



LIGHTHOUSE GREEN FUELS PROJECT

Preliminary Environmental Information Report Chapter 10: Landscape and Visual

The Inspectorate Reference: **EN010150**

May 2024

Volume 1



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10 LANDSCAPE AND VISUAL

10.1 INTRODUCTION

- 10.1.1 This Chapter reports on the preliminary findings of the Landscape and Visual Impact Assessment (LVIA) for the Proposed Scheme and comprises:
- Relevant policy, legislation and guidance;
 - Assessment methodology including significance criteria and definition of Study Area;
 - Current and future baseline conditions;
 - Preliminary assessment of likely impacts and significant effects of the Proposed Scheme during the construction, operation and decommissioning phases;
 - Additional mitigation and enhancement measures and commentary relating to residual effects;
 - Consideration of the implications for climate change to influence the assessment; and
 - Next steps in relation to design evolution and development of mitigation measures as the basis for more detailed assessment which will be included in the Environmental Statement (ES).
- 10.1.2 This Chapter should be read in conjunction with the following documents:
- **Appendix 10A: Landscape and Visual Receptors (Volume 3);**
 - **Appendix 10B: LVIA Methodology (Volume 3);** and
 - **Figure 10-1 (Volume 2) to Figure 10-6 (Volume 2).**

MATTERS SCOPED OUT

- 10.1.3 The effects on Landscape Character Areas (LCA), other than the East Billingham to Teesmouth LCA, which are at the periphery or beyond the 2km Study Area have been scoped out of the assessment as advised in the EIA Scoping Opinion¹.

10.2 POLICY, LEGISLATION, AND GUIDANCE

- 10.2.1 A list of the international, national and local legislation, planning policy, strategies and guidance relevant to the LVIA for the Proposed Scheme are set out below with further details in **Appendix 4A: Policy, Legislation and Guidance (Volume 3)**.
- Policy:
 - Overarching National Policy Statement (NPS) for Energy EN-1 2023²;
 - National Planning Policy Guidance (NPPF) 2023³;
 - Stockton-on-Tees Local Plan 2019⁴;
 - Redcar and Cleveland Local Plan 2018⁵;
 - Tees Valley Green Infrastructure Strategy 2008⁶;
 - Middlesbrough Green and Blue Infrastructure Strategy 2021-2037⁷;

- Middlesbrough Housing Local Plan 2016⁸;
- Middlesbrough Core Strategy⁹;
- Middlesbrough Draft Local Plan¹⁰;
- Biodiversity Net Gain¹¹; and
- Stockton Landscape Capacity Study ¹².
- Legislation:
 - European Landscape Convention (ELC) 2000¹³;
 - Town and Country Planning Act 1990¹⁴;
 - Countryside and Rights of Way Act 2000¹⁵; and
 - Planning Act 2008¹⁶.
- Guidance:
 - Guideline for Landscape and Visual Impact Assessment, Third Edition (GLVIA 3) 2013¹⁷;
 - An approach to Landscape Character Assessment 2014¹⁸;
 - Visual Representation of Development Proposals: Landscape Institute Technical Guidance Note 06/19¹⁹;
 - Stockton on Tees Landscape Character Assessment 2011, WYG (2011)²⁰;
 - Stockton-on-Tees Local Design Guide (March 2023)²¹;
 - Middlesbrough Council Landscape and Heritage Assessment 2016, LUC (2016)²²;
 - Redcar and Cleveland Borough Council Landscape Character SPD, Redcar and Cleveland Borough Council (2010)²³;
 - The Landmark Partnership (2000) Hartlepool Landscape Assessment²⁴;
 - Natural England (2014) National Character Assessment 23 Tees Lowlands.²⁵;
 - Natural England (2023) National Character Areas²⁶; and
 - Stockton-on-Tees Borough Council, Part 5 Consultation Draft Landscaping and Trees²⁷.

10.3 SCOPING OPINION AND CONSULTATION

10.3.1 An EIA Scoping Opinion¹ was received by the Applicant from the Planning Inspectorate on 01 September 2023, including formal responses from Statutory Consultees. The responses from the Planning Inspectorate in relation to Landscape and Visual Amenity and how these requirements are to be addressed by the Applicant are set out in **Table 10-1** below. Since the Scoping Report²⁸ was prepared and submitted, the Application Site Boundary has increased to incorporate additional areas for construction activities and utility connections. In addition, the layout and building parameters of the Sustainable Aviation Fuel (SAF) Plant have been updated based on the latest design information. These changes have been considered in this assessment.

Table 10-1: Response to the EIA Scoping Opinion in relation to Landscape and Visual

ID	Applicant's Proposed Matter	Scoping Opinion Comments	Response
3.6.1	Changes to Landscape Character Areas (LCA) – construction and operation	<i>“The Applicant proposes to assess changes to East Billingham to Teesmouth LCA, however changes to other LCAs are proposed to be scoped out. It is stated that outside the East Billingham to Teesmouth LCA only very limited extents of the other LCAs fall within the 2km Study Area and visibility is limited by distance, intervening built form, and vegetation. Given that the Proposed Development is sited within an already industrialised landscape, and there is limited visibility from the LCAs falling on the periphery of the 2km Study Area, the Inspectorate agrees to scope these matters out of further assessment.”</i>	<p>The DCO Application Boundary has been increased since scoping to incorporate areas for construction activities and utility connections. These increases to the Application Boundary also increase the 2km Study Area further. However, these relate to minor changes for the purposes of construction and utilities only. Perception of these will not only be minor but also temporary.</p> <p>Based on professional judgment of similar projects, it is not likely that other LCAs will experience significant effects from the Proposed Scheme due to it not being located within the other LCAs themselves and the ability for inter-visibility between the Proposed Scheme and the LCA being limited. Any effects would be non-significant. For the purposes of proportionality, it is proposed that the other LCAs remain scoped out.</p> <p>In addition, Middlesbrough Council Landscape and Heritage Assessment 2016²² is limited in its scope to defined ‘Evaluation Parcels’ rather than a district-wide assessment. Only a limited area of two parcels, Parcel 1 Albert Park and Parcel 13 Tees Link, fall within the southern portion of the Study Area with very limited potential for significant effects to occur.</p>

ID	Applicant's Proposed Matter	Scoping Opinion Comments	Response
			For this reason, Middlesbrough Council Landscape and Heritage Assessment 2016 ²² is not considered any further.
3.6.2	Visual receptors beyond 2km	<i>"The Applicant proposes to scope out visual receptors beyond 2km. It is stated that the 2km Study Area determined through desktop study and site visit is deemed appropriate to the type of development. The Zone of Theoretical Visibility (ZTV) suggests theoretical visibility well beyond the 2km Study Area, and the site visits were undertaken during the summer months and therefore do not represent a worst case. In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not able to agree to scope these matters from the assessment at this stage. Accordingly, the ES should include an assessment of these matters or information demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect."</i>	The Applicant has consulted with the Senior Urban Design Officer at Stockton-on-Tees Borough Council (STBC) regarding the scope of the LVIA (Teams meeting 31 October 2023). It was agreed that significant effects were unlikely beyond 2km from the DCO Application Boundary owing to both the greater distance reducing sensitivity, a lack of receptors with visibility outside 2km and the existing industrial context. The extent of the Study Area is, therefore, appropriate and the scoping out of visual receptors beyond 2km has been agreed with STBC.
3.6.3	Receptors with negligible level effect at Year 1	<i>"The Scoping Report²⁸ states that receptors with a negligible level effect at Year 1 will not be assessed further on the basis that Year 1</i>	The purpose of scoping out further assessment following a negligible conclusion at Year 1 is to ensure a proportionate assessment and focus on

ID	Applicant's Proposed Matter	Scoping Opinion Comments	Response
		<p><i>represents the worst case scenario for operation. However, Paragraph 10.4.18 states that climatic changes could influence the future baseline in relation to species abundance and distribution. This therefore highlights the potential for the future baseline to be different from that assessed at Year 1. The potential changes in the future baseline mean that likely significant effects cannot be excluded and therefore the Inspectorate is not in a position to scope this matter out at this stage. Accordingly, the ES should include an assessment of these matters, or the evidence demonstrating the absence of a likely significant effect. The ES should also outline any mitigation measures in place to limit the likelihood of significant effects resulting from climatic changes, such as the selection of vegetation type."</i></p>	<p>significant effects only. It is acknowledged that the impacts of climate change may alter the future baseline scenario, however, the implications of climate change on Landscape character and Visual amenity will be considered separately to the main assessment as stated in Section 10.12 below. Further discussion on future baseline and the potential effects of climate change is included in Section 10.6.26 to 10.6.31.</p> <p>Given that effects of Climate Change will be specifically considered separately (including impacts on landscape and visual receptors), further consultation with the Senior Urban Design Officer at STBC will take place to agree whether the main assessment can consider the current baseline scenario only (as is generally accepted in EIA). We would therefore continue to propose scoping out further assessment following a negligible conclusion at Year 1 to ensure a proportionate assessment within the main Chapter, but this would be agreed following further consultation.</p> <p>Any mitigation measures proposed within the main LVIA Chapter would have consideration of climate change embedded, such as in species selection and type.</p>

ID	Applicant's Proposed Matter	Scoping Opinion Comments	Response
3.6.4	National Character Area (NCA)	<i>"Figure 10-3 shows that the site is located within the NCA 23 Tees Lowlands however it is not clear whether impacts on this area are proposed to be assessed; Table 10-3 only refers to LCAs. The ES should consider the potential for the Proposed Scheme to impact on the NCA and report any likely significant effects."</i>	The potential effects on NCA 23 Tees Lowlands has been considered in this PEIR and the findings are set out in Table 10-7 and Table 10-9 . This preliminary assessment concludes that effects are likely to be negligible and therefore not significant upon this NCA. Given the effects are not likely to be significant, it is not considered necessary to carry out further assessment at ES stage to ensure proportionality. However, this decision will be kept under review and should further design development result in the potential for significant effects on the NCA, the Applicant will scope it into the ES assessment.
3.6.5	Viewpoints and photomontages	<i>"Table 10-2 lists the preliminary viewpoint locations. Only eight viewpoint locations are suggested, with the furthest being 1470m from the site. Paragraph 10.8.5 states that annotated photo panoramas would be provided for all viewpoints, but photomontages would only be provided for up to three viewpoints. It is stated that the requirement for photomontages will be determined in consultation with the LPAs. The Applicant should ensure that an adequate number of viewpoints and photomontages are included within the assessment to ensure that the maximum</i>	<p>The Applicant has consulted with the Senior Urban Design Officer at STBC regarding the scope of the LVIA (Teams meeting 31 October 2023). The principal outcomes from this discussion were:</p> <ul style="list-style-type: none"> ■ Significant effects were unlikely beyond 2km from the DCO Application Boundary and that the proposed Study Area would be appropriate; ■ Agreement on the location of eight viewpoints that would be representative of the range of visual receptors likely to be affected; ■ Given the context, i.e., large scale industrial, long range views particularly from the south, the Proposed Scheme would not result in significant

ID	Applicant's Proposed Matter	Scoping Opinion Comments	Response
		<i>visual envelope is able to be fully understood. The Applicant should also consider the potential for long-distance views. The Inspectorate acknowledges the Applicant's intention to agree viewpoint and photomontage locations with relevant stakeholders. Evidence of any agreement reached should be provided as part of the application documentation."</i>	<p>effects and these views should be scoped out of the assessment;</p> <ul style="list-style-type: none"> ■ The use of three wireline visualisations illustrating the general scale and form of the emerging design proposals would be suitable at PEIR stage; and ■ Three photomontage locations were agreed at viewpoints 3, 4, and 5. At PEIR stage these are to be wirelines with more detailed photomontages (to TGN 06/19 Type 3¹) to illustrate the more developed design at ES stage. <p>Further consultation was carried out on the 20 February 2024 to re-confirm the viewpoint locations. An additional viewpoint was discussed given the increase to the Study Area since the Scoping Report²⁸. The village of Cowpen Bewley was discussed and it was advised that this be considered during the next site visit.</p>
3.6.6	Night-time assessment	<i>"The Proposed Development is proposed to operate on a 24-hour basis and Paragraph 10.7.3 states that 24-hour operational lighting has the potential to result in likely significant landscape and visual effects. The ES should assess night-time effects and consider the use of night-time photomontages."</i>	<p>Further consultation was carried out with STBC on the 20 February 2024 where night time assessment was discussed. It was agreed that, given the industrial context, together with the fact that STBC have not asked for night-time photography or photomontages on other projects in the area, they would not request them for this project. Night-time assessment is typically used for areas where light is</p>

ID	Applicant's Proposed Matter	Scoping Opinion Comments	Response
			<p>introduced to an area where it does not already exist, typically in rural areas or where there are notable Dark Skies areas where people are there to enjoy the night sky and stargazing, such as in National Parks and National Landscapes. In addition, there are limited receptors that would be using any of the surrounding PRow or recreational areas at night.</p> <p>Given the site context is both urban and industrial with existing lighting and flares, significant effects are considered highly unlikely. It is for these reasons, together with the need for proportionality, that night-time assessment, and the associated photography and photomontages have been scoped out of further assessment.</p>
3.6.7	Scale and massing	<p><i>“The Scoping Report²⁸ states that the exact heights and massing of the Proposed Development are not yet confirmed and so the proposed 2km Study Area and viewpoint locations may be subject to change. It is stated that “these changes would be agreed and confirmed as part of the EIA Scoping Opinion¹ prior to the commencement of the assessment”. It should be noted that there is no route to alter the Scoping Opinion¹ once it has been adopted other than requesting another Scoping Opinion¹. In the</i></p>	<p>The Applicant has consulted with the Senior Urban Design Officer at STBC regarding the scope of the LVIA (Teams meeting 31 October 2023). Agreement was reached in relation to the extent of the 2km Study Area and the location for eight viewpoints. The ZTV and preliminary visualisations have been based on the worst case scenario in terms of the scale of individual elements of the Proposed Scheme. Specifically, a height of 130m for the proposed Flare Stacks which is the maximum anticipated height for this structure. Having reached agreement with STBC, the Applicant is confident that the Study Area is</p>

ID	Applicant's Proposed Matter	Scoping Opinion Comments	Response
		<i>Inspectorate's view this is only likely to be worth pursuing in the event that the description of the Proposed Development changes materially from that described in the Scoping Report²⁸. The Applicant is advised to seek agreement with relevant consultation bodies as to the appropriate extent of the Study Area and location of viewpoints. If uncertainty remains as to the exact height and massing of the Proposed Development, the assessment should be based on the worst case scenario for landscape character and visual amenity impacts."</i>	appropriate and it will be using a worst case scenario to assess for the ES LVIA.
3.6.8	Photography	<i>"The Scoping Report²⁸ states that photography used to inform the assessment to date has been undertaken in May. It is stated that any further viewpoints will be taken during the winter months where required. The ES should assess a worst case scenario and therefore winter photography should be used, or justification should be provided as to why the use of photography from the summer season is appropriate."</i>	Winter photography will be undertaken and used in viewpoint figures to illustrate a worst case scenario in the assessment of landscape and visual effects. The photography has been undertaken during the winter, in March 2024 and will be included as part of the ES LVIA.

