

PLANNING ACT 2008
INFRASTRUCTURE PLANNING
(APPLICATIONS: PRESCRIBED FORMS AND PROCEDURE) REGULATIONS 2009
REGULATION 5 (2) (q)

PROPOSED PORT TERMINAL AT FORMER TILBURY POWER STATION

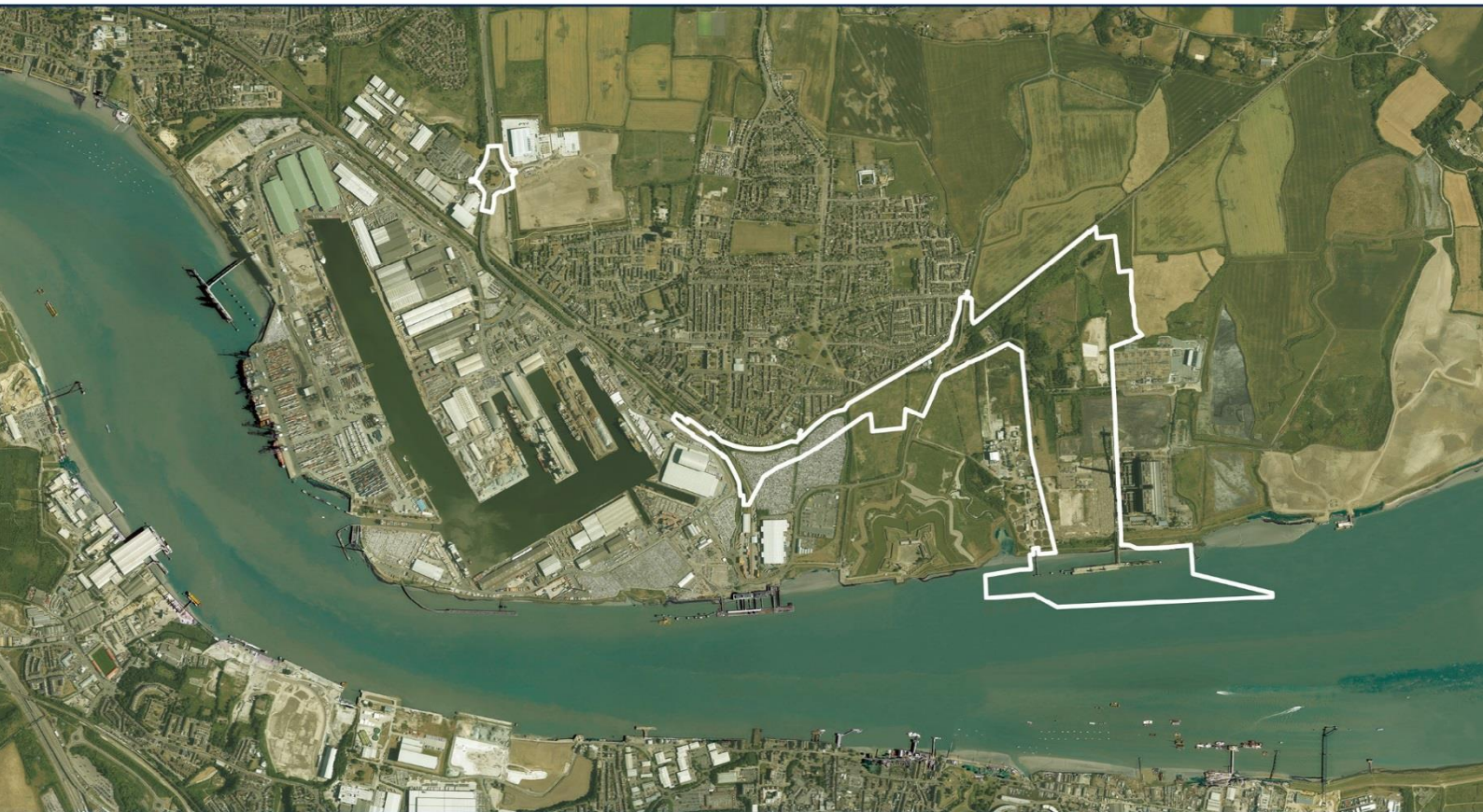
TILBURY2

TR030003

VOLUME 6

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

DOCUMENT REF: 6.9



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1.0 INTRODUCTION

SCHEME OVERVIEW

- 1.1 Port of Tilbury London Limited (PoTLL) is proposing a new port terminal on the north bank of the River Thames at Tilbury, a short distance to the east of its existing Port. The proposed port terminal will be constructed on largely previously developed land that formed the western part of the now redundant Tilbury Power Station.
- 1.2 The project is known as "Tilbury2." The proposed main uses on the site will be a Roll-on/Roll-off ("RoRo") terminal and a Construction Materials and Aggregates terminal ("the CMAT"), and associated infrastructure including rail and road facilities and revisions to the existing marine infrastructure. An 'infrastructure corridor' is proposed that will accommodate road and rail links to the existing rail and road network. The CMAT will include stockpiling of construction materials and some processing of aggregates for the production of asphalt and concrete products.

The project will require works including, but not limited to:

- creation of hard surfaced pavements;
 - improvement of and extensions to the existing river jetty including creation of a new RoRo berth;
 - associated dredging of berth pockets around the proposed and extended jetty and dredging of the approaches to these berth pockets;
 - new and improved conveyors;
 - erection of welfare buildings;
 - erection of a single 10,200sq.m. warehouse;
 - a number of storage and production structures associated with the CMAT;
 - the construction of a new link road from Ferry Road to Fort Road; and
 - formation of a rail spur and sidings.
- 1.3 The proposed volumes of import/export of RoRo units for the terminal exceed the threshold of 250,000 units stated in the Planning Act 2008 for throughput per annum. The Tilbury2 project therefore constitutes a Nationally Significant Infrastructure Project (NSIP).

STRUCTURE OF THIS DOCUMENT

- 1.4 This document is structured as follows:

- Section 2 - Communications and Community Liaison – sets out the communication with local authorities and all key stakeholders that will be undertaken throughout the construction period.
- Section 3 - Environment requirements – sets out the general measures that will be implemented to minimise the impacts from construction activities.
- Sections 4- - Environmental requirements by topic – sets out the measures that will be implemented to minimise the impacts from construction activities on a topic by topic basis.

PURPOSE

- 1.5 The purpose of the CEMP is to define the minimum standards that the main contractors that will be appointed by PoTLL to carry out the construction of the proposals (including the laying of track within the passive provision for rail sidings that form part of the proposals), and the sub-contractors, specialist consultants, and engineers appointed directly by PoTLL or the main contractors (in this document together the ‘Contractor’) must adhere to as they affect the environment, amenity and safety of local residents, businesses, the general public and the surroundings in the vicinity of the construction activities, and to define the relevant mitigation measures that must be employed and undertaken both before and during the implementation of construction activities.
- 1.6 Compliance with the CEMP is a requirement of the DCO. As such, the Contractor (on behalf of PoTLL) must comply with all measures within it, including the production of any subsidiary plans and obtaining any approvals for such subsidiary plans.
- 1.7 This document comprises the general principles of minimising environmental impacts during construction of Tilbury2 as well as specific construction practice and mitigation measures that have been developed for individual topic areas through the EIA process, including consultation with stakeholders.
- 1.8 The EIA has adopted a staged approach of scoping and assessment to identify the environmental aspects and impacts associated with the construction and operation (including maintenance) of the proposals. This allows the relevant legislation and regulations, standards and obligations for each potential impact to be identified and the relevant mitigation actions and procedures for specific activities to be developed, as are set out in this document.
- 1.9 Measures are not included specifically for the Cultural Heritage topic as these measures are captured either in the Landscape and Visual chapter, or in the Terrestrial and Marine Archaeological Written Scheme of Investigations that form part of the DCO application.
- 1.10 Compliance with this CEMP will not absolve the Contractor or its sub-contractors from compliance with all legislation and bylaws relating to their construction activities.

2.0 COMMUNICATIONS AND COMMUNITY LIAISON

LOCAL COMMUNITY ENGAGEMENT

- 2.1 PoTLL is committed to ensuring the local community are involved and regularly updated on the Tilbury2 project during its construction and start up operational phases.
- 2.2 PoTLL will employ the following methods of communication to both the local and wider communities in the vicinity of the project.
- 2.3 Community newsletters will be produced on a quarterly basis and circulated to the local communities of Tilbury and Gravesend. These will be made available in local libraries and other public buildings (for example Thurrock and Gravesham town halls and the Tilbury community hub). The first newsletters will be published prior to commencement of construction Q1 2019. These will be available in braille or large where requested.
- 2.4 The Tilbury2 website will be regularly updated with news articles and photographs relating to the construction of the project as well as details of the construction programme and upcoming activities.
- 2.5 A community liaison committee will be created and will meet bi monthly to discuss the construction of the facility and agree reasonable proportional and practical actions for PoTLL to take when it is felt improvements can be made and concerns addressed during the construction period. It is proposed that the liaison committee consists of representatives self-nominated by the following bodies.
1. Port of Tilbury Senior Management and Engineering Team.
 2. Local councillors;
 3. Thurrock Borough Council officers; and
 4. Tilbury Community Forum.

The minutes of these meetings will be published on the website and site visits will be arranged for the liaison committee at appropriate times (as agreed by the committee) during the construction period.

- 2.6 A dedicated email address and phone number for enquiries and complaints will be set up pre-construction and communicated via newsletter and website. It is PoTLL's intention to respond to complaints within 24 hours of receipt. A full complaints procedure will be published on the website prior to the commencement of the construction period.

Wider community engagement

- 2.7 During the DCO consultation process, a number of organisations requested that they be communicated to during the construction phase of the project, or are within 500m of the site boundary and/or have development aspirations. These groups, and other groups will therefore receive a copy of the above-mentioned newsletter and when on reasonable request, meetings will be arranged to discuss and update on progress on matters such as, but not limited to, construction traffic management, dusty work and noisy work.

The organisations identified are:

1. Campaign for Better Transport.
2. The Gravesend Sailing Club
3. The Gravesend Rowing Club
4. The Ramblers Association
5. The Thurrock Local Access Forum
6. The Tilbury Community Forum (and through them other relevant local groups)
7. The Thurrock Park Residents Association.
8. The Chadwell-St-Mary Residents Association.
9. Royal Mail
10. Amazon
11. RWE
12. Stobarts

3.0 ENVIRONMENTAL MANAGEMENT - SITE OPERATIONS

HEALTH AND SAFETY

- 3.1 Health and safety risks to construction workers from contamination will initially be controlled by the Contractor's responsibility to design out risk, as per the requirements of the Construction Design and Management (CDM) Regulations.
- 3.2 The Contractor will be required to produce health and safety risk assessments that specify appropriate precautionary measures during works. These shall be completed by a suitably qualified person appointed by the Contractor. The implementation of appropriate health and safety measures as set out in these risk assessment will be incorporated within the general construction site safety standards at a level sufficient to protect both members of the public and site workers.

