

THE LONDON RESORT

The London Resort Development Consent Order

BC080001

Environmental Statement Volume 2: Appendices

Appendix 17.5 – Scoping and PEIR responses

Document reference: 6.2.17.5

Revision: 00

December 2020

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

Regulation 12(1)

[This page is intentionally left blank]

Technical Note

Project London Resort – ES Appendix 17.5

Subject Appendix 17.5 Water Resource and Flood Risk Stakeholder Responses

Project no 0042936

Date 18 December 2020

Revision	Description	Issued by	Date	Approved (signature)
00	ES Appendix 17.5 Stakeholder Responses	NV	18/12/20	CC

1 Scoping Opinion Comments and Responses

Consultee	Scoping Opinion comment	Response
Planning Inspectorate	The WSHP is not considered in section 16 of the Scoping Report however, the Inspectorate considers that should the WSHP be included in the Proposed Development, there is potential for impacts to occur in a worst-case scenario. The ES should assess impacts to/from the WSHP where significant effects are likely to occur.	The water source heat pump is no longer proposed as part of the development and is therefore removed from the assessment.
Planning Inspectorate	Table 16.2 identifies potential impacts on identified receptors. It is not explained how/why these receptors have been identified and impacts are constrained to only some receptors. (...) Additionally, leachate is anticipated to only impact groundwater sources when the Inspectorate considers that surface water bodies could also be impacted by leachate.	The receptors identified include all of those surface water features that are considered to have some hydrological connection to the Project Site and its activities. The impact of leachate on surface water bodies has also been included in the ES Chapter 17 Water Resource and Flood Risk assessment as a potential source of impact.
Planning Inspectorate	Little detail is provided in the Scoping Report as to the current and proposed site levels although 'land reprofiling' is proposed in paragraph 5.48. The ES should include details of any land reprofiling including the current and	The ES Chapter 17 Water Resource and Flood Risk includes information on current and proposed site levels where relevant and how they have been used to inform flood risk assessment and drainage. Further details are provided

Consultee	Scoping Opinion comment	Response
	finished site levels and these should be used to inform the assessment of Water Resources and Flood Risk.	in the FRA (Appendix 17.1) and the Stormwater Drainage Strategy (Appendix 17.2).
Planning Inspectorate	A number of 'sub-chapters' are mentioned in the Scoping Report and it is unclear exactly to what these are referring. The ES should be clear and consistent when cross-referencing to other chapters and assessments where assessments overlap and (such as Flood Risk Assessment and Water Framework Directive Assessment).	The ES Chapter 17 Water Resource and Flood Risk structure provides a sequential narrative to water resource topics. It cross-references to related chapters within the ES and appendices where appropriate.
Planning Inspectorate	The Applicant proposes to use the latest EA sea level rise climate change guidance for the River Thames hydraulic flood model but does not propose to use up to date peak river flow, peak rainfall intensity, storm surge and offshore wind speed and extreme wave height allowances. These should be applied to the assessment and flood risk modelling. The Proposed Development has an indefinite lifetime and the Scoping Report does not provide a projection timeframe to be used in the FRA. Having regard to the lifetime of the Proposed Development the assessment of flood risk in the ES should be based on projections that allow for a worst-case scenario to be assessed. The Scoping Report proposes to use the 2018 Thurrock SFRA which uses UKCP09. The assessment should apply the most up-to-date UK Climate Change Projections (currently UKCP18) used in The National Planning Policy Guidance (NPPG) on Flood Risk Assessment and Climate Change Allowances to the ES assessment and make effort to agree the approach with the relevant consultation bodies. These projections should be used to inform the future baseline in the assessment and inform mitigation strategies over	The ES Chapter 17 Water Resource and Flood Risk reports the methodology agreed in consultation with the EA and makes clear the impact for different land uses. This includes reference to the latest available climate change projection information. Further details of climate change projections are provided in the FRA Appendix 17.1.

Consultee	Scoping Opinion comment	Response
	the lifetime of the Proposed Development.	
Planning Inspectorate	Water Quality Sampling is proposed during construction and will be agreed with the EA and Lead Local Flood Authority (LLFA) but no further details are provided in the Scoping Report. The methodology, results and locations of the water quality sampling locations should be provided with the ES where relevant. This should include any site-specific monitoring at the proposed outfall location. Sample monitoring may also be required both pre- and post-construction to demonstrate compliance and any potential change in water quality. The Applicant should make effort to agree the approach to monitoring with relevant consultation bodies.	Water quality sampling locations has been discussed and agreed with the EA and the methodology and locations are included in the ES Chapter 17 Water Resource and Flood Risk. Water quality sampling has commenced and will continue to be collected on a monthly basis until October 2021 in order to provide baseline data ahead of construction and operation phases. Initial results can be found in Appendix 17.3 Surface Water Quality Testing.
Planning Inspectorate	These works have potential to give rise to increased risks elsewhere within the flood cell in which the site is located as a result of proposed changes to the topography. Any such increases to on-site or off-site flood risk should be identified and included in the assessment in the ES where significant effects are likely to occur. The Applicant should take care to avoid increased off-site flood risk as a result of the Proposed Development	This has been considered and is included as part of the ES Chapter 17 Water Resource and Flood Risk and FRA (Appendix 17.1).
Planning Inspectorate	No details have been provided for the waste water treatment plant, discharge characteristics and dispersion. The ES should include such information and assess any likely significant effects to water resources.	Details of the wastewater treatment plant and its operation will be developed during the next stage of design. However, consideration of the impact of a new wastewater treatment plant has been assessed as provided in the ES Chapter 17 Water Resource and Flood Risk. Reference should also be made to the ES Chapter 13 Marine ecology and biodiversity.

Consultee	Scoping Opinion comment	Response
Planning Inspectorate	Onsite and offsite mitigation measures are mentioned in the Scoping Report however, no detail is provided as to what these might be, their location and likely efficacy in line with the mitigation hierarchy. The ES should include this information. If flood compensation is required; effort should be made to agree the approach with the relevant consultation bodies.	Compensation measures are discussed further in the Water Framework Directive Assessment (Appendix 13.7) and a full description of mitigation measures and mitigation hierarchy have been included in the ES Chapter 17 Water Resources and Flood Risk both as designed-in mitigation and supplementary mitigation where required.
Planning Inspectorate	The Scoping Report states that breach modelling will be undertaken for the proposed flood defences. The ES assessment should also include breach modelling for existing flood defences.	Breach modelling has been undertaken and considers the impact of existing flood defences. This is further detailed in the FRA Appendix 17.1.
Planning Inspectorate	The Scoping Report states that the freeboard allowance for the 1 in 1000-year flood is 600mm for the Kent project site, but the Environment Agency states that it is 700mm; the ES should reflect this.	Noted. The ES Chapter 17 Water Resources and Flood Risk provides more information on the TE2100 plan and the relevant freeboard allowances.
Planning Inspectorate	The Scoping Report proposes that investigation will be conducted into re-commissioning two disused groundwater extraction boreholes near the site to serve the Kent Proposed Development site. This has potential to impact water levels and water quality in the surrounding area and should this be proposed, any potential impacts on the water, marine and ecological environment (some habitats may be dependent on groundwater levels such as Black Duck Marshes) should be assessed where significant effects are likely to occur.	Groundwater Abstraction is included in the Water Framework Directive Assessment (Appendix 13.7) and discussed in the relevant ES Chapters (Chapter 18 Soils and Ground Conditions / Chapter 17 Water Resources and Flood Risk / Chapter 12 Terrestrial and freshwater ecology and biodiversity / Chapter 13 Marine ecology and biodiversity) where there are potential impact to the hydro-morphology, surface water quality and habitats.
Planning Inspectorate	The Scoping Report does not identify potential impacts of dredging on flood defences. The ES should include an assessment of impacts on flood defence stability where significant effects are likely to occur.	Dredging will be limited to specific areas where necessary, in the vicinity of the existing and planned wharfs / piers. There are no existing or planned flood defences in the vicinity of these locations that could be impacted by dredging. As such, dredging on flood

Consultee	Scoping Opinion comment	Response
		defences is not included in the ES assessment of impacts.
Dartford Borough Council	The assessment of water management should include cultural heritage receptors in terms of the effect of water quality on organic remains, microfossils and other environmental indicators within buried archaeological deposits.	Consideration of impacts to organic remains and below ground cultural receptors has been referred to in Chapter 14 Cultural heritage and archaeology. Chapter 17 ES Water Resources and Flood Risk Surface Water Drainage Strategy Appendix 17.2 sets out the strategy for ensuring below ground contaminants are not mobilised which will reduce impact on any existing archaeological deposits.
Dartford Borough Council	The water management issues in this area are complex and must be considered with regard to other developments coming forward. The Council as local planning authority need to ensure that the development does not prejudice the infrastructure available for other developments, particularly given the level of development coming forward within the Borough. The Council will expect the assessment to consider how the impact of the development on water resource availability will be mitigated.	Discussions on procuring a water supply to the development are ongoing with Thames Water. Supply provided to the development must be considered within Thames Water strategic supply planning with any impacts to future supply for household and industrial users considered and mitigated. Reference is made to the Utilities Statement for details.
Dartford Borough Council	The Council will also expect the water management mitigation proposals to set out how water will be conserved, and water use minimised both during the construction phase and the operation phase.	Water management mitigation has been included in the ES Chapter 17 Water Resource and Flood Risk, which sets out design measures and options for water conservation at both the construction and operational stages.
Ebbsfleet Development Corporation	Discussions regarding the scope of the WFD Assessment are very water quality focused. It should be acknowledged that WFD is much broader and that the assessment will also cover effects on other qualifying elements of WFD waterbodies in the Zone of Influence e.g. biological quality, hydromorphology, quantitative status (GW).	The Water Framework Directive Assessment Appendix 13.7 assesses the hydromorphological, biological, groundwater impact as well as water quality.

