G7.0 Residual Effects

G7.1 The STDC water management strategy shall be prepared in advance of construction. The residual impact assessment has been carried out on the assumption that the above mitigation principles detailed in the strategy and the CEMP shall be adopted through the construction and operation phases. Since the water management strategy and CEMP are to be considered as secondary mitigation, this secondary mitigation will change the effect of the development over and above that assessed in the embedded mitigation section.

G7.2 As previously noted, the water management and drainage strategy is yet to be completed but in light of the application of the appropriate mitigation following the mitigation hierarchy and the aspirations to establish blue-green networks and daylight culverts where possible, no significant residual impacts are predicted during construction, operation or decommissioning of the project. Residual effects to the water environment are summarised below.

During Construction

Surface watercourses - flows

G7.3 For the River Tees surface water body, which is of very high sensitivity, the minor magnitude of change which may be expected from the beneficial mitigation measures undertaken means that the level of effect would be moderate and, therefore, significantly beneficial. For other surface water receptors (the Holme Beck Culvert and channel and Knitting Wife culvert, Cleveland and Lackenby channels), a moderate magnitude of change would also be subject to a level of effect that would be minor, and not significant albeit positive.

Surface watercourses – water quality

G7.4 The water management strategy shall seek to incorporate mitigation measures to limit risk of contamination such as the placement of oil-water interceptors at outfalls from the site and locating construction vehicles and materials outwith the areas shown to be at flood risk. In addition surface water channels, associated with drainage and the blue green networks for which there is an aspiration, will be lined with a geomembrane that and harvested rainwater would need to be protected for re-use to avoid contaminated ground. There would therefore be a moderately beneficial impact which would result in a minor positive impact for the surface water bodies of the Holme Beck, Knitting wife culvert, Cleveland and Lackenby channels

Groundwater aquifer - flows

G7.5 Receptor sensitivity category for the superficial aquifer of very low, the magnitude of the effects will be minor, so the level of effect is therefore negligible, and not significant. Additional mitigation will not change the effect of the development over and above that assessed in the section above which includes consideration of the embedded mitigation.

Groundwater aquifer - water quality

G7.6 Excavations associated with the proposed development would be of a superficial nature, within the made ground and are not anticipated to extend downwards into the underlying tidal flat aquifer. Also, the use of site won and imported soil-based material used during construction would comply with the agreed re-use criteria, which would be set out in site construction documentation, such as the CEMP.

G7.7 During future piling activities associated with future site redevelopment, groundwater quality of the aquifer units may be affected where there is potential to generate viable pollutant linkage

between the potentially contaminated shallow soils (Made Ground) and groundwater. This may impact on the aquifer units below and any surface waters to which they are hydraulically connected. However, the work would be undertaken in accordance with EA guidance and a piling risk assessment for the site. Therefore, any effects on groundwater quality are likely to be of minor to moderate magnitude of change, which combined with a low sensitivity receptor gives an effect greater than minor or negligible, which is not significant.

G7.8 Given that fuels, oils and chemicals would be stored on-site during certain phrases of works (e.g. re-fuelling of machinery), spillages and leakages could occur. The potential spillages and leakages are likely to be localised. However, depending on location, they may present a risk to groundwater quality. This is likely to result a minor magnitude of change given the on-site management protocols that would be adopted under the CEMP. For the low sensitivity aquifer receptors, this would result in a negligible level of effect of pollution which would be deemed to be not significant.

During Operation

G7.9 Surface water - flows: - there would be a minor magnitude of change from the mitigation measures which would result in a moderate beneficial effect for the Tees receptor and a negligible beneficial effect for the other surface waterbodies (Holme Beck, Knitting wife, Cleveland and Lackenby Channel).

G7.10 Surface water - quality: - there would be a moderate magnitude of change from implementation of the mitigation measures and so a substantial beneficial effect for the Tees and negligible beneficial effect for the other surface waterbodies (Holme Beck, Knitting wife, Cleveland and Lackenby Channel).

G7.11 Groundwater aquifer - flows

G7.12 Receptor sensitivity category for the superficial aquifer of very low, the magnitude of the effects will be minor, so the level of effect is therefore negligible, and not significant. Additional mitigation will not change the effect of the development over and above that assessed in the section above which includes consideration of the embedded mitigation.

G7.13 Groundwater aquifer - water quality

G7.14 In the operation phase, the site will have been subject to the work undertaken in the remediation strategy. The drainage strategy should also not include for the provision of infiltration SuDS. Together this should reduce the overall risk from on-site contamination and its potential for mobilisation. This should result in a moderate magnitude of change from the implementation of the mitigation measures and result in minor beneficial effect