WORKING HOURS

- 3.3 The Contractor will seek to obtain Section 61 consents from the Local Authority under the Control of Pollution Act 1974 for the proposed construction works. The applications will include details on proposed working hours.

Core working hours

- 3.4 The core working hours will be as follows for works that involve use of the indicative plant listed in Appendix 17.A of the Environmental Statement, marine piling activities and for works on the infrastructure corridor:

- Monday – Friday 0800 – 1800
- Weekends 0800 – 1600

- 3.5 For the avoidance of doubt, these hours do not apply to non-piling marine works.
- 3.6 The exception to these working hours would be in respect of terrestrial piling activities which will not take place at all on weekends or bank holidays.
- 3.7 No deliveries to site will be permitted on Saturdays after 1200 and none allowed on Sundays.
- 3.8 On the Tilbury2 site, but not the infrastructure corridor, some equipment maintenance or set up and lay down work may need to take place outside of the hours specified above. Such activities will not include the use of plant or machinery likely to cause disturbance to neighbouring residents/ businesses but may include deliveries, movement to place of work, unloading, maintenance and general preparation works.

Additional hours of working

- 3.9 Certain specific construction activities will require extended working hours for reasons of engineering practicability, season and weather and safety such as

major concrete pours and piling, surveys and lifting/fitting of infrastructure, abnormal deliveries and rail possessions. The nature and timing of these works and the associated extended working hours will be agreed with Thurrock Borough Council through the Section 61 process and notified to relevant stakeholders. The Contractor will be required to liaise and consult with Thurrock Borough Council prior to applying for Section 61 consent and will be required to maintain regular consultation with the Thurrock Borough Council throughout the duration of the construction works to help facilitate the Section 61 process with regards to additional working hours.

- 3.10 In the case of work required in an emergency or which, if not completed, would be unsafe or harmful to workers, the public or local environment, the Thurrock Borough Council will be informed as soon as reasonably practicable of the reasons and likely duration. Examples may include: where the ground needs stabilising if unexpected ground conditions are encountered, concrete pouring taking longer than anticipated due to conditions or equipment failure.
- 3.11 Where work has to be rescheduled for reasons not envisaged and is expected to extend beyond the agreed or normal working hours or exceed the agreed limits and dispensation to the Section 61 consent, the Contractor will apply for a variation to the Section 61 consent to Thurrock Borough Council at least 14 days in advance of the start of those works (or within an appropriate timescale to be agreed with Thurrock Borough Council).
- 3.12 Where rescheduling relates to work of a critical nature (such as key activities likely to delay other key activities) applications will be made, where practicable, 48 hours in advance and no fewer than 7 days in advance if the work is expected to last for a period of 5 days or more. The variation will be sought by means of an application setting out the revised construction programme or method and the relevant noise calculations.

HOARDING AND FENCING

- 3.13 Hoarding and fencing will be provided and maintained by the Contractor. All worksites will be completely fenced from public ingress.
- 3.14 The following measures will be applied, as appropriate:

- Maintenance of adequate fencing and hoardings to an acceptable condition to prevent unwanted access to the construction site, to provide noise attenuation, screening and site security where required;
- Use of different types of fencing and hoarding (e.g. mesh fence or solid hoarding including hoardings used for noise control);
- Painting the side of hoardings facing away from the site, and to keep them free of graffiti or posters;
- Painting external security metal palisade fencing a dark colour where it is not set at a high level and seen against the sky;
- Providing site information boards with out of hours contact details, telephone helpline number (as discussed above) (for comments/complaints) and information on the works, including for dust and noise issues;
- Displaying notices on site boundaries to warn of hazards on site; such as deep excavations, construction access, etc.;
- Installing adequate lighting near hoardings, where hoardings obstruct previously illuminated areas and/or where conditions where lighting for safety is required, including consideration of placement orientation and operating hours;
- Retaining existing walls, fences, hedges and earth banks for the purpose of screening as far as reasonably practicable; and
- Positioning and constructing gates in the fencing or hoarding to minimise the noise transmitted to nearby noise sensitive buildings from the site direct or from plant entering or leaving the site.

3.15 Forms of fencing and hoarding shall be fit for purpose taking into consideration location, construction activities and the surrounding landscape. Hoarding height and type may be altered to enhance acoustic performance for specific locations. This measure should be risk based and assessed by the Contractor.

SECURITY

3.16 Worksite security will be under the control of the Contractor who will provide adequate security to prevent unauthorised entry to the site.

3.17 The following measures may be used by the Contractor to prevent unauthorised access to the site:

- CCTV and alarm systems where required;
- Adequate security guards and patrols;
- When there is no site activity, site gates will be closed and locked and site security provisions will be set in motion;
- Consultation with neighbouring properties on site security matters;

- Ongoing consultation with local crime prevention officers on security proposals; and
- Preventing access to restricted areas and neighbouring properties by securing site equipment such as scaffolding and ladders.

4.0 CONSTRUCTION TRANSPORTATION

- 4.1 Measures for the management of construction traffic and proposed lorry routes have been developed in consultation with local authorities and Highways England to minimise the impacts of construction traffic on the road network, local communities and tourism receptors such as Tilbury Fort. These are set out in the draft Construction Traffic Management Plan ('CTMP') appended to this CEMP (Appendix 1). This plan and the main access routes will be further detailed by the Contractor as the Scheme construction solutions are finalised.
- 4.2 A final version of the CTMP will be produced by the Contractor for approval by Thurrock Council in consultation with Highways England, prior to commencing the authorised development. This final version of the CTMP must be in general accordance with the draft CTMP, and so must include:
- The use of appropriate and approved routes for larger construction vehicles, deliveries and for staff including approved routing plans;
 - The management of working hours and delivery times to minimise disturbance caused by traffic;
 - Covering loads coming to and leaving the development;
 - Provision of wheel washing / vehicle cleaning facilities on site;
 - Provision for cleaning the local highway network where caused by construction activities; and
 - Checking, monitoring and audit processes to be implemented to ensure that the construction activities are undertaken in accordance with these requirements, together with measures to ensure that appropriate corrective actions or mitigation measures are taken.
- 4.3 The Contractor may bring forward changes to the approved CTMP during the construction of the Scheme, but changes must be approved by Thurrock Council in consultation with Highways England.
- 4.4 In constructing the marine elements of the proposals, to ensure that construction vessels do not impact on navigation, the Contractor must comply with the recommendations set out in the Navigation Risk Assessment (ES Appendix 14A).

5.0 LANDSCAPE AND VISUAL

5.1 The following measures should be undertaken by the contractor in constructing the proposals to reduce the impacts to visual amenity of local residents:

- Appropriate screening should be installed at all times, particularly on the infrastructure corridor. This should include the retention of the existing Monterrey Pine trees on the western boundary where design permits.
- The works should be phased so as to retain as much of the vegetation and soil mounds that exist on the northern part of the Tilbury2 site as is practicable during construction.
- Where operationally practicable, taller CMAT concrete and asphalt related plant and buildings should be constructed within the southern half of the areas designated for these uses.
- Where operationally practicable, retain as many existing mature trees and scrub as practicable within the designated general storage areas, and land to the south of the proposed general storage areas.
- Unobtrusive construction lighting should be used in construction where it is practicable to do so, including at the jetty. Lighting equipment that is used must be designed in accordance with Institute of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light GN01:2011.

6.0 TERRESTRIAL ECOLOGY

- 6.1 This CEMP includes dust attenuation measures to prevent pollution, as described in detail in Chapter 11 (Air Quality), and pollution prevention measures following Environment Agency Guidelines as described in detail in Chapter 8 (Hydrogeology and Ground Conditions) and Chapter 9 (Water and Flood Resources); as well as a requirement for non-obtrusive lighting, as set out in Chapter 5 (Landscape and Visual) and noise mitigation measures as set out in Chapter 10 (Noise) which will lessen any impacts from such sources.
- 6.2 All translocations of species and habitats required (as set out in ES Chapter 10) as a result of the proposals, must take place prior to the commencement of a construction activity that will affect that species or habitat, and in consultation with Natural England and/or Thurrock Council as appropriate (including in compliance with any licences that may be required). As such, all receptor areas for such species and habitats must be prepared to an extent that is suitable for the reception of translocated species or habitats prior to the commencement of that construction activity.
- 6.3 Species translocations will be required in respect of reptiles (common lizard, slow worm, grass snake and adder) and water voles. The latter will require the procurement of a licence from Natural England and will involve translocation of animals to new pre-constructed ditch and wetland habitats on land north-east of the CMAT and within the Order limits. Receptor sites for reptiles will include a combination of land made suitable for the purpose within the Order limits (on land to the north-east of the CMAT) with some pre-prepared receptor capacity also likely to be required off-site.
- 6.4 Licensed mitigation and compensation measures will also be required in respect of bats (to cover the loss of a known low conservation value roost in an existing building) and badgers (to cover the loss of a known breeding set for a small group of badgers). Alternative provision for these species will be delivered at the margins of the site as indicated in the on-site ecological mitigation strategy (see e.g. ES Figure 10.13 and secured in the LEMP) and the processes of destruction of the existing roost and sett without harm to individual bats or badgers will be closely controlled by the terms of the respective licences.
- 6.5 Over and above the requirement for advance translocation and/or displacement of legally protected species, the times when clearance of vegetation is possible will also be subject to seasonal constraints. In particular, clearance of vegetation with the potential to support nesting birds should aim to avoid the peak nesting months of mid-February to July wherever possible. In situations where this is not possible, surveys and/or monitoring by specialist ornithologists will be employed to assess whether nests are present or likely to be present in affected vegetation, and whether appropriate measures such as temporary stand-offs will be deployed to work around such constraints in a legally compliant manner.
- 6.6 Habitat translocations will be required in respect of brownfield substrates – in particular areas of Lytag and PFA substrate that have been colonised by rare and scarce plants, lichens and invertebrates. These translocations will take

place after such areas have been cleared of any protected species constraint by advance translocations, and be subject to a bespoke methodology.