ID	Applicant's Proposed Matter	Scoping Opinion Comments	Response
Natural England, Appendix A (Page 2 of Natural England's Response)	Environmental aspects likely to be affected.	<p><i>"Natural England is confident that the general principles (set out below) will be addressed through the ES.</i></p> <p><i>iv. Natural England does not hold local information on local sites, local landscape character, priority habitats and species or protected species. Local environmental data should be obtained from the appropriate local bodies. This may include the local environmental records centre, the local wildlife trust, local geo-conservation group or other recording society</i></p> <p><i>vii. A description of the aspects of the environment likely to be significantly affected by the development including biodiversity (for example fauna and flora), land, including land take, soil, water, air, climate (for example greenhouse gas emissions, impacts relevant to adaptation, cultural heritage and landscape and the interrelationship between the above factors."</i></p>	<p>The baseline study included data from STBC and gov.uk for opensource data.</p> <p>Landscape and visual aspects will be considered in the ES. Relevant interrelationships with other disciplines will be investigated and reported in the LVIA as well as during design development and mitigation development.</p>

10.3.2 The responses from relevant consultees in relation to Landscape and Visual Amenity and how these requirements are to be addressed by the Applicant are set out in **Table 10-2** below.

Table 10-2: Consultation Summary

Date and Method of Consultation	Consultee	Summary of Key Topics Discussed and Key Outcomes
31 October 2023. Teams meeting with STBC Senior Urban Design Officer.	STBC	<p>The Applicant has consulted with the Senior Urban Design Officer at STBC regarding the scope of the LVIA (Teams meeting 31 October 2023). Agreement was reached in relation to the extent of the 2km Study Area, the proposed viewpoints (including scoping out of longer distance views), and general scope of the LVIA. It was agreed that a further wireline would be provided at ES Stage at the Port Clarence residential area.</p> <p>Cumulative assessment was also discussed, and further detailed consultation will be carried out at the ES stage to determine those developments to include.</p>
20 February 2024. Teams meeting with STBC Senior Urban Design Officer.	STBC	<p>The Applicant carried out further consultation with the Senior Urban Design Officer at STBC regarding the scope of the LVIA (Teams meeting 20 February 2024). The need for night-time assessment was discussed. It was agreed that, given the industrial context, together with the fact that STBC have not asked for night-time photography or photomontages on other projects in the area, they would not request them for this Proposed Scheme.</p> <p>The Officer requested an additional visual receptor at the village of Cowpen Bewley be considered within the ES. It was agreed that this will be considered during the winter site visit and baseline photography captured during that visit. Further consultation will take place following submission of this PEIR to determine the appropriateness for inclusion of this additional viewpoint within the ES once an understanding of likelihood for significant effects has been determined.</p>

10.4 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

ASSESSMENT SCENARIOS

- 10.4.1 The effects of the Proposed Scheme on receptors vary over time due to daily changes in light level, seasonal variation and over the longer term the maturing of essential mitigation planting. The following scenarios are assessed:
- Construction stage - Day: During construction, assuming a maximum perceived change situation during the 3 years duration, commencing in Q4 2025 and ending in Q3 2028.
 - Operation Winter (Year 1): A Winter's day in the year that the Proposed Scheme would be fully operational (i.e., with new planting in place but before any it has become established such as to become visually effective at screening or filtering or offering visual amenity benefits).
 - Operation Summer (Year 15): A Summer's day in the fifteenth year after opening (i.e., when the planted essential mitigation measures can be assumed to be substantially effective). This is usually a reflection of the near fully mitigated scenario under normal conditions.
 - Decommissioning stage.
- 10.4.2 Scenarios will be considered from locations that are publicly accessible or occupied by residents.

POTENTIAL SIGNIFICANT EFFECTS

Construction

- 10.4.3 The following impacts are considered to potentially give rise to temporary significant effects during construction of the Proposed Scheme and have therefore been considered:
- Changes to landscape character within the Application Site and Study Area due to construction activities and associated plant; and
 - Changes to the visual amenity of surrounding sensitive receptors due to construction activities and associated plant.
- 10.4.4 Specific construction activities and features which may generate a landscape and visual amenity effect include:
- Early works as described in **Chapter 2: Site and Proposed Scheme Description (Volume 1)**;
 - Construction activity including vehicular movements, compounds, storing of waste materials within the SAF Plant Site and other areas of the site such as Clarence Wharf;
 - The presence of tower cranes (of up to a maximum height of 145m) on the skyline during construction of taller elements of the SAF Plant; and
 - Temporary construction compounds (including welfare facilities). The location of these will be confirmed within the Works Areas and assessed in the ES at

submission. Proposed locations considered in this PEIR assessment are presented on the Site Layout Plan (**Figure 1-2 (Volume 2)**).

Operation

Year 1 Completion

- 10.4.5 The following impacts are considered likely to give rise to permanent significant effects during operation and therefore have been considered (or will be considered at ES stage):
- Changes to landscape elements and character within the Application Site and Study Area due to new built form, use associated with new infrastructure and landscape enhancements; and
 - Changes to visual amenity of surrounding sensitive receptors due to new built form and landscape enhancements.
- 10.4.6 Specific operational stage activities and features, which may generate a landscape and visual amenity effect at year 1 include:
- Tall structures, including flare stacks up to a maximum height of 130m with associated plumes.
 - Large scale industrial buildings, potential elevation of section of conveying corridors, structures supporting elevated conveying equipment, and silos associated with the SAF Plant.
 - A range of other associated development including administration buildings, kiosks and welfare facilities, boundary treatments, security infrastructure, temporary and permanent compound areas, hard and soft landscaping, drainage, cables, pipelines, plant and equipment will also be required. These are included within the stated design envelope.
 - 24 hour working.
 - Offsite parking facilities.
- 10.4.7 The introduction of these elements are likely to give rise to the following significant landscape and visual effects:
- Direct loss or alteration to landscape features including vegetation, drainage features and landform;
 - Introduction of permanent built development and associated infrastructure;
 - Creation of new hard and soft landscape elements on Site (not considered as part of this PEIR but will be included within the ES);
 - Increase in vegetation cover following mitigation planting (not considered as part of this PEIR but will be included within the ES); and
 - Enhancement and protection of existing planting on Site (not considered as part of this PEIR but will be included within the ES).

Operation Year 15

- 10.4.8 This preliminary assessment does not consider the effects of soft landscape mitigation planting maturing at Year 15 as mitigation measures have yet to be agreed. Effects will

therefore remain as per year 1 at this stage but will be detailed at Year 15 at the ES stage.

Decommissioning

10.4.9 Elements of the Proposed Scheme likely to give rise to landscape and visual effects during the decommissioning phase include:

- Demolition of most/all structures; and
- Removal of materials offsite by road, rail or marine infrastructure.

SENSITIVE RECEPTORS

10.4.10 Following preliminary desktop, site analysis, and visual site survey, the likely sensitive landscape and visual receptors are set out in **Appendix 10A: Landscape and Visual Receptors (Volume 3)** and summarised below:

Landscape

- National Character Area (NCA) 23 Tees Lowlands; and
- East Billingham to Teesmouth Landscape Character Area (LCA).

Visual

10.4.11 Residential receptors:

- At Port Clarence, approximately 90m north of the Application Site in the vicinity of the Heavy Haul Road.

10.4.12 Recreational receptors include:

- Users of long distance footpaths and public rights of way and the National Cycleway Route that pass through the Study Area. These include users of:
 - The European Long Distance Path E2 Scotland and England as they pass through the Study Area;
 - The King Charles III England Coast Path as they pass through the Study Area;
 - The Teesdale Way National Trail as they pass through the Study Area;
 - The Tees Link National Trail as they pass through the Study Area;
 - The Clough Walk long distance footpath as they pass through the Study Area; and
 - The National Cycleways Network Routes NCN1 and NCN65 as they pass through the Study Area.
- Other recreational receptors include:
 - At RSPB Saltholme Reserve;
 - At the Tees Transporter Bridge;
 - At the Riverside Stadium;
 - At the River Tees Viewpoint; and

- At Teesmouth National Nature Reserve.

10.4.13 Transport receptors:

- People travelling on the A178 Seaton Carew Road.

BASELINE DATA COLLECTION

10.4.14 To establish the existing landscape and visual baseline, a combination of desktop study and visual survey of the Application Site and surrounding Study Area has been undertaken and further refined since scoping.

Desktop Study

10.4.15 To inform the desk study, baseline information has been collated from the following documents and data sources:

- Magic.gov.uk;
- Ordnance survey data;
- Google Earth;
- Stockton-on-Tees Local Plan 20194;
- Stockton-on-Tees Landscape Character Assessment 201120;
- Middlesbrough Core Strategy adopted Feb 20089;
- Middlesbrough Local Development Framework 201610;
- Middlesbrough Council Landscape and Heritage Assessment 201622;
- Redcar and Cleveland Borough Council Landscape Character SPD 201023;
- Hartlepool Landscape Assessment 200024; and
- National Landscape Character Area (NCA) 23 Tees Lowlands25.

10.4.16 This process to determine the existing landscape and visual baseline has been further informed by a preliminary Zone of Theoretical Visibility (ZTV). **Figure 10-2 (Volume 2)** shows this preliminary ZTV.

10.4.17 Preliminary viewpoint locations were selected on the basis of the desk study and informed by ZTV analysis and site visit. The selected viewpoints represent the range of visual receptors most likely to be affected by the Proposed Scheme and provide views from a range of geographical orientations.

On Site Appraisal and Viewpoint Photography

10.4.18 An initial visit was carried out on 18 May 2023 to undertake a visual appraisal of the Site and wider landscape and visual Study Area noting key elements, characteristics and perceptual qualities. The site visit also confirmed that the initial viewpoint selection was appropriate and for preliminary viewpoint photography to be captured. After review of the Study Area extension and further consultation with STBC, a winter site visit was carried out on 4-5 March 2024 and winter viewpoint photography was taken at each viewpoint, including photographs from an additional viewpoint as requested by STBC. Additional characteristics, key elements and perceptual quality survey notes were gathered at each viewpoint. This information will be available at the ES stage.

10.4.19 The proposed viewpoints and receptors represented are listed in **Table 10-3** below and are illustrated on **Figure 10-2 (Volume 2)**.

Table 10-3: Preliminary Viewpoint Locations

Viewpoint Ref	Viewpoint Name	Receptor Type	Approximate distance to the Site	Grid Ref
VP1	Tees Transporter Trail	Recreational	20m	NZ 50216, 21380
VP2	Seaton Carew Road	Recreational / transport users	100m	NZ 50831, 22729
VP3	RSPB Saltholme Reserve	Recreational	625m	NZ 50357, 23009
VP4	Port Clarence Greenspace	Residential	90m	NZ 49937, 21718
VP5	Transporter Bridge	Recreational	140m	NZ 49960, 21216
VP6	Riverside Stadium	Recreational	450m	NZ 50649, 20709
VP7	Tees Viewpoint	Recreational	870m	NZ 52141, 21105
VP8	Teesmouth National Nature Reserve	Recreational	1470m	NZ 50775, 25102

10.4.20 All photographs and visualisations will be produced in agreement with STBC and will be in accordance with the Landscape Institute Technical Guidance Note (TGN) 06/19 (2019); 'Visual Representation of Development Proposals'¹⁹. Annotated photo-panoramas (to TGN 06/19 Type 1) of the baseline orientated towards the Proposed Scheme location will be produced for all viewpoints, and photomontages of the Proposed Scheme (to TGN 06/19 Type 3) will be produced for viewpoints 3, 4 and 5.

