will submit its own DCO application for an energy centre on the Tilbury Power Station site. The proposed development, known as the Tilbury Energy Centre (TEC), will consist of a combined cycle gas turbine power station (up to 2500MW), an open cycle gas turbine power station (up to 300MW) and an energy storage development. The TEC project has been notified to PINS and a scoping request is due to be submitted early in 2018 with a view to an application being submitted in Q4 2018. The Order Limits of the two projects are likely to overlap, construction periods may be concurrent, and operation elements of the Tilbury 2 project have the potential to affect RWE proposals. RWE believes that the DCO should contain provisions to address the requirements of both parties in delivering their respective projects
Environment Agency	In-combination effects did not include the possibility of the construction of a new power station adjacent to the port. If the power station is built then there will be cooling water effluents in close proximity to the port's maintenance dredging operations. The possible thermal uplifts should have been identified as potentially requiring consideration – because increased temperature will affect the solubility of contaminants, and may make dredging riskier for chemical compliance

Lower Thames Crossing ("LTC")

2.3 The Lower Thames Crossing (LTC) is a highway scheme comprising a proposed new crossing of the Thames linking the county of Kent with the county of Essex, through Thurrock. The presently proposed route was confirmed on 12 April 2017 by Transport Secretary Chris Grayling. It is designed to relieve the pressure on the existing A282 Dartford Crossing and links the M25 and M2, passing under the river some 1km east of the Tilbury2 site.

2.4 The LTC proposes a new junction near Tilbury on the north bank of the river, and a link road from there westwards to the Port of Tilbury. If the alignment of the link to the Port of Tilbury remains as currently proposed it will cross the northern part of the Tilbury2 site and will link to the highways proposals within the Infrastructure Corridor proposed by Tilbury2.

2.5 Non-statutory public consultation about the LTC was held in Q1 2016. An inception meeting was held with the Planning Inspectorate on 12 May 2017[1]. The published minutes of the meeting record that HE are planning that statutory consultation under section 42 and 47 of the PA2008 will take place in May/June 2018, and that formal submission of the application for development consent will be in Q3 2019.

2.6 A Scoping Report was submitted to the Secretary of State on 2 November 2017[2]. This Scoping Report was therefore published after the completion of the Environmental Impact Assessment of Tilbury2 and the submission of the Tilbury2 application on 31 October 2017.

2.7 The Scoping Report sets out the methodology that will be used to assess the environmental effects of the LTC proposals. It also gives some indication of construction timescales.

2.8 In terms of construction, the project is assessed as taking 5 years to complete, including a 9 month mobilisation period. The exact date of opening is uncertain. The Scoping Report states that the LTC is expected to be open by 2027, subject to the necessary funding and planning approvals. It further adds that

"As set out in the 2016 consultation, the date of opening was expected to be in 2025 if wholly publicly funded. If private funding is also used to meet the costs of the project, it is anticipated the crossing would be open by 2027. Highways England and Government are investigating funding and finance options. For the purposes of the traffic forecasting and other assessments

[1] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010032/TR010032-Advice-00001-1-TR010032%20Lower%20Thames%20Crossing%20Inception%20Meeting%2012%20May%202017.pdf

[2] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010032/TR010032-000006-LTC%20EIA%20Scoping%20Report.pdf

within this report, an estimated opening date of 2026 has been used." (SR, para. 2.1.4)

2.9 If the estimated opening date of 2026 is assumed, construction would take place in the period 2021 – 2025, with mobilisation of construction taking the first 9 months of 2021. However, as stated above, this would slip by one year if private funding is required.

2.10 This compares to the construction phasing of Tilbury2 set out the Chapter 5 of the Environmental Statement (Document Reference PoTLL/T2/EX/10) which explains at para. 5.126 that subject to the Tilbury2 proposals receiving development consent, main construction works could commence in early 2019 and it is envisaged that the primary infrastructure (i.e. road and rail links) will be constructed within 1 year, during which the key on-site elements (marine works, installation of RoRo pavement and security) will also be constructed. The Tilbury2 site will become first operational in early 2020 with the opening of the RoRo terminal. The CMAT will become first operational by mid-2020. The level of throughput will gradually increase over the ensuing 2-3 years as the remaining facilities on the site are constructed and the engineering works are completed. As such, the construction of LTC would not commence until after the currently estimated first operation of Tilbury2 early in 2020 following the main construction works including the completion of all infrastructure.

2.11 Given this temporal separation between the proposals, it is clear that Tilbury2 needs to be able to operate in the absence of the LTC being in place. This is the basis on which all traffic assessment, and the inter-related environmental assessment has been undertaken.

2.12 The process of EIA of the Tilbury2 proposals has not included the LTC as a cumulative assessment project. The reasons why PoTLL considers this to be the correct approach are set out further below. The Scoping Report for LTC specifically identifies Tilbury2 as a project that will be considered within the Cumulative Effects Assessment in the EIA of LTC, and is listed within Appendix E thereto.

Tilbury Energy Centre

2.13 RWE Generation is proposing to submit plans to develop Tilbury Energy Centre at the former Tilbury B Power Station site which lies immediately to the east of Tilbury2. The extent of details available in the public domain are set out on the RWE website[3] and repeated in their relevant representation.

2.14 This explains that the development would include the potential for a Combined Cycle Gas Turbine (CCGT) power station with capacity of up to 2,500 Megawatts, 100 MW of energy storage facility and 300MW of open Cycle Gas Turbines (OCGT). The website makes clear that *"The exact size and range of these technologies will be defined as the project progresses,*

[3] http://www.rwe.com/web/cms/en/3797656/rwe-generation-se/fuels/location-overview/uk/tilbury-energy-centre/

based on an assessment of environmental impacts, as well as market and commercial factors."

2.15 It further adds that the development consent application will also include a 3km gas pipeline that will connect the proposed plant to the transmission network which runs to the east of the Tilbury power station.

2.16 In terms of exact location within the site of the former Tilbury B Power Station, the website states that the new power station would be located on the coal stock yard at the site of the former power station, but would be physically much smaller than its predecessor (a coal/biomass plant). No further details are available.

2.17 An inception meeting was held with PINS on 25 May 2017[4] The meeting records that

"The Applicant confirmed that it was aware of the other Nationally Significant Infrastructure Projects being proposed in the area (Lower Thames Crossing, Tilbury2 and Paramount (what we have called London Resort in our ES) *and that it was liaising with Highways England (HE) with regard to the Lower Thames Crossing's potential impact on the project, including ecological impacts. The Applicant further confirmed that it was discussing protective provisions with the Port of Tilbury London Ltd in respect of Tilbury2 and access to cooling water from the Thames".*

2.18 The meeting also records that :-

"The Applicant was further advised [by PINS] to consider how to address cumulative effects taking into account other proposed developments including Lower Thames Crossing and Tilbury2.".

2.19 From discussions held to date with RWE, it is understood that formal consultation on the application is expected in Summer 2018 with a DCO application submitted to PINS Q4 2018. Construction commencement is anticipated as Q1 2021 with a four-year construction and commissioning assumed, and operation commencing in 2025. Given the Tilbury2 construction programme set out above, the construction of TEC would not commence until after the currently estimated first operation of Tilbury2 early in 2020 following the main construction works including the completion of all infrastructure (see further below). It is noted that there is no Scoping Report or Scoping Opinion available for this project.

PINS Advice

2.20 PINS Advice Note 17 recommends a four stage process for Cumulative Effects Assessment.

[4] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010089/EN010089-Advice-00001-1-170526_EN010089_Draft%20Tilbury%20Energy%20Centre%20meeting%20note%20dated%2025%20May%2020...pdf

2.21 Stage 1 is to identify the Zone of Influence of the NSIP and a long list of 'Other Development." An example of assigning certainty is given in Table 3 which suggests four tiers. The advice states that *"It is acknowledged that the availability of information necessary to conduct CEA will depend on the current status of the 'other development'.*

2.22 In terms of other NSIPs, Tier 1 developments are those that are under construction, permitted or under consideration through a submitted application. Tier 2 are those on the PINS Programme where a Scoping Report has been submitted; Tier 3 are projects on the PINS Programme where a Scoping Report has not been submitted.

2.23 Stage 2 explains a method for identifying a shortlist to ensure CEA is proportionate; Stage 3 then sets out advised information gathering activity on the project which is suggested to be :-

● *Proposed design and location information;*

● *Proposed programme of construction, operation and decommissioning; and*

● *Environmental assessments that set out baseline data and effects arising from the 'other development'.*

2.24 The advice note accepts that the assessment in Stage 4 should be:-

"undertaken to an appropriate level of detail, commensurate with the information available at the time of assessment. Information on some proposals may be limited and such gaps should be acknowledged within the assessment, moving from a more quantitative to a more qualitative assessment as the availability and/or certainty of information decreases. The uncertainty in such assessments should be clearly documented." (para. 3.4.2)

2.25 The guidance then advises that *"An assessment should be provided for all Tier 1 and Tier 2 'other development', <u>where possible</u>"* (para. 3.4.3).

2.26 Two matters are particularly pertinent in this advice. First, the advice expects a certain level of information to be available such that a proportionate CEA can actually be undertaken; secondly, it also accepts that even if a project is a Tier 2 project it may not always be possible to undertake a cumulative assessment with that project. PoTLL has taken account of and had full regard to this advice in its approach to CEA of LTC and TEC.

NE/JNCC Tiered Approach

2.27 The issue of cumulative assessment of other projects has been considered through the examination of other DCO schemes. It has been particularly pertinent in the consideration of which projects to consider on a cumulative basis when undertaking HRA of offshore windfarms, in the context of anticipated large projects taking place within the same or adjacent array or Crown Estate Zone; and identifying which projects should be taken into

account when undertaking HRA. The principles discussed in the relevant Examining Authority Recommendation Reports assist in considering when it is reasonable to include projects in a cumulative assessment in the context faced by Tilbury2 in respect of the stage of the planning process and publicly available information for LTC and TEC.

2.28 The discussions in these Recommendation Reports are also particularly relevant to Tilbury2 given Natural England's relevant representation on this issue in a HRA context.

2.29 A tiered approach has been devised by Natural England (NE) and the Joint Nature Conservation Committee (JNCC). This uses a finer grain of division compared to that found in PINS Advice Note 17. Table 2 below is taken from the Hornsea Offshore Wind Farm (Zone 4) Project 1 report[5] but has been similarly used elsewhere.

Table 3: NE/JNCC Tiered approach

Tier	Description of Tier
1	Built or operational projects, where they have not been included within the environmental characterisation survey
2	Projects under construction
3	Projects that have been consented (but construction has not yet commenced)
4	Projects that have an application submitted to the appropriate regulatory body that have not yet been determined
5	Projects that the regulatory body is expecting that have not yet been determined
6	Projects that have been identified in relevant strategic plans

2.30 In considering which other projects could reasonably be included in the Cumulative Assessment, the Hornsea report states that :-

"In its consideration of the issue of the relative weighting of tiers in the cumulative/in-combination assessments for UK offshore wind farms, the ExA was also cognizant of the likely impact, in the near future, of the evolving European Union Environmental Impact Assessment legislation. The revised EU EIA Directive, adopted April 2014, to be implemented by Member States from 2017, defines cumulative impacts as 'the cumulation of the impact with

[5] Hornsea Project One : Examining Authority's Report of Findings and Conclusions And Recommendation to the Secretary of State for Energy and Climate Change, 10 September 2014 https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010033/EN010033-002060-Hornsea%20Project%20One%20Recommendation%20Report.pdf

the impact of other existing and/or approved projects'. The ExA considers that this equates to NE Tiers 1 to 3" (para. 5.86).

2.31 In considering the impact, there was a difference of view of the applicant and NE given differing approaches to which projects should be included. The ExA took the view that :-

"the relative treatment of projects in the various in-combination tiers gives rise to other concerns of over-precaution; for example, in relation to which projects and their impacts might increasingly be included in the baseline; the position of some projects which may not be fully built out to consented capacity (but which are sitting on unused environmental headroom); and the inclusion of some tier 4 and 5 projects which, for whatever reason, might not materialise either at all or only on a much reduced scale. As noted before, projects at tier 4 and above would also be subject to their own HRA process and would not be consented with impacts on integrity without engaging with Article 6(4) of the Habitats Directives. There is also the evolving EU EIA Directive, with caveats as noted in para 5.85 above, with a definition of cumulative which equates with operational and consented projects only." (para. 146).

2.32 A similar consideration was undertaken in respect of the East Anglia One Offshore Wind Farm[6]. In this case the Applicant accepted:-

" ….the tiered approach appeared to be consistent with its own approach in that it recognizes the increasing levels of uncertainty for those projects which are further down the project pipeline, i.e., within Tiers 4 to 6. However the applicant maintained that any decision on consent for the application should account for only those offshore wind farms that are currently operational, in construction, consented or are at such a stage in the planning process that a clear timetable set out in statute for their consenting decision means that they are likely to receive consent in advance of EAO (Tiers 1-3)" (para. 4.107).

2.33 NE claimed that the projects at Tier 4 and upwards should be included in the assessment whereas the applicant only sought to include details where there was *"a reasonable degree of certainty at the time of assessment"* in Tiers 1 – 3. The report states that *"The Panel recognises the merits in this [the applicant's] argument"* (para. 4.111) and considered this approach consistent with other decisions. Moreover, *"Even if Tier 4+ projects are taken into account, the Panel finds that little weight should be given to the currently available data, due to the lack of certainty prior to detailed examination"* (para. 4.112).

2.34 PoTLL considers that in principle a similar approach could reasonably apply to the approach to CEA in both an EIA and HRA context at Tilbury2. Tier 5

[6] East Anglia One Offshore Wind Farm : Examining Authority's Report of Findings and Conclusions and Recommendation to the Secretary of State for Energy and Climate Change, 18 March 2014 https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010025/EN010025-000005-East%20Anglia%20One%20Offshore%20Windfarm%20Recommendation%20Report.pdf

and 6 projects cannot reasonably be considered given the lack of published data and the inherent uncertainty as to their delivery; or if any assessment could and was undertaken, it would be of a highly qualitative nature and would carry little weight. As such, such projects that are subject to environmental impact assessment *after* the application in question (particularly if by then such an application has been approved) will need to take into account the environmental effects of the application project in their CEA. It can be clearly seen that this is applicable to Tilbury2 when considering LTC and TEC.

PoTLL's position on Cumulative Assessment of LTC and TEC

Lower Thames Crossing

2.35 PoTLL's position in respect of undertaking a cumulative effects assessment of Tilbury2 with LTC is set out in Chapter 2 of the Environmental Statement (Document Reference 6.1, para. 2.57 – 2.63).

2.36 Since that time, as noted above, PoTLL has received and reviewed the Scoping Report submitted to the Secretary of State by Highways England, and has also reviewed the representations of Interested Parties set out above.

2.37 PoTLL accepts that, in the terms of PINS Advice Note 7 Table 3, the LTC would now be considered as a Tier 2 "Other Development" to be potentially included within a CEA as being a project on the Planning Inspectorate's Programme of Projects where a Scoping Report has now been submitted. In the terminology of the NE/NJCC tiered approach, LTC would fall into Tier 5.

2.38 However, despite the publication of the Scoping Report, there is still a large amount of uncertainty in relation to the impact of LTC on the local highway network and the environment in the vicinity of the Port for the following reasons.

1. The currently published drawings for LTC are high level and are at a very preliminary stage, subject to another period of design work before statutory consultation for that scheme. This is reflected in the Highways England Scoping Report thus :-

   "The design of the Scheme remains under development. The scheme will be subject to statutory consultation, planned for 2018, before the design is further developed and an application for development consent is made. As the design develops in light of more detailed baseline information being gathered and as a result of stakeholders' engagement, the embedded mitigation measures will also be refined as part of the iterative process."[7]

   It is further commented upon in the Scoping Opinion thus :-

[7] Lower Thames Crossing Environmental Impact Assessment Scoping Report, Highways England, October 2017, para. 2.1.3

"The Inspectorate notes that the design of the Proposed Development is not yet fixed and will be subject to refinement as the detailed design and EIA processes progress. The Inspectorate understands from the information in the Scoping Report that this includes the junction locations and arrangements along the length of the scheme."[8]

2. There is a lack of detail as to the location, scale and nature of the development in terms of how it directly interacts with the Tilbury2 proposals. This is also reflected in comments in the Scoping Opinion :-

   "The intention to refine the design in light of stakeholder engagement is noted and the Inspectorate highlights the interface between the proposed link road to Tilbury Port and the separate Tilbury 2 NSIP proposal at the same location."

3. Indeed, there is no certainty that following further consultation, the link to Tilbury will remain as part of the scheme particularly as the Scoping Report was the first time this element of the LTC scheme was made public.

4. Furthermore, the future function of the A1089 north of the Port towards the A13 is unclear. The future status of this link would be fundamental to the route taken by vehicles accessing the existing Port, other nearby developments such as London Distribution Park (Amazon) and Tilbury2 itself.

5. Moreover, there is no information available on which to base even a high level quantitative assessment of the likely volumes of traffic on the highway network if LTC were to follow Tilbury2. The only published traffic appraisal was that provided at the time the proposed route was chosen. The analysis was at a 'headline' level and was used for comparative purposes in order to consider the relative merits of the chosen route as against the other options, rather than to fully examine and fully appraise the preferred route. Crucially, at this time, the proposals did not include an easterly link to Tilbury. The Scoping Report sets out the methodology for assessment but nothing further.

6. Figure 2.1 in the Scoping Report shows the permanent and temporary land requirement; no vertical alignment is provided. This is particularly crucial within the direct zone of influence of the Tilbury2 site as the road would need to cross the rail infrastructure proposed within the Tilbury2 application.

2.39 Accordingly, it is not possible to make any reasonable assessment of future highway conditions if LTC is implemented, nor undertake even high level qualitative assessment of the impact of this traffic on environmental matters such as air quality, noise, ecology and heritage. Nor is the physical form of the proposals sufficiently clear at the present time to undertake any meaningful assessment.

[8] Scoping Opinion for the Lower Thames Crossing, PINS, December 2017

2.40 Having considered all of the above, and having regard to PINS guidance on these matters in its Advice Notes 9 and 17, as well as established NSIP/DCO examination and determination practice, PoTLL has concluded that it is not possible to properly define an LTC 'scheme' in order to assess the cumulative impacts with the proposals. Given this context it is not the intention to assess the cumulative impact of Tilbury2 with the LTC; nor is it considered reasonable to expect PoTLL to prepare an alternative Traffic Impact Assessment that considers the new highway network and traffic distribution that could result if the LTC were implemented. Clearly, the modelling for the LTC itself will need to deal with cumulative impacts, including, as appropriate, from Tilbury2, as Tilbury2 would be a Tier 1 (AN17) or Tier 4 (NE/JNCC Tiered approach) for the LTC project and appropriately taken into account, considered and assessed in that project's development and assessment..

2.41 Moreover, there is unlikely to be any significant temporal overlap in major construction works between the two schemes. By the time construction of LTC (based on the most optimistic application and development timetable) starts in earnest, following the 9 month mobilisation period (at the earliest towards the end of 2021) all of the main construction activities related to the Tilbury2 proposals (in particular the new lengths of highway and rail line, all maritime infrastructure, and the grading and laying of appropriate pavements across the site) will be complete.

2.42 The Scoping Report for the LTC makes clear that Tilbury2 will indeed be taken into account as 'Other Development' within the Environment Impact Assessment of LTC. In PoTLL's view this is the correct approach and addresses a concern expressed by some stakeholders (for example Gravesham Council) that the cumulative assessment could 'fall between the projects' and not be properly dealt with by either. Indeed, in responding to the LTC application, PoTLL has suggested that the Tilbury2 proposal should properly be considered as part of the future baseline; this approach will ensure that the environmental assessment of LTC will fully take account of Tilbury2.

Tilbury Energy Centre

2.43 PoTLL's position in respect of undertaking a cumulative effects assessment of Tilbury2 with TEC is set out in Chapter 2 of the Environmental Statement (Document Reference 6.1, para. 2.55 – 2.56). The information contained on the TEC web site was provided to PoTLL on 20 July 2017. RWE Generation, the owners of the Tilbury B Power Station site, wrote to PoTLL to advise that they are proposing the development of the TEC project.

2.44 In the terms of PINS Advice Note 17 Table 3, the TEC would be considered as a Tier 3 "Other Development" to be potentially included within a CEA as being a project on the Planning Inspectorate's Programme of Projects where a Scoping Report has not been submitted. PINS Advice Note rightly highlights that Tier 3 development *"is least certain and most likely to have limited publicly available information to inform assessments"* (para. 3.1.5). In the terminology of the NE/NJCC tiered approach, TEC would fall into Tier 5.

2.45 The paucity of information available at the time of preparing the Tilbury2 application was therefore considered by PoTLL to be so limited that it was concluded that it was not possible to properly define a 'scheme' for the putative RWE Power Station in order to assess the cumulative impacts with the proposals. Since submission of the Tilbury2 application, no further details have been made available beyond that set out above. Key development parameters that would be needed to undertake some form of CEA are not therefore available. Information that would be required, even in a putative form, would include, *inter alia,* the proposed technology to be used; the form and location of any carbon capture proposals; scale of the buildings including any cooling stacks; the on-site workforce; emissions; and water abstraction proposals.

2.46 Moreover, as with the LTC, there will be limited temporal overlap in anticipated construction programmes. As highlighted above, by the time construction of the TEC commences at the earliest in Q1 2021 all of the main construction activities related to the Tilbury2 proposals (in particular the new lengths of highway and rail line, all maritime infrastructure, and the grading and laying of appropriate pavements across the site) will be complete.

2.47 PoTLL therefore remains of the view that undertaking a CEA including TEC is not appropriate and it is for the TEC EIA to consider Tilbury2 in its CEA. As highlighted above, PINS have already brought this to the attention of RWE at the inception meeting on the project.

2.48 Importantly for both projects, it is noted that the ES for Tilbury2 was carried out in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended). These Regulations define an 'environmental statement' as 'including such of the information referred to in Part 1 of Schedule 4 (which refers to cumulative effects) as is reasonably required to assess the environmental effects of the development....and which the applicant can, *having regard to current knowledge*...reasonably be required to compile'.

2.49 Both at the time of the Tilbury2 ES and at this current time, knowledge of both projects is minimal at best, and certainly not of sufficient veracity for it to be reasonable that PoTLL be required to have included it within the ES for Tilbury2.

2.50 It is also important to note that these Regulations and that definition cannot be 'post-dated' to suit new facts that emerge following the carrying out of an Environmental Statement, as they refer to the carrying out of EIA to produce the statement at the time of the application. As such, if more information were to become available in respect of the LTC or TEC during the course of the Examination, it would not be incumbent on PoTLL to carry out further cumulative assessment work, as that information would be available after the assessment of the impacts of the proposals had already been carried out. It is right, practical and proper for this assessment to be undertaken appropriately by these subsequent proposed projects, should they progress.

2.51 As set out above, given the temporal timescales of the projects, it will be for LTC and TEC to cumulatively assess Tilbury2 as its nature will be known to those projects, meaning it would be reasonable to require for such an assessment to be compiled by those subsequent projects, as is required by the equivalent provision in the 2017 EIA Regulations. This approach would be proportionate, appropriately sequential and ensure there was no risk of any assessment falling between projects.

SPECIFIC COMMENTS IN RESPONSE TO RELEVANT REPRESENTATIONS

2.52 Thurrock Council, Kent County Council and Natural England make similar comments. They consider that a piecemeal approach to consideration of adverse ecological effects restricts the ability to achieve a mitigation/compensation package at the scale necessary for the potential scale of development in this area; that a joint strategy for mitigation is needed.

2.53 However, the ecological impacts of the LTC and TEC are not known and are only now in the process of being considered and assessed. They will in any event occur (if those schemes are approved) after those related to Tilbury2. There is no prospect, at this stage, of the three proposals developing a joint mitigation/compensation package; the mitigation/compensation related to Tilbury2 must be acceptable in its own right given the effects of that proposal. The corollary to the suggested approach of these stakeholders would be to delay any decision on the acceptability of the Tilbury2 proposals (including the proposed ecological mitigation/compensation) until such time as the other projects 'caught up' in their assessment process and mitigation strategies, or for such stakeholders to create a strategic approach as is seen, for example, in North Kent (the Strategic Access Management and Monitoring Strategy (SAMMS) as used to mitigate impacts on the Thames Estuary and Marshes SPA arising within Kent). Such a delay would be unacceptable to PoTLL given the urgent need to provide additional port terminal capacity at Tilbury but is, in any event, unnecessary.

2.54 Essex County Council suggest that Tilbury2 should take account of the LTC proposals to 'ensure junction capacity.' For the reasons set out above, there is no available modelling to indicate how junctions will operate if/when LTC is implemented. Tilbury2 must be able to operate *without* LTC and the Transport Assessment has assumed this to be so. LTC will need to model all relevant junctions and ensure Tilbury2 traffic is part of the baseline in their modelling. It is of note that Highways England has not suggested in their representations that Tilbury2 should take account of LTC in modelling traffic flows.

2.55 Gravesham Council do not require PoTLL to undertake a CEA with LTC; they wish, however, to ensure that the traffic impacts of both schemes are dealt with and do not fall between them. For the above reasons, and as identified in their Scoping Report, LTC will include traffic from Tilbury2 in their modelling, ensuring no gap on assessment and analysis.

2.56 RWE do not specifically suggest that the EIA of Tilbury2 should consider TEC in its CEA. The comments of RWE are related to ensuring that the Tilbury2 proposals do not prejudice it ability to deliver its own plans. PoTLL is in a dialogue with RWE but nothing in these comments brings into question the methodology of the Tilbury2 EIA.

2.57 Public Health England highlight that the cumulative effect on Air Quality has not been considered. For the reasons set out above – in particular the absence of any quantitative assessment of the traffic implications of LTC – such an assessment is impossible at the present time; but will be assessed by the LTC project.

2.58 The Environment Agency raise a specific point about the potential of cooling water effluents from TEC causing thermal uplifts and thereby an additional risk of contamination during maintenance dredging on the Tilbury2 jetty. PoTLL is in dialogue with both RWE and the EA on this point; however, it does not point to the need for a full CEA of the TEC with Tilbury2, as it will be for TEC to assess such an impact with knowledge of PoTLL's proposals which will have been/will be being built out at the relevant time.

2.59 The MMO do not consider that the absence of information to inform assessment is a valid reason not to undertake CEA of these projects and suggests a worst case scenario can be used until such time that they can reasonably be screened out. However, PoTLL does not consider that it is possible to define a 'worse case scenario' from the information available. For example, there is no basis on which to consider the cumulative effects of Tilbury2 and the TEC on the water environment without information as to the technology to be employed at TEC which is not presently available; in this context it is impossible to defined a reasonable or likely worse-case and even if such a scenario were to be defined, it would have limited veracity and be of no value to the decision on Tilbury2. Again, this will be for TEC to assess and design any appropriate scheme and required mitigation.

3.0 RESPONSE TO RELEVANT REPRESENTATIONS: AIR QUALITY

Relevant Representation	Comment	PoTLL Response
Thurrock Council	Agree that the proposed development will not have a significant impact on relevant receptors in terms of the modelled outputs for nitrogen dioxide (NO_2) and particulate matter (PM_{10} & $PM_{2.5}$). Satisfied that the model used in the assessment was appropriate. The assessment represented a worst case scenario, and the model verification process was robust, and limited any uncertainties associated with the model. Satisfied that the proposed development in terms of the "Operational Phase" will not have any foreseeable or lasting impact in terms of air quality on nearby residential receptors most at risk from this development.	Thurrock Council's support of Tilbury2, and agreement of the Environmental Health Officer with the methodologies applied and conclusions drawn in the ES (Document Reference 6.1) with regard to air quality, is acknowledged. The Operational Management Plan (OMP) (Document Reference 6.10) will be finalised and certified through the DCO process and as such will require compliance both for PoTLL's own operations and any tenants that operate any of the facilities within Tilbury2. CMAT production facilities will be subject to the conditions set out within an Environmental Permit, where the facility is a permitted activity under the Environmental Permitting Regulations 2016. The tenants will be responsible for ensuring compliance with the conditions set therein to control emissions such that emission standards and limits are respected and statutory nuisance is not caused. A dust monitoring programme is proposed in the OMP (Section 7.9). PoTLL intends to agree the number and type of monitoring locations with Thurrock Council, and share with them the results of the dust monitoring.

Relevant Representation	Comment	PoTLL Response
	Notes that OMP is to an extent aspirational but useful document for future operation regime (subject to competence of those responsible).	
Gravesham Borough Council Thurrock Council	Further work is needed on shore-side power, emissions monitoring and a port-wide air quality inventory for the river. Ability to provide shore power to vessels as technology improves so vessel engines can be turned down in port, reducing air quality and noise emissions. GBC is not convinced, at present, that Tilbury2 is fulfilling its potential as a strategically important infrastructure project in this regard.	The number of large shipping vessel movements associated with the proposals is considered at paragraph 18.325 to 18.331 of the ES (Document Reference 6.1). The DEFRA local air quality management guidance criteria for further assessment are not exceeded and there is no sensitive exposure in the vicinity of the shipping movements. The effect of emissions from shipping was therefore concluded not to be significant. This agrees with the Secretary of State scoping opinion (Document Reference 6.2.2A, paragraph 3.36). Air quality monitoring is undertaken by the local authorities and a site-specific survey was undertaken by PoTLL. The results were presented in Appendix 18.B of the ES (Document Reference 6.2.18A to E) and summarised in the ES (Document Reference 6.1, paragraphs 18.168, 18.176). The results show that concentrations of nitrogen dioxide and sulphur dioxide in Tilbury are below the air quality objectives (Document Reference 6.1, paragraph 18.330). The AQMAs for nitrogen dioxide in Thurrock and Gravesend are road traffic-related. They are also a substantial distance away from the shipping movements. As stated in the consultee response (Table 18.7 of the ES (Document Reference 6.1)) existing technology on ships is not currently suitable for shore power to be utilised at Tilbury2. A further constraint, at present, is that the electrical capacity is extremely limited due to the National Grid infrastructure locally. This would require an upgrade at significant cost to

Relevant Representation	Comment	PoTLL Response
		provide more capacity in the local area. PoTLL understands from its RoRo customers that its vessels cannot presently connect to shore power. It is also understood that there is limited benefit for vessels with a short stay in port. The vessels that will call on the aggregate berths are likely to be large “self discharge” vessels or smaller dredgers. The age profile of the majority of “self discharge” aggregate vessels means they do not currently have the ability to take shore power. PoTLL will provide the infrastructure to ensure that shore power can be accommodated at the Tilbury2 site in the future should the vessel profile change. There is a commitment to this effect in the Operational Management Plan (Document Reference 6.10), a document that will be certified through the DCO. In Section 6.3 of the OMP, it is stated that future improvements including the ability to provide shore power to vessels will be considered as and when the vessel fleet and local infrastructure can support such improvements.
Essex County Council Historic England	Object due to harm caused to the setting of Tilbury Fort - the effectiveness of proposed mitigation/enhancement appears limited, further clarity, detail and amendments required.	The air quality assessment for Tilbury2 presented in the ES (Document Reference 6.1, Chapter 18) has considered Tilbury Fort as a sensitive receptor for both construction and operational impacts of dust. The assessment determined that with the CEMP (Document Reference 6.9) and OMP (Document Reference 6.10) in place, residual dust effects at the fort would not be significant. Although air quality effects on Tilbury Fort are not specifically raised as a concern by either Historic England or Essex County Council in their representations, PoTLL will amend the monitoring and mitigation within the

Relevant Representation	Comment	PoTLL Response
		OMP at Deadline 1, to include a specific proposal for a dust monitoring location at a location relevant to Tilbury Fort, to secure that this receptor will be subject to the monitoring and mitigation regime described in that document.
Environment Agency	The applicant should contact EA as soon as possible to discuss permitting issues which can be addressed alongside the DCO application. Part of the site falls within the boundary of the Tilbury Power Station environmental permit. The applicant should discuss surrender of this permit with RWE to avoid delays.	The Environment Agency has been engaged as a consultee throughout the planning process for Tilbury2 with regard to a number of considerations, in particular flood risk, groundwater, habitats and the Water Framework Directive. PoTLL is in discussion with potential customers for the CMAT. These discussions will further inform site layout and activities, thus any requirements for permitting. At present, it is anticipated that environmental permits will be required for those facilities as listed within the ES, (Document Reference 6.1, paragraph 5.22). A commitment for tenanted operations to conform to permitting requirements is set out in the Operational Management Plan (OMP, Document Reference 6.10, Section 7). PoTLL will maintain a dialogue with the Environment Agency with regard to obtaining all relevant permits for planned activities. PoTLL is also actively engaged with RWE regarding the permit surrender for the adjacent power station.
RWE Generation UK Plc	Intakes of the proposed TEC are sensitive to particulates, therefore dust generating activities in close proximity to the development (particularly the CMAT) could have a significant detrimental impact on RWE's operations.	Cumulative effects of Tilbury2 with other potential developments on the environment are addressed in section 2 of this document. PoTLL understands that the proposed TEC is in the early stages of planning. However, the limited availability of information regarding the TEC such as site layout precludes the assessment of Tilbury2 operations from considering potential effects on the proposed TEC.

Relevant Representation	Comment	PoTLL Response
		Where an industrial facility is sensitive to particulates, whether released from another nearby facility in an existing industrial setting or an ambient source such as soil or sea salt, it is expected that the design of such a facility would incorporate an air filtration system appropriate to its setting. This would ensure removal of any such particulate matter and avoid contamination of or damage to sensitive equipment. The size range of dust particles arising from the proposed activities within the CMAT at Tilbury2 are expected to be within that of ambient particulate matter as typically encountered in the atmosphere of a semi-rural/industrial setting. Such ambient particulate matter includes both natural and anthropogenic sources (vehicle exhaust, solid fuel burning, sea salt aerosol, pollen and Saharan dust[9]). The Tilbury2 proposals include an Operational Management Plan (Document 6.10) which is secured in the draft DCO. The OMP describes dust mitigation and management for the CMAT that is appropriate to control potential impacts on sensitive receptors such as the ecological mitigation area and public footpaths adjacent to the site (see ES (Document Reference 6.1) Table 18.19). This information may be used by RWE when considering the design of the proposed TEC and determining the need for appropriate design and mitigation within their scheme development.
Colin Elliott	Proposals will worsen environmental for those with current health issues.	As stated in the Consultation Report, (Document Reference 5.1) Table 9.6, the air quality assessment considered the locations of the most sensitive receptors, including local schools. No hospitals or care homes were identified within the study area for air quality.

[9] https://uk-air.defra.gov.uk/assets/documents/reports/aqeg/contents.pdf

Relevant Representation	Comment	PoTLL Response
		An assessment of air quality was undertaken for the ES (Document Reference 6.1). This was undertaken on a conservative basis including worst-case assumptions for the number of rail and vehicle movements. A detailed assessment of road and rail emissions was undertaken for 27 sensitive receptors, carefully selected to represent worst-case exposure (Document Reference 6.1, paragraph 18.313), including along the new Infrastructure Corridor. The future concentrations of air pollutants were compared against national air quality objectives, which are consistent with the European Directive air quality limit values, set to protect human health. The assessment concluded (Document Reference 6.1, paragraph 18.323), that there will be no exceedances of AQS objectives, therefore the effect of the proposals on local air quality is not significant. It is noted that these conclusions have been agreed by Thurrock Council's Environmental Health Officer. Mitigation measures have been developed and form part of the Operational Management Plan (OMP), compliance with which is secured in the draft DCO (Document Reference 3.1). These measures focus on the control of dust and fine particulate matter from the CMAT operational area.
Wendy McDowall	More tree planting is suggested to mitigate impact of air quality and noise.	An assessment of air quality was undertaken for the ES (Document Reference 6.1, Chapter 18). A detailed assessment of road and rail emissions was undertaken on a conservative basis including worst-case assumptions for the number of vehicle movements. Concentrations were estimated at 27 sensitive receptors, carefully selected to represent worst-case exposure (Document Reference 6.1, paragraph 18.313). The assessment focused on locations close to the routes that will be used by traffic accessing the Tilbury2 site, including those closest to the new Infrastructure Corridor. The modelled concentrations of air pollutants were compared against national air quality objectives. It was concluded

Relevant Representation	Comment	PoTLL Response
		(Document Reference 6.1, paragraph 18.323), that there will be no exceedances of national air quality objectives, therefore the effect of the proposals on local air quality is not significant. As indicated in Table 9.6 of the Consultation Report (Document Reference 5.1), and in the ES (Document Reference 6.1, paragraph 18.244) and in accordance with good practice set out in the Institute of Air Quality Management (IAQM) Minerals Planning Guidance (2016), trees and bushes will be retained with the proposals as far as possible, and are included, where practicable, within the landscape and ecological mitigation that forms part of the Tilbury2 proposals (Document Reference 6.2.10.P). Significant areas of scrub and tree planting are proposed along the infrastructure corridor to provide both landscape and ecological mitigation, as shown indicatively on the General Arrangement Plans (Document Reference 2.2) and secured through the DCO requirement to comply with the Landscape and Ecology Management Plan (Document Reference 6.2.10.P). The presence of existing vegetative barriers has been considered as part of the dust emissions assessment in the ES (Document Reference 6.1, paragraph 18.244). In combination with other good practice measures for dust control, as set out in the Operational Management Plan (Document Reference 6.10) and which will be secured through the DCO, there will be no significant effects of dust emissions at properties either in Thurrock or Gravesham. Chapter 17 of the ES (Document Reference 6.1) assesses noise impacts from the construction and operation of Tilbury2 on noise sensitive receptors in Tilbury and Gravesend. Noise barriers will be installed for the Infrastructure Corridor to reduce noise levels on noise sensitive receptors. Their inclusion in the proposals is secured by a requirement within the draft

Relevant Representation	Comment	PoTLL Response
		DCO (Document Reference 3.1). Trees are effective as visual mitigation but have been shown not to have a significant effect to reducing noise levels. Significant areas of scrub and tree planting are proposed along the infrastructure corridor to provide both landscape and ecological mitigation, as shown indicatively on the General Arrangement Plans (Document Reference 2.2) and secured through the draft DCO requirement to comply with the Landscape and Ecology Management Plan (Document Reference 10.P). The research into effects of barriers - including noise barriers and vegetation barriers - upon air quality is ongoing, and currently inconclusive. Their effectiveness is dependent upon a range of factors such as the vegetation density, leaf surface area, wind speed, particle size/type of pollutant, proximity of receptors to and orientation with respect to the barrier and the source of pollution.
Public Health England	The submitted reports do not identify any significant risks to public health. However, we note the modelled concentrations of nitrogen dioxide indicate the potential for impacts on air quality at a small proportion of receptors without exceeding air quality standards. The cumulative impact from other significant developments	PoTLL acknowledges that PHE recognise there are no significant risks to public health due to air quality effects associated with T2 proposals. The air quality assessment is reported in Chapter 18 of the ES (Document Reference 6.1). This concluded (at paragraph 18.317) that *the impact on annual mean NO_2 concentrations at individual receptors is expected to be 'negligible' at the majority of locations, 'slight' adverse at four receptors and 'moderate' adverse (4.4 µg/m^3) at R10, a receptor to the north of the new Link Road and rail line, where concentrations will increase with the scheme but still remain effectively well below the objective, at 30.6 µg/m^3.* The air quality assessment further concludes at paragraph 18.323 of the ES (Document Reference 6.1) that: *Overall, given there are no exceedances of any AQS objective with the proposals in place, despite the conservative assumptions applied, and given that at the majority of receptors there will be*

Relevant Representation	Comment	PoTLL Response
	in the area such as the Lower Thames Crossing / London Resort does not appear to have been considered within the provided reports which could also impact on local air quality. We note that the operator has not considered; • the decommissioning phase of the project as highlighted in Section 2.73 of the Scoping Opinion for Tilbury2 (May 2017)	*negligible or slight increases in concentrations, the effect of the proposals on local air quality is considered not to be significant.* The approach to assessment of cumulative impacts is addressed within the section 2 to this document. Decommissioning of the proposed port facility is addressed at paragraphs 2.25 – 2.27 of the ES (Document Reference 6.1), which explain why an assessment of this has not been carried out. Decommissioning of any temporary construction elements of the proposals (such as any temporary structures within the river to allow for extension of the jetty) is considered as part of the assessment of construction effects.

4.0 RESPONSE TO RELEVANT REPRESENTATIONS: BIODIVERSITY, ECOLOGY AND NATURAL ENVIRONMENT

Relevant Representation	Comment	PoTLL Response
Kent County Council	The County Council supports the range of ecological surveys that have been undertaken by the applicant to gain a thorough understanding of the ecology of the site.	The Council's approval of the ecological survey work is acknowledged.
Essex County Council	The County Council notes the clarification of Priority s41 Habitat & Species within the assessment. The Council also notes the aim for temporary net loss in biodiversity with potential neutral or net gains over time, and welcomes the off-site habitat compensation for invertebrates. Clarification, additional information and amendments required concerning: • All details in the BS42020:2013 model condition D.4.1 included within the DCO Requirement for a CEMP • A long term Landscape and Ecological Management Plan (LEMP) will be a DCO requirement; should be cross referenced	Responses to the Council's requests for clarification, additional information and amendments are given as follows: • The Construction Environmental Management Plan (CEMP) (document reference 6.9) is being revised by including additional detail in accordance with the BS42020:2013 model condition at D.4.1. The revised CEMP will be submitted at Deadline 1. • The Landscape and Ecological Management Plan (LEMP) (document reference: PoTLL/T2/EX/12A) makes reference to the Preliminary Lighting Strategy (document reference: 6.2, ES Appendix 9.J). The LEMP will be updated during the Examination to also cross-reference to the final Lighting Strategy. • Details of the embedded ecological mitigation are provided at paragraphs 10.315 – 10.327 of the Environmental Statement (Document Reference 6.1) and are illustrated at Figure 10.13 'On-site ecology compensation & mitigation' (Document Reference:

Relevant Representation	Comment	PoTLL Response
	with final lighting strategy. • Ecological details and embedded mitigation incorporated into the scheme design; advance habitat creation is essential. • Bat surveys and mitigation PoTLL has received subsequent clarification by ECC of this latter point as follows: "10.240 and Table 10.29: I note that Nathusius Pipistrelle bat was recorded throughout the survey season but no records of Barbastelle. I would be keen for further checks of trees to be made for roosting Nathusius Pipistrelle bats, particularly as this species is known to use these features near the coast.	POTLL-T2-EX-20). Preparations are being made to deliver advance habitat creation for water voles and badger, via a parallel planning application, but PoTLL's mitigation proposals do not rely on the success of this. • The bat activity data at Table 10.29 of the ES (document reference 6.1) includes confirmed Nathusius' pipistrelle 'bat passes', which comprise 0.3% of the total number of 'bat passes' recorded. No tree roosts of any bat species have been identified during the survey work undertaken, which included ground-based and aerial inspections of trees (see Table 10.27 of the ES) and night-time emergence/re-entry surveys of those with roosting potential (see Table 10.28 of the ES) in line with best practice guidance. Survey for roosting Nathusius' pipistrelle (and other bats) has therefore been dealt with adequately within the ES, enabling a robust assessment to be made. Nonetheless, prior to the removal of any trees with elevated suitability for bats, advance survey work will be undertaken in order to ensure the position remains unchanged and ensure legal compliance.
Natural England	The overall assemblage of terrestrial invertebrates could be considered to be of sufficient quality to meet the designation requirements for a Site of Special Interest (SSSI) ... our specialist assessment of the survey data collected indicates the overall invertebrate assemblage to be significant in a national context.	With regard to the value of the invertebrate assemblage, the conclusions of the ES (document reference 6.1) broadly accord with those of Natural England's specialist assessment, and the ES states at paragraph 10.297 *"The overarching assessment is that the assemblage as a whole is clearly of high national importance for invertebrates".* Paragraph 10.298 then sets out that there has been analysis in consultation with Natural England, pursuant to reaching a common ground position. It does not say that such a common ground position is what is set out in the subsequent paragraphs, but that the conclusions of that exercise are

Relevant Representation	Comment	PoTLL Response
	Natural England has unfortunately not been able to agree a Statement of Common Ground with the applicant prior to submission of the DCO, and although it remains our intention to reach agreement on as many outstanding issues as possible, the very tight submission date and volume of consultation material to review has meant that we are not yet in a position to do so. We therefore have some concerns for example that some statements within the ES which indicate where a common ground position has been achieved may be premature (for example, paragraphs 10.298 – 10.301).	consistent with the conclusions drawn in ES Appendix 10.L (document reference: 6.2, 10.L). It then presents a summary of those convergent conclusions at paragraphs 10.298-10.301. Discussions are ongoing between PoTLL and Natural England, and further meetings are programmed, with the aim of achieving a firm position of agreement on these and other matters via a Statement of Common Ground.
Buglife	The potential impact on five other Section 41 species previously recorded in 2007 must also be considered.	Paragraph 10.295 of the ES (document reference 6.1) states that ten s41 invertebrates were found during the 2016-17 survey work (*Ribautodelphax imitans, Colletes halophilus, Cerceris quinquefasciata, Bombus humilis, Bombus sylvarum, Dorycera graminum* and four 'Research Only' butterflies/moths). During 2007, five additional s41 species were recorded (*Anisodactylus poeciloides, Asilus crabroniformis, Bombus ruderarius, Odynerus melanocephalus* and *Cerceris quadricincta*) which, despite targeted surveys, were not re-found in 2016-17. Whilst the additional five s41 species have not been specifically referenced within the 'Key Receptors' at Table 10.45 (logically so, as they were not recorded), the potential impacts on the

Relevant Representation	Comment	PoTLL Response
		invertebrate community as a whole have been addressed under paragraphs 10.340-10.350 (in respect of the LoWS designations), and at paragraphs 10.368-10.369 in relation to s41 species. The assessment concluded that "unmitigated losses of these LoWS would ... be significant at these (i.e. National and Regional) levels" and thus fully recognises the potential impacts, including on the additional five s41 species. Proposed mitigation, compensation and enhancement, both on and off-site will also include habitat suitable for these additional five s41 species.
Buglife	The site supports an outstanding resource of Open mosaic habitats on previously developed land (OMHPDL), a habitat of conservation priority listed under Section 41 of the NERC Act. Buglife considers the ES to have significantly underestimated its resource at only 9.3ha. This resource needs to include the wider mosaic of early successional habitats such as: Pulverised Fuel Ash (PFA), Lytag and other substrates, drought stressed grasslands and lichen heath, herb and lichen-rich grasslands, and their interaction with relict grazing marshes and ditches, scrub and ruderal resources. None of these habitats should be considered in isolation, even where individual habitats are not of Section 41 habitat quality.	The high value of the Open Mosaic Habitat resource is agreed: Table 10.45 of the ES (Document Reference 6.1) describes it as a *"high quality example of Thames Gateway brownfield habitat ... of Regional-level importance."* The measured extent of the Open Mosaic Habitat resource has been calculated by specific reference to the s41 criteria, which are reproduced at paragraph 10.192 of the ES, and does include early successional habitats such as: Pulverised Fuel Ash (PFA), Lytag and other substrates, drought stressed grasslands, herb and lichen-rich grasslands, and ruderal resources. Whilst relict grazing marshes (and ditches) are of interest, they do not specifically form part of the Open Mosaic Habitat calculation unless overlain by brownfield substrates/swards. The calculation includes some scattered scrub, but extensive stands are excluded, as per the s41 habitat explanatory notes which state: *"scattered scrub (up to 10–15% cover) may be present ... Other communities or habitats might also be present (e.g. reed swamp, open water), but early successional communities should comprise*

Relevant Representation	Comment	PoTLL Response
		the majority of the area". Thus the calculation for s41 Open Mosaic Habitat and other s41 habitat types have been calculated in accordance with the accepted definitions. Notwithstanding the above however, the wider habitat resource is necessarily considered as a whole in respect of the overarching LoWS designations (e.g. see consideration of impacts on LoWS at paragraphs 10.340-10.350 of the ES).
Buglife Essex Field Club	Strongly reject any suggestions that the site is declining in value due to succession - the ES itself confirms [in relation to habitats at paragraph 10.183], that despite some later successional species gaining prominence *"the general character of skeletal and early-successional vegetation remains intact."*	The ES (Document Reference 6.1) states at paragraph 10.299 *"The Lytag Site, though still of high national value, seems to have declined in condition and is now arguably on a par or even overshadowed by the interest associated with the rest of the Tilbury2 site. Considered together the resource is clearly of very high value, although decline associated with succession is evident."* This conclusion is based on the outcomes of an invertebrate site assessment undertaken by Natural England using ISIS and Pantheon analytic tools, which compared Tilbury site data from 2007 and 2016/2017. The analytical process is described in ES Appendix 10.L (document reference: 6.2, 10.L) at section 3.6, with the results of the analysis summarised at 4.3.3 – 4.3.4. A Statement of Common Ground is being sought with Buglife pursuant to the Rule 6 letter from the Examining Authority and an agreed position on this will be sought as part of that.
Essex Field Club	The proposals also include a new link road is between Ferry Road and Fort	The interest of the Fort Road grassland triangle with its high density of anthills has been specifically noted under 'Key

Relevant Representation	Comment	PoTLL Response
	Road crossing Local Wildlife Site Th37 Tilbury Marshes. The high density of anthills present on this triangular section of Fort Road Common on the west side of Fort Road south of the railway line clearly indicates that this represents ancient grassland and is almost certainly of immense value, at least for its grassland invertebrate fauna and for its ancient grassland history. The 2017 survey of this section of land was inadequate for this type of habitat.	Receptors' at Table 10.45 of the ES (document reference 6.1). There is no absolute determinant which can be referred to in determining whether a particular level of invertebrate sampling is sufficient. However, as the scope of the surveys was agreed with Natural England, Thurrock Council, Essex County Council, and others, the survey of this section of land is considered adequate on that basis. EFC do not elaborate on where the alleged inadequacy lies.
English Heritage	Tilbury2 development would negatively impact the ecological value of Tilbury Fort.	It is not clear what is meant by this comment. English Heritage have since clarified that they have undertaken a recent ecology survey at Tilbury Fort, something which is carried out as a matter of routine. PoTLL has undertaken to discuss the results of this survey with English Heritage once they are known.
Environment Agency	A survey of suitable watercourses for eels should be completed and if appropriate, mitigation and compensation measures for habitats affected should be produced.	A requirement for specific eel surveys was not identified during scoping. The EA did request (in letters dated 21 September 2016, 25 April 2017, 28 July 2017) that potential impacts on eel passage be considered in the ES. As such, the suitability/accessibility of the site for eels was considered at paragraphs 10.120 and 10.286-10.290; and potential landward impacts on eel passage were then considered at paragraph 10.358 (document reference 6.1). Potential impacts were also assessed within the Water Framework Directive (WFD) Assessment (document reference: 6.2, 16.C).