6.7 Key Species Management:

- During works on or near watercourses, appropriate measures will need to be put in place to manage protected species as well as fish and eels. All areas where in-channel works are proposed on existing and retained watercourses and/or lengths of watercourse proposed to be redirected, will be re-surveyed by a suitably qualified ecologist prior to works commencing. The survey will ascertain the detailed species protection and legal compliance measures that need to be employed. Matters that will be considered in the course of such surveys will include:
 - Presence or absence of water voles
 - Likelihood of fish and eel presence, including transitory presence
 - Presence or absence of any Invasive Non-Native Species (INNS) – in particular Japanese knotweed, Himalayan Balsam and Floating Pennywort (the latter having previously been recorded on the East Dock Sewer)
- Following the above pre-construction survey, a detailed method statement will be drawn up for each area. This will be circulated in draft to relevant stakeholders including the EA, Thurrock Council drainage team and (where water voles may be affected) Natural England for approval prior to the commencement of any works.
- Translocation of eels and fish will need to be undertaken before work can be undertaken on the river realignments and culverts. A fish and eel rescue will need to be undertaken and the channel drained and left for a few hours to remove any remaining eels from the system before works can start.
- Where water voles currently occur in areas identified for channel works and diversions, these will either have been translocated from these areas in advance of any works commencing (in accordance with the licences referred to above) or where works are sufficiently small scale, habitat manipulation measures will be employed to ensure no animals are within the area at risk from construction activities, in conjunction with exclusion fencing where necessary to ensure no recolonisation of such areas prior to those works being completed.
- 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.

7.0 MARINE ECOLOGY

- 7.1 This CEMP includes dust attenuation measures to prevent pollution, as described in detail in Chapter 11 (Air Quality), and pollution prevention measures following Environment Agency Guidelines as described in detail in Chapter 8 (Hydrogeology and Ground Conditions) and Chapter 9 (Water and Flood Resources); as well as a requirement for non-obtrusive lighting, as set out in Chapter 5 (Landscape and Visual) and noise mitigation measures as set out in Chapter 10 (Noise) which will lessen any impacts from such sources.
- 7.2 A number of matters of detail in respect of marine ecology are set out in the Deemed Marine Licence that forms part of the DCO.
- 7.3 Above and beyond this however, in constructing the marine elements of the proposals a Contractor must also:
- Use and operate vessels and plant in accordance with industry best practice and OSPAR, IMO and MARPOL guidance for pollution at sea.
 - Maintain machinery in good working order to minimise the risk of leaks and use of drip trays where necessary;
 - Bund of vehicle wash-down areas and routing of run-off through interceptors;
 - Undertake refuelling operations in appropriately bunded and managed areas within compound sites;
 - Put robust measures and equipment in place for dealing with any unexpected pollution events that will be in place at all times (such as those set out elsewhere in this document);
 - Through the Materials Management Plan referred to below, implement controls on construction materials brought to site such that these are free from contaminated material, so as to avoid potential run-off contamination;
 - Manage invasive Non-Native Species (INNS) introduction through preventative measures identified through a biosecurity risk assessment and set out in a biosecurity plan (in liaison with the MMO, PLA, Natural England and EA as necessary). This will follow best practice guidelines such as the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM), and Natural England's biosecurity planning guidance.
 - Ensure that all construction materials used will be safe for use in the marine environment.
 - JNCC protocol for piling will be followed which will include the following:
 - Soft start will be used for percussive piling.

- There will be no night time piling.
- Pre-piling search for marine mammals
- The commencement of percussive piling will be delayed if marine mammals are detected
- There will be breaks in piling activity
- Where practicable (and in conformance with health and safety requirements), new lighting will be installed on the jetty which will be directed away from the Thames.

8.0 HYDROGEOLOGY AND GROUND CONDITIONS

GENERAL

8.1 The Contractor must incorporate the following into the pre-construction design process:

- The design should be undertaken in accordance with statutory guidance and best practice.
- Further assessment of the ground conditions underlying the Site and incorporation of mitigation / remedial measures in the design to reduce impacts from ground instability, soil compaction / settlement and contamination. This should involve:
 - Additional ground investigation the scope of which will be agreed with Thurrock Council's Contaminated Land Officer and an Environment Agency Groundwater and Contaminated Land Officer prior to the works.
 - Following the investigation, a Generic Quantitative Risk Assessment (GQRA) will be undertaken, with the findings submitted to Thurrock Council's Contaminated Land Officer and an Environment Agency Groundwater and Contaminated Land Officer for approval.
 - If the findings of the GQRA determine that a Detailed Quantitative Risk Assessment, remediation strategy and verification report are required, these will also be completed and submitted to Thurrock Council's Contaminated Land Officer and an Environment Agency Groundwater and Contaminated Land Officer for approval.
- Consideration as to whether any ground stabilisation is required to reduce settlement to acceptable design levels.
- Consideration as to whether any piles, ground bearing floor slabs and reinforced concrete paving may be required to manage physical effects of the proposals and ensure appropriate bearing capacity.
- Efforts should be made to ensure-use soil on site and source local materials.
- Efforts should be made to reduce the transportation of materials on and off site, and the storage of materials on site for significant time.
- Efforts should be made to minimise impacts to identified important mineral resources.
- Efforts should be made to maximise off-site construction which will reduce both materials used and waste generated on site.

- Where practicable, recycled and secondary aggregates such as those currently stockpiled at the existing port should be specified in the design and used, thereby reducing the demand for virgin material.
- Efforts should be made to actively reduce the amount of materials of a hazardous nature where viable.

8.2 The Contractor must carry out the construction activities in the following ways:

- Limit the area of earthworks at any one time to reduce temporary effects on topography, soil compaction and erosion.
- Limit the duration of soil exposure and timely reinstatement of vegetation or hardstanding to prevent soil erosion.
- Manage stockpiles (with measures such as water spraying) and remove them in a timely fashion to prevent windblown dust and surface water run-off.
- Implementation of appropriate dust suppression measures to prevent migration of contaminated dust and asbestos fibres (as set out in the Air Quality section of this CEMP).
- Appropriately manage groundwater and surface water and ensure that there is no run-off from the works, any material / waste stockpiles, and storage containers into adjacent surface watercourses; in accordance with Pollution Prevention Guideline (PPG): Working at Construction and Demolition Sites.
- Implementation of appropriate pollution control measures, to include but not limited to:
 - plant drip trays;
 - spill kits;
 - appropriate and safe storage of fuel, oils and equipment.

MATERIALS MANAGEMENT

8.3 A Materials Management Plan (MMP), to manage excavated and dredged materials that are used on site or used on another site and not disposed of to landfill, must be produced by the Contractor. The Contractor must implement the MMP, which shall include:

- A description of the materials in terms of potential use and relative quantities of each category underpinned by an appropriate risk assessment;
- On-site testing and assessment of materials including a DQRA (if required), a verification plan and methodology to identify what, if any, remedial actions will be undertaken and how such actions will be validated and recorded if unexpected contamination is encountered during the works. A verification plan will record the placement and removal of materials at the Site including appropriate testing results,

the presence of asbestos containing material left in-situ and details and locations of any capping and marker layers installed

- Details of where and if appropriate, how these materials should be stored;
- Details of the intended final destination and use of these materials;
- Details of how these materials are to be tracked; and
- Contingency arrangements that must be put in place prior to movement of these materials (methods for separation and quarantine of non-permitted wastes (e.g. asbestos).

REMEDIATION

- 8.4 If additional ground investigation and quantitative risk assessments deem remediation is necessary, a remediation strategy will be completed by the Contractor (and submitted to Thurrock Borough Council and Environment Agency for approval).
- 8.5 The Contractor must implement any soil / groundwater contamination remediation recommendations detailed within the remediation strategy.
- 8.6 The Contractor must incorporate within proposed structures any gas protection measures recommended within the remediation strategy.
- 8.7 The Contractor must incorporate any drainage lining recommended within the remediation strategy.
- 8.8 If any remediation is undertaken, the Contractor must provide appropriate information to include within a verification report that shall be completed by the Contractor (and submitted to Thurrock Borough Council and Environment Agency for approval).
- 8.9 If any remediation is undertaken, the Contractor must include details of the works within the construction health and safety file.

ASBESTOS

- 8.10 The Contractor must implement the asbestos mitigation / remediation recommendations detailed within the Idom MereBrook asbestos investigation and recommendations report (Appendix 15C) and any other recommendations made by Idom MereBrook following completion of the additional asbestos investigations and risk assessments to be completed pursuant to those recommendations.

PILING

- 8.11 No piling may take place without a piling risk assessment first being undertaken and submitted to the EA for approval, in accordance with EA guidance. The Contractor must implement the piling techniques recommended by the piling risk assessment, which are deemed appropriate to manage the identified potential risks associated with creating pathways to groundwater.

UNEXPLODED ORDNANCE

- 8.12 The Contractor must carry out the recommendations of the UXB report (Appendix 15E) in relation to avoiding UXB risks.

9.0 WATER RESOURCES AND FLOOD RISK

9.1 The DCO requires that the proposals must be constructed and operated in compliance with the flood risk assessment.

9.2 Above and beyond those measures set out in the Flood Risk Assessment, in other chapters of this CEMP (such as marine ecology and Hydrogeology and Ground Conditions), in the protective provisions for the EA, PLA and MMO in the DCO; or that would be applied as part of the permitting process, the Contractor must:

- Implement all works in line with the EA's 'Groundwater Protection: Principles and Practice (GP3)' document, which sets out their position on a range of activities, including the storage of pollutants and hazardous substances.
- Bund potential contaminant sources such as tanks and excavated soils.
- Ensure the provision of oil spill clean-up equipment.
- Undertake construction activity to avoid disturbance or rupture of underground services such as sewers, waste water pipes or fuel lines.
- Undertake daily visual inspections of the ground for evidence of contamination.
- Undertake earth moving operations that have potential to give rise to contaminated drainage to be undertaken in compliance with BSI Code of Practice for Earthworks BS6031, 2009.
- Undertake all works in accordance with the Environment Agency's (EA) Pollution Prevention Guidance (PPG).
- Prepare an incident response plan prior to construction, which shall be present on site throughout construction to inform workers of required actions in the event of a pollution incident.

10.0 NOISE AND VIBRATION

10.1 As set out in Chapter 3, the Contractor must obtain a section 61 consent from Thurrock Council prior to commencing construction activities. Notwithstanding the conditions that may be applied by such a consent, the Contractor must also:

- Utilise best practicable means as defined by the Control of Pollution Act 1974 specifically including:
 - Adoption of low noise or vibration techniques at all times;
 - Locating plant away from noise and vibration sensitive receptors where feasible;
 - Use of well-maintained vehicles and mobile plant such that loose body fittings or exhausts do not rattle or vibrate; and
 - Turning off plant and equipment when not in use.

- Introduction of temporary noise screening when constructing the permanent noise barrier for the Infrastructure Corridor (which must be installed prior to the rest of the Infrastructure Corridor works) in close proximity to the sensitive receptors to the north. BS5228 advises that the approximate acoustic attenuation provided by a barrier will be 5 dB when the top of the plant is just visible to the receiver over the noise barrier and 10 dB when the barrier completely hides the noise sources from the receiver. Due to the proximity of NSR in the vicinity of the Infrastructure Corridor works, screening should be introduced around all static items of plant/work areas which have the potential to give rise to a disturbance whilst at a height which will effectively block line of sight to the surrounding receptors.

