

Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

INTRODUCTION

- 18.1** Mitigation refers to “*measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment*” as set out in the EIA Regulations (amended 2018, 2020)¹. Throughout the design process, environmental mitigation measures have been incorporated into the design of the Proposed Development to prevent, reduce and offset potentially adverse effects. These mitigation measures have been incorporated into the design of the Proposed Development and so comprise part of the scheme for which planning permission is sought, which is described in **ES Volume 1, Chapter 4: The Proposed Development**.
- 18.2** In addition, environmental enhancement measures have been incorporated into the design of the Proposed Development where practical to improve the existing environmental conditions of the site and surrounding area. Again, these are described in this ES in **ES Volume 1, Chapter 4: The Proposed Development**; they are not repeated within this chapter of the ES. Securing these measures will also be via the planning permission granted for the Proposed Development itself.
- 18.3** A number of Management Plans, either in outline so that they can be finalised and detailed at a later stage, or where possible, final, have also been prepared to accompany the planning application. For those Management Plans which have been prepared to accompany the planning application, it is expected that compliance with such Management Plans will be secured via an appropriately worded planning condition.
- 18.4** Alternatively, a number of Management Plans are referenced to be produced and implemented at various stages of the project, which relate to mitigating adverse environmental effects. It is suggested that these Management Plans be secured through planning conditions attached to the permission if granted by the LPA. **Table 18.1** identifies the Management Plans that have been prepared in outline alongside the planning application or that are to be prepared following consent and at the appropriate stage of the project.
- 18.5** **Table 18.2** and **Table 18.3** present the environmental mitigation and monitoring measures required for the Proposed Development, as identified as a result of the EIA process and described within this ES. The environmental mitigation and monitoring measures presented include those which are standard measures / commitments that would be adopted as a matter of course to meet best practice guidance in relation to the demolition and construction works; and any additional, project bespoke mitigation and monitoring measures that have been identified as being required by the EIA.
- 18.6** The environmental mitigation and monitoring measures presented in **Table 18.2** and **Table 18.3** are measures that the LPA will need to secure for the project, either using planning conditions on the Decision Notice, or through planning obligations secured by appropriate legal agreement(s). It is however, noted that the way in which any required mitigation is secured is for the LPA to determine. This is stipulated in Section 70(1)(a) of the Town and Country Planning Act 1990 which enables the LPA in granting planning permission to impose such conditions as they think fit. Paragraph 55 of the National Planning Policy Framework² also states that planning conditions should be kept to a minimum and only used where they satisfy certain tests (i.e., are necessary, relevant to planning, relevant to the development to be permitted, enforceable, precise with the Applicant) before they are imposed.
- 18.7** The following schedule is structured to describe the environmental mitigation and monitoring measures for the Proposed Development that:
- Will be secured through the preparation and implementation of Management Plans (**Table 18.1**);
 - Shall be implemented throughout the demolition and construction activities (**Table 18.2**); and
 - Shall be implemented / undertaken once the Proposed Development is built and in operation / use (**Table 18.3**).

The mitigation and monitoring measures have been developed through coordination with the Applicant, Design Team and EIA technical specialists to ensure the environmental mitigation and monitoring measures described are delivered and are considered appropriate in terms of their ability to mitigate any relevant likely adverse environmental effects associated with the Proposed Development. It should be noted that a number of mitigation measures have been considered and built into the design of the Proposed Development. Such measures are captured within the Design Code to form controls which the detailed design of the Proposed Development must adhere to. These are discussed, as relevant, in **ES Volume 1, Chapter 4: The Proposed Development**, and aren't repeated within this ES chapter.

MANAGEMENT PLANS

Table 18.1 Management Plans

MANAGEMENT PLANS	ES REFERENCE
PRE-COMMENCEMENT	
Environmental Management Plan (EMP)	Volume 1 , Chapter 5: Demolition and Construction
DEMOLITION AND CONSTRUCTION	
Construction Logistics Plan (CLP)	Volume 1 , Chapter 6: Air Quality
Construction Method Statement (CMS)	Volume 1 , Chapter 5: Demolition and Construction
Construction Traffic Management Plan	Volume 3 , Appendix: Traffic and Transport– Annex 1
Demolition Method Statement (DMS)	Volume 1 , Chapter 5: Demolition and Construction
Invasive Species Management Plan	Volume 1 , Chapter 14: Ecology and Biodiversity
Outline Construction Environmental Management Plan (CEMP) (ES Volume 3, Appendix: Demolition and Construction – Annex 1) which includes the following: • Dust Management Plan (DMP); and • Noise and Vibration Controls.	Volume 1 , Chapter 5: Demolition and Construction Volume 1 , Chapter 6: Air Quality Volume 1 , Chapter 9: Noise and Vibration Volume 1 , Chapter 14: Ecology and Biodiversity Volume 1 , Chapter 15: Water Resources, Flood Risk, Drainage and Ground Conditions
Site Waste Management Plan (SWMP) (or equivalent)	Volume 1 , Chapter 5: Demolition and Construction
OPERATION / COMPLETED DEVELOPMENT	
Framework Travel Plan	Volume 3 , Appendix: Traffic and Transport– Annex 1
Framework Delivery and Servicing Plan	Volume 3 , Appendix: Traffic and Transport– Annex 1
Parking Management Plan	Volume 3 , Appendix: Traffic and Transport– Annex 1
Landscape and Environmental Management Plan (LEMP)	Volume 1 , Chapter 14: Ecology and Biodiversity
Biodiversity Enhancement and Management Plan (BEMP)	Volume 1 , Chapter 14: Ecology and Biodiversity
Outline Operational Waste Management and Recycling Management Strategy	Volume 3 , Appendix: Outline Operational Waste Management and Recycling Management Strategy

- 18.8** The detail regarding the requirements for each of the above plans is listed below under *Demolition and Construction* (**Table 18.2**) and *Completed Development* (**Table 18.3**).