Relevant Representation	Comment	PoTLL Response
		Mitigation and compensation measures are as follows: • Fish and eel passage will be retained under any crossing installed as part of the works (WFD Assessment, paragraph 1.67 and Table 1.7), and secured through operation of the EA's protective provisions in the draft DCO (Document Reference 3.1). • Eel-friendly control structures will be incorporated into the proposed Thames outfall (design being developed but will be signed off by the Environment Agency pursuant to their protective provisions). • There are provisions within chapter 6 of the CEMP (Document Reference 6.9) to ensure that eels will be protected during construction phase, and compensatory coastal and floodplain grazing marsh habitat provision will be provided (see Table 10.49 within the ES). The potential presence of eels has therefore already been addressed by suitable mitigation. We contend that additional eel surveys would be attendant with a high risk of false negatives for one or more watercourses, and would therefore likely be of very limited or no value, with a positive result not changing the above avoidance and mitigation measures in any event.
Environment Agency	Invasive species should be monitored as the establishment of any plants such as floating pennywort will threaten the success of the wetland habitats. There should be long term monitoring of invasive plant species post construction	The invasive non-native species (INNS) identified within terrestrial habitats are listed at paragraph 10.225 of the ES (document reference 6.1) and at paragraphs 1.29-1.31 of the WFD Assessment (document reference: 6.2, 16.C). The CEMP (Document Reference 6.9) makes provision for a pre-

Relevant Representation	Comment	PoTLL Response
	of compensatory habitats.	construction INNS survey under 'Key Species Management' at paragraph 6.7. The CEMP goes on to say: *"If INNS are found to be present, appropriate isolation, removal and post-construction control measures will be drawn up and implemented in conjunction with prevailing best-practice protocols. The Environment Agency will be notified and agreement on methodological approach to such species will be sought in that scenario"*. A commitment to post-construction monitoring for invasive non-native species is set out at paragraphs 4.15 and 5.4 of the LEMP (document reference: PoTLL/T2/EX/12A) as well as under the relevant compartmental management prescriptions.
MMO	Require more time for to consider the impact on saltmarsh.	PoTLL acknowledges this. Coastal Saltmarsh S41 habitat is mapped at Figure 10.2d (document reference: 6.3) and described at paragraphs 10.220-10.223 and Table 10.45 of the ES (document reference 6.1). Impacts are assessed within the Terrestrial Ecology ES chapter at paragraphs 10.335 and 10.362-10.364. The impact to Coastal Saltmarsh is not deemed significant. Assessment of potential impacts arising from the proposed outfall is ongoing and is under discussion with the Environment Agency. The conclusions of this work will be made available to the MMO once finalised.
Purfleet Real	Request that permissions / proposals for	Cumulative impacts at Northfleet have considered in respect of

Relevant Representation	Comment	PoTLL Response
Estate, Northfleet Property LLP, Tarmac Ltd	former Northfleet works site "are taken into account in considering the Tilbury2 proposals."	Robins Wharf dredging in Table 10.50 of the ES.
Kent County Council	Full details should be provided to show how the site design has taken account of the biodiversity of the site. Any design needs to adhere to the 'avoid, mitigate, compensate' hierarchy as set out in the NPPF, where possible. It is also recommended that the application includes details of ecological enhancements, above and beyond the mitigation/compensation measures required, to ensure that net gains for biodiversity are achieved. Habitat loss across the site looks likely as a result of the application; and consideration will need to be given to whether the remaining habitats will continue to provide the same ecological function as the mitigation strategy evolves. If the reduced size, fragmentation/isolation or disturbance of the habitats means that the habitats are unlikely to function as part of a coherent ecological network, the scale of compensatory habitat required is likely to	As set out at Table 10.19 of the ES (document reference 6.1), comments regarding the mitigation hierarchy are noted. The assessment takes account of the operational and viability limitations on avoidance and on-site mitigation, and thus only proposes off-site compensation where these approaches are not available. Table 10.19 of the ES also confirms that opportunities for conservation and enhancement have been considered as part of the design process. Some habitats, for example drainage ditches and S41 Ponds, will see net gains on-site. This is set out at paragraph 1.267 of the WFD Assessment (document reference: 6.2, 16.C) which confirms that "Overall, the calculated total ditch loss is 4657m which includes 3015m of wet /seasonal wet and 1642m of dry ditches which are dry most of the time (>90% of the time). The ecological mitigation detailed in Figure 10.13 in the ecology chapter shows the location of the replacement ditches. The total replacement ditch length amounts to 5614m of which 3922m will be wet and 1622m dry. The total length more than compensates for the loss of the original ditch network on site". Confirmation of off-site habitat compensation/enhancement measures (including delivery of 41 Open Mosaic Habitat, and Coastal Floodplain and Grazing Marsh) will be provided in an EMCP once details have been agreed with stakeholders. Off-setting metric calculations can be used to test for and

Relevant Representation	Comment	PoTLL Response
	increase.	demonstrate no net loss.
Essex County Council	The County Council notes the translocation of PFA and Lytag for compensatory brownfield habitat.	The Council's acknowledgement of proposed mitigation is noted.
Thurrock Council, Buglife	There is as yet no information about the nature of the proposed compensation scheme and this has placed a limit on the extent to which the overall impact of the scheme can be assessed. Indeed the 'Figure 10.13 On-site ecological mitigation & compensation' document only confirms that the details are confidential.	Details of the on-site compensation proposals are provided at paragraphs 10.319-10.327, of the Environmental Statement (document reference 6.1) and are illustrated at Figure 10.13 'On-site ecology compensation & mitigation' (Document Reference: PoTLL/T2/EX/20). The future management of these areas is prescribed within the LEMP (document reference: PoTLL/T2/EX/12A). The only redacted information relates to the location of the proposed artificial badger sett to conform to legislative requirements. As set out at paragraphs 10.316-10.318 of the ES, details of the off-site compensation will be presented in an Ecological Mitigation and Compensation Plan (EMCP), which will be discussed with stakeholders (including Natural England, Essex County Council and Thurrock Borough Council) as it is developed and will be submitted to the Examination. This plan will fully detail the off-site compensation measures (including methodologies for translocation of substrates), the proposed translocations of water voles and reptiles and the mitigation measures taken to ensure legal compliance and no loss of conservation status for bats and badgers. It is expected that the EMCP will form an enforceable part of any DCO (i.e. compliance with it will be a DCO requirement).

Relevant Representation	Comment	PoTLL Response
Thurrock Council, Buglife	Despite references in the ES to a scheme being developed with Natural England, Essex Field Club and Buglife they have had little involvement.	During 2017, the applicant has met with and involved Natural England, Essex Field Club and Buglife in considering options for potential translocation/compensation sites including site visits with Natural England and Buglife. Buglife has also been engaged in discussions about site selection criteria, translocation techniques and habitat creation principles.
Essex Field Club, Natural England	The Lytag Site provides an irreplaceable lytag substrate which supports nationally important invertebrate assemblages and important lichen communities that cannot simply be re-created or moved elsewhere. The Lytag LoWS in particular is regarded as almost unique in England and, whilst as a brownfield habitat it is man-made, would be very difficult to re-create with confidence on a compensation site should it be lost to development.	The ES (document reference 6.1) acknowledges at Table 10.45 that: *"Key substrates on which this habitat develops, such as PFA and Lytag, are no longer being generated as waste products, and thus the chance of equivalent habitat being unintentionally created is extremely unlikely in future"* although virgin materials are nonetheless available for sale within the construction market. However, the ES also notes that by its very nature, brownfield *"habitat, being derived from anthropgenic activity, is inherently 're-creatable' although the particular set of conditions associated with high value examples may be difficult to recreate."*
Natural England	It is not yet possible to comment with any degree of confidence on whether the off-site compensation measures required can deliver the stated outcome. As such, the ES should be regarded as incomplete.	As set out at paragraphs 10.316-10.318 of the ES, details of the off-site compensation will be presented in an Ecological Mitigation and Compensation Plan (EMCP). At the present time, negotiation with the landowner of the favoured option is subject to a non-disclosure agreement and accordingly details cannot yet be provided. However, PoTLL can confirm that in selecting appropriate compensation sites, the key considerations for assessing adequacy have been: size,

Relevant Representation	Comment	PoTLL Response
		ecological compatibility, ecological/geographic context (e.g. South Essex, coastal Thames Estuary and Thames Terrace Gravels area as a landscape frame of reference), and the ecological requirements of the species involved (including whether both the new and remnant populations would be viable). Details are to be provided to Natural England as soon as possible. The draft DCO (Document Reference 3.1) states, under off-site mitigation: *"5.—(1) No part of the authorised development may be commenced until written details of the proposed off-site ecological mitigation have been submitted to and approved by the relevant planning authority, in consultation with Natural England.* *(2) The details submitted under sub-paragraph (1) must include a commitment that any habitat provided as part of the off-site ecological mitigation will be managed and maintained for a minimum period of 25 years.* *(3) The off-site ecological mitigation must be provided and implemented by the Company in accordance with the written details approved under sub-paragraph (1)."* Natural England can therefore expect to be provided with confidence that the off-site compensation measures will be appropriate (i.e. they would deliver ecologically appropriate compensation at a proportionate scale) and thus the information presented in the ES can be considered complete for the purposes of making the assessment.
Thurrock Council, Kent	Consider that there should be cumulative assessment with Lower Thames	Chapter 2 of this document sets out PoTLL's position on cumulative impact assessment, in respect of the LTC and TEC

Relevant Representation	Comment	PoTLL Response
County Council, Natural England MMO	Crossing (LTC) and Tilbury Energy Centre (TEC) and that a piecemeal approach restricts the ability to achieve a mitigation/compensation package at the scale necessary for the scale of development in this area. If off-site compensatory habitat provision is required, it would be beneficial to work closely with other strategic developments nearby to utilise opportunities that can deliver a more ecologically coherent outcome than that which could be achieved working independently.	developments. The potential benefits of an integrated strategic approach for development projects within the Thames Gateway area are acknowledged, but in the absence of an extant unified strategy (e.g. an equivalent to the Strategic Access Management and Monitoring Strategy (SAMMS) as used to mitigate impacts on the Thames Estuary and Marshes SPA arising within Kent) it is not practical or feasible for Tilbury2 to take the lead in co-ordinating a combined off-site compensation package, simply because it comes first in a sequence of potential development projects within Thurrock. It would, however, be within Natural England's remit to encourage and develop this strategic approach through Thurrock and the neighbouring boroughs.
Gravesham Borough Council	The Council is keen to ensure that these international important sites are not adversely affected by the proposal. GBC defers to the expertise of Natural England, RSPB, MMO, KCC Ecology, Environment Agency, etc.	Gravesham Borough Council's decision to defer to other bodies' expertise, in relation to the Thames Estuary and Marshes SPA and Ramsar site, is noted.
Kent County Council	Planting plans should comprise 100% native and UK grown trees and shrubs, with the species selection informed by historic biodiversity. Enhancements should be an integral part of the design, e.g. the significant extent of new highway planned within the site	The landscape planting plan will be informed by ecological advice on suitable and locally native trees/shrubs, by reference to the biodiversity of Thames Terrace grasslands and coastal floodplain and grazing marsh. The primary function of the drainage channels within the infrastructure corridor will be highways surface water drainage. However, the profile of the channels will be augmented to be

Relevant Representation	Comment	PoTLL Response
	should ensure wildlife-friendly surface water drainage gullies and other infrastructure. For long-term resilience of biodiversity on the site, planning parameters should ensure that niches for wildlife, such as bat tubes, bricks and swift bricks, are integrated into to new structures at the facility where possible.	wildlife-friendly as far as possible. Wildlife-friendly road features are being considered as part of the highway design, and details will be provided within the EMCP. Opportunities to incorporate bat and bird boxes into the new buildings/structures are being explored and details will be provided within the EMCP. (Note that there are no local breeding populations of swifts, so swift boxes specifically are not being considered further.)
Natural England	Natural England has undertaken a high level review of the proposed mitigation strategies for those protected species where licensable activities are proposed. On the basis of the information provided to us to date, we do not consider there to be any fundamental reasons why licences (where required) would not be granted subject to the submission of detailed mitigation strategies and application details consistent with those earlier strategies. We have expressed this view to the applicant in our letter dated 14th December 2017.	Natural England's high–level 'Letter of No Impediment' (LoNI) of 14 December 2017, which confirms that there are no fundamental reasons why protected species licences would not be granted, is acknowledged. Details of the proposed mitigation strategies are being worked up into Method Statements for Natural England to review. These will include appropriate lead-in times for creation of compensatory habitat creation for water voles; and selection of a suitable location for the proposed artificial badger sett to enable excluded badgers to locate it. A further LoNI will be sought once these have been reviewed by Natural England.
Environment Agency	The Ecological Mitigation and Compensation Plan (EMCP) needs further exploration to show how mitigation is to be achieved. After considering Section 10.226: Impact on	Impacts on Priority (s41) Habitats are quantified at Table 10.49 of the ES (document reference 6.1) and assessed taking compensation into account at page 10-226 thus: *"Compensation is proposed to offset these impacts in the medium to longer term, but is likely to fall short of full compensation leaving a residual net*

Relevant Representation	Comment	PoTLL Response
	Priority (S41) Habitat, we believe there is a compensation short-fall leaving a residual net loss for certain habitat (e.g. open mosaic). We believe more compensation is required off site for certain habitats to address this issue. Section 2.3 of the landscape and ecological management plan shows there should be offsite compensation for the 2.5 ha of coastal and floodplain grazing marsh to be permanently lost. A phasing plan is key for the development so that new habitats on and off site are created well in advance of the destruction of the existing ones. This will ensure there is no loss of biodiversity at the site. Phasing of new habitats will give translocated species a chance to establish. This is particularly important when it comes to the open mosaic habitats. A phasing plan, as referenced above, could be included in the Ecological Mitigation and Compensation Plan.	*loss (at least qualitatively) for certain habitats."* PoTLL anticipates that the off-site compensation area will deliver an equivalent/greater quantum of s41 habitat, including Open Mosaic Habitat, and Coastal and Floodplain Grazing Marsh (e.g. it is anticipated that the off-site compensation area will include >2.5ha Coastal and Floodplain Grazing Marsh). There will necessarily be a lead-in time in creating these habitats, and thus there will be a net loss, e.g. in Open Mosaic Habitat, in the short term whilst translocated substrates recolonise with associated flora/fauna. The Environment Agency will be consulted on the emerging Ecological Mitigation and Compensation Plan (EMCP), which will include a phasing plan.
Environment Agency	Cross sections of watercourses and plans are needed to ensure that the biodiversity function of drainage ditches is maximised. The developer should	Indicative cross-sections of proposed watercourses/ditches will be provided to the Environment Agency, with the approach and design being the subject to on-going discussions between the applicant and the EA. A phasing plan will also be provided within

Relevant Representation	Comment	PoTLL Response
	produce detailed designs for the concentric rings of open ditches needed to provide enhanced water vole habitat. The phasing of habitat creation for water voles needs very careful consideration otherwise it may fail due to inadequately established vegetation around the new ponds. A phasing plan should be produced detailing how these concerns may be addressed.	the EMCP, detailing how water vole habitat will be established prior to any relocation. These matters are secured through the Agency's protective provisions in the draft DCO.

5.0 RESPONSE TO RELEVANT REPRESENTATIONS: CONTAMINATED LAND AND WASTE

Relevant Representation	Comment	PoTLL Response
Environment Agency	The site could contain contamination from previous uses. The northern part of the new port area was reportedly used for historic tipping, other previous uses of the site could also pose a risk of contamination. Development work at the site, including remediation work and piling, could disturb contamination and open up pollution pathways which could result in pollution of the underlying groundwater.	The potential for contamination to be present at the site has been identified in the ES. Mitigation measures to reduce potential impacts from contamination during the construction works are provided in the CEMP (Document Reference 6.9). Piling risk assessments will be undertaken as required and submitted to the EA for approval prior to works being undertaken, pursuant to the CEMP (Document Reference 6.9).
Environment Agency	A full preliminary risk assessment should be provided by the applicant including sources of evidence that have informed the report. Currently the draft Construction and Environmental Management	A full preliminary risk assessment was undertaken as part of the ES and is included in the Hydrogeology and Ground Conditions Chapter of the report as follows: • Section 15.32 – Topography • Section 15.34 – Site walkover • Section 15.35 – Site history

Relevant Representation	Comment	PoTLL Response
	Plan (October 2017) (CEMP) refers to the Environment Agency Groundwater Protection: Principles and Practice and this has been superseded.	• Section 15.40 – Geology • Section 15.54 – Hydrogeology • Section 15.61 – Hydrology • Section 15.68 – Historical and ecologically important sites • Section 15.72 – Waste management sites • Section 15.73 – Industrial and other potentially contaminative land uses • Section 15.78 – Summary of previous investigations • Section 15.111 and Appendix 15.F – Preliminary Conceptual Site Model Sources of evidence are listed in Section 15.31 and a copy of the Envirocheck Report including historical maps etc is provided in Appendix 15.B. The CEMP will be updated at Deadline 1 with references to the most recent guidance documents.
Environment Agency	A requirement could be used to require that no development shall take place until a scheme that deals with the risks associated with contamination of the site has been submitted to and approved, in writing, by the Environment Agency, to provide a preliminary risk assessment, and a site	A preliminary risk assessment was undertaken as part of the Hydrogeology and Ground Conditions Chapter and is included in the ES. The requirements to undertake additional site investigation and further assessment of the ground conditions at the site including remediation if required, are included in the CEMP (Document Reference 6.9). The scope of the proposed ground investigation and any remediation will be agreed with the Local Authority Contaminated Land Officer and Environment Agency prior to the works being undertaken. A Site Specific Remediation Strategy (SSRS) will be developed and submitted for approval. These measures are also set out in the CEMP.

Relevant Representation	Comment	PoTLL Response
	investigation scheme, the results of these, an options appraisal and remediation strategy; a verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.	
Environment Agency	With respect to piles and ground improvement techniques, a foundation works risk assessment will be required. This should consider the impacts of possible detriment to water quality via infiltration	The requirement to provide a piling risk assessment for the works is included in the CEMP. The piling/foundation works risk assessment will be agreed with the Environment Agency prior to works being undertaken under its protective provisions included in the DCO.
Thurrock Council	There is the potential for ground contamination and this issue, along with proposals for associated remediation and impacts on hydrogeology, are relevant	The potential for contamination to be present at the site has been identified in the ES and additional site investigation and assessment of the ground conditions are proposed to be undertaken, including remediation if required. Mitigation measures to reduce potential impacts from contamination during

Relevant Representation	Comment	PoTLL Response
	considerations.	the construction and operation of the site are provided in the CEMP and Operational Management Plan and will include the development of a SSRS which will be agreed with the Local Authority Contaminated Land Officer and Environment Agency prior to the works being undertaken.
Kent County Council	No risk assessment has been submitted that sets out mitigation for increased risk of maritime pollution incidents from vessels using the facility and re-fuelling / bunker operations, and no reference appears to have been made to this issue. Design parameters for both the facility and its operation should seek to minimise the risk of maritime pollution occurring and additionally, ensure sufficient contingency planning and containment (via drainage infrastructure and lagoons) and response in the event of any incident.	Comments in relation to this matter are at paragraph 15.155 of the Environmental Statement. No land-based refuelling will take place at the site and there will be no planned maintenance of vessels or maintenance facilities. However, there could be river-based refuelling from bunkering vessels. Both the vessel operator and bunkering contractor (licensed by the PLA) would be responsible for ensuring procedures / measures are in place to minimise the potential for spillages / leaks during any refuelling. The refuelling activities would be under the control of the PLA, which would be responsible for dealing with any associated spillages / leaks. Maintenance may be undertaken in emergencies. Spill kits will be put in place at the jetty for use in the event of accidental spillages / leaks from equipment on the pontoon.
Thurrock Council Essex County Council	The ES fails to address the baseline waste arisings and capacity within Thurrock as the Waste Planning Authority (and the host authority) with inappropriate	PoTLL has now met with Essex and Thurrock Councils to agree a common approach which be reflected in their SoCGs. This approach is as follows: It is agreed that the use of the waste capacity data within Essex as a proxy

Relevant Representation	Comment	PoTLL Response
	use of the Essex & Southend Waste Local Plan data as a proxy. Incorrect assumptions are made in the ES methodology regarding Thurrock C,D&E waste arisings and flows derived from the EA data in order to justify that Essex data should be used as a proxy for the baselines assessment of waste impact Lack of consideration of all neighbouring Waste Planning Authorities, GLA and WLPs within London, which influence waste activities within Thurrock.	(given the lack of available data for Thurrock) in order to determine the significance of the impact of the quantity of waste predicted to be produced during construction/demolition is appropriate, albeit it is considered that further assessment of capacity in Thurrock would be helpful. It has been agreed that PoTLL will undertake further work on this and the approach to this work has been agreed by all parties (TC, ECC and PoTLL). It is agreed that the worst case scenario tonnage of waste to be produced by the proposals is likely to have a negligible/minor impact on waste infrastructure within Thurrock.
Thurrock Council	The ES methodology fails to adequately acknowledge or assess the potential impacts during the operation phase of waste arisings from the asphalt and concrete batching and block-making process identified as proposed uses within the	PoTLL has now met with Essex and Thurrock Councils to agree a common approach which be reflected in their SoCGs, as discussed above.

Relevant Representation	Comment	PoTLL Response
	development.	
Marine Management Organisation	The wording of the DML should be amended in line with recent orders made under the 1964 Act which state: No such materials shall be laid down or deposited— (a) in contravention of the provisions of any enactment as respects the disposal of waste; or (b) in any place below the level of high water otherwise than in such position and under such conditions and restrictions as may be approved or prescribed by the MMO under the DML.	The CEMP and the OMP (Document References 6.9 and 6.10) and secured through the draft DCO (Document Reference 3.1) detail the provisions for the management of waste, including within the marine environment. All wastes will be managed in accordance with all relevant legislation and in accordance with best practice as far as is practicable**.**

6.0 RESPONSE TO RELEVANT REPRESENTATIONS: COMPULSORY ACQUISITION AND ENGINEERING AND DESIGN

Relevant Representation	Comment	PoTLL Response
RWE	The draft DCO contains provisions proposing to revoke RWE's existing works licence granted under the Port of London Act 1968 and provisions which would allow the Applicant to extinguish its existing rights. For the purposes of sections 127 and 138 Planning Act 2008, RWE does not consider that its interests are adequately protected by the terms of the draft DCO. The DCO should contain provisions to address the requirements of RWE to deliver Tilbury Energy Centre. We are particularly concerned about the impacts of the jetty improvements, the retention of access and services, and the impact of the rail spur.	PoTLL acknowledges this relevant representation, and is currently in discussions with RWE with the aim of reaching an agreement in relation to the interaction between Tilbury 2 and RWE's proposals.
Anglian Water	Require separate protective provisions specifically for the benefit of Anglian Water's existing assets	PoTLL acknowledges this relevant representation, and is currently in discussions with Anglian Water with the aim of reaching an agreement in relation to a set of protective provisions for Anglian

Relevant Representation	Comment	PoTLL Response
	and infrastructure to protect their adjacent Water Recycling centre.	Water's benefit within the DCO.
Anglian Water	Applications to Anglian Water for waste water or water connections are made in a timely way to ensure Anglian Water can assess the capacity within the network and the water resources available without impacting on our existing customers.	PoTLL also confirms that any applications to Anglian Water for waste water or water connections will be made in a timely way to ensure Anglian Water can assess capacity within the network and available water resources to prevent impact on existing customers.
Cadent Gas Limited and NGET	Highlights rights to retain its apparatus in situ and rights of access to inspect, maintain, renew and repair such apparatus located within or in close proximity to the order limits including should be maintained at all times and access to inspect such apparatus must not be restricted. Requires adequate protective provisions to be included within the DCO to ensure that its apparatus and land interests are adequately protected and to include compliance with relevant safety standards. Cadent has low and medium pressure gas pipes located within the order limits which are affected by works proposed	PoTLL acknowledges these relevant representations, and is currently in discussions with Cadent and NGT with the aim of reaching an agreement in relation to a set of protective provisions for the benefit of each of Cadent and NGET within the DCO.

Relevant Representation	Comment	PoTLL Response
Network Rail	Differing CA powers are sought at plots 02/03, 02/04, 03/01, 03/02, 03/03, 03/12 and 03/16; objection is raised until asset protection agreements and property agreements are completed. NR also objects to any other powers affecting them until above agreements are completed; The plots constitute land acquired by Network Rail for purpose of statutory undertaking; NR notes there are three primary interfaces between the Scheme and Operational Railway and NR's land :- - The existing connection to London, Tilbury and Southend mainline (Tilbury Port Junction); - The proposed closure of a public footpath and level crossing over the mainline - Extension of the Road bridge crossing the mainline	PoTLL acknowledges this relevant representation, and is currently in discussions with Network Rail with the aim of reaching an agreement in relation to a set of protective provisions for Network Rail's benefit within the DCO.
London Port Health Authority	Dependant on trade at the roll on roll off terminal, may require the port to provide an examination facility, to carry out physical checks on food	Due to the anticipated frequency of receiving food and feed goods from outside of the EU into Tilbury2, physical checks will be undertaken at the nearby registered and approved facilities located at 39 berth at the existing Port of Tilbury.

Relevant Representation	Comment	PoTLL Response
	and feed. Warehousing may need to be registered or approved by the London Port Health Authority.	

7.0 RESPONSE TO RELEVANT REPRESENTATIONS: DRAFT DEVELOPMENT CONSENT ORDER MATTERS

Relevant Representation	Comment	PoTLL Response
MMO	The MMO suggests a number of amendments to the deemed marine licence (DML) and article 43 of the DCO, and is concerned that the DCO is clear upon which harbour statutory provisions it relies.	PoTLL has been and will continue to be in dialogue with the MMO in relation to DML drafting, with the aim of presenting an up to date position in a Statement of Common Ground, alongside any necessary changes to the DML, by Deadline 1. However, in the interim, PoTLL confirms that the DML has been developed with regard to previous DCOs, HROs and HEOs in mind, and emphasises that the DML should be read alongside the PLA's Protective Provisions, as PoTLL has developed both of these provisions with the aim of seeking not to repeat matters across the two.

8.0 RESPONSE TO RELEVANT REPRESENTATIONS: DREDGING AND NAVIGATION

Relevant Representation	Comment	PoTLL Response
Purfleet Real Estate Ltd, Northfleet and Tarmac Ltd	The Examining Authority should ensure that the PLA's responsibilities and powers to ensure the continued effective use of the River by all operators are maintained, with particular reference to PTT. Also concerned that Tilbury does not effect continued navigation for its vessels on the River Thames, and no change in the function of its berths in respect of dredging or other maintenance requirements	All UK statutory harbour authorities (SHAs) (of which PoTLL is proposed to become in respect of Tilbury2) have a responsibility to comply with the letter and spirit of the Port Marine Safety Code (PMSC). A core requirement of the PMSC is that the Duty Holder of the SHA must: • assess, and keep under review, the marine risks within the waters for which the SHA is responsible; • develop policies and procedures to manage those risks and to employ, resource, and empower suitably competent personnel to manage marine operations and reduce risk; and • undertake the above by means of a structured Safety Management System (SMS), which has clear objectives, clear outcomes, and has the concept of continuous improvement embedded within it. PoTLL will therefore comply with this requirement through its compliance with the Navigation Risk Assessment (Document Reference 6.2.14.A), secured through the drat DCO (Document Reference 3.1). In respect of the wider river, as might be expected for a large, diverse, and high-profile port like London, the Port of London Authority (PLA) has extremely high standards of navigation and a pro-active approach to management of risk, which would be applied to Tilbury2 and its interaction with existing ports such as Purfleet.

Relevant Representation	Comment	PoTLL Response
PLA	Indicated that the effect of the proposed DCO powers on private rights (and in particular privately owned navigational aids) and on navigation after construction has yet to be assessed fully by the PLA.	As set out in the Navigational Risk Assessment Document Reference 6.2.14.A (Navigational Risk Assessment) and the ES (Document Reference 6.1 Para 14.10 and 14.11), PoTLL has carried out extensive engagement with the PLA in respect of navigation; and is continuing to discuss these matters with the PLA as part of wider discussions.
London Resort	LRCH will present evidence on: 1. the status and proposed content of the London Resort project; 2. the predicted cumulative environmental effects of Tilbury2 and the London Resort, including transport and traffic effects; 3. LRCH's proposals to use the River Thames and facilities at Tilbury Port during the construction of London Resort.	This NRA (Document Reference 6.2 14.A) undertaken by PoTLL is limited to the hazards and risks associated with the design and operation of the Tilbury2 berths – not the hazards and risks associated with the transit of Tilbury2 ships in the Thames Estuary between open sea and Tilbury. This is because these hazards and risks have already been, or will be in the case of LRCH, subject to a robust NRA by the PLA as part of their wider responsibilities as a statutory harbour authority (SHA) and, by virtue of being the pilotage service, the Competent Harbour Authority (CHA) for these waters.
MMO	The MMO is of the opinion that the Environmental Statement generally provides a thorough assessment of the potential impacts on the marine environment from the construction activities but more detailed comments will be provided to the applicant once	PoTLL acknowledges the opinion of the MMO, and notes that it is and will continue to be in ongoing discussion with the MMO to resolve any outstanding issues raised by them or by their advisers Cefas.

Relevant Representation	Comment	PoTLL Response
	formal consultation with Cefas has taken place	
MMO	The MMO raised concerns about benthic ecology: (1) With respect to the assessment of impact, there is no guidance regarding how the 'value/sensitivity' of the receptor and 'magnitude of effect' of impact are used to derive an overall assessment of the 'significance' of impact. (2) Have the ecological features of the seawall been assessed for impacts as part of the EIA? (3) The spatial extent and magnitude of resuspension and sedimentation resulting from the dredging was ascertained subsequent to discussions regarding the appropriate scale for the baseline assessment. It is apparent that the spatial extent of this impact is far greater than the area encompassed by the intertidal	PoTLL is in the process of agreeing with the MMO different matters regarding the Scheme, through the development of a SoCG. The response from PoTLL below, also reflects the matters discussed in this draft SoCG: (1) The assessment has been completed in accordance with the Charted Institute of Ecology and Environmental management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK, and Guidance on Impact Assessment in Marine and Coastal Environments. These determine which ecological receptors are significant within a geographical context before the assessment of the impacts of the Scheme on significant receptors is undertaken. The methodology is described in paragraphs 11.17 – 11.20 of the ES, and is summarised in Tables 11-4 - 11-6. (2) Yes. The ecology features of the seawall are mostly saltmarsh and broad intertidal mud-flat (paragraph 11.38 and 11.41 of the ES). Consideration and assessment of intertidal mud-flat is considered in paragraphs 11.152 and 11.180 (Marine Ecology), and coastal saltmarsh in paragraphs 10.362 to 10.364 (Terrestrial Ecology). (3) PoTLL considers that although the spatial extent of re-suspension and sedimentation resulting from the dredging exceeded the scale of the area surveyed in the baseline, the greater area around Tilbury2 was considered in the desk-based assessment (see Figure 11.2); and since the magnitude of the sedimentation outside the dredging area is minimal, i.e. net accumulation on the seabed is generally less than 1mm outside the dredging area, and averaged suspended sediment concentration never exceeds 20mg/l (which compared to the ambient concentrations of up to

Relevant Representation	Comment	PoTLL Response
	and subtidal surveys. Is there any evidence to support that the notion that the habitats observed in the survey extend over the entire spatial area of impact resulting from the dredge? If not, it may be concluded that the baseline conditions of the full area of potential impact have not been adequately described. (4) In section 11.151 it states that "levels of suspended sediments are within background concentrations, apart from within a localised area of water injection dredging (WID), changes in dissolved oxygen levels are mostly predicted to be within baseline conditions". While increases resulting from the activity may be within background levels, the effects will be cumulative to background conditions, which raises the possibility for impacts. As such, this statement does not appear to be justified.	thousands of mg/l is negligible (see paragraph 1.207 and 1.208 of WFD - Appendix 16.C)), no impacts are expected. (4) WID is predicted from modelling to result in very localised and temporary elevation of suspended sediment levels above background concentrations in the immediate vicinity of the dredging area (paragraph 11.242), and as such is considered to have a low magnitude of impact/effect. Given the temporary nature and the dispersal conditions, changes in suspended sediments are considered to be too low to cause cumulative effects to benthic receptors.
MMO	The MMO raised concerns	PoTLL agrees that no WID will be undertaken within the exclusion zone, and

Relevant Representation	Comment	PoTLL Response
	about dredging and disposal of sediments from the approach channel where samples showed high levels of contamination. For this, the MMO provided coordinates of an exclusion zone where no WID can be used, and of which sediments should not be disposed at sea. The MMO requests the exclusion zone to be included in the DML.	that material extracted from the exclusion zone will not be disposed at sea. Provisions for this and the exclusion zone will be provided for through the DML. Sheet 3 of the Works Plans will be updated at Deadline 1 to include the exclusion zone coordinates. PoTLL notes that if it wishes to reduce the size of the exclusion zone, further sampling must be undertaken, with the prior approval of a sampling plan by the MMO.
MMO	The MMO raised concerns about underwater noise effects to fish and marine mammals. (1) It was previously raised that the total number of piles to be installed / length of sheet pile wall and the method of installation for each should be clearly provided in the EIA. The MMO could not see where this has been addressed in the ES and could also not [see when the piling works] are expected to take place (specifically what months), this should be provided.	PoTLL responds as follows: (1) The number and diameter of piles (multiple and monopile options) is presented in the 'worst case scenario' section of the ES as part of the *Rochdale Envelope* approach (Table 11.1, pages 11-2,11-3). Indicative length and depths of the sheet pile wall are provided in paragraph 16.122 of the ES. The duration of marine works is anticipated to be approximately three months, but the starting date is still to be determined. Mitigation measures against underwater noise from piling are provided in paragraph 11.132, page 11-75, and are set out in the CEMP (Document Reference 6.9). (2) The ES considered the potential impact to marine invertebrates through the assessment of impacts to plankton (paragraphs 11.325, 11.334,11.339, 11.343), benthic species, and impact to the intertidal and subtidal habitats and communities as a whole (i.e. the habitat of marine invertebrates) (paragraphs 11.155, 11.172, 11.184). Where individual invertebrate species are of exceptional ecological importance, this has been discussed with the

Relevant Representation	Comment	PoTLL Response
	(2) Although the assessment refers to 'fish and shellfish', it appears that the potential impacts on marine invertebrates have not been considered. The MMO would expect conclusions to be drawn from the peer-reviewed literature. (3) In the modelling report, it is presumed that the source levels at 1 m (as shown on Figure 4-1) were calculated using measurements in the far field and back propagating, but this is not clear in the report. (4) Regarding the additional conversion factor used to determine the equivalent SEL for a pile strike, the report should explain this link. (5) The embedded mitigation measures of the JNCC protocol for piling must be followed. (6) Confirm the need for night time pilling.	regulators and assessed in more detail (e.g. restricting WID to ebb tide only is a measure specifically designed to protect the invertebrate tentacled lagoon worm in Swanscombe; paragraph 11.156). (3) The source level at 1 m was back-calculated from far-field measurements undertaken by Subacoustech across a large number of different projects. (4) The statement in the report is possibly misleading (page 11). There was no conversion undertaken between peak SPL and SEL, the conversion is from a measured pile diameter to the proposed pile diameter and as such it is a scaling rather than a conversion. The SEL source level was scaled from measurement data in the same way as the peak SPL source level. In section 4.3 of the report (page 11), the sentence starting: "An additional conversion factor…" can be considered as meaning "The same scaling approach…". (5) The mitigation measures for underwater noise are secured through the CEMP (Document Reference 6.9), and will be able to be followed through to operation through the DML. (6) There will be no night time piling. This is stated in paragraph 11.131 and 11.132 (page 11-74, 11-75), of the ES and is secured through the CEMP. (7) Mitigation measures are stated in paragraph 11.131 and 11.132 (pages 11-74, 11-75) of the ES, and are secured through the CEMP and the operation of the DML. With the implementation of the embedded mitigation, the intermittent and temporary nature of the piling (one spawning season) and a relatively small spatial extent, the magnitude of effect is considered to be negligible (paragraph 11.272).

Relevant Representation	Comment	PoTLL Response
	(7) Underwater construction noise could impact fish receptors.	
MMO	The MMO raised concerns about plankton. (1) MMO has suggested the use of more up to date data for assessing potential impacts to zooplankton and ichthyoplankton. (2) While phytoplankton and zooplankton may have a 'low' sensitivity value, the receptor ichthyoplankton should have a higher sensitivity value than 'low' because of the occurrence of smelt and European eel. (3 Toxic metals can be absorbed by phytoplankton. (4) The report states that plankton in the Thames are resilient to change, and therefore classified as "low" sensitivity. However, no indication is made as to how	PoTLL responds as follows: (1) PoTLL's position, as set out in the ES, is that it is unlikely that the species composition will have changed within the Thames area to such a degree as to render the assessment obsolete. This data is from the EA and is the most up-to-date data available known to the applicant. (2) PoTLL recognises that ichthyoplankton should have the sensitivity value 'medium' as this receptor includes eggs from smelt and European eel which are classed as fish of national importance (Table 11.26 of the ES). However, even with this changed value, it is considered that the residual effects (that is, after applying bespoken mitigation measures) are not expected to be significant. (3) PoTLL has committed to undertake backhoe dredging (rather than WID) in the approach channel where the 2017 sampling found high concentration of metals and not to dispose of these sediments at sea. This will be able to be controlled through the operation of the DML. Furthermore, the contaminants in the sediments to be removed through WID are not considered to present a significant risk to phytoplankton because: WID makes bed sediments travel on a denser layer of water near the bottom of the river, while phytoplankton lives near the surface of the river to use the sunlight; and contaminants are likely to remain bound to the sediment. (4) Plankton is classified as 'low' sensitivity because of its high abundance and resilience, as per Table 11.4 of the ES. The exception is

Relevant Representation	Comment	PoTLL Response
	that conclusion was formed.	ichthyoplankton which has been considered as per point 2 above.
MMO	The MMO has some concerns over the period of time maintenance dredging is to be permitted for. If the maintenance dredging is to be included in the DML then the MMO will have to add an end date to this activity and long term effects must be covered in the ES. However, if the maintenance dredging is to be covered under "Powers to Dredge" under the provision of a Harbour Order contained within the DCO then the Applicant will need a separate licence for disposal unless they choose to also cover this under the DML.	PoTLL considers that maintenance dredging will be covered through the operation of the DML. PoTLL is in discussion with the MMO in relation to the drafting of the DML.
Environment Agency	Require further detail on fish passage measures, the applicant should consider the use of flaps which don't restrict fish and eel passage in the same way as other sluice designs.	Fish passage will be retained under any crossing installed as part of the works. Details will be developed in the detailed design phase and approved by the Environment Agency through the operation of their protective provisions in the DCO (document reference 3.1).
Natural England	Mitigation for timing of the works	PoTLL considers the following measures will mitigate impacts to fish species

Relevant Representation	Comment	PoTLL Response
	to avoid likely fish migration periods should be clarified. We would like to understand what species this mitigation measure is aimed at and whether any additional restrictions are required for migratory smelt.	(including smelt) to an acceptable level: • There will be no water injection dredging during June to August inclusive, to reduce the potential for increases in suspended sediment to reduce water quality issues when water temperatures are higher (summer months) and dissolved oxygen levels and river flows are lower. • To mitigate against underwater noise, soft start will be used for percussive piling; there will be no night time piling; and a daily non-piling window of 14 hours will be applied for the marine works, which is considered more appropriate than seasonal piling restrictions as key internationally designated species (e.g. Atlantic salmon and river lamprey) utilise the Thames Estuary year-round. These measures are secured through the CEMP and the operation of the DML.
Natural England	Regular maintenance dredging will be required at Tilbury 2 and this information should be included into the next revision of the Port of London Authority Maintenance Dredge Baseline Document. Inclusion within this document will ensure that the cumulative impacts from dredging activities are assessed, particular with regards to other large scale dredging operations such as those at London Gateway.	PoTLL considers that in line with the PLA's set of protective provisions, PoTLL will provide the details of the maintenance dredging at Tilbury2 to the PLA, who can then include this information in their next PLA Maintenance Dredge Baseline Document.