METHODOLOGY OVERVIEW

Impact assessment methodology

- 10.4.21 The methodology for this LVIA has been produced in accordance with best practice by suitably qualified Landscape Architects that are Chartered Members of the Landscape Institute (CMLI).
- 10.4.22 The assessment considers two distinct but closely related areas: landscape character and visual amenity.
- The landscape assessment considers the effects of a proposed development on landscape character and landscape as a resource; and
 - The visual assessment considers the views that are available to people who may be affected by a proposed development and their perception and responses to changes in these views.
- 10.4.23 The full LVIA methodology is set out in **Appendix 10B: Landscape and Visual Methodology (Volume 3)**.

Significance criteria

- 10.4.24 A summary of the approach to determining the significance of effect on landscape and visual receptors is provided below. Full significance criteria are set out in **Appendix 10B: LVIA Methodology (Volume 3)**.

Determining sensitivity

- 10.4.25 Sensitivity is determined by combining value and susceptibility. The figures reproduced below as **Figure 10-7** and **Figure 10-8** (and **Figures 1-2** and **1-3** of **Appendix 10B Landscape and Visual Methodology (Volume 3)**) illustrate how value and susceptibility can be combined for landscape and visual receptors respectively. When determining overall sensitivity, it should be noted that the levels are indicative and fall on a sliding scale from high to negligible and professional judgement is always used to determine the overall level of sensitivity.

Figure 10-7: Level of Landscape Sensitivity

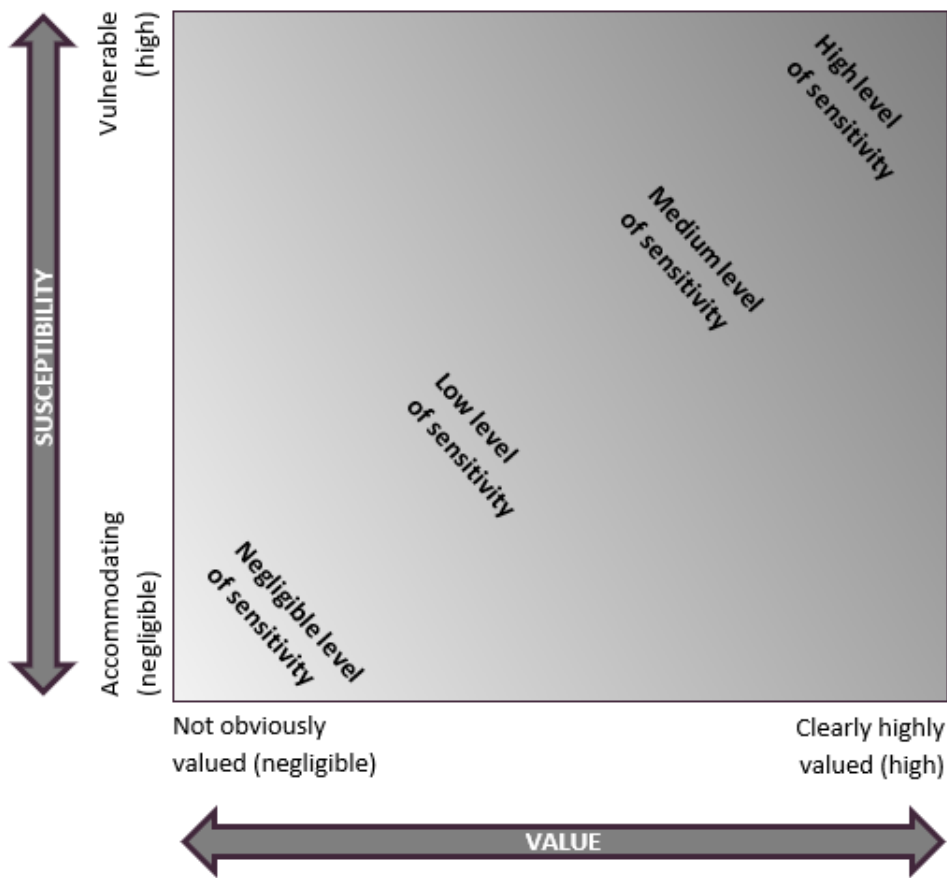
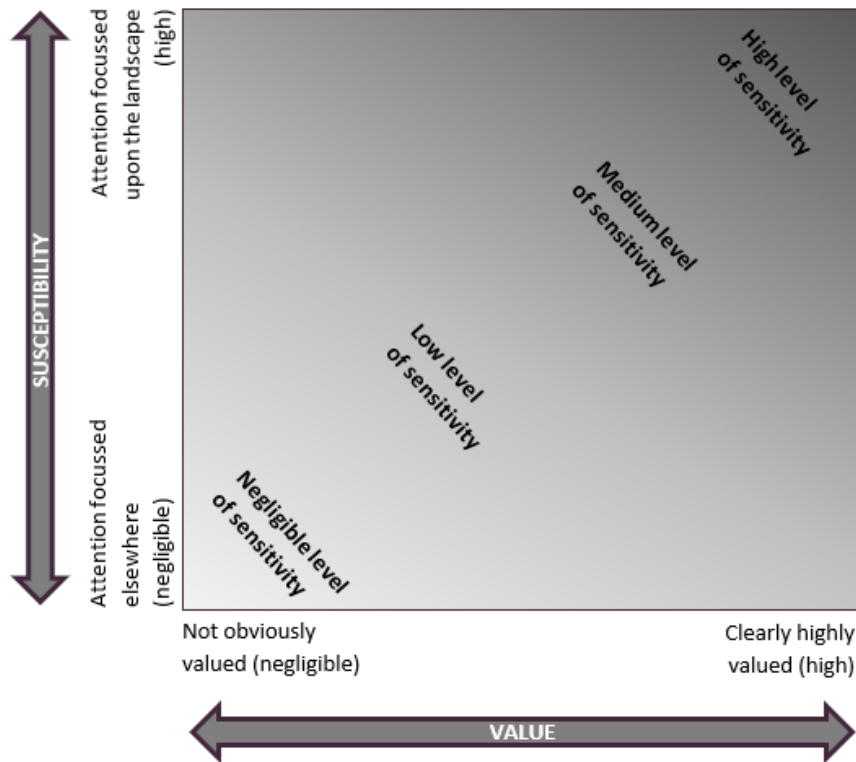


Figure 10-8: Level of Visual Sensitivity



Determining magnitude of change

10.4.26 Magnitude of change is determined by combining factors including:

- The size, scale, and nature of change in relation to the context.
- The geographical extent of the area influenced.
- Its duration and reversibility.

10.4.27 As illustrated in **Figure 10-9** and **Figure 10-10** below, there is a two-step process for determining magnitude of change. Step 1 involves considering size and scale together with the geographical extent.

10.4.28 Step 2 involves taking the preliminary result from Step 1 and considering this alongside the duration and reversibility which can either increase or decrease the rating accordingly.

Figure 10-9: Magnitude of change: Step 1

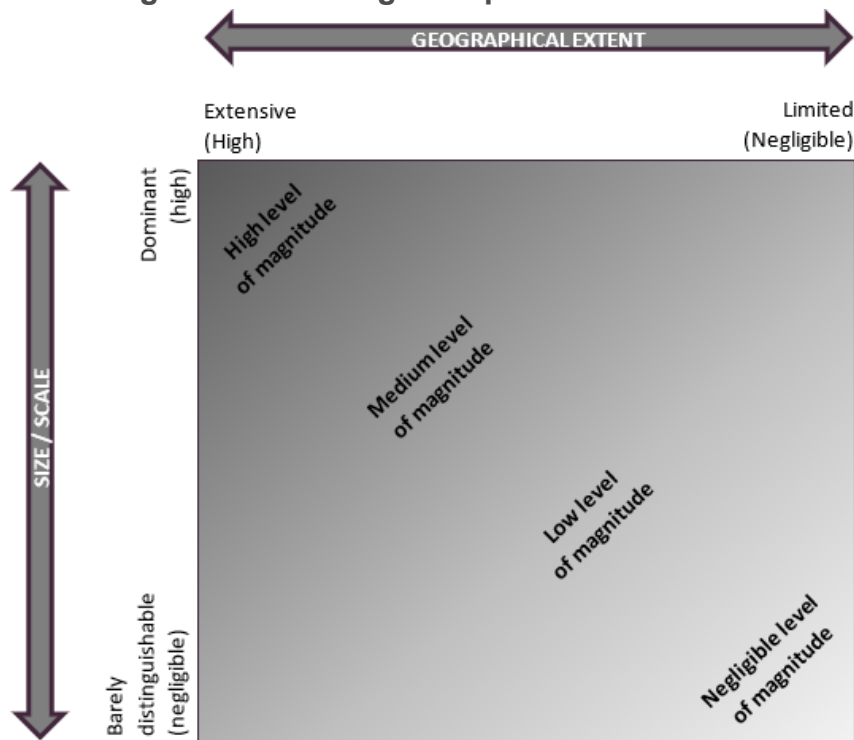
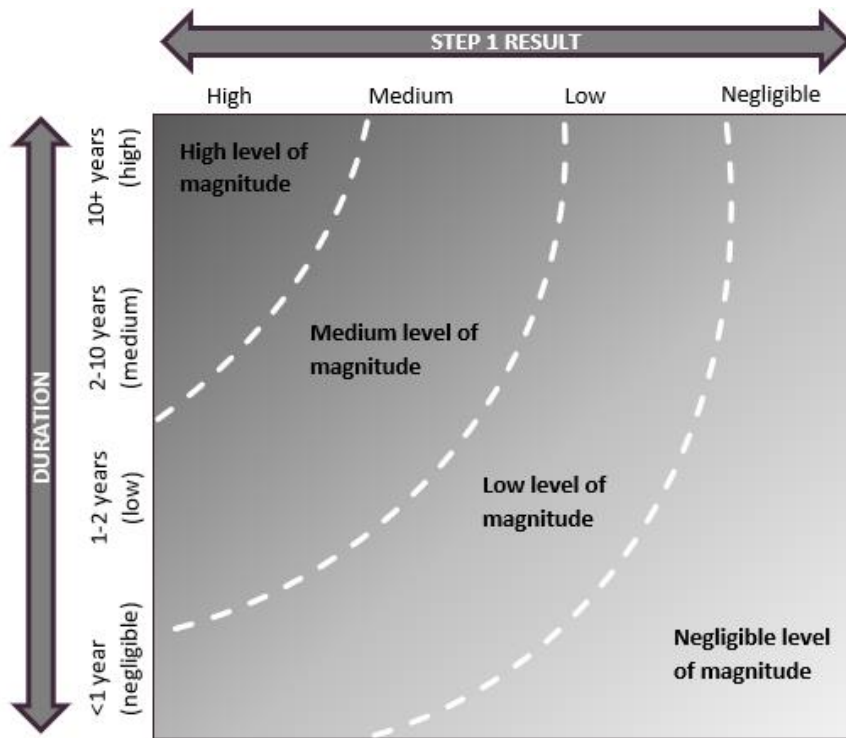


Figure 10-10: Magnitude of change: Step 2



Level of effect and significance

10.4.29 Combining the stated measures of magnitude and sensitivity indicates the relative importance of different effects. This, combined with professional judgement, allows for the evaluation of effects and to determine their significance. **Table 10-4** provides general guidance on the inter-relationship between magnitude of change and sensitivity of receptor. However, this matrix is used as a framework and guide for consistency, not as a prescriptive formula.

10.4.30 For the purposes of this EIA, levels of effect stated in bold are considered to be significant effects.

Table 10-4: Significance matrix

		Magnitude			
		High	Medium	Low	Negligible
Sensitivity	High	Major	Major or Moderate	Moderate	Minor or Negligible
	Medium	Major or Moderate	Moderate	Moderate or Minor	Negligible
	Low	Moderate	Moderate or Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

10.4.31 For the purposes of proportionality and to ensure the effects that are significant are the key focus of the assessment within the ES, any landscape or visual receptors assigned a Negligible level of sensitivity will not be further considered as part of the assessment at ES stage on the basis that significant effects are highly unlikely.

10.4.32 Similarly, at ES stage, any receptors assigned an overall Negligible level of effect at year 1 will not be further considered or assessed in year 15 on the basis that effects are highly unlikely to increase to a level of significance at year 15 given year 1 is considered to present the worst case scenario at Operation. These will be considered as scoped out. This will allow a focussed and proportionate assessment considering only those receptors with the potential to be significantly affected. This PEIR stage assessment will remain within the relevant appendices for reference and completeness.

10.5 STUDY AREA

- 10.5.1 GLVIA 3¹⁷ clarifies how Study Areas should be determined on a project specific basis. Paragraph 5.2 of GLVIA 3 states that the Study Area extent should be:

“... based on the extent of Landscape Character Areas likely to be significantly affected either directly or indirectly” or “on the extent of the area from which the development is potentially visible, defined as the Zone of Theoretical Visibility, or a combination of the two.”

- 10.5.2 For the purposes of this assessment, the preliminary Study Area for assessing potentially significant landscape and visual effects has been defined as a 2km radius from the Application Site (being the area of the Proposed Scheme) as shown on **Figure 10-1 (Volume 2)**. This is based on professional judgement which includes an initial analysis of anticipated scale and likely geographical influence of the Proposed Scheme, as defined in **Chapter 2: Site and Proposed Scheme Description (Volume 1)** and a preliminary ZTV shown in **Figure 10-2 (Volume 2)**.
- 10.5.3 This preliminary Study Area has been agreed with STBC. Should any further changes to the Application Site Boundary take place, the final agreed Study Area and a record of the consultation feedback will be reported in the ES.