Consultee	Scoping Opinion comment	Response
Ebbsfleet Development Corporation	The chapter does not clearly define not justify the proposed study area (or areas).	The study area has been better defined in the ES Chapter 17 Water Resource and Flood Risk.
Ebbsfleet Development Corporation	The chapter has no clear statement as to the proposed methodology for assessing the significance of effects, quoting 'professional judgement'. Guidance and methodology set out in LA 113 of the DMRB is considered best practice for assessment of the highway's elements of the proposed development, and the general approach is also application to the other aspects of the development.	The ES Chapter 17 Water Resource and Flood Risk has been undertaken in line with the key directives as indicated in the LA 113 of the DMRB.
Ebbsfleet Development Corporation	The introductory section refers to providing a standalone WFD assessment as an addendum to the ES chapter but does not refer to any other supporting addenda. Reference to a Flood Risk Assessment and drainage strategy comes later in the report (para 16.27). It would be useful to clearly set out in the introduction all of the supplementary assessments that are proposed.	Noted. Details of all the appendices has been included in the introduction of the ES Chapter 17 Water Resource and Flood Risk.
Ebbsfleet Development Corporation	16.1 Scope does not include hydromorphology/hydrodynamics (Thames) in the bullet point list. Clarify whether these aspects will be included in the scope and update list accordingly (or note these aspects are scoped out with reasoning).	Hydromorphology and hydrodynamics has been addressed in ES Chapter 17 Water Resource and Flood Risk and also considered in ES Chapter 13 Marine ecology and biodiversity and part of the WFD Assessment (Appendix 13.7).
Ebbsfleet Development Corporation	16.5 The Flood and Water management Act 2010 is listed twice. The list also includes reference to the Groundwater Regulations 2009 and the Contaminated Land (England) Regulations. However, groundwater is not listed as being included in the scope of the assessment. Clarity needs to be provided on the scope of assessment regarding groundwater	Noted. Amendments and clarity have now been provided in the ES Chapter 17 Water Resource and Flood Risk.

Consultee	Scoping Opinion comment	Response
	(see overarching comment), and list legislation accordingly.	
Ebbsfleet Development Corporation	16.10 The list does not include National Infrastructure Planning Advice Note 18: Water Framework Directive.	The policy section in the ES Chapter 17 Water Resource and Flood Risk now includes this guidance document.
Ebbsfleet Development Corporation	16.11 The local plans and policies list does not include for relevant Local Development Plans/Core Strategies for Gravesham and Dartford.	The policy section in the ES Chapter 17 Water Resource and Flood Risk includes the relevant local strategies.
Ebbsfleet Development Corporation	16.25 This paragraph lists the identified water resources to be considered in the assessment. The North Kent groundwater aquifers are listed as is the Swanscombe peninsular groundwater table, but text suggests that this groundwater table is assessed in Chapter 18. More clarity is needed on where in the ES groundwater receptors will be assessed.	Further clarity regarding the assessment of groundwater has been provided in the ES Chapter 17 Water Resource and Flood Risk.
Ebbsfleet Development Corporation	16.25 The list of water resources does not include mention of the Ebbsfleet Stream which the scoping opinion (Table 16.1) stated as needing to be included. Existing water abstractions and discharges should also be acknowledged.	The River Ebbsfleet has been included as a receptor in the ES Chapter 17 Water Resource and Flood Risk and considered further in Appendix 17.1 Flood Risk Assessment. Existing water abstractions and discharges has also been assessed in the ES Chapter 17.
Ebbsfleet Development Corporation	16.27-16.33 There is no discussion of baseline data sources to be referenced for surface water flood risk. Clarity is required on sources of information that will be used to define flood risk from surface water.	Baseline data for surface water flood risk is set out within Appendix 17.1 Flood Risk Assessment and Appendix 17.2 Surface Water Drainage Strategy.
Ebbsfleet Development Corporation	16.33 Paragraph states: Review of available information regarding existing key hydraulic structures, including hard and soft engineered structures will be undertaken. Please clarify whether this includes existing flood defences?	This includes existing flood defences.
Ebbsfleet Development Corporation	16.34 Dewatering schemes would an effect of drawing down groundwater levels rather than increasing them. Need to clarify that the cessation of dewatering schemes would have this	Further details of flood risk are provided in the Appendix 17.1 Flood Risk Assessment.

Consultee	Scoping Opinion comment	Response
	effect. This list includes no mention of the potential to increase fluvial flood risk due to new watercourse crossings, loss of floodplain storage.	
Ebbsfleet Development Corporation	16.61 It is not clear from the text whether there are any European or local designated wildlife sites with a water dependency/interest that are to be assessed. This needs to be clarified, and provide cross reference to ecology chapter if appropriate.	The ES Chapter 17 Water Resource and Flood Risk indicates the water related designated sites. For consideration of wildlife designations refer to the ES Chapter 12 Terrestrial and freshwater ecology and biodiversity.
Ebbsfleet Development Corporation	16.65 Reference is made to use of a matrix approach for determining significance of effects but there is no reference source of the matrix.	The Leopold matrix has been used for the EIA. This is a well-known best practice standard for EIAs pioneered around 1971 and has been used to identify the criteria used in defining receptor sensitivity and magnitude of change.
Ebbsfleet Development Corporation	16.104 Protection of hydrocyanic(?) - hydrodynamic and sediment transport regimes are not considered.	Sediment erosion and accretion impacts have been incorporated into the ES Chapter 17 Water resources and flood risk.
Environment Agency	<p>16.5 Policy section should include:</p> <ul style="list-style-type: none"> • Town and Country Planning Order 2005; • Schedule 4 of the Town and Country Planning (Development Management Procedure) (England) Order outlines statutory consultees who must be involved in the review and approval of planning applications; • DEFRA/EA National Flood & Coastal Erosion Risk Management Strategy for England Sept 2011 and its draft replacement (May 2019) which is currently awaiting approval from Government following a consultation period which closed in May 2019; 	Where relevant, these have been referred to in the ES Chapter 17 Water Resource and Flood Risk.

Consultee	Scoping Opinion comment	Response
	<ul style="list-style-type: none"> • Thurrock Surface Water Management Plan (July 2014); • National Flood Risk Management Strategy; • Environment Agency, Thames Catchment Flood Management Plan, December 2009; • Environment Agency, South Essex Catchment Flood Management Plan – Summary Report, December 2009; <p>We would also recommend the following updated policy documents:</p> <ul style="list-style-type: none"> • Thurrock SFRA 2018 (not 2009/2010) • Thurrock Local Flood Risk Management Strategy 2015 – name corrected 	
Environment Agency	<p>16.18 The report does not provide any information on what this compensation would consist of, where it would be, how it would successfully achieve its role, or why (as developments should be considering the hierarchy of avoiding, reducing and mitigation before considering off site compensation).</p> <p>The scoping report mentions the possibility of off-site compensatory measures due to the impacts on biodiversity. There is no mention in the current scope for providing the necessary technical information on offsite compensatory sites. Any proposed off site compensatory habitat site would need to include the same level and detail of understanding that is required from on-site measures.</p>	Refer to ES Chapter 12 Terrestrial and freshwater ecology and biodiversity, and Ecological Mitigation and Management Framework.

Consultee	Scoping Opinion comment	Response
Environment Agency	16.29 The 2018 Thurrock SFRA is based upon tidal levels that do not use the latest UKCP18 climate change allowances, they use UKCP09 medium emissions 95%tile. This should be updated.	The FRA Appendix 17.1 has been based on the latest hydraulic modelling and UKCP18 climate change projections The ES Chapter 17 Water Resource and Flood Risk has been updated accordingly.
Environment Agency	16.34 The list provided is quite limited and could include more specific issues, including the impact on development from tidal and fluvial sources and the impact of the development to flood risk elsewhere. Also note that there is an IUD (Integrated Urban Drainage) model which considers fluvial and surface water combined.	The ES Chapter 17 Water Resource and Flood Risk and FRA Appendix 17.1 go into further detail of the key flood risks to the Project Site.
Environment Agency	16.35-16.39 Surface water drainage in the Tilbury Area is highly sensitive. Improvements over Greenfield Run-off Rates will be required to limit impacts on adjacent area. Existing Gravity Drainage to the Thames Estuary for this area will likely require supplementing by or replacement with a pumping station during the lifespan of the development.	The Surface Water Drainage Strategy Appendix 17.2 includes further calculations and details regarding the proposed drainage at the Essex Project Site. The Essex Project Site will not connect to the Existing Gravity Drainage to the Thames Estuary. A new, separate connection to the river is proposed. Attenuation has been allowed for to store water during tide-lock conditions. This has taken into account the impact of climate change for the development lifespan.
Environment Agency	16.39 Flow to and from Botany and Black Duck Marshes needs to be determined as a matter of essential understanding on the water resource aspects of the site. An overall accurate understanding of hydrology is required due to its relevance to flood risk, drainage, and ecology.	The sources of flow to and from Botany and Black Duck Marsh have been identified through existing mapped data, as-built drawings and confirmed through site visits. This information has been used to develop the Stormwater Drainage Strategy Appendix 17.2 and inform the FRA Appendix 17.1 and Ecology and Biodiversity Chapter 12.
Environment Agency	16.42 There are existing high-water level alarms related to the risk of flooding to HS1. The flood risk assessment work and the design of the development should minimise the vulnerability of HS1 to flooding.	This has been considered as part of the Surface Water Drainage Strategy Appendix 17.2 and FRA Appendix 17.1.

Consultee	Scoping Opinion comment	Response
Environment Agency	16.44 Anglian Water should be Essex and Suffolk Water. Essex and Suffolk Water supply clean water and Anglian Water are the sewerage undertaker in this part of Essex.	This has been updated in the ES Chapter 17 Water Resource and Flood Risk text and relevant appendices.
Environment Agency	16.53 We ask for challenges to be considered as early as possible within the planning process; both to protect the water environment (and to aspire to not only to maintain but to improve water quality in existing water bodies), and also when considering any permitting and modelling work that may be required by us in order to assess any new discharges.	The ES Chapter 17 Water Resource and Flood Risk provides information on the consultation undertaken with Southern Water and describes the proposals and strategy for managing water quality from the proposed Wastewater Treatment Plant.
Environment Agency	Table 16.2 The table refers to groundwater as a receptor for leachate during construction. In addition, we would like to see a consideration of the potential for existing surface water bodies to act a receptor.	The potential for leachate to affect surface water bodies has been considered and assessed in the ES Chapter 17 Water Resource and Flood Risk including the significance of any potential impacts.
Environment Agency	16.76 Flood defences reduce but do not remove the risk of flooding. Breach modelling is therefore required for both new and existing flood defences.	Breach modelling has been undertaken for both existing and new defences and detailed in this ES Chapter 17 Water Resource and Flood Risk and FRA Appendix 17.1.
Environment Agency	16.77 Defences at the Tilbury site provide a 0.1% AEP level of protection, and the TE2100 plan states that this will continue to the case. Breach modelling should be to this event with climate change accordingly.	Details of the modelling and results have been provided in the ES Chapter 17 Water Resource and Flood Risk and FRA Appendix 17.1.
Environment Agency	16.79 Consideration of the flood defences and flood defence raising should address the 1 in 1000-year flood level plus climate change up to the end of the relevant TE2100 defence raising epoch. When using the existing TE2100 model outputs the 100-year level was used plus 700mm of freeboard to arrive at the future defence crest level. The London Resort project should adopt the new flood levels for the Thames	Meetings have been held with the EA on 23rd June and 4th August to discuss and agree the principles of the flood risk management strategy. A Flood Risk Management Strategy Report was issued to the EA on the 1 st September for their review and comment. The EA's response and comments received on the 24 th September have been incorporated in the FRA Appendix 17.1