Relevant Representation	Comment	PoTLL Response
Purfleet Real Estate (PRE).	PRE does not anticipate that dredging related to the proposals would affect its operations; the Marine Management Organisation and the Port of London Authority should manage that through the negotiation of the respective licences and their inclusion in the Development Consent Order, but these need to be taken into account.	PoTLL considers that cumulative effects of dredging with PRE are addressed in paragraph 11.445 and Table 11.57 (page 11-147) of the ES, and that the dredging at Tilbury2 will be covered by the operation of the DML within the draft DCO (Document Reference 3.1).
Northfleet Tarmac	Tarmac Ltd. asks the developer to consider Tarmac's plans to operate at Northfleet (wharf 42) during the assessment of the Tilbury2 proposal. Tarmac plans to use wharf 42 for: • temporary construction materials logistics facility for the Thames Tideway project; and serve as part of their bulk aggregates import terminal.	PoTLL has considered the development plans of Tarmac at wharf 42, and considers that the cumulative effects with Tilbury2 will be negligible given the operation of the PLA's protective provisions. It is also noted that most works at this location have been completed and do not affect the marine environment.
MMO	The MMO has some concerns about the Construction Method Statement and Operational Management Plan being certified under the DCO, under a normal DML this would be	PoTLL considers that the MMO will be able to approve marine construction methods through the DML that forms part of the draft DCO (Document Reference 3.1). The Construction Environmental Management Plan and the Operational Management Plan are separate documents listing out mitigation measures

Relevant Representation	Comment	PoTLL Response
	required to be submitted prior to commencement of works as detailed by a pre-construction condition. Should the methodology change at any point this document would be resubmitted to the MMO for re-approval. Should the applicant certify the document under the DCO and it requires an amendment it would have to go through as a non-material (or material) change to the Secretary of State rather than the MMO or other statutory bodies which could delay the project.	rather than methodology; and are not documents that the MMO need to approve (as they will be finalised and certified through the DCO).

9.0 RESPONSE TO RELEVANT REPRESENTATIONS: HABITATS REGULATION ASSESSMENT

Relevant Representation	Comment	PoTLL Response
Thurrock Council	The conclusions of the HRA report, that the development will not have any significant likely impacts on features of qualifying interest, is accepted.	Thurrock Council's acceptance of the conclusions of the HRA is acknowledged.
Kent County Council	All necessary mitigation measures outlined in the Habitats Regulation Assessment will need to be incorporated into the masterplan to demonstrate that they are achievable and implementable.	The Habitats Regulation Assessment (HRA) report (Document Reference: 6.2, Appendix 10.O) sets out at section 3.5 that mitigation has been embedded to reduce the spatial influence of effects from noise and vibration, dust and emissions, and ground and surface water pollution via the Construction Environmental Management Plan (CEMP) (document reference 6.9), Operational Management Plan (OMP) (document reference 6.10), Preliminary Lighting Strategy (document reference: 6.2, ES Appendix 9.J) and Drainage Strategy (document reference: 6.2, ES Appendix 16.E). In addition, methods to minimise impacts of dredging will be controlled by the Deemed Marine Licence (DML).
Natural England	Whilst overwintering bird surveys show only relatively low levels of use of intertidal areas within and adjacent to the development, only one year's worth of data has currently been provided. Recommend that the Habitats Regulations Assessment screening is	The ES (document reference 6.1) summarises the results of the monthly wintering bird surveys, carried out between November 2016 - March 2017, and September - October 2017 at Table 10.41 (raw data provided at Appendix 10.I. See also Figure 10.12 'Wintering bird survey compartments (2016-17)' within document reference 6.3). Thus surveys specifically undertaken to inform the ES have taken place over more than one winter. The surveys

	updated to reflect concern on over-wintering birds and that the applicant makes a commitment to maintain annual bird surveys between 01 September to 31 March during the construction and operational phases. Where an impact is noted Natural England should be contacted so that appropriate mitigation measure can be implemented within agreed timeframes.	have continued on a monthly basis since, with the results generated continuing to show a similar picture to the previous (2016/17) survey data, validating the assessment. In addition the assessment has been informed by wintering bird and wader survey data from surveys undertaken (by RPS) between January 2007 - May 2008, and supported by background data from the Essex Field Club and the Kent & Medway BRC (Table 10.39 of the ES), in addition to other sources (listed at Tables 10.37 and 10.38 of the ES). In light of NE's concerns, PoTLL has undertaken additional work to continue to review wintering bird data. The data show broadly consistent results: larger aggregations of waders and wildfowl are recorded outside and to the east of the applicant's survey area, in the vicinity of Coalhouse Point. Details are set out below: • Data from winter 2016/17 is documented in respect of the Goshem's Farm jetty proposals (planning reference: 17/00224/FUL) by Atkins Ltd (March 2017). Qualifying species *"were recorded in low numbers throughout the survey area, with the largest counts being concentrated around Coalhouse Fort"* and this is consistent with PoTLL's findings over the same period. • Analysis of 2014-2017 data provided by Mr Larkin (Essex Birdwatching Society) does indicate that there has been some decline in the numbers of black-tailed godwit, ringed plover, avocet, and possibly lapwing and redshank, since late 2016 for the intertidal area between the London International Cruise Terminal and Coalhouse Point. The

		same pattern was not found for the intertidal areas to the east of Coalhouse Point. The period during which lower numbers were recorded corresponds with the 2016-2017 period during which the applicant and Atkins (see above) undertook survey work of this intertidal stretch and also recorded low counts. As such, whilst PoTLL's findings are validated by these concurrent studies, the results do appear to show that the intertidal area is currently experiencing a period of lower waterbird numbers than the previous baseline. It is conjectured that this is most likely to be due to the recent activities at Goshems Farm. • The RPS data (from 2007/8) indicate that higher numbers of black-tailed godwit used this area over 10 years ago, but in view of the run of data since then showing significantly lower numbers (rarely exceeding 70 individuals), this strongly suggests either that 2007 was an unusual year for that species, or that there was a sudden decline afterwards that has continued. In summary the data from these sources indicates sporadic to occasional use by low numbers of SPA species between London International Cruise Terminal and Coalhouse Point; and significantly higher numbers along the intertidal area within the vicinity of Coalhouse Fort (approximately 3km to the east of the Tilbury2 site boundary). This is fully consistent with the position presented in the ES and upon which the impact assessments in the ES (paragraphs 10.328-10.339) and the associated HRA report (document reference: 6.2, Appendix 10.O) are based. This is set out further in a note at **Appendix 7** to this document, which has been shared with Natural England with the aim of reaching an agreed common position.

10.0 RESPONSE TO RELEVANT REPRESENTATIONS: HEALTH

Relevant Representation	Comment	PoTLL Response
Public Health England	Potential health impacts of electric and magnetic fields associated with the electrical infrastructure of the proposed development need to be assessed.	For the general public in the UK exposure should comply with the European Council (1999) and ICNRIP (1998) (International Commission on Non-Ionizing Radiation Protection) which recommends 'safe' exposure levels for electric and magnetic fields associated with electrical infrastructure. These are guidelines which are not legally binding and apply to areas where members of the public would be considered to spend a significant amount of time. It is expected that there will be two buried 11KV ring mains for RoRo and CMAT along with the associated HV and LV switchgear for RoRo and CMAT connecting to the UKPN facility which will comply with the existing guidelines for public exposure for electric and magnetic fields via compliance with existing standards for electrical infrastructure including overhead power lines, underground power cables and substations. However, it should be noted that it is expected that the proposals will not result in a significant change in overhead powerlines or electrical infrastructure. The proposals will therefore not alter the exposure level for members of the public. PoTLL is continuing discussions with Public Health England on this topic.
Thurrock Council	There are concerns on this issue and would require further discussion or information on the assessed health impact of noise on local residents,	Sensitive receptors, particularly residential occupiers, are located close to the proposed infrastructure corridor and the operational areas of Tilbury2. The ES (Document Reference 6.1, Chapter 8) outlines the methodologies used to assess health impacts, stating that the assessment of health effects comprises a qualitative judgement derived from both qualitative and quantitative data related to health detriments. The health assessment was

Relevant Representation	Comment	PoTLL Response
	which appears to be underestimated in relation to the existing population.	undertaken in accordance with the IMPACT Urban Health Impact Assessment methodology and the Rapid Heath Impact Assessment Tool, and guidance produced by the NHS London Health Urban Development Unit. Engagement with health stakeholder groups in the local area was undertaken to ensure that the assessment addresses health issues and concerns they wanted to see included. Paragraph 8.27 and following sections set out the comprehensive and robust range of information sources that have been used to understand the baseline conditions, including the national and local health policies and statistics, Health Profiles for the Association of Public Health Observatories, the Census 2011 and other Office for National Statistics publications and databases, as well as information from other chapters of the ES. Current air quality levels in Thurrock are reported which uses data from the Public Health Outcomes Framework from 2015. Paragraph 8.62 (the section dealing with Noise and Vibration) sets out and discusses existing conditions at the Tilbury2 local spatial scale (up to 300m of the Site boundary). The assessment makes several cross-references to material contained within Chapter 17 of the ES (Noise). This section sets out how the general approach of the noise assessment was developed and agreed following consultation with Thurrock Borough Council and Gravesham Borough Council at the scoping stage and within the PEIR. Paragraph 17.12 outlines how a baseline survey to establish pre-proposal noise and vibration levels was conducted. As outlined in Table 17.3 (Noise and Vibration – Consultation Reponses), the Thurrock Borough Council Environmental Health Officer (EHO) was consulted regarding the assessment of the baseline conditions and the subsequent assessment methodology, and no specific concerns were raised. A meeting was held with Thurrock Borough Council on 11/05/2017 to discuss and address the approach to the noise assessment including the existing baseline noise conditions. Baseline noise surveys were

Relevant Representation	Comment	PoTLL Response
		undertaken at representative noise sensitive locations in the absence of the power station demolition activities. The assessment concluded, that with mitigation, there would be no significant health impacts arising from noise.
Thurrock Council	Active travel / cycling & walking – further discussion and clarification is required on how it is intended to ensure active and sustainable travel is a priority for employees and visitors to the site. Further discussion and information is required on the mitigation measures which have been assessed to have a positive impact on local resident walking and cycling in the local area including access to the riverfront. This is to ensure all options are fully considered and are appropriately linked into local initiatives, and funding contributions are adequately requested.	Following a series of consultations with Thurrock Borough Council, an Active Travel Study has been developed (Document Reference 5.3, Appendix B), which will be secured under a section 106 agreement with Thurrock Council. In addition, a Framework Travel Plan (Document Reference 6.3, Section 13.B) has also been prepared. This identified opportunities for the effective promotion and delivery of sustainable transport initiatives including walking, cycling and public transport, in connection with the proposal and through this to thereby reduce the demand for travel by less sustainable modes. There will also be new crossings to address the effects of severance impacts associated the infrastructure corridor.
Wendy McDowall	An independent consultant should be involved to give recommendations to PINS	Health impacts, including cumulative impacts, and avoidance and mitigation measures have been comprehensively and robustly assessed and summarised in the Environmental Statement (ES, Document Reference 6.1,

Relevant Representation	Comment	PoTLL Response
	on how best to combat impact on health, surrounding countryside and animal inhabitants.	Chapter 8). The ES has been considered by statutory advisory agencies and will be scrutinised by the Examining Authority in public over the six month examination, who will test and verify that the assessment is sound (i.e. that it uses a coherent and transparent methodology, that the assessment is objective and balanced, and that appropriate mitigation has been identified). PoTLL has sought to discuss Ms McDowall's concerns directly with her.

11.0 RESPONSE TO RELEVANT REPRESENTATIONS: HISTORIC ENVIRONMENT

Relevant Representation	Comment	PoTLL Response
Thurrock Council	In general the scheme is largely acceptable with respect to below ground archaeology though there is a general lack, notably at the northern extent of the site.	PoTLL acknowledges these comments. PoTLL is currently close to agreeing all archaeological matters through the SoCG process with the Principal Historic Environment Consultant at Place Services who advise Thurrock Council. The level of baseline information provided to support the Environmental Statement and supporting Technical Appendix (PoTLL/T2/EX/13) has been considered acceptable by Place Services and the mitigation strategy as presented in paragraphs 12.217-12.222 and Table 12.15 a and b of Chapter 12 of the Environmental Statement and as set out in the Terrestrial WSI (PoTLL/T2/EX/15) has been agreed. PoTLL will explore this comment further through the SoCG process.
Marine Management Organisation	Suggests a requirement that a Written Scheme of Investigations (WSI) be provided in relation to the Order limits seaward of mean low water in accordance with the outline offshore written scheme of archaeological investigation	Paragraph 9 of the Deemed Marine Licence contained in the draft DCO sets out the condition that the authorised development must be carried out in accordance with the Marine WSI (PoTLL/T2/EX/17). Within the WSI there is a mechanism in place by which mitigation is to be agreed prior to construction within the Order Limits. This mechanism includes the preparation of method statements ahead of each phase of work and will cover all the points raised in the MMO's suggested wording of the condition.
Historic England	Judge Tilbury Fort to be of exceptional significance and that the impact of the proposed	NPPF para. 129 requires that opportunities to minimise the potential conflict between the identified significance of heritage assets and the proposals for change are actively identified and implemented. Para. 137 acknowledges

Relevant Representation	Comment	PoTLL Response
	development on its setting would cause severe harm to its significance. Need to consider whether the applicants have done all that is possible in order to minimise this harm, before weighing the public benefits arising from the proposed development against those of conserving and sustaining this designated heritage asset.	that efforts to preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset will be treated favourably. Similarly, paragraph 5.12 of the National Policy Statement for Ports requires that significance is described and clearly understood and that such understanding should be used to avoid or minimise conflict between conservation of the significance and proposals for development. The NPS also requires that the elements of the asset which are preserved or enhanced are treated favourably and that negative effects may be weighed against the wider benefits of the application. PoTLL has prepared a Minimisation Statement (**Appendix 6** to this document) to outline the process of the preparation of the Tilbury2 proposals and to demonstrate how the design of the proposals has sought to minimise potential impacts on the designated and non-designated heritage assets and their settings, resulting in less than substantial harm to the significance of the identified assets. Further illustrative material will be provided at Deadline 1 to supplement this statement and show that the proposals will contribute to preservation of elements of the setting of Tilbury Fort in particular.
Essex County Council Thurrock Council	Object in principle, due to considerable harm caused to the setting of Tilbury Fort a Scheduled Monument of international significance. The effectiveness of proposed mitigation/ enhancement appears limited, further clarity, detail and amendments	The preparation of the proposals is considered to have had minimisation embedded in its process, as set out in the Minimisation Statement (**Appendix 6**). PoTLL's mitigation proposals are considered to be a direct balance for identified impacts and are proportionate to the level of impact on heritage significance. The ES chapter and supporting technical document (Built Heritage

Relevant Representation	Comment	PoTLL Response
	required. Thurrock Council considers that any further impact on the setting of the heritage asset from the proposals is an important relevant consideration. The Council also considers that the extent to which the proposals can contribute to the policy objective of enhancing public access to the Fort and riverside is a relevant consideration. The Historic Environment Team would be unable to support his application. - The proposed mitigation/enhancement measures lack clarity and detail with the overall effectiveness of the proposed mitigation/enhancement appearing limited. - At present the proposal will cause considerable harm to the setting of a Scheduled Monument of international	Assessment Document Reference 6.2.12B) identify that there is a less than substantial level of harm to the identified heritage assets. Mitigation for visual impacts is offered through: • retention of Monterey pines of the west boundary of the application Site; • colour and surface finish of the proposed silo; and • low key lighting to the waterside of the proposal. The DCO application identifies the specific mechanisms by which these mitigations are to be secured including development, and approval of, detailed design proposals with Essex County Council and Thurrock Council, among others. Active mitigation measures include tree-planting proposals in the northern stretch of the site which have been carefully considered to provide visual screening of the proposed transport corridor without over balancing the historic marshland character of the site. This includes a consideration of visual screening with taller planting closer to the noise sources which diminishes in size to lower level scrub which also serves to support habitats A recently approved planted screen at the Stobart Biomass Products site demonstrates the potential effectiveness of such planting to mitigate visual impact (see **Appendix 5** to this document). In this case the approved Stobart scheme will also filter views of the proposed CMAT operations and the general storage area on the Tilbury2 application site. The proposed planted screen zone is deeper than the recently approved arrangement. The Statement of Common Ground has been updated to reflect recent

Relevant Representation	Comment	PoTLL Response
	significance. - The initial Statement of Common Ground was not agreed with further clarity and details required as well as some amendments	discussions with further detail and clarity being prepared for review at Deadline 1.
Gravesham Borough Council	Agrees in general terms with the PoTLL, that the primary impact of the proposal is likely to be the intensification and spread of industrial development on the northern shore. This will not only impact directly on affected heritage assets but also change the context within which they are understood, appreciated and enjoyed during the day and at night.	The impact of the proposals on the identified heritage assets in Gravesham are identified in the ES as being not more than Minor Adverse. PoTLL is developing the Statement of Common Ground with the Council, which will include reference to discussions as to potential enhancements to these heritage assets.

12.0 RESPONSE TO RELEVANT REPRESENTATIONS: LANDSCAPE AND VISUAL IMPACTS

Relevant Representation	Comment	PoTLL Response
Thurrock Council	The LVIA has been carried out using appropriate methodology. There is still concern that there should have been an additional viewpoint from the PRoW south of West Tilbury. There are major concerns over the effects of the scheme on the setting of Tilbury Fort. A key concern is the impact of the extended jetty which will bring the large ships much closer to the SAM. The overall development will be closer to the Fort than the existing power station buildings. The new infrastructure corridor will also have adverse effects introducing more movement	There are no views available from publicly accessible locations within West Tilbury. Consequently, PoTLL has supplied the Examining Authority with a visibility cross-section from the former church (now a private residence) and 'before and after' views from this location, using the LVIA 3D computer model. This is included at **Appendix 4** to this document as additional illustrative material providing more clarity to that already submitted as part of the ES. The Built Heritage Assessment (ES Appendix 12.B) considers that proposed development, incorporating recommended landscape mitigation, will alter the wider setting of Tilbury Fort through an increase in the industrial character and activity within its setting. These effects will however not reflect a fundamental change in the wider industrial context of the future baseline in which the heritage asset will be experienced. The presence of proposed shipping at the RoRo jetty is not considered to be significantly harmful to the setting of Tilbury Fort as the key crossfire sightlines will be retained, as would the visual connection between Tilbury Fort and New Tavern Fort. The proposed infrastructure corridor would result in less than substantial harm to the overall significance of Tilbury Fort, once recommended landscape mitigation measures are taken into account.

Relevant Representation	Comment	PoTLL Response
	and lighting closer to the Fort. The junction with Fort Road will also likely be more visually intrusive. Other specific concerns with regard to - Container Storage: given the amount and height, the proposal will have a significant impact with the effectiveness of mitigation limited. The height, extent and proximity of the storage remain a cause for concern. - Lighting: the use of low level lighting will reduce the visual impact, however, the impact remains significant. - Warehouse: the use of light grey cladding will reduce the visual impact, however, the overall size of the proposal remains a concern. - Aggregates Storage: this area of the site is relatively undeveloped, the proposal will cause harm with potential effectiveness of mitigation limited.	Proposed artificial lighting is likely to have an adverse effect on Tilbury Fort's setting through an increase in industrial character. The Preliminary Lighting Strategy (ES Appendix 9.J) seeks to minimise the number of high level (high mast) light sources apparent in extended views whilst ensuring safe operation of the port facilities. The study concludes that the Site can be illuminated with minimal levels of obtrusive lighting. Lighting studies and assessments will be prepared for the detailed development of each area and phase of the Site. The detailed designs will be controlled by the submission of further details to Thurrock for approval in consultation with Gravesham pursuant to a requirement in the draft DCO (Document Reference 3.1).These studies will need to evidence a scheme in accordance with the parameters established in the Preliminary Lighting Strategy. In summary the Built Heritage Assessment considers that the proposals are likely to have an overall moderate adverse impact upon the setting of Tilbury Fort. The LVIA records the predicted potential effects of the maximum parameters of the container storage, using the largest container type to the maximum stack height. In practice the proposed short dwell time of container storage in this location would make it unlikely that the containers would all be stacked 6 high across the RoRo terminal. The upper levels of a substantive proportion of the containers would be increasingly screened over time by a retained tree screen which is in good condition and which would continue to grow to reach the required height to screen the upper levels of the containers. Furthermore, planning permission (ref 17/00977/FUL dated 29th January 2018) was granted by Thurrock Council for a screen bund and planting (**Appendix 5** to this document) associated with a waste wood processing plant forming part of Marsh Farm Sewage Treatment Plant, Fort Road, Tilbury. The consented bund and planting will add to the screening effects of the retained tree

Relevant Representation	Comment	PoTLL Response
		screen described above. The effect will be most marked from key LVIA viewpoint locations within Tilbury Fort and Tilbury Marshes north of the Fort. In the long term the planting should screen or filter views of much of the proposed CMAT processing and most of the proposed general storage area. It will effectively extend the existing deciduous tree screen within the remainder of the Sewage Treatment Plant. Adoption of the recommended mitigation measures would render the effect acceptable in overall landscape and visual amenity terms.
Thurrock Council, Essex County Council	The overall landscape mitigation package is considered to be very limited and will not achieve any significant benefits. The majority of proposed landscape mitigation fails to adequately address wider significant adverse visual impacts on the setting of Tilbury Fort and wider surrounds including East and West Tilbury. A more robust landscape mitigation scheme could also provide some additional ecological mitigation features. It is considered that there should be more use of offsite planting etc. to achieve wider	Proposed landscape mitigation would prevent substantial adverse effects occurring in respect of landscape character and visual amenity with the majority of effects falling within the moderate-slight range. The mitigation reflects a balance between operational requirement, ecological mitigation and the need to reflect the open character of the Tilbury Marshes where practicable. The landscape strategy (Figure 9.9 Document Reference 6.3.9.9) and Landscape and Ecological Management Plan (Document Reference 6.2.10.P) have been developed in tandem to this end. The ECiA concludes that during operation the magnitude and significance of residual adverse effects will gradually diminish and may lead to an approximate net neutral effect on Local, Regional and National Biodiversity. PoTLL is considering how more detail or illustration of the proposed landscape mitigation could be developed, and will make further submissions on this point at Deadline 1, including potential updates to the LEMP.

Relevant Representation	Comment	PoTLL Response
	landscape mitigation measures. New Road: there is a general lack of detail to accurately assess the effectiveness of the proposed mitigation.	
Kent County Council	Planting plans should comprise 100% native and UK grown trees and shrubs, with the species selection informed by historic biodiversity. Reference should be made to local pollen core data to evidence research into suitable flora species with consideration of the inclusion of species that bring particular environmental benefits, in addition to contributing to landscape and biodiversity.	The detailed landscape planting will be informed by ecological advice on suitable and locally native trees/shrubs, by reference to the biodiversity of coastal floodplain and grazing marsh, and Thames Terrace grasslands.
Thurrock Council Gravesham Council	Silo: the use of a single silo (rather than two shorter) in light grey will potentially reduce the impact. Previous suggestions to locate it away from the shoreline have not been implemented.	The location of any silo provision is determined by vessel pumping constraints which require that the distance between a silo and a ship should be kept to a minimum, as explained in the Masterplanning Statement (Document Reference 6.2.5.A). The detailed design of the surface treatment of any silo will be controlled by the submission of further details to Thurrock for approval in consultation with Gravesham pursuant to a requirement in the draft DCO (Document Reference 3.1).

Relevant Representation	Comment	PoTLL Response
Thurrock Council	Two Forts Way: scope to enhance this route by bringing it within the flood wall and raising it up to gain outward views. .	Improvements to the Two Forts Way and other access routes are currently the subject of discussions between the Port and Thurrock Council and will be secured through a s106 agreement. These improvements are described in the Active Travel Study (Document Reference 5.3 Appendix B). The raising of Two Forts Way is not feasible due to the fact that it would be a significant health and safety risk to the Port. The Active Travel Study indicates that PoTLL will enhance and improve the existing pathway.
Thurrock Council	Downgrading of Fort Road: the effectiveness of this measure relies upon detailing of traffic calming and limiting the size of vehicles utilising the route. This need further more detailed consideration	The connection between Fort Road and the new infrastructure corridor has been designed to enable the creation of a mini roundabout on Fort Road. This along with speed remediation features along the remainder of Fort Road (consistent with the Active Travel Study (Document Reference 5.3 Appendix B)) will ensure Fort Road becomes an access only route, with through traffic to/from the north using the new link road.
Wendy McDowall	Due to Gravesend conservation status, the outlook from Gravesend looking towards Tilbury port on the opposite side of the Thames should be protected. A positive solution is to plant a line of large trees on both the Tilbury and Gravesend side of the Thames.	The scheme allows for the retention of mature Monterrey Pine trees along part of the western boundary of the main site. These will continue to grow and eventually provide a measure of screening to development. There is very little suitable available space along the Tilbury2 river frontage to accommodate trees notwithstanding the tidal conditions. Within the Tilbury2 site there is no space available near the river frontage as this would be occupied by the operational RoRo facility.
Gravesham Council	Lighting strategy doesn't recognise the impact that lighting will have on views from GBC.	The initial lighting strategy has informed the LVIA, including impacts on GBC. Adoption of the recommended mitigation measures would render the effect acceptable in overall landscape and visual amenity terms.

13.0 RESPONSE TO RELEVANT REPRESENTATIONS: NOISE AND VIBRATION

Relevant Representation	Comment	PoTLL Response
Thurrock Council	The assessment uses a standard reporting approach and the methodology employed agreed in advance with this section. There is overall agreement with the assessment, and the EHO is satisfied that it has covered all the relevant noise and vibration impacts both in the construction and operation of the proposed Tilbury2 development, and there is no dispute as to the conclusions. The submitted Operational Management Plan (ref. 6.10) has been reviewed. The applicant may be aware that the Port has been subject to noise complaints from ship generators operating overnight.	PoTLL acknowledges that Thurrock agrees with the noise and vibration assessment methodology undertaken for Tilbury2. PoTLL would note that there has been one recorded complaint in relation to ships generators, which should be seen in the context of 2,500 vessel movements in and out of the port during a normal year.
Gravesham Council	Concerned about the noise impacts arising from 24 hour operations and consider that	PoTLL is currently in discussions with Gravesham Council on PoTLL's requirement to operate Tilbury on a '24/7' basis. A note appended to this document at **Appendix 2** sets out additional explanation and justification for

Relevant Representation	Comment	PoTLL Response
	justification for these hours is needed.	the required 24 hour operation.
Stephen Aldridge	Impact of noise on the southern shore of the Thames will be unacceptable	Chapter 17 (Document Reference 6.1) of the ES assesses noise impacts from the construction and operation of Tilbury2 on noise sensitive receptors in Tilbury and Gravesend. The operational noise assessment has concluded that there will be major impacts during the night time periods on noise sensitive receptors in Gravesend before mitigation is taken into account. The ES chapter therefore proposes mitigation for properties with significant impacts (which includes those in Gravesham) due to noise, in the form of improved sound insulation or glazing, which will reduce the impact.
Gravesham Council	Suggest that further work required on vessel movements and noise in port.	Following discussions with Gravesham Council with regard to vessel noise, additional confirmatory work has been undertaken and a technical note detailing the findings is appended to this document at **Appendix 3**. The technical note has been shared with Gravesham Council.
Thurrock Council	Mitigation measures include noise insulation to homes: not defined who would become eligible / receive an assessment and the geographical boundaries of this – more information is required on this and how this will be funded.	As is set out in the draft DCO (Document Reference 3.1), Thurrock Council will approve the details of receptor-based mitigation upon the noise re-assessment being undertaken prior to opening of Tilbury2.
Colin Elliott	Queries whether noise control measures ensure that health problems are not made worse.	Noise barriers are to be installed (as secured through the draft DCO), to reduce noise from the Infrastructure Corridor and the DCO also secures mitigation for properties with significant impacts due to noise in the form of improved sound insulation or glazing, as well as management measures through the Operational Management Plan (Document Reference 6.10). These noise control measures will ensure that there are no major adverse impacts on noise sensitive receptors, as is concluded in Chapter 17 of the ES

Relevant Representation	Comment	PoTLL Response
		(Document Reference 6.1).

14.0 RESPONSE TO RELEVANT REPRESENTATIONS: SOCIO-ECONOMIC IMPACTS

Relevant Representation	Comment	PoTLL Response
Essex County Council	Clarification required on how the benefits and use of the local supply chain and economy would be realised.	The socio-economic assessment for Tilbury2 in the ES (Document Reference 6.1, Chapter 7) has considered construction and supply chain opportunities. As stated in Paragraph 7.111, these have been included within the employment estimates. The Skills and Employment Strategy (Document Reference 5.3 Appendix A) further details best practice approaches to secure local advertisement of employment and tendering opportunities. This will be secured through a section 106 agreement with Thurrock Council (draft Heads of Terms of which are set out at document reference 5.3), and includes details on the mechanisms PoTLL will use to support local employment, outreach and inclusion.
Thurrock Council	The Core Strategy (paragraph 3.8) notes that the most deprived wards in Thurrock include Tilbury St. Chad's, adjacent to the Order Limits. The non-statutory Tilbury Development Framework (October 2017) also notes the high incidence of adults in Tilbury with no educational qualifications. The impact of and opportunities / benefits arising from the proposals during construction and operation	The socio-economic assessment for Tilbury2 in the ES (Document Reference 6.1, Chapter 7) has considered low-income groups and deprivation as part of the baseline assessment of the study area (Paragraphs 7.55). Similarly the assessment of potential impacts has considered opportunities the proposals may have effect on the levels of deprivation, and social grade classifications (Paragraph 7.91). The assessment identified that the proposal may see some people move from social grades DE to C2 through additional skilled employment provided by the proposal. These employment opportunities may have marginal effects on certain deprivation measures, such as access to employment, education, skills and training.

Relevant Representation	Comment	PoTLL Response
	are therefore an issue for consideration.	The Skills and Employment Strategy (Document Reference 5.3 Appendix A) identifies opportunities for skills, training and apprenticeships associated with the Tilbury2 proposals. Section 2.5 of the Skills and Employment Strategy (Document Reference 5.3 Appendix B) details PoTLL's past initiatives and local engagement which have focused on increasing the chances of the local population to reach direct employment opportunities at the Port. The SES sets out PoTLL's strategy to build upon successful past achievements and follow a similar direction. PoTLL is dedicated to maintain a similar positive level of impact as the Port expands, while targeting specific groups. Consideration for both the construction and operational impacts upon low-income communities has been assessed in further detail as part of the Equalities Impact Assessment (Document Reference 6.6). Although low-income groups are not identified within the 'Protected Characteristics' under the Equality Act (2010), they have been included as part of the EqIA because they are considered relevant to development proposals within the context of Tilbury.
Thurrock	The skills and employment strategy should match the needs of the local population.	The Skills and Employment Strategy (Document Reference 5.3 Appendix A) identifies opportunities for skills, training and apprenticeships associated with the Tilbury2 proposals. Section 2.5 of the Skills and Employment Strategy details PoTLL's past initiatives and local engagement which have focused on increasing the chances of the local population to reach direct employment opportunities at the Port. The SES sets out PoTLL's strategy to build upon successful past achievements and follow a similar

Relevant Representation	Comment	PoTLL Response
		direction. PoTLL is dedicated to maintain a similar positive level of impact as the Port expands, while targeting specific groups.
PLA	The level of impact on existing river users is a concern. This will have a significant effect on the experience of visitors to the Fort.	The socio-economic assessment for Tilbury2 in the ES (Document Reference 6.1, Chapter 7) has considered the impact of proposals on both river uses and the Fort. In line with the Landscape and Visual Amenity chapter, Paragraph 7.96 of the socio-economic assessment states that the riverside supports recreational activity associated with the River Thames. There are a number of predicted indirect amenity effects for these types of receptors, but there are also predicted socio-economic effects. Paragraph 7.97 considers the impacts of the proposals on Gravesend Sailing Club. Consultation with the Club identified the receptor as sensitive to increased movement of ships on the river Thames, which will be an effect of the proposals' operation phase. Specifically, more shipping movements could restrict racing events at the Club, which could impact on membership and the viability of the Club itself. It was recognised that these impacts may be marginal, and that increased economic activity in the area as a result of the proposal would be desired by the Club also. The effect of the proposal on Gravesend Sailing Club has been assessed in the ES as being Indirect, Negative, Permanent, and Minor. Paragraph 7.99 considers the impacts of the proposals on Gravesend Rowing Club. Like Gravesend Sailing Club, this receptor is sensitive to increased shipping movements as a result of the proposals' operation phase. Consultation with Gravesend Rowing Club identified the receptor as sensitive to increased turning of shipping traffic, which may create more 'wash', which

Relevant Representation	Comment	PoTLL Response
		prevents rowing activity. The effect of the proposals on Gravesend Rowing Club has been assessed in the ES as being Indirect, Negative, Permanent, and Minor. Paragraph 7.101 considers the impact of proposals on the Tilbury Fort as part of the assessment. Whilst the receptor has been considered as part of the LVIA and Cultural Heritage chapters, it is also considered as a business in this socio-economic assessment, with the potential to be affected by indirect amenity impacts. It should be noted that the receptor is already affected by amenity impacts from existing and longstanding operation of the Port of Tilbury. The LVIA and Cultural Heritage chapters have stated at this stage that this receptor is expected to be affected indirectly from amenity and cultural heritage impacts. Access to the fort for both staff and visitors is not expected to be affected by the proposals. The effect of the proposals on Tilbury Fort has been assessed in the ES as being Indirect, Negative, Permanent, but Negligible. Table 7.22 identifies a range of potential socio-economic mitigation measures that have been identified. They predominantly represent a 'good neighbour' approach POTLL proposed to take to mitigate effects. These were identified during consultation with specific receptors. These include the retention of a strip of vegetation across the western site boundary reducing potential residual visual effects of the proposals on nearby receptors to the west including Tilbury Fort and the development of an Operational Community Engagement Plan which identifies the rowing and sailing club as specified parties (Document Reference 5.4).

Relevant Representation	Comment	PoTLL Response
Thurrock Council	Ships moored at the jetty will have a negative effect on visitor experience at the Fort.	The socio-economic assessment for Tilbury2 in the ES (Document Reference 6.1, Chapter 7) has considered the impact of proposals on the Tilbury Fort. Paragraph 7.101 considers the impact of proposals on the Tilbury Fort as part of the assessment. Whilst the receptor has been considered as part of the LVIA and Cultural Heritage chapters, it is also considered as a business in this socio-economic assessment, with the potential to be affected by indirect amenity impacts. It should be noted that the receptor is already affected by amenity impacts from existing and longstanding operation of the Port of Tilbury. The LVIA and Cultural Heritage chapters have stated at this stage that this receptor is expected to be affected indirectly from amenity and cultural heritage impacts. Access to the fort for both staff and visitors is not expected to be affected by the proposals. The effect of the proposals on Tilbury Fort was therefore assessed in the ES as being Indirect, Negative, Permanent, but Negligible.
English Heritage	The proposals will negatively impact the commercial operation of Tilbury Fort.	As described above, the ES assessed the socio-economic impact on the Fort as Indirect, Negative, Permanent, but Negligible.

15.0 RESPONSE TO RELEVANT REPRESENTATIONS: TRANSPORTATION AND TRAFFIC

<table>
<tr><th>Relevant Representation</th><th>Comment</th><th>PoTLL Response</th></tr>
<tr><td>Highways England</td><td>Indicate that they did not see the Transport Assessment or drafts of it until it was submitted as part of the application.</td><td>The Transport Assessment (TA) (Document Reference 6.2.13A) was the culmination of a series of Technical Notes issued to the highway authorities during discussions in 2017. The Technical Notes (TN) followed on from a Scoping Note which was agreed with the highway authorities. Details of the submitted TNs are set out in the SoCG with Highways England (HE) (Document Reference SoCG009 paragraph 2.1).
The relevant Technical Note referred to in the SoCG for each of the sections of the TA is summarised below:

<table>
<tr><td>TA Section</td><td>TN</td></tr>
<tr><td>1. Introduction</td><td>No associated TN</td></tr>
<tr><td>2. Transport Policy Review</td><td>TA Scoping Note (TA Appendix A)</td></tr>
<tr><td>3. Existing Transport Conditions</td><td>3.1 - 3.6: Expansion of summary in TA Scoping Note and content of draft ES sent to HE
3.7-3.8: Baseline Traffic Conditions and Modelling TN
3.9 Analysis of accident data in accordance with requirements of TA Scoping Note</td></tr>
<tr><td>4. Development Proposal</td><td>Expansion of description in TA Scoping Note and PEIR</td></tr>
<tr><td>5. Promoting Sustainable Transport</td><td>Expands on TA Scoping Note Includes summary of Framework Travel Plan (Document Reference</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Relevant Representation</th><th>Comment</th><th>PoTLL Response</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td>6.2.13B) seen by HE References Sustainable Distribution Plan (Document Reference 6.2.13C) incorporating HE comments</td></tr>
<tr><td>6. Traffic Impact Methodology</td><td>6.3-6.4: Baseline Traffic Conditions and Modelling TN
6.5-6.9: TA Scoping Note
6.10-6.11: Development Traffic Profiles TN</td></tr>
<tr><td>7. Traffic Impact Assessment</td><td>Baseline Traffic Conditions & Modelling TN
Baseline Traffic Conditions & Modelling Addendum TN
Development Scenario TN
Updated ASDA modelling Analysis TN</td></tr>
<tr><td>8. Construction Traffic</td><td>Summary of CTMP (Document Reference 6.9 Appendix 1)</td></tr>
<tr><td>9. Environmental Assessment</td><td>Reflects Landside ES chapter which HE reviewed</td></tr>
<tr><td>10. Summary and Conclusion</td><td>No previously submitted documents.</td></tr>
</table>
</td></tr>
<tr><td>Thurrock Council</td><td>Disagreement with some of the assumptions and opinions within the submitted Transport Assessment.</td><td>As noted above the TA was a culmination of a series of documents previously submitted to Thurrock Council. There is no record of any disagreement of the assumptions in the TNs which were carried through to the TA.</td></tr>
</table>

Relevant Representation	Comment	PoTLL Response
		PoTLL has been in regular dialogue with Thurrock Council. Since receipt of Thurrock Council's relevant representation, PoTLL has requested clarification of their disagreement with the TA.
Essex County Council Purfleet Real Estate Ltd, Northfleet and Tarmac Ltd	Outstanding concern regarding impacts on M25 J30. Concerned to ensure that proposals do not impede the function of the strategic routes - A13 and the M25 including J30 of the M25 during construction or operational phases.	The TA includes assessment of the impact at M25 J30 and this was covered in a TN previously submitted to ECC. However, it is noted that M25 J30 is the responsibility of HE, rather than ECC and PoTLL is in direct discussions with HE regarding the impact of Tilbury2 on this junction. Following discussions with Essex County Council after the submission of the representation, it has now confirmed that, as is reflected in their Statement of Common Ground, it has no concern regarding the impact on J30, and that this is in any event part of the Strategic Road Network, managed by Highways England.
Kent County Council	Competition with other ports within Kent could lead to beneficial impacts on Kent's road network	PoTLL acknowledges this comment, however notes that the TA does not include assessment of the Kent highway network.
Highways England	No Walking, Cycling and Horse Riding Assessment (HD42/17) has been carried out for ASDA roundabout. HD 42/17 requires consultation with stakeholders and it is unclear whether these consultations have taken place.	A formal Walking, Cycling and Horse-Riding Assessment (in accordance with Review and Advice Document HD42/17) was not included in the submission. However, the majority of the information required for such an assessment is included in the TA (Section 1.2, 2, 3.2, 3.3, 3.4, 3.9 and 6.4) and the Landside Transport Chapter of the ES (13.63 – 13.66). This information is being extracted into a standard format for discussion with HE. In respect of Walking, Cycling and Horse-Riding Assessment the principal stakeholders are the relevant highway authorities, which are Highways England and Thurrock Council. As noted in Section 1.2 of the TA extensive consultation has taken place, and is ongoing, with these key stakeholders.

Relevant Representation	Comment	PoTLL Response
		In addition 'stakeholder consultation' with Essex Bridleway Association and Sustrans has been undertaken by PoTLL and will be further explained in the Walking, Cycling and Horse-Riding Assessment standard format report.
Thurrock Council	Outstanding queries regarding Asda mitigation proposals	PoTLL has been in regular dialogue with Thurrock Council in relation to the ASDA roundabout and so has requested clarification of outstanding queries, with the aim of agreeing all matters.
Highways England	The applicant should justify the absence of proposed mitigation works at locations other than the ASDA roundabout, namely A1089/A126 (Marshfoot Road junction), A1089/A13 merge and M25 junction 30.	Mitigation measures are proposed at the ASDA roundabout as set out in the TA. Discussions are continuing with HE to agree the details of this mitigation. HE has agreed that, having reviewed the TA, mitigation is not necessary at the A1089/A126 and A1089/A13 merge/diverges, and this will be recorded in the SoCG with HE. Discussions are continuing with HE with regard to the impacts of Tilbury2 on M25 J30. The TA demonstrates that the development would result in small increases in traffic which would not have a measurable effect on the operation of the junction. HE have already confirmed that the impact on A1089/A13 interchange is acceptable as fewer vehicles would route through the M25 J30.
Essex County Council	Clarification, information and mitigation required concerning sustainable travel modes and provision of public transport to coincide with shift patterns.	A draft of the FTP was issued to ECC by PoTLL on 30 August 2018. No comments were received. Following submission of the DCO application, a meeting was held between ECC and PoTLL on 8 December 2017 in which a complete review of the FTP was agreed to be undertaken by ECC. Since publication of ECC's relevant representations, PoTLL has requested

Relevant Representation	Comment	PoTLL Response
		details of what clarification is required from ECC.
Essex County Council Kent County Council London Gateway Port	Clarification required on the cumulative impacts on the rail network, passenger and freight capacity, connectivity and network resilience between Essex and London and whether the Tilbury 2 predicted rail movements will constrain rail movements from other committed development along the Essex Thameside Corridor Seek reconsideration by Network Rail (and PoTLL) on the timing and priority of relevant enhancements in the 2017 Freight Network Study. There is a need to consider the capability of the regional/national rail network to provide the necessary train paths through London taking into account full development of London Gateway which is predicted to transport approximately 1.15 million containers (twenty foot equivalent) by rail per annum. Need in articular to consider the	Network Rail (NR) has confirmed there is sufficient capacity on "the Essex Thameside corridor and beyond across London" (NR letter to P Ward dated 23 May 2017 – **Appendix 1** to this document) to accommodate additional rail freight movement from Tilbury2 and cater for other demands along the Essex Thameside corridor. There are in excess of 50 rail freight paths available. Tilbury2 would generate up to 5 freight trains per day. It should be noted that Tilbury2 would use an existing connection to the rail network which currently has freight paths reserved for 3 trains per day, with only two trains per day in regular use. The 2017 Freight Network Study published by NR looks at the requirements of the rail network over the next 30 years. The timing of identified enhancements is a matter for NR. PoTLL is in discussions with DP World London Gateway as to appropriate coordination in relation to the on-going development of the rail freight network.

Relevant Representation	Comment	PoTLL Response
	impact on crossing East Coast and West Coast mainlines and capacity more generally in North London.	
Kent County Council	Consideration should be given to lorry parking provision as part of the application due to an existing shortfall of designated lorry parks in both Kent and Thurrock which leads to issues of road safety, damage to roads/verges and litter/human waste which can cause issues when close to residential areas.	The Tilbury2 proposals include sufficient areas within its boundary to accommodate parking of all vehicles associated with its operation as illustrated on the general arrangement plans (Document Reference 2.2). Existing issues with the road network are the responsibility of the highway authorities.
Royal Mail	The proposals should not have an adverse impact on Royal Mail's sorting or delivery operation during construction or operation, noting the three operational facilities within 12 miles of the Tilbury2 site. Wishes to be listed as a specific consultee on the CEMP.	The impact of the proposed construction and operation on the road network have been assessed in the TA, which demonstrates that with suitable mitigation the Tilbury2 development would not adversely impact the operation of the road network. Paragraph 2.7 of the CEMP (Document Reference 6.9) identifies Royal Mail as an identified party for ongoing community engagement.
Purfleet Real Estate Ltd, Northfleet and Tarmac Ltd	Requests that the effects of any new development in the area allows the continued efficient and effective operation of its terminals, in relation to road	The Tilbury2 development proposals would not have any measurable effect upon the road access to the Purfleet Terminals. The scope of the TA agreed with the highway authorities extends as far as J30 of the M25, beyond which it is agreed that the impact of development traffic from Tilbury2 would represent a small proportion of existing traffic movements,

Relevant Representation	Comment	PoTLL Response
	access. .	which would have no measurable impact on the operation of the wider road network.
Colin Elliott	Ferry Road should be upgraded rather than the new road being constructed. Concerned that once LTC Tilbury road arrives, the new link road will not be used and will attract joy riders.	The Surface Options Access Report (Document Reference 6.25A Appendix 1) sets out the appraisal of the existing Fort Road. The current alignment of Fort Road is sub-standard and therefore a revised alignment is necessary to accommodate access for Tilbury2. It is anticipated that any new road constructed for LTC that would link to Tilbury, would link into the infrastructure corridor, meaning that the new road will continue to be used. This will be a matter for assessment, design and mitigation by the emerging LTC project.
Colin Elliott	Impact on the road network and associated environmental issues of incident at Tilbury2 and potential queuing on link road and elsewhere.	At the existing Port of Tilbury, PoTLL has contingency plans and liaises with the highway authorities and emergency services on a regular basis to minimise disruption of such incidents. This would continue at Tilbury2.
Essex Bridleway Association Thurrock Local Access Forum	Improvements could be made to the bridleway network. Tilbury Fort to Coalhouse Fort could be upgraded to a multi-user link linking in with an existing Bridleway at Coalhouse Point and Coalhouse Fort. A safe crossing over or under the new access road and rail link should be incorporated into the plans.	The suggestion that footpaths be upgraded to bridleways was considered by PoTLL as part of scheme development, but was considered to raise practical difficulties regarding access for horses, appropriate surfacing and control of unlawful access by other uses such as motorcycles and fly-grazing within the surroundings of an operational port, and so was not taken forward. A pedestrian and cycle (“Toucan”) crossing is proposed as part of the Active Travel Strategy proposed to be secured through a section 106 agreement with Thurrock Council, (Document Reference 5.3 Appendix 2) which will enhance the access from the Hairpin Bridge to the Cruise Terminal and Ferry.