¹ <https://www.legislation.gov.uk/ukxi/2017/571/schedule/4/made?view=plain>

² <https://infrastructure.planninginspectorate.gov.uk/>

DEMOLITION AND CONSTRUCTION

Table 18.2 Mitigation and Monitoring Schedule: Demolition and Construction

ENVIRONMENTAL MITIGATION		ES REFERENCE
PRE-COMMENCEMENT		
Archaeology		
Mitigation will take place as part of a staged approach and at each stage a Written Scheme of Investigation (WSI) will be prepared to outline the scope and methodology of the work which will be agreed with KCC prior to the works taking place. To achieve preservation by record, the first stages of assessment will comprise archaeological trial trench evaluation and test pit evaluation. The staged approach to the archaeological investigations would be secured through a condition of planning. Archaeological Trial Trench Evaluation Archaeological trial trenching would be undertaken in accordance with a WSI agreed with the County Archaeologist at KCC, over a suitable sample size of the site. The aim of the trial trench evaluation will be to record and establish the extent, nature, date and significance of buried archaeological remains which may be present within the site. The results of the evaluation will be used to determine (in agreement with KCC) the measures taken to either preserve assets in situ or preserve by record through further archaeological mitigation (which commonly comprise archaeological excavation and/or archaeological watching brief). The archaeological evaluation would be undertaken in accordance with the ClfA guidance 'Standard and Guidance for Archaeological Field Evaluation' and KCC's 'Manual of Specifications Part B, Evaluation-Trial Trenching requirements'. Geoarchaeological Test Pit Evaluation/Purposive Boreholes The available data indicates that Pleistocene and Holocene deposits with archaeological and geoarchaeological potential occur within the site. To clearly establish the specific nature and lateral and horizontal variations in this potential, a staged approach to evaluation and mitigation is recommended. Should ground investigation (GI) works be carried out within the site, it is recommended that these are subject to geoarchaeological monitoring and that the data produced is used to update the deposit model for the site. This updated model will enable the need for, and scope of, archaeological and geoarchaeological evaluation to be clearly established. A targeted program of evaluation is likely to be recommended based on the information provided by the updated deposit model. A program of geoarchaeological evaluation through test pits is recommended for areas towards the valley margins where the deposit model records shallower Pleistocene and Holocene sequences (<4.0m), to be combined with the archaeological trial trenches mentioned above. The aim of the trial trenches should be to investigate the potential for archaeology and geoarchaeological evidence in the Holocene sediments. These trenches may require stepping in some areas, the requirement for which can be identified from the updated deposit model. The focus of test pits should be to assess the potential of the Pleistocene sediments to contain significant Palaeolithic archaeological and/or geoarchaeological evidence. Dependent on the results of the evaluation, and consideration of them in relation to detailed development proposals, targeted mitigative excavation may be required to offset impacts on the archaeological and geoarchaeological resources. The most appropriate method of evaluating the deep Holocene sequences and underlying Pleistocene sediments (>4m bgl) recorded in the deposit model is through targeted boreholes, aimed at recovering suitable samples for paleoenvironmental assessment and dating. It is recommended that the results of the survey, assessment and dating are then considered in relation to detailed development proposals in order to consider the requirements for and scope of any archaeological and geoarchaeological mitigation. Should areas with potential to contain significant archaeology be identified that will be impacted on by the Proposed Development, mitigative archaeological excavation (likely to require cofferdam excavations and dewatering) may be required. Dependent on results of the assessment and dating, geoarchaeological mitigation through additional boreholes to obtain further palaeoenvironmental samples for analysis and additional dating may be required.		Volume 1 , Chapter 13: Archaeology
Environmental Management Plans		
Registration with the 'Considerate Constructors Scheme' (CCS).		Volume 1 : Chapter 5: Demolition and Construction
Site Investigations, Remediation Strategy and Unexploded Ordnance		
Land Contamination In order to verify contamination conditions on site, a comprehensive intrusive investigation will be undertaken on site and recommendations will be provided based on the analysis of results. This will be secured by a suitably worded planning condition attached to any planning consent and will assist in deriving the final risk assessment for the site which will identify if there any specific remediation or mitigation measures required to be implemented. Intrusive site investigation could not have been completed to support the planning application due to the busy operational nature of the existing site. The final risk assessment for the site will identify if there are any significant pollutant linkages that will require specific remediation or mitigation measures to be implemented prior to the commencement of construction works. The findings of the site investigation will then be reported to GBC and a strategy for dealing with any contamination identified will be prepared and agreed. The methodologies for the remediation and/or mitigation of potential contamination that may be present are well understood and, therefore, it is considered that it will be possible to eliminate or minimise all significant pollutant linkages to an acceptable level with appropriate remediation and control measures prior to construction. The remediation and/or mitigation strategy and verification report will also be prepared and agreed, as required. Should a remedial strategy be implemented, a verification process (verification plans and reporting to GBC and the EA) will be undertaken to confirm that the strategy has remediated the soils to a level acceptable for the intended end use of the site (based on site specific criteria). Any asbestos-containing materials will be managed in accordance with The Control of Asbestos Regulations (2012)³ which will prevent cross contamination of site soils during any demolition and construction works and protect workers from exposure to asbestos. Where required, materials would be handled by a specialist contractor.		Volume 1 , Chapter 15: Water Resources, Flood Risk, Drainage and Ground Conditions

³ Control of Asbestos Regulations (2012). Available at: <https://www.legislation.gov.uk/uksi/2012/632/contents/made>

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
An appropriate foundation works risk assessment including a piling method statement will be prepared to inform the foundation design for the various elements of the Proposed Development and an appropriate quality assurance and control regime would be implemented. This would ensure that the contamination source or pathway (or both) would be removed. The piling method statement will ensure that all infrastructure, including below ground utility services, are considered within the piling method statement. If, during the demolition and construction works, unexpected contamination is encountered then GBC will be notified and no further development will be carried out until an addendum to the remediation implementation and verification method statement has been submitted to and approved in writing by the GBC. Any imported material required for the construction of the Proposed Development will undergo verification testing prior to being used on site to ensure that it is suitable quality. Ground gas monitoring will be included within the intrusive investigations that will be undertaken prior to the demolition and construction phase of the Proposed Development. Following this, a Gas Risk Assessment will be prepared and agreed with GBC and, if necessary, a ground gas mitigation strategy will be prepared, agreed and employed as recommended by the CIRIA Report 665⁴ 'Assessing risks posed by hazardous ground gases in buildings' (commercial land uses) and the National House Builders Council (NHBC) 'Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present' (residential uses). This will be secured via a suitably worded planning condition attached to any planning consent. Flood Risk and Drainage The River Ebbsfleet is a culverted watercourse that flows through the site along the eastern boundary. The exact alignment of the culvert is currently unknown due to the lack of information and documentation, coupled with the inaccessibility of the area in question. Therefore, the Applicant has committed to a detailed culvert survey being undertaken at reserved matters stage (controlled by a suitably worded planning condition). Areas of the site weren't accessible due to the active industrial uses on-site, and therefore a detailed drainage survey wasn't possible to inform the Conceptual Drainage Strategy. A detailed drainage survey, including establishing invert levels of any site discharge points, will be undertaken at reserved matters stage (controlled by a suitably worded planning condition). Unexploded Ordnance (UXO) A UXO survey will be undertaken prior to any excavation works to define the level or risk and recommend appropriate mitigation measures. This will be secured by a suitably worded planning condition attached to any planning consent. This will be undertaken by a UXO specialist prior to any works being undertaken at the site. Should any UXO be identified, then this will be removed by a suitably qualified contractor. Should any UXO be identified on site, then the immediate area surrounding the UXO will be tested for potential leaching and/or pollution and from here a remediation strategy will be prepared, agreed and employed prior to any further works on site. Regarding the HSE licensed explosives site Port of Tillbury, the licence holder will be consulted, and discussions regarding any potential impact on the license with HSE will be undertaken.	
DEMOLITION, ENABLING AND CONSTRUCTION WORKS	
Air Quality	
A range of environmental management controls including a Dust Management Plan (DMP), will be developed with reference to the Institute of Air Quality Management (IAQM) guidance for high-risk sites. The DMP will be incorporated into future detailed CEMPs and will adhere to the measures included within the Outline CEMP, which is anticipated to be secured by planning condition and implemented to prevent the release of dust entering the atmosphere and/or being deposited on nearby receptors. Control measures include but are not limited to: • Undertake daily on-site and off-site inspections where receptors (including roads) are nearby, to monitor dust. Record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of the site boundary, with cleaning to be provided if necessary; • Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked; and • Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. Further information on the Dust Management Plan is outlined in the <i>Outline Construction Environment Management Plan – Dust Management Plan</i> section below.	Volume 1, Chapter 6: Air Quality ES Volume 3, Appendix: Air Quality – Annex 7
Socio-Economics	
Through the Compulsory Purchase Order (CPO) process, GBC as acquiring authority (supported by the Applicant) are required to compensate to displaced businesses for their losses which may include the costs of securing alternative premises in other locations and other financial losses. It is anticipated that GBC's Economic Development officers will also assist displaced businesses by helping to identify suitable alternative locations/properties within the Borough to allow them to remain in the local area. Further details of relocation assistance will be made available as the CPO process progresses.	Volume 1, Chapter 6: Socio-Economics
Ecology and Biodiversity	
An Invasive Species management plan, prepared by a suitably qualified ecologist, is required to define the areas of land likely to be contaminated by Japanese knotweed rhizomes, exclusion zones and a methodology for on-site treatment or appropriate removal of contaminated land should be incorporated into a CEMP. In advance of site works, invasive plant species surveys will be updated and measures implemented through the construction works to safeguard against the spread of any invasive non-native species. The main contractor will ensure that all materials imported or exported from the site are not contaminated and monitoring will take place post-construction to ensure that invasive species do not colonise the site. A Precautionary Working Method Statement (PWMS) will be written to capture specific working measures for Schedule 1 birds. Working measures which will be included in the CEMP and PWMS include: • Clearance of the site prior to bird nesting season (March-September inclusive), or if in nesting season then a Black Redstart nesting survey to be carried out prior to demolition;	Volume 1, Chapter 14: Ecology and Biodiversity