- Use compaction plant which generates low levels of vibration when undertaking the infrastructure corridor works in close proximity to existing sensitive receptors; i.e. within approx. 35m.

10.2 Prior to the commencement of any piling activities (either terrestrial or marine), if deemed necessary in consultation with English Heritage and Historic England, the Contractor will develop and implement a monitoring and mitigation regime to monitor and mitigate the vibration effects of piling on historic assets, in consultation with English Heritage and Historic England.

11.0 AIR QUALITY

DUST EMISSIONS

- 11.1 The “highly recommended” control measures for High Risk sites from the IAQM Construction dust guidance (described in the Air Quality chapter of the Environmental Statement) are set out below.
- 11.2 The most appropriate measures from this extensive list will be selected and implemented by the Contractor through a Dust Management Plan which will be confirmed and agreed with Thurrock Council based on the final construction methods, works programme and extent of works (to be confirmed by the Contractor). All mitigation measures will be agreed between the Contractor and Thurrock Council before construction commences.

DUST MONITORING

- Regular (as a minimum on a daily basis) on-site and off-site visual inspections to monitor dust. Inspection results will be recorded, and the log book made available to the local authority when asked. This will include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning provided if necessary.
- Monitoring of dust deposition will be undertaken including a three month baseline prior to commencement of works. Locations will be agreed in advance with Thurrock Council and the results shared. The dust deposition monitoring methodology involves using a passive DustDisc-Bracket (DD-B) depositional dust gauge passive monitoring system which is a recommended method in the Institute of Air Quality Management guidance. It is considered to be the most appropriate method for monitoring at nearby properties as it does not require a power supply and provides a good indication of dust deposition on horizontal surfaces such as window sills.
- The DD-B uses a clear adhesive dust collection ‘sticky pad’ which collects dust depositing from the air onto a horizontal surface; typically over seven day intervals. The DustDisc gauge holder comprises a plastic disc with a recess for the DustDiscs and a wooden base with a 90° angle bracket. DustDisc holders will be installed at unobstructed positions within reach to facilitate sample change over, so that the replacement sticky pads can be slid into place horizontally, but high enough to discourage tampering. Records will be kept of any apparent interference, in that eventuality.
- All dust and air quality complaints to be recorded, cause(s) identified and appropriate measures applied to reduce emissions in a timely manner, and the measures taken recorded.
- Complaints log to be made available to Thurrock Borough Council when asked.

- Any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation to be recorded in the log book.
- Regular site inspections to monitor compliance with the DMP with inspection results recorded. The Inspection log to be made available to Thurrock Borough Council when asked.
- Frequency of site inspections by the person responsible for air quality and dust issues on site to be increased when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

PREPARING AND MAINTAINING SITE

- Site layout to be planned so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Where practicable, screening to be placed around dusty activities or the site boundary that are at least as high as any stockpiles on site or where not possible, dust suppression equipment will be made available.
- Site specific operations with a high potential for dust production and where the site is active for an extensive period to be enclosed where feasible.
- Site runoff of water or mud to be avoided.
- Site fencing, barriers and scaffolding to be kept clean using wet methods in accordance with an agreed cleaning regime.
- Materials that have a potential to produce dust from site to be removed as soon as possible, unless being re-used on site. If they are being re-used on-site, they will be covered as described below.
- Material stockpiles to be covered, seeded or fenced to prevent wind whipping.

CONSTRUCTION OPERATIONS

- Cutting, grinding or sawing equipment only to be used where fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- An adequate water supply on the site to be maintained for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Where appropriate, chutes and conveyors to be enclosed and skips covered.

- Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment to be minimised and fine water sprays on such equipment applied wherever appropriate.
- Equipment to be readily available on site to clean any dry spillages, and spillages cleaned up as soon as reasonably practicable after the event using wet cleaning methods.
- No bonfires and burning of waste materials on site.

MEASURES SPECIFIC TO EARTHWORKS AND CONSTRUCTION

- Earthworks and exposed areas/soil stockpiles to be re-vegetated to stabilise surfaces as soon as practicable.
- Hessian, mulches or tackifiers to be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable
- Where feasible, soil cover only to be removed in small areas during work and not all at once
- Scabbling (roughening of concrete surfaces) to be avoided where possible
- Sand and other aggregates to be stored in banded areas and not allowed to dry out, unless this is required for a particular process, in which case the contractor will ensure that appropriate additional control measures are in place.
- Bulk cement and other fine powder materials to be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.

MEASURES SPECIFIC TO TRACKOUT

- Water-assisted dust sweeper(s) to be used on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Dry sweeping of large areas to be avoided.
- Vehicles entering and leaving sites to be covered to prevent escape of materials during transport.
- On-site haul routes to be inspected for integrity and any necessary repairs to the surface undertaken as soon as reasonably practicable.
- Inspections of haul routes and any subsequent action to be recorded in a site log book.
- Hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.

- A wheel washing system to be installed at all site access points (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- An area of hard surfaced road to be available between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from residential receptors.
- Any on-site crushing of materials to be undertaken as far as practicable from the boundary of the Site, to minimise the potential for soiling of property, including vehicles in nearby car parks. Crushing and screening equipment will be subject to regulation under the Pollution Prevention and Control (Scotland) Regulations 2000 (SSI 200/323). Equipment should be designed and operated in accordance with DEFRA's PG Note 3/16 for Mobile Crushing and Screening.

CONSTRUCTION TRAFFIC AND NRMM EMISSIONS

- 11.3 The following activities will be required to be undertaken by the Contractor:
- All contractors to switch off vehicle engines when stationary or non-operational - no idling vehicles.
 - The use of diesel or petrol powered generators to be replaced with use mains electricity or battery powered equipment where practicable.
 - A maximum-speed-limit of 10 mph on haul roads and work areas will apply.
- 11.4 NRMM used on site will be fitted with a type approved engine which meets the emission standards set in the Non-Road Mobile Machinery (Emission of Gaseous and Particulate Pollutants) Regulations 1999 (SI 1999/1053) (as amended).
- 11.5 The placement of diesel or petrol powered generators should consider proximity to nearby residential receptors and exhausts should discharge vertically and unimpeded.
- 11.6 Based on the plant equipment to be used, engine emissions limits must be established, in consultation with Thurrock Borough Council.

12.0 WASTE AND MATERIALS

- 12.1 The Contractor must ensure that Waste Electrical and Electronic Equipment produced in the CD&E should be segregated and managed separately from other wastes, with relevant paperwork kept (waste transfer/ consignment notes or an electronic transfer note system).
- 12.2 The Contractor must ensure that all batteries produced in the CD&E should be segregated and managed separately from other wastes. The management processes for batteries and accumulators should be documented.
- 12.3 The Contractor must prepare and maintain a Materials Management Plan (MMP) (as described above) and update the draft SWMP at Appendix 2 so that waste generation and management can be logged and audited in accordance with the most up to date methodology.
- 12.4 The Contractor must undertake the following best practice measures:
- Design out waste at the initial stage of the project by utilising standardised sizes and materials where possible, and engaging with the designers on the importance of this. This should include working to reduce the wastage rates of the construction waste streams which arise in the greatest quantities and considering options regarding the potential re-use of dredged and excavated material;
 - Set targets for waste recovery and recycling to enable those working on the project to have a clear understanding of what is expected;
 - Where practicable, use precast concrete and other materials that can be prepared off site (prior to construction of the concrete manufacturing plant) to minimise waste generation on site;
 - Not over order materials and use materials brought to site as efficiently as possible;
 - Organising deliveries so materials arrive on site as they are needed to reduce the possibility of damage and wastage occurring;
 - Having clearly defined and separated skips on site and a clearly demarked waste area(s); and
 - Training staff to understand how they should sort any waste material and providing regular reminders and updates.

13.0 APPENDIX 1 – CONSTRUCTION TRAFFIC MANAGEMENT PLAN

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

PROPOSED PORT TERMINAL AT FORMER TILBURY POWER STATION, TILBURY2

Client: Port of Tilbury London Limited

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Date: 25 October 2017

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QUALITY MANAGEMENT

Report No.	Comments	Date	Author	Authorised
ITL11323-021	DRAFT	5/09/17	Gavin Murray	Phil Hamshaw
ITL11323-021A	2 nd Draft	19/09/17	Gavin Murray	Phil Hamshaw
ITL11323-021B	3 rd Draft	21/09/17	Gavin Murray	Phil Hamshaw
ITL11323-021C	FINAL	19/10/2017	Gavin Murray	Phil Hamshaw
ITL11323-021D	REVISED FINAL	25/10/2017	Gavin Murray	Phil Hamshaw

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FIGURE 1.1	SITE LOCATION
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APPENDICES

APPENDIX A	CONSTRUCTION TRAFFIC ROUTING STRATEGY
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SECTION 1 INTRODUCTION

1.1 Overview

1.1.1 Port of Tilbury London Limited (“PoTLL”) is proposing a new port terminal on the north bank of the River Thames at Tilbury, a short distance to the east of its existing Port. The new port terminal would be known as “Tilbury2”. A site location plan is included as Figure 1.1.

1.1.2 The proposed main uses at Tilbury2 would be a Roll-on/Roll-off (RoRo) terminal and a Construction Materials and Aggregates terminal (the “CMAT”), with associated infrastructure including rail and road connections and revisions to the existing marine facilities.

1.1.3 The proposals would require works including, but not limited to:

- creation of hard surfaced pavements;
- improvement of and extensions to the existing river jetty including creation of a new RoRo berth;
- associated dredging of berth pockets around the proposed and extended jetty and dredging of the approaches to these berth pockets;
- new and improved conveyors;
- erection of ancillary buildings;
- a number of storage and production structures associated with the CMAT;
- the construction of a new link road from Ferry Road to Fort Road; and
- formation of a rail spur and sidings.

1.1.4 A Construction Environmental Management Plan (CEMP document reference 6.9) for the proposals will set out the principles for the overall management of construction activity. The CEMP will ensure that any construction methodologies are consistent with the assessments and mitigation measures set out in the Environmental Statement. This Construction Traffic Management Plan (“CTMP”) will form an appendix to the CEMP . This CTMP has been prepared in advance of detailed construction planning enabling a strategic approach whereby key decisions have been taken to ensure opportunities for positive benefits in minimising environmental impact are secured during the delivery of the proposals.

1.1.5 This CTMP will guide the preparation of a final CTMP (including appendices) which will be prepared prior to construction commencing, and approved by Thurrock Council in consultation with Highways England.