16.0 RESPONSE TO RELEVANT REPRESENTATIONS: WATER QUALITY, FLOOD RISK AND WATER FRAMEWORK DIRECTIVE (WFD)

Relevant Representation	Comment	PoTLL Response
Environment Agency	The applicant should provide cross sections of watercourses to demonstrate that the biodiversity function of ditches is maximised.	Indicative cross-sections of proposed watercourses will be provided to ensure the Environment Agency is happy with the proposed approach. These would be developed in the detailed design phase and approved by the EA through their protective provisions in the DCO.
Environment Agency	The construction of the development and dredging works will need to demonstrate compliance with the Water Framework Directive (WFD). Priority and priority hazardous (WFD) substances are not set down in scoping or impact assessment matrices and appear to be missed off the initial scoping assessment.	PoTLL considers that a specific assessment of priority substances and priority hazardous substances (WFD) was not included in the scoping or impact assessment since the scheme does not include the release of chemicals and a mixing zone like a discharge pipeline or industrial outfall[10][11]. To mitigate against potential impacts to water quality, Tilbury2 commits: • not to undertake water injection dredging (WID) in the approach channel (where highest contamination levels were identified); • not to dispose at sea the material dredged from the approach channel until further sampling is undertaken; • not to undertake WID in the summer months when dissolved oxygen and water flows are lower; and

[10] https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters
[11] https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit

Relevant Representation	Comment	PoTLL Response
		• to undertake ongoing chemical analysis of the Tilbury2 dredge sediments to ensure that levels of contamination within the sediment (that could be released into the water column through dredging) are within acceptable limits.
Environment Agency	A WFD assessment for the maintenance dredge will be a separate requirement. The exact dredge methodology will need to be stated and this may affect the levels of risk. It would be appropriate for the Port to provide an updated WFD assessment once dredge methodologies and timings are decided. We would want to review and agree capital and maintenance dredge methodologies	The DML included with the draft DCO (Document Reference 3.1) includes a provision requiring the MMO to consult with the EA for approving method statements for capital and maintenance dredging.
Environment Agency	In the event that there remains uncertainty over the risks to water quality whilst undertaking dispersive dredge techniques, we would recommend some additional water sampling for WFD pollutants, to provide confidence of no deterioration, and this could be developed in conjunction with our national	PoTLL commits to undertake ongoing chemical analysis of the Tilbury2 dredge sediments to ensure that levels of contamination within the sediment (that could be released into the water column through dredging) are within acceptable limits. This commitment will be secured through the operation of the DML contained in the draft DCO (Document Reference 3.1).

Relevant Representation	Comment	PoTLL Response
	Estuarine and Coastal Monitoring and Assessment Service (ECMAS),	
Environment Agency	The Agency made a number of comments in relation to PoTLL's Level 3 FRA. These can be summarised as follows: • That the Level 3 FRA does not comply with guidance, but recognised further discussions are on-going and that MoU on these issues to be agreed. • Disagree with some of the flood and breach modelling methodology. • Consider off-site flood modelling not an appropriate approach. • Specific information needed on both on site off-site field flood levels and flood depths – precise increases rather than depth bands needed. • Not clear whether existing embankments for the nearby FSAs have been taken into account.	Since the submission of the DCO, these matters have been discussed between the EA and the Port of Tilbury, with a view to addressing the issues we have raised and working towards a memorandum of understanding regarding flood risk. All changes in flood level will be shown on the revised figures that will form an addendum to the FRA (as opposed to discounting levels where the change in level was <150mm). Specific flood depths will also be included in this addendum. Updated River Thames tide levels have been received from the EA and also topographical data for the flood storage areas. Updated levels and the new EA breach modelling guidance will be reviewed & compared in relation to the levels used in the existing breach model. If the updated levels are found to be higher the model will be revised accordingly. The outputs will be shown on the figures that will form part of the addendum to the FRA. Further explanation will be detailed in the FRA addendum confirming that Tilbury2 will not contain 'Safety Critical Infrastructure' and therefore it is not necessary to apply the NPSP H++ climate change guidance to Tilbury2. This addendum will be submitted during the course of the Examination.

Relevant Representation	Comment	PoTLL Response
	• Need to be clear that most up to date modelling for Thames and climate change allowances have been used; including explaining why H++ climate change guidance is not necessary.	
Environment Agency	• Expressed need for finished floor levels. • A Flood Emergency/Evacuation Plan has not been provided, and nor have any details of the location or provision of the refuge	It is not possible to provide definitive finished floor levels or a final Flood Emergency Plan given the stage of the development proposals but the FRA addendum will detail the principles of Flood Risk Management to be incorporated on the site. It is also noted that the draft DCO (Document Reference 3.1) contains a requirement on PoTLL to comply with the Flood Risk Assessments submitted with the application, which include a requirement to complete a Flood Emergency Plan.
Environment Agency	Culverts need to be fully represented in modelling to allow for full assessment of impacts of corridor and proper breach modelling. Request cross sections of culverts – particularly to show where water will flow if capacity is exceeded or it is blocked. If cannot show that proposed	All culverts will be updated in the breach model with outputs shown on the figures that will form an addendum to the FRA. It is agreed that the crossing of watercourses by the infrastructure corridor is generally accepted and that this will be done through box culverts where possible. There should be no reduction in the size of the culverts (compared to existing) to ensure that the capacity to carry peak flow is maintained and where possible enhanced. Details of the proposed culverts will be shared with the EA once they have been developed.

Relevant Representation	Comment	PoTLL Response
	culverts would not increase risk of flooding, will need to undertake modelling so that 1% annual probability flood flows (including 35% climate change allowances) are determined and the culverts are sized to contain the required flows as stated in the FRA. •	Final details of such culverts will be approved by the EA pursuant to their protective provisions within the draft DCO (Document Reference 3.1).
Environment Agency	East Tilbury Dock Sewer does not have the adequate conveyance required to accommodate additional flow due to bed level irregularities. The retaining wall, where the road corridor meets the existing road infrastructure at the western extent of the site boundary will need to be repaired/refurbished/replaced in order to permit the required highway works for the development, If it not improved then it may not be able to adequately accommodate the proposed surface water flows from the road drainage corridor. Works	The infrastructure corridor proposals involve the removal of the existing road at this location and the creation of a new road in a new position. It is considered that there will only be a marginal increase in surface water run-off to this ditch. However, any potential impact on the retaining wall will be assessed during detailed design and agreed with the EA in accordance with their protective provisions contained within the draft DCO (Document Reference 3.1).

Relevant Representation	Comment	PoTLL Response
	to the sewer will need to be included within the permit applications for the works to the main rivers.	
Environment Agency	Require detailed plans of the interaction between the link span bridge and flood defences. The defences will need to be raised to a future height of 8MAOD. Until the detailed plans are received the EA are unable to comment on their suitability.	Detailed plans of the interaction between the approach bridge and the flood defences, and how they facilitate future raising will be discussed and agreed during detailed design phase in accordance with the Agency's protective provisions within the draft DCO (Document Reference 3.1).
Environment Agency	Need to demonstrate how protection will be maintained for the site and show how access will be maintained to allow us to carry out maintenance.	Impact on the existing flood defence, including access provision, will be dealt with at the detailed design stage in accordance with the Agency's protective provisions within the draft DCO (Document Reference 3.1).
Environment Agency Essex County Council	The applicant must ensure they are always discharging clean, uncontaminated surface water. Discharged water should not lead to a deterioration in the water quality of receiving water bodies and rivers. A fuelling facility is referred to in page 35 of the Drainage Strategy. Any fuel storage will need to be constructed and maintained in accordance with the Control of	Water Quality enhancements have been provided as documented in the drainage strategy and have been maximised as far as reasonably practicable, throughout the project. There are significant restraints on the RoRo pavement (as discussed in the Drainage Strategy (Document Reference 6.2.16.E)), and a zoned approach has been proposed with oil interceptors and pollution control valves, to treat hydrocarbons and to control accidental pollution releases. Any fuel storage would be constructed and maintained in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001.

Relevant Representation	Comment	PoTLL Response
	Pollution (Oil Storage) (England) Regulations 2001.	
Environment Agency	The Drainage Strategy also states that a new foul pumping station will be constructed. It could be sized to accommodate waste water flow from the new power station or provide ability to increase capacity at a later date and discussions should be held with RWE.	The waste water flow from the pumping station will be discussed with Anglian Water, pursuant to their protective provisions within the draft DCO. PoTLL is also in discussions with RWE about the interaction of Tilbury2 and the proposed Tilbury Energy Centre, and these will be taken into account in its discussions with Anglian Water.
Environment Agency	The permeable pavements should be used as attenuation storage and treatment, and have their bases lined where there may be an unacceptable impact to water quality via leaching of contaminants. Permeable pavements are acceptable for some forms of drainage but where pollution incidents may occur, they may be inappropriate due to not being able to isolate any pollution.	The detailed design of the permeable pavements will take into consideration the type of items likely to be stored and will assess any pollution risk. Permeable pavements are proposed to be used for attenuation and lined (unless it is found that there is no pollution risk in the detailed design), as set out in the Drainage Strategy.
Environment Agency	More detail is needed on the design of green roofs to show the impact these would have on the overall drainage at the site	Green roofs will be designed in accordance with CIRIA C753 ('The SuDS manual'), as required for all drainage measures under the Drainage Strategy, and will enhance the run-off quality from the roof and provide interception benefits.
Essex County	Additional information and	Flows could be discharged to the existing watercourses at rates higher

Relevant Representation	Comment	PoTLL Response
Council	clarification required concerning discharge rates for the northern area of the site and access road	than greenfield peak flows only if it could be demonstrated that there was no increased flood risk. Presently the design concept presented in the Drainage Strategy (of which compliance is required under the draft DCO (Document Reference 3.1)) is to reduce flows to Q1 greenfield run-off limits, from the northern areas.

17.0 RESPONSE TO RELEVANT REPRESENTATIONS: EQIA

Relevant Representation	Comment	PoTLL Response
Thurrock Council	Connectivity: whilst the proposal will retain connectivity with housing to the north, the quality of experience along this route is a cause for concern. A poorly considered scheme will not be an enhancement and may also lead to anti-social behave and increase in fly-tipping etc. Interpretation: the proposed installation of way-finding / interpretation has not been considered with sufficient care and attention, the quality of this enhancement may be negligible.	The Equalities Impact Assessment for Tilbury2 (Document Reference 6.6) has considered the likely impacts of the Tilbury2 proposals on active travel, and access to services, including on the quality of walking and cycling infrastructure. Paragraph 8.7 states that additional EqIA mitigation measures to ensure inclusive design and safe access around the new walking and cycling infrastructure will be developed in line with the Active Transport Study (secured through the proposed section 106 agreement with Thurrock Council - relevant Document Reference 5.3 Appendix B). These include increasing levels of walking and cycling through accessible infrastructure, filling 'gaps' in the existing network, speed limit alterations, improving route legibility and general infrastructure maintenance and improvements.

18.0 RESPONSE TO RELEVANT REPRESENTATIONS: OTHER COMMENTS ON THE ES

Relevant Representation	Comment	PoTLL Response
Public Health England	De-commissioning should be taken into consideration	As set out in the Environmental Statement (Document reference 6.1, paras. 2.25 - 2.27) PoTLL has not assessed decommissioning and does not consider this is necessary or appropriate. The proposals are unlike other infrastructure proposals such as power generating facilities where a reasonable estimate of design life can be established. Ports do not have a finite life. The existing Port of Tilbury has been in existence for 130 years, and there are no plans for it to be decommissioned whilst it remains a going concern. It is PoTLL's intention that this would also be the case for Tilbury2 once it is operational. Indeed, whilst changes to the facilities provided at the site (such as modification to the jetty) could in the long term be required in response to matters such as technological change, as with the existing Port, a scenario where the entire site is decommissioned is considered highly unlikely. Furthermore, because of the expected perpetual life of the Port, the choices that are made as to the design and use of materials in the construction of the new Port facilities that make up the proposals would not need to consider later decommissioning, and the environmental considerations that flow from that process, as it would not be expected that they would be decommissioned. Moreover, decommissioning itself would likely fall under a formal process that would require Environmental Impact Assessment (EIA) in its own right given the likely scale of decommissioning works; the assessment of effects would therefore take place at that time, were this ever to arise.

APPENDIX 1 NETWORK RAIL LETTER TO PETER WARD

PORT OF TILBURY LONDON

PLANNING ACT 2008
THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010
DEVELOPMENT CONSENT ORDER APPLICATION

PROPOSED PORT TERMINAL AT
FORMER TILBURY POWER STATION

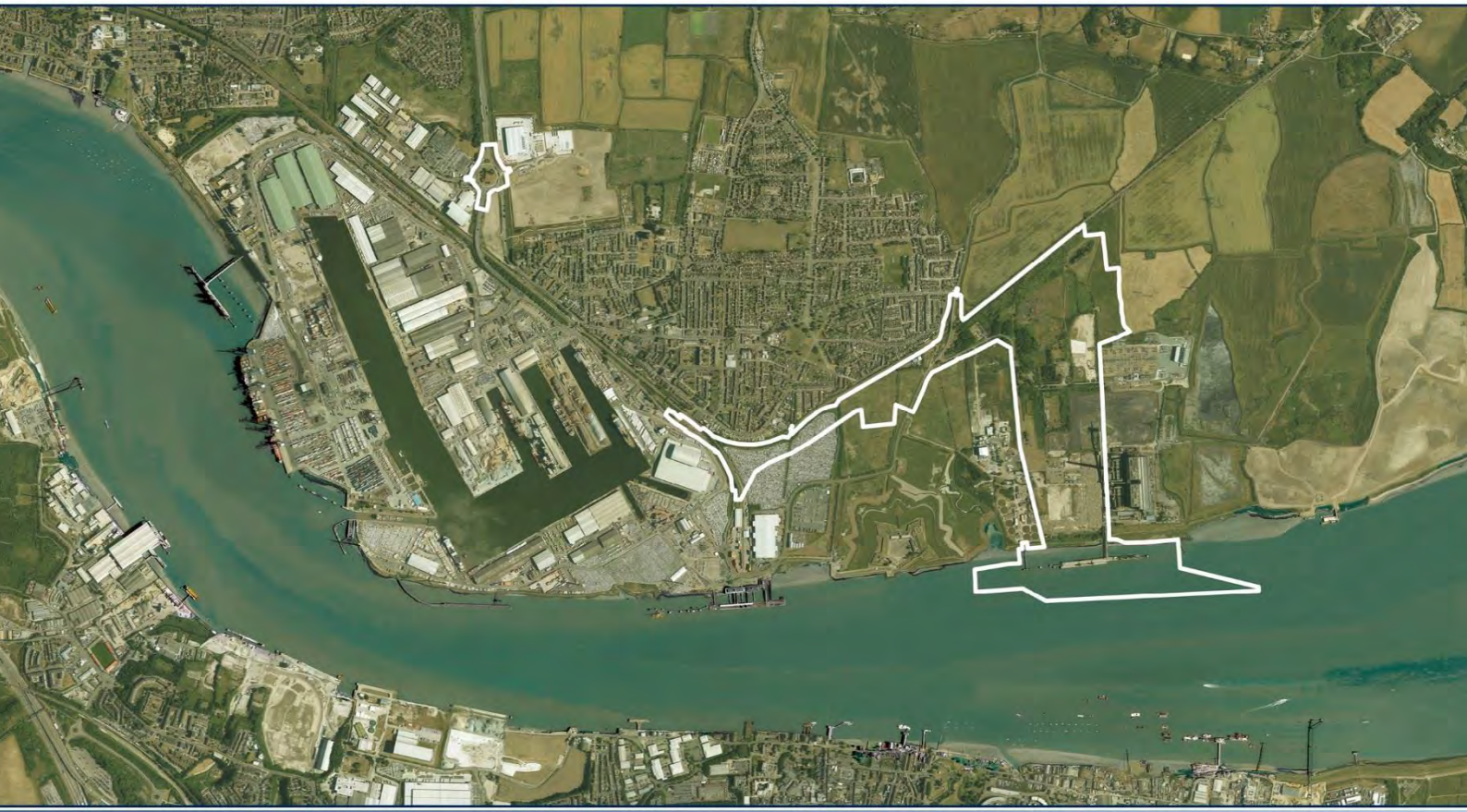
TILBURY2

TR030003

Response to Relevant Representations:

Network Rail Letter to Peter Ward

Appendix 1



TILBURY2

Peter Ward,
Commercial Director,
Port Of Tilbury London Ltd,
Leslie Ford House,
Tilbury.
RM18 7EH

Network Rail
1 Eversholt Street
London
NW1 2DN

23rd May 2017

Dear Peter,

Re: Tilbury II and rail freight traffic development

I write further to our recent discussions concerning your planned Tilbury II development and its rail terminal facilities; by way of a recap, Network Rail:

- Welcomes your early and positive engagement with our Asset Protection Team in managing the development of your infrastructure adjacent to our network.
- Strongly supports the proposed use of your existing Tilbury Riverside connection to our mainline at 22m 6ch.
- Understands that the current Riverside Terminal will be replaced by the new Tilbury II terminal facilities and that as such, from a network perspective, Tilbury II represents a routine variation in traffic volumes from a longstanding freight connecting point.
- Welcomes that, by design, the Tilbury II rail terminal will be readily capable of accommodating the longest contemporary freight trains (so up to 775m in length), so wholly in line with our national drive to optimise the productivity of every freight path on the network.

Including yourselves at Tilbury, the Essex Thameside route features a dozen or more freight traffic generating connected parties between Stanford Le Hope in the East to Barking in the West. With the most varied traffic base spanning bulk aggregates, maritime and domestic intermodal, import and export finished autos, metals and latterly Channel Tunnel traffics via HS1 both from mainland Europe and the Far East; it has always been & remains one of Britain's busier rail freight corridors with a well understood and significant freight footprint in the timetable.

In considering the likely modal shift benefit and traffic upturn arising from the Tilbury II development, NR have analysed current freight traffic levels and the available headroom for traffic growth.

Table 1. below illustrates that there are in excess of 50 paths available daily during the working week for accommodating additional freight traffics on the Essex Thameside corridor and beyond across London; this figure being a combination of redeployable existing paths held by freight operators and those held by NR in strategic reserve.
This capacity headroom provides ample capacity scope for Tilbury II, but moreover recognises that Tilbury II is but a component part of the continuously changing picture of freight traffic levels along the Essex Thameside corridor, itself a function of a rail freight sector responding to ever evolving market demand.

Table 1.

Location	No. of WTT* freight paths	% of unused WTT freight paths	No. of Strategic freight paths
Barking SX	108	42.59%	6
Barking SO	39	38.46%	1
Barking SUN	3	33.33%	n/a
Total	**150**	**41.33%**	**7**

Working Timetable (WTT**) – the base train plan encompassing all planned train movements including passenger, empty stock, freight, engineers services etc.*

Finally and with a view to supporting the efficient operation of additional rail freight traffic along the Essex Thameside route, Network Rail and TfL are jointly pursuing the redevelopment of the legacy yard facility at Ripple Lane West. It is intended that with the construction of TfL's new Barking Riverside Extension line this yard will be remodeled so as to accommodate freight trains of 700m+ in length (versus a current capablity of c450-500m).

The resultant Ripple Lane West Yard, along with an existing facility at Wembley, will function as co-acting freight regulating facilities either side of London, in combination enabling the time sensitive fine control of freight traffics traversing the busy cross London axis between Essex Thameside and the West Coast Mainline.

I trust the above information is helpful and NR looks forward to working with you in the realisation of this exciting development.

Regards,

[redacted]

Guy Bates
Head of Freight Development

APPENDIX 2 THE NEED FOR 24/7 WORKING AT TILBURY2

PORT OF TILBURY LONDON

PLANNING ACT 2008
THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010
DEVELOPMENT CONSENT ORDER APPLICATION

PROPOSED PORT TERMINAL AT
FORMER TILBURY POWER STATION

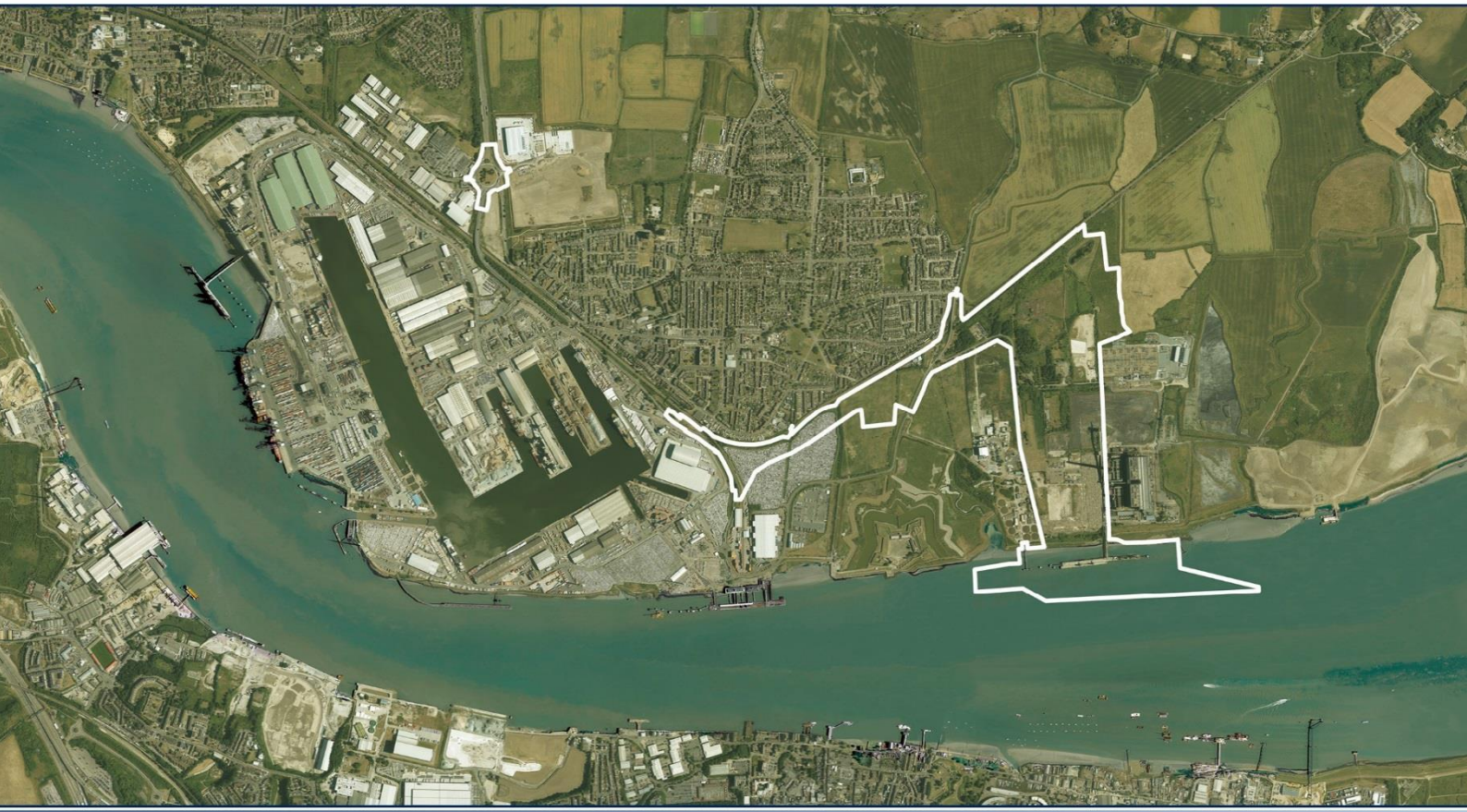
TILBURY2

TR030003

Response to Relevant Representations:

The Need for 24/7 Working at Tilbury2

Appendix 2



TILBURY2

OPERATION JUSTIFICATION FOR 24/7 WORKING AT TILBURY2

INTRODUCTION

1.1 Port of Tilbury London Limited requires the flexibility to work 24 hours a day and 7 days a week on Tilbury 2. Such operating hours are in line with all other UK commercial ports, including the existing Port of Tilbury.

1.2 From a wider UK Plc perspective, 24/7 working enables Ports to ensure that they can continue to support the UK requirement of ensuring that the flow of imports remains competitive facilitating an economy that can have sustainable growth. For example, it should be noted the UK as a country has a large reliance on imported goods with 90% of its requirements arriving from abroad, the majority of which pass through UK commercial ports.

1.3 In this context, this paper explains the operational and commercial reasons why 24/7 hour working is required at Tilbury2.

1.4 These reasons should also be considered in the context of the National Policy Statement for Ports ('NPSP'), upon which the Secretary of State's decision on Tilbury 2 will have regard. The NPSP explicitly recognises the need for new ports to be competitive and for this to be considered by the Secretary of State:

- at paragraph 3.3.3, the NPSP states that new port infrastructure should 'ensure competition and security of supply';
- at paragraph 3.4.13, in explaining the Government's recognition that new port infrastructure is needed: 'the Government welcomes and encourages such competition [which] requires ports to operate at efficient levels'; and
- at paragraph 3.5.1 'the decision-maker should accept the need for future capacity to…ensure effective competition among ports and provide resilience in the national infrastructure'

1.5 24/7 working will ensure effective and efficient working at Tilbury2, ensuring it becomes a competitive part of the UK port sector.

THE UK PORT SECTOR

1.6 Most UK commercial Ports are privately owned. Large port operations companies own over 40 ports that account for nearly 70% of the total cargo volume (by tonne) handled in the UK. These companies are:

- Associated British Ports (ABP);
- Belfast Harbour Commissioners;
- The Bristol Port Company;
- DP World;
- Forth Ports;
- Hutchison Ports UK;
- PD Ports;
- Peel Ports; and
- Port of London Authority

1.7 PoTLL is owned by Forth Ports. The Forth Ports group consists of PoTLL, eight ports in Scotland and Tilbury2. This makes Forth Ports the 3rd largest Port operator in the UK behind ABP and Peel Ports.

Operations within the UK Port Sector

1.8 2.2 All of the UK Port operations groups listed above operate on a 24/7 basis and market this to their customers. The Port industry is under continual pressure to support the demanding requirements from supply chain and logistics companies. Where customers place orders 24/7 online, supply chain and logistics companies must be able to support them. The growth of “just-in-time” logistics, where customers are able to order with short notice and receive items quickly, continues to increase the need for goods to arrive efficiently and cheaply into the UK.

1.9 For RoRo, the industry standard is 24/7 operations. These operations occur at Port of Dover, Cobelfret Freight at Purfleet, Port of Harwich and the existing Port of Tilbury. To be competitive, RoRo ship operators expect to have a flexible service and a quick turnaround of vessels and cargo.

1.10 Three of the main ports in the UK that handle Aggregates - Ipswich, Southampton, and Immingham are all owned by ABP and offer 24/7 vessel operations; as does the existing including Port of Tilbury. In addition to the main Port operations, there are large aggregate companies that operate and run their own berths and terminals handling bulk vessels. The main aggregate wharf operators and wharves offer 24/7 operations for unloading of aggregate cargoes and have significant onward movements by site. Examples of such operations include:

- Aggregate Industries Ltd (Robin's Wharf Northfleet)
- Bretts Aggregates Ltd (Cliffe)
- Cemex UK (Tilbury, Northfleet, Thames Aggregate Wharf)
- Hansons Aggregates (Dagenham, West Thurrock)
- Stema Shipping (Port of Tilbury & Northfleet)
- Tarmac Trading Ltd (Murphy's Wharf, Greenhithe, Southampton, Avonmouth)

1.11 UK ports compete with each other as well as ports in continental Europe. Competition is welcomed by the industry and by the Government, because, as stated in the NPSP, it drives efficiency and lowers costs within the port sector. As stated in the NPSP, effective competition is ensured by:

- Sufficient spare capacity to ensure real choices for port users.
- Ports to operate at efficient levels (i.e. not working at 100% capacity to ensure bottleneck do not occur)
- Port terminals being configured in a way that optimally support vessel operations.

PORT/WHARF OPERATIONS ON THE RIVER THAMES

1.12 Given 40% of all UK sand and gravel produced in the South East and the majority of all aggregates sold in London are at a wharf on the Thames, the River plays a pivotal part in the supply chain of raw materials to the construction and infrastructure market. This has produced a hub of port and wharf operations specialising in handling aggregate. The majority of port and wharf vessel operations are carried out by major aggregate producing companies. Some of the ports and wharves have the capacity to accommodate coaster size vessels, but there are a number of facilities on the Thames that can handle a range of self-discharge vessels similar to the type planned to berth at Tilbury2. Aggregates are a low value commodity; therefore, additional costs must be avoided to remain commercially viable to compete with the other ports and wharves on the Thames.

1.13 C RO Ports London Ltd own and operate both of the other RoRo terminals outside of the existing Port of Tilbury. These operate scheduled service routes between these London terminals and Rotterdam, Hirthals, Gothenburg, Esbjerg and Leixoes. These routes are operational 24/7.

1.14 As such, in this market, and to ensure no abortive costs from products not being able to arrive in port at certain times, 24/7 working at Tilbury is necessary for aggregate operations to be effective at the site.

1.15 A further list of the ports and wharves that operate 24/7 are included in appendix 1.

EXISTING PORT OF TILBURY OPERATIONS

1.16 The Port of Tilbury is the largest and most diverse port of the river Thames and handles over 16 million tonnes of cargo each year. These volumes make it the key port for London and the South east, with a GVA of £394 million. The port offers warehousing and other storage for different commodities and sectors as well as facilitating tenanted sites where customers operate their own facilities. For some tenants, this includes manufacturing and processing facilities onsite.

1.17 Operations take place 24/7 and support a number of different sectors - not just the RoRo and CMAT related operations highlighted in this note. None of the existing operations within the port have any local or statutory restrictions on the time they may operate. PoTLL can therefore provide the 24/7 service required by customers.

CMAT Operations

1.18 The port provides different types of operations similar to the CMAT proposed at Tilbury2. These operations consist of:

- Bulks Terminal operated by PoTLL, supporting a range of bulk vessel operations to different aggregate customers. The terminal can accommodate a range of vessels with bulk grab operations and self-discharge vessels operating 24/7.
- Stema Shipping have their own terminal operation within the port handling and storing aggregates. The vessels are a range of bulk grab and self-discharging vessel operations. These operations are all supported 24/7 by Stema and PoTLL operational teams.
- Ballast Phoenix have their own terminal operation within the port, for unloading and processing ash, a secondary aggregate. Their processing facilities are operated 24/7.
- CEMEX has a grinding and crushing cement and ash plant within the port that can handle 1 million tonnes per annum. This facility receives different bulk commodities by vessel supported by bulk grab vessel operations provided by PoTLL, as well as vacuum discharge systems to support the discharge of powder products. All of the vessel operations for this facility are 24/7 and the operational efficiencies required by CEMEX require 24/7 operation of landside facilities.

RoRo Operations

1.19 Different RoRo Vessel operators call at the port, including:

- P&O Ferries (2 daily scheduled service between Tilbury & Zebrugge)
- Transfenica (weekly scheduled European service)
- Finnlines (weekly scheduled European service)
- SOL (multiple times a week)
- Grimaldi (weekly schedule Africa and South America)

1.20 All of these are freight only services with the cargo either arriving on wheeled units (such as unaccompanied trailers, cars, heavy plant) or are required to be loaded onto cassettes (flat wheel beds that require to be lifted by terminal equipment) so that cargo can be discharged from the vessel. Some of the RoRo operations are scheduled ferry services which require the ability to wait until a fixed cut off time for the last unit to arrive onsite and be loaded directly to the vessel. This is a service that is provided to customers to allow them to be competitive in the just-in-time market.

1.21 The Port of Tilbury has 4 regularly used RoRo berths, within the locked dock, to support these RoRo vessels operations and also one river berth on the Thames to support the deep Sea RoRo vessels. All of these berths are supported by 24/7 landside operations to allow for flexible and efficient use of the berths by the customers. Without such flexibility and efficiency, the customers would move to PoTLL's competitors.

TILBURY2

1.22 TILBURY2 will be an operational port, with Ro-Ro Terminal & CMAT Operations, as set out in the DCO application. The operations at Tilbury2 will consist of RO-RO vessel and landside operations, aggregate vessel operations, a CMAT landside operation and CMAT processing and manufacturing facilities which are likely to include an asphalt plant, ready-mix plant, block paving and cement silo.

1.23 The operation (and therefore this note) will be split down into a number of areas:

- Jetty Operations – the working and berthing of vessel on the river berths.
- Landside Operations
  - CMAT Operations - aggregate terminal operations, supporting the vessel operations, i.e. storage, movement on, and transport of aggregate materials from site;
  - CMAT Processing & Manufacturing sites –assumed to be containing an asphalt plant, ready-mix plant & block paving plant, all operating onsite;
  - RoRo Operations – RoRo terminal operations supporting the loading/discharge of vessels, storage and landside preparation pre/ post vessel and transport of vehicles/units from the site; and
  - Rail Operations – loading of the trains onsite

Jetty Operation

1.24 RoRo vessels, bulk vessels and powder vessels will berth at the Tilbury2 site and barges will be loaded for onward delivery to wharves in London. This is similar to the current operations at the existing Port of Tilbury. All vessels are specialised ships for the handling of specific cargoes; therefore, they are owned by operators of the terminal or are on long term charters.

Bulk Aggregate Vessels

1.25 The size of vessels that are proposed to be brought onto the berth are the largest of this type of vessel in the UK and Europe, therefore, there is high demand for them across a number of ports. Because of this demand, the shipping schedule is planned far in advance so that the vessels are fully utilised all of the time. Being self-discharge vessels (i.e. they automatically discharge aggregate material along a ship conveyor), such vessels can discharge large volumes of aggregate from the vessel to the shore during a short period of time. It is anticipated that these vessels will have the capacity to discharge up to 3,500 m/t of aggregate per hour along a belt conveyor. This means that vessels with 26,000m/t of aggregate would be on the berth discharging for approximately 8 hours.

1.26 In addition there will also be vessels discharging bulk powders to the silo and these will be discharged via pumping from the vessel into the silo. Both sets of vessels will therefore need to be effectively timetabled to ensure they can both arrive and depart on time and that they do not clash with each other, though there could be times where a self-discharge bulk vessel and a bulk power vessel are both operational on the berth.

1.27 Due to the speciality, demand, (due to the limited number of vessels of this type) and cost of running bulk aggregate/powder vessels like this, these vessels will always discharge on arrival whatever the time or day of the week and will work non-stop until the vessel has completed discharging.

1.28 The arrival time of these vessels at berth cannot be timetabled by PoTLL. This is because such times are controlled by the fact that such speciality vessels are required to be 'piloted' to berth (whether at Tilbury2 or any other port) from the Thames Estuary by the Port of London Authority ('PLA') (i.e. not the customers themselves or PoTLL). Such pilots are in high demand across all the Thames ports, including the existing Port of Tilbury. As such, vessels will arrive at berth once a pilot is available and able to take the vessel to the Tilbury2 berth.

1.29 If for any reason these vessels are delayed from starting discharge, or stopped during discharge by any external factor, there are demurrage penalties (financial shipping penalties) that are put on the owner of the cargo who will be held liable for any demurrage costs incurred (this is always outlined in any vessel charter agreement between the ship owner and the charterer). These costs can be anywhere within a range of $8,000- $10,000 dollars per day but this can vary upwards significantly should the freight market change. As such, the imposition of timing controls on Tilbury2 could have significant cost penalties if vessels were forced to wait until the active times came into force.

1.30 Aggregate products are a low value commodity. If the movement of any aggregate material is to be commercially viable, the owner of the aggregate need to ensure they are optimising economies of scale, by, for example, reducing fixed transport costs to

a level that the price per tonne is viable to be moved and be sold on to a final market in the UK. As such, aggregate customers will want a quick turnaround of vessels, to utilise large ships for movement of the material by sea, and will want to avoid additional costs (like demurrage as set out above) impacting on their supply chain costs.

1.31 Aggregate volumes also leave the TILBURY2 site by water by barge. Aggregate will be moved from the storage areas to the jetty by conveyor and loaded onto the barges by conveyor/ loading spouts. These barges will only take a small amount of tonnage; therefore, with the exception of needing to load these at a specific state of the tide, flexibility is required during the day to load these barges around other shipping activities on the berth. It should be noted that the main London wharves handling aggregates operate on a 24 hour basis (please reference Appendix 1 for examples) for vessel unloading as they do within the existing port, as explained above. This is also something that has been highlighted by the Minerals Product Association in its recent support for the retention of safeguarding of London Wharves for Mineral Products[1].

RoRo Vessels

1.32 The vessels that are proposed to be brought onto the berth operate on a fixed ferry schedule, where the vessel is required to do multiple logistics legs per day. Due to the nature of the fixed ferry schedule it is fundamental that there is a quick turnaround of vessels, therefore multiple vessels can be discharged/loaded per day. For PoTLL's RoRo customers to remain competitive they need to be in a position where there are at least two calls per day for each service route. In most cases the Ro-Ro customer is looking for a two vessels (and thus four movements) each day to support its scheduled routes. The Tilbuy2 RoRo customer will compete against the ferry services at Dover, other facilities on the Thames, the Channel Tunnel and Container Schedule Service calls; all of which have 24 hour working capability. Therefore, it is important that their vessels can arrive on the berth on arrival in the Thames at any time and also that they are worked immediately to ensure they can be competitive in the European/short sea freight market. This enables them to gain optimum utilisation of their service routes and vessels at all times. This level of service is something that PoTLL provides to its existing RoRo customers at the existing port and will need to be replicated on Tilbury 2.

Vessel Berthing

1.33 All of the vessels that will berth at Tilbury2 (i.e. not just aggregate vessels as noted above) will be required to arrive and depart with a tug/s and also will require assistance of a PLA pilot. Owing to current and future demand for pilots and tugs on the Thames, there is a need to schedule departures and arrival of ships onto the berth in advance to ensure there is available Pilots and Tugs to assist at the time/ date requested. Due to the level of demand for each of these marine services, these services are provided by the PLA and private tug operators 24 hrs a day, 7 days a week. Currently the level of flexibility especially at peak periods is challenging due to the limited amount of marine services available. This combined with the weather, can add to significant delays/changes to shipping services resulting in the need for a high level of flexibility in a 24 hour period for berthing/departure of vessels. This is a

[1] http://www.mineralproducts.org/documents/Mineral_Products_in_London_Safeguarding_Wharves_and_Rail_Depots_Nov2017.pdf

demand pressure that Port of Tilbury currently experience within the existing port, and will continue for Tilbury2.

RoRo Landside Operations

1.34 The landside operations at Tilbury2 are proposed to be made up of a number of activities to support the RoRo and CMAT operations. There will always be a need for landside operations to work when vessel activities are taking place to ensure that vessel cargo moves to and from the vessel and that bottlenecks do not occur which could stop the vessel operating.

1.35 The type of landside operations at TILBURY2 covered in this note are:

- Movement of cargo from/to vessels
- Stockpiling and storage of cargoes on site
- Quality and Custom Clearances (Ro-Ro)
- Terminal management activities to prepare for the next vessel
- Delivery and arrival of cargos onto site by road
- Delivery of cargos to the train to be loaded out
- Internal transfer of cargos to the CMAT Processing and Manufacturing facility on site
- Operating of Processing and Manufacturing Facilities

CMAT Landside Operations

1.36 ***Movement of cargo from/to a bulk vessel to the landside -*** will be done via an automated belt conveyor system which has the capacity to move 3,500 tonnes per hour. We would expect this belt to be running whilst the vessel is on the berth discharging. We would expect there to be very limited amount of road traffic moving to or from the vessel because any traffic would only be providing supporting services to the vessel (like fuelling the vessel, providing supplies, ships agents or Tilbury2 operational staff communicating with the ship and providing supportive services). These activities will operate at any time of the day to support the vessel operations and optimise the time the vessel remains on the berth.

1.37 Once the CMAT cargo has arrived on land it will continue to travel along a conveyor to the CMAT storage and stockpiling areas on site. In this area there is likely to be a range of landside plant and equipment working to allow segregation of different cargos. It is vital to segregate different products and different grades of product for the product management and optimisation of the storage area. Moreover, if the stockpile and storage area is not managed whilst the product is travelling, the risk of the conveyor backing-up and stopping become vastly increased. This could cause bulk materials to spill, potentially damaging plant, equipment, and the environment, compromising product quality and leading to a direct loss of product. The results of these could be significant financial costs for all parties involved. From the stockpiles there will be two types of delivery movement:

1.38 ***CMAT Road Deliveries*** – It is expected that the majority of the road deliveries will be loaded between the hours of 06:00 – 22:00, but there will be deliveries that require collection at night. This ensures raw material can be delivered in real-time to customers further down the supply chain who are working 24/7 operations or need raw material to be on site for them to be able to start operating at 06:00 in the morning. Given the proximity of Tilbury to the M25 and the GLA area, with increasing frequency, hauliers want to deliver at night – partly because of the pressures by TfL and the Mayor of London to avoid hours when other road users are more likely to use London's roads in an effort to reduce congestion, traffic incidents and fatalities (e.g. cyclists, buses, cars etc.), as detailed further below

1.39 Hauliers are also choosing to travel on the M25 and adjoining roads in the south east at night when the road network is quieter, as this allows them to get move deliveries out of their vehicle per day so this is predicted to increase.

1.40 A number of process, manufacturing and construction sites now have delivery booking systems or site restrictions, (these are also seen with the RoRo deliveries to distribution centres for retailers and supermarkets) ensuring that deliveries are pre booked and arrive at a specific time slot, which provides the end customer with a just-in-time delivery. It is becoming more common that deliveries to this type of site are 24 hrs a day, especially with large construction projects in the City of London. Recent examples of this are the Crossrail Project, National Grid tunnelling projects, Tottenham Stadium, Hackney Wick station, Canary Wharf development projects and the Cemex Wembley ready-mix plant.

1.41 Because of end customer site restrictions, hauliers need a 24 hour window for collection of deliveries to allow them to be sure to meet their agreed time slot without restriction.

1.42 To meet the level of service and quality of service our customers and the end customers in the supply chain require, it is important that this area of the landside operation has the same 24 hour / 7 days per week flexibility as the vessel operations.

1.43 ***CMAT Internal Transfers –*** The CMAT terminal will be expected to deliver raw material from the stockpile area on site to the manufacturing and processing facilities. It will be expected that operational capacity to deliver material to these facilities will mirror the working hours of the facilities on site to ensure they have the required level of raw material when required.

Train Loading

1.44 It is anticipated that regular volumes of material from the CMAT terminal will be distributed out from Tilbury2 by rail, therefore, there will be movement of cargo from the storage and stockpile area to the railhead where the trains will be loaded. Train paths priority in most cases during the day especially during peak hours are given to passenger movements so a lot of freight movements by rail are done outside of peak passenger travel hours. Movements on the rail network for freight are done 24 hours a day 7 days a week. It is anticipated that trains from Tilbury2 will go to a number of destinations across London and the South East. It is also expected that some of these trains will leave the Tilbury2 site and go into freight stations and holding yards across the rail network before they arrive at their end destination. There are also sometimes restrictions on the times that trains can be unloaded at the end destinations due to the destinations sometime being in residential area or inner city locations. Because of this the trains will needs to arrive at the destination at a specific time. This can lead

to trains needing to be loaded at night so a train can arrive during daylight or during core operational hours in the day.

1.45 On this basis; due to the volume of cargo that PoTLL is seeking to move out by rail, there will be a need for flexibility in working hours/days of the week to ensure trains can be worked at any time of day. This will ensure that a high level of volume is moved out by rail and isn't diverted to road due to delays or alterations in train schedules.

1.46 To ensure the CMAT landside operators of the terminal can optimise terminal capacity whilst carrying out storage stockpile consolidation activities, it is important that the landside operations have the flexibility to work during quieter periods to prepare for their next vessels/deliveries. Therefore, it is important that all the CMAT landside operations have the flexibility to work 24/7.

CMAT Processing & Manufacturing

1.47 It is a common practice that processing and manufacturing plants work 24 hour operationally to optimise the running time of the plant. Stopping of operations normally leads to a complete shutdown of operations and the plant. Once the plant is stopped it can take hours if not days, for the plant to be fully operational. Due to the time lost and the significant costs involved in this, most processing and manufacturing facilities will want to be in operation 24 hours a day 7 days, to have the flexibility to respond to market demands.

1.48 ***Supporting onward supply chain*** – the end customer of the processing and manufacturing plants will want them to support the supply of materials in the form of deliveries from site 24 hours a day 7 days a week. For example, the asphalt and concrete batching plant will need to load deliveries for highways and other infrastructure projects which will have teams of people working on site through the night to, for example, lay new road services and build bridges.

1.49 Like the CMAT & Ro-Ro deliveries, the plants will be affected by the road network peaks on the M25 during the day and the restrictions on movements into central London during the day. The operators of the processing and manufacturing plants on site will therefore need to be able to have the ability to load deliveries at any time of the day or week; this will also allow them to better manage their delivery peaks on site.