⁴ CIRIA. Assessing risks posed by hazardous ground gases to buildings (C665D)

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
• If black redstart are confirmed to be breeding on site then a 300m buffer zone must be implemented around each nest until the nest is confirmed as inactive by a suitably qualified ecologist. If black redstart are confirmed to be breeding on site then black redstart surveys must be undertaken at the start of each breeding season of each year of construction where black redstart breeding habitat remains on site; • Noisy or disturbing works to avoid sensitive periods of the year where possible through phasing. Sensitive areas include: ○ Around Robins Creek during the key Cetti's Warbler breeding season- April to July; ○ Around the shingle beach area on the mudflats in key Little Ringed Plover nesting season May- July; and ○ Around any areas on site where black redstart are confirmed to be breeding in further surveys in the key breeding season – March to August. • Visual and noise barriers will be used to prevent disturbance to the birds on the mudflats to the north and east of the site on the south bank of the River Thames and at Robin's Creek during the breeding season as detailed above when works cannot be phased outside of this time period. Visual and noise barriers in winter along the mudflats will be used if determined by the 2022-2023 winter bird surveys; • Soft starts and other methods such as the use of low impact machinery to limit noise and vibration disturbance will be used for noising works such a pilling if undertaken during the breeding season and will be detailed in the CEMP and PWMS; and • Toolbox talks and training to be given to the site teams by a suitably qualified ecologist to provide the site teams with key information on the mitigation measures detailed in the PWMS. Pre-construction black redstart surveys will be undertaken to determine appropriate levels of mitigation. These should be undertaken in the key breeding season (March to August Inclusive) to confirm if black redstart are nesting directly on the site or not. Winter bird surveys will be undertaken in the winter of 2022-2023 which will determine the use of the mudflats by overwintering birds and will inform the mitigation needed during winter.	
Outline Construction Environmental Management Plan (CEMP)	
Various environmental management controls will form the basis of future CEMPs that will be implemented over the duration of the demolition and construction works. It is anticipated that multiple CEMPs will be prepared for the Proposed Development, whereby the preparation of a CEMP(s) will be required and prepared for each Reserved Matters Application (RMA), or pursuant to a planning condition as each plot comes forward. An Outline CEMP has been prepared (see ES Volume 3, Appendix: Demolition and Construction – Annex 1). Future detailed CEMPs will adhere with the principles set out within the Outline CEMP, which includes the following measures relevant to the demolition and construction phase of the Proposed Development. It should be noted that the below isn't exhaustive, and reference should be made to the Outline CEMP for further details. In the event that any hazardous loads are required for transportation than all packaging and containment will be provided in line with the Vehicle Certification Agencies Dangerous Goods Office procedures and requirements for UK roads. Vehicles will be loaded on site with the responsibility for the safe transit o the good that of the haulier or client under the European Agreement concerning International Carriage of Dangerous Goods by Road. General - The anticipated core working hours for demolition and construction, to be secured via a planning condition, will be as follows: ○ 08:00 – 18:00 hours on weekdays; ○ 08:00 – 13:00 hours on Saturdays; and ○ No working on Sundays, Bank or Public Holidays, unless otherwise agreed with the LPA. - Use of 2.4m high solid timber construction hoardings; - Implementation of wheel cleaning facilities at all site access and egress locations; - Use of Continuous Flight Auger piling techniques; - Re-use and re-cycling of demolition materials; - Waste minimisation and management procedures; - Protection of heritage assets and procedures for dealing with uncovered buried heritage; - Energy conservation measures; - Details of emergency incident procedures; - Personal hygiene, washing and changing procedures; - Procedures relating to the cleaning and maintenance of site roads, access roads and the public highway; - A plan of the works, highlighting the various stages and their context within the project, including a full schedule of materials and manpower resources, as well as plant and equipment schedules; - Site layout arrangements (including requirements for any temporary works) showing locations of site offices, plant and equipment, material storage etc.; - General site logistics and day to day operations, procedures for any unexpected operations; - Health and safety, procedures for site inductions;	Volume 1, Chapter 5: Demolition and Construction Volume 1, Chapter 6: Air Quality Volume 1, Chapter 9: Noise and Vibration Volume 1, Chapter 7: Traffic and Transport Volume 1, Chapter 14: Ecology and Biodiversity Volume 1, Chapter 15: Water Resources, Flood Risk, Drainage and Ground Conditions