1.2 **Structure of Report**

1.2.1 The remainder of this document is structured as follows:

- Section 2 – Describes the existing transport conditions in the vicinity of the site;
- Section 3 – Sets out the construction programme;
- Section 4 – Provides details of the anticipated construction traffic associated with the construction of the proposals; and
- Section 5 – Sets out the measures that would be used to mitigate the anticipated impacts of the construction traffic.

SECTION 2 EXISTING TRANSPORT CONDITIONS

2.1 Highway Network

- 2.1.1 The A1089(T) extends as far as the existing Port's main entrance and is part of the Strategic Road Network, which is the responsibility of Highways England. It is a 2-lane dual carriageway road which is designated for use by strategic traffic in particular HGV's.
- 2.1.2 Beyond the Port's main entrance, the road continues as St Andrews Road/Ferry Road as far as the cruise terminal access roundabout. It is a single carriageway road and as a classified A road is designated to function as a primary route in the local highway network intended to accommodate HGV movements.
- 2.1.3 Beyond the cruise terminal it becomes Fort Road and whilst not a classified A road it's geometric characteristics are generally unchanged until east of Public Footpath 144 where the cattle grid is located, at which point it narrows and becomes rural in nature.

Traffic Regulations

- 2.1.4 There is an existing weight limit restriction (except for access) throughout the urban area of Tilbury which prohibits HGV's from routing through the town. The restriction commences on Brennan Road at its junction with Fort Road to the north of the site. On the western side of Tilbury the restriction commences on Dock Road to the south of Amazon.
- 2.1.5 To the north of the site Fort Road continues and provides an alternative route to the A1089(T) via Chadwell St Mary. The route is via Gun Hill/Turnpike Lane, Linford Road, Chadwell Hill and the A126 Marshfoot Road. There is a similar weight restriction on Gun Hill/Turnpike Lane prohibiting its use by HGV's. Linford Road has a clearway restriction which prohibits HGV's from waiting at any time along its length.

2.2 Walking and Cycling

A1089 St Andrew's Road

- 2.2.1 St Andrew's Road provides access to the existing Port of Tilbury. The road benefits from footways adjacent to either side of the carriageway and is subject to a speed limit of 40mph.
- 2.2.2 A shared pedestrian and cyclist bridge (circa 600m from Tilbury Town Railway Station) connects St Andrews Road via a footbridge called the Hairpin Bridge to the residential area to the north of the railway line. This route forms part of Route 13 of the National Cycle Network. It begins at Hairpin Bridge in Tilbury Town and aims to connect Tower Bridge in London with Fakenham in Norfolk upon completion. The Hairpin bridge is equipped with lighting facilities.
- 2.2.3 The shared foot and cycle route begins from this point southbound via the northern path of St Andrew's Road and connects (some 800m from Tilbury Town Station) to the Thames Estuary Path [FP193] that emerges off-road.
- 2.2.4 Southward from the Hairpin Bridge connection, the speed limit decreases from 40mph to 30 mph. The shared foot and cycle routes that are present on both sides of St Andrews Road terminate when the road connects with the off-road Thames Estuary Path. The shared use foot and cycle route resumes to the north of the Ferry Road roundabout.

Ferry Road

- 2.2.5 The Ferry Road / Hyundai / Fort Distribution Park roundabout, provides pedestrian crossings and refuge islands on all arms of the junction (with the exception of the Ferry Road South arm) to facilitate pedestrian and cycle crossing movements and the shared foot and cycle routes continue. At the southern Ferry Road / Fort Road roundabout safe crossing is facilitated with the presence of lowered tactile paving on the Cruise Terminal arm of the roundabout. Both roundabouts are well lit.

- 2.2.6 At the Fort Road / The Worlds End mini roundabout, footways are provided on both sides of Fort Road with pedestrian / cycle crossing provided on The Worlds End arm of the roundabout. The westbound arm of the mini roundabout provides off-road access to a shared path (Public Footpath 146) at the end, which is a footpath that follows northbound to connect to Fort Road after its eastern bend. The shared foot and cycle route is not streetlit.
- 2.2.7 At the connection with Fort Road, lowered tactile paving is in place to facilitate safe crossings for cyclists and pedestrians who want to continue northbound via Public Footpath 144 route. This is an off-road shared path that connects (via an at-grade crossing of the rail track) to the residential area at The Beeches. The shared foot and cycle route is not lit.

Fort Road

- 2.2.8 In the vicinity of the site there are pedestrian footways on the western side of Fort Road at its junction with the site access. The footway continues northbound, connecting with the footway on the residential street of Brennan Road. Brennan Road has footways on both sides of the road and provides a direct walking route to Tilbury Town Centre and the railway station.
- 2.2.9 To the south of the site access junction there are no footways on Fort Road. Further south there is a footway on the southern side of Fort Road in the vicinity of Fortress Distribution Park. Adjacent to the Riverside Business Centre footways are provided on both sides of Fort Road for a short distance, before reverting back to the southern side only connecting with the Port of Tilbury. Fort Road (becoming St Andrews Road) continues around the Port and provides footway connections between the Port, Tilbury town centre and railway station.
- 2.2.10 Part of National Cycle Route (NCR) 13 is located at the southern end of Fort Road; routing along the eastern perimeter of the Port, it links Tilbury, the railway station and Tilbury Fort. The Thurrock Council 2010 Cycle Plan classifies Fort Road as a route suitable for cyclists. Cycle lanes are provided along Brennan Road and a shared cycle and foot way adjacent to Feenan Highway provides a connection to the residential area in Tilbury.

2.3 Road Safety

2.3.1 Personal injury accident (PIA) data has been obtained from Essex County Council for the local highway network surrounding the Tilbury2 site for the most recent five-year period that was available (1st April 2012 and 31st March 2017).

2.3.2 Table 2.1 provides a summary of the location and the number of recorded accidents along Ferry Road/Fort Road from Gate 1 of the Port of Tilbury to the Tilbury2 site access over the assessed period.

Table 2.1: Personal Injury Accidents (1 April 2012 to 31 March 2017)

Location	Vehicles			Pedestrians and Cyclists		
	Fatal	Serious	Slight	Fatal	Serious	Slight
Gate 1 Access	0	0	2	0	0	0
Ferry Road between Gate 1 & Gate 2	0	0	0	0	0	0
Gate 2 Access	0	0	0	0	0	0
Fort Road between Gate 2 & Site Access	0	0	1	0	0	0
Fort Road north of Site Access	0	0	1	0	0	0
Total	0	0	4	0	0	0

Source: Essex County Council

2.3.3 Whilst any accident is of course regrettable, the overall number and severity of accidents along the route between Gate 1 and the existing access to the Tilbury2 site does not suggest a specific issue at any location. It should also be noted that none of the recorded accidents involved pedestrians or cyclists. There were no accidents at the existing access to the Tilbury2 site.

2.4 Traffic Flows

2.4.1 Traffic surveys were undertaken on roads surrounding the Tilbury2 site during 2016. Full details are provided in the Transport Assessment. Table 2.2 summarises the observed traffic flows between Gate 1 of the Port of Tilbury and the existing access to the site.

Table 2.2: 2016 Baseline Traffic Flows

Location	24-Hr AADT	HGV
Existing Power Station Site Access	230	15 (6.3%)
Fort Road – North of Brennan Road	1,906	265 (13.2%)
Fort Road – South of Site Access	1,413	225 (15.9%)
Ferry Road – South of Proposed Link Road	5,263	1,391 (26.4%)
Ferry Road – North of Proposed Link Road	5,263	1,391 (26.4%)

Source: Intelligent Data and Nationwide Data Collection

SECTION 3 CONSTRUCTION PROGRAMME

3.1.1 As noted the proposed main uses at Tilbury2 will be a Roll-on/Roll-off (RoRo) terminal and a Construction Materials and Aggregates terminal (the “CMAT”). The development will also comprise associated infrastructure including rail and road connections and revisions to existing marine facilities.

3.1.2 It is estimated the overall construction period would be 24 months. Construction works would commence in Q1 2019. The main works would be complete such that the RoRo terminal would become operational in Q1 2020, with the remainder of the site becoming operational by Q1 2021.

3.1.3 The construction activities have been split into three broad categories:

- Marine Construction – berths etc;
- Terminal (terrestrial) - CMAT and RoRo;
- Infrastructure Corridor - Road and Rail connections.

3.1.4 Construction activity would take place concurrently for each category with the Terminal construction expected to last the full 22-month period. The Marine construction is expected to take 12 months, with the infrastructure corridor 15 months.

SECTION 4 CONSTRUCTION TRAFFIC

4.1 Introduction

4.1.1 During the construction period, traffic movements will principally be associated with the following sources:

- The delivery and/or collection of plant;
- The delivery of construction materials and/or removal of waste materials; and
- The construction workforce.

4.1.2 This section details the anticipated volume of traffic associated with each of these sources. The routes that delivery vehicles would use are also detailed.

4.1.3 The following paragraphs provide a summary of the estimated level of traffic during the construction phases, with full details provided in the Transport Assessment (document reference 6.2.13A). Construction activity varies considerably on a day to day basis and it is not possible to predict with certainty the daily variation and hence the level of traffic generation. However, the following estimates are considered to be representative of typical activity based on the expected construction programme.

4.1.4 The number of movements would be re-examined when the appointed Contractor's construction methods and detailed programming of the works are sufficiently progressed. This would enable a more accurate assessment of vehicle movements each week during construction. Peak periods of activity could then be identified and managed in liaison with Thurrock Council. For example, coordinating with road works or other construction activity along the construction route.

4.1.5 It should be noted the estimates below are worst case assuming all foreseeable activities would occur simultaneously.

4.2 Delivery & Collection of Plant

4.2.1 The delivery and collection of plant and equipment would vary throughout construction as different activities progress. It is estimated that the daily number of HGV movements associated with this activity for each construction category would be:

- Terminal – 2 HGVs; and
- Infrastructure Corridor – 2 HGVs.

4.2.2 The construction of the marine elements would require the delivery of pre-fabricated sections of the link span, pontoon, fenders and dolphins, and other topside infrastructure. Crane barges would be used to lift materials into position. There would be nominal HGV deliveries of plant associated with the Marine activities with a significant majority of equipment and plant arriving by river.

4.3 Delivery/Removal of materials

4.3.1 As a general principle material would not be exported unless it cannot be practicably re-used on site. This should minimise the number of vehicles associated with this activity. However, as a worst estimate it has been assumed all excavated and waste material is exported from the site. Based on this assumption the following figures are daily estimates associated with each of the main categories of construction:

- Terminal – 23 HGVs; and
- Infrastructure – 62 HGVs.

4.3.2 Material dredged during the Marine construction would be deposited on the Tilbury2 site or at sea, or a mix of both depending upon the type of material as determined at the detailed design stage. This minimises the export of material, particularly by road.