RoRo Landside Operations

1.50 ***Movement of cargo from/to vessels –*** The movement of unit cargo to and from the vessel will be undertaken by terminal tug units or driven off (in the case of new cars and heavy plant and equipment). Unaccompanied trailers and cassettes (flat wheel bed that requires to be lifted by terminal equipment) with containers stacked on them will be towed on/off the vessel by tug. These operations will be undertaken as soon as the vessels arrive on site, whatever time that may be.

1.51 ***Stockpiling & Storage of Cargo -*** To be able to turnaround the vessel as quickly as possible it is important that the storage area for the units are as close as possible to the vessel, with short running distances to the vessel (making sure we get as many runs per driver as possible, avoiding stops in the unloading/loading process) and to avoid bottlenecks occurring on site. To support the vessel operations a full landside staff team will work to support the turnaround of the vessel. This team will be involved in:

- trailer parking and cars movements;
- operation of heavy plant & equipment;
- dealing with the temporary storage of cassettes with containers; and
- the operation of the container storage area, moving empty and full containers.

1.52 As well as supporting the vessel operations terminal management activities will also need to take place to prepare for the next vessel, along with consolidation of storage areas as and when deliveries are collected. This can involve stacking containers onto cassettes, repositioning of cars, and moving heavy plant and equipment to areas of the site closer to the vessel. This enables the cargo to not need to run longer distances when loading the vessel. With 4 vessels calls a day and the need to support just-in-time deliveries being collected 24 hours, it is important that these storage and terminal management activities are able to be carried out 24/7 as well, to avoid the risk of delaying vessel operations.

1.53 ***Road Deliveries -*** Similar to the CMAT road deliveries, it is expected that the majority of the RoRo road deliveries will be loaded prominently during 06:00 – 22:00; however, there is an increasing demand for deliveries to be collected 24 hours a day 7 days a week. This is to ensure just-in-time deliveries get to the end customer at the correct timeslot, and at destinations that are also working 24/7 operations. This occurs at the existing Port with, for example, Proctor & Gamble, Danone, Lidl, Marks and Spencer. In some cases, drivers are put on shunting loads back and forth from the Port of Tilbury terminal to their site all through the night.

1.54 As mentioned above in relation to the CMAT, there is a greater drive from the haulage industry, especially in the South East, to move deliveries at certain times of the day (i.e. late at night or early in the morning) when the roads are less congested in the city/M25 at major road interchanges. This stems from the Mayor of London's efforts to encourage more evening and night deliveries since the success of the London Olympic Games (where a lot of the deliveries where done overnight) and in response to the significant air quality issues within the capital. Such behaviour also has the potential to also reduce the risk of traffic incidents and fatalities and allows the haulier to complete a greater number of delivery runs in their working day.

1.55 Allowing road delivery operations onsite 24 hours a day also reduces the risk of peaks in deliveries which have the risk of leading to congestion and delays on the local network.

1.56 ***Quality and Customer Clearances (RoRo) –*** as is experienced at the current Port of Tilbury, it is anticipated that Tilbury2 will have an area on site where quality checks can be carried out by our customers and also for HMRC officers to carry out quality and customer checks on cargos before the trailers/containers leave the terminal.

1.57 It is expected that after the UK leaves the European Union there is likely to be a need for a greater amount of customer clearance activities at port terminals. Due to the level of RoRo volume that is expected to come through Tilbury2, it is expected that HMRC customs will need to continue to work 24 hours a day 7 days a week to ensure an efficient throughput of goods. It will be expected that PoTLL will be required to provide support services to HMRC customs to move and access the cargo units to allow them to do necessary checks.

CONCLUSION

1.58 This paper explains that for Tilbury2 to be commercially viable, meet vessel operator's requirements, terminal operations requirements, and onward supply chain customers' demands, it is fundamental that all are not restricted in time, to allow for 24 hour working 7 day working.

1.59 24/7 working will enable Tilbury2 to support supply chain demands and enable it to have a strong future as a competitive commercial port, with the economic benefits that derive from that. It is imperative as a modern port that Tilbury2 has long term flexibility to be able to meet customers' needs and the ever increasing demand to have product delivered and available at any time, whether to high street stores, other distribution facilities, or on-site construction projects.

Appendix 1
(24/7 Sites on the Thames, excluding the Port of Tilbury) Sorted from Upstream to Downstream

Aggregate Berths

i. Pier Wharf, Hanson Concrete[2]
The Dagenham terminal operated by Hanson receives vessels 24 hours a day and the Thames is crucial to Hanson's operations to deliver materials close to where they are required.

Hanson produces aggregates and ready-mixed concrete, asphalt, cement and cement related materials.

ii. Murphy's Wharf, Tarmac Trading Ltd[3]
Murphy's Wharf can operate 24/7 and supplies east and central London. It is the largest marine aggregate terminal in Europe by output. Tarmac provide building products and solutions, including aggregates, asphalt, cement, lime and ready-mix concrete. Believed to be the largest marine Aggregate berth in Europe. Handling over 2 million tonnes per annum of marine aggregates.[4]

Murphy's Wharf has receiving hopper and discharging conveyors to receive self-discharging vessels, it also has on-site facilities for a ready-mix concrete plant.

iii. Docklands Wharf, Docklands Wharf Ltd[5]
Docklands Wharf Ltd works with bulk cargoes of scrap metals including the grab and discharge of bulk material.
Docklands Wharf is a 24 hour operational that specialises in bulk cargoes of scrap metals and the grab and discharge of bulk material.

iv. No.1 Western Extension, Eurovia Roadstone[6]
Eurovia Roadstone are licensed to handle coal off-loading and storage of bulk cargoes including aggregates, this facility is available 24/7.

v. Northfleet Wharf, CEMEX UK Materials[7]
(see ii for information on CEMEX)
Northfleet Wharf specialises in sand gravel discharges and processing. It also specialises in sea-dredged aggregates.

vi. Robins Wharf, Aggregate Industries (UK) Ltd[8]
Aggregate Industries at Bulk Wharf specialise in aggregates and bulk aggregate products. They can arrange onward transport and have a 7 day week working berth; they accommodate both self-discharging and can

[2] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 97.
[3] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 105.
[4] The Crown Estate, Marine Aggregate Capability & Portfolio 2017, The Crown Estate (2017), P8.
[5] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 96.
[6] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 96.
[7] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 95.
[8] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 92.

discharge vessels. Handles over 0.5million tonnes of marine aggregate per annum[9]

vii. Brett Aggregates, Brett Aggregates Ltd[10]
Brett Aggregates Ltd at the North Sea Terminal specialise in Sea-dredged aggregates, although they accommodate other forms of cargo that work 24 hour ship operations. Which handles over 1.5 million tonnes of marine aggregate per annum.[11]

viii. Red Lion Wharf (Northfleet), Stema Shipping[12]
Stema Shipping accommodate self-discharging vessels at the Red Lion Wharf; they can handle sand, gravel and aggregates. Customer has confirmed that this terminal works 24 hours 7 days a week to support vessel operations.

ix. Northfleet, Brett Aggregates Ltd[13]
(see xxiv for Brett Aggregates)
The facilities at Northfleet specialise in Sea-dredged aggregates working 24 hour ship operations. Which handles over 0.5million tonnes of marine aggregate per annum.[14]

RoRo Berths

(C RO Ports London Ltd)
C RO Ports handles cars and trailers in conventional RoRo style this terminal work 24 hours 7 days a week.

i. C RO Ports London Ltd, C RO Ports London Ltd[15]

Annual throughput of 200,000 containers, 250,000 trailers and 250,000 cars

ii. C RO Ports Dartford, C RO Ports Dartford Ltd [16]

Major Ro-Ro Berths outside the Thames

I. Port of Dover

The Port of Dover have two ferry operators running scheduled freight services, P&O Ferries & DFDS Seaways. Both offering Dover to Calais services along with DFDS seaways offering a Dover Dunkerque service. The Port work 24 hours 7 days a week.[17]

II. Port of Hull (Associated British Ports)

The Port of Hull has two ferry operators running scheduled freight services, P&O Ferries & Finnlines.

[9] The Crown Estate, Marine Aggregate Capability & Portfolio 2017, Crown Estate (2017), P.8.
[10] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 93.
[11] The Crown Estate, Marine Aggregate Capability & Portfolio 2017, Crown Estate (2017), P.8
[12] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 103.
[13] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 93.
[14] The Crown Estate, Marine Aggregate Capability & Portfolio 2017, The Crown Estate (2017), P8
[15] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 81.
[16] Anon., Port of London Authority Handbook 2017, Compass Publications Limited (2017), p. 81.
[17] Port of Dover, https://www.doverport.co.uk/ferry/.

i. P&O Ferries offering 2 daily services from Hull to Rotterdam and Hull to Zeebrugge.
ii. Finnlines offer a regular service between Hull and Helsinki, Hamina and Rauma. The Port works 24 hours 7 days a week. [18]

[18] Port of Hull, http://www.abports.co.uk/Our_Locations/Humber/Hull/More_about_Hull/

APPENDIX 3 AGGREGATE SHIP NOISE ASSESSMENT

PORT OF TILBURY LONDON

PLANNING ACT 2008
THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010
DEVELOPMENT CONSENT ORDER APPLICATION

PROPOSED PORT TERMINAL AT FORMER TILBURY POWER STATION

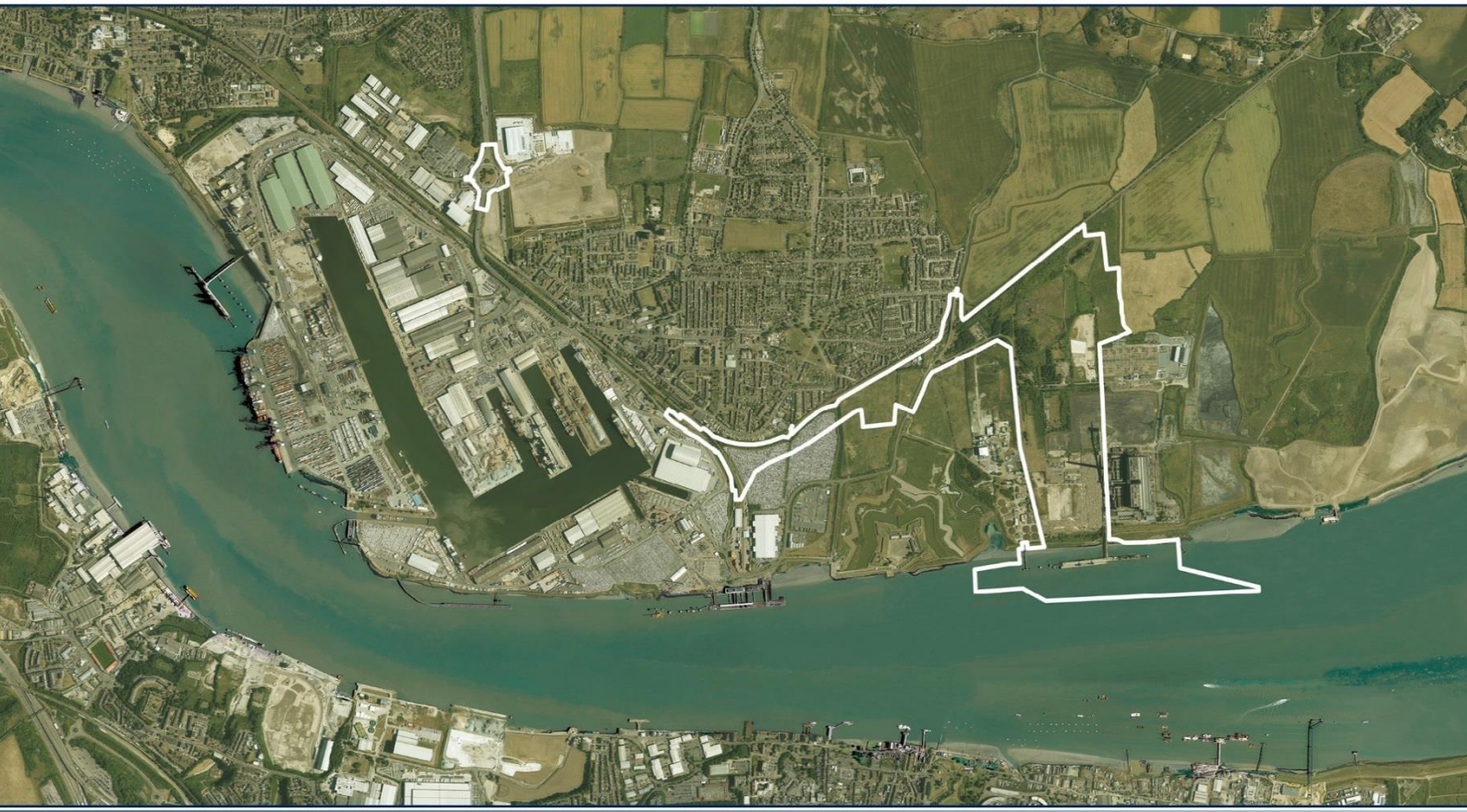
TILBURY2

TR030003

Response to Relevant Representations

Aggregate Ship Noise Assessment

Appendix 3



TILBURY2

Introduction

1.1 This note details the findings of a bulk aggregate ship noise survey undertaken by Atkins Acoustics, Noise and Vibration on behalf of Port of Tilbury London Limited on Wednesday 10th of January 2018.

1.2 Port of Tilbury London Limited (PoTLL) is planning to expand the Port to improve its capacity. The improvement will include redeveloping a currently disused area east of the existing docks and will allow an increased number of ships to visit the Port. There are concerns that these changes will result in an increase in noise levels at residential properties in Gravesend and will negatively impact on the acoustic environment in the area.

1.3 Atkins Acoustics, Noise and Vibration has been instructed by PoTLL as requested by the Environmental Officer at Gravesend to undertake measurements of noise levels arising from on-board plant and machineries that operate continuously during the stay of aggregate vessels at the Port as similar vessels will dock at Tilbury2. The measurements should be undertaken from the Gravesend side of the river and record noise levels arising from the current operation.

Noise Survey

1.4 A noise survey was undertaken in the evening of Wednesday 10th of January 2018, to take measurements of noise arising from the Splittnes self discharging bulk aggregate ship, gross tonnage 11538, deadweight tonnage 16073 t. The ship was moored at the position indicated in Figure 1 (berth no. 1) at 19:45 and started discharging shortly after 20:00.

1.5 During the survey other activities were also ongoing at the Port, however the most significant noise other than those due to the Splittnes was due to the Norsky Roll-on/Roll-off (RoRo) ship, docked at the position indicated in figure, with engines running continuously and ongoing unloading operation.

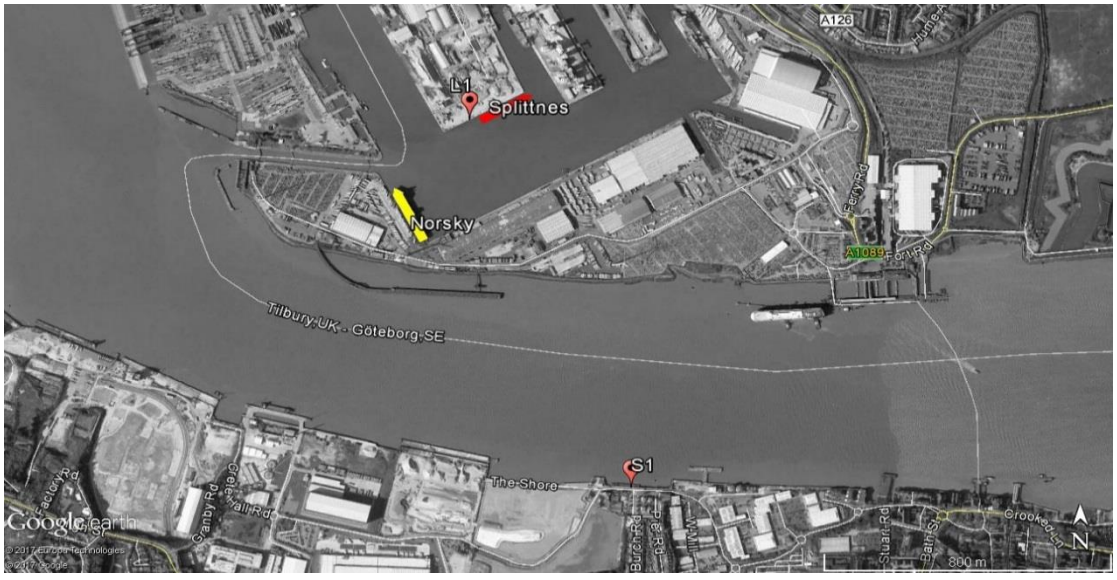


Figure 1 Map of Noise Survey

Measurement positions

1.6 Before the arrival of the Splittnes a noise logger was mounted at the berth, at the location indicated as L1 in Figure 1. Measurements at this position were undertaken in free-field conditions (i.e. more than 3.5 m away from any large reflective surface other than the ground) along the docks, approximately 30 m away from the stern of the ship. This location was exposed to noise from the rear engine of the ship and only marginally affected by noise from falling aggregates during discharging operations. Continuous noise was also generated by on-board plant at the bow, however noise levels at this location were more affected by noise associated with the ongoing discharging operation. Measured levels at L1 are therefore considered representative of typical noise levels arising from continuously operating plant from the ship during its stay at the port.

1.7 During periods when Atkins staff were taking simultaneous noise measurements in Gravesend, phone communication with Port staff guarding the equipment allowed to gather information regarding noise conditions and times of activities ongoing at the docks.

1.8 A 01dB Fusion sound level meter was used at this position, mounted on a tripod and fitted with a windshield. A photograph showing the equipment at this position is presented in Figure 2.

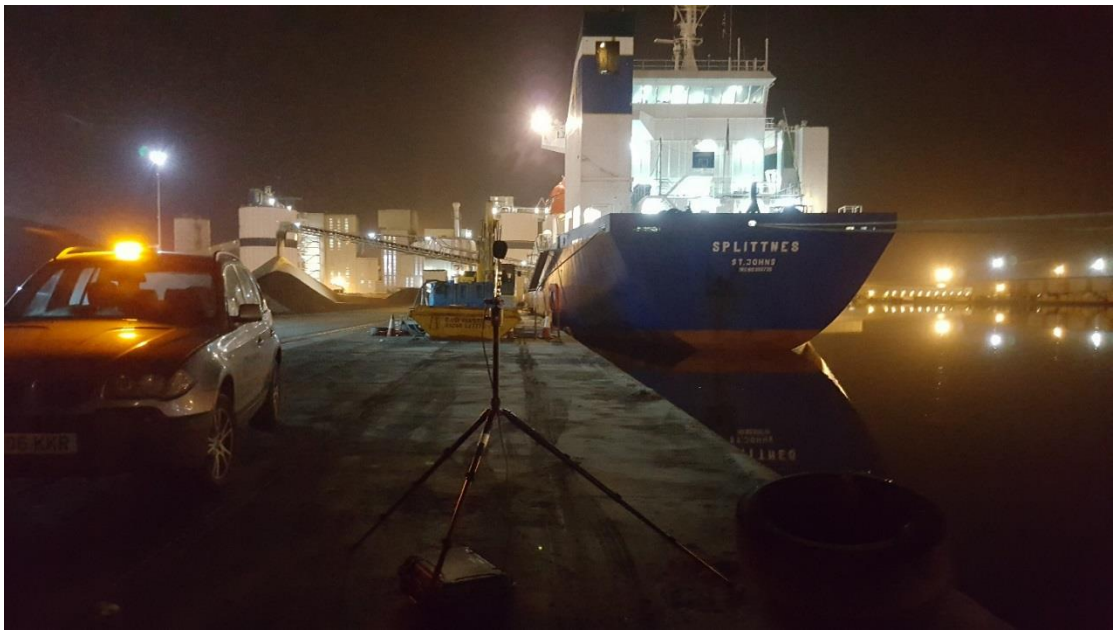


Figure 2 Site picture of the noise logger at position L1

1.9 Attended sample measurements were undertaken in Gravesend at the position indicated as S1 in Figure 1. The position was along the river docks, in proximity to the nearest residential properties to the Port. During the survey, a reconnaissance of alternative measurement positions in Gravesend was also conducted, and other locations closer to the town

centre resulted unsuitable for noise measurements due to the presence of local noise sources (mainly urban road traffic noise) completely masking noise arising from the Port. Therefore, position S1 is considered a conservative worst-case assessment location for residential properties in Gravesend exposed to noise from the Port.

1.10 A Norsonic 118 sound level meter was used at this position, mounted on a tripod and fitted with a windshield. A photograph showing the equipment at this position is presented in Figure 3.

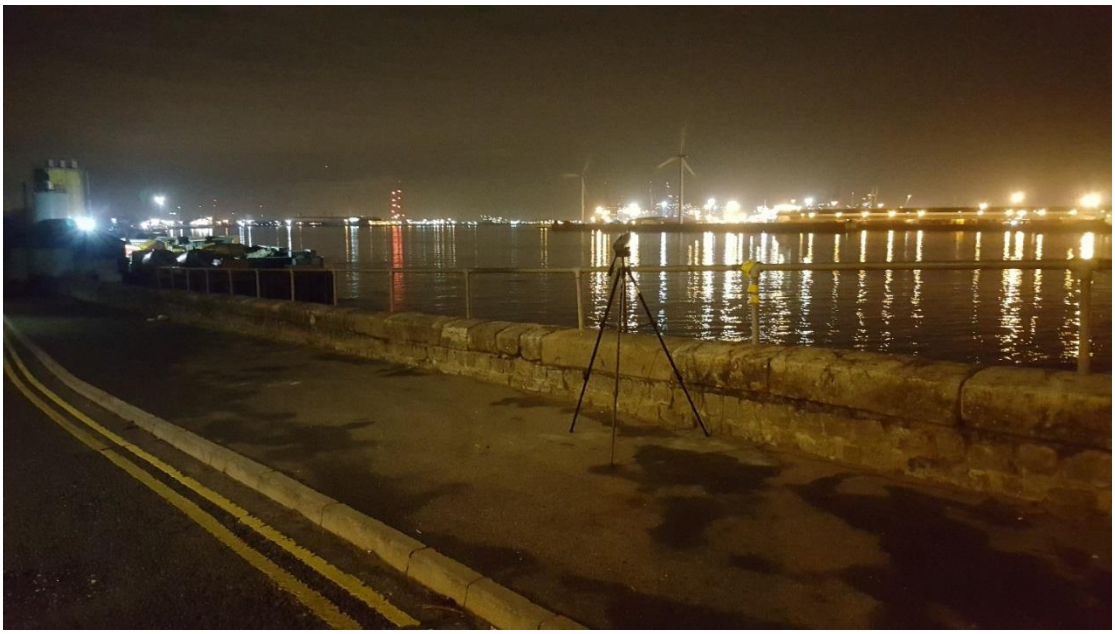


Figure 3. Site picture of the sound level meter at position S1

1.11 All sound level meters used conform to the specifications for sound level meters of Class 1 as given by BS EN 61672-1:2013, and were field calibrated using a Norsonic acoustic calibrator type 1251 both before and on completion of the survey. No significant drift in calibration was observed for any of the used sound level meters.

Survey results

1.12 A number of noise indices were recorded during the measurement, however only the following metrics are presented in this section:

- $L_{Aeq,T}$ – The A-weighted equivalent continuous sound pressure level over a period of time, T. Representative of the 'average' sound pressure level over a given period.

- $L_{AFmax,T}$ – The L_{AFmax} is defined as the maximum A-weighted sound pressure level occurring within the measurement period, measured with the time weighting Fast.

- $L_{A90,T}$ – The L_{A90} is defined as the 90^{th} percentile level or noise level that is exceeded for 90% of the measurement period, and is technically referred to as the Background Sound Level.

1.13 The following table summarises noise levels measured at position S1 in Gravesend and at the noise logger position L1 at the Port.

Table 1 Summary of results from the noise monitoring

Time	L1				S1			
	dB $L_{Aeq,5min}$	dB $L_{AFmax,5min}$	dB $L_{A90,5min}$	Notes	dB $L_{Aeq,5min}$	dB $L_{AFmax,5min}$	dB $L_{A90,5min}$	Dominant noise sources
19:48	66.3	76.8	61.6	Splittnes idling	59.8	78.5	57	Road traffic noise
19:53	73.9	79.6	70.9	Splittnes idling	52.7	62.2	55.5	Road traffic noise
20:18	62.9	70.9	62.2	Splittnes discharging	65.3	81.7	51.8	Road traffic noise
20:23	62.3	70.9	61.5	Splittnes discharging	57.8	74.5	59.3	Road traffic noise
20:28	62.4	70.2	61.8	Splittnes discharging	49.2	58	51.6	Road traffic noise
20:33	62.6	73	61.7	Splittnes discharging	53.1	68.4	52.5	Road traffic noise
20:38	62.8	77.9	61.8	Splittnes discharging	70.2	79	64.3	Road traffic noise

Noise measurements at L1

1.14 Based on communication with Port staff, during periods when the ship was idling at the Port before discharging, the main noise sources at the noise logger L1 were vehicles passing and idling in proximity to the vessel, and various on-board operations preparatory to the discharging phase. Continuous engine noise from the Splittnes was also audible.

1.15 During periods of attendance at the Port when discharging operations were ongoing, noise from the engine of the ship was the dominant noise source at the logger position for both the L_{A90} and the L_{Aeq}. Additionally, noise due to the continuous flow of falling aggregates, which produced a continuous "hiss", was just audible over noise from the engine. The acoustic climate was generally steady during this phase and only continuous noise sources were active in proximity to the logger.

1.16 Also audible at the logger position throughout the measurement was intermittent clunking noise from trucks unloading the Norsky RoRo ship. Continuous plant noise from the Norsky was only audible at the logger position before arrival of the Splittnes at the dock.

Noise measurements at S1

1.17 During noise measurements in Gravesend noise from the Splittnes was not identifiable.

1.18 The main noise source for the background sound L_{A90} at position S1 in Gravesend was distant road traffic noise from the west. Other contributions were from generic noise from the Port and distant whining noise from the west (just audible). The main ambient noise sources affecting the L_{Aeq} at this location included occasional local road traffic, aircraft flyovers and distant people talking. Intermittent clunking noise from trucks unloading the Norsky RoRo ship at the Port was the only noise source arising from the Port that was clearly identifiable at this location.

1.19 During a reconnaissance of various other accessible locations along the docks in Gravesend, noise from the Port was always masked by urban road traffic noise and other local noise sources.

Assessment

1.20 A noise level equal to 63 dB L_{Aeq} was measured a distance 30 m away from the stern of the ship during periods when discharging operations were ongoing. In consideration of the steady and continuous type of noise emission generated during discharging of the ship, and of the limited contribution to noise due to the discharging operation itself at the measurement position L1, this is considered representative of noise levels generated by continuous plant of the ship.

1.21 In consideration of the expected slow rate of noise attenuation with distance in the near field of a large area source such as a ship, a noise level of 63 dB L_{Aeq} measured at 30 m distance is considered consistent with values of 66-68 dB L_{Aeq} previously measured by Atkins during noise measurements at 2 m distance from other vessels (July 2017, measurements of the Norsky RoRo ship, gross tonnage 20296, deadweight tonnage 11564 t; and December 2017 measurements of the Sandnes self discharging bulk carrier, gross tonnage 17434, deadweight tonnage 27711 t). These values are in line with that assumed for predictions contained in the Environmental Statement presented for Tilbury2.

1.22 To account for the presence of the front engine an overall source level of 66 dB L_{Aeq} is considered representative of continuous plant noise generated by the ship during its stay at the Port. With a distance of around 1200 m, noise from the ship at the nearest residential properties in Gravesend would be below 30 dB L_{Aeq}. This would be more than 20 dB below the lowest background sound level measured in Gravesend (52 dB LA90), and based on guidance contained in BS4142:2014 “Methods for Rating and Assessing Industrial and Commercial Sound”, continuous plant noise generated during the stay of aggregate ship at the Port are shown to have a low impact on the acoustic amenity at these locations during daytime and evening hours.

1.23 Based on previous noise measurements in the area (noise monitoring at Venture Court, Gravesend, May 2017), during night-time periods the background sound level at the nearest residential properties to the Port is conservatively estimated to be in the low 40s dB LA90. Noise from the ship would still be more than 10 dB below this level and impact of noise from the ship is considered low also during night-time periods.

1.24 The distance between the new docks at Tilbury2 and the nearest residential receptors in Gravesend is approximately 1000 m. At this distance, noise from the ship would be in the low 30s dB LA90, i.e. about 10 dB below the background sound level during night-time periods, and impact of noise from the ship is considered low also in the future scenario.

Conclusions

1.25 A noise survey has been undertaken at the Port of Tilbury to measure noise levels in Gravesend arising from on-board plant and machineries that operate continuously during the stay of aggregate vessels at the Port of Tilbury.

1.26 The survey was undertaken in the evening of Wednesday 10th of January 2018 and comprised of long-term noise measurements at the Port of Tilbury and simultaneous attended measurements in Gravesend, soon after the arrival at the Port of the Splittnes bulk aggregate ship. A continuous noise logger was installed at the Port in proximity to the ship, and a measurement position representative of the nearest residential properties to the Port was chosen in Gravesend, as a worst-case location for residential properties in Gravesend exposed to noise from the Port.

1.27 Although noise from the Port was audible during noise measurements in Gravesend, it was not possible to identify any specific noise arising from the Splittnes bulk aggregate ship, and the ambient and background sound levels at this location was dominated by road traffic.

1.28 A noise level of 63 dB L_{Aeq} was measured a distance of 30 m away from the ship, which is consistent with noise levels measured for similar vessels and with the value assumed for predictions contained in the Environmental Statement presented for Tilbury2.

1.29 A source level of 66 dB L_{Aeq} was considered representative of the overall noise levels arising from the ship. Based on this value and on a distance of

more than 1200 m between the ship and the nearest residential properties in Gravesend, noise generated by the ship is calculated to be more than 20 dB below the lowest background sound level measured at the measurement position in Gravesend, and more than 10 dB below the estimated night-time background sound level at this location.

1.30 The distance between the new docks at Tilbury2 and the nearest residential receptors in Gravesend is approximately 1000 m. At this distance, noise from the ship would be in the low 30s dB L_{A90}, i.e. about 10 dB below the background sound level during night-time periods, and impact of noise from the ship is considered low also for the future operation.

1.31 Noise generated during the stay of aggregate ship at the Port is therefore shown to have a low impact on the acoustic amenity at the nearest residential properties in Gravesend.

APPENDIX 4 WEST TILBURY VISIBILITY MODEL

PORT OF TILBURY LONDON

PLANNING ACT 2008
THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010
DEVELOPMENT CONSENT ORDER APPLICATION

PROPOSED PORT TERMINAL AT
FORMER TILBURY POWER STATION

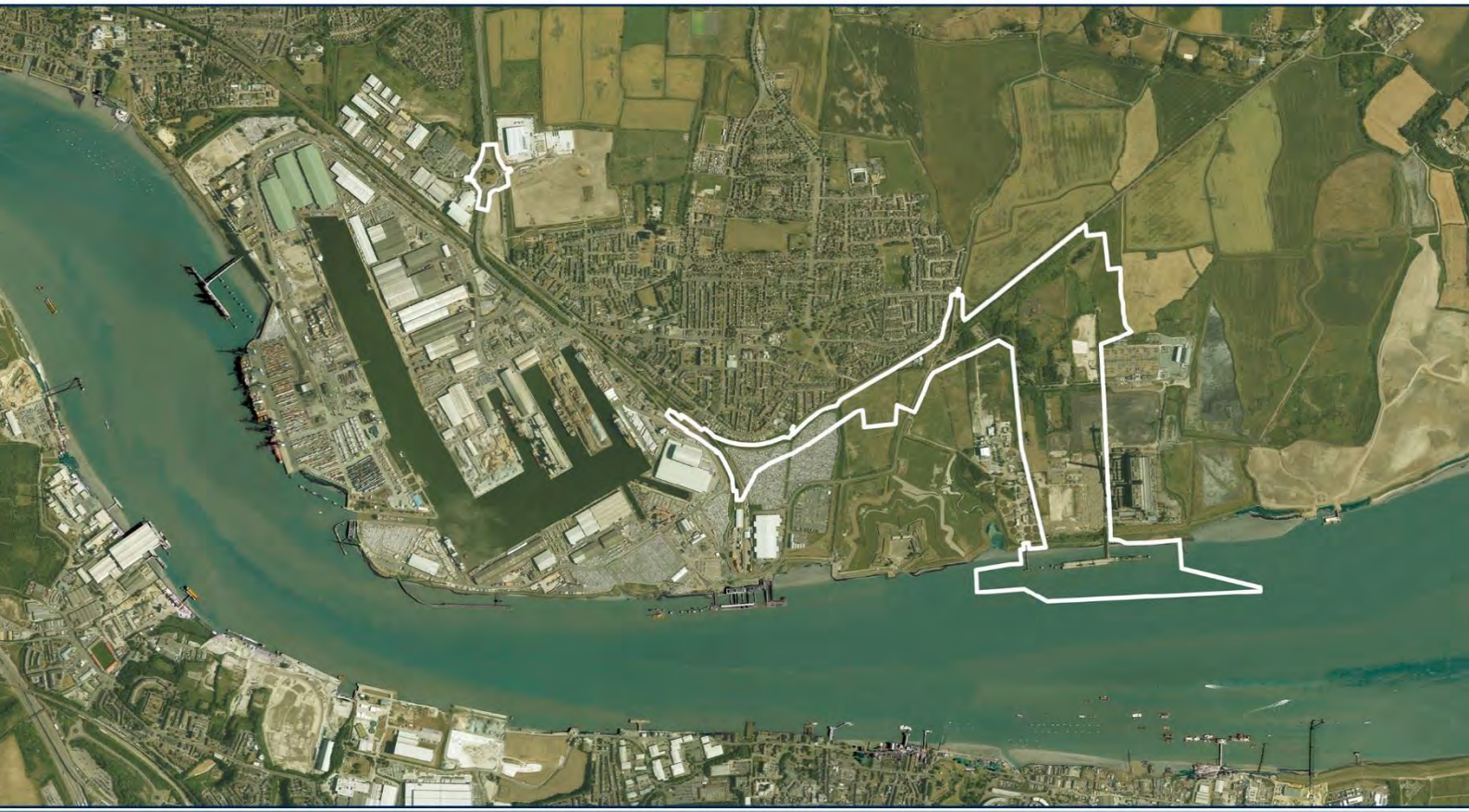
TILBURY2

TR030003

Response to Relevant Representations:

West Tilbury Visibility Model

Appendix 4



TILBURY2

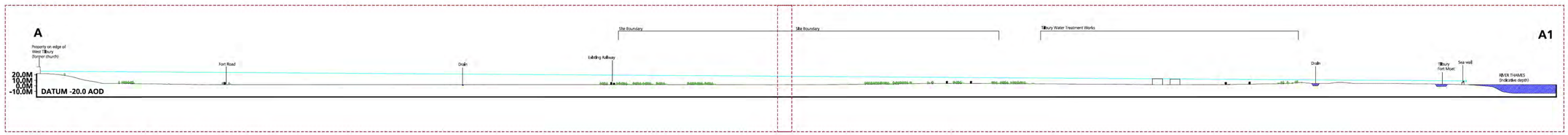
KEY

ORDER LIMITS SITE BOUNDARY

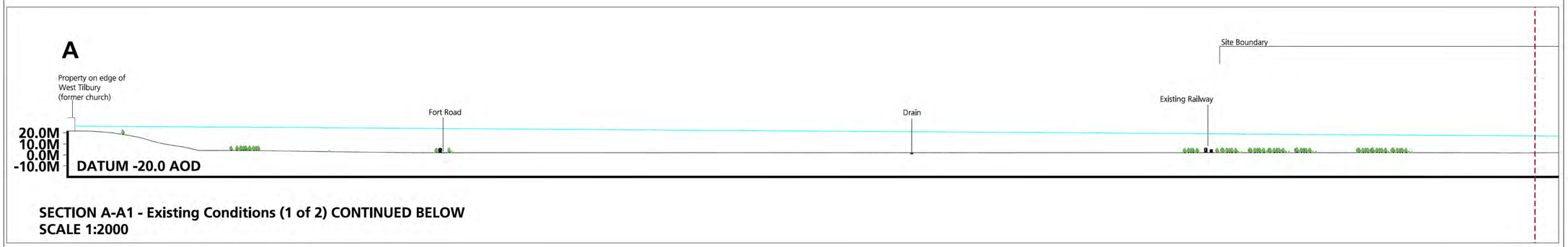
VIEW LINE 4.5M (FROM FIRST FLOOR)

SEE INSET 1 OF 2

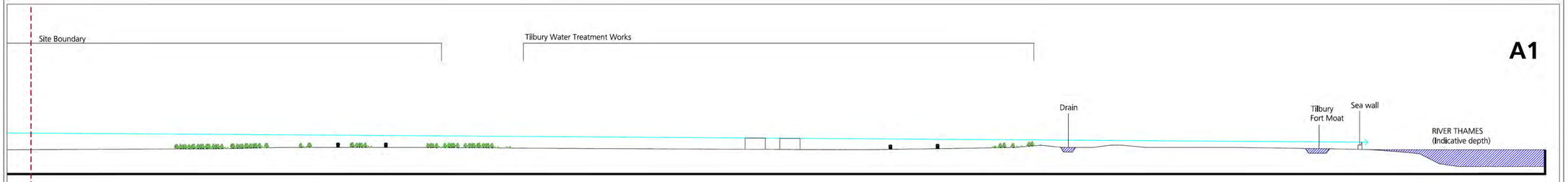
SEE INSET 2 OF 2



SECTION A-A1 - Existing Conditions
SCALE 1:4000



SECTION A-A1 - Existing Conditions (1 of 2) CONTINUED BELOW
SCALE 1:2000

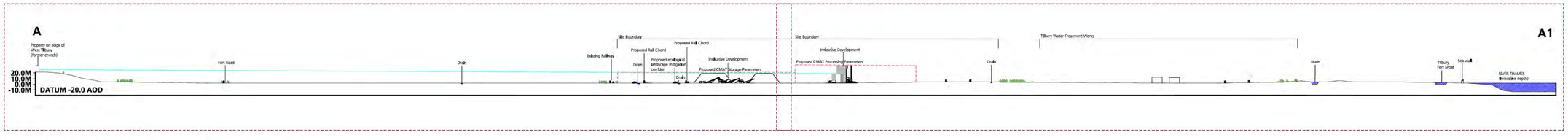


SECTION A-A1 Existing Conditions (2 of 2)
SCALE 1:2000

Notes:
For details on proposed develoment see Lanscape Strategy Plan - Figure 9.9

SEE INSET 1 OF 2

SEE INSET 2 OF 2



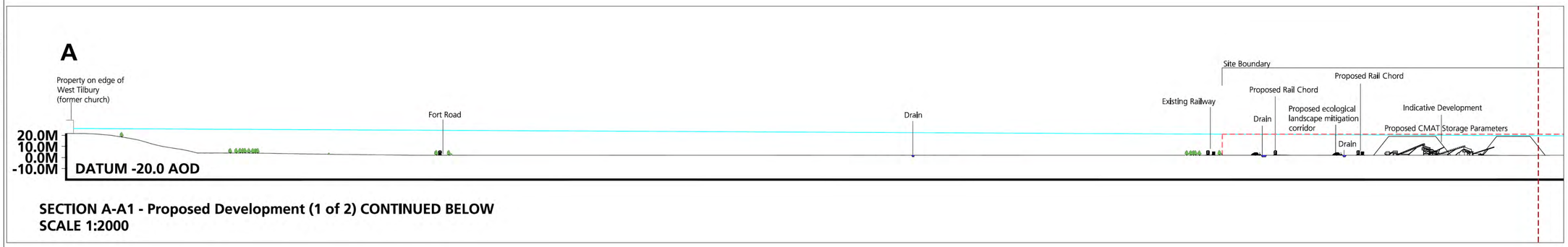
SECTION A-A1 - Proposed Development
SCALE 1:4000

REV | DATE | DESCRIPTION

DRAWING TITLE
Visibility from West Tilbury

SCALE 1:2000 @ A1
DATE DEC 2017
DRAWN JL
CHECKED JM
DRAWING Nº **FIGURE 9.11** (1 of 2)

TILBURY2



SECTION A-A1 - Proposed Development (1 of 2) CONTINUED BELOW
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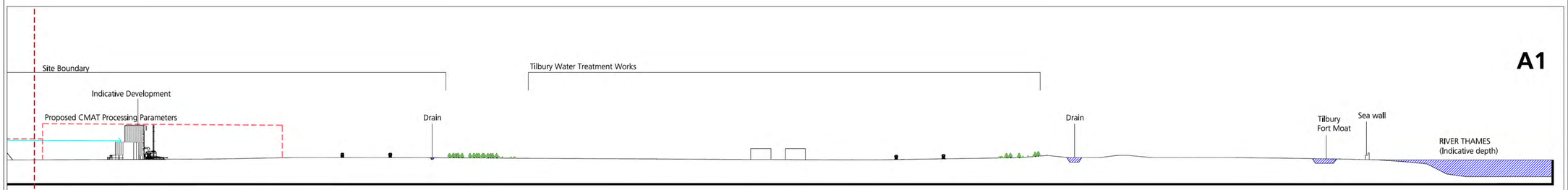
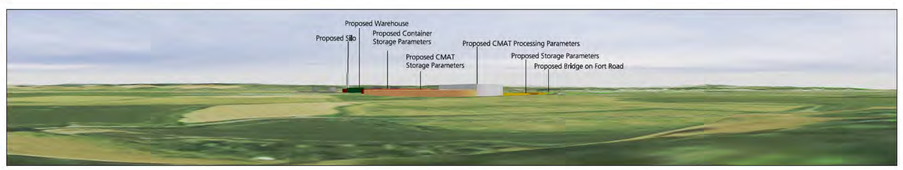


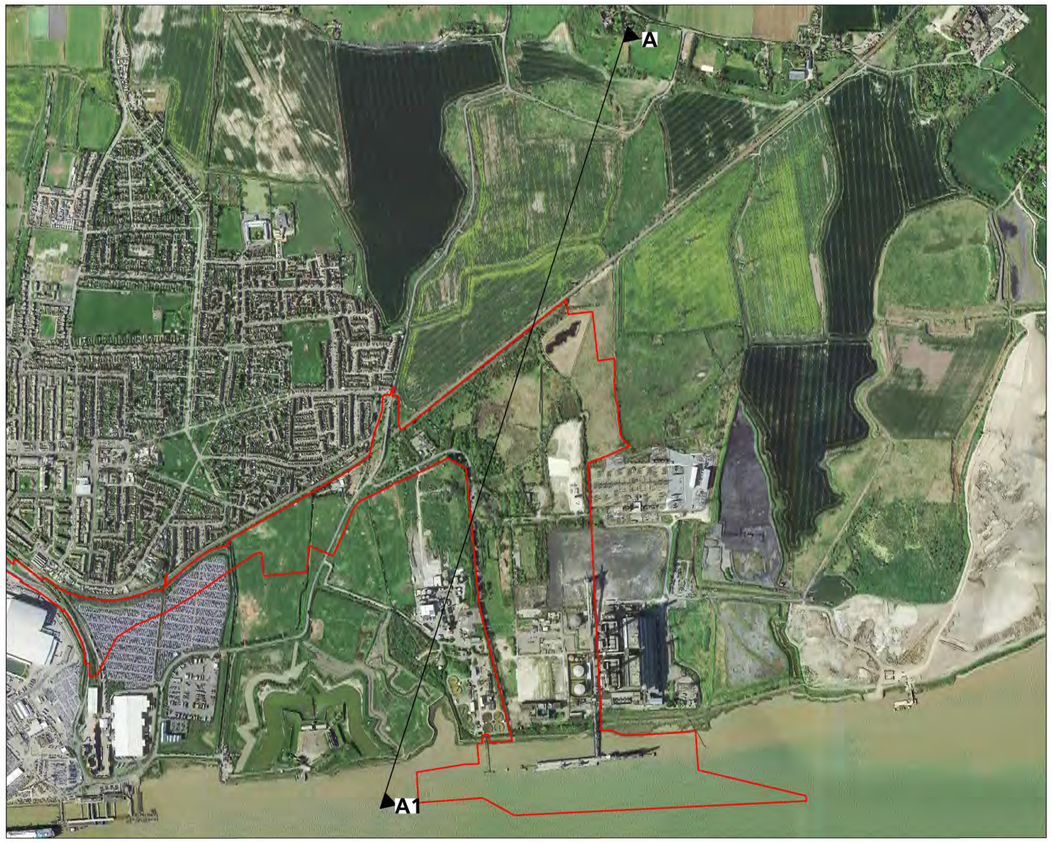
SECTION A-A1 - Proposed Development (2 of 2)
SCALE 1:2000

Computer Generated View from Former Church in West Tilbury - Existing Landform with Aerial Photograph Drape



Computer Generated View from Former Church in West Tilbury - Proposed Development Parameters

The computer generated views are based on a 3D digital terrain model of the site and the surrounding area derived from Ordnance Survey data and detail topographic survey of the order limit site. The model excludes vegetation, buildings and the atmospheric effects of distance



SECTION A-A1 - Location Plan
SCALE 1:10000

KEY

ORDER LIMITS SITE BOUNDARY

VIEW LINE 4.5M (FROM FIRST FLOOR)

Notes:
For details on proposed develoment see Lanscape Strategy Plan - Figure 9.9

REV	DATE	DESCRIPTION

DRAWING TITLE
Visibility from West Tilbury

SCALE	DRAWN	DRAWING N°
1:2000 @ A1	JL	FIGURE 9.11 (2 of 2)
DATE DEC 2017	CHECKED JM	

TILBURY2

APPENDIX 5 STOBART LANDSCAPING PROPOSAL

PORT OF TILBURY LONDON

PLANNING ACT 2008
THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010
DEVELOPMENT CONSENT ORDER APPLICATION

PROPOSED PORT TERMINAL AT FORMER TILBURY POWER STATION

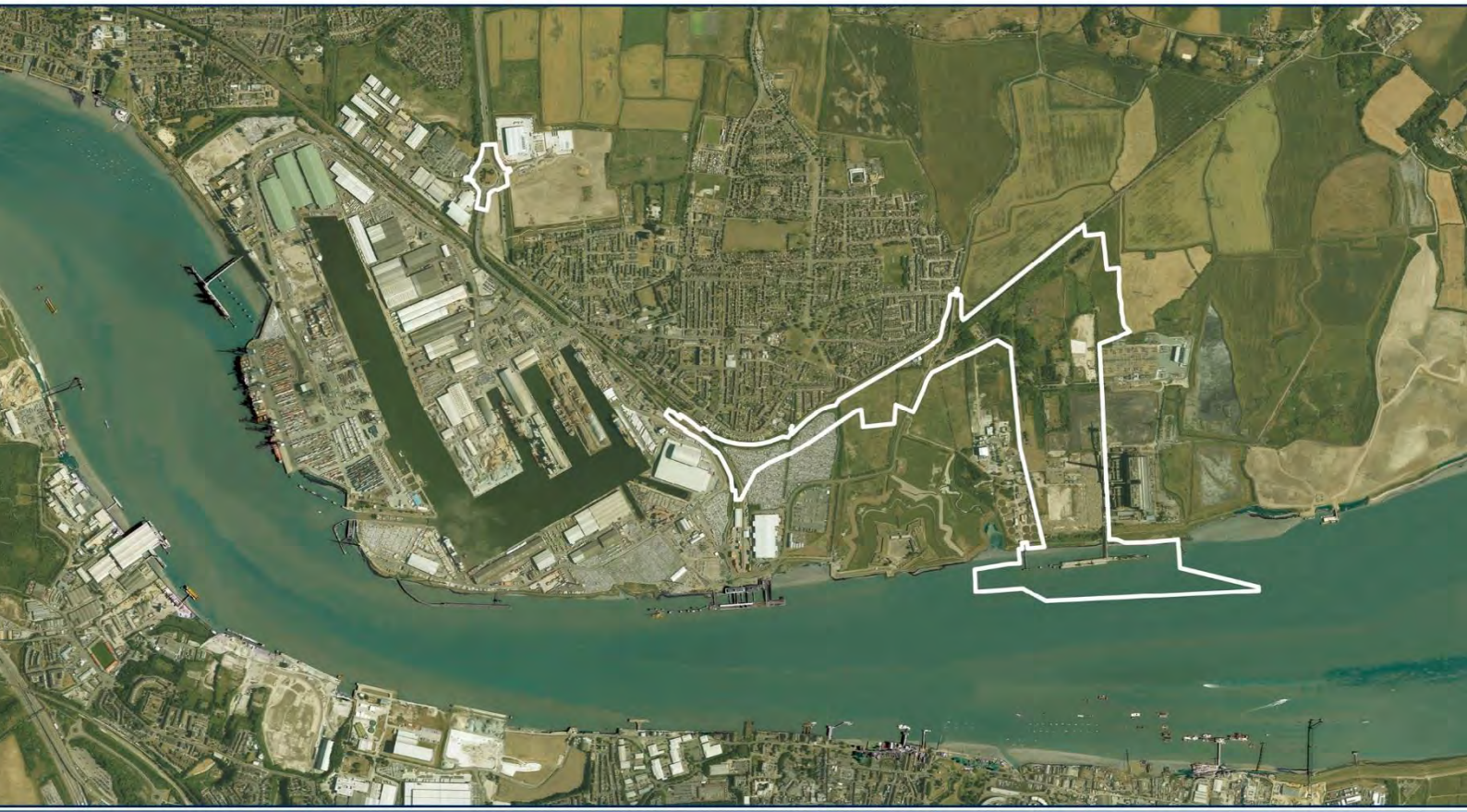
TILBURY2

TR030003

Response to Relevant Representations

Stobart Landscaping Model

Appendix 5



TILBURY2

BUND PLANTING

Preparation of the bund for planting

Apply glyphosate herbicide to any weed growth and once it has taken effect
strim down any remaining dead vegetation and remove arisings.
Only apply on windless days and in accordance with the manufacturer's instructions.
Allow to lie fallow for a minimum of 1 month and re-spray any emergent vegetation
with a second application of glyphosate. Once this has taken effect planting can be undertaken.