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
- Prohibited or restricted operations (locations, hours, etc.); - Details of plant to be used and associated noise limits; - Programme and phasing details of the works; - Details of operations that are likely to result in disturbance, with an indication of the expected duration of each phase with key dates, including a procedure for prior notification to the LPA and relevant statutory and non-statutory (including neighbours) parties so that local arrangements can be agreed; - Appropriate training to ensure that all workforce and employees are aware of procedures to reduce and mitigate impacts; - A procedure to ensure communication is maintained with the LPA and the local community to provide information on any operations likely to cause disturbance (through, for example, meetings and newsletters); and - Provisions for affected parties to register complaints and the procedures for responding to complaints. Water Resources and Land Contamination - Procedures for dealing with unexploded ordnance; - The Applicant will engage with Southern Water regarding capacity and how connections are to be provided; - Use drip trays when filling smaller containers from tanks or drums to avoid spillage entering the ground or drainage systems; - Proper maintenance of demolition/construction vehicles in accordance with good site practices to reduce the risk of hydrocarbon contamination and will only be active when required; - Ensuring the provision of adequate temporary drainage to manage surface water run-off and minimising contaminated water reaching the groundwater; - Construction materials will be stored, handled and managed with due regard to the sensitivity of the local aquatic environment and thus the risk of accidental spillage or release will be minimised; - Any existing debris located within the area of the proposed works would be removed before the start of construction and after completion of the proposed works; - Any excavated material or spoil stored on site will be located within an area surrounded by a bund to ensure that, should a heavy rainfall event occur, then there will be no risk of soil washout entering the river via a surface water flow pathway; - In accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001, any tanks storing more than 200 litres of oil will have secondary bunding and any above ground storage tanks will be located on a designated area of hardstanding; - Oil interceptors will be regularly inspected, cleaned and maintained. Full records will be kept of inspections, maintenance works and measures undertaken to sustain equipment performance. These provisions should ensure no significant impacts occur on water quality. The use of settlement facilities will aid the removal of any contaminated particulate material that might be derived from construction materials; - The construction drainage system will be designed and managed to comply with BS6031:2009 'The British Standard Code of Practice for Earthworks', which details methods that should be considered for the general control of drainage on construction sites. Further advice is contained within the British Standard Code of Practice for Foundations (BS8004: 2015); - Measures to avoid surface water ponding and appropriate discharge/ disposal of onsite run-off; - The risk of redistributing any potential contamination around the site (i.e. from residual soil contamination or similar on construction vehicles) will be minimised by designating clean and dirty work areas to prevent cross-contamination; - Vehicles and equipment will be washed down in specially designated areas and ensuring that areas of hard standing at access and egress points are cleaned at appropriate intervals and wash off into the ground or surface waters is prevented; - Good site working practices for construction and maintenance workers will be enforced such that impacts from potential contamination are minimised. The contractor on site will be responsible for implementing these requirements. This will include requiring the use of appropriate Personal Protective Equipment (PPE) and provision of welfare facilities to assist in maintaining good hygiene levels with segregation of certain activities (such as eating and drinking) from the designated dirty areas; - During each phase of the Proposed Development, a construction compound will implement a drainage system designed and managed to comply with BS6031:2009 'The British Standard Code of Practice for Earthworks', which details methods that should be considered for the general control of drainage on construction sites. Further advice is contained within the British Standard Code of Practice for Foundations (BS8004, 2015). All necessary drainage works would be installed to ensure that there would be no increase in surface water runoff as set out in the Drainage Strategy (ES Volume 3, Appendix: Water Resources, Flood Risk, Drainage and Ground Conditions – Annex 4). As each element of the Proposed Development is constructed, surface water attenuation measures will be implemented at the same time to ensure that there will be no uncontrolled increase in surface water discharge during construction. - Dust suppression measures will be outlined within the CEMP such as ensuring sand and other aggregates are stored in bunded area and, where possible, not allowed to dry out, avoid dry sweeping of large areas and ensure surfacing equipment is only operated with any manufacturer's dust measurements in place. Traffic and Transport - Construction traffic movements will be kept to agreed working hours where practicable and designed to minimise disruption to the highway network and local residents; - Management of construction traffic including the avoidance of any sensitive site boundaries via a Construction Traffic Management Plan (CTMP); - The Construction Logistics and Community Safety (CLOCS) standards for all vehicles shall be adopted;	

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
– Safety for pedestrians through separate pedestrian gates and footpaths; – Maintenance and protection of existing public and private (e.g., Stansted Airport) routine and emergency access routes; – Details of access and egress with wheel cleaning facilities and agreed HGVs access routes to and from the site including specific measures relating to the transportation of any hazardous loads; – Procedures for the management of deliveries (including organised time slots / just in time deliveries); – Construction deliveries would be carefully planned with delivery times agreed with each contractor using a web-based booking system. Delivery schedules would be produced to look at the profiles of forthcoming deliveries to regulate journeys and eliminate bottlenecks and reduce over ordering of materials and waste generation; and – A proportion of the trips will be scheduled to arrive at the construction site outside of peak hours, thus avoiding the busiest times on the local road network. Ecology and Biodiversity – Details on the location of appropriate fencing, agreed in conjunction with a suitably qualified ecologist, to protect off-site habitats (such as the adjacent Priority Habitat mudflats) where appropriate to prevent effects associated with the encroachment of construction vehicles and plant; – Pollution prevention measures including procedures for oils, chemicals and other potentially contaminative construction material storage designed to prevent the release of any accidental spillages and effects associated with contaminated surface run-off; – Supervision of delivery of fuel and oils with pipelines and fuelling points protected from vandalism and unauthorised interference; – Use of drip trays when filling smaller containers from tanks or drums to avoid drips and spills from entering the ground or drainage systems and watercourses to prevent effects associated with contaminated surface run-off; – Controlling works with concrete and washing out ready-mix concrete wagons in ‘safe areas’ away from waterbodies and retained habitats to prevent effects associated with contaminated surface run-off; – Procedures for emergency environmental incidents such as pollution events; – Measures to minimise vibration and dust arisings, including, when necessary, regular damping down of the site by spraying with water and covering stockpiled material within a contained area, where required, to enable run-off to be treated; – Informed by the Invasive Species Management Plan, the CEMP(s) will define the areas of land likely to be contaminated by Japanese knotweed rhizomes, exclusion zones and a methodology for on-site treatment or appropriate removal of contaminated land. Measures will be implemented through the construction works (such as the adoption of an appropriate biosecurity protocol) to safeguard against the spread of any invasive non-native species. The main contractor will ensure that all materials imported or exported from the site are not contaminated and monitoring will take place post-construction to ensure that invasive species do not colonise the site. – Visual and noise barriers may be required to prevent disturbance to the birds on the mudflats to the north and east of the site on the south bank of the River Thames and at Robin’s Creek during the breeding season (May to August inclusive), when works cannot be phased outside of this time period. Visual and noise barriers in winter along the mudflats will be used if determined by the 2022-2023 winter bird surveys; – On site vegetation clearance activities should be undertaken between October and February, inclusive, to avoid any potential impacts to breeding birds during their main breeding season (March – September). If site clearance during the breeding season is unavoidable then a check for nesting black redstart will be carried out prior to demolition by a suitably qualified ecologist. If black redstart are confirmed to be breeding on-site then a 300m buffer zone must be implemented around each nest until the nest is confirmed as inactive by a suitably qualified ecologist. If black redstart are confirmed to be breeding on site then black redstart surveys must be undertaken at the start of each breeding season of each year of construction where black redstart breeding habitat remains on site; – Appropriate management of construction lighting to avoid light spill to adjoining habitats; – Noisy or disturbing works to avoid sensitive periods of the year where possible through phasing. Sensitive areas include: ○ Around Robin’s Creek during the key Cetti’s warbler breeding season- April to July; ○ Around the shingle beach area on the mudflats in key little ringed plover nesting season May- July; ○ Around any areas on site where black redstart are confirmed to be breeding in further surveys in the key breeding season – March to August; ○ Site screening / hoarding around the works site; and ○ Measures to control and monitor air pollution, considering the requirements set out in the IAQM (2018) Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites v1.1 (see below DUST MANAGEMENT PLAN). All trade contractors will be required to demonstrate how they will adhere to procedures set out within and the requirements of the CEMP.	
Outline CEMP – Dust Management Plan	
Preparation of a DMP will be developed with reference to the Institute of Air Quality Management (IAQM) guidance for high risk sites. The DMP will be incorporated into future detailed CEMPs and will adhere to the measures included within the Outline CEMP which is anticipated to be secured by planning condition. The DMP in the future CEMP will detail automatic monitoring of particulate matter throughout the demolition and construction works. Details of the number and locations of monitors, monitoring parameters and sampling periods is to be agreed with the LPA. The DMP shall include (but not be limited to) provisions for:	Volume 1, Chapter 5: Demolition and Construction Volume 1, Chapter 6: Air Quality