Consultee	Scoping Opinion comment	Response
	<p>Estuary and the Residual Uncertainty Allowance when that becomes available.</p> <p>All new structures forming the flood defence need to be designed for the development lifetime and any existing structural elements being retained must be shown to have at least the development lifetime remaining. Raised ground may be good option for the defences, subject to the needed geotechnical assessment and design. The mitigation measures required on-site will be greatly influenced by the future Thames Barrier location as previously raised. We recommend the applicant to maintain a continuous dialogue with us to ensure appropriate mitigation measures.</p>	<p>and used to inform the ES Chapter 17 Water Resource and Flood Risk.</p>
Environment Agency	<p>16.80 The plans show built development extending close to the tidal defences and the fluvial watercourses. It is important to include wide vegetated buffers strip to provide space for future works, to minimise the potential need for bank hardening and for the benefit of wildlife.</p>	<p>Consideration of future raising of defences has been included in the design proposals. Further details of the proposals in plan and cross section have been included in the FRA Appendix 17.1 to illustrate space requirements for future flood defence works.</p>
Environment Agency	<p>16.82-16.83 and 16.85 Please refer any previous Environment Agency involvement in surface water proposals to the LLFA (KCC or Essex County Council), as this is no longer within our remit. The criteria for the surface water drainage scheme needs to be reviewed to include increased rainfall intensity due to climate change.</p>	<p>Consultation has been undertaken with KCC, Thurrock Council and Essex County Council to agree the principles of the stormwater drainage strategy and climate change requirements. Further details can be found in the Stormwater Drainage Strategy Appendix 17.2 and ES Chapter 14 Greenhouse Gases and Climate Change.</p>
Environment Agency	<p>16.86 There is a need to model the site surface water drainage and the fluvial channels as well as the culvert or culverts that will drain storm water to the tidal River Thames. Groundwater flood risk should also be part of the assessment. Without an integrated model, very conservative assumptions</p>	<p>A conservative high-level assessment of the proposed drainage strategy, including assessing flows into the Project Site, change in overland runoff and volume due to the new development and the impact of tide-lock scenarios has been undertaken and the results are included in the</p>

Consultee	Scoping Opinion comment	Response
	would be needed to show that the development is acceptable. An intention to divert some sections of open channels has been mentioned. That is another reason why this flood modelling is required.	Stormwater Drainage Strategy Appendix 17.2. Detailed modelling of the proposed stormwater system will also be undertaken as part of the detailed design as the development proposals are further defined.
Environment Agency	16.87 We support a proposed storm water design which includes pollution control measures to ensure water quality in receiving water bodies is not reduced, but ideally improved.	A description of the proposed pollution mitigation measures that will be incorporated can be found in the Surface Water and Drainage Strategy Appendix 17.2. This includes incorporating impermeable membranes to reduce mobilisation of contaminants and following the SuDS hierarchy to treat surface water runoff before discharge to the marshes and the River Thames providing betterment to the existing condition. The measures have been discussed with the EA, KCC and Thurrock Council as detailed in Appendix 17.2.
Environment Agency	16.102 We need to ensure the flood risk does not increase during the construction phase. The scoping report mentions bringing in materials from the estuary and therefore they will be using the floodgate during construction before it is done away with/replaced. We therefore need assurance that the floodgate will be able to be operated and perform as designed during construction.	The flood mitigation strategy during the construction phase is presented in the ES Chapter 17 Water Resource and Flood Risk. An intrusive condition survey is proposed to be undertaken early in the next stage of design to inform the construction Flood Management Plan.
Environment Agency	16.103 An assessment of the possible scour and accretion impacts of the proposed new jetty should be included. This is likely to require hydrodynamic modelling.	Hydrodynamic modelling has been undertaken by HR Wallingford and the impacts have been considered in the ES Chapter 17 Water Resource and Flood Risk.
Environment Agency	Where possible we would like the floodgates to be designed out and an up and over walkover created instead.	The proposed flood mitigation strategy includes passive flood defence measures. Further details have been provided in the FRA Appendix 17.1.

Consultee	Scoping Opinion comment	Response
Environment Agency	<p>16.122 Defences could be lowered in a Tilbury barrier scenario and the freeboard allowance is currently 700mm along this stretch of the estuary, not 600mm as stated.</p> <p>We would need to see the outline the specific criteria for the Tilbury site too, not just the Kent project site. The flood defences and areas of high ground should be assessed to establish their residual life and stability over the development lifetime including the impacts of sea level rise. Higher water levels can cause:</p> <ul style="list-style-type: none"> • Higher hydrostatic pressure • Reduced inter-partial friction • Potential uplift failure and blow out in the hinterland <p>All possible modes of failure of the existing and proposed flood defences should be considered and investigated/assessed. If you change the hydrostatic gradient on an earth embankment, the FOS against slip circle failure can change. Slip circle analysis supported by adequate ground investigation will be required.</p>	<p>Existing and proposed flood defences have been considered for both the Kent and Essex Project Sites. Breach analysis has been undertaken for existing flood defences at both site locations as detailed in the FRA Appendix 17.1. Condition surveys are proposed to be undertaken for all existing flood defences at both the Kent and Essex Sites post the DCO application, as well as ground condition surveys, to inform the design where required.</p>
Environment Agency	<p>16.125 Discharge being acceptable at an unrestricted rate to the River Thames is subject to an assessment of the possible impact of scour that could cause excessive damage the foreshore or undermine a structure.</p> <p>The existing culvert linking the open channels to the River Thames and the outfall will require remedial works due to their current condition. Second non-return valves are required on outfall of 300mm diameter or larger to reduce the risk of secondary flooding. The volume and criteria for tide lock needs to be reviewed with LLFA.</p>	<p>Consideration of scour and non-return valves have been made in the ES Chapter 17 Water Resource and Flood Risk and Stormwater Drainage Strategy Appendix 17.2</p> <p>It is likely the existing culverts will be decommissioned, as they are reaching the end of their design life. This is subject to agreement with HS1. New outfalls will discharge surface water runoff from the new constructed wetland and marshes, incorporating second non-return valves where required. Criteria for tide-lock scenarios have been agreed with KCC and details provided in the Stormwater Drainage Strategy Appendix 17.2.</p>

Consultee	Scoping Opinion comment	Response
Environment Agency	16.137 Any proposal to abstract from the groundwater in this location will need to assess the impact on the existing habitats on the marshes by determining to what extent (if any) they are influenced by groundwater levels. This is particularly important as Black Duck Marshes has increased water levels over the last 8 years, as remarked on in the London Resort ecology assessments. We need clear evidence and why this is, and whether any abstractions would alter the habitat that has been created as a consequence. The assessment should consider the impact of a significant increase in the visitor numbers and subsequent water use in North Kent.	The Stormwater Drainage Strategy Appendix 17.2 sets out the strategy to monitor water levels in the marshes and undertake ecological monitoring to assess whether the water levels in the marshes need to be varied via an outflow control as required to maintain existing habitats and ecology. Further details are provided in Chapter 12 Terrestrial and freshwater ecology and biodiversity.
Environment Agency	16.143 We would have a preference for WFD to be presented as a standalone section within any water quality section as it is often very difficult to vet an assessment that makes constant cross references to other sections. WFD water quality is about meeting strict, concentration-based criteria for the water column, and compliance arguments need to be unambiguous. The usual EIA hierarchy of significant/insignificant effects are insufficient to characterise compliance with a specific chemical concentration standard(s). We would consider WFD deterioration as a significant negative effect.	A WFD Assessment has been presented in Appendix 13.7 as a stand-alone report to support the application to allow it to be read and considered independently of the rest of the ES chapter and is referenced where relevant within the ES Chapter 17 Water Resource and Flood Risk.
Environment Agency	16.145 Any uncertainties also apply to the Tilbury site.	Noted. Uncertainties have been included in the ES Chapter 17 Water Resource and Flood Risk for both the Kent and Essex Project Sites and Appendix 17.1 Flood Risk Assessment.
Gravesham Borough Council	The water table in this area has been significantly affected by the impact of chalk extraction in and around the Ebbsfleet as a result needing pumping to lower the water table. Assessment is	Discussions on procuring a water supply to the development are ongoing with Thames Water. Supply provided to the development must be considered within Thames Water strategic supply

Consultee	Scoping Opinion comment	Response
	<p>therefore needed to understand what the current expectations are for the development already permitted in the area are and how this may impact on flows of ground and surface water if this project is built.</p>	<p>planning with any impacts to future supply for household and industrial users considered and mitigated. Reference is made to the Utilities Statement (7.6) for details.</p> <p>Discussion and assessment has also been undertaken within the cumulative impacts assessment on the combined impact of permitted, but not currently operational, development in the ES Chapter 17 Water Resource and Flood Risk.</p>
Gravesham Borough Council	<p>Water supply needs careful consideration and the area is already one of water stress. The scale of this development (and the uses involved) implies at least a significant extra demand for water. The 2015 PEIR says that the proposed development could have a maximum demand of 11 MI/day, though logically the reduced visitor numbers may lower this. However, 2006/7 demand in Dartford was 37 MI/d and 24MI/d. This is a water stress area where capacity to abstract is limited with a complex hydrology as noted above. Again, this has to be set in the context of substantial committed development, albeit with measures to reduce demand.</p>	<p>Water efficiency measures and measures to reduce demand or recycle have been described in the proposed Utilities Statement (LR-DG-BUR-REP-807.0). The strategy for delivering water supply to the project site with minimal impact to surrounding users and the environment are currently being worked through with Thames Water. Water demand and its implications in an area of water stress has been assessed at an appropriate granularity in the ES Chapter 17 Water Resource and Flood Risk.</p>
Gravesham Borough Council	<p>On waste water treatment the document talks about establishing the existing local drainage network. The development boundary as drawn now includes Northfleet Waste Water Treatment Works, which is known to be operating at or near capacity. Liaison is need with Southern Water Services, the Ebbsfleet Development Corporation, Gravesham Borough Council and Dartford Borough Council as to the future levels of development and therefore the demands to be places on the system. The EDC has been exploring</p>	<p>Following consultation with Southern Water, the option for an on-site WWTP has been described and assessed in the ES Chapter 17 Water Resource and Flood Risk.</p>