Planting (within the green areas on the plan)

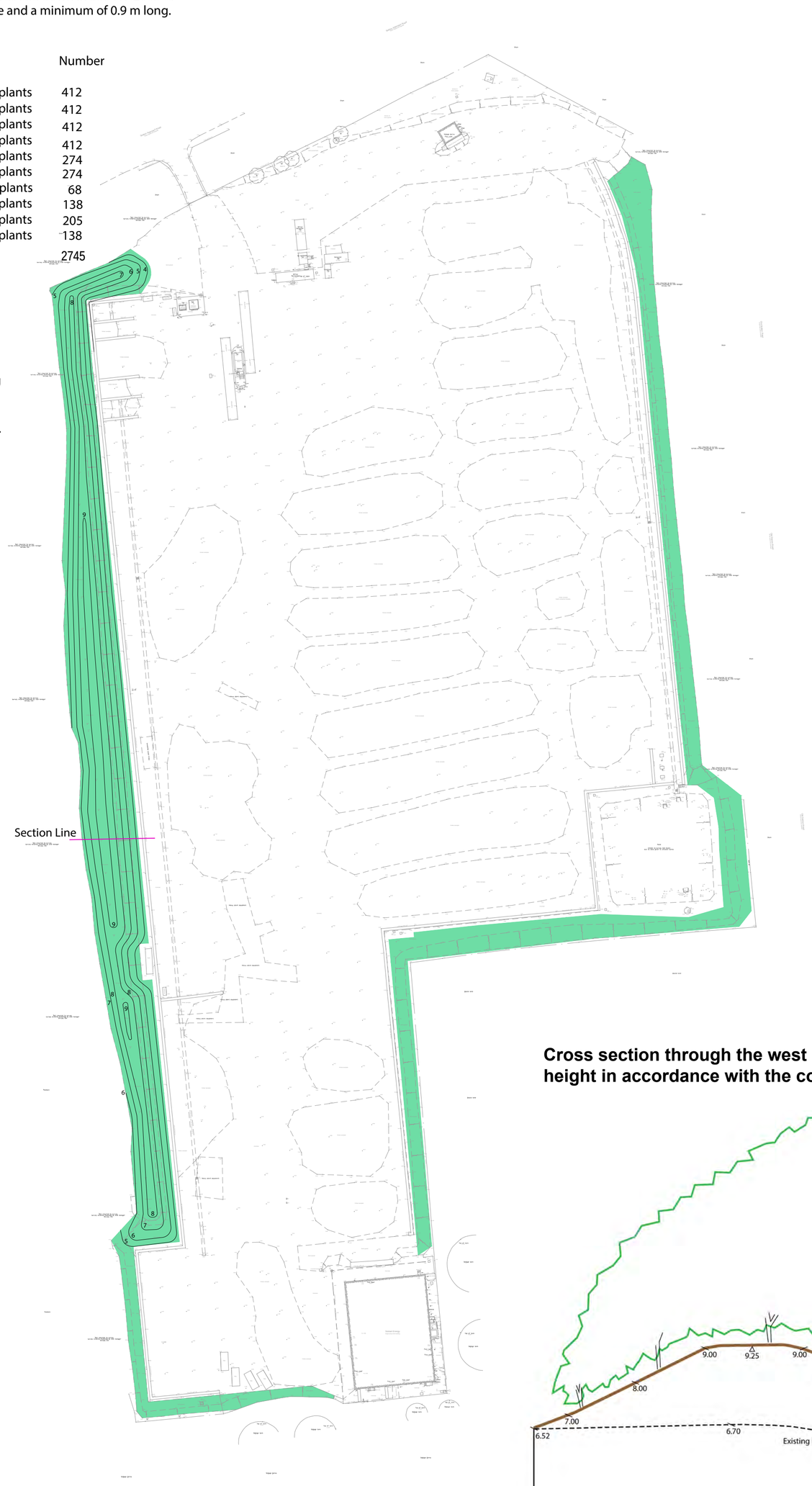
The following to be planted as a random mix in an approximate grid with spacings
between plants varying from 1.5 to 2.0 m but giving an average density of 1 plant per 3 m2.
Each transplant to be dipped in a Mycorrhizal root dip mixed with a water retaining
gelling agent (such Broadleaf P4 Root dip or Myco-Dip,
www.amenity.co.uk/root-dips-and-water-management/myco-dip.html or Root Grow, http://www.rootgrow.co.uk.
Transplants to be pit planted. A hole is to be excavated to the depth and spread of the transplants roots
(but to a minimum of 300 x 300 mm square and 300m mm deep) and backfilled with 50 % the existing substrate
mixed with 25 % topsoil and 25% compost to BSI PAS 100 specification. Firm around the planting area.
Plants to be protected with a 0.6 m high biodegradable tree shelter, fixed to a square stake driven in until firm
(typically 1/3 of its length). Softwood stakes to be pressure treated to standards laid down in BS8417:2003 to
provide long term protection against fungi and pests and 25 – 32 mm square and a minimum of 0.9 m long.
The planting area is 8400 m2 = 2745 transplants.

Percentage	Latin name	Common name	Size	Number
15	Acer campestre	Field maple	60 -80 cm bare root transplants	412
15	Alnus glutinosa	Alder	60 -80 cm bare root transplants	412
15	Betula pendula	Silver Birch	60 -80 cm bare root transplants	412
15	Crataegus monogyna	Hawthorn	60 -80 cm bare root transplants	412
10	Carpinus betulus	Hornbeam	60 -80 cm bare root transplants	274
10	Corylus avellana	Hazel	60 -80 cm bare root transplants	274
2.5	Hippophae rhamnoide	Sea buckthorn	60 -80 cm bare root transplants	68
5	Quercus robur	Oak	60 -80 cm bare root transplants	138
7.5	Salix caprea	Goat willow	60 -80 cm bare root transplants	205
5	Salic cinerea	Grey willow	60 -80 cm bare root transplants	138
100				2745

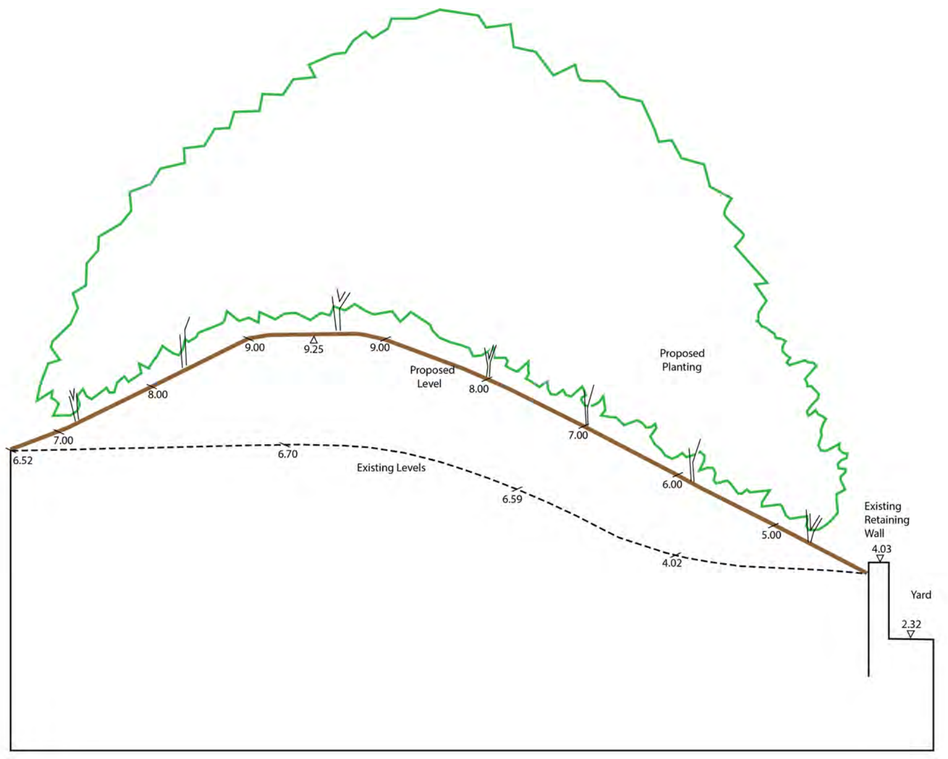
Management

For the first 5 years monitor the health of the plants and each autumn note
any dead, dying or diseased plants. Replace these the following winter and
repeat each year until 100% canopy enclosure has been achieved.
Replace using matching species unless there is evidence that one species
is failing to thrive. In which case, replace with the species which are showing
the greatest growth.
In the first 5 years ensure plants are watered in times of drought
and keep the planting areas clear of vegetative cover (such as grass/ weeds).
Remove weeds from inside tree shelters.
At the end of year 6 remove the tree shelters and stakes.

After year 10 inspect the site to determine if thinning will be beneficial.
If so consider thinning willow, sea buckthorn and some birch to leave trees
such as oak, hornbeam and alder to gain maximum stature.
Remove all thinned arisings.



Cross section through the west bund where it is proposed to increase the height in accordance with the contours shown



0 2 4 6 8 10 m

Scale 1: 100

sightline LANDSCAPE

Sightline Landscape, 57 Stirtingale Road, Bath BA2 2NG
M 07857 877 693
E Chrismcdermott.sightline@gmail.com
W ww.sightlinelandscape.com

Notes:

N

0 10 20 50 100m
SCALE 1:1,000

Revision	Date	Comment
-	-	-

ON BEHALF
Stobart Developments

PROJECT
Waste Timber Processing Site Tilbury

DATE **20 July 2017**
SCALE **1:1000 at A1**
DWG No **183_PP_01**
APPROVED CMcD

TITLE
Planting plan for the perimeter mound

APPENDIX 6 MINIMISATION STATEMENT

PORT OF TILBURY LONDON

PLANNING ACT 2008
THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010
DEVELOPMENT CONSENT ORDER APPLICATION

PROPOSED PORT TERMINAL AT FORMER TILBURY POWER STATION

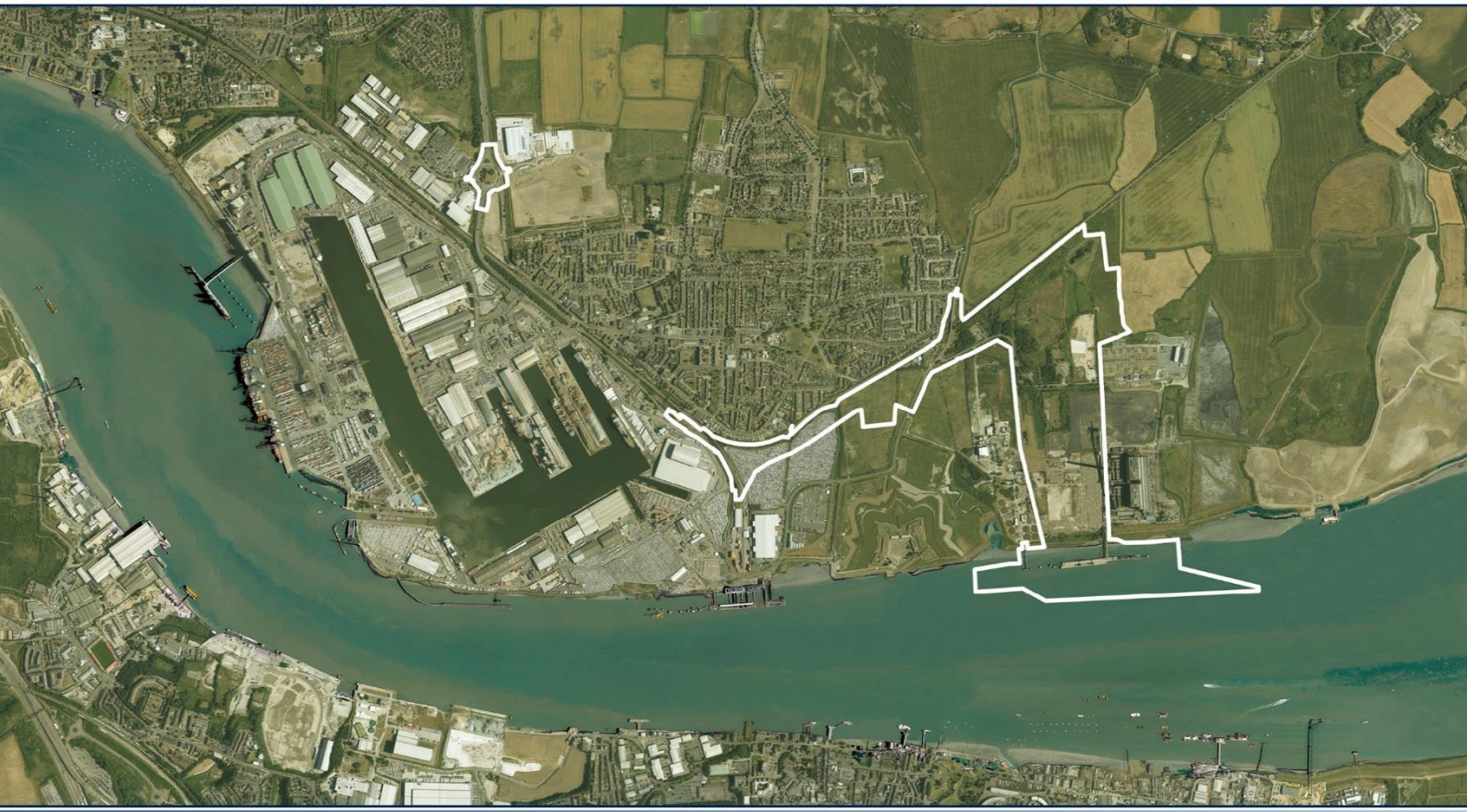
TILBURY2

TR030003

Response to Relevant Representations

Minimisation Statement

Appendix 6



TILBURY2

INTRODUCTION

1.1 This note has been prepared to explain how the avoidance and minimisation of harm to heritage assets has been inherent to the preparation of the proposals for Tilbury2 and to evidence the principal decisions that have avoided and minimised impacts on the setting and experience of Tilbury Fort in particular and, therefore, to preserve its significance.

1.2 In doing so, it seeks to respond to Historic England's comment in their relevant representation that it needs to be considered whether PoTLL has done *'all that is possible in order to minimise harm* [to the setting of Tilbury Fort]'

1.3 It has been developed because, whilst PoTLL's mitigation proposals, secured through the DCO, are considered to provide a direct balance to potential impacts on the historic environment and are proportional to the level of impact on significance, the avoidance and minimisation of impacts that exists within the proposals before such mitigation is considered necessary is perhaps less explicit in the application proposals without a description of the decision-making process for the application design and explanation of the constraints and limitations.

1.4 This note therefore seeks to set this out and to provide clear understanding on this point, building on the DCO application and supporting documents, such as the Masterplanning Statement (ES Appendix 5.A).

CONTEXT

Need and Location

1.5 The Outline Business Case (Document Reference 7.1) explains the need for the existing Port of Tilbury to expand in the context of the national need for port capacity, and locally, with the existing Port of Tilbury being essentially full.

1.6 Such need to expand produced a requirement for a site to be found that would enable Tilbury2 to provide new deep sea berths to facilitate the two key crucial markets of RoRo freight and CMAT supply; and provide the supporting infrastructure and on site space for those markets.

1.7 As explained in Chapter 6 of the Environmental Statement, the chosen location of Tilbury2 represents a unique opportunity to develop new berthing capacity and land adjoining to serve these markets and is the only opportunity open to PoTLL in the local area.

1.8 That chapter and the Outline Business Case explain why expansion on the Port of Tilbury site itself is not suitable or appropriate from an economic or environmental perspective.

1.9 Furthermore, expansion of the existing Port along the river frontage to the west (upstream) is constrained by existing residential development and thus was not a potential alternative. Expansion immediately to the east of the existing cruise terminal (downstream) is also not possible due to the presence of Tilbury Fort itself.

1.10 Aside from the intervening operational Tilbury Water Recycling Centre (which is not available for redevelopment being essential statutory undertakers utility infrastructure), the Tilbury2 site is the closest land to the existing port operational area that can be utilised to allow for increased berthing capacity and throughput at

Tilbury. Paragraph 6.15 of the Environmental Statement explains the environmental, economic and operational benefits that arise from Tilbury2 being located close to the existing Port.

1.11 Any other alternative would necessarily be on land away from the river frontage. Whilst development of other land in close proximity to the Port without access to additional berthing capacity would be beneficial (as has occurred at London Distribution Park) such land would not yield the necessary operational infrastructure and capacity, or significant operational and productivity value of enhanced deep-water berthing capacity that can be achieved at the Tilbury2 location.

1.12 However, as has been identified in the representations of Historic England, Essex County Council and Thurrock County Council, despite the benefits of the chosen Tilbury2 location to meet these needs, the site is within the setting of Tilbury Fort.

1.13 PoTLL has been aware of this in the development of its proposals for the site, and this paper explains how it has sought to avoid where practicable and minimise harm to that setting; and to develop a range of mitigation measures.

Policy

1.14 Scheme development for Tilbury2 has also sought to take account of policy considerations of the need to minimise harm to heritage assets, as set out in the National Policy Statement for Ports ('NPSP'). This has included:

a. ensuring that access to and condition of heritage assets are *'maintained and improved where necessary'* (NPSP paragraph 3.3) through:

   i. the Active Travel Study (Document Reference 5.3), which seeks to offer improved amenity and access to the riverside and Tilbury Fort for pedestrians and cyclists, secured through a section 106 planning obligation with Thurrock Council. As well as presenting enhancements to the historic environment, it offers better control of visitors to the Fort and surrounding area, through the introduction of signage and formalised pathways which discourage occupation of the surrounding marshland area. This will serve to preserve the immediate environs of the Fort and enhance the visual connection to Coal House Fort; and

   ii. construction and operation air quality management and monitoring and construction noise management and monitoring, secured through the Construction Environmental Management Plan (Document Reference 6.9) and the Operational Management Plan (Document Reference 6.10, and which will be updated at Deadline 1 to make it clear that Tilbury Fort is identified expressly as a monitoring location).

b. considering '*scale, height, massing, alignment, materials and use'* in the design of the proposals with the desire of sustaining the significance of heritage assets (NSPSP paragraph 5.2.12) through:

   i. the design process as set out in the Masterplanning Statement, and further discussed in this note;

   ii. consideration given to the colour and surface finish of the proposed silo, secured through a DCO requirement to be approved by Thurrock Council in consultation with Historic England; and

iii. proposing low key lighting to the waterside of the proposal, as shown in the Preliminary Lighting Strategy (ES Appendix 9.J) secured through a DCO requirement to be approved by Thurrock Council in consultation with Historic England.

c. recognising that whilst the proposals involve development within the context and setting of a heritage asset, PoTLL should make efforts to '*preserve...elements of the setting*' (NPSP paragraph 5.2.16), taking account of its marsh setting through:

i. the retention of Monterey pines at the west boundary of the Tilbury2 site, as part of a comprehensive scheme of landscape mitigation secured through the Landscape and Ecological Management Plan; and

ii. developing tree-planting proposals in the northern stretch of the Tilbury2 site which have been carefully considered to provide visual screening of the proposed transport corridor without over balancing the historic marshland character of the site; secured through the Landscape and Ecological Management Plan. This has included a consideration of visual screening with taller planting proposed closer to operational equipment which then diminishes in size to lower level scrub nearer to properties.

Such proposals should also be seen in the context of a recently approved (by Thurrock Borough Council following consultation with Historic England), planted screen at the adjacent Stobart Biomass Products site, which demonstrates the acceptability and potential effectiveness of such planting to mitigate visual impact (see Appendix 5 to the Response to Relevant Representations document for a plan of this). In this case the approved Stobart scheme will also serve as an intermediary filter to views of the proposed CMAT operations and the general storage area on the Tiibury2 application site. The proposed planted screen zone at the northern part of the port site is deeper than the recently approved arrangement; providing an overall mitigation for the CMAT area.

1.15 The above demonstrates that PoTLL has been aware of the need to minimise the harm to heritage assets in design and in developing a suite of mitigation, as a matter of policy. This note sets out that this has also been the case in relation to those aspects of the development that have been raised as areas of concern by consultees, namely the location of the RoRo jetty, the location of potential silo facilities, and the storage of containers on site.

RoRo Jetty Location

Operational Requirements

1.16 In order to analyse the development of the proposals for the RoRo jetty to consider whether they have minimised harm, it is first important to understand the requirements of a RoRo jetty in general terms. These are summarised below.

a. The principal concern is safety; which dictates that the berthing position for vessels needs to be parallel to the river current to reduce forces and avoid sudden ship movements.

b. A RoRo terminal needs to be able to handle vessels with stern or quarter ramps, via which trailers and containers are loaded and unloaded (‘roll on and roll off).

c. Due to the garage deck of vessels being at an approximately constant height above water level, the landing area needs to be able to move up and down with the tide to allow transfer of cargo from ship to shore without the need to hold vessels unnecessarily in Port to wait for an appropriate point in a tide, which would increase dwell time and reduce operational capacity and turnaround as well as the ability to deal with time critical goods and services.

d. To achieve this, a consistent and acceptable level above the water, as well as a gradient between the vessels and the immediate point at which the trailers and containers are removed from the vessel is needed, whatever the state of the tide. This should be seen in the context that the tidal range in this part of the River Thames is 7.7m, based on the Highest Astronomical tide and the Lowest Recorded tide.

e. An additional consideration is that most RoRo ships have stern ramps. If the existing jetty were to be used, this would mean that vessels would be moored, with the front of the ship in the centre of the river. This would significantly impinge on the navigation channel – causing an unacceptable impact to navigation safety and potentially altering fluvial flow and dynamics. Clearly, it could also lead to an increased visual impact when compared to the proposed berthing of ships adjacent to the extended jetty.

Existing Jetty

1.17 Bearing in mind these operational requirements, PoTLL recognises that it may be questioned why use could not be made of the existing jetty alone, rather than extending it as is proposed. The existing jetty alone is not suitable for the following reasons:

a. it is a fixed berthing structure, so could not provide a constant level between it and the vessel at differing tide levels;

b. most RoRo ships have stern ramps. With such ramps, the existing jetty is located in such a position that it would mean that vessels would need to be moored with the front of the ship in the centre of the river. This would significantly impinge on the navigation channel – causing an unacceptable impact to navigation safety and potentially altering fluvial flow and dynamics. Clearly, it could also lead to an increased visual impact when compared to the proposed berthing of ships adjacent to the extended jetty, so this was considered to be unacceptable.

c. the loading capacity on the existing jetty is only sufficient for supporting conveyor belts and light traffic (associated with CMAT activity), and not for the heavy cargo handling required for RoRo operations.

1.18 As such, the existing jetty is not suitable for RoRo jetty operations, requiring a floating extension that could meet operational requirements – i.e. enabling a ship to load and unload across the full tidal range by adjusting the level of the berth with the tide and minimising intrusion into and potential disruption to the navigation channel.

Options for Jetty Extension

1.19 This river edge location has a long and varied history of active development and use for a wide range of industrial, infrastructure and strategic purposes, including military defence, flood defence, electrical conduit, and communication cable routes.

This means that constraints exist in both directions that impact upon the options that were available to PoTLL for the extension of the jetty.

1.20 These are shown in **Figure 1** below.

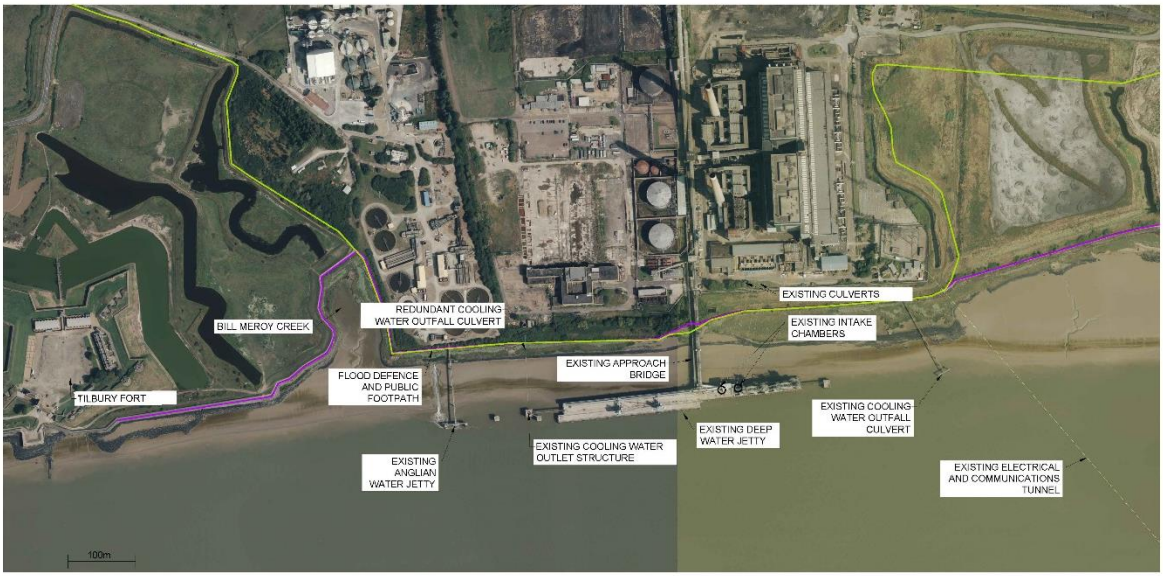


Figure 1. Annotated aerial photograph of existing site identifying some of the spatial, topographic and infrastructure constraints.

1.21 The jetty extension could therefore extend either east or west. PoTLL has explored and tested both options and confirmed and applied for the western option for the following reasons:

a. In spatial terms, having regard to the issues with the existing jetty identified above, and noting that the Anglian Water jetty is redundant with no proposals for future active use, and thus able to be demolished, it can be seen that on the eastern side there are more obstructions within the river, namely the RWE intake chambers, outfalls and culverts which will likely be used for the Tilbury Energy Centre, and the active electrical and communications tunnel.

b. The position of the existing jetty and associated infrastructure means that the only viable access point from which to connect to the floating extension from the shore is at the western boundary of the site.

c. Owing to the greater draught for aggregate vessels (as explained in Chapter 6 of the Environmental Statement) compared to RoRo vessels, the CMAT berth needs to be located where there is already a deeper dredge pocket (to avoid the need for a greater volume of dredging). As the CMAT vessels are self discharging (material transferred from the vessel via a discharge boom conveyor onto a fixed conveyor that takes the aggregate ashore) the discharge is not impacted by the tidal level so the berth can be at a fixed height. It is therefore appropriate for this berth to be located adjacent to the existing jetty to the east.

d. Because of the nature of the seabed in this particular location (namely its organic rich sedimentary nature), positioning the extended jetty further downstream (and beyond the existing dredge pocket) would require a higher

volume of dredging which would bring with it higher risks of contamination and higher levels of sediment deposition, potentially leading to an increased threat to habitat of protected species, in particular the tentacled lagoon worm which is present at Swanscombe.

e. An increased volume of dredging could have a greater direct and indirect impact on potential marine archaeological assets – exposing and intervening in an increased area. Although the best practice mitigation methodology that is currently proposed for Tilbury2 would apply here, this would not accord with the principles of minimising potential harm.

1.22 In this context, a western extension of the jetty was considered to be the most acceptable option for both in-combination environmental and operational considerations.

1.23 However, PoTLL was aware that this could potentially lead to harm to the setting of Tilbury Fort, and has therefore sought to minimise the potential harm of such an extension even in this operational context.

Western Extension - Minimisation

1.24 One option for the western extension could have involved the berthing of two RoRo vessels side by side. This option is demonstrated in **Figure 2**. As can be seen from this figure, this would impact on the navigable channel; significantly increase the distance between the vessels and the terminal leading to longer loading and unloading times, and most importantly, create a larger and more intrusive visual identity within the setting of Tilbury Fort. This option was therefore discounted by PoTLL.

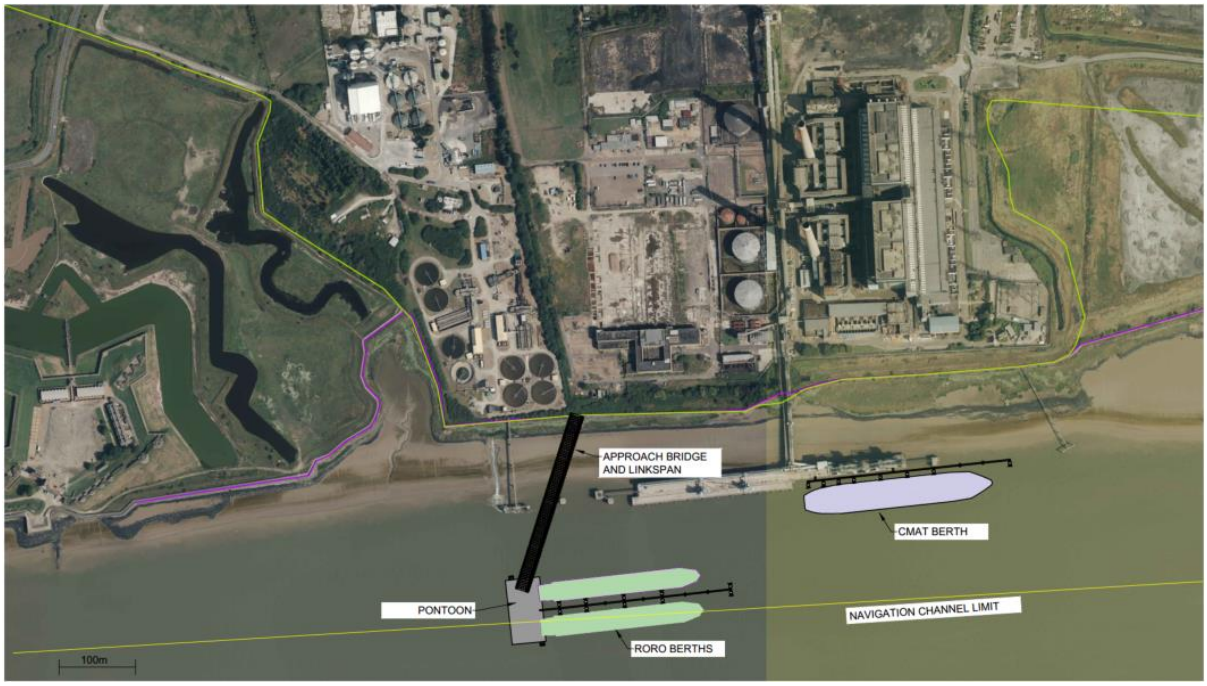


Figure 2: Side by Side Ro-Ro berth

1.25 In designing the extension of the jetty, PoTLL could have utilised a more solid structure, providing a block shape in the background when ships were not in Port. This was the starting point for design but was discounted by PoTLL, and instead

berthing dolphins and walkways have been utilised to create a lighter more open structure.

1.26 In determining the interaction of the CMAT and RoRo berths, it should be noted that the existing deep water dredge pocket extends further west from the location of the CMAT berth, and ideally from an operational position the CMAT berth would have used that full extent.

1.27 However, to do so would have meant that the RoRo berths would need to have been positioned even further upstream (to the west). To avoid and minimise potential visual impact and potential encroachment and effects on setting of Tilbury Fort, it was therefore determined not to do this, therefore maximising the separation from Tilbury Fort, whilst still being able to effectively maintain and operate the proposed port functional activity.

1.28 Finally from a design point of view, a further example of minimisation informing the design process is the fact that the Navigation Risk Assessment undertaken for the proposals (as seen at ES Appendix 14.A) identified that, at preliminary design stage, the ship separation distance between the downstream RoRo vessel and the CMAT vessel needed to be increased. This was achieved by moving the CMAT vessel further downstream. Although this moved the CMAT vessel further from the proposed silo location and away from the existing deep dredge pocket; this was considered still capable of operation and delivery whilst being preferable to moving the RoRo berth upstream, nearer to Tilbury Fort.

Conclusion

1.29 This section has sought to show that there are certain operational requirements of a RoRo facility, which as explained in the Outline Business Case and Environmental Statement, is required at Tilbury.

1.30 At the Tilbury2 site, these operational requirements, alongside the constraints of the site, river and environment, mean that the existing jetty cannot be used for such a facility, and that therefore a western extension to the existing jetty is required.

1.31 Within this context, PoTLL has made active choices to ensure that harm to the setting of Tilbury Fort has been minimised.

Silo facilities

1.32 The masterplan proposes that silo facilities for powdered products to be unloaded via self-discharging vessels into is located adjoining the CMAT berth, meaning that such facilities would be able to be seen in the setting of Tilbury Fort.

1.33 As noted above, CMAT vessels are self discharging, i.e. material is pumped from the ship directly into the relevant receptacle. However, because the masterplan proposals facilitate self-pumping from a berthed vessel, and in the context of a low margin industry (as explained in the note on 24/7 working at Appendix 2 to the Response to Relevant Representations document), where investment by PoTLL's customers (for whom the facilities are required) in machinery is only undertaken where it is considered to be cost effective; the materials can only be pumped out at a certain power, and thus only a short distance.

1.34 In recognition of the potential impact on the setting of Tilbury Fort, but taking into account PoTLL's understanding of pumping requirements at the existing Port, the

silo facilities have therefore been located as far away from the river frontage as is possible within these operational constraints.

1.35 Taking the silo facilities (which have been assessed on a likely worst case maximum height envelope) together with the considerations of the jetty location described above, it should be noted that if the CMAT and RoRo berths were swapped - i.e. with no extension to the jetty to the west, this would affect the landward arrangement of operations, bearing in mind the 100 metre requirement, and bring the silo closer to Tilbury Fort.

1.36 As such, the harm from the silo facilities has been minimised as far as is possible. Furthermore, as noted above, PoTLL has recognised the need to ensure that the silo facilities 'fit' within the setting of Tilbury Fort as much as possible, and therefore developed as part of its application proposals the need for Thurrock Council and Historic England to be involved in the design of the silo storage facilities.

Storage on Site

1.37 In relation to port operations on land, the proposed scheme has sought to avoid the use of fixed tracking and straddle carrier cranes (significant large fixed structures on the water front) and limited the potential container storage stack height to a maximum of 6 containers limited by a reach stacker crane. This avoids significant fixed plant and builds in vertical limitation.

1.38 Further minimisation can also be understood through the dynamic nature of operations at the port.

1.39 In relation to the storage on site of containers, the Rochdale Envelope for Tilbury2 assumed an above ordnance datum (AOD) of 4.0m across the entire site (assuming likely worst case) in floor level to give a maximum height of 18m above AOD. This envelope was produced on the assumption of such storage being undertaken on the basis of containers being stacked at a maximum of 6 high.

1.40 However, it is important to emphasise that the nature of port operations will prevent the envelope being completely occupied at any one time. This is further discussed in Appendix 2 to the Response to Relevant Representations document (Document Reference PoTLL/T2/EX/32), which explains the nature of landside RoRo operations at existing ports, and as is envisaged at Tilbury2.

1.41 It sets out that RoRo operations involve the constant movement of containers across the site as numerous vessel unloadings and loadings occur. Whilst empty containers are not moved as frequently, their number and storage location also changes over time. This means that the envelope is never completely occupied at any one time either in area or height.

1.42 Containers are stacked at differing levels at different times and access is required between containers to allow for crane movement and transportation; meaning that there will never be a constant 'block' of 6 stacked container storage across the whole site, as is indicated by the worst case scenario shown on the wirelines that accompany the ES.

1.43 This means that the visual appearance of stacked containers will reduce and increase at various times over a 24 hour period but will never exceed the maximum envelope assessed. This can be seen clearly from **Figure 3** below – which shows the rise, fall and extent of container heights and coverage over the course of three

consecutive days from a fixed camera view at the existing Port of Tilbury operation (it should be noted that Tilbury2 will not use the fixed cranes shown in the existing Port operational views as already explained). The maximum upper height limit at any single point within the site remains consistent in each image; it is evident that the containers have moved and are not held in static formations or even extent of coverage over the course of a day or series of days. The spaces between the stacks also change affording spatial and visual relief at frequent intervals.

Figure 3. Area coverage, rise and fall of container heights over the course of consecutive days from a fixed camera view at the existing Port of Tilbury.

1.44 As such, it can be concluded that the storage of containers on site is a constantly changing set of movements and stored products, and there is never therefore a constant site wide block of containers causing a monolithic visual impact. The nature and dynamic of Port operations therefore in and of themselves, will minimise harm to the Tilbury Fort setting.

Conclusion

1.45 This statement has sought to establish that the Tilbury2 site, proposed to be developed to meeting a nationally significant need and support economic productivity, and which is appropriately located in both a local and national context, is affected by physical constraints and the need to meet operational requirements.

1.46 However, within those operational requirements, whether the need for a floating berth structure, silo facilities in 'range' of self discharging vessels, or the movement of containers on site, PoTLL has had full regard to NPSP, guidance and advice and consultation responses making decisions and developing a set of proposals which has avoided where practicable and minimised harm to the setting of Tilbury Fort.

1.47 As such, it has sought to show that despite operational restrictions, physical and environmental constraints and needs, PoTLL has done all that is practicable to minimise such potential harm.

APPENDIX 7: NOTE ON WINTERING BIRDS

PORT OF TILBURY LONDON

PLANNING ACT 2008
THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010
DEVELOPMENT CONSENT ORDER APPLICATION

PROPOSED PORT TERMINAL AT FORMER TILBURY POWER STATION

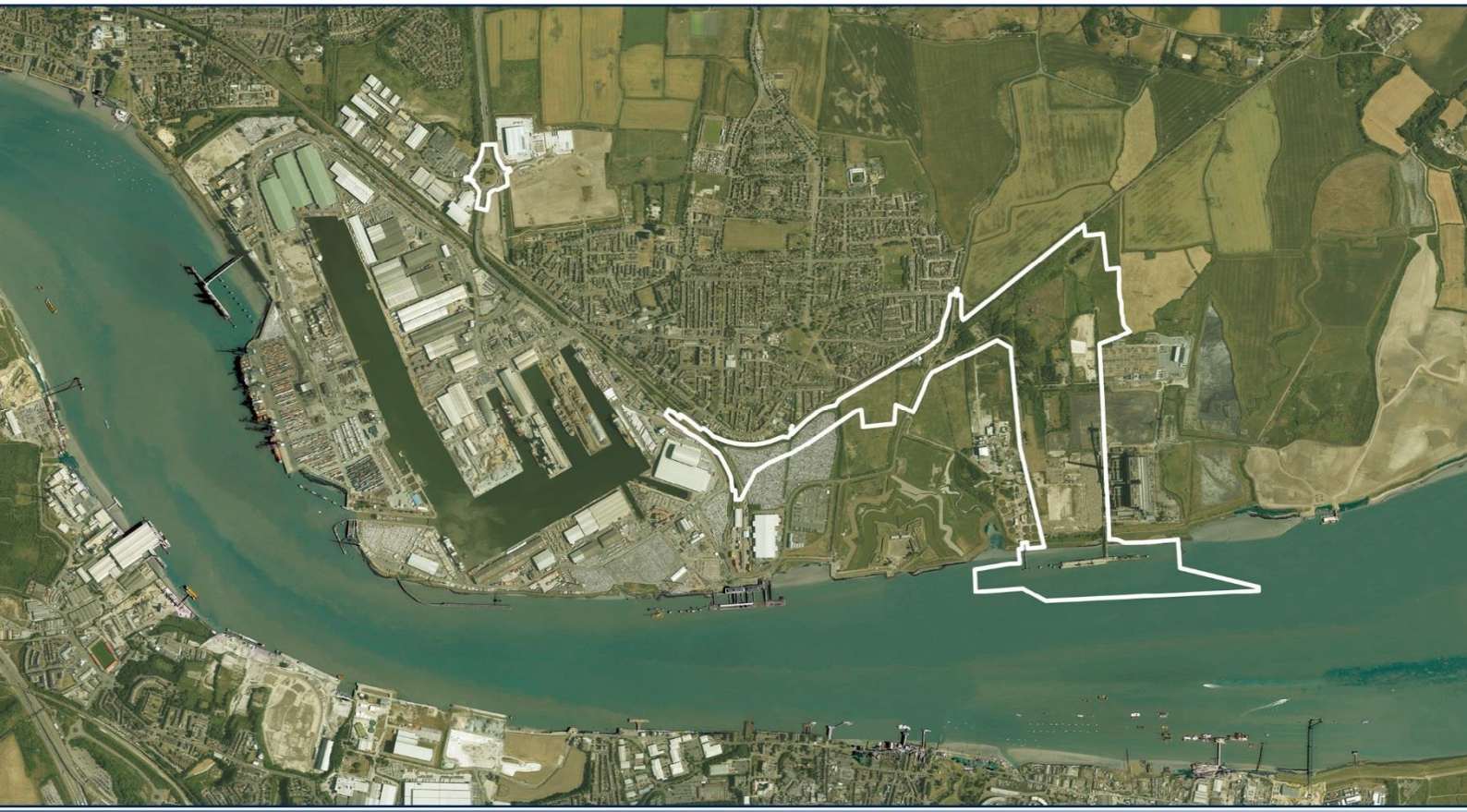
TILBURY2

TR030003

Response to Relevant Representations

Note of Wintering Birds

Appendix 7



TILBURY2

PROPOSED PORT TERMINAL AT FORMER TILBUY POWER STATION: TILBURY2
NOTE ON WINTER BIRD USE OF THE INTERTIDAL AREA
February 2018

Background and purpose of note

1. Port of Tilbury London Limited (PoTLL) has submitted an application for a new port terminal on the north bank of the River Thames, on part of the site of the former Tilbury Power Station. The Development Consent Order (DCO) application was accepted for examination by the Planning Inspectorate on 21 November 2017[1,2]. The project is known as "Tilbury2" and will require improvements and extensions to the existing jetty including creation of a new RoRo berth, with associated dredging of berth pockets around the extended jetty and dredging of the approaches to the berth pockets.