4.3.3 In total, when all construction activities are taking place simultaneously, it can be expected that there would be 89 Heavy Goods Vehicles per day (178 two-way movements) associated with construction activity.

4.4 **Construction Workforce**

4.4.1 It is estimated that during the 22-month construction period, the site would employ up to 300 construction personnel. This number is anticipated to remain broadly constant throughout the construction period with the number of personnel varying between each construction activity at different stages of the programme. As a worst case, it has been assumed that all construction personnel will drive by car. As such, there will be a requirement on the appointed Contractor to provide sufficient parking.

4.5 **Vehicle Routing**

4.5.1 There will be a number of compounds in use during the construction. The exact location and period of operation of these compounds would be determined in detailed design and the CTMP would be updated for approval by Thurrock Council to reflect these locations. However, at this stage it is expected that the principal compound would be on the Tilbury2 site itself. This compound would be accessed via the existing access with Fort Road and subsequently via the main entrance to the former Power Station site, which benefits from manned 24-hour security enabling control of movements.

4.5.2 It is likely there will be a compound associated with the infrastructure corridor at eastern end only. All construction workers will park at the main compound on the Tilbury2 site. Any workers employed at other compounds/construction areas would be transported in groups to those locations.

4.5.3 All construction vehicles (other than workers arriving and departing) would be required to followed a pre-determined route. The primary aim would be to ensure construction vehicles remain on the strategic and primary highway network, for as long as practically possible.

4.5.4 Accordingly, with the exception of vehicles originating locally within Tilbury, all construction vehicles must route via the A1089(T) to and from the north of ASDA roundabout. Between the ASDA roundabout and the various compounds, the prescribed route would be:

- South onto the A1089(T) St Andrews Road;
- Past Tilbury Gate 1;

- Continuing on Ferry Road past Gate 2;
- Onto Fort Road; and
- Travelling north on Fort Road as far as the last compound .

4.5.5 Vehicle routes must be provided to all contractors, sub-contractors and delivery firms prior to arrival and relayed to site personnel via tool box talks.

4.5.6 In addition, dedicated “Tilbury2 Construction” temporary signs must be installed at key locations along the route including Asda Roundabout (Dock Road and Thurrock Park Way), the existing Port access and on routes into Tilbury to direct construction traffic to follow the prescribed route. In addition, signs must be located on the approach to roads where construction vehicles will not be permitted on the key routes into Tilbury including Dock Road and Brennan Road. Final locations would be approved by Thurrock Council.

4.5.7 A plan showing the prescribed route and locations where “Tilbury2 Construction” traffic would not be permitted to route is attached at Appendix A. This plan would be developed in detailed design and approved by Thurrock Council. .

Abnormal Loads

4.5.8 During the construction period, there would be an occasional requirement for abnormal loads associated with delivery of specific plant or pre-fabricated structures. The management of these loads would be co-ordinated with Highways England and Thurrock Council (with appropriate notification to the Police).

4.5.9 The exact nature of these abnormal loads is not known at this stage. However, swept path analysis will be undertaken and included within the final CTMP for the construction route in operation at the time; this would confirm the suitability of the route for these vehicles. The timing of these loads must be programmed to ensure it did not coincide with the busiest periods on the road network.

4.6 Traffic Management & Road Closures

4.6.1 There will be a need for temporary traffic management and road closures to enable construction of the infrastructure corridor.

4.6.2 Traffic management will be required at either end of the infrastructure corridor particularly where the proposed road connects with Ferry Road. Traffic management must be designed in accordance with the guidance and advice of Traffic Signs Manual Chapter 8 Traffic Safety Measures and Signs for Road Works and Temporary Situations Part1: Design (DfT, 2009). The general approach would be to ensure the works and traffic management scheme can be carried out in a safe manner and minimise the disruption to traffic.

4.6.3 The only foreseeable road closure will be on Fort Road where it crosses the rail line. The construction of a new bridge structure will necessitate the closure of Fort Road for a period of time. During this time, it will be necessary for existing traffic to be diverted. The preferred diversion will be agreed with Thurrock Council as part of its approval of the detailed CTMP and is likely to depend upon the length of time the diversion is required. The diversion route would be one of the following two options:

- Through Tilbury town via Brennan Road; or
- Through Chadwell St Mary via Gun Hill/Turnpike Lane.

4.6.4 Both options would require temporary suspension of existing weight restrictions (to be undertaken pursuant to PoTLL's powers under the DCO, which will require the consent of Thurrock Council as the relevant street authority) to permit HGV's to use either route.

SECTION 5 MANAGEMENT MEASURES

5.1 Overview

5.1.1 This section outlines the type of measures which can mitigate potential negative effects of construction traffic by:

- Reducing the effects of congestion on the local highway network;
- Reducing the effects of the construction phase on the amenity of the local area and in particular on local residents; and
- Preventing adverse safety impacts on the local highway network.

5.1.2 In addition to the above it will be important to monitor the CTMP to ensure its ongoing effectiveness throughout construction and key considerations and potential methods of monitoring are set out.

5.2 Reducing the Effects on Congestion on the Local Highway Network

Construction Deliveries

5.2.1 Construction deliveries would only take place between 09:30 and 16:30 hours Monday to Friday and between 09:00 and 12:00 on a Saturday and construction vehicles must use the prescribed route to reach the site.

5.2.2 Sufficient parking and vehicle waiting areas must be available within all compounds to seek to avoid HGVs or other vehicles associated with the construction parking on public roads.

5.2.3 Construction materials must be sourced from local suppliers, where this is practicable, in order to reduce the length of vehicle trips to the site.

5.2.4 Companies must be required to contact the relevant site compound ahead of any of their deliveries to ensure that sufficient space within the site is available to receive them. Deliveries must be received by a named individual on site and be supported by traffic marshals where/when necessary.

5.2.5 As noted above, particularly for the marine construction activity, construction activity would make use of river transport, where practical.

Construction Workforce

5.2.6 Prior to construction commencing, the appointed Contractor must advise its personnel as to how to travel to the site by non-car modes and provide details of public transport maps and timetables to all personnel at initial site briefings. Where vehicular travel is absolutely necessary, personnel would be encouraged to car share with colleagues. The Contractor would also review the option for workforce minibuses for travel to and from the site.

5.2.7 The majority of construction personnel would arrive and depart before the traditional network peak hours with working hours during weekdays (Monday to Friday) generally 08:00 to 18:00 and 08:00 to 16:00 on Saturdays and Sundays.

5.3 Reducing Impacts on Local Residents' Amenity

5.3.1 As noted site working hours during weekdays (Monday to Friday) would generally be 08:00 to 18:00 and generally 08:00 to 16:00 on Saturdays and Sundays. Extended site working hours of 07:00 to 20:00 are proposed for marine works in order to minimise the construction programme for this element of the work. There would be no working outside of these hours, unless otherwise agreed with Thurrock Council.

5.3.2 The exception to these working hours would be in respect of piling activities which would not take place at all on weekends or bank holidays.

5.3.3 In addition, any vehicle which enters a site compound must not be authorised to leave the site until it has utilised the on-site wheel washing facilities and has complied with all measures in the Dust Management Plan (which is required pursuant to the CEMP). Roads adjoining site compounds would be regularly inspected for any deposits of spoil or debris deposited by construction traffic associated with the site. If necessary the road must be cleaned by mechanical sweeper or manually.

5.4 Road Safety

5.4.1 Security hoardings would be placed along the compound boundaries. Access gates would open into the site. These access gates would also be securely locked at the end of the working day.

5.4.2 The contractor would use companies with Fleet Operator Recognition Scheme (FORS) accreditation when selecting companies to make deliveries to the site and give preference to those meeting the Construction Logistics and Community Safety (CLOCS) standard for construction logistics.

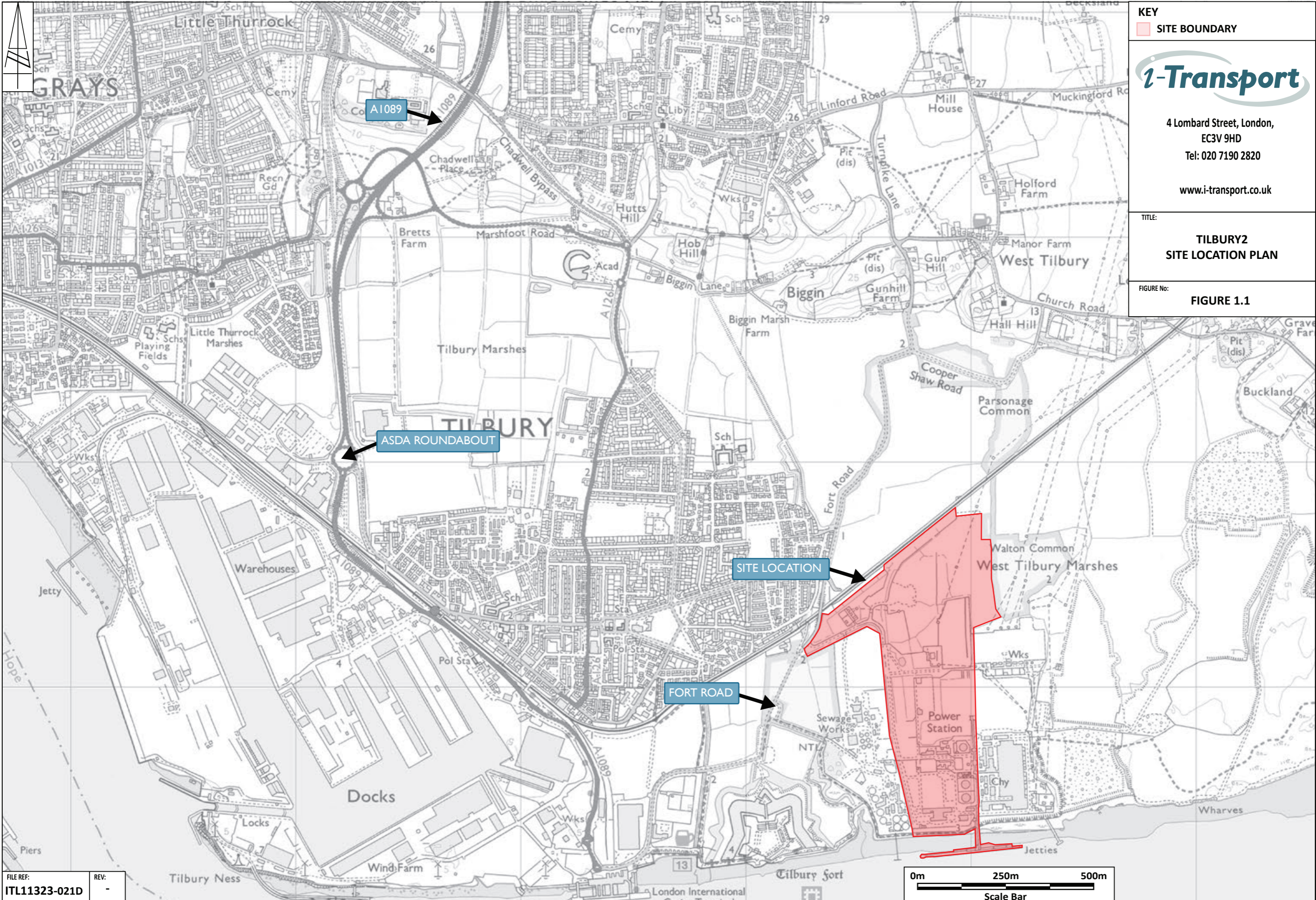
5.5 **Monitoring**

5.5.1 The appointed Contractor must hold review meetings with the supply chain, construction teams and Thurrock Council, on a regular basis (3 months or similar) to review compliance with this CTMP.