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
General - Any complaints about dust are to be investigated at the earliest opportunity and appropriate action taken to control the source or remedy the effect as appropriate. - All trade contractors will be required to demonstrate how they will adhere to procedures set out within and the requirements of the DMP. - Where mitigation measures rely on water, it is expected that only sufficient water will be applied to damp down the material. There will not be any excessive use of water. Site Management - Develop and implement a stakeholder communications plan that includes community engagement before work commences on site; - Display the name and contact details of person(s) accountable for air quality pollutant emissions and dust issues on the site boundary; - Display the head or regional office contact information; - Record and respond to all dust and air quality pollutant emissions complaints; - Make a complaint log available to the local authority when asked; - Carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results, and make an inspection log available to the LPA when asked; - Increase the frequency of site inspections by those accountable for dust and air quality pollutant emissions issues when activities with a high potential to produce dust and emissions are being carried out and during prolonged dry or windy conditions; - Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and ensure that the action taken to resolve the situation is recorded in the log-book; and - Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are coordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes. Preparation and Maintenance - Plan the site layout so that machinery and dust-causing activities are located away from receptors, as far as is possible; - Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site; - Fully enclose the site or specific operations where there is a high potential for dust production and the site is active for an extensive period; - Avoid site runoff of water or mud; - Keep site fencing, barriers and scaffolding clean using wet methods; - Remove materials that have a potential to produce dust from the site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and - Cover, seed, or fence stockpiles to prevent wind whipping. Operation of Vehicle/Machinery and Sustainable Travel - Where possible, ensure all vehicles switch off engines when stationary – no idling vehicles; - Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery-powered equipment where practicable; and - Produce a CLP (see above) to manage the sustainable delivery of goods and materials. Operations - Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems; - Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using recycled water where possible and appropriate; - Use enclosed chutes, conveyors and covered skips; - Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and - Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. Waste Management - Where practical, reuse and recycle waste to reduce dust from waste materials; and - No burning of waste wood or other materials on the site. Measures specific to demolition - Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust);	

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
• Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground; • Avoid explosive blasting, using appropriate manual or mechanical alternatives; and • Bag and remove any biological debris or damp down such material before demolition. Measures specific to earthworks • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable; • Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; and • Only remove the cover from small areas during work, not all at once. Measures specific to construction • Avoid scrubbling (roughening of concrete surfaces), if possible; • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place; • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and • For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust. Measures specific to track out • Regularly use a water-assisted dust sweeper on the access and local roads, as necessary, to remove any material tracked out of the site; • Secure access points with wheel cleaning facilities when excavation and groundworks are taking place; • Avoid dry sweeping of large areas; • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport; • Where appropriate, implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable); • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; • Access gates should be located at least 10m from receptors, where possible; and • Apply dust suppressants to locations where a large volume of vehicles enter and exit the construction site.	
Outline CEMP – Noise and Vibration Controls	
Demolition and Construction Noise controls will be minimised by adopting Best Practice Management (BPM) as standard working practices across the site. The following will be adhered to where reasonably practicable: • The production of a construction noise and vibration report that evaluates the construction activities and provides specific BPM to reduce noise and vibration; • Limiting high impact activities (e.g. piling) to specific times during the day, e.g. 1 hour on – 1 hour off, or 09:00-12:00 and 14:00-17:00; • Plant is to be properly maintained and operated in accordance with manufacturer's recommendations. Electrically powered plant is preferred, where practicable, to mechanically powered alternatives; • Where feasible, all stationary plant would be located so that the noise effect at all occupied residential and commercial properties is minimised and, if practicable, every item of static plant when in operation is to be sound attenuated using methods based on the guidance and advice given in BS 5228; • Trade contractors would at all times apply the principle of Best Practicable Means as defined in Section 72 of the COPA and carry out all work in such a manner as to reduce any disturbance from noise and vibration to a minimum; and • The timing of building operations will be critical in avoiding noise and vibration nuisance to surrounding areas and premises. The contractor would identify particularly sensitive periods in the works so that the potential problems can be minimised and that early and good public relations with the adjacent occupants of buildings are maintained. The following measures are to be employed as best practice to ensure that construction traffic noise effects remain insignificant: • Vehicles employed for any activity associated with the construction works will, where reasonably practicable, be fitted with effective exhaust silencers and shall be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable; • Time slots are adopted for deliveries to ensure that convoys of vehicles do not arrive simultaneously and avoid unnecessary idling on-site; • Strict control to prevent temporary parking on kerbsides in the vicinity of noise sensitive receptors; and	Volume 1, Chapter 9: Noise and Vibration

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
- The use of sufficient clear signage to ensure that construction vehicles use only designated routes. - To reduce potential vibration impacts due to piling, the contractor shall use a piling technique that is least likely to cause adverse vibration impacts (e.g. auger piling), to ensure that the likely effect of vibration is reduced or avoided at nearby receptors. A 'Piling Method Statement' will also be provided and agreed prior to the commencement of these works. Vibration limits will be set in accordance with BS5228-2 to minimise the risk of complaints or building damage. These limits will be controlled through implementation of the CEMP and vibration monitoring.	
Greenhouse Gas (GHG) Emissions	
Reducing GHG emissions during the construction phase would include consideration of minimising the use of materials as well as the procurement of sustainable materials, with consideration of the embedded carbon footprint of the material from the extraction of the raw materials, the production of the final construction products and the transport of products between the factory and Proposed Development. Construction waste will be minimised by the re-use of existing materials, however, where this is not possible the waste will be sorted to maximise recycling and to divert as much from landfill as possible. The Outline CEMP includes measures to reduce emissions and minimise waste associated with construction works. Future detailed CEMPs will include a site wide framework and then phase specific management plans as relevant. The future detailed CEMP(s) will be agreed with the LPA and would be implemented throughout the duration of the demolition and construction works on site. This is a common approach to the documenting and management of environmental aspects during demolition and construction and is consistent with methods adopted for other major schemes in urban areas. Walking, cycling and other sustainable forms of transport would be promoted, and pedestrian site access would be segregated from the road by physical barriers to ensure safety upon arrival and departure, with separate pedestrian gates and footways provided. Cycle parking facilities will be provided.	Volume 1 , Chapter 11 Climate Change and Greenhouse Gas Assessment
Socio-Economics and Health	
Gravesham Borough Council supported by the Applicant are required to compensate to displaced businesses for their losses which may include the costs of securing alternative premises in other locations and other financial losses. It is anticipated that GBC's Economic Development officers supported by the Applicant will also assist displaced businesses by helping to identify suitable alternative locations/properties within the Borough to allow them to remain in the local area.	Volume 1 , Chapter 6: Socio-Economics and Health
Waste	
Mitigation measures that will be implemented with regards to site waste include, but are not limited to, the following: - A Site Waste Management Plan (SWMP) (or equivalent) will be developed to demonstrate how the waste will be minimised and managed. The SWMP will include a number of measures to forecast the predicted excavation, demolition, and construction waste arisings, set out ways to minimise and manage this waste and outline waste minimisation and management measures and performance targets for the construction phase; - Construction waste will be minimised by the re-use of existing materials, however, where this is not possible the waste will be sorted to maximise recycling and to divert as much from landfill as possible; - The sourcing of materials will be undertaken adhering to a defined Procurement Strategy in accordance with The Green Guide to Specification⁵ to be secured by condition - Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme; - Implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste; - Attention to material quantity requirements to avoid over-ordering and generation of waste materials; - Re-use of materials wherever feasible, e.g., re-use of excavated soil for landscaping. Concrete may be taken off-site for crushing and re-use; - Segregation of waste at source where practical; - Re-use and recycling of materials off-site where re-use on-site is not practical (e.g., through use of an off-site waste segregation facility and re-sale for direct re-use or re-processing). - Should hazardous or contaminated materials be identified, works in the area will temporarily stop, and the materials will be removed and disposed of in line with relevant legislation and guidance e.g. The Control of Asbestos at Work Regulation 2012 and Control of Substances Hazardous to Health Regulations (COSHH) 2002; and - The setting of waste reduction targets and waste re-use / recycling targets prior to commencing works on-site and monitoring of such targets throughout the duration of the demolition and construction works. In order to reduce potential health risks throughout the demolition and construction phase, the following waste management measures will be implemented on-site: - Damping down of surfaces during spells of dry weather and brushing/water spraying of heavily used hard surfaces/access points across the site as required; - Burning of waste or unwanted materials will not be permitted on-site; - All hazardous materials including chemicals, cleaning agents, solvents and solvent containing products to be properly sealed in sealed containers at the end of each day prior to storage in appropriately protected and bunded storage areas; - All demolition and construction workers will be required to use full Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE) whilst performing activities on-site; - Any waste effluent will be tested and where necessary, disposed of at the correctly licensed facility by a licensed specialist contractor/s; - Materials requiring removal from the site will be achieved using licensed carriers and records will be kept detailing where waste will be transferred to; and - Pre-assembly and pre-fabrication of construction materials will be prioritised wherever practicable to minimise on-site generation of waste and packaging and reduce the number of delivery and collection vehicles to and from the site.	Volume 1 , Chapter 5: Demolition and Construction

