



15 Cumulative Impacts

15.1 INTRODUCTION

15.1.1 This chapter assesses the potential for cumulative impacts to arise. Cumulative impacts comprise the combined effects of reasonably foreseeable human induced changes within a specific geographical area and over a certain period of time, and can be both direct and indirect. Assessment of the significance of cumulative impacts needs to be undertaken in the context of characteristics of the existing environment. This is to ensure that all of the developments:

- are mutually compatible;
- are consistent with guidance on sustainable development and associated good practice; and
- remain within the environmental capacity of the area and its environs.

15.1.2 The DCLG published consultation draft of *'Environmental Impact Assessment: A Guide to Good Practice and Procedures'* (June 2006) defined cumulative impacts as:

- Impact Interactions - The interaction and combination of environmental effects, and indirect effects of the Proposed Development affecting the same receptor either within the Site or in the local area (e.g. increased recreational access to and light spill into a woodland area); and
- In-Combination Interactions - The interaction and combination of environmental effects of the Proposed Development with committed projects and activities affecting the same receptor. Committed development is defined as development for which consent has been granted.

15.1.3 The impact interactions associated with the Proposed Development and the in-combination interactions associated with the committed Northbank East development are addressed in technical **chapters 6-14**. This chapter provides a summary of the in-combination interactions considered and provides a summary table of the impact interactions for each of the appropriate and sensitive receptors.

15.2 SCOPE AND APPROACH FOR CUMULATIVE EFFECTS ASSESSMENT

Scope, Approach and Assessment Methodology

15.2.1 There is no widely accepted methodology or best practice for assessing cumulative impacts although various guidance documents exist. The following approach has been adopted for the assessment of cumulative impacts, based on previous experience, the types of receptors being assessed, the nature of the Proposed Development under consideration and the information available to inform the assessment.

15.2.2 A formal Environmental Scoping Letter was issued to WMBC (October 2009) (**Appendix 2.2**). This document outlined the following approach to the assessment of cumulative impacts:

'As part of the EIA, all technical assessments will consider in-combination effects (at receptor level). They will also consider the only other truly committed development, Northbank East (which received planning consent in 2009). Other schemes are progressing towards planning submission (Woodside, Bidston Dock and Liverpool Waters); however, these schemes will not be considered at this stage as there is insignificant information on which to base a valid and robust assessment of cumulative impacts. As and when other schemes become committed, it may be considered necessary to further consider cumulative impacts through qualitative assessment (when sufficient information is available). This approach is the generally accepted procedure for EIA.'

15.2.3 As no comments on the above approach were received as part of the response received from WMBC in November 2009 (**Appendix 2.3**) and the further response from MEAS, also received in November 2009 (**Appendix 2.4**) it has been assumed that the above methodology is acceptable.

15.2.4 Cumulative impacts have been assessed in terms of impact interactions of the Proposed Development and the in-combination interaction of the Proposed Development and Northbank East. The methodologies are further detailed below.

Assessment of Potential Cumulative Effects arising from Impact Interactions

15.2.5 The assessment of impact interactions has been approached from the perspective of changes in baseline conditions at specific sensitive receptors, based on information in the technical ES chapters (**Chapters 6-14**). A matrix of impact interactions has been presented for the site preparation, earthworks and construction phase and the operational phase. Those receptors considered within the ES are clearly outlined along with their residual effects of negative significance. This enables a qualitative assessment of the overall significance of the interaction of effects to the receptor to be determined.

Assessment of Potential Cumulative Effects arising from the Proposed Development and Committed Schemes (i.e. In-Combination Interactions)

15.2.6 As outlined above, the only truly committed scheme is Northbank East which lies adjacent to the north of the Site. Northbank East is bound by Dock Road to the north, Tower Road and the eastern bascule bridge to the east, the dock (East Float) to the south and the Grain Warehouses (and surrounding land) to the west. A description of the proposed development that was provided with planning consent in 2009 is provided below:

'The proposed development includes the construction of five towers extending from four low-rise urban blocks. The proposed urban blocks have sections that range between four and eleven storeys in height, with the towers ranging between 20 and 40 storeys, generally increasing in height towards the east. The proposed scheme is mixed use and includes 1,672 residential units'.

15.2.7 The planning application boundary for Northbank East is illustrated in **Figure 15.1**.

15.2.8 The level of data available for the Northbank East has been considered sufficient, particularly as the Northbank East scheme was subjected to an EIA and both Northbank East and the Proposed Development have been considered as part of the wider Wirral Waters scheme which has been subject to significant strategy and appraisal work.