5.5.2 The appointed Contractor must also establish a logistics team to implement and monitor the CTMP. This monitoring would include but not be limited to the following:

- FORS and CLOCS membership;
- Collision reporting;
- Vehicle safety equipment audits;
- Driver License checks;
- Number of vehicle movements to site;
- Construction vehicles following the prescribed routes;
- Adherence with the Dust Management Plan;
- Vehicle mileage;
- Level of vehicle fill;
- Delivery accuracy; and
- Breaches and complaints (to be dealt with in accordance with the procedures set out within the CEMP (document reference 6.9)).

5.5.3 The purpose of the monitoring is to ensure that the Contractor is undertaking the works in accordance with the CTMP. Monitoring will be undertaken in agreement and consultation with Thurrock.



KEY
 SITE BOUNDARY

i-Transport

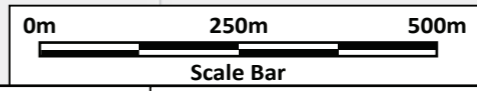
4 Lombard Street, London,
 EC3V 9HD
 Tel: 020 7190 2820
 www.i-transport.co.uk

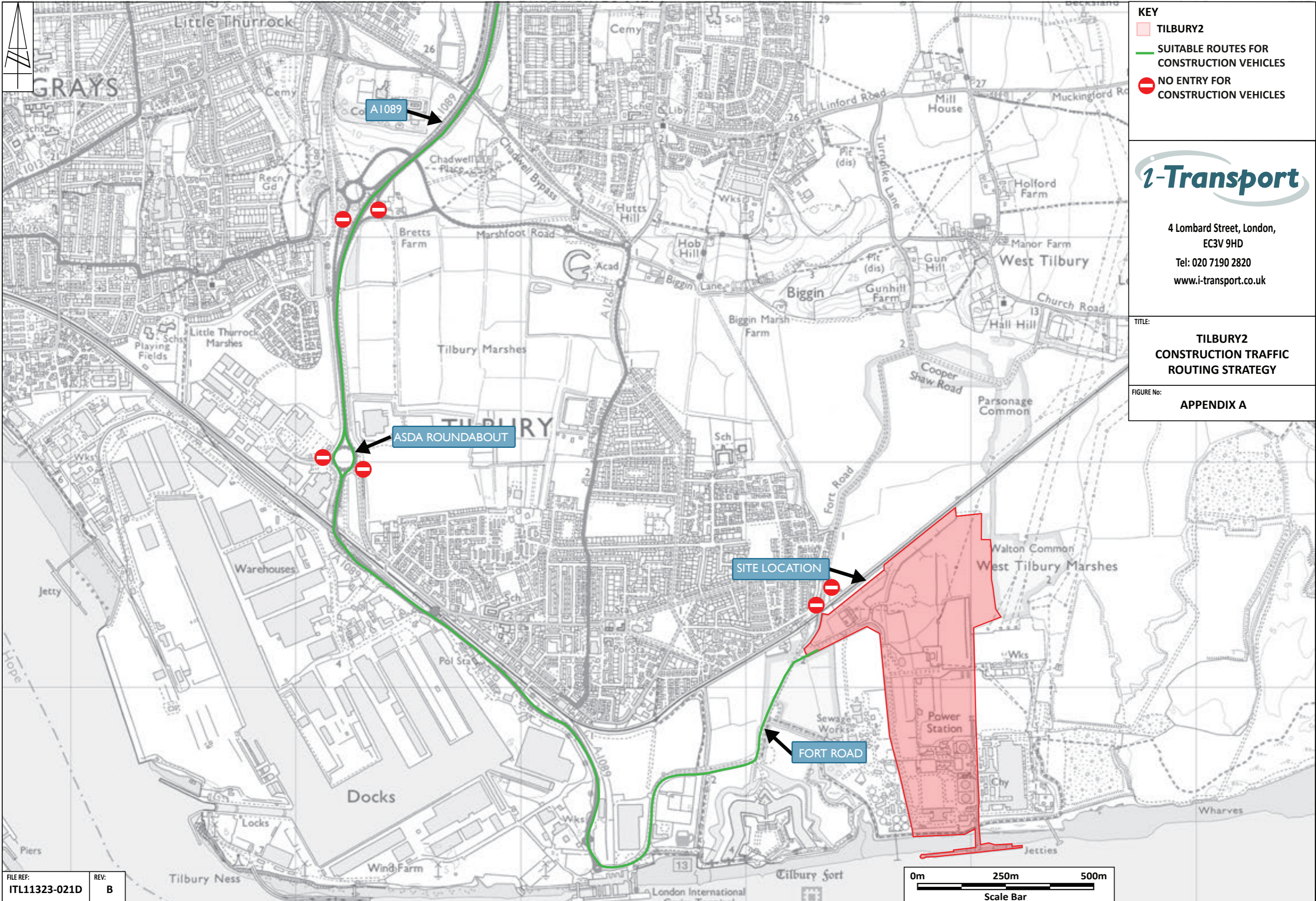
TITLE:
**TILBURY2
 SITE LOCATION PLAN**

FIGURE No:
FIGURE 1.1

FILE REF:
ITL11323-021D

REV:
 -





- KEY**
- TILBURY2
 - SUITABLE ROUTES FOR CONSTRUCTION VEHICLES
 - NO ENTRY FOR CONSTRUCTION VEHICLES



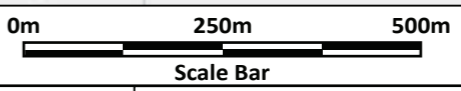
4 Lombard Street, London,
EC3V 9HD
Tel: 020 7190 2820
www.i-transport.co.uk

TITLE:
**TILBURY2
CONSTRUCTION TRAFFIC
ROUTING STRATEGY**

FIGURE No:
APPENDIX A

FILE REF:
ITL11323-021D

REV:
B



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14.0 APPENDIX 2 – SITE WASTE MANAGEMENT PLAN

Basic Details

Client name :	Port of Tilbury London Limited
Principal contractor :	TBC
Owner of document :	Atkins
Project title :	Tilbury2
Project location :	Tilbury, Essex
Type of construction :	Ports and Harbours
Activity :	New construction

Project targets

Please select project targets applicable to your project

KPI	Phase	Target	Unit
Waste to landfill	All	11,400	t
Waste recovery	Demolition	95	%
Waste recovery	Excavation	95	%
Waste recovery	Construction	95	%

Schedule

Start date : 01-Jan-19 dd/mm/yy
 Completion date : 31-Dec-20 dd/mm/yy

Position	Name	Contact Details
Client	Port of Tilbury London Limited	TBC
Principal Contractor	TBC	TBC
Site Waste Management Plan Drafter	Atkins	TBC

Forecast Waste

C, D or E Activity	Waste Stream	Material Type	Further description of waste - optional	Suggested LOW Code	Waste or Re-Use	Forecast Quantities		Calculated Quantities (Converting between m ³ and t)	
						(m ³)	(tonnes)	(m ³)	(tonnes)
Demolition	Inert - mixture of concrete, bricks, tiles etc.	concrete	Concrete, Rubble, Bricks , Tiles and Glass etc	17 01 01	Off-site segregated		1,805	1,421	1,805
Demolition	Gypsum (17 08 02)	gypsum-based construction materials other than those mentioned in 17 08 01	Plasterboard	17 08 02	Off-site segregated		56	170	56
Demolition	Metals	mixed metals	Metal	17 04 07	Off-site segregated		429	1,021	429
Demolition	Wood	wood	Timber	17 02 01	Off-site segregated		97	285	97
Excavation	Non Haz (Non Inert) - Dredgings	dredging spoil other than those mentioned in 17 05 05	Marine Dredging	17 05 06	Off-site segregated	110,000		110,000	56,177
Excavation	Inert - Soil & stones	soil and stones (inert) other than those mentioned in 17 05 03	Terrestrial Excavations	17 05 04	Off-site segregated		53,200	42,560	53,200
Construction	Other C&D segregated waste	track ballast other than those mentioned in 17 05 07	Aggregates	17 05 08	Off-site segregated		49,200	45,254	49,200
Construction	Other C&D segregated waste	bituminous mixtures other than those mentioned in 17 03 01	Asphalt	17 03 02	Off-site segregated		2,190	2,671	2,190
Construction	Inert - mixture of concrete, bricks, tiles etc.	bricks	Bricks	17 01 02	Off-site segregated		5	4	5
Construction	Other C&D segregated waste	track ballast other than those mentioned in 17 05 07	Cement	17 05 08	Off-site segregated		4,230	3,891	4,230
Construction	Inert - mixture of concrete, bricks, tiles etc.	concrete	Concrete paving	17 01 01	Off-site segregated		14,340	11,291	14,340
Construction	Inert - mixture of concrete, bricks, tiles etc.	concrete	Concrete structural	17 01 01	Off-site segregated		380	299	380
Construction	Other C&D segregated waste	textiles	Geotextile	20 01 11	Off-site segregated		1	4	1
Construction	Other C&D segregated waste	household plastics	Plastic	20 01 39	Off-site segregated		5	35	5
Construction	Other C&D segregated waste	track ballast other than those mentioned in 17 05 07	Sand	17 05 08	Off-site segregated		645	593	645
Construction	Metals	mixed metals	Metal	17 04 07	Off-site segregated		670	1,596	670
Construction	Wood	wood	Timber	17 02 01	Off-site segregated		200	588.24	200
Construction	Packaging	plastic packaging	Packaging	15 01 02	Off-site segregated		140	636.36	140
Construction	Segregated Haz Waste	packaging containing residues of or contaminated by dangerous substances	Hazardous Packaging	15 01 10*	Off-site segregated		1	4.76	1
Construction	Mixed C&D waste (17 09 04)	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	General waste	17 09 04	Off-site mixed		52	59.77	52
Construction	Segregated Haz Waste	absorbents, filter materials , wiping cloths, protective clothing contaminated by dangerous substances	Haz waste	15 02 02*	Off-site segregated		1	2.39	1
Construction	Other C&D segregated waste	septic tank sludge	Welfare waste	20 03 04	Off-site segregated		52	56.40	52