2. To provide supporting information for the DCO application, monthly wintering bird surveys of the intertidal area within the vicinity of the jetty were carried out between November 2016 and March 2017, with additional surveys in September and October 2017, as reported in the Environmental Statement (ES) submitted with the application.

3. On 25 October 2017, Natural England issued an email under its Discretionary Advice Service (DAS), which stated [emphasis added by Bioscan]:

   "We are pleased to see that surveys have been carried out in September and October of 2017, thus completing an overwintering season in conjunction with the 2016 data. We would, however, have expected the application to be supported by a number of years of full data and ***consider that this limitation may have contributed to bird numbers identified being low****. Paragraph 1.277 of the ES gives limited detail relating to survey work prior to 2016. Any further data available should be presented within the ES to corroborate the findings of the most recent surveys.*
   With regards to functionally linked land, Natural England notes that 'several of the bird species underpinning the European Site designations make use of intertidal habitats in closer proximity to the Tilbury2 site than the European Site itself.' From the information provided Natural England has been unable to ascertain which areas SPA birds are using, which species or in what numbers. ***We note that it is considered that there is 'relatively low' usage of intertidal habitats within the area of 'potential disturbance' identified,*** *but would expect to see consideration of what the habitat is being used for and potential impacts on the species concerned. It is worth bearing in mind that whilst some key species are identified in the SPA conservation objectives, water bird assemblage is also a qualifying feature."*

4. Initially, no explanation was provided by Natural England as to the source of this query, nor any alternative evidence that informed their view that the low bird numbers recorded by Bioscan for the intertidal area adjacent to the proposed Tilbury2 site may be atypical. However, during a subsequent discussion at a meeting held at Port of Tilbury on 11 December 2017, it became apparent that the background data that had led to these comments, covered a much wider area extending from the Tilbury2 site to Coalhouse Fort. Bioscan's own studies had noted significantly greater concentrations of intertidal bird species downstream of the Tilbury2 site and adjacent to Coalhouse Fort, and it was conjectured in discussion with Natural England on 11

[1] The DCO application documents are available via the Planning Inspectorate website https://infrastructure.planninginspectorate.gov.uk/projects/south-east/tilbury2/
[2] Thurrock Borough Council scoping application reference: 16/01194/SCO.

December that the counts presented in the ES may have been viewed in the context of the higher numbers around Coalhouse Fort, leading to an incorrect supposition that the ES data for the zone of influence around the proposed DCO boundary was anomalous or unrepresentative.

5. It was agreed on the 11 December 2017 that Bioscan would produce a note providing additional context to the information presented in the ES. Natural England requested that any "*further data available should be presented … to corroborate the findings of the most recent surveys*". This note duly provides details of wintering bird survey work which has been undertaken monthly since November 2017 (i.e. following on from the Environmental Statement submission, and which will continue monthly to March 2018). This is presented in the context of the Bioscan's previous intertidal wintering bird surveys (2016/17 and 2017), with further third-party and historic data being provided as part of this package of evidence in order to demonstrate that the level of bird use of this area is representatively portrayed and robustly assessed within the DCO application supporting documents (i.e. within Chapter 10 of the Environmental Statement, document reference 6.1; and ES Appendix 10.O Habitats Regulations Assessment (HRA) Report, document reference 6.2 10.O).

6. This note provides supporting evidence which is for clarification purposes and is not required for the assessment of likely significant effects. This supporting information includes the results of on-going monitoring which corroborates the findings of the most recent surveys provided in the ES. Such on-going monitoring is good practice. The information in this note does not constitute "further information" pursuant to Regulation 17 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009. It is evidence which supports our existing conclusions and it is not necessary in order to make the initial ES adequate; the data requested by Natural England was to corroborate the findings of the most recent surveys and that is what this note achieves. Those affected by the information presented have therefore already had an adequate opportunity to comment on it.

Sites Designated for Bird Interest

7. The specific portion of intertidal area along the River Thames adjoining the Tilbury2 site and extending upstream and downstream for over two kilometres is not designated as a Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) or Ramsar Site. The nearest European nature conservation designation is the Thames Estuary and Marshes SPA and Ramsar Site, which is located approximately 2km to the south-east at its closest point (which is on the far side of the River Thames). A portion of the SPA is on the same side of the Thames as the site and is located at its closest point approximately 2.6km to the east.

8. The qualifying features for the Thames Estuary and Marshes SPA are as follows:

   Wintering populations of European importance of the following Annex I species:

   - Avocet *Recurvirostra avosetta*; and
   - Hen harrier *Circus cyaneus*.

Regular use by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed on Annex I):

- Ringed plover *Charadrius hiaticula* (passage);
- Grey plover *Pluvialis squatarola* (winter);
- Dunlin *Calidris alpina alpina* (winter);
- Knot *Calidris canutus islandica* (winter);
- Black-tailed godwit *Limosa limosa islandica* (winter); and
- Redshank *Tringa totanus totanus* (winter).

9. The site also qualifies under Article 4.2 as a wetland of international importance by regularly supporting at least 20,000 waterfowl. Over winter, the area is cited as regularly supporting 75,019 individual waterfowl (five-year peak mean to 21/03/2000) including: redshank, black-tailed godwit, dunlin, lapwing *Vanellus vanellus*, grey plover, shoveler *Anas clypeata*, pintail *Anas acuta*, gadwall *Anas strepera*, shelduck *Tadorna tadorna*, white-fronted goose *Anser albifrons*, little grebe *Tachybaptus ruficollis*, ringed plover, avocet and whimbrel *Numenius phaeopus*.

10. The Thames Estuary & Marshes is also designated as a wetland of international importance under the Ramsar criteria (The Thames Estuary & Marshes Ramsar Site). In relation to birds, the site qualifies under criterion 3 due to it supporting a wintering bird assemblage of international importance (5 year peak mean, 1998/99 – 2002/03, of 45,118 waterfowl) and under criterion 6 due to it supporting populations of qualifying bird species at levels of international importance (specifically migratory ringed plover and black-tailed godwit; and wintering grey plover, knot, dunlin and redshank).

11. The South Thames Estuary and Marshes SSSI is designated on the basis of its coastal wetland habitats and the rare/scarce plants and invertebrates they support, as well as the internationally important populations of certain bird species (as cited under the SPA and Ramsar designations), and nationally important numbers of certain other bird species. Such older data is provided as supporting explanatory and reference material only.

Bird use of the affected areas: historical and third party data

12. Some of the data described in the following paragraphs is of significant age and of questionable relevance to the current baseline position, hence much of these older data were not reported in the ES. Nevertheless, for completeness and to consider whether longer term trends have any relevance to Natural England's query, it is included below for completeness.

13. **Estuarine Waterbirds at Low Tide: the WeBS Low Tide Counts 1992-93 to 1998-99**. Over the winters of 1992/93 to 1998/99 a study of the bird use of the estuarine systems at low tide of the UK was undertaken (Musgrove *at al.*, 2003)[3]. In respect of the Thames Estuary this covered two winters: 1993-94 and 1998-99. The inner Thames between Barking and Tilbury was covered during the 1993-94 winter only; however, greater coverage of the estuary was achieved in

[3] Musgrove, A.J., Langston, R.H.W., Baker, H. & Ward, R. M. (eds) (2003) Estuarine Waterbirds at Low Tide: the WeBS Low Tide Counts 1992-93 to 1998-99. WSG/BTO/WWT/RSPB/JNCC, Thetford.

1998-99, as shown at Inset Figure 1 below. In respect of the Tilbury2 site, a low-tide recording compartment runs between the Tilbury jetty access eastward to Coalhouse Point, as indicated by the red arrow in Inset Figure 1 below (with the intertidal area between the jetty and 'London International Cruise Terminal' in Tilbury apparently omitted).

Inset Figure 1: extract from Musgrove *at al.* (2003) showing survey compartments

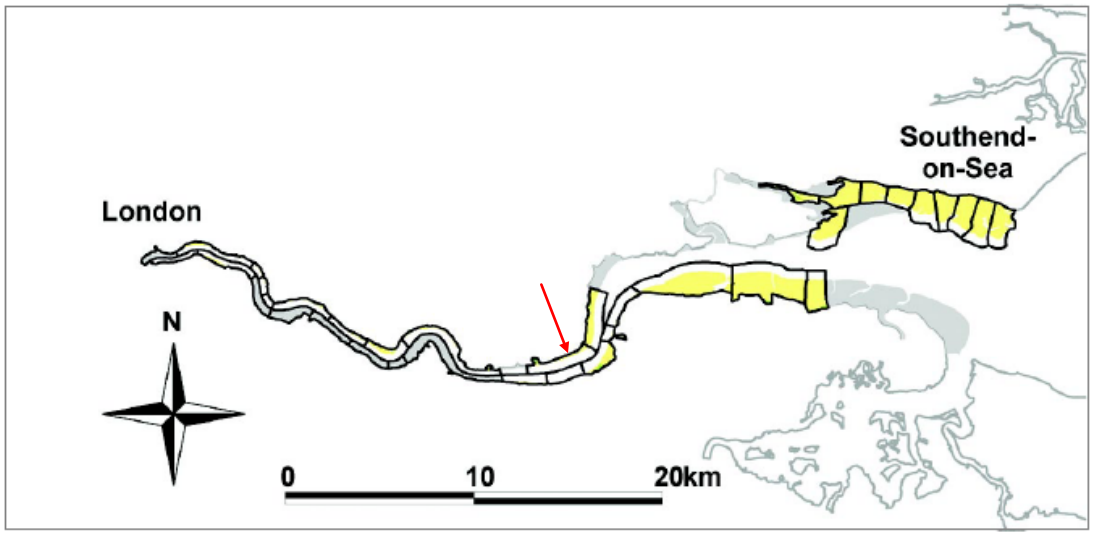


Figure 4.23.1: **LTC sections at the Thames Estuary, winters 1993–94 and 1998–99**

14. In contrast with the British Trust for Ornithology's (BTO's) standard methodologies for undertaking Wetland Bird Surveys (WeBS) core counts, which cover inland waterbodies and coastal areas at high tide (therefore aiming to survey high-tide bird roosts); the Musgrove *at al.* study aimed to cover the low tide period of estuaries to assess their importance for feeding birds. The published results of the Musgrove *at al.* study included a summary of the bird use at low tide of each of the main estuaries in the UK. The following is an extract in respect of the Thames Estuary [emphasis added by Bioscan to highlight references most pertinent to the Tilbury2 site]:

"Due to the incomplete coverage achieved, care must be taken when attempting to interpret the maps. With this in mind, the totals and weighted totals maps pick out the shore north of ***Coalhouse Fort (off East Tilbury Marshes)*** *as well as Higham Creek, Hadleigh Ray, Southend Flats and on the south shore from Egypt Bay eastwards.* ***High densities were also recorded on the inner Thames, although much smaller numbers of birds were involved due to the narrower shores here.*** *Many of the individual species were widespread but showed concentrations in one or more areas. Such species included* […] ***Dunlin (especially East Tilbury*** […]*).* ***Avocets were highly concentrated on the East Tilbury shoreline, with most of the Black-tailed Godwits also here*** *and along the North Kent shore.* ***Ringed Plovers were in their highest densities at*** *Thamesmead,* ***West Thurrock to Coalhouse*** *and* […]."

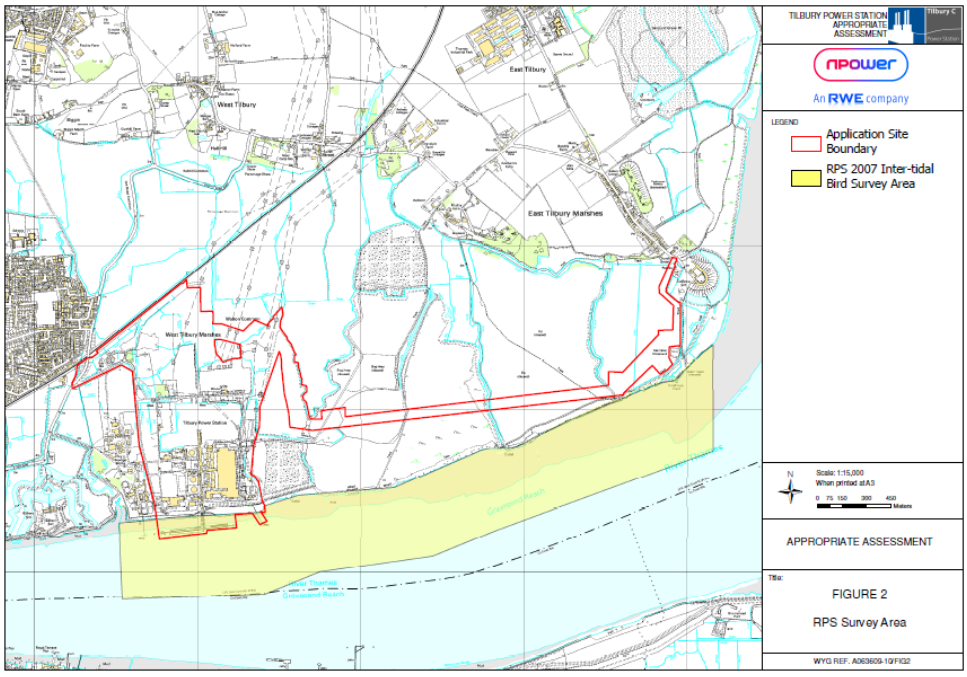
15. For each estuary system a series of dot-density maps were provided to show an indicative distribution of the various species surveyed in the Thames Estuary. In respect of the compartments adjacent to the Tilbury2 site (i.e. between the Tilbury jetty access eastward to Coalhouse Point – see Inset Figure 1 above with relevant compartment indicated by a red arrow), the dot-density maps show concentrations of lapwing, dunlin, shelduck, ringed plover, grey plover and redshank. However, as the dot-density maps present the distributions as an even coverage of birds within the compartment, when in fact the data was collected from a

coastal stretch >3km long which includes the Tilbury2 survey area and >1km beyond this to the east incorporating Coalhouse Point, the mapping is of limited value. Given this, and the time which has elapsed since the data was gathered (some of which is approaching 20 years in age), the degree to which this data can be relied upon to inform the current assessment is limited.

16. **Surveys to inform development proposals at Tilbury Power Station (2007-2008).** Targeted bird surveys of the intertidal area within the vicinity of the Tilbury2 site were conducted by RPS on behalf of RWE between January 2007 and May 2008 and documented in interim reports[4,5,6,7,8] with WYG providing a summary of all the RPS results (WYG, 2012)[9]. These records were further summarised within Table 10.39 of the Tilbury2 ES.

17. The RPS wintering bird surveys comprised intertidal surveys from January to March 2007 (low tide only), and September 2007 to March 2008 (two counts at low tide and two at high tide). Nocturnal intertidal surveys were also conducted and these comprised monthly visits between November 2007 and March 2008. The nocturnal surveys commenced after dusk and three hours prior to low tide and finished one hour after low tide. The area surveyed covered the intertidal section of the River Thames from Bill Meroy Creek to just north of Coalhouse Point (see Inset Figure 2 below), therefore encompassing the whole of the Tilbury2 DCO boundary and overlapping with the study area for the present ES. Table 1 below provides a summary of the results from these surveys, and the survey area is shown in Inset Figure 2 below.

Inset Figure 2: extract from WYG (2012) showing intertidal bird survey area



[4] RPS (July 2007) 'Tilbury Power Station: Intertidal Ornithological Survey Report. January-March 2007'
[5] RPS (February 2008) 'Tilbury Power Station: Intertidal Ornithological Survey Report. August-October 2007'
[6] RPS (March 2008) 'Tilbury Power Station: Intertidal & Terrestrial Ornithological Survey Report. November-December 2007'
[7] RPS (June 2008) 'Tilbury Power Station: Intertidal & Terrestrial Ornithological Survey Report. November-March 2008'
[8] RPS (June 2008) 'Tilbury Power Station: Intertidal Ornithological Survey Report. April-May2008'
[9] WYG (August, 2012). 'Tilbury B Biomass Phase 2 Project: Information for Appropriate Assessment (Assessment of Potential Impacts on the Thames Estuary and Marshes Special Protection Area and Ramsar Site)'. Produced in respect of RWE's [now shelved] biomass conversion project (planning reference: 12/00890/OUT).

Table 1: Summary of results of intertidal wintering bird survey (RPS, 2012[10]; and Atkins, 2017[11]).

Month	Jan-2007 (Diurnal survey)	Feb-07 (Diurnal survey)	Mar-07 (Diurnal survey)	Sep-2007 (Diurnal survey)	Oct-2007 (Diurnal survey)	Nov-2007 (Nocturnal survey)	Nov-2007 (Diurnal survey)	Dec-2007 (Diurnal survey)	Jan-2008 (Nocturnal survey)	Jan-2008 (Dirunal survey)	Feb-2008 (Nocturnal survey)	Feb-2008 (Diurnal survey)	Mar-2008 (Nocturnal survey)	Mar-2008 (Diurnal survey)	2016-17- Max count (High tide)	2016-17- Max count (Low tide)	Max count SPA species within Bioscan survey area (Atkins 2016-17 data)*	Number of visits SPA species encountered within Bioscan survey area (Atkins 2016-17 data)*
Source	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**RPS**	**Atkins**	**Atkins**	**Atkins**	**Atkins**
Avocet	2	0	8	26	50	7	68	7	2	450	3	2	0	12	900	10	11	2
Bar-tailed Godwit	1	0	0	21	48	0	36	2	0	5	0	5	0	5	0	0	-	-
Black-headed gull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	368	-	-
Black-tailed Godwit	16	6	0	105	1479	11	247	26	8	13	6	15	2	7	13	3	7	2
Brent goose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	-	-
Canada goose	0	0	0	26	80	0	0	0	0	0	0	0	0	0	0	0	-	-
Common gull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2	-	-
Common sandpiper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-	-
Common scoter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0	-	-
Cormorant	8	3	4	6	13	0	5	9	0	3	0	4	0	6	3	2	-	-
Curlew	36	20	3	5	40	11	38	27	22	54	27	37	9	4	20	52	-	-
Dark-bellied Brent Goose	0	0	0	0	58	0	0	0	0	0	0	4	0	0	0	0	-	-
Dunlin	2,119	1,560	1	54	649	667	1,407	1,402	51	306	452	3,201	81	602	590	486	200	2
Gadwall	2	0	0	0	0	0	0	0	0	2	0	0	0	0	40	40	-	-
Great Crested Grebe	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	-	-
Great black-backed gull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	9	-	-
Green sandpiper	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	-	-
Grey heron	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	2	-	-
Grey Plover	30	12	4	7	23	25	22	28	10	21	75	28	6	26	18	23	10	1
Greylag goose	0	0	0	4	42	0	0	1	0	0	0	0	0	0	0	0	-	-
Herring gull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	14	-	-
Knot	0	0	0	0	4	0	0	0	0	18	0	77	0	0	0	0	-	-
Lapwing	39	4	12	1	11	6	86	12	6	64	10	53	0	26	0	7	-	-
Lesser black-backed gull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	5	-	-
Little egret	0	0	0	5	4	0	6	2	0	1	0	2	0	2	1	2	-	-
Little Grebe	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	-	-
Little Stint	0	0	0	2	9	0	0	0	0	0	0	0	0	0	0	0	-	-
Mallard	43	15	9	48	65	1	69	61	0	61	0	47	2	36	138	68	-	-
Oystercatcher	0	4	12	1	0	0	0	0	0	1	2	11	3	11	2	3	-	-
Pintail	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	-
Redshank	97	1	0	27	21	75	25	68	19	23	11	9	148	25	9	30	8	4
Ringed Plover	112	135	24	124	112	12	56	87	17	78	1	86	2	54	0	40	27	2
Ruff	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-	-
Shag	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	-	-
Shelduck	127	157	50	30	104	21	2	93	61	123	2	227	92	120	200	106	56	3
Shoveler	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	-	-
Shoveler	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-	-
Teal	5	5	5	13	8	1	24	25	0	56	13	148	64	163	317	435	-	-
Tufted Duck	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	-	-
Turnstone	8	8	0	0	0	0	1	0	0	6	0	2	0	1	5	2	-	-
Whimbrel	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	-	-
Wigeon	0	0	0	2	8	0	0	0	0	0	0	0	0	0	7	0	-	-

***** Numbers taken from maps provided in Atkins (2017) report.

[10] WYG (August, 2012). 'Tilbury B Biomass Phase 2 Project: Information for Appropriate Assessment (Assessment of Potential Impacts on the Thames Estuary and Marshes Special Protection Area and Ramsar Site)'. Produced in respect of RWE's [now shelved] biomass conversion project (planning reference: 12/00890/OUT).

[11] Atkins Ltd (March 2017). 'Thames Tideway FLO JV: Winter Bird Survey Report - final'. Produced in respect of the Goshem's Farm jetty proposals (planning reference: 17/00224/FUL).

18. The report (WYG, 2012) indicates, in respect of the results of the 2007/8 diurnal intertidal surveys, that the waterbird assemblage was concentrated outside of Bioscan's survey area, towards the east:

"By day, the majority of the survey area waterbird assemblage extensively utilised the eastern mudflats, east of an old pipeline/breakwater [taken to be at TQ 67852 75750, equating to the eastern limit of Bioscan's intertidal survey area] *and to a lesser extent the central area. Teal and pied avocet distribution was divided between two areas, the sewage outfall to the west of the power station and the intertidal flats adjacent to the SPA. A discrete concentration of black-tailed godwits also utilised the former area*."

19. The report (WYG, 2012) does state that higher counts were recorded during the 2007/8 nocturnal intertidal surveys, although it acknowledges that there were limitations to undertaking surveys at night due to reduced visibility, despite using night-imagery equipment:

"By night, waterbirds were generally spread more evenly throughout the survey area than during the day. In general, greater numbers of grey plover, dunlin, Eurasian curlew and common redshank foraged on the intertidal flat adjacent to the power station at night than during the day."

20. The report then states in the evaluation section that relatively low numbers of waterbirds were recorded in the vicinity of the power station itself during the 2007/8 surveys:

"In general, the zone within 500m of the Development Site boundary [the former power station]*, or the Maximum Zone of Potential Disturbance due to construction works relating to the Tilbury B Biomass Phase 2 Project, held relatively low numbers of waterbirds in comparison with the intertidal survey area as a whole although, due to use of the area around the sewage outflow pipe to the west of the power station, some species were recorded in similar numbers to those recorded from the wider zone of potential disturbance."*

"A large proportion of the species present within 500m of the Development Site were recorded in numbers which represented an insignificant proportion (i.e. <5%) of the SPA population. Mallard, great cormorant, common sandpiper, ruff and black-tailed godwit were the only species recorded within 500m of power station site in significant proportions (i.e. >5%) of the Thames Estuary & Marshes SPA population, although counts of great cormorant, common sandpiper and ruff are too small to be considered significant whilst mallard numbers are likely to be augmented by non-SPA birds and are, therefore, also not considered significant in SPA terms."

"Black-tailed godwit was present in significant numbers. Black-tailed godwit distribution within 500m of the Development Site was concentrated at the tributary mouth [presumed to mean Bill Meroy Creek] *to the west of the existing Tilbury B station, approximately 300m to the east* [presumed typo for 'west'] *of the jetty. As for the Maximum Potential Disturbance Zone, the peak count of black-tailed godwit within 500m of the Development Site occurred in October consisting of 760 individuals which represents 37.2% of the autumn Thames Estuary and Marshes SPA 5 year autumn mean peak (2002/3-2006/7). The winter peak in November of 53 individuals also represents a significant proportion (7.4%) of the winter SPA population. Further analysis of the data for black-tailed godwits (Tables 2-5) shows that August to November are the months where the highest numbers of birds are present within 500m of the Development Site with relatively low numbers (<5% of the SPA population) present at other times."*

21. The above supporting material is essentially consistent with what is reported in the Tilbury2 ES and accompanying HRA report (with the exception of findings in respect of black-tailed godwit).

The WYG (2012) report then goes on to summarise the 2007/8 survey findings, drawing a conclusion which is otherwise consistent with the findings of the Tilbury2 ES:

"On the basis of six diurnal surveys between November and March 2007/08 and single nocturnal surveys in December 2007 and January 2008, the terrestrial habitat adjacent to the intertidal areas of the wider study area are considered to be of negligible importance to wintering waterbirds."

22. **Essex Birdwatching Society records (2014-2017)**. Pre-existing records received from the Essex Field Club and KMBRC were reviewed as part of the desk-study that informed the DCO ES. In order to address Natural England's request that *"Any further data available should be presented ... to corroborate the findings of the most recent surveys"*, a further more recent review of the Essex Birdwatching Society's website[12] has been conducted to understand if there were further records available for the intertidal area within the vicinity of the Tilbury2 site. The review revealed a relatively large volume of records for this area, with the majority of these submitted by one recorder (Mr Larkin). Mr Larkin was contacted and kindly gave permission for these records to be referred to in this document. The records span from early 2014 to December 2017. In considering the wintering bird use of the wider area, records from the East Tilbury/Coalhouse Fort area were also reviewed.

23. The following two tables provide a summary of Mr Larkin's records of the SPA species (plus two other species which are regularly found in this area, curlew and shelduck) over the winter period. The records presented within Table 3 show those which encompass the c.3km long Bioscan survey area and extend >1km beyond to the east (i.e. covering, in total, a stretch of Thames shore from the London International Cruise Terminal eastward to just before Coalhouse Point – as shown at Figure 10.12). Those presented separately within Table 4 are Mr Larkin's records from around the East Tilbury/Coalhouse Fort area.

Table 3: Summary of Mr Larkin's 2014-2017 winter records from the Cruise Terminal eastward to before Coalhouse Point (encompassing Bioscan's c.3km long intertidal survey area and >1km beyond to the east).

SPA citation species	Number of records	Average	Maximum count	Minimum count
Avocet *Recurvirostra avosetta*	66	12.8	119	1
Black-tailed godwit *Limosa limosa*	63	30.7	178	1
Dunlin *Calidris alpina*	30	148	928	1
Grey plover *Pluvialis squatarola*	10	7.8	16	1
Hen harrier *Circus cyaneus*	1	1	1	1
Knot *Calidris canutus*	0	0	0	0
Redshank *Tringa totanus*	59	17.8	80	1
Ringed plover *Charadrius hiaticula* *	21	28.5	246	1
Assemblage species				
Lapwing *Vanellus vanellus*	34	47.6	199	4
Shoveler *Anas clypeata*	4	7.0	11	2
Gadwall *Anas strepera*	39	14.7	77	1
Little grebe *Tachybaptus ruficollis*	43	13.2	29	1

[12] The Essex Birdwatching Society. http://www.ebws.org.uk/ebs/default.asp

SPA citation species	Number of records	Average	Maximum count	Minimum count
Shelduck *Tadorna tadorna*	60	9.7	43	1

* Passage period only

No records for pintail, whimbrel, white-fronted goose

Table 4: Summary of Mr Larkin's 2014-2017 winter records from the East Tilbury/Coalhouse Fort area (outside and to the east of Bioscan's survey area).

SPA citation species	Number of records	Average	Maximum count	Minimum count
Avocet *Recurvirostra avosetta*	12	1200.4	3113	294
Black-tailed godwit *Limosa limosa*	24	456.8	2025	21
Dunlin *Calidris alpina*	20	729.5	4160	50
Grey plover *Pluvialis squatarola*	32	117.7	203	13
Hen harrier *Circus cyaneus*	2	1	1	1
Knot *Calidris canutus*	12	21	164	1
Redshank *Tringa totanus*	5	23.6	38	4
Ringed plover *Charadrius hiaticula* *	28	85.4	378	1
Assemblage species				
Lapwing *Vanellus vanellus*	6	57.2	95	17
Shoveler *Anas clypeata*	10	6.5	24	1
Pintail *Anas acuta*	2	1.5	2	1
Gadwall *Anas strepera*	5	11.8	18	5
Little grebe *Tachybaptus ruficollis*	24	18.7	31	7
Whimbrel *Numenius phaeopus*	3	1	1	1
Shelduck *Tadorna tadorna*	10	250.3	474	61

* Passage period only

No records for white-fronted goose

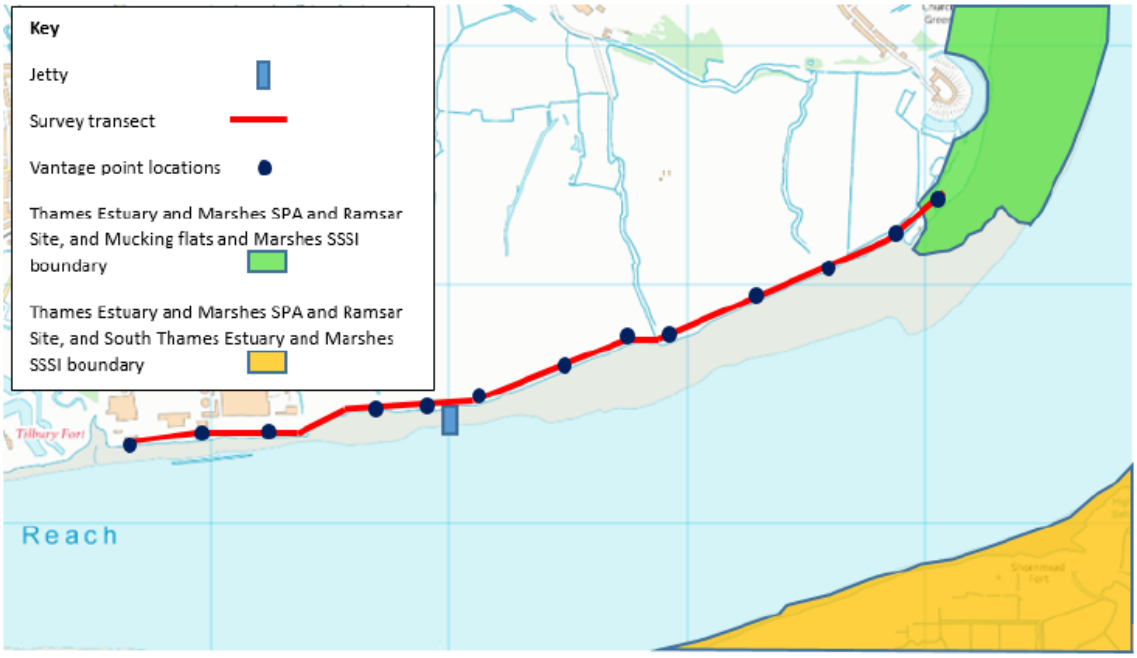
24. The above Tables 3 and 4 indicate that there were fewer total records from the East Tilbury/Coalhouse Fort area for most species, although this appears to be due to there being fewer visits to this area in comparison with the intertidal area adjacent to the Tilbury2 site, but that the counts for the majority of the species are higher and in some cases significantly higher for the East Tilbury/Coalhouse Fort area (Table 4) when compared with the intertidal area near the Tilbury2 site (Table 3). Redshank is the only citation species in the tables above for which counts are comparable or higher within the vicinity of the Tilbury2 site as compared with the East Tilbury/Coalhouse Fort intertidal area. For assemblage species, only lapwing and gadwall counts have been higher within Table 3 (nearer the Tilbury 2 site), and for the latter species this is because it preferentially forages in proximity to the sewage outfall.

25. Detailed analysis of Mr Larkin's data appears to show a decline in the numbers of black-tailed godwit, ringed plover, avocet, and possibly lapwing and redshank, since late 2016 along the intertidal area (between the London International Cruise Terminal and Coalhouse Point). There does not appear to be a particular pattern for dunlin, but this could be due to lower number of records for this species. A review of Mr Larkin's data from the Coalhouse Fort area does not

appear to show the same pattern, although it should be noted fewer visits were made to this area in comparison with the area within the vicinity of the Tilbury2 site.

26. **Surveys to inform development proposals at Goshems Farm (2016-2017).** Targeted bird surveys of the intertidal area within the vicinity of the Tilbury2 site were conducted by Atkins on behalf of Ferrovial Agroman UK Ltd and Laing O'Rourke between November 2016 and February 2017 (Atkins, 2017)[13]. A wintering bird survey was undertaken of the intertidal area between Coalhouse Fort (TQ 69364 76784) to the mud flats at the eastern boundary of Tilbury Power Station (TQ 65760 75341). The surveys comprised four spring high tide surveys (November 2016, December 2016, January 2017 and February 2017), and four spring low tide surveys (November 2016, December 2016, January 2017 and February 2017). The results from the survey were provided in a report which also included summary maps of the distribution of the SPA species. The survey route is shown in Inset Figure 3 and a summary of the results is provided in Table 1 above.

Inset Figure 3: extract from Atkins (2017) showing intertidal bird survey transect



27. The Atkins report states in the discussion section:

"As can be seen from the distribution maps in Appendix C, qualifying species were recorded in low numbers throughout the survey area, with the largest counts being concentrated around Coalhouse Fort. This is within the Thames Estuary and Marshes SPA, Thames Estuary and Marshes Ramsar site and Mucking Flats and Marshes SSSI sites, and is approximately 2km from the proposed [Goshem's Farm] *jetty…. These surveys indicate that the mud flats approximately 2km to the east of the proposed* [Goshem's Farm] *jetty support higher concentrations of wetland birds than the rest of the survey area."*

28. In summary the findings were consistent with Bioscan's over the same period, and similarly reflect the position reported by WYG in 2012, with low numbers of birds being found in proximity to the Tilbury2 site, as against greater numbers closer to Coalhouse Fort.

[13] Atkins Ltd (March 2017). 'Thames Tideway FLO JV: Winter Bird Survey Report - final'. Produced in respect of the Goshem's Farm jetty proposals (planning reference: 17/00224/FUL).

Bird use of the affected areas: Bioscan wintering bird data

29. Since November 2016, wintering bird surveys following the British Trust for Ornithology's (BTO) Wetland Bird Survey (WeBS) methodology have been carried out by Bioscan on the intertidal area between Tilbury Cruise Terminal (grid reference TQ 64516 75191) to a ditch outfall (TQ 67852 75750) approximately 1.1km south-west of Coalhouse Point (the Bioscan survey area). The survey area encompasses a 3.4km stretch of coastline which includes the proposed DCO limits and the predicted zone of influence for noise, lighting and other effects around them, as reported in the ES.

30. A review of the BTO WeBS website for the ES found that this area does not appear to be covered by existing WeBS core counts (i.e. high tide count) and does not have any survey compartments. Nevertheless, part of this intertidal area is covered by a low-tide count compartment which appears to have been last counted over the winter of 1998/99. This compartment runs between the Tilbury jetty access eastward to Coalhouse Point.

31. Prior to the commencement of the surveys the intertidal area was divided into compartments based on the characteristics of the survey area and the nature and extent of the proposed development in order to collect relevant bird use data. The compartments were drawn onto large scale maps of the survey area, with the map then used to plot the approximate locations of all wildfowl and waders recorded during each survey. Once a survey was complete the numbers of individuals of each species was tallied for each compartment, with an overall bird count then calculated. Figure 10.12 provides the survey area and the extent of the compartments (with these extending down to low water mark in respect of the low tide counts).

32. Five monthly surveys were conducted between November 2016 and March 2017, with five further monthly surveys conducted thus far over the winter of 2017/18 (i.e. September, October, November and December 2017, and January 2018). In order to understand the bird use of the survey area during different tidal states the November 2016, December 2016, March 2017, September 2017 and October 2017 visits were undertaken during low tide; and the January and February 2017 visits were undertaken at high tide. From November 2017 onward, both the high and low tide periods were covered during each visit.

33. In addition to the counts of the intertidal area, counts for waterfowl and waders were also undertaken of the moat around Tilbury Fort and of the area of grazed grazing marsh fields on common land to the north of the Fort in order to inform baseline conditions and impact assessments for the proposed new access road connecting Tilbury2 to the existing port.

34. Table 5 below provides a summary of the combined number of each species encountered during each survey of the intertidal area, in the moat of Tilbury Fort and in the fields to the north of the Fort (see Appendix 1 for details of the species and numbers encountered within each survey compartment). Figures 1-7 provide the location and numbers of the SPA birds (and curlew) encountered during the surveys, with the figures also showing the site boundary drawn with a 250m buffer.

Table 5: Number of individuals recorded during each survey within the Bioscan survey area

Date	18/11/2016	16/12/2016	26/01/2017	22/02/2017	16/03/2017		19/09/2017	10/10/2017	08/11/2017	08/11/2017	04/12/2017	04/12/2017	19/01/2018	19/01/2018	Peak count
Count type	**Low tide**	**Low tide**	**High tide**	**High tide**	**Low tide**		**Low tide**	**Low tide**	**Low tide**	**High tide**	**Low tide**	**High tide**	**Low tide**	**High tide**	
Avocet	1	0	12	0	0		0	0	1	0	0	0	4	0	12
Black-headed gull	189	95	176	297	308		473	247	296	304	152	88	244	90	473
Black-tailed godwit	0	0	0	0	0		4	0	6	0	0	0	0	0	6
Canada goose	0	0	3	2	0		0	0	0	0	0	0	3	6	6
Common gull	0	4	3	4	0		0	0	1	0	1	0	0	0	4
Common sandpiper	0	0	0	0	0		1	0	0	0	0	0	0	0	1
Coot	0	0	4	2	0		0	0	0	0	0	0	0	0	4
Cormorant	0	0	1	2	0		1	2	1	1	0	2	0	0	2
Curlew	19	32	11	2	21		0	2	24	0	14	0	21	0	32
Dunlin	13	0	58	0	0		33	3	1	0	0	0	0	0	58
Gadwall	0	14	59	40	0		0	0	0	0	2	2	71	47	71
Great B-B gull	0	1	1	0	0		0	3	0	1	2	2	2	0	3
Grey heron	0	0	0	0	0		1	1	1	1	2	1	2	0	2
Grey plover	8	0	2	0	0		0	0	0	0	0	0	0	0	8
Herring gull	0	0	0	1	2		1	0	3	0	0	0	0	0	3
Kingfisher	0	0	0	0	0		0	0	0	1	1	1	0	0	1
Lapwing	15	163	32	0	0		0	0	4	0	9	1	2	0	163
Lesser B-B gull	1	0	0	0	0		0	0	0	0	0	0	0	0	1
Little egret	0	2	0	0	0		6	0	3	1	1	1	0	0	6
Little grebe	18	24	15	14	8		20	8	19	3	14	9	15	11	24
Little gull	0	0	0	0	0		1	0	0	0	0	0	0	0	1
Mallard	134	53	81	90	35		75	72	77	77	42	56	46	85	134
Moorhen	1	0	0	0	1		0	0	0	0	0	0	0	0	1
Mute swan	4	2	3	0	2		0	0	0	0	0	0	0	0	4
Oystercatcher	0	0	0	2	6		2	0	0	0	0	0	0	0	6
Pochard	0	0	0	0	0		0	0	1	0	2	2	59	2	59
Redshank	16	29	29	5	0		1	1	18	0	26	27	14	1	29
Ringed plover	5	0	0	0	0		10	44	0	0	0	0	0	0	44
Ruff	0	0	0	0	0		0	0	0	0	0	1	0	0	1
Shelduck	4	0	13	1	15		0	4	6	0	7	10	32	26	32
Shoveler	0	0	12	0	0		0	0	0	0	0	0	0	0	12
Snipe	0	0	1	0	0		0	0	1	0	0	0	0	0	1
Teal	125	194	204	171	47		2	0	56	23	89	75	84	34	204
Tufted duck	0	0	0	0	0		0	0	0	0	0	0	1	0	1
Turnstone	0	8	1	0	0		0	0	0	0	0	0	0	0	8

35. The data set out in Table 5 above indicates that the survey area receives moderate levels of regular use by black-headed gull, gadwall, lapwing, little grebe, mallard, redshank and teal.

36. During the December 2017 and January 2018 visits, surveys of the intertidal area to the east of Coalhouse Fort (outside the area surveyed for the ES) were conducted in order to understand relative bird use of this more distant downstream area. These counts were undertaken during a rising tide from one of the few slightly elevated positions to the east of the Fort; however, due to the low-lying nature of the area and the presence of saltmarsh vegetation between the observer and the intertidal mudflats, a small proportion of the mudflats beyond is obscured. Therefore, the numbers presented in Table 6 below from this area are considered to be minimum counts.

Table 6: Number of individuals recorded within the intertidal area east of Coalhouse Fort during the December 2017 and January 2018 visits

Species	04/12/2017	19/01/2018
Avocet *Recurvirostra avosetta*	1160	714
Bar-tailed godwit *Limosa lapponica*	3	0
Black-tailed godwit *Limosa limosa*	0	20
Cormorant *Phalacrocorax carbo*	4	0
Curlew *Numenius arquata*	62	68
Dunlin *Calidris alpina*	c.4200	c.4800
Gadwall *Anas strepera*	0	2
Great black-backed gull *Larus marinus*	2	0
Grey plover *Pluvialis squatarola*	110	139
Oystercatcher *Haematopus ostralegus*	1	2
Redshank *Tringa totanus*	25	0
Shelduck *Tadorna tadorna*	210	10
Teal *Anas crecca*	0	21

37. Table 6 indicates that the numbers of key species using the intertidal areas around Coalhouse Fort and some 2km or more downstream of the Tilbury2 site are significantly higher than those found within the Bioscan survey area adopted for the EIA studies. By comparison, numbers of most SPA/Ramsar species using the intertidal habitats within the proposed DCO limits, within the wider 300m zone of influence around that, or even within 2km, are far lower than those that use the mudflats near and downstream of Coalhouse Point.

38. To put this further into context, and facilitate consideration of the levels of use of the Bioscan survey area by the species cited for the nearby Thames Estuary and Marshes SPA, Table 7 below provides the numbers on the citation sheet, more recent published counts for the SPA, and the maximum number found during the surveys. By reference to the SPA citation species, avocet, black-tailed godwit, dunlin, grey plover and redshank have been recorded within the survey area; although the numbers found are relatively low in the context of the designation, and all counts represent less than 1% of the recent peak mean figures for the SPA (see Table 7).

Table 7: Comparison of winter bird counts in the Bioscan survey area with the Thames Estuary and Marshes SPA counts

SPA qualifying period	Species	Number of individuals listed on SPA sheet	Number of individuals (peak mean 04/05 to 08/09) [14]	Peak count in Bioscan survey area	No. of visits encountered in Bioscan survey area (out of 13 visits)	Percentage of peak number of individuals found within survey area (based on recent peak mean of 2004/05-2008/09)
Oct-Mar	Avocet	283	1395	12	4	0.86
Oct-Mar	Black-tailed godwit	1699	5311	6	2	0.11
Oct-Mar	Dunlin	29646	37251	58	5	0.16
Oct-Mar	Grey plover	2593	5673	8	2	0.14
Oct-Mar	Hen harrier	7	0	0	0	0
Oct-Mar	Knot	4848	42871	0	0	0
Oct-Mar	Redshank	3251	4313	29	11	0.67
Passage	Ringed plover	1324	1186	-	-	-

39. In terms of use patterns within the survey area, the duck species (gadwall, mallard and teal) tend to be found within the vicinity of the Anglian Water sewage outfall (TQ 6564 7531). Teal tend to sit adjacent to the outfall at low tide, and then feed in the mud around high tide. Gadwall tend to swim and feed in the water within the vicinity of the outfall both at low and high tide. Mallard behaviour appears similar to gadwall but can be more spread out along the adjoining intertidal area. Black-headed gull are generally found in association with the outfall and inside the sewage works, whilst little grebe are exclusively found within Tilbury Fort moat. Low numbers of lapwing have been found along the intertidal areas with higher numbers found resting adjacent to Tilbury Fort moat. Redshank are generally found scattered and feeding in the mud along the whole foreshore area; however, small flocks (no more than 11 individuals) have been found within the vicinity of the sewage outfall.

Summary of all survey data

40. The wintering bird surveys of the intertidal within the vicinity of Tilbury2 conducted during the 1998-99 Low Tide Count, and by Mr Larkin, RPS, Atkins and Bioscan all show broadly consistent results. Higher aggregations of waders and wildfowl are recorded outside and to the east of Bioscan's survey area, closer to Coalhouse Point.

41. Analysis of Mr Larkin's data does indicate that there has been some decline in the numbers of black-tailed godwit, ringed plover, avocet, and possibly lapwing and redshank, since late 2016 for the intertidal area between the London International Cruise Terminal and Coalhouse Point. The same pattern was not found for the intertidal areas to the east of Coalhouse Point. The period during which lower numbers were recorded corresponds with the 2016-2018 period during which Bioscan and Atkins undertook survey work of this intertidal stretch and also recorded low counts. As such, whilst Bioscan's findings are validated by these concurrent studies, the results do appear to show that the intertidal area is currently experiencing a period of lower waterbird numbers than the previous baseline. It is conjectured that this is most likely to be due to the recent activities at Goshems Farm.