10.6 BASELINE CONDITIONS AND FUTURE BASELINE

- 10.6.1 The baseline for landscape elements, character and visual amenity informed by desk study, onsite observations, and review of relevant characterisation studies, are set out below.

LANDSCAPE

The Application Site

- 10.6.2 The Application Site largely comprises existing and disused industrial development north of the River Tees, connected with and including a small area to the east of the River Tees. Existing infrastructure and services include large industrial structures, a rail link and wharfs. These are shown on **Figure 1-2 (Volume 2)** and described in full in **Chapter 2: Site and Proposed Scheme Description (Volume 1)**. Several straight roads provide access through the Site, broadly running east to west, and a rail link follows part of the western boundary.
- 10.6.3 The landform is broadly flat with limited vegetation, combining to create expansive views dominated by vertical elements including electricity pylons, poles and stacks, both within the Site and in the wider area.
- 10.6.4 Pockets of vegetation include areas of rough grassland, a small number of scattered trees and ponds of varying size extending from the RSPB Saltholme Reserve to the west of the Site. The presence of saltmarsh has been confirmed within the Application Site but the extent and characterising influence of this vegetation type is relatively limited.

Site Fabric

- 10.6.5 The Application Site is predominantly brownfield land comprising a mix of remnant industrial components including the TV1/TV2 facilities (the partial demolition of these facilities is discussed in **Chapter 2: Site and Proposed Scheme Description (Volume 1)**) which include a mix of large scale industrial buildings/structures, hard surfacing and associated access roads. Elsewhere there are a mix of buildings/structures and a railway line with associated infrastructure. Vegetation within the Site area is predominantly 'neutral grassland' which commonly occurs in areas where active management through cutting or grazing no longer occurs. There are some higher value landscape elements present, including areas of calcareous grassland, open mosaic habitat on previously developed land, saltmarsh and reedbeds associated with a pond.

Site Character

- 10.6.6 Landscape character within the Application Site area is heavily influenced by the historic and current industrial land use and immediate context. Some views of the Cleveland and Eston Hills to the south and of the wetland landscapes to the west are available.

Landscape Context

- 10.6.7 Overall, the landscape context of the Proposed Scheme is strongly influenced by the presence of urban development and heavy industry, much on reclaimed land, along the banks of the River Tees north of Middlesbrough and east of Billingham. Major industrial installations, including an oil refinery, oil storage and a chemical works, form a dramatic skyline with many vertical elements, juxtaposed with expansive wetlands, mudflats, sand dunes and salt marshes. The surrounding landform has been shaped by landfill, resulting in a number of artificial mounds in the otherwise flat estuary landscape.
- 10.6.8 Designations indicative of ecological value within the Study Area include: the Teesmouth and Cleveland Coast Special Protection Area (SPA) Ramsar Site, Teesmouth National Nature Reserve, Teesmouth and Cleveland Coast SSSIs, Local Nature Reserves and Local Wildlife Sites, as shown on **Figure 2-2 (Volume 2)**. Arable farmland to the north-west is open and flat. It tends to be enclosed by fences, marked with occasional small hedgerow trees, which contrast with high security fencing typically used in the industrial area to the south. Minimal trees and hedgerows mean the landscape is visually expansive, and vertical urban features such as stacks and electricity pylons appear prominent. Historic features within the Study Area include Middlesbrough Historic Quarter Conservation Area and scattered listed buildings, most notably the Grade II* listed Transporter Bridge and the Grade 2 listed Haverton Hill and Port Clarence War Memorial (**Appendix 3B: Cultural Heritage Technical Note (Volume 3)** sets these out in more detail). To the south of the River Tees, the northern edge of Middlesbrough comprises urban elements including industrial buildings, a football stadium, edge of town retail parks, power lines, roads and railways. The principal rail and road network broadly follows the meandering River Tees south of the river, with a strong grid pattern in residential areas in Middlesbrough. To the north, the transport network is sparser.
- 10.6.9 There are no National Parks or National Landscapes within the Site or Study Area. The nearest protected landscape is the North York Moors National Park approximately

9.1km south-east of the Site. Albert Park, a Grade II Registered Park and Garden is located on the southern boundary of the Study Area, within a densely built-up residential area. There are several conservation areas within the Study Area, including Middlesbrough Historic Quarter south of the Transporter Bridge, Cowpen Bewley north-west of the Proposed Scheme, and Albert Park and Linthorpe Road, again on the southern boundary of the Study Area.

NATIONAL LANDSCAPE CHARACTER

NCA 23 Tees Lowlands

- 10.6.10 Natural England's National Character Areas represent areas of distinct and recognisable character at the national scale for use as a framework for decision-making and planning for future change²⁶. As shown on **Figure 10-3 (Volume 2)** the Site and Study Area is entirely within Natural England's National Landscape Character Area 23 (NCA 23): Tees Lowlands²⁵.
- 10.6.11 The LVIA will consider the relevant key characteristics of the landscape character of the Study Area as identified under Natural England's character profile for Tees Lowlands. The Key Characteristics are set out below, with the most relevant highlighted in **bold**:
- "A broad, low-lying and open plain of predominantly arable agricultural land, with low woodland cover and large fields, defined by wide views to distant hills;
 - **A large area of urban and industrial development around the Tees Estuary, most of which is on reclaimed land, contrasts with the quieter rural areas to the south and west;**
 - **Major industrial installations around Teesmouth form a dramatic skyline, but are juxtaposed with expansive mudflats, sand dunes and salt marshes which are nationally and internationally designated for their assemblage of waterfowl;**
 - Slow-moving rivers Tees and Leven meander through the landscape with steep, well-wooded banks;
 - A distinctive area of low-lying farmland with remnants of former wetland habitat in the flood plain of the River Skerne to the north-west;
 - Permo-Triassic red mudstones and sandstones are masked by glacial drift and alluvial material but can be seen outcropping at the coast in places;
 - **Principal transport corridors, power lines and energy infrastructure are conspicuous elements in the landscape. Industrial development fringing the tidal reaches of the River Tees contrasts with the surrounding rural landscape;**
 - **Brownfield sites where semi-natural vegetation has started to regenerate on previously developed land; and**
 - Green corridors such as minor valleys and former railway lines provide links between urban areas and the surrounding countryside."
- 10.6.12 The setting of the Proposed Scheme within NCA23 is described as:

“The large-scale industrial installations at Teesmouth form a dramatic skyline, but this is juxtaposed with areas of significant nature conservation importance, which have been internationally designated as part of Teesmouth and Cleveland Coast Special Protection Area and Ramsar site... wet grassland at Cowpen Marsh and salt marsh at Greatham Creek.... The unique mosaic of heavy industry and valuable wildlife habitats has arisen partly as a result of the inland pools which emerged due to subsidence following brine extraction.”

10.6.13 Drivers for change identified include climate change (such as increased flood risk and increasing sea levels), industrial and housing development, and investment in the energy sector.

10.6.14 Statements of Environmental Opportunity (SEO) identified for NCA23 are the following:

- “SEO 1: Protect and enhance the unique landscape of the Tees Estuary with its mosaic of internationally important intertidal, wetland and brownfield habitats;
- SEO 2: Incorporate semi-natural habitats within the farmed environment, and use innovative farming techniques in order to improve the value of food provision alongside biodiversity, flood water storage capacity, and the ability of the landscape to adapt to the impacts of climate change; and
- SEO 3: Ensure that there is a well-connected network of high-quality green infrastructure throughout the Tees Lowlands which will enable people to understand and enjoy the natural environment, as well as providing a range of other benefits including biodiversity enhancement, food provision and flood risk mitigation.”

Regional and Local level landscape character studies

10.6.15 At a local level, the Study Area falls within the following Landscape Character Assessments which will be used to inform the LVIA:

- Stockton-on-Tees Landscape Character Assessment 2011²⁰:
 - East Billingham to Teesmouth Landscape Character Area; and
 - Thorpe and Billingham Beck Valley Landscape Character Area.
- Middlesbrough Council Landscape and Heritage Assessment 2016²²;
- Redcar and Cleveland Borough Council Landscape Character SPD 2010²³:
 - Redcar Flats Broad Landscape Area.
- Hartlepool Landscape Assessment 2000²⁴:
 - Coastal Fringe Landscape Character Area; and
 - Estuarine Landscape Character Area.

10.6.16 Relevant Landscape Character Areas within the Stockton-on-Tees Landscape Character Assessment 2011²⁰ are set out below. In relation to other Landscape Character Assessments, only a very limited proportion of the character areas identified fall within the Study Area with very limited potential for significant effects to occur and therefore the characteristics for these areas have not been set out.

10.6.17 Middlesbrough Council Landscape and Heritage Assessment 2016²² is limited in its scope to defined 'Evaluation Parcels' rather than a district-wide assessment. Only a limited area of two parcels, Parcel 1 Albert Park and Parcel 13 Tees Link, fall within the southern portion of the Study Area with very limited potential for significant effects to occur. For this reason, Middlesbrough Council Landscape and Heritage Assessment 2016²² is not considered any further.

Stockton-on-Tees Landscape Character Assessment 2011²⁰

10.6.18 The LVIA will consider the key characteristics of the host Landscape Character Area, East Billingham to Teesmouth, set out below, with the most relevant highlighted in **bold**:

- **"Industrial landscape fringing Billingham integrated with large areas of open space including wetlands and reclaimed semi improved pasture;**
- **Farmland is open and flat with minimal landscape features;**
- **Industry dominates area to the east along the River Tees;**
- **Open space within industrial areas contain significant wildlife value with a number of ecological designations present including Sites of Special Scientific Interest (SSSIs), Site of Nature Conservation Importance (SNCI), Special Protection Area (SPA), Ramsar Site and Teesmouth National Nature Reserve;**
- Important 'ridge and furrow' within the field pattern around the settlement of Cowpen Bewley;
- The Stockton to Hartlepool railway line is notable feature within the landscape, dividing the Landscape Character Area between estuarine and non-estuarine/rural fringe influences; and
- **Cowpen Bewley Woodland Park provides the only wooded element within this Landscape Character Area."**

VISUAL AMENITY

10.6.19 To understand potential visibility of the Proposed Scheme a preliminary ZTV has been prepared using the Environment Agency's Lidar Digital Surface Model (DSM)²⁹ and based on the maximum height of the Proposed Scheme - namely 130m (as this is the proposed maximum height of stacks at operation). The preliminary ZTV is shown in **Figure 10-2 (Volume 2)**.

10.6.20 Visual receptors include the people who live, work, visit and travel through the area who may have visibility of the Proposed Scheme. Those visual receptors likely to experience visual effects are set out below and illustrated in **Figure 10-2 (Volume 2)**.

Residential receptors

10.6.21 Residents in Port Clarence to the south-west of the Site may experience more direct views of the Proposed Scheme. Cowpen Bewley to the north-west of the Site is well screened and sufficiently distant from the Site that residents are unlikely to experience significant visual effects. South of the River Tees, residential areas to the south of the Site are generally well screened by intervening extensive areas of large industrial

buildings, structures and associated infrastructure situated on the southern bank of the River Tees. To the north and east of the Site, there are no residential receptors within the industrial landscape within the Study Area.

Recreational facilities and visitor attractions

- 10.6.22 Public Rights of Way (PRoW) are generally quite limited within the Study Area, however the routes of the King Charles III England Coast Path and Teesdale Way pass close to the Proposed Scheme, as do the Clough Walk long distance footpath, E2 Scotland to England European long-distance path, National Cycleway Routes NCN1 and NCN65.
- 10.6.23 Nearby visitor attractions include RSPB Saltholme Reserve, the River Tees Viewpoint, Teesmouth National Nature Reserve, Middlesbrough Transporter Bridge, and Riverside Stadium. The Saltholme RSPB Reserve visitor centre is located approximately 0.8km to the west of the Site and vehicular access to the centre is through the A178 Seaton Carew Road. The Saltholme RSPB Reserve comprises the visitor centre with a café and interpretative facilities and pedestrian access to the reserve by a network of boardwalks and footpaths. Teesmouth National Nature Reserve includes a network of trails providing access to the Teesmouth National Nature Reserve and hides overlooking wetland systems is located approximately 1.5km to the north of the Site.

Transport receptors

- 10.6.24 Transport receptors include people using the transport network within the Study Area who may experience views of the Proposed Scheme, including from the A178 Seaton Carew Road located to the west of the Site and from the B1513 located to the south of Site on the south bank of the River Tees.

Viewpoints

- 10.6.25 Based on a review of the ZTV, followed by an initial site visit, a series of proposed viewpoints within the Study Area have been identified which will be used to illustrate the visual assessment. These viewpoints are listed in **Table 10-3** and shown on **Figure 10-2 (Volume 2)**.

FUTURE BASELINE

- 10.6.26 In the absence of the Proposed Scheme, it is likely that the majority of the landscape and visual baseline within the Study Area would remain comparable over the assessment years to that of the current baseline for the reasons below.
- 10.6.27 Current land use and management are predominantly related to large scale industry and future developments of a comparable scale and type within the Study Area are anticipated. Future new development is expected to comprise the evolution and re-purposing of existing industrial facilities as new technologies are developed and utilised requiring the reconfiguration of buildings, structures and site layouts. The TV1 and TV2 facilities also have existing consent for energy uses, are not currently in operation are being mostly demolished and the power plant reused and remaining land will be used for development of the SAF plant.