⁵ The Green Guide to Specification (BRE, (2009); The Green Guide to Specification, Fourth Edition.)

COMPLETE AND OPERATIONAL

Table 18.3 Mitigation and Monitoring Schedule: Completed Development

ENVIRONMENTAL MITIGATION	ES REFERENCE
Ecology and Biodiversity	
An audit to monitor the recreational usage from the Proposed Development on the SSSI will be undertaken. This will identify the effect threshold or the point at which wildlife begins to be disturbed by such recreational activities to provide informed recommendations to key stakeholders regarding infrastructure construction and visitor management. This will inform future phases of this Proposed Development on the most appropriate and proportionate mitigation requirements to reduce impacts on the SSSI if a threshold is reached. Adverse effects of recreational use on wildlife identified by the audit will be mitigated for in future phases of the Proposed Development (such as visitor management and management regimes) to ensure effects remain negligible. Once detailed design is available for the Proposed Development, Kent Wildlife Trust and NE will be consulted to discuss potential further mitigation measures (if required and relevant to be incorporated into the detailed design of the Proposed Development). A Landscape and Ecological Management Plan (LEMP) is recommended to mitigate any pollution and habitat degradation effects from the completed Proposed Development. The LEMP will provide site specific details for immediate and long-term commitments to manage the planting, protection and enhancement of biodiversity in and around the site. A Biodiversity Enhancement and Management Plan (BEMP) which will set out appropriate timings for all proposed habitat management activities, the destruction or disturbance of bird nests or killing or injury of nesting birds from inappropriate management can be avoided. In addition, the BEMP should outline the location and types of bird boxes to be installed, to ensure key features for breeding birds will be created in locations subject to minimum disturbance. Education to the public during sensitive times of the year for birds on limiting of disturbance will be given in the on-site information centre/ café. Biodiversity Net Gain (BNG) The BNG assessment concludes that a total net change in habitat units (based upon the Illustrative Masterplan) equates to 6.03, (using the Defra Biodiversity Metric Calculator 3.1), resulting in a BNG increase of 352%. The total net change in hedgerow units equates to 3.03, (using the Defra Biodiversity Metric Calculator 3.1), resulting in a hedgerow increase of 75.73%. Kent Nature Partnership (KNP), working with local planning authorities (LPAs), is trying to progress the adoption of a 20% target for BNG. To assist this, they have undertaken a strategic level viability assessment for 15% and 20% requirements (CIEEM, 2022⁶). Given the increase of this initial BNG assessment at this early stage in planning (utilising the Illustrative Masterplan for the purposes of assessment), the BNG assessment demonstrates how the Proposed Development is likely to achieve at least a 10% net gain in line with the Environmental Bill 2020, with the planning application committing to achieving the KNP 20% BNG target once construction is complete. Future detailed BNG assessments will be undertaken at the Reserved Matters Applications (RMA) stage, as relevant, based on the detailed landscaping plans.	Volume 1, Chapter 14: Ecology and Biodiversity
Daylight, Sunlight, Overshadowing, Solar Glare and Light Pollution	
The effects for solar glare will be considered through the detailed design for Plots 2, 3, 4 and 5. Potential effects will be mitigated through: • Orienting the facades to not reflect sunlight at a particular time or place; • Reducing any large areas of glazing or reflective cladding; • Introducing fins to minimise reflections from a particular section of the façade; and/or • Blocking the view of the building in question from receptors such as through planting trees in the line of sight. In order to minimise any potential light pollution effects from the commercial office elements upon the residential elements of the Proposed Development, potential mitigation measures could include: • Ensuring that any external lighting, such as the stadium, does not directly illuminate the sky; • Ensuring that any external lighting visible from any sensitive receptor is of low intensity; • Avoiding external lighting which directly illuminates the SSSI and the Riverfront docks in particular; • Provision of blinds for commercial offices; • Lighting strategies that reduce the output of luminaires closer to the façades; and • Light fittings controlled through the use of sensors which switch on and off the light according to office occupancy. The details of any mitigation and its efficacy will be guided by ILP Guidance notes (2021) and presented and reported upon where relevant at reserved matters stage.	Volume 1, Chapter 10: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion
Land Contamination	
The intrusive investigation that will be undertaken prior to any works on the site will be assessed with regard to any potential contaminants on site (i.e. hydrocarbons, pH and water-soluble sulphate) which could affect building materials or buried services. The results of this will then allow the determination of the appropriate concrete class in accordance with BRE Special Digest 1 (2003). For the majority of the site, Polyvinyl Chloride (PVC) or Polyethylene (PE) plastic water supply pipes are likely to be suitable. This will be confirmed with the appropriate water supplier prior to installation of the potable network infrastructure. Where any pollutant linkages are identified, remediation, avoidance or the use of other appropriate materials will be implemented.	Volume 1, Chapter 15: Water Resources, Flood Risk, Drainage and Ground Conditions

⁶ CIEEM (2022) [https://cieem.net/kent-assesses-20-biodiversity-net-gain-requirement/#:~:text=Kent%20Nature%20Partnership%20\(KNP\)%2C,15%25%20and%2020%25%20requirements.](https://cieem.net/kent-assesses-20-biodiversity-net-gain-requirement/#:~:text=Kent%20Nature%20Partnership%20(KNP)%2C,15%25%20and%2020%25%20requirements.)