15.2.9 The following were the key documents relating to Northbank East which were used to inform the in-combination assessment.

- Environmental Statement for Northbank East (2009) and all associated appendices including:
 - Extended Phase 1 Habitat Survey (**Appendix 2.6**);
 - Wintering Bird Survey (**Appendix 2.7**);
 - Archaeological and Cultural Assessment;
 - Phase 1 Land Quality Assessment;
 - Flood Risk Assessment;
- Environmental Statement Addendum for Northbank East (2009); and
- Conservation Statement and Heritage Impact Assessment (2007).

15.2.10 The Environmental Statement (January 2009) for the Northbank East development states that it is anticipated that there will be a phased approach to the construction and operation of the development taking approximately 10 to 15 years to complete with two plots within the development becoming operational every two years with construction of plots in an easterly direction.

15.2.11 It is proposed to also have commenced construction of the Proposed Development with parts of the Site operational by 2015.

15.2.12 In-combination interactions have been considered throughout the ES, however some of the key considerations undertaken as part of the chapters is outlined below.

Traffic and Transportation, Air Quality, Dust and Odour and Noise and Vibration

15.2.13 The traffic data for the 'without development' and 'with development' scenarios for both 2015 and 2030 have included traffic flows associated with Northbank East and therefore have been assessed where appropriate.

Daylight, Sunlight and Overshadowing and Wind

15.2.14 The Northbank East development has been included within the 'with development' and 'without development' architects models and therefore has been assessed within wind, daylight and sunlight models. This has resulted in quantitative data for both the 'with the Proposed Development and Northbank East' and 'without the Proposed Development and Northbank East' scenarios.

Townscape and Visual

15.2.15 In order to illustrate the in-combination effects of the Proposed Development and Northbank East form a range of surrounding views, the photomontages which support **Chapter 11 – Townscape and Visual, (Figures 11.25 – 11.37)** illustrate the indicative East Float scheme proposals and the consented Northbank East scheme proposals. The in-combination effects are also described throughout the assessment.

12.1 ASSESSMENT OF POTENTIAL CUMULATIVE EFFECTS ARISING FROM IMPACT INTERACTIONS

15.2.16 **Table 15.1** comprises a summary matrix for the site preparation, earthworks and construction phase, showing impact interactions between the relevant environmental topics assessed following implementation of the recommended mitigation measures, set out in **chapters 6 to 14** of this ES. As outlined above, for the purposes of this assessment negligible or positive effects have not been considered. Therefore **Table 15.1** focuses on negative cumulative effects arising from impact interactions.

Table 15.1: Matrix of Impact Interactions – Site Preparation, Earthworks and Construction Phase

	Receptor			
Topic Area	Sensitive Properties within 200m	East Float Water Body	Hydraulic Tower and Grain Warehouses	Pedestrians and Cyclist in the local vicinity
Air Quality, Dust and Odour				
Construction traffic emissions	Minor to Negligible	Negligible	Minor to Negligible	Minor to Negligible
Dust generation	Minor to Negligible	Negligible	Negligible	Minor to Negligible
Noise and Vibration				
Construction noise	Minor to Major (dependant on location and receptor)	N/A	Minor to Major (dependant on location and receptor)	N/A
Construction vibration	Minor to Major (depends on methodologies & location of works)	N/A	Minor to Major (depends on vibration monitoring survey)	N/A
Townscape and Visual				
Townscape Character	Minor to Moderate	N/A	Minor to Moderate	Minor to Moderate
Water Resources and Flooding				
Risk of tidal flooding	Minor	Minor	Minor	Minor
Overall Interaction of Effects	Minor to Moderate Negative (based on Moderate noise and vibration impact)	Minor Negative to Negligible	Minor to Moderate Negative (dependant on noise and vibration receptor and vibration monitoring survey)	Minor Negative

Notes to Table

N/A – not applicable, no impact interaction anticipated

15.2.17 **Table 15.2** outlines the impact interactions between the relevant environmental topics assessed, once the Proposed Development is operational following implementation of the recommended mitigation measures set out in **chapters 6 to 14** of this ES. As outlined above, for the purposes of this assessment negligible or positive effects have not been considered. Therefore **Table 15.1** focuses on negative cumulative effects arising from impact interactions.