- 10.6.28 NTL have consent to develop part of the Site, however, this has not yet been implemented. If the consent is implemented this will result in the removal of habitat and infilling of an existing water body by NTL. Both the unfilled and filled scenarios will be considered in the future baseline.
- 10.6.29 Although species abundance and distribution within the Study Area may fluctuate, broad landscape practices and general uses are unlikely to change, therefore it is assumed there would be no substantial changes to species or vegetation cover within the Study Area. The landscape and visual baseline is therefore unlikely to change aside from natural succession of habitats and natural increases and decreases in species populations and geographic extent.
- 10.6.30 Increased air temperature and increased incidence of heatwaves as well as flooding and storm events associated with climate change could result in fluctuations of species abundance and distribution which could alter the future baseline.
- 10.6.31 The visual receptors baseline is likely to be affected by regeneration initiatives, the creation of a Middlesbrough Development Corporation, and green and blue infrastructure strategies affecting land immediately to the south of the River Tees – at Middlehaven in particular, in the vicinity of the Tees Transporter Bridge and Riverside Stadium. There is also the potential for mixed use development alongside the south bank of the River Tees, with the associated introduction of new residential and recreational receptors with potential views towards the Proposed Scheme, as well as development and celebration of local cultural heritage including the Tees Transporter Bridge.

10.7 EMBEDDED DESIGN, MITIGATION AND ENHANCEMENT MEASURES

- 10.7.1 As an inherent part of the design process, landscape and visual effects will be considered in relation to the Proposed Scheme which includes a number of embedded mitigation measures. These measures will continue to be refined and updated as the Proposed Scheme design continues to evolve. A more detailed description of embedded mitigation measures will be provided in the ES LVIA.

CONSTRUCTION

- 10.7.2 An Outline Code of Construction Practice Plan (OCoCP) will be prepared which will likely include the following measures in relation to landscape and visual mitigation:
- Retention and protection of existing mature vegetation in accordance with the arboricultural impact assessment (when available) and the recommendations in BS5937 trees in relation to design, demolition and construction - recommendations³⁰. Protective fencing would be erected where required prior to construction activities and would remain for the entire construction period;
 - No works, including temporary works such as the creation of topsoil mounds would be carried out within the canopy spread of existing retained trees;
 - Construction compounds would be laid out such that temporary soil mounds would be utilised to screen views of construction activities and light pollution in the surrounding area;

- Upon completion, areas used as site compounds would be returned to their original use;
- The construction programme would be kept to the minimum, practicable time to reduce the duration of any landscape and visual impacts;
- As far as practicable, plant and material storage areas would be sited to avoid landscape and visual impact;
- Construction compounds and working areas would be kept tidy, free of litter and debris through robust construction compound management; and
- To protect soil quality the following measures would be implemented:
 - Stripped topsoil would be used in areas of similar proposed vegetation type to utilise the existing natural seed bank;
 - Subsoil in planting areas would be replaced where appropriate following construction and appropriately treated, this would include being ripped to reduce compaction (depending on underlying soil type and conditions), before top soil and planting; and
 - Surrounding road and pavements are to be maintained free of excessive dust and mud.

OPERATION

- 10.7.3 Key areas for mitigation include those associated with the orientation, massing and scale of principal components of the Proposed Scheme to provide a satisfactory visual composition as perceived from the wider landscape context. This aspect is subject to on-going design development, together with the selection of appropriate surface materials and finishes aimed at providing as far as possible a unified and harmonious appearance.
- 10.7.4 Tree and shrub planting will also be provided to aid visual assimilation and screen lower-level ancillary elements of the Proposed Scheme. The avoidance of loss and/or replacement of any lost vegetation within the Site and the introduction of additional green/blue infrastructure will be part of the iterative design process, with the intention of achieving 10% Biodiversity Net Gain (BNG) in line with Government policy.
- 10.7.5 The ES LVIA will include an illustrative overview of the embedded landscape mitigation measures and the biodiversity enhancements required to achieve 10% BNG. This will be considered in relation to the assessment and additional measures identified to mitigate significant residual effects.
- 10.7.6 At this stage broad principles intended to guide the ongoing scheme design have been developed as follows:
- Investigate opportunities to utilise green/blue infrastructure to introduce naturalistic landscape elements to provide an appropriate setting for the proposed built development and to screen views of low level infrastructure. The approach towards the treatment of the western elevation is considered to be of particular importance from a visual perspective.

- Develop integrated landscape and ecology proposals which provide a framework for landscape assimilation, retention and creation of habitat to meet BNG requirements onsite and incorporate Sustainable Drainage Systems (SuDS) into the landscape design where practicable.
- Enhance existing strategic green/blue infrastructure networks including those relating to the River Tees corridor and the wetland landscapes to the north and west.
- Consider scale and massing of built development in relation to key aspects such as the River Tees Corridor and the open landscape to the west.
- The approach to design detailing, material choice and surface finishes should complement the building design to result in a unified, cohesive appearance.
- Minimise light pollution through sensitive design and the use of good practice in lighting design and management.
- Facilitate sustainable transport connectivity by creating accessible linkages to public transport facilities, footpaths and cycle routes.
- Create attractive external spaces for use by site workers and visitors.

10.7.7 The design objectives have been developed following preliminary appraisal of the functional scheme requirements, landscape context, key landscape characteristics as set out in published landscape character assessments, statements of opportunity and relevant design guidance. It is anticipated that the objectives will continue to evolve through the development and refinement of requirements, engagement with other statutory bodies and partners and through the influence of the assessment process which will inform the scheme design in an iterative manner.

10.8 PRELIMINARY ASSESSMENT OF LIKELY IMPACTS AND EFFECTS

- 10.8.1 This section details the preliminary assessment of significant effects. As discussed above this preliminary assessment considers the worst case scenario and does not consider landscape mitigation, design principles or night-time effects.
- 10.8.2 The sensitivity of receptors identified for the Landscape and Visual Assessment are detailed in **Appendix 10A: Assessment of Landscape and Visual Receptor Sensitivity (Volume 3)**.
- 10.8.3 A full description of the Proposed Scheme is provided in **Chapter 2: Site and Proposed Scheme Description (Volume 1)** and the Site layout is illustrated in **Figure 1-2 (Volume 2)**. However, a summary of the key project elements likely to influence the landscape and visual assessment have been set out as a preface to the Construction and Operation Phase assessments.

CONSTRUCTION PHASE LANDSCAPE AND VISUAL EFFECTS

Development Description

- 10.8.4 The Construction Phase is likely to be up to three years in duration. Aspects of the Proposed Scheme likely to give rise to significant effects during the Construction Phase include the following:

- Site clearance including vegetation removal and demolition of further structures, excavation of voids and underground services.
- Early works including ground investigation works for geo-environmental and geotechnical requirements.
- Sorting of materials produced from demolition and enabling works will require stockpiling and potentially concrete recycling using crushing plant.
- Piling works will be required within the Site to create foundations for the main structures. The piling method is to be determined but it is anticipated that this could include percussive, continual flight auger (CFA) and/or vibropiles.
- Area to the east and south of the SAF Plant to accommodate potential construction activities such as construction compounds or fabrication, and additional utility connections for power and water.
- Marine transport infrastructure to be used as part of the Construction Phase. Options that are currently being explored include the use of Wilton Engineering Wharf (Option 1) or Clarence Wharf (Option 2) (as described in **Chapter 2: Site and Proposed Scheme Description (Volume 1)**). The transfer of plant components (large) from wharf to construction area on Abnormal Load Vehicles will be via a short section of public highway (Option 1) and the Heavy Haul Road (Option 1 and Option 2).
- The presence, activity and movement of construction vehicles including excavators, transportation vehicles such as earth moving equipment, piling rigs and cranes.
- Construction Laydown Area(s) will be located within the Site at key locations in order to facilitate safe construction activities especially those on critical path schedule such as delivery of large modular equipment.
- Materials stockpiles and associated deliveries by road.

10.8.5 The Construction Phase environmental impacts of the Proposed Scheme would be managed through the implementation of an OCoCP which would be part of a discharge of requirements and considered as additional mitigation.

Landscape Effects

10.8.6 The preliminary assessment of the likely effects on landscape receptors at construction stage is set out in **Table 10-5** below. Further detail on the magnitude of change and level of effect will be provided at ES stage.

Table 10-5: Construction Phase Landscape Effects

Receptor	Assessment	Effect
Landscape Character		
<p>NCA 23 Tees Lowlands</p> <p>Medium sensitivity</p>	<p>The Tees Lowland NCA is strongly characterised by the existing presence of large scale industry along the Tees Estuary, transport corridors and overhead transmission lines with associated pylons. Construction activity for the Proposed Scheme will be perceived in relation to the large area of heavy industry at Teesmouth and will be consistent with this land use and character. Temporary large scale construction machinery including cranes will have a slightly wider influence but will still be situated adjacent to numerous vertical structures of a comparable scale and will be assimilated into the industrial context.</p> <p>Overall, this would result in a negligible magnitude of change, which would be adverse and temporary.</p>	<p>Negligible adverse (Not Significant)</p>
<p>East Billingham to Teesmouth LCA</p> <p>Medium sensitivity</p>	<p>The East Billingham to Teesmouth LCA is an area of contrasting landscapes. Major industrial installations are juxtaposed with flat, low lying distinctive landscape characterised by wetland which includes nationally significant nature reserves. The Proposed Scheme is situated within the industrial area but is in close</p>	<p>Moderate Adverse (Significant)</p>

Receptor	Assessment	Effect
	<p>proximity to the wetland landscapes to the north and west of the LCA.</p> <p>Construction activity associated with the Proposed Scheme would be consistent with the characteristically industrial landscape. The relatively open, flat farmland to the north and west of the Proposed Scheme will allow localised visibility of construction activity.</p> <p>Overall, this would result in a medium magnitude of change, which would be adverse and temporary.</p>	

Visual effects

- 10.8.7 The preliminary assessment of Construction Phase visual effects is provided in **Table 10-6**. **Table 10-6** provides a list of viewpoints and the visual receptors they represent. Further detail on the magnitude of change and level of effect will be provided at ES stage.

Table 10-6: Construction Phase Visual Effects

Receptor	Assessment	Effect
Residential Receptors		
<p>Residents in Port Clarence (Viewpoint 4)</p> <p>Medium sensitivity</p>	<p>Views of lower level construction activity will be largely screened and filtered by the intervening vegetation, including mature trees and hedgerows, to field and highways boundaries such as that associated with the A178 Seaton Carew Road. Taller construction elements including cranes at 145m height will be visible above the existing vegetation and perceived in relation to views of existing large scale industrial structures including the 111m height stack associated with the Tees Biomass plant.</p> <p>Increased winter time visibility is anticipated because of the summer time filtering effects of intervening deciduous trees.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and temporary.</p>	<p>Moderate Adverse (Significant)</p>
Recreational Facilities and Visitor Attractions		
<p>King Charles III England Coast Path (Viewpoint 1 and 2)</p>	<p>The views of walkers using this recreational route will evolve sequentially as users pass through the Study Area.</p>	<p>Moderate Adverse (Significant)</p>

Receptor	Assessment	Effect
High sensitivity	<p>To the south of the River Tees the route is generally orientated in an east to west direction and the principal views of users are directed away from the main Site area. Relatively close distance views will be available of works associated with Wilton Engineering Wharf and Clarence Wharf and vehicular movements on the Heavy Haul Road for construction access for a short section of the route. To the north of the River Tees where the route is orientated through Port Clarence and the southern part of the A178 Seaton Carew Road, views will be restricted by the presence of roadside vegetation, although visibility of taller construction elements will be intermittently available. There will be close distance views of works to construct the Feedstock and Pre-processing Area adjacent to the A178 Seaton Carew Road. Further north the landscape becomes less enclosed and more open views of construction activity associated with the SAF Plant Site and works to install pipelines adjacent to Dorman's Pool Nature Reserve will become available. This relatively open visibility will be available for a short section immediately to the west of the Proposed Scheme and</p>	

Receptor	Assessment	Effect
	<p>Dorman's Pool Nature Reserve, and where the route bisects Saltholme East and West Pool Nature Reserves.</p> <p>Overall, this would result in a medium magnitude of change, which would be adverse and temporary.</p>	
<p>Teesdale Way</p> <p>(There are no specific viewpoints on Teesdale Way, however, nearby viewpoints include: Viewpoint 5 approximately 116m north and Viewpoint 6 approximately. 150m east of the route)</p> <p>High sensitivity</p>	<p>Teesdale Way is routed east to west along the south bank of the River Tees. Views towards the Proposed Scheme across the Tees Valley are restricted for much of the route because of the presence of adjacent built development, large scale industrial structures and perimeter fencing. Closer distance views of works associated with Wilton Engineering Wharf and Clarence Wharf and construction deliveries along the Heavy Haul Road will be visible from a short section of the route where walkers pass in relatively close proximity.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and temporary.</p>	<p>Moderate Adverse (Significant)</p>
<p>RSPB Saltholme Nature Reserve</p> <p>(Viewpoint 3 and 8)</p> <p>High sensitivity</p>	<p>Relatively open views towards the Proposed Scheme Site are available from the network of footpaths and boardwalks which provide public access to the nature reserve. However, visibility from the access road, car</p>	<p>Moderate Adverse (Significant)</p>