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
Good site working practices for maintenance workers will be implemented as part of employer/company health and safety responsibilities. With this implemented, it will ensure that impacts from potential contamination are minimised. This will include the use of appropriate Personal Protective Equipment (PPE) and any buried services will be constructed in corridors of clean material such that any future maintenance would be undertaken in clean soils, where possible.	
Framework Residential Travel Plan	
A Framework Residential Travel Plan (F RTP), which forms part of the wider Transport Assessment (TA) has been prepared (see ES Volume 3: Appendix: Traffic and Transport – Annex 1). The F RTP includes the following mitigation measures: Measures to reduce the need of travel, especially by private car. These include: • Encourage the use of sustainable delivery services for online shopping in addition to working from home; • Provide on-site amenities that are within walking and cycling distance from all points within the site; and • Introduce a site wide car parking management strategy. Measures to promote sustainability, especially walking and cycling through marketing and raising awareness. These include: • A 'Welcome Pack' to be distributed to each dwelling which will promote public health campaigns such as Change 4 Life and walking challenges; • Ensuring all pedestrian routes are well maintained and well-lit; • Information on pedestrian routes in and around the site with relevant maps; and • Measures addressing resident's needs to access a range of facilities including work, leisure and retail and recreation. Measures addressing residents needs to access a range of facilities including work, leisure and retail and recreation include; providing on-site green space for leisure and recreation. Measures promoting healthy lifestyles include: • Provide secure cycle storage; • Provide incentives to promote the uptake of cycling such as cycle shop discounts, cycle training services etc.; • Promote Kent County Council's new cycle loan scheme which provides free access to refurbished cycles; • Promote existing cycle training initiatives such as cycle training courses for small groups; • Provide up-to-date timetables and journey planning tools; and • Sustainable Travel Vouchers will be provided to residents of the site, these vouchers can be used by first time residents to cover the cost of Fastrack Bus Tickets in order to increase the number of people using public transport services. Measures to develop ongoing management coordination process which will monitor and review changes. These include: • Appointment of a Travel Plan Coordinator; and • Undertake baseline and future residential travel surveys and according to monitoring reports.	Volume 1, Chapter 7: Traffic and Transport Volume 3, Appendix: Traffic and Transport: Annex 1: Transport Assessment
Traffic and Transport Embedded Mitigation	
As part of the design of the Proposed Development, there are a number of embedded mitigation features which will be delivered. These mitigation features will significantly enhance the walking, cycling and driving experience across the site. A list of the embedded mitigation is set out below. • The realignment of the A226 Stonebridge Road will provide an enhanced corridor for the A226 Stonebridge Road with upgraded surfacing and a realigned junction with Northfleet Industrial Estate and Lower Road to manage the increase in traffic flow; • Reprovision of A226 Stonebridge Road / Lower Road junction; • Removal of the A226 Stonebridge Road / Grove Road Roundabout will improve visibility and remove conflict for pedestrian and cyclists travelling north and south with fewer lanes of traffic to cross.; • Stopping up of Lower Road north to redistribute HDVs from Lower Road onto the new link road provided through the proposed site.; • Realignment of Lower Road south; • Enhancements to footways and cycleways alongside the A226 Stonebridge Road; • Delivery of a mobility hub on site; • Provision of a site-wide Travel Plan; and • Provision of a Delivery and Servicing Plan.	Volume 1, Chapter 7: Traffic and Transport Volume 3, Appendix: Traffic and Transport: Annex 1: Transport Assessment

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
Greenhouse Gas Emissions	
Transport A number of Framework Travel Plans have been developed for the Proposed Development which sets key aims and objectives. The Framework Residential Travel Plan will encourage public transport use, walking and cycling amongst occupants of the Proposed Development with the ultimate aim of reducing car use. The plan includes measures to: • Reduce the need to travel, especially by private car; • Promote sustainability, especially walking and cycling through marketing and raising awareness; • Addressing residents needs to access a range of facilities including work, leisure and retail and recreation; • Promoting health lifestyles and vibrant local communities; and • Develop ongoing management coordination process which will monitor and review changes. Operation Key mitigation measures adopted by the Proposed Development to minimise GHG emissions from energy use over the buildings' operational phase include the following: • Enhanced fabric u-values; • Thermal bridges reduced as far as practicable; • Enhanced air tightness; • Passive design measures to reduce unwanted solar gains to reduce/omit the need for cooling; • Natural ventilation where possible; mechanical ventilation with enhanced efficiency and heat recovery elsewhere; • High efficiency lighting (internal and external) throughout; • Fully electric technology for heating and central hot water systems; • Use of Central District Heating Systems (where feasible) • Use of PV's and Heat Pumps to maximise sustainable forms of heating and electricity generation; and • Integrating a Net Zero development Strategy that targets 2030 Net Zero Construction methods, and practices.	Volume 3, Appendix: Traffic and Transport: Annex 1: Transport Assessment
Groundwater, Water Quality and Water Resources	
With regards to residual contaminants and potential landfill/ground gas generation, an intrusive investigation will be undertaken prior to any works on the site will be assessed with regard to any potential contaminants on site (i.e. hydrocarbons, pH and water-soluble sulphate) which could affect building materials or buried services. The results of this will then allow the determination of the appropriate concrete class in accordance with BRE Special Digest 1 (2003). Gas monitoring will be undertaken prior to any demolition and construction works and following this, a Gas Risk Assessment will be prepared and agreed with the GBC and, if necessary, a ground gas mitigation strategy will be prepared, agreed and employed as recommended by the CIRIA Report 665 'Assessing risks posed by hazardous ground gases in buildings' (commercial land uses) and the National House Builders Council (NHBC) 'Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present' (residential uses). All Finished Floor Levels of 'more vulnerable' development will be raised 600 mm above the tidal breach TE2100 flood level for each building. There will be some areas where reception areas and entrances will be required to be located at ground level, below the flood level, however the sensitive areas of these land uses will be raised above the flood levels where appropriate. The detailed drainage design will adhere to the following requirements: • Rainwater Harvesting (RWH) will be used in the residential blocks (where feasible); • Where green/brown roofs are provided, RoofBloxx (a type of green roof) or similar attenuation measures will be implemented; • Swales will be implemented within Riverside Gardens; • Rain Gardens will be implemented where feasible within the Riverside Character Area; and • Roof runoff from the Stadium will be directed to shallow tanks beneath the pitch, providing attenuation and water for irrigation.	Volume 1, Chapter 4: The Proposed Development Volume 1, Chapter 15: Water Resources, Flood Risk, Drainage and Ground Conditions
Noise and Vibration	
Building services plant will be designed to achieve the recommended limits set out in accordance with BS 4142. Typical measures to be considered to ensure that the building services noise criteria are achieved include low-noise equipment, in-duct attenuators and acoustic enclosures. With regard to the football stadium, the design of the stadium will be developed so that noise emissions are adequately controlled. This will impact the design of the envelope (enclose the noise) and the PAVA. Additional crowd management measures, as required, will be identified through monitoring of crowd dispersion when in operation.	Volume 1, Chapter 9: Noise and Vibration

Northfleet Harbourside Chapter 18: Environmental Management, Mitigation and Monitoring Schedule