Table 15.2: Matrix of Impact Interactions – Operational Phase

Topic Area	Receptor			
	Sensitive Properties within 200m	East Float Water Body	Hydraulic Tower and Grain Warehouses	Pedestrians and Cyclist in the local vicinity
Air Quality, Dust and Odour				
Exhaust emissions of NO ₂ from development traffic	Minor to Negligible	N/A	Minor to Negligible	Minor to Negligible
Odour associated with extractions	Minor to Negligible	N/A	Minor to Negligible	Minor to Negligible
Noise and Vibration				
Traffic noise	Minor	N/A	Minor	Minor
Daylight, Sunlight and Overshadowing				
Daylight and sunlight	Minor to Negligible	Minor to Negligible	Minor to Negligible	N/A
Overshadowing	N/A	Minor to Negligible	N/A	Minor to Negligible
Overall Interaction of Effects	Minor Negative to Negligible	Minor Negative to Negligible	Minor Negative to Negligible	Minor Negative to Negligible

* N/A – Significant impacts will not occur at these receptors

15.3 ASSESSMENT OF POTENTIAL CUMULATIVE EFFECTS ARISING FROM THE PROPOSED DEVELOPMENT AND COMMITTED SCHEMES (I.E. IN-COMBINATION INTERACTIONS)

15.3.1 The cumulative impacts of the Proposed Development in conjunction with the development of Northbank East on each of the relevant topic areas are discussed below.


Transport

15.3.2 The transport network in the immediate vicinity of the Site is not anticipated to experience cumulative impacts. It is likely that the rail network and wider highway network of the M53 and Kingsway Tunnel will experience increased usage from major developments within Liverpool such as Liverpool Waters and other emerging city centre developments. At present there is insufficient information about such projects, which currently lie outside the formal planning process. Further cumulative work may be required as more information comes forward about such projects.

15.3.3 However, the traffic data for the 'without development' and 'with development' scenarios for both 2015 and 2030 have included traffic flows associated with Northbank East and therefore have been assessed within **Chapter 6 – Transport**.

Air Quality, Dust and Odour

15.3.4 It is probable that dust and PM₁₀ generated by construction activities will have a cumulative impact on surrounding sensitive receptors if inadequate mitigation measures are not employed. Dust may be deposited in the area immediately surrounding the source (up to 200 metres away) and therefore receptors likely to experience a cumulative impact of dust deposition are limited to the surrounding water bodies of Alfred Dock and East Float. However, the Environmental Statement (January 2009) for the Northbank East



recommends mitigation measures similar to those proposed for the Proposed Development; therefore it is anticipated that the cumulative impacts will be negligible.

15.3.5 In addition, it is likely that construction vehicles will use the same access routes, such as Dock Road, which will increase local pollutant concentrations in the short-medium term. It is considered that the combined cumulative impact on receptors adjacent to the construction access routes used by construction vehicles for both the Proposed Development and the Northbank East development will be of minor negative significance.

15.3.6 Once Northbank East becomes operational, traffic will be generated on the local road network, which will impact on local pollutant concentrations (particularly NO₂ and PM₁₀). The greatest impact will be on sensitive receptors located adjacent to those roads likely to experience a change in traffic volume or composition. As the construction route is not known, receptors along Dock Road, such as the properties at Grain Warehouse (Receptor 19) are likely to be affected. Traffic data for the Northbank East has been included in the above assessment and the impact therefore remains minor negative to negligible for NO₂ and negligible for PM₁₀ according to the assessment criteria as outline in **Chapter 7 – Air Quality, Dust and Odour**.

Noise and Vibration

15.3.7 The assessment of development generated traffic noise has included the combined affect of both the Proposed Development (including Hydraulic Tower development), and the consented Northbank East development and compared against a baseline scenario without any of these developments. In light of this it is considered that the assessment of road traffic noise effects on existing noise-sensitive receptors has already accounted for the cumulative effects associated with these committed / existing developments as presented in **Chapter 8 – Noise and Vibration**.

15.3.8 For noise and vibration it is appropriate to consider each different impact area separately, based on the assessment guidance and criteria specific to that impact. In each case the adopted criteria is not transferable to other individual impacts, or the assessment of cumulative impacts.

15.3.9 As specified in **Section 8.2 of Chapter 8 – Noise and Vibration**, there is no specific ‘all-encompassing’ legislation relating to noise emissions from a development such as this, and it is therefore necessary to draw upon a series of different British Standards, official planning guidance notes and other national guidance.

Daylight, Sunlight and Overshadowing

15.3.10 The consented Northbank East development has been included in the modelling associated with the above assessment and in presented in **Chapter 9 – Daylight, Sunlight and Overshadowing**. The Proposed Development will have an effect on the level of daylight and sunlight to these receptors, however, these are considered to be of negligible significance.