Specify Waste Carriers

Name	Contact Details	Date checked with Environment Agency (dd/mm/yyyy)	Registration Number	Expiry Date (dd/mm/yyyy)

Specify Waste Management Facilities

Name	Type of facility	% reused if known	% recycled if known	% energy recovery if known	% total all forms of recovery	Overall diverted from landfill / recovery
Gypsum Recycling Facility	Segragated waste sent off site		95%			95%
Metals Recycling Facility	Segragated waste sent off site		100%			100%
Wood Recycling Facility	Segragated waste sent off site		95%			95%
Inert Waste Recycling Facility	Segragated waste sent off site		100%			100%
Packaging Recycling Facility	Segragated waste sent off site		95%			95%
General waste Recycling Facility	Mixed waste sent off site		80%			80%
Hazardous waste Disposal Facility	Landfill					0%
Other Waste Recycling Facility	Segragated waste sent off site		80%			80%
						0%
						0%
						0%

Construction				
Waste sent offsite	Forecast		Proposed Destination	% Diverted from landfill
	Estimated Volume (m ³)	Estimated Weight (t)		
Metals	1,596	670	Metals Recycling Facility	100%
Wood	588	200	Wood Recycling Facility	95%
Packaging	636	140	Packaging Recycling Facility	95%
Inert - Building rubble	11,595	14,725	Inert Waste Recycling Facility	100%
Mixed C&D waste	60	52	General waste Recycling Facility	80%
Segregated Haz Waste	7	2	Hazardous waste Disposal Facility	0%
Other C&D segregated waste	52,504	56,323	Other Waste Recycling Facility	80%
	66,985	72,112		

Retained on site	Forecast	
	Estimated Volume (m ³)	Estimated Weight (t)
	0.00	0.00

Demolition				
Waste sent offsite	Forecast		Proposed Destination	% Diverted from landfill
	Estimated Volume (m ³)	Estimated Weight (t)		
Gypsum	170	56	Gypsum Recycling Facility	95%
Metals	1,021	429	Metals Recycling Facility	100%
Wood	285	97	Wood Recycling Facility	95%
Inert - Building rubble	1,421	1,805	Inert Waste Recycling Facility	100%
	2,898	2,387		

Retained on site	Forecast	
	Estimated Volume (m ³)	Estimated Weight (t)
	0.00	0.00

Excavation				
Waste sent offsite	Forecast		Proposed Destination	% Diverted from landfill
	Estimated Volume (m ³)	Estimated Weight (t)		
Inert - Soil & stones	42560.00	53200.00	Inert Waste Recycling Facility	100%
Non Haz (Non Inert) - Dredgings	110000.00	56177.00	Inert Waste Recycling Facility	100%
	152560.00	109377.00		

Retained on site	Forecast	
	Estimated Volume (m ³)	Estimated Weight (t)
	-	-

Waste Totals

Waste Stream	Total waste arising (Tonnes)	Total material retained on site (Tonnes)	Total waste sent offsite (Tonnes)	Total waste to landfill (Tonnes)	Total waste recovered offsite (Tonnes)	Cost of waste disposal
Inert - Soil & stones						£0.00
Hazardous - Soil & stones						£0.00
Non Haz (Non Inert) - Dredgings						£0.00
Segregated Haz - Soil & stones						£0.00
Gypsum						£0.00
Metals						£0.00
Wood						£0.00
Packaging						£0.00
Inert - Building rubble						£0.00
Inert - Glass						£0.00
Mixed Hazardous - C&D waste						£0.00
Mixed C&D waste						£0.00
Segregated Haz Waste						£0.00
Other C&D segregated waste						£0.00
Total						£0.00

Display summary as:
Tonnes

Actual Waste Movements

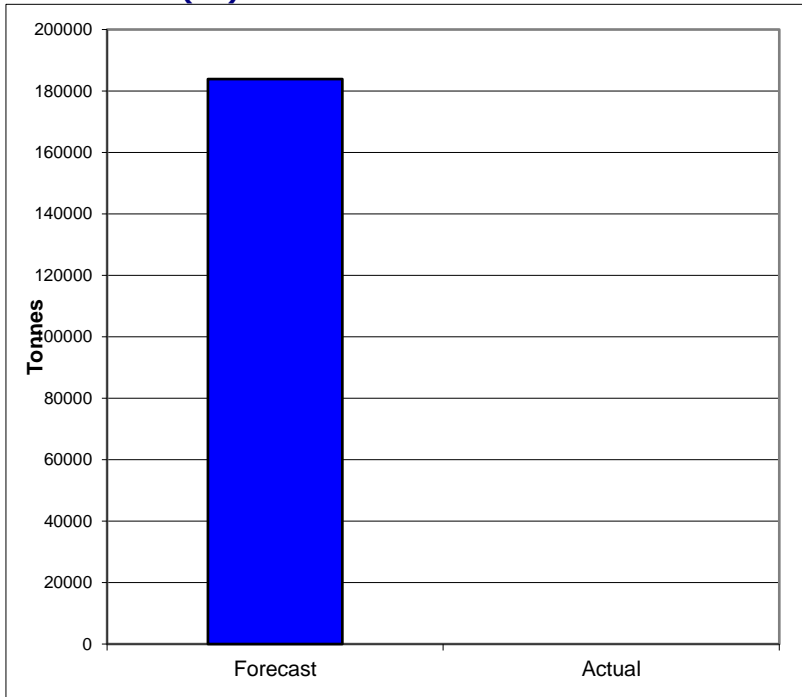
Movement Number	C, D or E Activity	Waste Stream	Material Type	Further description of waste - optional	LOW Code used	On or off-site destination	Off-site carrier	Off- site destination	Override facility recovery rate for individual skip	Overall diversion from landfill / recovery (further detail on Sheet 4)	Date of Movement(s) (dd/mm/yyyy)	Waste Totals				
												(m ³)	(tonnes)	Actual Cost	£/m ³	£/t
1										100%						
2										100%						
3										100%						
4										100%						
5										100%						
6										100%						
7										100%						
8										100%						
9										100%						
10										100%						
11										100%						
12										100%						
13										100%						
14										100%						
15										100%						
16										100%						
17										100%						
18										100%						
19										100%						

KPI	Target
Waste to landfill (All)	11400t
Waste recovery (Demolition)	95%
Waste recovery (Excavation)	95%
Waste recovery (Construction)	95%

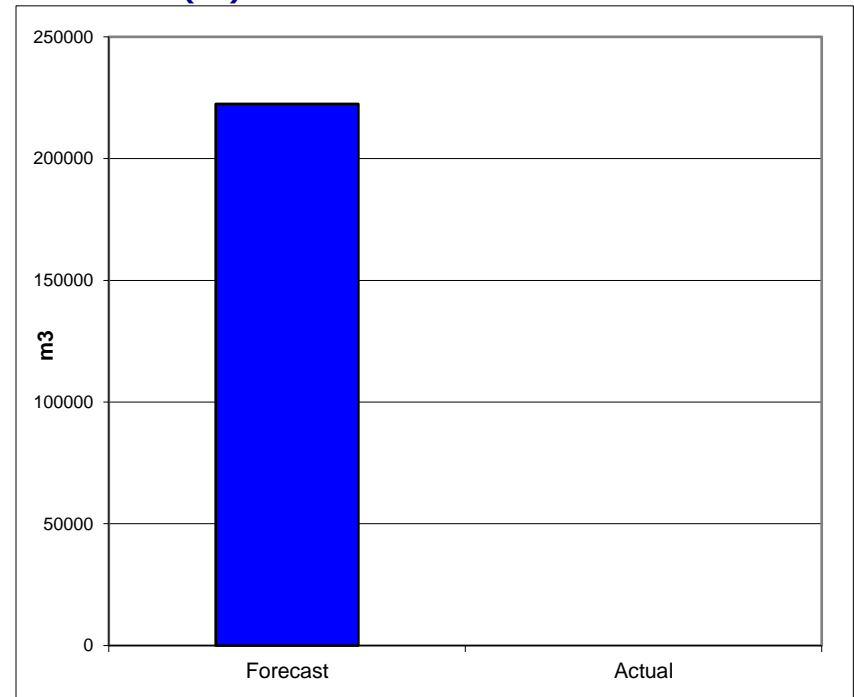
Select Metric :	Total
Select Phase :	All

	Forecast		Actual	
	m ³	Tonnes	m ³	Tonnes
Total Waste	222,443	183,876		
Total Waste to landfill	10,604	11,302		
% Waste diverted from landfill	95%	94%		
% Material reused on site	0%	0%		

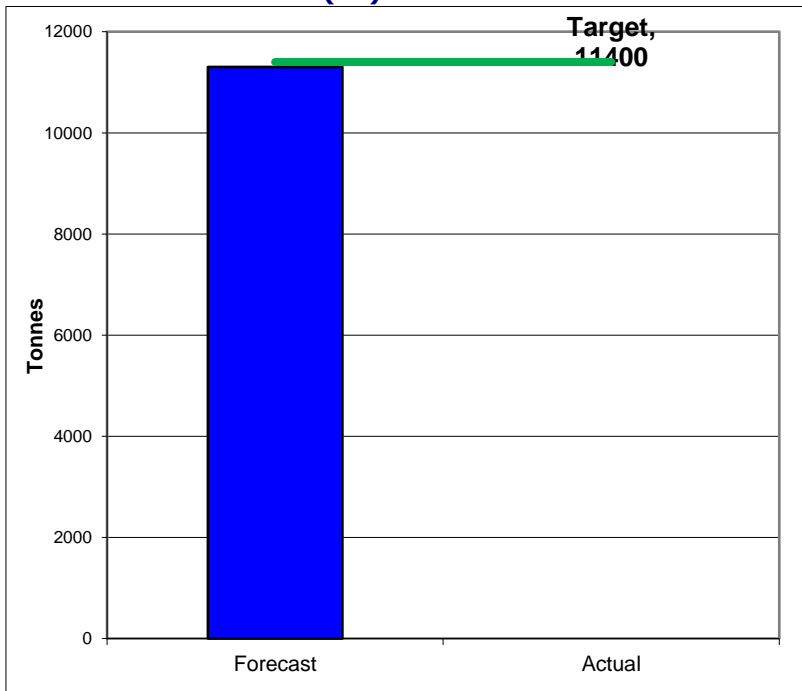
Total Waste (All) - Tonnes



Total Waste (All) - m3



Total Waste to Landfill (All) - Tonnes



Total Waste to Landfill (All) - m3