ENVIRONMENTAL MITIGATION	ES REFERENCE
Socio-Economics	
Through the Compulsory Purchase Order (CPO) process, GBC as acquiring authority (and supported by the Applicant) are required to compensate to displaced businesses for their losses which may include the costs of securing alternative premises in other locations and other financial losses. It is anticipated that GBC's Economic Development officers supported by the Applicant will also assist displaced businesses by helping to identify suitable alternative locations/properties within the Borough to allow them to remain in the local area. Further details of relocation assistance will be made available as the CPO process progresses. The Applicant has engaged with GBC, and has confirmed that a financial contribution to education will be appropriate given the potential impact of the Proposed Development upon primary school place availability and owing to the complex range of developments ongoing within the local area and the need to expand provision on account of a number of local schemes. KCC will ultimately use these financial contributions to fund expansion of one or more primary schools within the local area to accommodate any additional demand generated by the Proposed Development.	Volume 1, Chapter 6: Socio-Economics and Health
Waste	
An Operational Waste Management Strategy has been prepared in reference to relevant policy and the Applicant's aspirations for the Proposed Development and submitted alongside the planning application. The strategy has the following aims: • To contribute towards achieving current and long-term government, regional (Kent County Council (KCC)), and GBC targets for waste minimisation, recycling and re-use; • To comply with all applicable legal requirements for handling operational waste; • To achieve high standards of waste management performance, through giving due consideration to the waste generated during operation of the Proposed Development; and • To provide a convenient, clean, and efficient waste management strategy that enhances the operation of the Proposed Development and promotes recycling. It is proposed that each residential Plot will have its separate bin store, which will be within 30m distance to each residential apartment of that Plot. These bin stores will provide space to hold bins for Mixed Dry Recyclables (MDR), Food and Residual waste streams on a weekly collection frequency. These bin stores will be located within 10m distance to the Refuse Collection Vehicle (RCV) stopping point, allowing the council waste operatives to directly access these and transfer them to the RCV for emptying. For the commercial land uses, it is envisioned that bin stores will be provided either combined or separate for different land uses. These bin stores will be designed based on a weekly collection frequency. A private waste collection contractor will be commissioned to collect the waste and recycling material from these different commercial units. The OWMS for the Proposed Development will be determined during detailed design / as part of future RMA(s) and secured via planning condition.	Volume 1, Chapter 4: The Proposed Development Volume 3, Appendix: Outline Operational Waste Management and Recycling Management Strategy
Wind Microclimate	
Wind mitigation measures were developed through CFD testing (in the form of mitigation workshops with the Design Team). Ground Level Amenity Taking into account the Final Illustrative Landscaping (as tested with the Proposed Development maximum parameter massing in 'Configuration 4' in ES Volume 1, Chapter 11: Wind Microclimate), there are residual Minor Adverse effects (significant) for proposed amenity spaces in Power Park and Riverwalk Gardens. These will require further consideration at the detailed design stage. Although not tested at this stage, there is substantial scope for further mitigation and it is considered straightforward to achieve suitable conditions. Possible solutions could include (noting the below is not an exhaustive list): • Localised screening immediately adjacent to any seating areas; • Adjustments to the landscaping scheme to ensure more trees fall within the • The inclusion of more evergreen trees, or species with higher leaf densities, within the landscaping to provide greater resistance to the wind; and • Appropriate zoning of the amenity spaces such that "dwell spaces" fall within regions which are suitable for sitting or standing, and any regions which are suitable for walking are specified as transitory zones. It should be noted that mandatory controls have been written into the Design Code to ensure that these residual significant effects within the ground-level amenity are resolved at the detailed design stage. This includes the following measures: • Any dwelling spaces (e.g. a standing or sitting space) which are located within regions which are suitable for leisure walking conditions (or windier) would not be suitable for use when considering the maximum parameters assessed. These regions should be designated within the design of the amenity spaces to be transitory spaces rather than dwell spaces, to ensure suitable conditions. However, if dwelling spaces within these regions are considered at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing of appropriate mitigation measures (such as localised screening or planting) in order to ensure that the required wind conditions are achieved. As the amenity spaces in these locations may be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer, if required, should be secured through an appropriately worded planning condition; and • Any seating areas within amenity spaces which are located within regions which are suitable for standing conditions (or windier) would not be suitable for use when considering the maximum parameters assessed. Seating areas should not be included in these areas without appropriate mitigation to ensure suitable conditions. If seating areas within these regions are considered at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing of appropriate mitigation measures (such as localised screening or planting immediately adjacent to the proposed seating areas) in order to ensure that the required wind conditions are achieved. As the amenity spaces in these locations may be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer, if required, should be secured through an appropriately worded planning condition. The Design Code also includes a number of mandatory controls with regards to building entrances, roof terraces, bus stops and balconies, as set out below, in order to ensure that the detailed design considers and implements specific measures to mitigate the occurrence of potentially adverse wind effects.	Volume 1, Chapter 11: Wind Microclimate

ENVIRONMENTAL MITIGATION	ES REFERENCE
Building Entrances The Design Code includes a mandatory control that any entrances which are located in unsuitable regions (leisure walking or windier conditions) are recessed by at least 1.5m (or similarly protected) to ensure pockets of calms conditions immediately adjacent to the entrances. However, if non-recessed entrances are considered within these areas at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing of appropriate mitigation measures (such as localised screening or planting adjacent to the entrance location) in order to ensure that the required wind conditions are achieved. As entrances within areas with leisure walking or windier conditions may currently be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer, if required, should be secured through an appropriately worded planning condition. Residents Amenity Terraces The Design Code includes a mandatory control that solid perimeter screening (2m high) should be utilised at identified locations with adverse conditions within the detailed design to establish habitable conditions relevant to the roof terrace use. However, if less significant screening is required at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing of appropriate mitigation measures (such as localised screening or planting adjacent to seating areas) in order to ensure that the required wind conditions are achieved. As the terraces in these locations may currently be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer should be secured through an appropriately worded planning condition. Balconies The Design Code includes controls with regards to the detailed design to specify regions where mitigation and further testing are required if protruding balconies are proposed. With reference to Figure 11.27 of ES Volume 1, Chapter 11: Wind Microclimate, this includes: - Any protruding balconies within green or blue regions (sitting and standing conditions) would be expected to be suitable for use with standard balustrades (e.g. 1.1m high railings, metal balustrades, solid glass balustrades or a combination); - Any protruding balconies within yellow regions (leisure walking conditions) would require measures such as solid glazed balustrades or raised height (e.g. 1.5m) porous balustrades. Further wind testing of the detailed design would confirm the suitability of protruding balconies at these locations with the inclusion of relevant measures (such as glazed or raised height balustrades). As wind conditions at protruding balconies in these locations would be unsuitable for use without the implementation of these measures, the implementation of these measures or assessment of alternatives by an experienced wind engineer should be secured through an appropriately worded planning condition; and - Based on the current parameters tested, protruding balconies in magenta or red regions (business walking and uncomfortable conditions) would not be suitable for use. Alternative options to protruding balconies (e.g. winter gardens) should be explored at these locations within the detailed design. However, if protruding balconies are considered within these areas at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing of appropriate mitigation measures (such as 2m high solid side panels or fully enclosed spaces with openable fenestrations) in order to ensure that the required wind conditions are achieved. As protruding balconies in these locations would currently be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer should be secured through an appropriately worded planning condition. Bus Stops The Design Code includes a mandatory control that bus shelters with solid side panels should be explored at locations where unsuitable wind conditions for this use were identified, as necessary, within the detailed design. As bus stops at podium level in these locations would be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer, if required, should be secured through an appropriately worded planning condition. If in the future access is proposed within the area to the immediate east of the site at Robin's Creek, the detailed landscaping design of the north-eastern extent of the site will need to consider additional mitigation in order to resolve a localised area of off-site wind safety risk. This location is currently inaccessible to the public and comprises bare ground used by the existing on-site aggregates works (which will be displaced to allow for the Proposed Development to come forward). When considering the implementation of the illustrative landscaping, the area of wind safety risk is reduced to be extremely localised, therefore demonstrating that the implementation of additional measures on the north-east corner of the site would likely resolve this issue. The assessment of appropriate measures by an experienced wind engineer should be secured through an appropriately worded planning condition if access at this location is envisaged in the future to ensure that this localised area of off-site wind safety risk is resolved within the detailed design. Further review and wind testing/assessment will be undertaken where necessary at RMA stage(s) in relation to the detailed scheme geometry that will ultimately come forward, and as part of this, verification of the effectiveness of any wind mitigation measures required. The assessment of appropriate wind microclimate mitigation measures at the detailed design stage by an experienced wind engineer, if required, should be secured through an appropriately worded planning condition.	