Consultee	Scoping Opinion comment	Response
	options in this area and their advice should be sought.	
Marine Management Organisation	<p>The MMO observe that some sample data from the area has been provided but has not given the values of the contaminants present or the number of samples analysed. It is noted that this would be a maintenance dredge. The MMO would expect to see details of previous dredge campaigns to confirm this at a later stage and recommends the collection of sampling data of the sediment to determine the risk of contaminants as suggested in point 12.29. The Port of London Authority (PLA) and MMO should be consulted regarding sampling requirements. OSPAR1 and MMO2 guidelines for contaminant testing should be followed. The MMO seek clarification regarding whether dredge operations are capital or maintenance.</p>	<p>Consultation with the MMO and PLA have been undertaken and described in the ES Chapter 12 Terrestrial and Fresh Water Ecology and Biodiversity or Chapter 13 Marine Ecology and Biodiversity. Further assessment of the impact of dredging has been undertaken by HR Wallingford in a Hydrodynamic modelling study which can be found in ES Chapter 17 Water Resources and Flood Risk Appendix 17.4 Hydrodynamic and Sedimentation Assessment.</p>
Public Health England	<p>When considering a baseline (of existing water quality) and in the assessment and future monitoring of impacts these:</p> <ul style="list-style-type: none"> • should include assessment of potential impacts on human health and not focus solely on ecological impacts; • should identify and consider all routes by which emissions may lead to population exposure (e.g. surface watercourses; recreational waters; sewers; geological routes etc.) should assess the potential off-site effects of emissions to groundwater (e.g. on aquifers used for drinking water) and surface water (used for drinking water abstraction) in terms of the potential for population exposure; 	<p>Please refer to ES Chapter 8 Human Health.</p>

Consultee	Scoping Opinion comment	Response
	<ul style="list-style-type: none"> • should include consideration of potential impacts on recreational users (e.g. from fishing, canoeing etc) alongside assessment of potential exposure via drinking water. 	
Thurrock Council	<p>Within this chapter, it is noted there was some inaccurate details. Thurrock Council are the Lead Local Flood Authority for the borough of Thurrock, and not Essex County Council. However, currently Thurrock Council utilise the services of Essex County Council to undertake the statutory services such as flood risk and mitigation related to new developments. Essex and Suffolk Water are primarily the water supplier in Thurrock, and Anglian Water are primarily the provider of waste, foul and surface water. Within the policy review, all relevant flood documents issued by or on behalf/inclusive of Thurrock should be considered and referenced.</p> <p>To support any flood risk assessments as part of this development, as part of the Council's local plan work, the LLFA will be looking to commission a new Surface Water Flood model which can be made available to the developer if required.</p>	Noted. Text in the ES Chapter 17 Water Resource and Flood Risk has been updated accordingly.
Thurrock Council	<p>The section on local policies and plans makes reference to the Thurrock Strategic Flood Risk Assessment Level 1 of 2009. This is an earlier SFRA Level1 and has been superseded by the Thurrock Strategic Flood Risk Assessment Level 1 of 2018. This can be accessed from the Thurrock Council website.</p>	Noted. The policy section of this ES Chapter 17 Water Resource and Flood Risk and the FRA Appendix 17.1 have been updated accordingly.

2 PEIR Stakeholder Comments and Responses

Consultee	PEIR Comment	Response
Kent County Council (KCC)	The PEIR assesses the impacts to the water environment and operation. Although it lists flood risk associated with basement excavations it does not consider flood risk associated with earth movement and ground works during construction.	The wording has been updated in the ES Chapter 17 Water Resource and Flood Risk to reflect the impacts consider the various works.
KCC	Though temporary, construction will be over a considerable length of time during which flood risk may have a significant impact. The Construction Environmental Management Plan must consider requirements for the notification of events and appropriate management in the likelihood of a large storm event as well as ongoing day-to-day operations for surface water drainage and water quality.	The wording in the CEMP and ES Chapter 17 Water Resource and Flood Risk has been updated to include management of flood risk during large storm events.
KCC	In relation to further assessment, a Flood Risk Assessment is proposed but this must contain, or have as an annexe, a detailed Surface Water Drainage Strategy. The County Council would expect this Strategy to be detailed with a full assessment of pre and post development; be clear about the level of service provided by the drainage system and comply with the Government and the County Council's requirements for sustainable drainage provision.	Information on the proposed surface water drainage strategy are included in the ES Chapter 17 Water Resource and Flood Risk and the Surface Water Drainage Strategy Appendix 17.2.
KCC	It is suggested (paragraph 17.202 of the PEIR) that tide locked scenarios will consider the combined probability of storm events .The County Council also seeks confirmation of more usual daily operation such as 1-in-30 year rainfall event occurring with Mean High Water Spring tidal level to ensure that no flooding occurs within the site area from the designed drainage system for normal operation.	The 1 in 30 year rainfall event combined with the MHWS is also considered as part of the design. Information added in ES Chapter 17 Water Resource and Flood Risk and Surface Water Drainage Strategy Appendix 17.2.

Consultee	PEIR Comment	Response
KCC	Sustainable drainage systems are to be incorporated into the design and it has been suggested within the consultation that these will be integrated into the marsh areas. Any future assessment must consider how these systems are designed to ensure no adverse impacts on the water movement within the marsh; similarly, any constraints from the marshes, e.g. water levels, must be considered in the design of any adjacent drainage system.	The water levels within the marshes will be managed to ensure no deterioration of habitat due to the proposals. Further information can be found in the Surface Water Drainage Strategy Appendix 17.2.
KCC	All drainage measures must have adequate access arrangements for maintenance, particularly any swale provided adjacent to the marsh system.	An access road is proposed parallel to the swales. Further information can be found in the Surface Water Drainage Strategy Appendix 17.2.
KCC	It is recognised in the PEIR that “The Swanscombe Peninsula supports extensive areas of marshland” though “these marshes are not subject to protective environmental designations.”. The PEIR states that “the drainage strategy will aim to ensure that the Botany Marsh East and Black Duck Marsh retain their existing hydrological flow regime and are not adversely affected.”. However, the development will result in a significant loss of marshland area and the County Council would recommend a more detailed assessment of marsh hydrology and secondary impacts on the supported ecology, particularly pertaining to cumulative loss of specific water environments.	Refer to ES Chapter 12 Terrestrial and Freshwater Ecology and Biodiversity, and Ecological Mitigation and Management Framework.
KCC	Though there are other strategic infrastructure plans shown for the development there does not appear to be a specific plan showing proposed strategic drainage provision. Very limited detail on drainage is shown within the Green Infrastructure Strategy (Figure 11.9) but this is not sufficient to provide any greater comment. The County Council would,	Further detail and information on the drainage proposals (including the access road) is added to the ES Chapter 17 Water Resource and Flood Risk, the Surface Water Drainage Strategy Appendix 17.2 and drawings LR-KP-BUR-DCP-2.17.0 – 2.17.9.

Consultee	PEIR Comment	Response
	therefore, expect a greater level of detail to be presented within an overall drainage strategy (to include the resort access road) to be presented during the next stages of the development of the proposals following this consultation and prior to the submission of the DCO.	
KCC	Specifically, the Council notes the intention to develop the current facility at the Port of Tilbury Landing stage. The landing stage is used by Jet Stream who make use of a V Birth on the inside edge of landing stage. Jet Stream have invested heavily to the principle of continuing to operate using the V-Birth which is considered to be the most appropriate solution for the current service and it is vital that physical access and right of use be maintained for the Gravesend to Tilbury Ferry whether provided by Jet Stream or any other contracted operator.	The Applicant and Port of Tilbury are fully committed to the ongoing use of the Tilbury Landing Stage for all the current functions. Alternative arrangements for the operation of the Gravesend to Tilbury ferry will be provided throughout the construction and operation of the London Resort project.
KCC	It should also be noted that users of the service can currently park at the landing stage which provided space for up to 50 vehicles and we would want to see this facility maintained as part of any re-designed facility.	The Applicant and Port of Tilbury are fully committed to the ongoing use of the Tilbury Landing Stage for all the current functions. Alternative arrangements for parking will be provided throughout the construction and operation of the London Resort project.
Dartford Borough Council	The Council will defer to comments made by the Environment Agency and the Lead Local Flood Authority (KCC) and other statutory consultees with regard to this matter. However, the water management issues in this area are complex and must be considered with regard to other developments coming forward. The Council as local planning authority needs to ensure that the development does not prejudice the infrastructure available for other	Discussions on procuring a water supply to the development is ongoing with Thames Water. Supply provided to the development must be considered within Thames Water strategic supply planning with any impacts to future supply for household and industrial users considered and mitigated. Reference is made to the Utilities Statement (Document Reference 7.6) for details.

Consultee	PEIR Comment	Response
	<p>developments, particularly given the level of development coming forward within the Borough. The Council will expect the assessment to consider how the impact of the development on water resource availability will be mitigated. The Council will also expect the water management mitigation proposals to set out how water will be conserved and water use minimised both during the construction phase and the operation phase.</p>	<p>Water management measures proposed for construction and operation phases are also described within the Utilities Statement (Document Reference 7.6).</p>
Gravesham Borough Council (GBC)	<p>81. The floor defences will be raised to meet 1 in 1000 year flood from the Thames, which is impacted by rising sea levels. This will need to take into account the Environment Agency plans set out in Thames Estuary 2100. It is also important that there is an agreed strategy to defend the whole of the flood cells since raising defence levels for the London Resort site on its own will be insufficient.</p>	<p>The EA have been consulted with during the process and further details can be found in Appendix 17.1 Flood Risk Assessment.</p>
GBC	<p>82. The resort is going to need a substantial supply of water and it is not clear how this will be provided in an area already under stress and subject to considerable development pressures. The development in itself, its water supply and its waste water has potential to have knock on impacts on other parts of the hydrological system. Convincing evidence will be needed that that this can achieved without impacting on household and industrial water supplies, including future demand.</p>	<p>Discussions on procuring a water supply to the development is ongoing with Thames Water. Supply provided to the development must considered within Thames Water strategic supply planning with any impacts to future supply for household and industrial users considered and mitigated. On-site wastewater facility is also currently being proposed. Reference is made to the Utilities Statement (Document Reference 7.6) for details.</p>

Consultee	PEIR Comment	Response
GBC	<p>83. There are complex hydrological interactions in the area between the rivers, ground water and the impacts of pumping etc. For example the builders of HS1 found that the Blue Lake (correct title of what is called Sawyers Lake on some plans) fell unexpectedly in level due to dewatering operations during construction, which impacted to water supply to industrial premises. Development in Eastern Quarry is changing how the water table is managed in that area. These interactions have potential implications for river flow, flood risk and ecology. Saline intrusion into the aquifer is another potential risk.</p>	Noted.
GBC	<p>84. Northfleet Waste Water Treatment Works is at capacity and serves a large part of the urban area and down the A227 corridor in Gravesham. The Ebbsfleet Development Corporation has been looking at options with Southern Water Services to serve the Ebbsfleet development as part of their wider masterplanning process. A very clear strategy will be needed as to how waste water will be dealt with that is deliverable on the timescales suggested by the construction timetable. Unless major capital spend is already committed it is difficult to see how the Resort timescales can be accommodated.</p>	<p>The Design Team has engaged with Southern Water to understand options for foul (wastewater) servicing for the development from the Northfleet WWTW. The Southern Water response provided clarity on the lack of existing capacity within the catchment. To address this, an on-site wastewater treatment works is proposed. Reference is made to the Utilities Statement (Document Reference 7.6) for details.</p>
GBC	<p>85. It may be noted that Gravesham Borough Council owns land in the vicinity of Northfleet WWTW.</p>	<p>Order limits no longer include Northfleet wastewater treatment works.</p>