Receptor	Assessment	Effect
	<p>parking areas and external rection areas of the visitor centre is more restricted.</p> <p>Construction activity associated with the Proposed Scheme including cranes will be perceived in relation to the existing presence of overhead transmission lines and longer distance views of large scale industrial structures and infrastructure at Teesmouth. Views of lower level activity including vehicular movements, compounds and stockpiles would be filtered by intervening vegetation.</p> <p>Slightly increased winter time visibility is anticipated.</p> <p>Overall, this would result in a medium magnitude of change, which would be adverse and temporary.</p>	
<p>Tees Transporter Bridge (Viewpoint 5) High sensitivity</p>	<p>Mid to long distance views of construction activity to upper elevations of the Proposed Scheme will be visible. The visible activity will affect a relatively small portion of the view and will be perceived in relation to the presence of other large scale industrial structures including the Teesside Biomass plant which features prominently in the view. Lower level construction works will be screened by intervening landform, built</p>	<p>Moderate Adverse (Significant)</p>

Receptor	Assessment	Effect
	<p>development and vegetation, although works associated with Clarence Wharf will be visible on the north bank of the River Tees.</p> <p>Increased winter time visibility is anticipated because of the summer time filtering effects of intervening deciduous trees.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and temporary.</p>	
<p>Riverside Stadium (Viewpoint 6) Medium sensitivity</p>	<p>Views to the north across the Tees Valley are available from some parts of the stadium public realm. Views of taller elements including cranes and activity associated with emerging structures will be available in relation to existing large scale industrial buildings and tall structures on the north bank of the River Tees. Lower level activity will be screened by intervening landform, including the land fill operation, and mature vegetation.</p> <p>Winter time visibility is anticipated to be marginally increased because of the summer time filtering effects of intervening deciduous trees.</p>	<p>Minor Adverse (Not Significant)</p>

Receptor	Assessment	Effect
	Overall, this would result in a low magnitude of change, which would be adverse and temporary.	
<p>River Tees Viewpoint (Viewpoint 7)</p> <p>Medium sensitivity</p>	<p>Views to the north across the Tees Valley are strongly filtered by the presence of deciduous trees in the close distance. It is anticipated that views of the upper aspects of cranes will be periodically visible but other construction activity will not be perceptible.</p> <p>Increased winter time visibility is anticipated because of the summer time filtering effects of intervening deciduous trees.</p> <p>Overall, this would result in a negligible magnitude of change, which would be adverse and temporary.</p>	<p>Negligible Adverse (Not Significant)</p>
<p>Teesmouth National Nature Reserve (Viewpoint 8)</p> <p>High sensitivity</p>	<p>Construction activity will be partially visible but will be assimilated within the extensive panorama of large scale industry and infrastructure associated with Teesmouth and which is backdropped by the Cleveland Hills. In this context construction activity associated with the Proposed Scheme will represent a relatively minor component within the view.</p>	<p>Negligible Adverse (Not Significant)</p>

Receptor	Assessment	Effect
	Overall, this would result in a negligible magnitude of change, which would be adverse and temporary.	
Transport Receptors		
<p>Seaton Carew Road (the A178)</p> <p>(Viewpoint 2)</p> <p>Low sensitivity</p>	<p>There will be relatively close distance, open views from a relatively short section at the point where the route is adjacent to Saltholme East Pool Nature Reserve. Construction activity including that related to the Feedstock Storage and Pre-processing and Bulk Liquid Storage Areas, pipeline installation and associated vehicular movements will be visible. Operations associated with the emerging structures including cranes will feature prominently in the view. However, the direction of travel is such that views will not be directly orientated towards the Proposed Scheme for vehicular users.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and temporary.</p>	<p>Minor Adverse (Not Significant)</p>

OPERATION PHASE LANDSCAPE AND VISUAL EFFECTS

10.8.8 Aspects of the Proposed Scheme likely to give rise to landscape effects during the operation phase are described in **Chapter 2: Site and Proposed Scheme Description (Volume 1)**, are illustrated in **Figure 1-2 (Volume 2)** and **Figure 2-1 (Volume 2)** and include the following:

- The SAF Plant including the flare area with stacks up to a maximum of 130m height and associated flares and plumes; sub-stations; storage buildings; and associated industrial structures and infrastructure;
- Bulk Liquid Storage (for SAF and Naphtha);
- Pipeline and cable connections (import and export) and utility corridors;
- Flares;
- Internal Conveying Corridors;
- Rail Terminal;
- Marine Transport Infrastructure for operational usage; and
- A range of other associated development including administration buildings, kiosks and welfare facilities, boundary treatments, security infrastructure, temporary and permanent laydown areas, hard and soft landscaping, drainage, cables, pipelines, plant and equipment will also be required.

Landscape Effects

10.8.9 The preliminary assessment of Operation Phase landscape effects is provided in **Table 10-7** below.

Table 10-7: Operation Phase Landscape Effects

Receptor	Assessment	Effect
Landscape character		
NCA 23 Tees Lowlands Medium sensitivity	<p>Key characteristics of NCA 23 Tees Lowlands includes, “a large area of urban and industrial development around the Tees Estuary, much of which is on reclaimed land...” and “Major industrial installations around Teesmouth form a dramatic skyline, but are juxtaposed with extensive mudflats, sand dunes and salt marshes...” and, “Principal transport corridors, power lines and energy infrastructure are conspicuous elements in the landscape.” On completion, the Proposed Scheme will be of a comparable scale and character to other existing industrial facilities and will become assimilated into the expansive Teesmouth area with a minimal characterising influence on the NCA as a whole.</p> <p>Overall, this would result in a negligible magnitude of change, which would be neutral and lasting for the duration of the 50 year operational period.</p>	Negligible Adverse (Not Significant)
East Billingham to Teesmouth LCA Medium sensitivity	The East Billingham to Teesmouth LCA is an area of contrasting landscapes. Major industrial installations are juxtaposed with flat, low lying	Minor Adverse (Not Significant)

Receptor	Assessment	Effect
	<p>distinctive landscape characterised by wetland which includes nationally significant nature reserves. The Proposed Scheme is situated within the industrial area but is in close proximity to the wetland landscapes to the north and west of the LCA. The large scale massing of the western elevation of the Proposed Scheme will have a strong characterising presence as perceived from these more open landscapes. Elsewhere within the LCA the Proposed Scheme will appear consistent with other large scale industry and will be assimilated into this context.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse, and lasting for the duration of the 50 year operational period.</p>	

Visual effects

10.8.10 The preliminary assessment of Operation Phase visual effects is provided in **Table 10-8** below.

Table 10-8: Operation Phase Visual Effects

Receptor	Assessment	Effect
Residential Receptors		
<p>Residents in Port Clarence (Viewpoint 4)</p> <p>Medium sensitivity</p>	<p>Views of lower level components including site access routes, car parking and associated infrastructure will be largely screened and filtered by the intervening vegetation including trees and hedgerows to field and highways boundaries such as that associated with the A178 Seaton Carew Road. Larger structures including the main 130m height flare stacks will be visible in gaps between and above mature vegetation and built development in the intervening landscape.</p> <p>Increased winter time visibility is anticipated because of the summer time filtering effects of intervening deciduous trees.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and permanent.</p>	<p>Moderate Adverse (Significant)</p>
Recreational Facilities and Visitor Attractions		
<p>King Charles III England Coast Path (Viewpoint 1 and 2)</p>	<p>The views of walkers using this recreational route will evolve sequentially as users pass through the Study Area.</p>	<p>Moderate Adverse (Significant)</p>

Receptor	Assessment	Effect
High sensitivity	<p>To the south of the River Tees the route is generally orientated in an east to west direction and the principal views of users are directed away from the main Site area. An increase in vessel movements on the River Tees providing deliveries to the operational site at Clarence Wharf may be perceptible for a short section of the route. To the north of the River Tees where the route is orientated through Port Clarence and the southern part of the A178 Seaton Carew Road views will be restricted by the presence of road side vegetation although it is anticipated that there will be intermittent visibility of taller elements, particularly the 130m height main flare stacks. There will be short lived, close distance views of the Feedstock Storage and Pre-processing and Bulk Liquid Storage Areas adjacent to the road corridor. Further north the landscape becomes less enclosed and more open views of the western elevation of the SAF Plant across Dorman's Pool will be available.</p> <p>Receptors will experience a high magnitude of change for a short section of the route. However, overall, this would result in a</p>	

Receptor	Assessment	Effect
	medium magnitude of change, which would be adverse and permanent.	
<p>Teesdale Way</p> <p>(There are no specific viewpoints on Teesdale Way, however, nearby viewpoints include: Viewpoint 5 approximately 116m north and Viewpoint 6 approximately 150m east of the route)</p> <p>High sensitivity</p>	<p>It is anticipated that views towards the Proposed Scheme Site across the Tees Valley will be restricted to intermittent views of the upper part of the 130m height main flare stacks. These views will be perceived in relation to the wider industrial context. Closer distance views of engineering improvements to Wilton Engineering Wharf and Clarence Wharf to facilitate operational phase transport on the River Tees will be visible from a short section of the route.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and permanent.</p>	<p>Moderate Adverse (Significant)</p>
<p>RSPB Salthome Nature Reserve</p> <p>(Viewpoint 3 and 8)</p> <p>High sensitivity</p>	<p>There will be open views towards the western elevation of the Proposed Scheme Site. This will include visibility of most elements which comprise the western elevation of the SAF Plant and the Feedstock Storage and Pre-processing Area adjacent to Seaton Carew Road will be partially visible. Views of lower level elements of the Proposed Scheme will be partially filtered by existing vegetation associated with the A178 Seaton Carew</p>	<p>Moderate Adverse (Significant)</p>

Receptor	Assessment	Effect
	<p>Road and within the Site area. These views will be perceived in relation to the existing presence of overhead transmission lines and longer distance views of large scale industrial structures and infrastructure at Teesmouth.</p> <p>Slightly increased winter time visibility is anticipated.</p> <p>Overall, this would result in a medium magnitude of change, which would be adverse and permanent</p>	
<p>Tees Transporter Bridge (Viewpoint 5) High sensitivity</p>	<p>Mid to long distance views of upper elevations of the Proposed Scheme will be visible. This will include partial visibility of the 130m height flare stacks and other large structures to the east of the SAF Plant.</p> <p>The visible activity will affect a relatively small portion of the view and will be perceived in relation to the presence of other large scale industrial structures including the Teesside Biomass plant which features prominently in the view. Lower level aspects of the development will be largely screened by intervening landform, built development and vegetation. Engineering improvement works associated with Clarence Wharf will be visible in closer</p>	<p>Moderate Adverse (Significant)</p>

Receptor	Assessment	Effect
	<p>distance views on the north bank of the River Tees.</p> <p>Increased winter time visibility is anticipated because of the summer time filtering effects of intervening deciduous trees.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and permanent.</p>	
<p>Riverside Stadium (Viewpoint 6) Medium sensitivity</p>	<p>Views to the north across the Tees Valley are available from some parts of the stadium public realm. Views of the 130m height flare stacks, associated flares and plumes and will be available in relation to existing large scale industrial buildings and tall structures on the north bank of the River Tees. Lower level infrastructure and operational activity will be screened by intervening landform, including the land fill operation, and mature vegetation.</p> <p>Winter time visibility is anticipated to be marginally increased because of the summer time filtering effects of intervening deciduous trees.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and permanent.</p>	<p>Minor Adverse (Not Significant)</p>

Receptor	Assessment	Effect
<p>River Tees Viewpoint (Viewpoint 7)</p> <p>Medium sensitivity</p>	<p>Views of the Proposed Scheme will be largely filtered by the presence of deciduous trees in the close distance. This will restrict visibility to the upper parts of the main 130m height flare stacks and other large structures through gaps in the vegetation. These structures will become visually assimilated into the wider context of the Teesmouth industrial area.</p> <p>Increased winter time visibility is anticipated because of the summer time filtering effects of intervening deciduous trees.</p> <p>Overall, this would result in a negligible magnitude of change, which would be adverse and permanent.</p>	<p>Negligible Adverse (Not Significant)</p>
<p>Teesmouth National Nature Reserve (Viewpoint 8)</p> <p>High sensitivity</p>	<p>On completion the Proposed Scheme will become assimilated into the extensive panorama of large scale industry and infrastructure associated with Teesmouth and which is backdropped by the Cleveland Hills. In this context the Proposed Scheme, including the 130m height flare stacks, will represent a minor incremental addition to the industrial composition of the view.</p> <p>Overall, this would result in a negligible magnitude of change, which would be adverse and permanent.</p>	<p>Negligible Adverse (Not Significant)</p>

Receptor	Assessment	Effect
Transport Receptors		
<p>Seaton Carew Road (Viewpoint 2)</p> <p>Low sensitivity</p>	<p>There will be relatively close distance, open views of the western elevation of the SAF Plant from a relatively short section of the route where the Proposed Scheme will be a prominent component of the view.</p> <p>However, the direction of travel is such that views will not be directly orientated towards the Proposed Scheme for vehicular users.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and permanent.</p>	<p>Minor Adverse (Not Significant)</p>

DECOMMISSIONING PHASE LANDSCAPE AND VISUAL EFFECTS

- 10.8.11 It is the assumption for the EIA that most elements of the Proposed Scheme will be decommissioned at the end of the operational lifespan, either prior to or at 50 years. It is anticipated that the decommissioning phase would take approximately 15 -18 months.
- 10.8.12 Most / all above ground structures would be demolished and removed at ground level or just below. Any concrete materials would be crushed, with other materials such as metal, sorted and recycled where possible. Some removal of materials offsite is likely by road and possibly via rail and marine infrastructure. Any silos or storage facilities would be flushed and cleaned, utilising either the existing utility connections (and within the discharge limits allowable) or where this is not possible, then the material would be removed from Site. Any below ground structures will be left in-situ, including piles, pipework and cables. Any pipework would be sealed. Larger components such as storage silos, equipment from the SAF process (incl. associated power generation equipment) would be removed, dismantled and either recycling or disposed.
- 10.8.13 The preliminary assessment of Decommissioning Phase landscape and visual effects is provided in **Table 10-9** and **Table 10-10** below.