Wind

15.3.11 The consented Northbank East development has been included in the wind modelling as detailed in **Chapter 10 - Wind**. The results indicate that for incoming winds from the west north-west, the Proposed Development will help reduce wind speeds before reaching the Northbank East development, resulting in a positive impact. This is likely to be the case for south and south east wind directions although these will have to be tested at a later stage as the design of the building blocks develops.

Townscape and Visual

15.3.12 As part of the preparation of this assessment and in consideration of the likely effects, the consented Northbank East scheme layout and massing has been acknowledged and integrated into the specific impact descriptions for the purposes of considering relevant cumulative effects. The consented Northbank East scheme has also been included within the illustrative photomontages to aid the assessment process (please refer to **Chapter 11 – Townscape and Visual**).



Archaeology and Cultural Heritage

15.3.13 Archaeological resources are finite and irreplaceable, therefore any change to their condition directly or loss to other resources which may add towards either the innate value of known resources or the wider understanding requires consideration.

15.3.14 In general it is not possible to definitively judge what archaeological deposits may exist within specific sites within the study area without the level of investigation completed for the Proposed Development. However given the availability of archaeological and cultural heritage assessment which have been completed both for the wider Wirral Waters development and also the consented Northbank East development, it has been possible to assess the cumulative effects of East Float and Northbank East.

15.3.15 In both these cases full consideration has been given to the presence of archaeological remains and built heritage assets.

15.3.16 The proposals for Northbank East involve comparable impacts upon archaeological resources from similar time periods. However, there is limited known archaeological potential (prior to the construction of the docks) within either of these sites, which would be lost as part of East Float and Northbank East, particularly when compared to the historical value in the wider area beyond both Sites.

15.3.17 Under national, regional and local planning policy guidance full consideration will be given to the preservation or recording of archaeological deposits of overriding importance if appropriate. Based upon the above, the cumulative effect has been considered negligible based on the assumption that mitigation measures outlined above and within the Northbank East Environmental Statement (2009) will be followed.

15.3.18 It has been assumed that the mitigation measures detailed above which aim to reduce the significance of construction related effects will be further investigated and appropriately implemented across East Float and Northbank East and therefore, the cumulative effect has been considered negligible.

Drainage, Flooding and Water Resources

15.3.19 Northbank East experiences similar drainage, flooding and water resources impacts which will be managed in a similar manner to East Float and will put further strain on water resources in the area though it is considered that based on the evidence above, United Utilities will be able to cope with this. The proposed utilities infrastructure at Northbank East will require consideration alongside that at East Float to combine the drainage, sewerage and water supply systems at the two developments. Flooding management will be similar for both sites, and tidal flood protection measures installed will be beneficial to both sites.

15.3.20 The impacts on sensitive surface water receptors from physical contaminants will be allied with impacts from chemical contaminants which are discussed below.

Ground Conditions, Hydrogeology and Contamination

15.3.21 Whilst it is understood that potential contaminants may also exist within this Site and within its locality and the potential for interaction and combination of cumulative effects to human health, groundwater and the wider environment may be possible, the mitigation techniques will serve to reduce the potential cumulative effect. Similar mitigation measures have been recommended as part of the Northbank East EIA, thereby reducing the cumulative effect.