Consultee	PEIR Comment	Response
Ebbfleet Development Corporation (EDC)	<p><u>Methodology for baseline data gathering</u></p> <p>Study areas are not well defined, the PEIR stating that the study area will include receptors 'within a material distance of the Project Site, as deemed by the assessment author'. Study areas are likely to vary according to the aspect of the water environment being assessment and should be agreed in consultation with the Environment Agency and Marine Management Organisation. These areas should be clearly described within the ES and illustrated on a figure/plan.</p>	<p>The ES Chapter 17 Water Resources and Flood Risk provides details on the study area and assessment required based on consultations undertaken with the EA and MMO.</p>
EDC	<p>The methodology for establishing baseline conditions includes for a desk study/literature review, data collection from environmental stakeholders and drainage and water quality surveys. The PEIR also makes very brief mention to modelling of flood risk, surface and foul water drainage but does not describe these modelling studies in any detail. Any such modelling studies should be scoped in consultation with relevant stakeholders and be fully described within the ES and may need to include the impacts of dredging on the hydrodynamic regime of the Thames, as well as breach modelling of existing and proposed flood defences. The methodology, results and locations of the water quality sampling surveys should be provided with the ES. The need to update baseline datasets should also be reviewed prior to the production of the ES Chapter.</p>	<p>ES Chapter 17 Water Resources and Flood Risk and Appendix 17.1 Flood Risk Assessment contain details of modelling undertaken, which has been developed in consultation with the EA. Details of the water sampling locations and results to date have been provided in the ES Chapter and Appendix 17.3 Surface Water Quality Testing. Details of the hydrodynamic regime can be found in Appendix 17.4 Hydrodynamic and Sedimentation Assessment.</p>

Consultee	PEIR Comment	Response
EDC	<p><u>Law Policy and Guidance</u></p> <p>The PEIR includes reference to all relevant legislation and policy pertinent to the assessment except that the following corrections should be made:</p> <ol style="list-style-type: none"> 1) The Water Resource Management Act (Amendment) (England and Wales) Regulations 2009 are referred to in para 17.18. We believe that the reference should be to The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009; 2) The Water Supply (Water Quality) Regulations (2016) are referred to in para 17.18. We believe that the reference should be to 2018 regulations with the same title; 3) The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 are referred to in para 17.18. These have been replaced by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017; 4) The Environmental Damage Regulations 2009 are referred to in para 17.18. The 2009 Environmental Damage (Prevention and Remediation) Regulations were replaced by the Environmental Damage (Prevention and Remediation) (England) Regulations 2015; 5) Reference is made within the Guidance section to Pollution Prevention Guidance notes, now superseded. This series is being replaced by the Guidance for Pollution Prevention (GPPs) series, and several relevant GPPs have now been published, to which the ES chapter should refer. (Para 17.52); 	<p>Noted. The ES Chapter 17 Water Resources and Flood Risk includes the latest legislation and guidance documents.</p>

Consultee	PEIR Comment	Response
	<p>6) The latest version of the NPPF should also be referred to (para 17.4) (the NPPF 2019 is referred to in para 17.20)</p> <p>7) In para 17.20 reference is made to NPPG on Water Supply, Wastewater and Water Quality (MHCLG, 2015) – this guidance was updated in 2019. As a general point the applicant should check that all law and guidance referred to in the ES is current. The same applies in relation to references to local planning policy which are also out of date in places (e.g. Dartford Development Policies Plan was adopted in 2017.)</p>	
EDC	<p><u>Baseline</u></p> <p>The PEIR clearly identifies the water environment receptors that are proposed to be included in the EIA. It proposes to scope out Tilbury Docks and Tilbury Fort moat as receptors, with justified reasoning.</p> <p>The Eastern Quarry lake is also proposed not to be included in the assessment. This is because the lake is within the Ebbsfleet Garden City development masterplan and is not proposed to remain in its current form as a result of that masterplan. It is considered that this receptor should be included as part of the proposed cumulative impact assessment and should not be scoped out.</p> <p>Potential for effects on existing water users (abstractors, or existing discharges) should also be included as receptors and subject to assessment within the ES.</p>	<p>Consideration of the existing discharge from Eastern Quarry Lake to the Project Site has been considered in the ES Chapter 17 Water Resources and Flood Risk. Ebbsfleet Garden City is a scheme that is also considered in the assessment of cumulative and in-combination effects.</p>

Consultee	PEIR Comment	Response
EDC	<p><u>Assessment</u></p> <p>The assessment methodology does not make reference to any specific assessment guidance or methodology. LA 113 of the DMRB provides guidance and is considered best practice for assessment of the highways elements of the proposed development. The general approach is also applicable to the other aspects of the development.</p> <p>It appears that no key water environment receptors or impact pathways have been omitted. The potential, in the absence of suitable mitigation, for significant adverse effects on these features is acknowledged.</p>	<p>The ES Chapter 17 Water Resource and Flood Risk has been undertaken in line with the key directives as indicated in the LA 113 of the DMRB.</p>
EDC	<p><u>Mitigation</u></p> <p>The measures described to mitigate effects on water resources and flood risk are generally those considered to be good practice but they are currently only described as construction mitigation measures which should be included in the draft CEMP, which has not been provided and at a very high level in relation to operational mitigation measures (e.g. flood defence measures will be improved but without specifying much detail). More bespoke mitigation may be necessary to avoid significant effects and these measures should be designed on the basis of the more detailed assessments undertaken as part of the EIA.</p>	<p>More detail on proposed mitigation measures is provided in ES Chapter 17 Water Resources and Flood Risk.</p>
EDC	<p><u>Cumulative and in-combination effects</u></p> <p>These have not been identified or assessed as part of the PEIR, which says they will be reported on in the ES.</p>	<p>Cumulative and in-combination effects have been assessed as part of ES Chapter 17 Water Resources and Flood Risk.</p>
EDC	<p><u>Conclusions</u></p> <p>The conclusions are that the proposed flood risk, drainage and WFD assessments will consider these issues</p>	<p>Further detail has been provided within ES Chapter 17 Water Resources and Flood Risk.</p>

Consultee	PEIR Comment	Response
	<p>and it is expected that significant impacts will arise and appropriate mitigation measures will be identified – however the PEIR only considers potential impacts and mitigation at a very high level, so the detail will need to be considered when the proposed assessments have been completed. The PEIR does not allow EDC to develop an informed view of the likely significant environmental effects of the Scheme and therefore does not allow effective consultation.</p>	
EDC	<p><u>Assessment Limitations</u> Very limited information is provided in this chapter. It is anticipated (and necessary) that the ES chapter covering this topic will be a lot more detailed, once the proposed supplementary assessments have been carried out.</p>	<p>Assessment limitations have been updated within ES Chapter 17 Water Resources and Flood Risk.</p>
EDC	<p>17.4 The NPPF, 2018 is referred to – this is not the latest version of the NPPF.</p> <p>Action required: Ensure that the latest version of the NPPF is referred to and considered at the time the ES is prepared.</p>	<p>Reference updated in the ES Chapter 17 Water Resources and Flood Risk.</p>
EDC	<p>17.32 Reference is made to Zone 1 depicting a <1 in 100 year probability – this is incorrect; Zone 1 is <1 in 1000.</p> <p>Action required: Correct reference.</p>	<p>Reference updated in the ES Chapter 17 Water Resources and Flood Risk.</p>
EDC	<p>17.33 This paragraph acknowledges that the NPPF PPG also includes policy requirements linked to water supply, wastewater and water quality but only selectively quoting these requirements.</p> <p>Action required: The ES should reference more fully to the policies linked to water supply, wastewater and water quality and make it clear how the Project is in compliance with these policies.</p>	<p>The water supply and wastewater strategies currently being developed will ensure that all policy requirements as detailed in the ES Chapter 17 Water Resources and Flood Risk will be met.</p>

Consultee	PEIR Comment	Response
EDC	<p>17.35 Reference to Dartford Development Policies Plan (2015) - this document was adopted in July 2017.</p> <p>Action required: Correct reference and ensure up to date document is referred to.</p>	Reference updated in the ES Chapter 17 Water Resources and Flood Risk.
EDC	<p>17.119 – 17.120 Paragraphs provide a description of existing flood defences at the Kent project site. No details of defence condition or TE2100 policy direction are provided.</p> <p>Action required: These details should be provided in the ES and its accompanying FRA. Consultation with the EA may be necessary to collect this information. Expectations regarding the type and duration of monitoring of the existing defences both during construction and for a period post construction should also be discussed with the EA.</p>	Further detail has been provided within Appendix 17.1 Flood Risk Assessment and ES Chapter 17 Water Resources and Flood Risk. Extensive consultation with the EA has been undertaken.
EDC	<p>17.125 – 17.126 Paragraphs provide a description of existing flood defences at the Essex project site. No details of defence condition or TE2100 policy regime are provided.</p> <p>Action required: These details should be provided in the ES and its accompanying FRA. Consultation with the EA may be necessary to collect this information. Expectations regarding the type and duration of monitoring of the existing defences both during construction and for a period post construction should also be discussed with the EA.</p>	Further detail has been provided within Appendix 17.1 Flood Risk Assessment and ES Chapter 17 Water Resources and Flood Risk. Extensive consultation with the EA has been undertaken.
EDC	<p>17.136 WFD objectives for Thames Middle WFD waterbody are described.</p> <p>Action required: Details of any measures set out in the current River Basin Management Plan to achieve the</p>	The WFD Assessment (Appendix 13.7) considers the measures set out in the Thames River Basin District RBMP programme of measures, although focus on the Thames Middle WFD waterbody are presented in the ES

Consultee	PEIR Comment	Response
	set objectives should be provided in the ES.	Chapter 17 Water Resources and Flood Risk.
EDC	<p>17.87 The paragraph describes Water Framework Directive cycles and data availability, referencing cycle 1 and cycle 2.</p> <p>Action required: The ES chapter should also draw on recently published cycle 3 data.</p>	Cycle 3 is currently in consultation and data for this cycle has not yet been published on the EA's Catchment Data Explorer website.
EDC	<p>17.143 This paragraph acknowledges that the FRA and drainage strategy should make an allowance for climate change.</p> <p>Action required: Climate change allowances for peak river flows, sea level rise and rainfall intensity in line with the most recently published guidance should be agreed in consultation with the EA/relevant LLFAs. These allowances should be applied over an agreed development design life and used to inform the Flood Risk Assessment and Surface Water Drainage Strategy.</p>	Climate change allowances have been incorporated. Further detail has been provided within Appendix 17.1 Flood Risk Assessment and Appendix 17.2 Surface Water Drainage Strategy.
EDC	<p>Table 17.9 This table lists the water environment receptors that will be considered in the EIA.</p> <p>Action required: Potential for effects on existing water users (abstractors, or existing discharges) should also be included as receptors and subject to assessment within the ES. The scope of any assessment should be discussed and agreed with the Environment Agency.</p>	The EIA has been undertaken in line with comments from the EA and it considers users within a potential group to be impacted rather than individual water users. Further information is provided in the ES Chapter 17 Water Resources and Flood risk assessment of cumulative and in-combination effects.