[14] Liley, D, (20 June 2011). 'What do we know about the birds and habitats of the North Kent Marshes? Baseline data collation and analysis'. Natural England Commissioned Report NECR082).

42. The RPS data indicate that higher numbers of black-tailed godwit used this area over 10 years ago, but in view of the run of data since then showing significantly lower numbers (rarely exceeding 70 individuals), this strongly suggests either that 2007 was an unusual year for that species, or that there was a sudden decline afterwards that has continued.

43. In summary the data from these sources indicates sporadic to occasional use by low numbers of SPA species between London International Cruise Terminal and Coalhouse Point; and significantly higher numbers along the intertidal area within the vicinity of Coalhouse Fort (approximately 3km to the east of the Tilbury2 site boundary). This is fully consistent with the position presented in the ES and upon which the impact assessments in the ES and the associated HRA report are based.

Appendix 1.

Bioscan wintering bird surveys 2016-2018: raw data by compartment.

Appendix 1. Bioscan survey data: species and numbers within each survey compartment.

Species by compartment (see Figure 10.12)	18/11/2016	16/12/2016	26/01/2017	22/02/2017	16/03/2017		19/09/2017	10/10/2017	08/11/2017	08/11/2017	04/12/2017	04/12/2017	19/01/2017	19/01/2017
Tidal state	LT	LT	HT	HT	LT		LT	LT	LT	HT	LT	HT	LT	HT
IT1														
Avocet			1											
Black-headed gull	10	5	4	210	42		66	27	5		3		20	
Black-tailed godwit									3					
Common gull			1	4										
Curlew			8	2	1						2			
Dunlin			36											
Herring Gull				1	2									
Lapwing			7						1				2	
Lesser black-backed gull	1													
Mute swan			3											
Oystercatcher					2									
Redshank	2	2	7	5					7		3		2	
Teal			2											
Notes			#	$										
IT2														
Black-headed gull	4	1					14	3						
Curlew	1													
Lapwing	13										8			
Redshank	2	5									6			
Teal			1											
Turnstone		4												
					NB									
IT3														
Black-headed gull		3						5						
Curlew	5										1			
Gadwall			2											
Lapwing		9							3		1			
Mallard			5											
Oystercatcher							1							
Redshank	2	3							2		2		1	
Teal		3	14											
Turnstone		4												
					NB									
IT4														
Avocet	1		11						1				1	
Black-headed gull	12	8	30		13			3						

Species by compartment (see Figure 10.12)	18/11/2016	16/12/2016	26/01/2017	22/02/2017	16/03/2017		19/09/2017	10/10/2017	08/11/2017	08/11/2017	04/12/2017	04/12/2017	19/01/2017	19/01/2017
Tidal state	LT	LT	HT	HT	LT		LT	LT	LT	HT	LT	HT	LT	HT
Curlew		1												
Dunlin			19											
Gadwall			23	40										
Grey heron										1				
Mallard			3	4			14			7				
Redshank	1	7	12						2					
Shelduck	4		1		5			4	6		6		2	
Teal		14	101	126	16					8				
IT5														
Black-headed gull							62		4					
Black-tailed godwit									3					
Cormorant								1						
Dunlin									1					
Gadwall			20								2		2	
Herring gull							1							
Mallard	72	4			2		36	66	36					
Redshank	7	7					1	1	6		11		7	
Teal	49	7	27		5				10		41		41	
IT6														
Black-headed gull	9			74	29		56	48	4					
Common sandpiper							1							
Curlew		2	2						1					
Gadwall			9										53	
Little egret									2					
Little gull							1							
Mallard	20	14	50	31	2						14		35	
Oystercatcher				1	1									
Redshank		1	7						1					
Teal	1	1	13	4	4						6		4	
IT7														
Avocet													3	
Black-headed gull	54	3			118		70	90	74		24		46	
Common gull		1												
Cormorant				1										
Curlew	1	1	1		3			1	11		7			
Dunlin			1											
Grey plover			2											
Mallard			10	28	10									

Species by compartment (see Figure 10.12)	18/11/2016	16/12/2016	26/01/2017	22/02/2017	16/03/2017		19/09/2017	10/10/2017	08/11/2017	08/11/2017	04/12/2017	04/12/2017	19/01/2017	19/01/2017
Tidal state	LT	LT	HT	HT	LT		LT	LT	LT	HT	LT	HT	LT	HT
Shelduck			9		1								6	
Teal		5	8	22	4									
Turnstone			1											
IT8														
Black-headed gull	38	3			62		20	31	6		12		123	
Black-tailed godwit							4							
Common gull		3							1					
Curlew	12	28			17			1	12		4		21	
Dunlin	13						33	3						
Great black-backed gull		1						3					2	
Grey heron							1							
Grey plover	8													
Herring gull									3					
Little egret		2							1		1			
Mallard		2		2										
Oystercatcher					3									
Redshank	2	4	1										2	
Ringed plover	5						10	44						
Shelduck					9								24	
Teal		85			2								12	
E1														
No birds recorded														
E2														
Black-headed gull													30	
E3														
Black-headed gull											5			
Teal											1			
E4														
Grey heron												1		
Mallard											2	2		
Shelduck												7		
Teal											3	5		
E5														
Black-headed gull	22						55		53					
Gadwall		8										2	14	47

Species by compartment (see Figure 10.12)	18/11/2016	16/12/2016	26/01/2017	22/02/2017	16/03/2017		19/09/2017	10/10/2017	08/11/2017	08/11/2017	04/12/2017	04/12/2017	19/01/2017	19/01/2017
Tidal state	LT	LT	HT	HT	LT		LT	LT	LT	HT	LT	HT	LT	HT
Mallard	38	6					5		22	5	11	2		
Teal	59	40							16	14	26	51	22	34
E6														
Black-headed gull							44							
Gadwall													2	
Mallard										52		47		79
Teal										1		9		
E7														
Black-headed gull		18												
Mallard		4								6				
Shelduck												2		
E8														
Cormorant												1		
Shelduck														24
J1														
Black-headed gull		35	5							124	78	74		
Common gull			1								1			
Cormorant			1					1		1				
Great black-backed gull			1							1	2	2		
J2														
Common gull			1											
Mallard		3					20	6						
J2a														
Cormorant				1			1		1			1		
Mallard			12	14	10				6	7	10	4	9	6
Oystercatcher				1										
J3														
Black-headed gull			1				69							
M1														
Black-headed gull			21		4						9	14		
Canada goose													3	6
Coot			4	2										
Gadwall		6	2											

Species by compartment (see Figure 10.12)	18/11/2016	16/12/2016	26/01/2017	22/02/2017	16/03/2017		19/09/2017	10/10/2017	08/11/2017	08/11/2017	04/12/2017	04/12/2017	19/01/2017	19/01/2017
Tidal state	LT	LT	HT	HT	LT		LT	LT	LT	HT	LT	HT	LT	HT
Grey heron									1		1			2
Kingfisher							1			1		1		
Lapwing												1		
Little egret							1							
Little Grebe	18	24	13	14	8		20	8	19	3	14	9	15	11
Mallard		7							13		5		2	
Mute swan		2												
Oystercatcher							1							
Pochard			2						1		2	2	59	2
Redshank			1								3	4	1	
Shelduck														2
Teal		2					2		30		12	10	5	
Tufted duck													1	
M2														
Black-headed gull		4		4							1			
Canada goose			3	2										
Dunlin			2											
Gadwall			3											
Grey heron								1			1			
Kingfisher											1			
Lapwing	2	154	16											
Little egret							4			1				
Mallard	4	9	1	6	7							1		
Moorhen	1													
Mute swan	4				2									
Pied wagtail				1										
Redshank											1	23		1
Ruff												1		
Shelduck			3	1							1	1		
Shoveler			12											
Teal	16	37	38	19	12									
F1														
Lapwing			6											
F2														
Mallard		4												
F3														
Lapwing			3											

Species by compartment (see Figure 10.12)	18/11/2016	16/12/2016	26/01/2017	22/02/2017	16/03/2017		19/09/2017	10/10/2017	08/11/2017	08/11/2017	04/12/2017	04/12/2017	19/01/2017	19/01/2017
Tidal state	LT	LT	HT	HT	LT		LT	LT	LT	HT	LT	HT	LT	HT
Mallard				5										
Snipe									1					
F4														
No birds														
F5														
Black-headed gull					10									
Little egret							1					1		
Little grebe			2											
Mallard					4									
Redshank													1	
Teal					4									
Snipe			1											
Sewage Works														
Black-headed gull	40	15	115	9	30		17	40	150	180	20		25	
Moorhen					1									
Species (Non-WeBS)	18/11/2016	16/12/2016	26/01/2017	22/02/2017	16/03/2017		19/09/2017	10/10/2017	08/11/2017	08/11/2017	04/12/2017	04/12/2017	19/01/2017	19/01/2017
Along footpath														
Blackbird			1										p	
Blue tit							p							
Carrion crow									p				p	
Collared dove			1	1	1									
Dunnock		p	3		1		p		p		p			
Feral pigeon		p	3				p	p						
Goldfinch	p	p		2			p							
Great spotted woodpecker									p					
Grey Wagtail	p	p	1							p	p		p	p
Kestrel			1				2	1						
Linnet	p		25	8	1		62	24	6					
Long-tailed tit													p	
Magpie				2			p		p					
Meadow pipit	p	p		2	1			10	p		p			p
Mistle thrush										1				
Pied wagtail	p	p					p	3	p		p			p
Robin				1			p			p	p		p	

Species by compartment (see Figure 10.12)	18/11/2016	16/12/2016	26/01/2017	22/02/2017	16/03/2017		19/09/2017	10/10/2017	08/11/2017	08/11/2017	04/12/2017	04/12/2017	19/01/2017	19/01/2017
Tidal state	LT	LT	HT	HT	LT		LT	LT	LT	HT	LT	HT	LT	HT
Song thrush		p	1										p	
Starling		p					p		p					
Stonechat	2	1					2	2		1	1			1
Swallow							p							
Wren			2	1	1			1		p			p	
Fields (F1-F5)														
Blackbird			1										p	
Carrion crow			1									p		
Chaffinch														p
Dunnock			1				1							
Goldfinch							p							p
Great Tit	2													
Kestrel														
Linnet	c.5	p					3					45		
Magpie	3	p	3	7	11			4	p			p		p
Meadow pipit							14					p	p	
Mistle thrush								1						
Pied wagtail	c.3				3				p				p	
Skylark		1												
Song thrush			1											
Sparrowhawk	1													
Starling				35			330		p					p
Woodpigeon			196	233	4									p
Yellow wagtail							2							

KEY

IT= Inter-tidal

E= Estuary

F= Field

M= Moat

J= Jetty/Pier

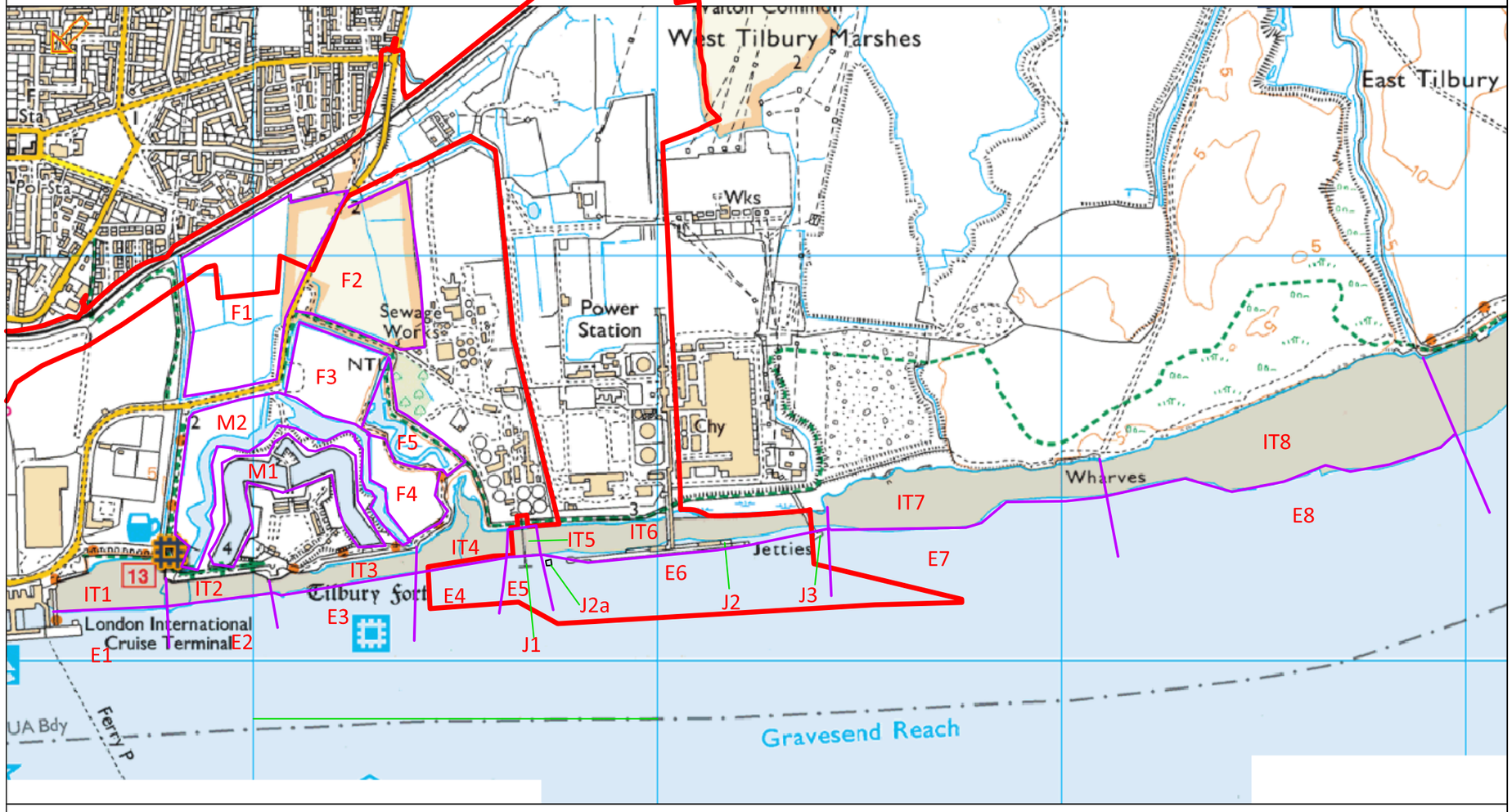
NB = no birds

All birds except swans on the only small area of remaining exposed mud- near to fort car park

$ All birds on the only small area of remaining exposed mud- near to fort car park

Figure 10.12.

Bioscan wintering bird survey compartments (2016-2018).



ORDER LIMITS

BIRD SURVEY COMPARTMENT BOUNDARIES (WITH REFERENCE CODE*)

* IT= INTER-TIDAL
E= ESTUARY
J= JETTY
F= FIELD
M= MOAT

REV	DATE	DESCRIPTION

DRAWING TITLE

WINTERING BIRD SURVEY COMPARTMENTS 2016/17

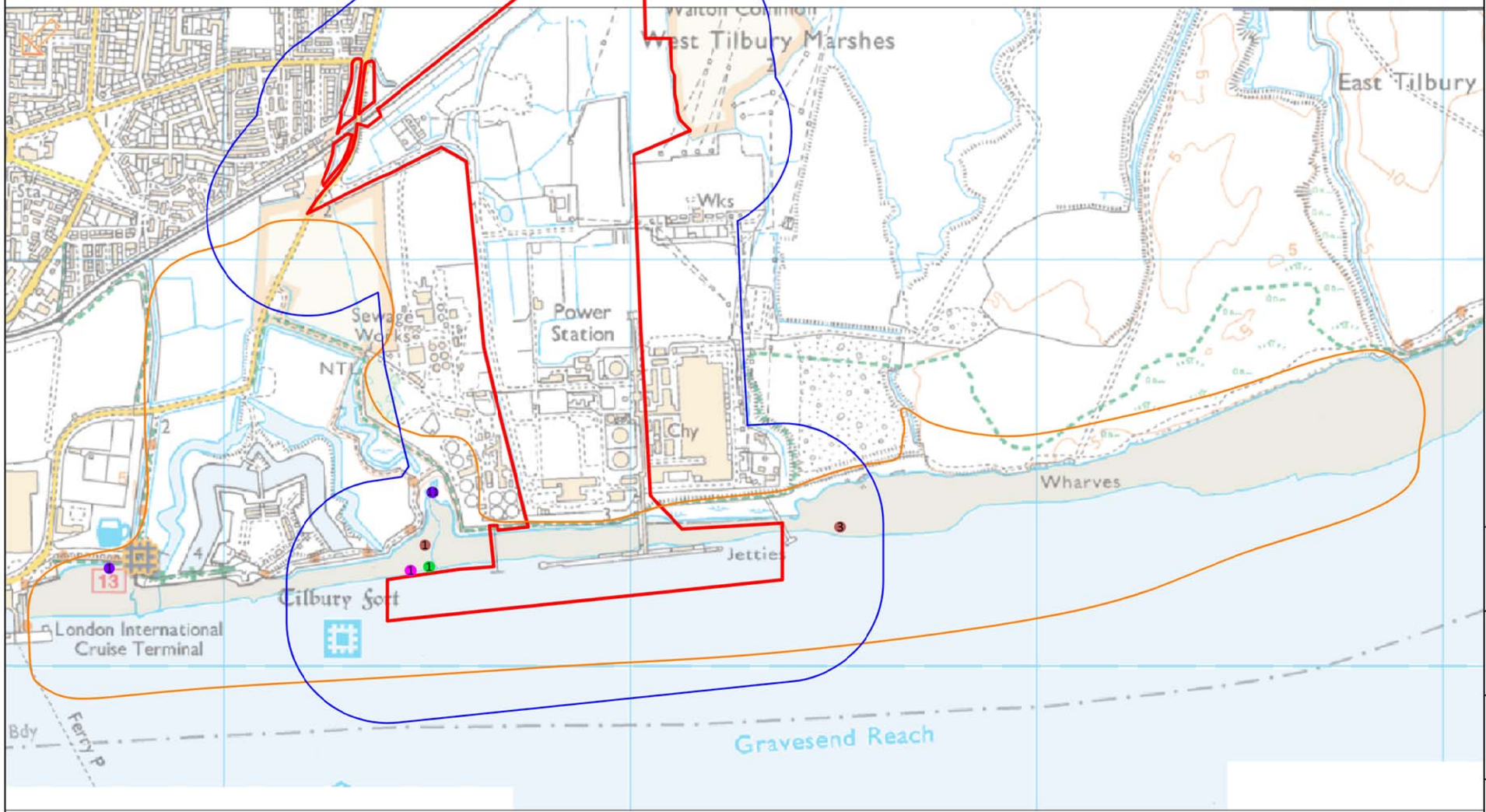
SCALE	DRAWN	
1:12500 @ A3		BC
DATE	CHECKED	
OCT 2017		RR

FIG. 10.12

TILBURY2

Figures 1-7.

Bioscan wintering bird survey data by species (2016-2018).



Key

- Application Site
- Approximate extent of survey area
- 250m buffer from site boundary
- November 2016 visit (low tide)
- January 2017 visit (high tide)
- November 2017 visit (low tide)
- January 2018 visit (low tide)
- 1 Number in circle relates to the number of individuals found at the location

DO NOT SCALE

Title

Numbers and distribution of avocet during wintering bird surveys in 2016/17 and 2017/18

Project	Client
Tilbury2	Port of Tilbury

Drawing No.	Revision	Project No.
Figure 1	A	E1862

Drawn	Date
BC	February 2018

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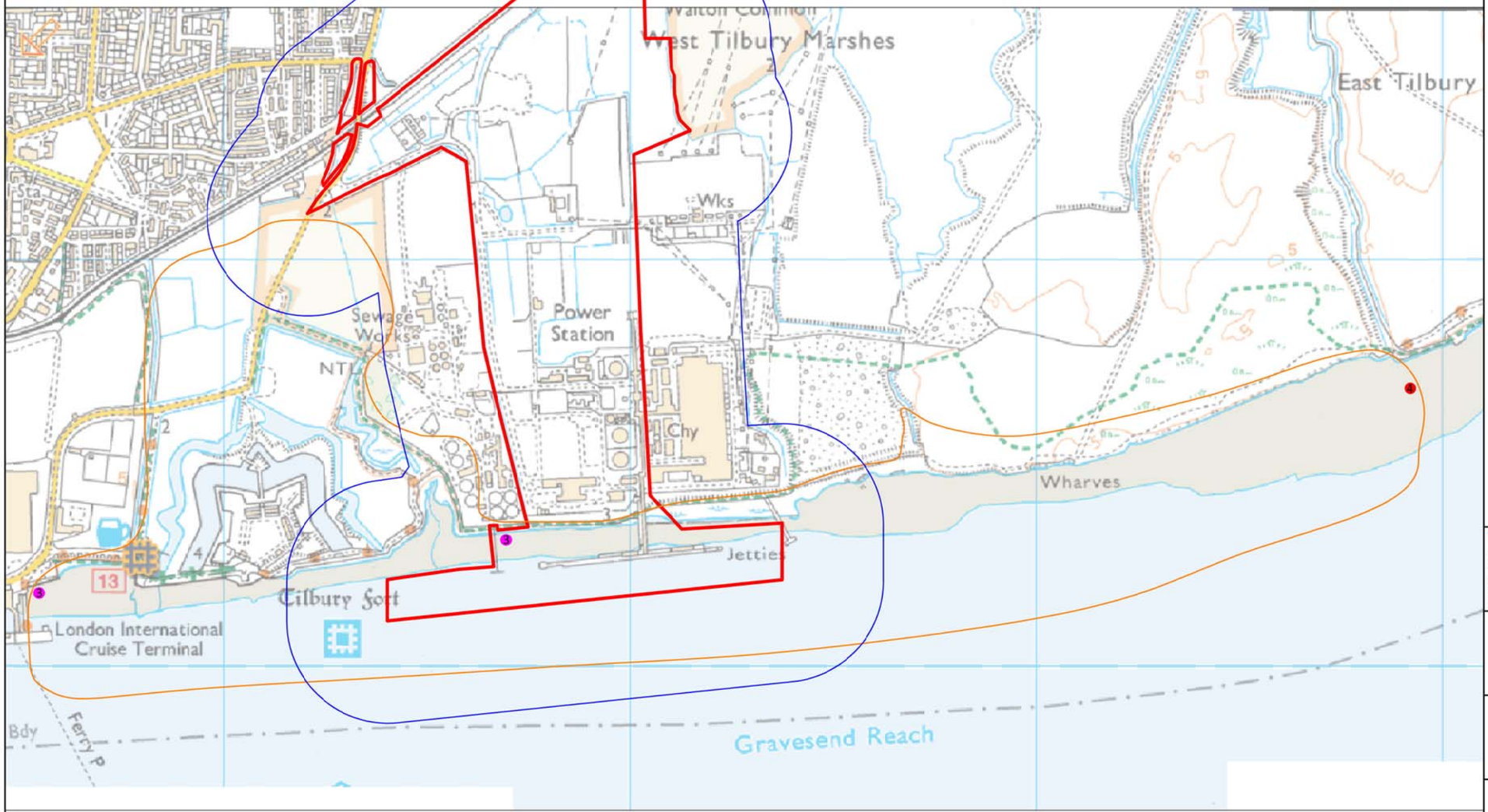

Key

- Application Site
- Approximate extent of survey area
- 250m buffer from site boundary
- September 2017 visit (low tide)
- November 2017 visit (low tide)
- 1 — Number in circle relates to the number of individuals found at the location

DO NOT SCALE

Title

Numbers and distribution of black-tailed godwit during wintering bird surveys in 2016/17 and 2017/18

Project	Client
Tilbury2	Port of Tilbury

Drawing No.	Revision	Project No.
Figure 2	A	E1862

Drawn	Date
BC	February 2018

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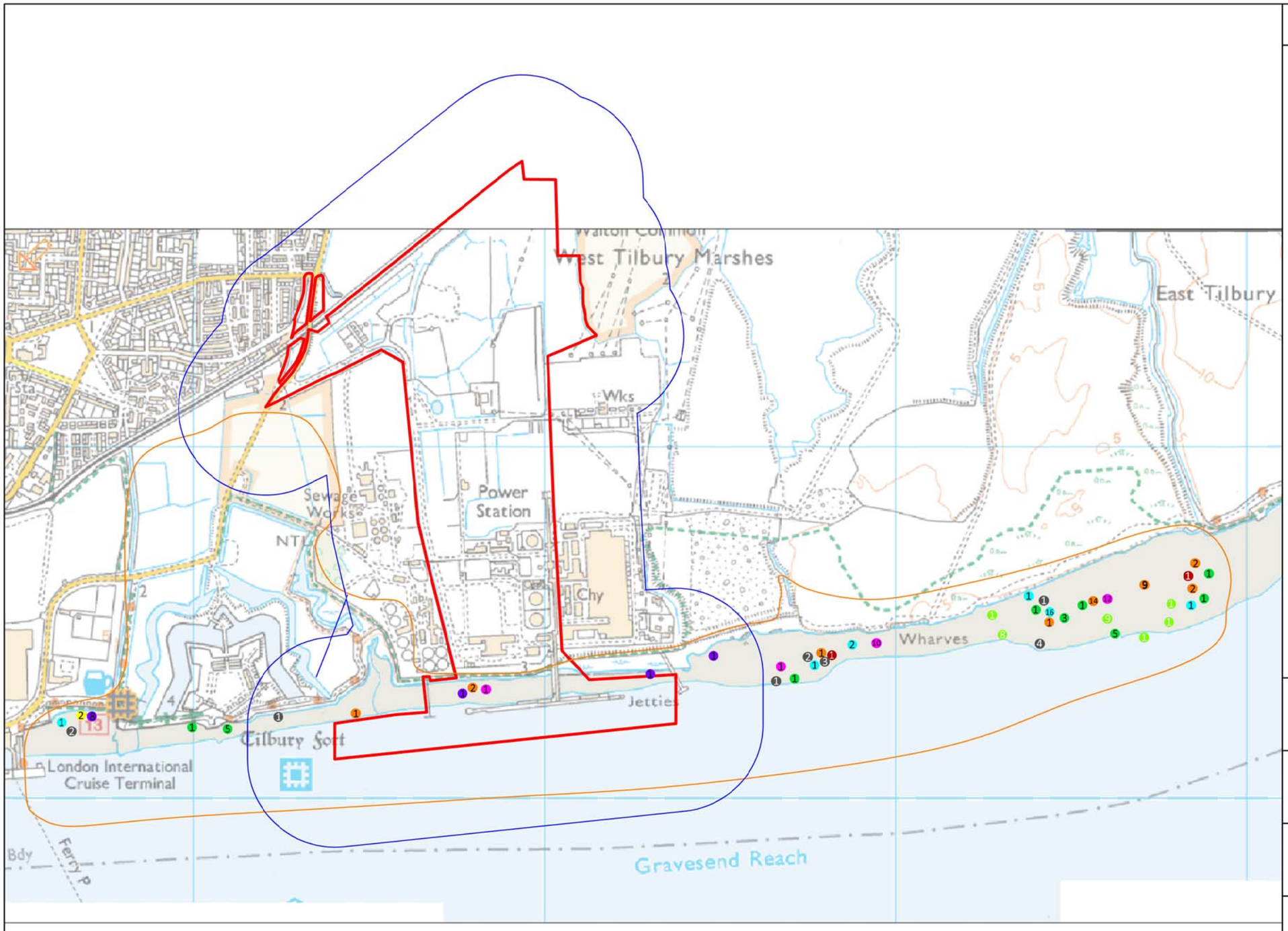

Key

- Application Site
- Approximate extent of survey area
- 250m buffer from site boundary
- November 2016 visit (low tide)
- December 2016 visit (low tide)
- January 2017 visit (high tide)
- February 2017 visit (high tide)
- March 2017 visit (low tide)
- October 2017 visit (low tide)
- November 2017 visit (low tide)
- December 2017 visit (low tide)
- January 2018 visit (low tide)
- 1 Number in circle relates to the number of individuals found at the location

DO NOT SCALE

Title

Numbers and distribution of curlew during wintering bird surveys in 2016/17 and 2017/18

Project	Client
Tilbury2	Port of Tilbury

Drawing No.	Revision	Project No.
Figure 3	A	E1862

Drawn	Date
BC	February 2018

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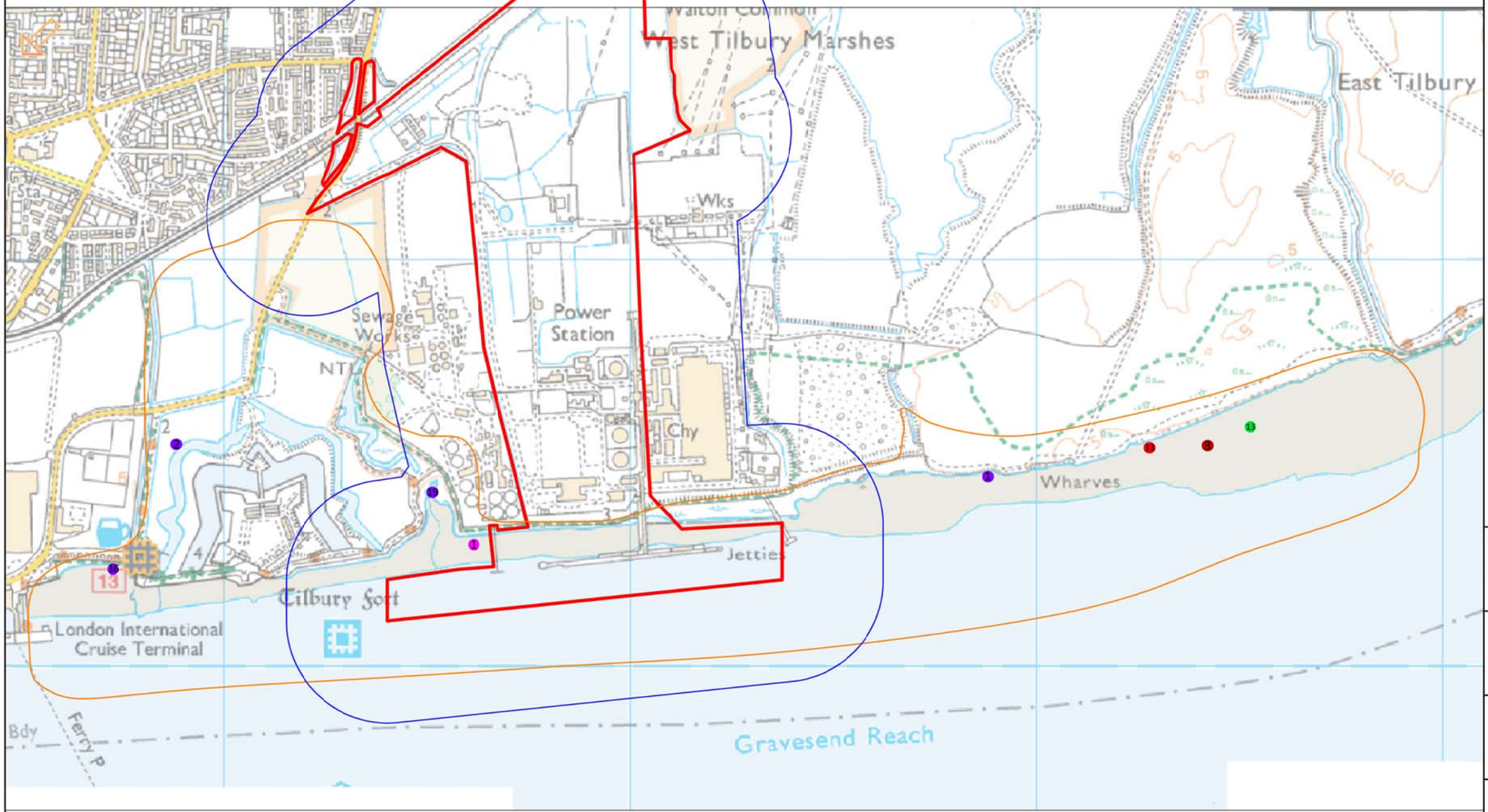

Key

- Application Site
- Approximate extent of survey area
- 250m buffer from site boundary
- November 2016 visit (low tide)
- January 2017 visit (high tide)
- September 2017 visit (low tide)
- October 2017 visit (low tide)
- November 2017 visit (low tide)
- 1 — Number in circle relates to the number of individuals found at the location

DO NOT SCALE

Title

Numbers and distribution of dunlin during wintering bird surveys in 2016/17 and 2017/18

Project	Client
Tilbury2	Port of Tilbury

Drawing No.	Revision	Project No.
Figure 4	A	E1862

Drawn	Checked	Date
BC		February 2018

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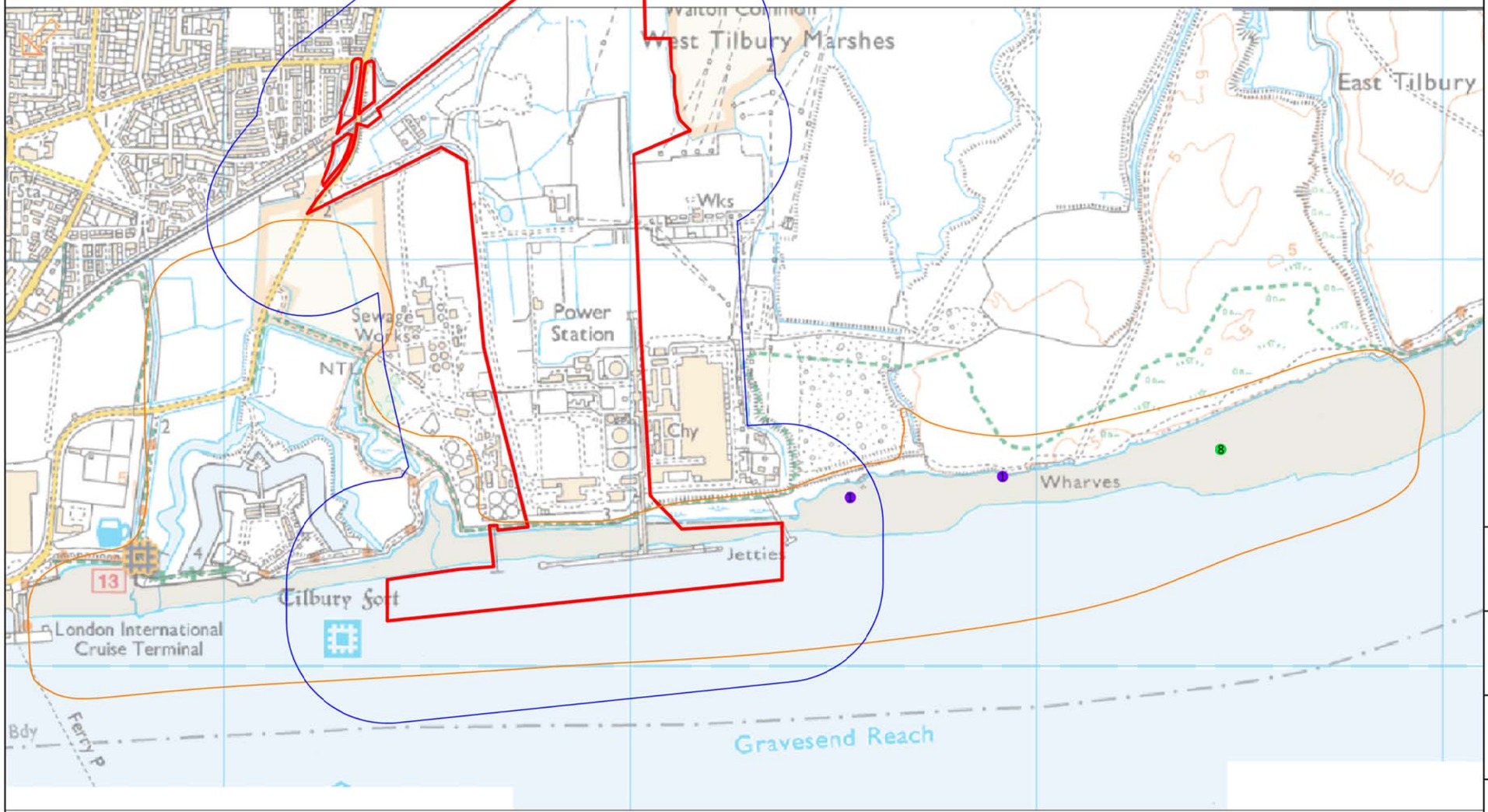

Key

- Application Site
- Approximate extent of survey area
- 250m buffer from site boundary
- November 2016 visit (low tide)
- January 2017 visit (high tide)

DO NOT SCALE

Title

Numbers and distribution of grey plover during wintering bird surveys in 2016/17 and 2017/18

Project	Client
Tilbury2	Port of Tilbury

Drawing No.	Revision	Project No.
Figure 5	A	E1862

Drawn	Date
BC	February 2018

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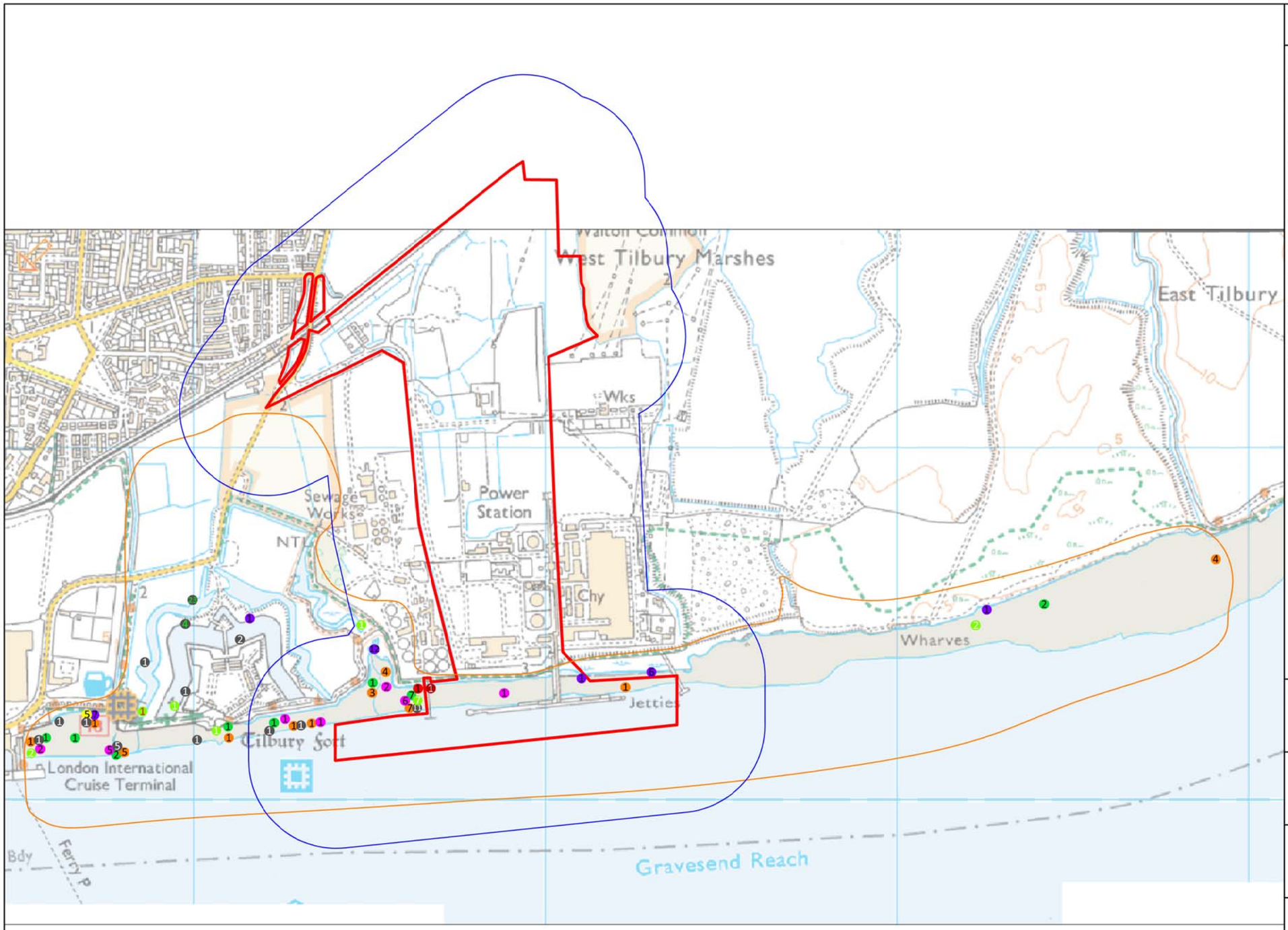

Key

- Application Site
- Approximate extent of survey area
- 250m buffer from site boundary
- November 2016 visit (low tide)
- December 2016 visit (low tide)
- January 2017 visit (high tide)
- February 2017 visit (high tide)
- September 2017 visit (low tide)
- October 2017 visit (low tide)
- November 2017 visit (low tide)
- December 2017 visit (low tide)
- December 2017 visit (high tide)
- January 2018 visit (low tide)
- January 2018 visit (high tide)
- 1 Number in circle relates to the number of individuals found at the location

DO NOT SCALE

Title

Numbers and distribution of redshank during wintering bird surveys in 2016/17 and 2017/18

Project	Client
Tilbury2	Port of Tilbury

Drawing No.	Revision	Project No.
Figure 6	A	E1862

Drawn	Date
BC	February 2018

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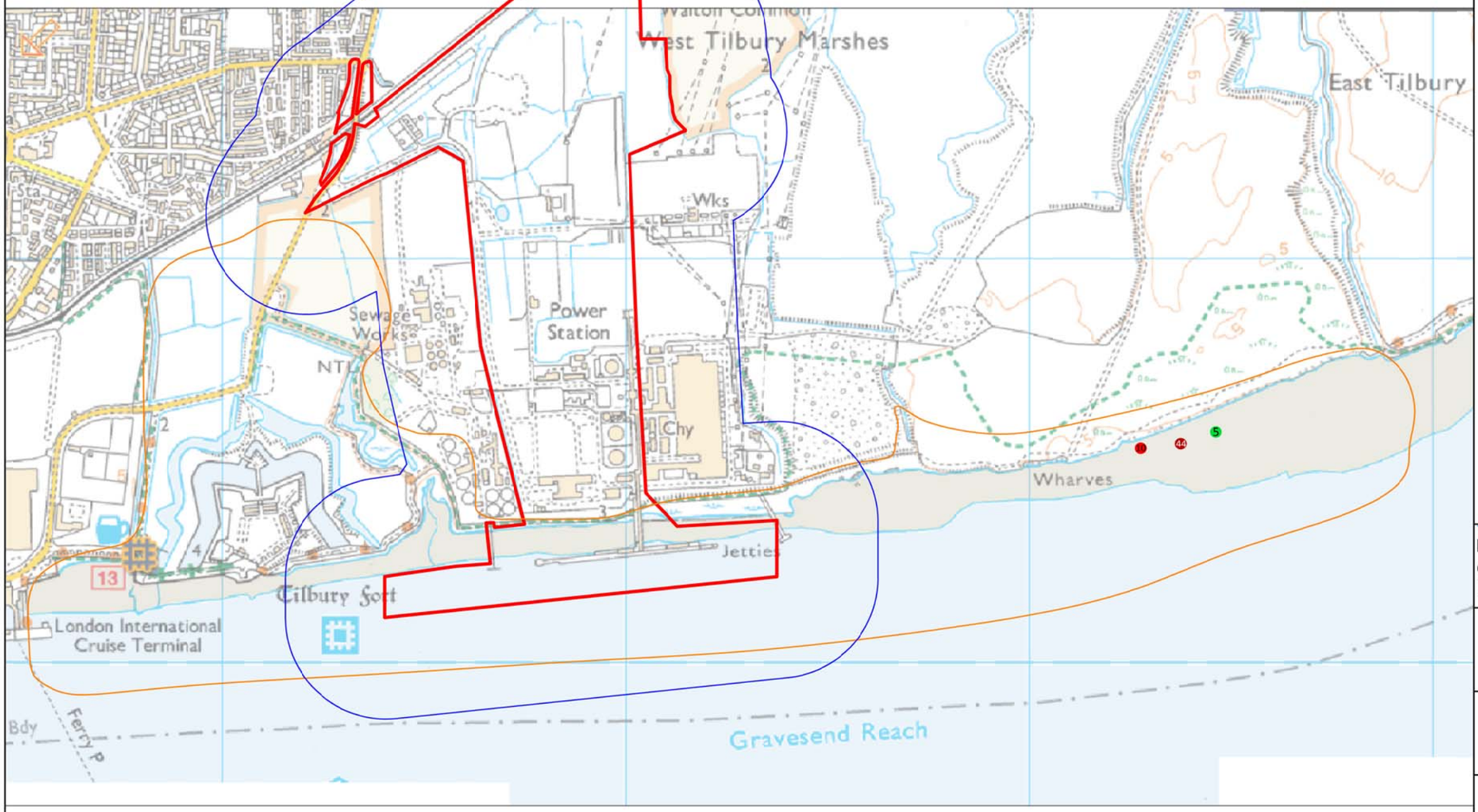

Key

- Application Site
- Approximate extent of survey area
- 250m buffer from site boundary
- November 2016 visit (low tide)
- September 2017 visit (low tide)
- October 2017 visit (low tide)

DO NOT SCALE

Title

Numbers and distribution of ringed plover during wintering bird surveys in 2016/17 and 2017/18

Project	Client
Tilbury2	Port of Tilbury

Drawing No.	Revision	Project No.
Figure 7	A	E1862

Drawn	Date
BC	February 2018

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