Table 10-9: Decommissioning Phase Landscape Effects

Receptor	Assessment	Effect
Landscape Character		
<p>NCA 23 Tees Lowlands</p> <p>Medium sensitivity</p>	<p>Decomissioning would result in the removal of most or all above ground structures, associated crushing, processing, recycling of materials and the removal offsite of some materials by road, rail or marine infrastructure.</p> <p>Though the juxtaposition of large scale industrial infrastructure next to designated areas of high nature conservation value is a key characteristic of this NCA, the removal of industrial infrastructure would have a beneficial effect on the landscape quality of the NCA.</p> <p>There would be a temporary adverse increase in activity and vehicle movement during the decommissioning phase.</p> <p>Overall, and upon completion of the decommissioning works, this would result in a negligible magnitude of change, which would be beneficial.</p>	<p>Negligible Beneficial (Not Significant)</p>
<p>East Billingham to Teesmouth LCA</p> <p>Medium sensitivity</p>	<p>Decomissioning would result in the removal of most or all above ground structures, associated crushing, processing, recycling of materials and</p>	<p>Minor Beneficial (Not Significant)</p>

Receptor	Assessment	Effect
	<p>the removal offsite of some materials by road, rail or marine infrastructure.</p> <p>Though the juxtaposition of large scale industrial infrastructure next to designated areas of high nature conservation value is a key characteristic of this LCA, the removal of industrial infrastructure would have a beneficial effect on the landscape quality of the LCA.</p> <p>There would be a temporary adverse increase in activity and vehicle movement during the decommissioning phase.</p> <p>Overall, and upon completion of the decommissioning works, this would result in a low magnitude of change, which would be beneficial.</p>	

Table 10-10: Decommissioning Phase Visual Effects

Receptor	Assessment	Effect
Residential Receptors		
<p>Residents in Port Clarence (Viewpoint 4) Medium sensitivity</p>	<p>Views of lower level structures and decommission activity will be largely screened and filtered by the intervening vegetation including trees and hedgerows to field and highways boundaries such as that associated with the A178 Seaton Carew Road. The removal of larger structures including the main 130m height flare stacks will be visible in gaps between and above mature vegetation and built development in the intervening landscape.</p> <p>Some removal of materials offsite is likely by road and possibly via rail and marine infrastructure. An increase in road and rail transport will be noticeable to residents.</p> <p>There would be a temporary adverse increase in activity and vehicle movement during the decommissioning phase.</p> <p>However, after decommissioning and making good works are complete, residential receptors will gain open views of the landscape as a result of the removal of the structures.</p> <p>Overall, and upon completion of the decommissioning works, this would result in a</p>	<p>Moderate Beneficial (Significant)</p>

Receptor	Assessment	Effect
	low magnitude of change, which would be beneficial.	
Recreational Facilities and Visitor Attractions		
<p>King Charles III England Coast Path (Viewpoint 1 and 2) High sensitivity</p>	<p>The views of walkers using this recreational route will evolve sequentially as users pass through the Study Area. The removal of above ground structures will be noticeable from various positions along the path, with views of the decommission work constantly evolving and ranging from glimpses of short duration, exposed, screened or partially screened by intervening structures, buildings and vegetation.</p> <p>The removal of materials offsite by road and possibly via rail and marine infrastructure is likely to have temporary adverse effects on enjoyment of the route.</p> <p>However, after decommissioning and making good works are complete, recreational receptors will gain open views of the landscape as a result of the removal of the structures.</p> <p>Overall, and upon completion of the decommissioning works, receptors will experience a medium magnitude of change, which would be beneficial and permanent.</p>	<p>Moderate Beneficial (Significant)</p>

Receptor	Assessment	Effect
<p>Teesdale Way (There are no specific viewpoints on Teesdale Way, however, nearby viewpoints include: Viewpoint 5 approximately 116m north and Viewpoint 6 approximately 150m east of the route) High sensitivity</p>	<p>It is anticipated that views of decommissioning works will be restricted to intermittent views of the upper part of the main 130m height flare stacks. Closer distance views of related marine movement and activity at Wilton Engineering Wharf and Clarence Wharf to facilitate decommissioning phase transport on the River Tees will be visible from a short section of the route.</p> <p>There would be a temporary adverse increase in activity and vehicle movement during the decommissioning phase.</p> <p>However, after decommissioning and making good works are complete, recreational receptors will gain open views of the landscape as a result of the removal of the structures.</p> <p>Overall, and upon completion of the decommissioning works, this would result in a low magnitude of change, which would be beneficial and permanent.</p>	<p>Moderate Beneficial (Significant)</p>
<p>RSPB Salthome Nature Reserve (Viewpoint 3 and 8) High sensitivity</p>	<p>There will be open views towards the western elevation of the Proposed Scheme Site. This will include visibility of most elements being removed, and the activity and vehicle movement during decommissioning. Views of lower level decommissioning activities will be partially filtered by existing vegetation</p>	<p>Moderate Beneficial (Significant)</p>

Receptor	Assessment	Effect
	<p>associated with the A178 Seaton Carew Road and within the Site area. These views will be perceived in relation to the existing presence of overhead transmission lines and longer distance views of large scale industrial structures and infrastructure at Teesmouth.</p> <p>Slightly increased winter time visibility is anticipated. Some removal of materials offsite is likely by road and possibly via rail infrastructure. Due to the proximity of the nature reserve to the Site and the direction of receptor views across the wetlands, decommissioning works are likely to be very noticeable in the landscape.</p> <p>There would be a temporary adverse increase in activity and vehicle movement during the decommissioning phase.</p> <p>However, after decommissioning and making good works are complete, recreational receptors will gain open views of the landscape as a result of the removal of the structures.</p> <p>Overall, and upon completion of the decommissioning works, this would result in a medium magnitude of change, which would be beneficial and permanent.</p>	

Receptor	Assessment	Effect
<p>Tees Transporter Bridge (Viewpoint 5) High sensitivity</p>	<p>Mid to long distance views of decommissioning activity to upper elevations of the Proposed Scheme will likely be visible. This will include partial visibility of the 130m height flare stacks and other large structures to the east of the SAF Plant.</p> <p>The visible activity will likely affect a relatively small portion of the view and will be perceived in relation to the presence of other large scale industrial structures including the Teesside Biomass plant which features prominently in the view. Lower level decommissioning works will be largely screened by intervening landform, built development and vegetation. Any engineering works associated with Clarence Wharf will be visible in closer distance views on the north bank of the River Tees. Increased winter time visibility of decommissioning works is anticipated because of the summer time filtering effects of intervening deciduous trees. Some removal of materials offsite is likely by road, possibly via rail and marine infrastructure. There would be a temporary adverse increase in localised activity and increased vehicle and marine movement by the bridge during the decommissioning phase.</p>	<p>Moderate Beneficial (Significant)</p>

Receptor	Assessment	Effect
	<p>However, after decommissioning and making good works are complete, recreational receptors will gain open views of the landscape as a result of the removal of the structures.</p> <p>Overall, and upon completion of the decommissioning works, this would result in a low magnitude of change, which would be beneficial and permanent.</p>	
<p>Riverside Stadium (Viewpoint 6) Medium sensitivity</p>	<p>Views to the north across the Tees Valley are available from some parts of the stadium public realm. Views of the decommissioning activity of 130m height flare stacks and other upper level structures will be seen in relation to existing large scale industrial buildings and tall structures on the north bank of the River Tees. Lower level removal of buildings and infrastructure will be screened by intervening landform, including the land fill operation, and mature vegetation.</p> <p>Winter time visibility of decommission works is anticipated to be marginally increased because of the summer time filtering effects of intervening deciduous trees. There would be a temporary adverse increase in activity and vehicle and marine movement during the decommissioning phase.</p>	<p>Minor Beneficial (Not Significant)</p>

Receptor	Assessment	Effect
	<p>However, after decommissioning and making good works are complete, recreational receptors will gain open views of the landscape as a result of the removal of the structures.</p> <p>Overall, and upon completion of the decommissioning works, this would result in a low magnitude of change, which would be beneficial and permanent.</p>	
<p>River Tees Viewpoint (Viewpoint 7) Medium sensitivity</p>	<p>Views of the Proposed Scheme will be largely filtered by the presence of deciduous trees in the close distance. This will restrict visibility to the upper parts of the main 130m height flare stacks and other large structures through gaps in the vegetation. These structures will become visually assimilated into the wider context of the Teesmouth industrial area.</p> <p>Increased winter time visibility is anticipated because of the summer time filtering effects of intervening deciduous trees. Some removal of materials offsite is likely by road and possibly via rail and marine infrastructure. This is likely to be noticeable from the viewpoint with temporary adverse effects, however this viewpoint provides views of river activity which provides interest and movement to viewer experiences.</p>	<p>Negligible Beneficial (Not Significant)</p>

Receptor	Assessment	Effect
	<p>However, after decommissioning and making good works are complete, recreational receptors will gain open views of the landscape as a result of the removal of the structures.</p> <p>Overall, this would result in a negligible magnitude of change, which would be beneficial and permanent.</p>	
<p>Teesmouth National Nature Reserve (Viewpoint 8)</p> <p>High sensitivity</p>	<p>Receptors using hides are generally focussed on wildlife and facing away from the Proposed Scheme and decommissioning work. Views to the north across the Tees Valley are strongly filtered by the presence of deciduous trees in the close distance. It is anticipated that views of the upper aspects of cranes will be periodically visible but other construction activity will not be perceptible. There would be a temporary adverse increase in activity and vehicle and marine movement during the decommissioning phase.</p> <p>However, after decommissioning and making good works are complete, recreational receptors will gain open views of the landscape as a result of the removal of the structures.</p> <p>Overall, and upon completion of the decommissioning works, this would result in a</p>	<p>Negligible Beneficial (Not Significant)</p>

Receptor	Assessment	Effect
	negligible magnitude of change, which would be beneficial and permanent.	
Transport receptors		
<p>Seaton Carew Road (Viewpoint 2) Low sensitivity</p>	<p>There will be relatively close distance, open views of the western elevation of the SAF Plant from a relatively short section of the route where the Proposed Scheme will be a prominent component of the view.</p> <p>However, the direction of travel is such that views will not be directly orientated towards the Proposed Scheme for vehicular users.</p> <p>There would be a temporary adverse increase in activity and vehicle movement during the decommissioning phase which will increase traffic using the road.</p> <p>However, after decommissioning and making good works are complete transport, commuting and travelling receptors will gain open views of the landscape as a result of the removal of the structures.</p> <p>Overall, this would result in a low magnitude of change, which would be adverse and permanent.</p>	<p>Minor Beneficial (Not Significant)</p>

10.9 ADDITIONAL DESIGN, MITIGATION AND ENHANCEMENT MEASURES

- 10.9.1 This section sets out the proposed measures to mitigate landscape and visual amenity effects and includes design framework and design principles, lighting strategy and landscape mitigation. These measures have yet to be developed and have not been considered as part of this PEIR but will be during the ES Stage and considered within the final ES.

DESIGN FRAMEWORK / DESIGN PRINCIPLES

- 10.9.2 A Design Framework and Design Principles document will sit as an Appendix to the proposed Chapter 2: Site and Proposed Scheme Description of the ES. The document will be supported by a series of images as well as indicative cross sections and elevations showing context. The document will develop the preliminary principles set out in **Section 10.7** and explain the following aspects in more detail:
- Proposed Scheme and reasons for siting, layout, scale, massing and finishes;
 - Proposed functions of the landscape design associated with the Proposed Scheme; and
 - Demonstrate compliance with legislative policy and guidance.

LANDSCAPE MITIGATION AND OUTLINE LANDSCAPE AND BIODIVERSITY STRATEGY

- 10.9.3 On and/or offsite landscape and ecology mitigation measures will be developed and considered in the LVIA ES and supporting documents. The supporting documents will include (where appropriate) mitigation plans and an Outline Landscape and Biodiversity Strategy (OLBS) which will set out an approach to mitigate the effects of the Proposed Scheme on landscape and ecology.
- 10.9.4 Management plans will be developed based on the mitigation plans with specific prescriptions which accord with guidance referred to in local authority design guidance and information gained through the PEIR statutory consultation process.

10.10 MONITORING

- 10.10.1 It is important that the mitigation planting proposed can establish and reach sufficient maturity by year 15. Monitoring measures in relation to mitigation planting will be in accordance with those set out in the OLBS and will be reviewed at key stages.