Consultee	PEIR Comment	Response
EDC	<p>17.226 This paragraph provides information on the proposed assessment of cumulative and in-combination effects but does not specify a study area for the cumulative assessment.</p> <p>Action required: Agree a Zone of Influence for the assessment in consultation with the EA and relevant local authorities, of inter project cumulative effects and apply this within the ES.</p>	<p>A Zone of Influence for the Project was agreed between Savills and the relevant local authorities. This has been considered in the ES Chapter 17 Water Resources and Flood risk assessment of cumulative and in-combination effects.</p>
Southern Water	<p>Southern Water Services Ltd. records will not necessarily record the location or show information associated with private sewers which may have become public sewers under the transfer of private sewers.</p> <p>Any sewers shown coloured yellow on the plans may be public highway drainage, culverted watercourses or private sewers and should be subject to Site Investigation to establish their ownership and function.</p> <p>The Swanscombe and Northfleet Wastewater Treatment Works are located within the proposed development site. A precautionary buffer zone distance of 500 metres from the perimeter fence of the WWTW has been used for the purposes of this planning consultation response.</p> <p>Due to the potential odour nuisance from a Wastewater Treatment Works, no habitable development should be located within the 1.5 OdU odour contour of the WWTW. An Odour survey will need to be carried out to a specification agreed with Southern Water to identify and agree the 1.5 OdU contour.</p>	<p>Protection of the assets must be provided in accordance with the Southern Water requirements or diverted through an agreed S185 process. These assets are identified and any proposed works are described within the Utilities Statement (Document Reference 7.6). Order limits no longer include Northfleet wastewater treatment works. The ES Chapter 16 Air Quality makes reference to the odour from the proposed on-site wastewater treatment facility.</p>

Consultee	PEIR Comment	Response
Southern Water	Southern Water requires existing access arrangements to Wastewater Treatment Works to be maintained with regards to unhindered 24 hour / 7 days a week access. Southern Water operates a closed gate policy during maintenance works for Health and Safety reasons.	Order limits no longer include Northfleet wastewater treatment works.
Southern Water	The proposed development would lie within a Source Protection Zone around one of Southern Water's public water supply sources as defined under the Environment Agency's Groundwater Protection Policy. Southern Water will rely on your consultations with the Environment Agency to ensure the protection of the public water supply source.	Noted; extensive consultation has been undertaken with the Environment Agency.
Southern Water	Alongside the advice regarding the protection of our assets we have also carried out initial capacity checks for water and wastewater. These have indicated a lack of capacity in our current infrastructure within the catchment. To mitigate this would require strategic investment in our water and wastewater networks and treatment works to accommodate the requirements of this development. As the development has not been adopted in the relevant authorities' local plan, no provision has been made in Southern Waters Investment plan for AMP7 which covers the period April 2020 to March 2025. Significant investment would be required and would need to be promoted for delivery in AMP8 (April 2025 to March 2030) and it is likely this could not be delivered until March 2030 at the earliest.	Southern Water states that an initial capacity check found that there is a lack of capacity in the current infrastructure within the catchment to service the site. To address this, an on-site wastewater treatment works is proposed. Reference is made to the Utilities Statement (Document Reference 7.6) for details.

Consultee	PEIR Comment	Response
Environment Agency	There is generally insufficient detail provided to allow us to make a full assessment of the proposed development. No assessment of flood risk has been included, and the Water Resources and Flood Risk section does not address the relevant issues related to flood risk or mitigation measures.	Further detail has been provided within Appendix 17.1 Flood Risk Assessment and ES Chapter 17 Water Resources and Flood Risk.
Environment Agency	The scale of the plans and lack of detail on the existing features makes it difficult to assess proximity issues. The Gate 1 and Hotel zones appear close to the line of the Flood defences. From the extent of the 'Transport Land' and 'Back of House' (Blue and Brown zones) relatively high buildings would be allowed close to the river.	Further detail has been provided within Appendix 17.1 Flood Risk Assessment including proposed realignment of flood defences.
Environment Agency	More detailed plans and cross sections with plenty of dimensions are needed to show the relationship between the extent of the different zones and the existing and proposed ground profiles and the existing and proposed flood defences. This must also include the proposed future ground profiles and flood defences for flood defence crest raising before the year 2070.	Further detail has been provided within Appendix 17.1 Flood Risk Assessment including proposed illustrative cross-sections through flood defences.
Environment Agency	There is no mention the effects of climate change on the tidal flood defences. It must be acknowledged that it will be a key consideration in both the Flood Risk Assessment (FRA) and the Environmental Statement (ES) for appropriate design of new or works to existing flood defences.	Climate change has been considered within Appendix 17.1 Flood Risk Assessment.
Environment Agency	We are also unclear how the project will prevent an increased flood risk to HS1.	Further detail has been provided within Appendix 17.1 Flood Risk Assessment. The project does not increase flood risk to HS1.

Consultee	PEIR Comment	Response
Environment Agency	The document states that floodgates will be removed from the design where possible. Floodgates create a weak point in the flood defence line and therefore if the Developer proposes to keep any floodgates, we will need sufficient evidence to show why an up and over ramp could not be installed to allow access to the jetty for us to approve this proposal.	Floodgates are not included in the proposed development. Further detail has been provided within Appendix 17.1 Flood Risk Assessment.
Environment Agency	In the description they reference an 'earth berm' as the flood defence, however, there is also a flood wall with floodgates on the site.	The site is primarily defended by earth berms and high ground. Limited areas of flood wall and flood gates are also present and the description in the chapters has been updated accordingly. Further description and detail can be found in Appendix 17.1 Flood Risk Assessment.
Environment Agency	There is recognition for the need to raise the flood defences to the TE2100 future levels, however, there is no supporting evidence for how this will be done. We need information on the type of defence raising, how they will approach the raising (i.e. will it be raised in one go or in phases) and evidence that the current foundations/ground conditions can support this raising to the necessary future TE2100 levels supported by results from site investigations and structural calculations.	Further detail has been provided within Appendix 17.1 Flood Risk Assessment including proposed realignment and future raising of flood defences.
Environment Agency	<p><u>Figure 3: Illustrative Parameters Plan</u></p> <p>There is acknowledgement that there is likely to be silt present in the culverts draining the main river into the Thames Estuary, however, there is only reference to a CCTV survey of this culvert. Based on recent experience (which we can share), the CCTV had to be abandoned after a short distance and although there are two manholes, they are very difficult to use due to their size. Therefore we need to</p>	Refer to Appendix 17.2 Surface Water Drainage Strategy for more information. New outfalls are proposed into the River Thames.

Consultee	PEIR Comment	Response
	understand if any provision is being made to assess the silt volume in the structure before a CCTV inspection is carried out.	
Environment Agency	There is no mention of what the future plan for the culverts is. If the existing culverts are to remain, they need to be improved as they are nearing the end of their asset life and will not be fit for purpose for the lifetime of the development. If it is a possibility that the developer is considering relocating the drainage into the estuary for the entire site, the existing culverts will need to be decommissioned. Any installation of gravity outfalls will also need to consider the impacts of sea level rise on these structures.	Refer to Appendix 17.2 Surface Water Drainage Strategy for more information. New outfalls are proposed into the River Thames and will be designed to accommodate sea level rise.
Environment Agency	It is not clear whether the footprint of Bell Wharf Jetty will be the same as what is currently there. We need this confirmed as we would not favour encroachment into the river.	The footprint of Bell Wharf will remain as existing.
Environment Agency	Without clear proposals for the flood defence works presented in 3D and the access spaces to inspect, maintain, raise or renew them it will not be possible for us to fully assess that aspect of the scheme.	Further detail has been provided within Appendix 17.1 Flood Risk Assessment including plans and cross sections of proposed realignment and future raising of flood defences.
Environment Agency	<p>3.51</p> <p>Section 3.51 should include:</p> <ul style="list-style-type: none"> • Thurrock Surface Water Management Plan (July 2014) • Thurrock SFRA 2018 is the latest (not 2009/2010) • Thurrock Local Flood Risk Management Strategy 2015 • The Draft EA National Flood & Coastal Erosion Risk Management Strategy for England was laid before parliament on 	The ES Chapter 17 Water Resources and Flood Risk has been updated accordingly. Not able to find a copy of 'Thurrock Surface Water Management Plan (July 2014)'.

Consultee	PEIR Comment	Response
	<p>14 July 2020 and it is currently awaiting Secretary of State approval (link to document here: https://www.gov.uk/government/publications/national-flood-and-coastal-erosion-risk-management-strategy-for-england--2)</p>	
Environment Agency	<p>3.51 - 3.55</p> <p>It is worth noting that Thurrock Council are also a Lead Local Flood Authority under the terms of the Flood & Water Management Act 2010 although currently they seek assistance from Essex County Council for the approval of development related SUDS and surface water management designs linked to the land use planning process.</p> <p>The Essex County Council USDS Design Guide can be viewed here: https://www.essexdesignguide.co.uk/pdf/SuDS_Design_Guide_2020.pdf</p> <p>Essex County Council also provide an Outline and Detailed drainage design checklist:</p> <p>Outline: https://flood.essex.gov.uk/new-development-advice/how-to-design-suds-in-essex/outline-drainage-design-checklist/</p> <p>Detailed: https://flood.essex.gov.uk/new-development-advice/how-to-design-suds-in-essex/detailed-drainage-design-checklist/</p>	Noted. Consultation with Thurrock and Essex has been undertaken.
Environment Agency	<p>5.7</p> <p>The section only refers to flood defence works on Kent site, no mention of flood defences on Essex site.</p>	The ES Chapter 17 Water Resources and Flood Risk and Appendix 17.1 Flood Risk Assessment considers both the Kent and Essex sites.