15.4 SUMMARY

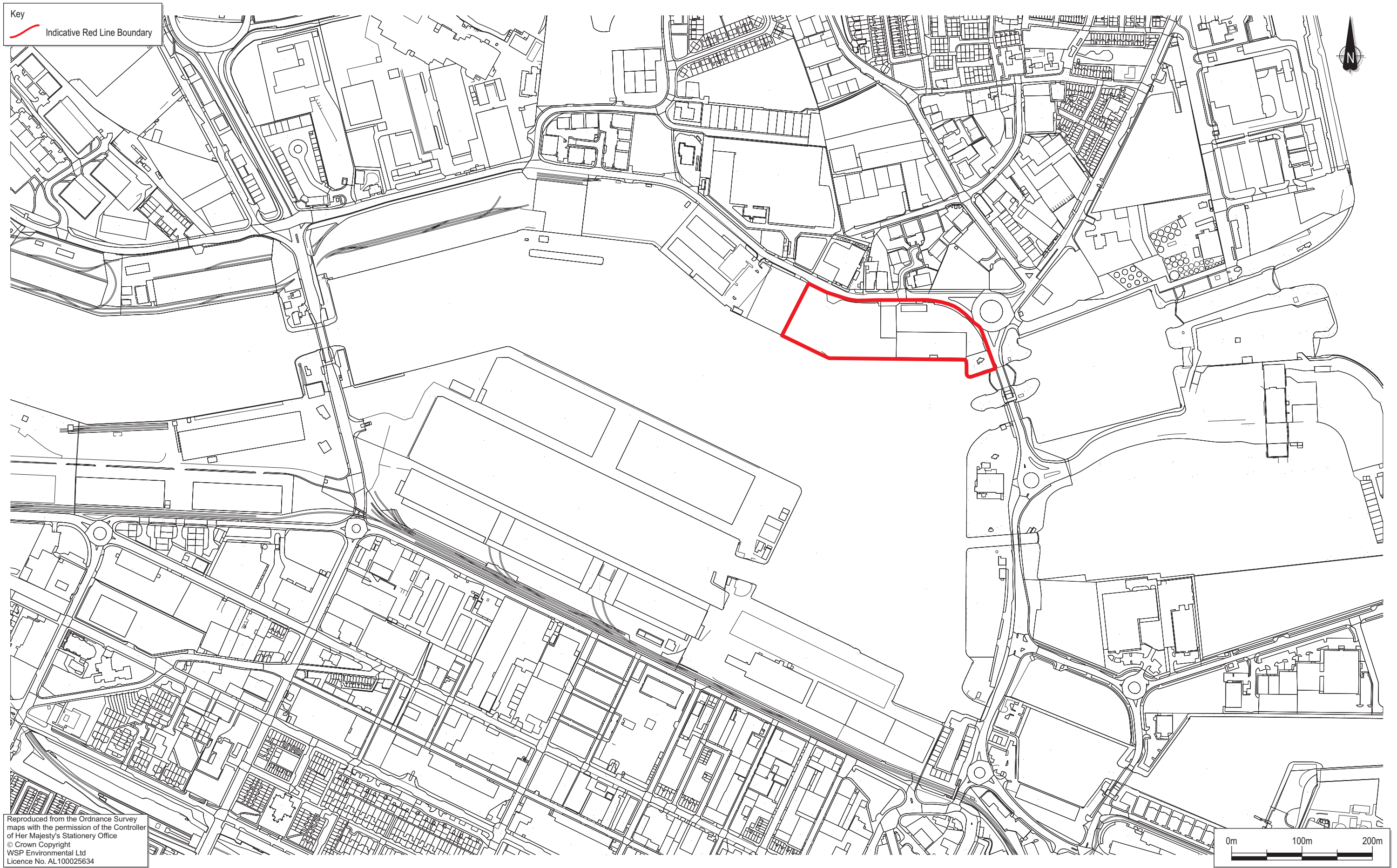
15.4.1 There are two types of cumulative effects, impact interactions which are multiple effects from the Proposed Development to a particular receptor (e.g. properties) and in-combination effects which is the combined effect of the Proposed Development and other committed developments.

15.4.2 In terms of impact interactions, many mitigation measures have been proposed as part of the EIA process, so many of the residual effects have been considered negligible assuming the implementation of mitigation measures. The key receptors which are likely to experience an in-combination effect were considered to be limited to sensitive properties within 200m, the East Float waterbody, the Hydraulic Tower and Grain Warehouses and pedestrian and cyclists in the local vicinity. There were other receptors but



these tended to be subjected to one type of residual effect or a combination, already considered within one of the chapters (6-14). At this outline stage of the planning process, the specific construction methodologies are unknown. This combined with a variant in the sensitivity of receptors to construction noise and vibration has resulted in a worst case cumulative impact of minor to moderate negative significance at sensitive properties within 200m and the Hydraulic Tower and Grain Warehouse during the site preparation, earthworks and construction phase. The other receptors were considered likely to experience a minor to negligible negative cumulative effect during the site preparation, earthworks and construction phase. During the operational phase no cumulative impact was anticipated to be greater than minor negative significance.

15.4.3 As a result of the consideration of the Proposed Development alongside the committed development of Northbank East (which received planning consent in 2009) within a range of strategic documents for the wider Wirral waters area, many of the chapters (6-14) above have assessed Northbank East as an integral part of the EIA process presented within this ES. Where this is not the case, similar mitigation measures have been recommended for both schemes which will minimise cumulative negative impacts.



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PROJECT: East Float, Wirral Waters
PROJECT No: 12261552-001
CLIENT: Peel Land and Property (Ports) Limited

DRAWN: GH
CHECKED: AR
APPROVED: AR
REVISION: A
DATE: December 2009