Consultee	PEIR Comment	Response
Environment Agency	<p>5.57</p> <p>There is a proposal to plant trees on the periphery of London Resort. We will need to understand the distance of these trees from the flood defence toe as if too close they could adversely impact the structural integrity of the flood defence.</p>	<p>Noted; trees will be appropriately offset from flood defences as referred to in the Appendix 17.1 Flood Risk Assessment.</p>
Environment Agency	<p>5.84</p> <p>The section mentions the demolition of structures. We would like it clarified if this just referring to the existing Jetty or if is it inclusive of other flood risk assets, including the existing culverts.</p>	<p>Existing flood wall and gates located near the jetty will be replaced by new earth embankment. Further details provided in Appendix 17.1 Flood Risk Assessment.</p>
Environment Agency	<p><u>Chapter 10: Transport</u></p> <p>Structures very close to and encroaching into the river are normally opposed unless they are accepted as being necessary for a river dependent use and needed mitigation is included.</p>	<p>Noted; all structures proposed close to the river are necessary for river dependent uses.</p>
Environment Agency	<p>A significant increase in vessel movements in the River Thames is proposed including an extension to the Thames Clipper service from London to Swanscombe and Tilbury. The ES supporting the DCO should assess the possible effects of vessel wash from the Thames Clippers and other increased vessel movements. That assessment should include impacts on wildlife, the foreshore, flood defence structures and other river users. The stability and integrity of tidal flood defence walls can be undermined and foreshore habitat damaged by scour generated by waves. Baseline and ongoing foreshore profile, wave energy monitoring and sediment modelling may be required, along with the provision of long term contingency and mitigation plans.</p>	<p>Noted; an assessment of sediment erosion and accretion is included within Chapter 17 of the ES and its impact on habitats and wildlife is assessed in Chapter 13 Marine Ecology and Biodiversity.</p>

Consultee	PEIR Comment	Response
Environment Agency	<p>10.9</p> <p>This paragraph refers to dredging works, but it is not clear what the extent of these works will be or how close they will be to the flood defence. The Developer will need to demonstrate that any dredging works will not negatively impact the structural integrity of the flood defences.</p>	<p>The extent of potential dredging has been defined in Chapter 17 Water Resources and Flood Risk. The extent is limited and is not adjacent to any flood defences.</p>
Environment Agency	<p>10.37</p> <p>This section refers to the assessment of 'Contact hitting a stationary object'. We would like to understand this better, and whether this include an assessment of the consequences of a potential collision into the flood defence.</p>	<p>Flood defences are generally set back from the river edge so a collision is unlikely to be possible, vessel grounding would occur. Please refer to the Preliminary Navigational Risk Assessment (Chapter 10 River Transport Appendix 10.1) for more information.</p>
Environment Agency	<p><u>Chapter 11: Landscape</u></p> <p>Please note that flood defence embankment are normally planted with grass which is regularly cut to prevent larger vegetation taking hold and to allow for asset condition inspections. Trees and larger vegetation should not be allowed as that is incompatible with maintaining a flood embankment.</p>	<p>Noted. Reference has been made in the Appendix 17.1 Flood Risk Assessment.</p>
Environment Agency	<p>17.4</p> <p>We are satisfied that an FRA covering both Kent and Essex Project Sites is being prepared in accordance with the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government (MHCLG), 2018) and confirm that there has been consultation with us.</p>	<p>Noted.</p>

Consultee	PEIR Comment	Response
Environment Agency	<p>17.9</p> <p>The second bullet point sets the baseline in relation to the design lifetime of the development. That lifetime is not specified within the chapter.</p> <p>Given the fact that some theme parks in the UK have been operational for 100-years we believe that the development lifetime should, for the assessment of all issues, be taken as 100-years.</p>	<p>Development lifetime has been assessed as per EA request; refer to Appendix 17.1 Flood Risk Assessment for more information.</p>
Environment Agency	<p>17.14</p> <p>Please note that notwithstanding the method of assessment the sensitivity of receptors and the magnitude of change/impacts, we would oppose changes that create an increase in flood risk to the existing built environment outside the site. For example a small increased flood risk to commercial or retail would not be acceptable.</p>	<p>Noted, the development does not increase flood risk offsite. Refer to the Flood Risk Assessment (Appendix 17.1) for more information.</p>
Environment Agency	<p>17.14</p> <p>The section also states that the entire Essex Site benefits from flood defences, however this is not the case as the majority of the Tilbury Cruise Terminal buildings are riverward of the defences.</p>	<p>Noted. Wording has been updated in Chapter 17 Water Resources and Flood Risk.</p>
Environment Agency	<p>17.72</p> <p>For additional information, rocks were able to fall down in front of the tidal flap and this jammed the outfall shut which caused the near flooding of CTRL in 2013.</p> <p>17.72</p> <p>Following this, the Environment Agency installed gabion wing walls either side of the outfall to prevent this from happening again. Since this incident,</p>	<p>Noted. Information has been added to Appendix 17.1 Flood Risk Assessment to provide historic context.</p>

Consultee	PEIR Comment	Response
	<p>we have not yet had an issue with rocks jamming the outfall flap shut.</p>	
<p>Environment Agency</p>	<p>17.125</p> <p>The existing tidal flood defences alignment referred to does in fact run through the entire length of the “terminal buildings” and in some stretches are “free-standing” and in others are “grouted” to the internal face of the external walls of the buildings’ northern faces.</p> <p>The flood defences (steel walls & floodgates) run along the northern boundary of the Cruise Terminal buildings. The defences are either freestanding within, or grouted to, the buildings.</p>	<p>Noted. Wording has been updated to Appendix 17.1 Flood Risk Assessment.</p>
<p>Environment Agency</p>	<p>17.141</p> <p>The recently updated flood risk assessment climate change allowances for sea level rise – UKCP18 – was published on 17th Dec 2019.</p>	<p>Noted this has been included in the Appendix 17.1 Flood Risk Assessment.</p>
<p>Environment Agency</p>	<p>17.141</p> <p>Please note that we have been informed that work is ongoing to reflect the latest UKCP18 projections for peak river flow and peak rainfall intensity within Flood Risk Assessment climate change guidance on gov.uk, the current guidance being based on UKCP09 projections. However, we have been informed by our National Senior Advisor that it is unlikely that there will be any published update to the FRA Climate Change Guidance relating to</p>	<p>Noted.</p>

Consultee	PEIR Comment	Response
	peak rainfall or peak river flow before the end of 2020.	
Environment Agency	<p>17.147</p> <p>The risks to the water environment during demolition and construction include:</p> <ul style="list-style-type: none"> ▪ Flood risk associated with basement excavations. <p>It should also include Flood risk associated with:</p> <ul style="list-style-type: none"> ▪ overland flow due the development. ▪ how the project could impact the rate of inundation and where/how breached flows would accumulate behind the sea defences. ▪ location of surface water balancing facilities. 	Noted.
Environment Agency	<p>17.181</p> <p>The flood risk mitigation must also apply to offsite effects.</p>	Noted.
Environment Agency	<p>17.188</p> <p>We look forward to discussing the specific details of the Kent Project site flood defence improvement further prior to the submission of an FRA.</p>	Consultation with the EA has been ongoing since the PEIR.
Environment Agency	<p>17.190</p> <p>It is difficult to see how the applicant will be able to demonstrate workable solutions to the flood defence raising required to demonstrate that the development is safe in flood risk terms for its lifetime without first undertaking the needed ground investigations works and at least initial geotechnical design work. The design should not just ensure that future defence raising is possible but also possible without undue cost and difficulty, without the</p>	Appendix 17.1 Flood Risk Assessment makes reference to the requirements needed for future raising of flood defences, including maintenance to inform the spatial layout of the masterplan. Consultation with the EA will continue post DCO to ensure that the adequate ground investigations and analyses are undertaken to inform the detailed design.

Consultee	PEIR Comment	Response
	inclusion of flood gates or other movable flood defences.	
Environment Agency	<p>17.190</p> <p>All new structures forming the flood defences need to be designed for the development lifetime and all existing elements being retained must be shown to have at least the development lifetime remaining. Intrusive river wall investigation works will be required for any sections of wall that are to be retained. Detailed ground investigation works will be required to establish the stability of the existing high ground, earth embankments and the viability of proposed earth defence raising.</p>	Further details have been provided in the Flood Risk Assessment Appendix 17.1.
Environment Agency	<p>17.190</p> <p>All relevant modes of failure need to be assessed for the current and future scenarios including the wall failure modes and slip failure, bearing capacity failure, uplift and blow out in the hinterland. Higher water levels can reduce inter-partial friction increasing the fragility of earth embankments.</p>	Further details have been provided in the Flood Risk Assessment Appendix 17.1.
Environment Agency	<p>17.191</p> <p>We welcome further discussions regarding possible realignment of the existing defences in the locations in advance of the FRA submission.</p>	Consultation with the EA has been ongoing since the PEIR.

Consultee	PEIR Comment	Response
Environment Agency	<p>17.192</p> <p>We welcome the inclusion of details previously provided to the applicants regarding future aspirations to realign the tidal defences in the vicinity of the Cruise Terminal. However, despite the statement that these works are “part of a wider Tilbury waterfront area for defence improvement by the EA” these works are being proposed as part of the future aspirations of the Thames Estuary 2100 Plan. There appears to be more focus and connection to defence requirements and TE2100 for the Kent site throughout the document and appears somewhat overlooked for the Essex site.</p>	<p>Reference to the existing defences and the refurbishment of the Tilbury Cruise Buildings has been made in Appendix 17.1 Flood Risk Assessment.</p>
Environment Agency	<p>17.192</p> <p>Please note that there will be monitoring of existing flood defences assets during construction phase to ensure there is no detrimental impact to the defences and that monitoring will be continued post construction phase.</p>	<p>Noted.</p>
Environment Agency	<p>17.194</p> <p>This should be with the 1 in 100-year plus climate change flood outline.</p>	<p>Noted and amended in the ES Chapter 17 Water Resources and Flood Risk and Appendix 17.1 Flood Risk Assessment.</p>
Anglian Water	<p><u>Preliminary Environmental Information Report (PEIR)</u></p> <p>Water and flooding: reference is made to on-going discussions with Anglian Water in respect of connections to the public sewerage network for the Essex site which is fully supported.</p> <p>Anglian Water has previously provided a pre-planning report for a connection to the public sewerage network. It would be helpful if Anglian Water’s advice could be referenced in the Flood</p>	<p>The surface water drainage strategy has been updated to refer to the Utilities Statement (Document Reference 7.6). The Utilities Statement describes connection into the existing sewer and refers to the Anglian Water pre-planning report PPE-0097995.</p> <p>The Flood Risk Assessment has been updated to describe connection to the existing sewer and refers to the Anglian Water pre-planning report PPE-0097995.</p>

Consultee	PEIR Comment	Response
	Risk Assessment and associated foul and surface water drainage strategy.	
Anglian Water	Figure 17.8 of the PEIR refers to a 'proposed sewer' to connect to Tilbury Water Recycling Centre. As written, this appears to suggest a new public sewer is required to serve the Essex site. However, we have previously provided advice about a suitable connection point for foul flows to the existing sewerage network. It would be helpful if the application refers to the existing sewerage network managed by Anglian Water and associated connection point.	The Surface Water Drainage Strategy Appendix 17.2 has been updated to refer to the Utilities Statement (Document Reference 7.6). The Utilities Statement describes connection into the existing sewer and refers to the Anglian Water pre-planning report PPE-0097995.
Anglian Water	In relation to surface water our understanding is that a connection is not required to the public sewerage network for the Essex site. It would therefore if the proposed method of surface water management for the Essex site forms part of the overall surface water strategy.	The Surface Water Drainage Strategy Appendix 17.2 has been updated to refer to the Utilities Statement (Document Reference 7.6). The Utilities Statement describes connection into the existing sewer and refers to the Anglian Water pre-planning report PPE-0097995.
Anglian Water	<p><u>Works Plans – Essex site</u></p> <p>Plan 8: reference is made highway upgrade/capacity works (Work No. 21b). There is an existing foul sewer located within this area in the vicinity of the A1089. Similarly, there is also existing surface water sewers located within area identified for works to an existing surface water car park (Work No. 22).</p> <p>Plan 9: reference is made to upgrade works to the existing Asda roundabout located on the A1089 (Work No. 21a). There are existing foul sewers located within the area as shown on the plan provided which cross the existing roundabout.</p> <p>Therefore, we would welcome confirmation whether there is a</p>	At this stage, there are no proposed works to divert or relocate the existing mains in the Essex Project Site. If these mains will be impacted by the works, Anglian Water will be consulted to agree a design and sequencing of works, to mitigate any impacts to existing users. This will be completed under the S185 process for agreement.

Consultee	PEIR Comment	Response
	<p>requirement for any diversions or mitigation to existing foul and/or surface water sewers due to the proposed development. If this is the case, we welcome further discussions about the implications for our existing infrastructure prior to submission of the application to the Planning Inspectorate.</p>	
Thames Water	<p><u>Water Comments</u></p> <p>The proposed development is located within 15m of a strategic water main. Thames Water request that the following condition be added to any planning permission. No piling shall take place until a piling method statement (detailing the depth and type of piling to be undertaken and the methodology by which such piling will be carried out, including measures to prevent and minimise the potential for damage to subsurface water infrastructure, and the programme for the works) has been submitted to and approved in writing by the local planning authority in consultation with Thames Water. Any piling must be undertaken in accordance with the terms of the approved piling method statement. Reason: The proposed works will be in close proximity to underground water utility infrastructure. Piling has the potential to impact on local underground water utility infrastructure. Please read our guide 'working near our assets' to ensure your workings will be in line with the necessary processes you need to follow if you're considering working above or near our pipes or other structures.</p>	<p>Engagement with Thames Water is ongoing. Request for condition acknowledged.</p> <p>Noted.</p>

Consultee	PEIR Comment	Response
	<p>The proposed development is located within 5m of a strategic water main. Thames Water do NOT permit the building over or construction within 5m, of strategic water mains. Thames Water request that the following condition be added to any planning permission. No construction shall take place within 5m of the water main. Information detailing how the developer intends to divert the asset / align the development, so as to prevent the potential for damage to subsurface potable water infrastructure, must be submitted to and approved in writing by the local planning authority in consultation with Thames Water. Any construction must be undertaken in accordance with the terms of the approved information. Unrestricted access must be available at all times for the maintenance and repair of the asset during and after the construction works. Reason: The proposed works will be in close proximity to underground strategic water main, utility infrastructure. The works has the potential to impact on local underground water utility infrastructure. Please read our guide 'working near our assets' to ensure your workings will be in line with the necessary processes you need to follow if you're considering working above or near our pipes or other structures.</p>	<p>Engagement with Thames Water is ongoing. Request for condition acknowledged.</p>
Thames Water	<p>There are water mains crossing or close to your development. Thames Water do NOT permit the building over or construction within 3m of water mains. If you're planning significant works near our mains (within 3m) we'll need to check that your development doesn't reduce capacity, limit repair or maintenance activities during and after construction, or inhibit the services we provide in any other way. The applicant</p>	Noted

Consultee	PEIR Comment	Response
	<p>is advised to read our guide working near or diverting our pipes.</p> <p>The proposed development is located within 15m of our underground water assets and as such we would like the following informative attached to any approval granted. The proposed development is located within 15m of Thames Waters underground assets, as such the development could cause the assets to fail if appropriate measures are not taken. Please read our guide 'working near our assets' to ensure your workings are in line with the necessary processes you need to follow if you're considering working above or near our pipes or other structures.</p>	
Thames Water	<p><u>Supplementary Comments</u></p> <p>Water:</p> <p>Following initial investigations based on demand figures provided, Thames Water has identified a gap between the needs of this development and our existing water treatment infrastructure and supply network. Thames Water are in contact with the development team to discuss and agree a water strategy. This is still in its early stages and as such Thames Water request that the following condition be added to any planning permission. The development shall not be occupied until confirmation has been provided that either:- all water treatment and network upgrades required to accommodate the additional flows from the development have been completed; or - a infrastructure phasing plan has been agreed with Thames Water to allow some or all of the development to be occupied. Where an infrastructure phasing plan is agreed no occupation shall take place other than in</p>	Engagement with Thames Water is ongoing. Request for condition acknowledged.

Consultee	PEIR Comment	Response
	<p>accordance with the agreed infrastructure phasing plan. Reason - The development may lead to no water and treatment and network upgrade works are anticipated to be necessary to ensure that sufficient capacity is made available to accommodate additional demand anticipated from the new development. Any necessary reinforcement works will be necessary in order to avoid no water incidents. The developer can request information to support the discharge of this condition by visiting the Thames Water website.</p>	
Natural England	<p><u>Swanscombe Marine Conservation Zone</u></p> <p>2.41 It is noted that the proposal for a wastewater treatment facility has not been considered further on the basis that water discharged would meet any water quality criteria required for consent. However, Natural England advises that consideration should be given to habitat loss/disturbance as a result of scour caused by discharged water from the outfall into the MCZ. We would also recommend further information is provided on the details of any construction works required for this facility, including the outfall. All direct and indirect impacts must be assessed fully within the environmental statement.</p>	<p>The proposed wastewater treatment facility outfall will discharge significantly downstream of the MCZ.</p> <p>Outfalls (surface water and waste water) will be appropriately designed to avoid scour impacts. The impact of outfall construction on marine ecology is assessed within the Chapter 13 Marine Ecology and Biodiversity chapter.</p>
Natural England	<p>12.4 Section 20 (Discharge of Water) states in Section 20(6) states that:</p> <p>‘The undertaker must take such steps as are reasonably practicable to secure that any water discharged into a watercourse or public sewer or drain under the powers conferred by this article is as free as may be practicable from gravel, soil or other solid substance, oil or matter in suspension.’</p>	<p>Reference is made to ES Chapter 17 Water Resources and Flood Risk and the Surface Water Drainage Strategy (Appendix 17.2) for details of assessment of surface water drainage through the site, including proposals to capture and treat runoff prior to discharge.</p>

Consultee	PEIR Comment	Response
	<p>Given the sensitive environment within and surrounding the development footprint (including the Marine Conservation Zone and wetland habitats supporting species associated with internationally important nature conservation sites), measures to ensure that contaminated water does not impact these features must be secured.</p>	
MMO	<p>6.2 The MMO notes that the following issues (taken from the previous EIA scoping response) have yet to be addressed:</p> <ul style="list-style-type: none"> • 4.1.3 the MMO notes that there are some elements of the project that may or may not be taken forward to development, such as the wastewater treatment plant and Water Source Heat Pump (WSHP). Accordingly, there is little to no information on the timing and duration of construction work or the specific construction activities that will be required. The MMO would expect the ES to provide a more detailed construction methodology and schedule for works to be carried out below Mean High Water Springs (MHWS) once the final project design has been confirmed. 	<p>The impact of outfall construction on marine ecology is assessed within Chapter 13 Marine Ecology and Biodiversity. Construction methodologies have been considered within the Outline Construction Method Statement document reference 8.19.</p>
MMO	<p>The MMO notes the PEIR is largely restricted to relative terminology (e.g. paragraphs 17.152-17.153 say elevated sediment loads ‘could occur and have adverse effects’ and ‘have potential for large impacts on named receptors’) and the range of increase, existing levels, and the range that would be considered ‘large’ are not stated. These details will ultimately be required for detailed review of the environmental impact to ensure consistency in coastal process assessment.</p>	Noted.

Consultee	PEIR Comment	Response
MMO	<p>The MMO note paragraph 13.43 discusses the operation of a potential wastewater treatment works outfall. However there does not appear to be sufficient detail to understand whether an assessment of the potential impacts of an outfall on the surrounding sediment (scour from the structure and jet) would be required (i.e., if the outfall would impact 'intertidal habitats' or 'designated sites' receptors). For example, paragraphs 17.171 discusses outfalls under the heading 'increased sediment loads', but it is unclear where scour would be considered.</p>	<p>The impact of outfall construction on marine ecology is assessed within Chapter 13 Marine Ecology and Biodiversity. At this stage, the locations of exact outfalls is not known. However, it is acknowledged that appropriate scour protection would be likely and that appropriate measures to be in place to reduce impact on habitats. The details of these would need to be developed in the next stage of design.</p>
MMO	<p>Along with the details of assessment scales noted previously, for review of the final EIA the MMO would expect that details of the coastal process information collected would be given – e.g. paragraph 17.69 <i>Establishing the existing (baseline) hydrological regime at the two marshes is challenging. Review of historic maps, aerial photography and records from site visits are used to map out the location of the drains. Walkover surveys combined with CCTV survey will be undertaken to establish inflows to the marshes. Surface water discharge consents to the marshes are currently being retrieved from the EA's database</i>" - this detail is not presently given for all coastal process assessments.</p>	<p>A coastal Hydrodynamic and Sedimentation Assessment has been completed to provide further details. See Hydrodynamic and Sedimentation Assessment Appendix 17.4 and ES Chapter 17 Water Resources and Flood Risk.</p>
HS1	<p><u>2. Drainage design</u></p> <p>Condition: No water or effluent shall be to be discharged from the site or from the permanent works onto HS1 or its associated drainage system. Prior to the commencement of development details of the design of the drainage shall be submitted in writing and approved by the Local Planning Authority in consultation with HS1.</p>	<p>Engagement with HS1 is ongoing and review requirements will be incorporated through the DCO Protective Provisions.</p> <p>HS1 and other third-party surface water discharges through the site will be maintained as per existing or safely diverted to suit design proposals.</p>

Consultee	PEIR Comment	Response
	<p>Construction activity shall then be carried out in compliance with the approved details unless previously agreed in writing by the Local Planning Authority in consultation with HS1.</p> <p>Reason: To enable HS1 to satisfy themselves that there is no increased risk to HS1 arising from the development.</p>	<p>The provision of water and wastewater services to the HS1 tunnel will be maintained as described in the Utilities Statement Document Reference 7.6).</p>