10.11 RESIDUAL EFFECTS

10.11.1 This PEIR does not consider any landscape mitigation as these measures are yet to be developed. The residual effects are therefore, yet to be determined and will be completed as part of the ES. **Table 10-11** to **Table 10-13** present a summary of the preliminary assessment of landscape and visual effects undertaken for this PEIR. Any proposed mitigation subsequent to this assessment will be considered as part of the LVIA undertaken for the ES.

Table 10-11: Summary of Residual Effects for Landscape and Visual Receptors at Construction Phase

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
Landscape				
NCA 23 Tees Lowlands	At the scale of the NCA construction activity will not be perceived in relation to the extensive industrial context.	Negligible Adverse (Not Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	Negligible Adverse (Not Significant). Owing to the size of the NCA together with the location of the existing extensive industrial context, it is unlikely that this will change as the design develops at ES stage unless extensive increases to the Application Site Boundary are made.
East Billingham to Teesmouth LCA	Introduction of construction activity will have a strong characterising influence across some parts of the LCA.	Moderate Adverse (Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	The assessment of residual effects will be completed as part of the ES. At present they remain as per the Significance of Effect with Embedded Mitigation. It is anticipated that some significant effects will remain.

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
Visual				
Residents in Port Clarence (Viewpoint 4)	Large scale elements associated with construction activity will be visible from some parts of the residential area.	Moderate Adverse (Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	The assessment of residual effects will be completed as part of the ES. At present they remain as per the Significance of Effect with Embedded Mitigation. It is anticipated that some significant effects will remain.
King Charles III England Coast Path (Viewpoint 1 and 2)	Construction activity will feature prominently in the visual experience from parts of the route.	Moderate Adverse (Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	
Teesdale Way (Near to Viewpoints 5 and 6)	Construction activity associated with the Proposed Scheme will only be visible for short sections of the route.	Moderate Adverse (Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	
RSPB Salthome Nature Reserve (Viewpoint 3 and 8)	Views across the open landscape towards construction activity will be available from the nature Reserve.	Moderate Adverse (Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	
Tees Transporter Bridge (Viewpoint 5)	Upper aspects of construction activity associated with the	Moderate Adverse (Significant)	Further measures will be identified for inclusion in the OCoCP and recommended	

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
	Proposed Scheme will be visible.		construction methodology as the design develops.	<p>The assessment of residual effects will be completed as part of the ES. At present they remain as per the Significance of Effect with Embedded Mitigation. It is anticipated that some significant effects will remain.</p> <p>The assessment of residual effects will be completed as part of the</p>
Riverside Stadium (Viewpoint 6)	Upper aspects of construction activity associated with the Proposed Scheme will be visible.	Minor Adverse (Not Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	
River Tees Viewpoint (Viewpoint 7)	Upper aspects of construction activity associated with the Proposed Scheme may be visible through gaps in mature tree cover.	Negligible Adverse (Not Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	
Teesmouth National Nature Reserve (Viewpoint 8)	Construction activity will be perceptible but will generally be seen in the context of other larger scale industrial development.	Negligible Adverse (Not Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	
The A178 Seaton Carew Road (Viewpoint 2)	Views towards construction activity will be possible across the landscape for passengers and users of public transport, but will generally be seen in the context of other larger scale industrial development. Drivers are anticipated to be	Minor Adverse (Not Significant)	Further measures will be identified for inclusion in the OCoCP and recommended construction methodology as the design develops.	

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
	focussed on the road and for them, construction activity will only be perceived as peripheral glimpses.			ES. At present they remain as per the Significance of Effect with Embedded Mitigation. It is anticipated that some significant effects will remain.

Table 10-12: Summary of Residual Effects for Landscape and Visual Receptors at Operational Phase

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
Landscape				
NCA 23 Tees Lowlands	At the scale of the NCA the Proposed Scheme will become assimilated into the extensive industrial context.	Negligible Adverse (Not Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed.	Negligible Adverse (Not Significant). Owing to the size of the NCA together with the location of the existing extensive industrial context, it is unlikely that this will change as the design develops at ES stage unless extensive increases to the Application Site Boundary are made.
East Billingham to Teesmouth LCA	The Proposed Scheme will have a strong characterising influence across the less developed north westerly part of the LCA.	Minor Adverse (Not Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed. At this stage this is anticipated to include additional planting to the western areas of the Site.	The assessment of residual effects will be completed as part of the ES at present they remain as per the Significance of Effect with Embedded Mitigation.

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
Visual				
Residents in Port Clarence (Viewpoint 4)	The upper aspects of the Proposed Scheme including the 130m height flare stack will be visible from some parts of the residential area.	Moderate Adverse (Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed.	The assessment of residual effects will be completed as part of the ES. At present they remain as per the Significance of Effect with Embedded Mitigation. It is anticipated that some significant effects will remain.
King Charles III England Coast Path (Viewpoint 1 and 2)	There will be close range views of large scale industrial structures from parts of the route.	Moderate Adverse (Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed. At this stage this is anticipated to include additional planting to the western areas of the Site.	
Teesdale Way Near Viewpoint 5 and 6)	Construction activity associated with the Proposed Scheme will only be visible for short sections of the route.	Moderate Adverse (Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed.	
RSPB Salthome Nature Reserve (Viewpoint 3 and 8)	Views across the open landscape towards large scale industrial structures will be available from the nature Reserve.	Moderate Adverse (Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed. At this stage this is anticipated to include	

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
			additional planting to the western areas of the Site.	<p>The assessment of residual effects will be completed as part of the ES. At present they remain as per the Significance of Effect with Embedded Mitigation. It is anticipated that some significant effects will remain.</p> <p>The assessment of residual effects will be completed as part of the ES. At present they</p>
Tees Transporter Bridge (Viewpoint 5)	Upper aspects of the Proposed Scheme including the main 130m height flare stack will be visible.	Moderate Adverse (Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed.	
Riverside Stadium (Viewpoint 6)	Upper aspects of the Proposed Scheme will be visible through gaps in intervening built development.	Minor Adverse (Not Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed.	
River Tees Viewpoint (Viewpoint 7)	Upper aspects of the Proposed Scheme may be visible through gaps in intervening mature tree cover.	Negligible Adverse (Not Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed.	
Teessmouth National Nature Reserve (Viewpoint 8)	The Proposed Scheme will be perceptible but will generally be perceived in relation to other industrial development and will become assimilated into this context.	Negligible Adverse (Not Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed.	

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
The A178 Seaton Carew Road (Viewpoint 2)	Views towards the Proposed Scheme will be possible across the landscape for passengers and users of public transport but will generally be seen in the context of other large scale industrial development. Drivers are anticipated to be focussed on the road and for them, the Proposed Scheme will only be perceived as perceived glimpses.	Minor Adverse (Not Significant)	Additional landscape mitigation measures will be developed as the Proposed Scheme design is progressed.	remain as per the Significance of Effect with Embedded Mitigation. It is anticipated that some significant effects will remain.

Table 10-13: Summary of Residual Effects for Landscape and Visual Receptors at Decommissioning Phase

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
Landscape				
NCA 23 Tees Lowlands Medium sensitivity	At the scale of the NCA, decommissioning activities will become be perceived in relation to the extensive industrial context.	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the ODP and recommended methodology as the design develops.	The assessment of residual effects will be completed as part of the ES. At present they remain as per the Significance of Effect with Embedded Mitigation.
East Billingham to Teesmouth LCA Medium sensitivity	Introduction of decommissioning activity will have a strong characterising influence across some parts of the LCA.	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the ODP and recommended methodology as the design develops.	The assessment of residual effects will be completed as part of the ES. It is anticipated that some significant effects are likely to remain.
Visual				
Residents in Port Clarence(Viewpoint 4)	Large scale elements associated with decommissioning activity will	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the ODP and	

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
	be visible from some parts of the residential area.		recommended methodology as the design develops.	The assessment of residual effects will be completed as part of the ES. At present they remain as per the Significance of Effect with Embedded Mitigation.
King Charles III England Coast Path (Viewpoint 1 and 2)	Decommissioning activity and increased traffic, wharf and marine movement will feature prominently in the visual experience from parts of the route.	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the ODP and recommended methodology as the design develops.	
Teesdale Way (Near Viewpoint 5 and 6)	Decommissioning activity and increased traffic, wharf and marine movement associated with the Proposed Scheme will only be visible for short sections of the route.	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the ODP and recommended methodology as the design develops.	
RSPB Salthome Nature Reserve (Viewpoint 3 and 8)	Views across the open landscape towards decommissioning activity will be available from the nature Reserve.	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the ODP and recommended methodology as the design develops.	
Tees Transporter Bridge (Viewpoint 5)	Upper aspects of decommissioning activity and increased traffic, wharf and marine movement associated	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the ODP and recommended	

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
	with the Proposed Scheme will be visible.		methodology as the design develops.	The assessment of residual effects will be completed as part of the ES. At present they remain as per the Significance of Effect with Embedded Mitigation.
Riverside Stadium (Viewpoint 6)	Upper aspects of decommissioning activity associated with the Proposed Scheme will be visible.	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the ODP and recommended methodology as the design develops.	
River Tees Viewpoint (Viewpoint 7)	Upper aspects of decommissioning activity and increased traffic, wharf and marine movement associated with the Proposed Scheme may be visible through gaps in mature tree cover.	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the ODP and recommended methodology as the design develops.	
Teesmouth National Nature Reserve (Viewpoint 8)	Decommissioning activity will be perceptible but will generally be seen in the context of other larger scale industrial development.	Negligible Beneficial (Not Significant)	Further measures will be identified for inclusion in the Outline Decommission Plan and recommended methodology as the design develops.	
The A178 Seaton Carew Road (Viewpoint 2)	Views towards the decommissioning works across the landscape for passengers and users of	Minor Beneficial (Not Significant)	Further measures will be identified for inclusion in the Outline Decommission Plan and	

Sensitive Receptor	Description of the Effect	Significance of Effect with Embedded Mitigation	Additional Design Mitigation, Enhancement Measure	Residual Effect
	public transport, but will generally be seen in the context of other large scale industrial development. Drivers are anticipated to be focussed on the road and for them, the decommissioning works will be perceived as peripheral glimpses and an increase in traffic.		recommended methodology as the design develops.	Embedded Mitigation.

10.12 NEXT STEPS

10.12.1 The LVIA ES Chapter will assess the potential impacts on landscape character and visual receptors during the construction, operation and decommissioning phases in accordance with the methodology set out in **Appendix 10B: LVIA Methodology (Volume 3)**.

10.12.2 The LVIA ES will consider:

- Any suggested refinement of the proposed methodology that arises through consultation. This will include finalisation of viewpoint and visualisation requirements including winter photography.
- The implications of future baseline changes including those associated with climate change.
- The development of landscape strategy proposals and mitigation at operation year 1 and year 15.
- Assessment of residual effects, taking into account mitigation.
- Incorporation of measures into the landscape strategy in association with the project ecologist and relevant stakeholders which meet the 10% BNG requirement.
- Further development and evolution of design principles.

10.12.3 This will be supported by an OLBS, an Outline Lighting Strategy and a Design Framework.

10.13 LIMITATIONS AND ASSUMPTIONS

LIMITATIONS

10.13.1 The project description should be considered indicative to allow the appropriate design development to progress. In accordance with industry standard practices and The Inspectorate Advice Note 9 'the Rochdale Envelope'³¹, a parameter-based 'design envelope' approach has been adopted in respect of the Proposed Scheme. The proposed 2km Study Area and viewpoint locations may be subject to change and further refinement as a consequence of further design development. The current Study Area is based upon the updated site layout and block plan shown in **Figure 1-2 (Volume 2)** and **Figure 2-1 (Volume 2)** respectively, and project parameters defined in **Chapter 2: Site and Proposed Scheme Description (Volume 1)**.

10.13.2 The preparation of a Design Framework and Design Principles, mitigation proposals and landscape measures are all on-going. Since these elements are yet to be fully realised, they are not presented or considered in this Chapter.

10.13.3 The location of the structures within the Proposed Scheme may be subject to change following further reviews and investigations post PEIR and Statutory Consultation.

10.13.4 The final design of the Proposed Scheme and the landscape and visual amenity impacts associated with it, will be assessed and reported on in the ES. At this stage the LVIA PEIR has assessed the landscape and visual amenity impacts based on the design parameters for the Proposed Scheme at the time of writing. This covered the

maximum number of components/buildings and associated dimensions (height/width and length) referred to in **Chapter 2: Site and Proposed Scheme Description (Volume 1)**.

- 10.13.5 The photography used to inform the assessment was taken in May 2023 during the Summer season. Winter photography taken in March 2024 will be used to inform any further assessment of existing or proposed viewpoints at ES Stage.
- 10.13.6 The visualisations presented to accompany this Chapter are based on a preliminary 3D Model. These will be refined once further design information is available. At present they do not, for the reasons outlined above, show any landscape mitigation measures either on or offsite. The exact height and massing of the proposals are being designed within the Rochdale Envelope (the maximum parameters for every element), as such the visualisations and the assessment are based on the worst case scenario for landscape character and visual amenity impacts.
- 10.13.7 A residential amenity survey has not been carried out because it is not anticipated that any individual residential properties will experience overbearing visual consequences as a result of the Proposed Scheme.

ASSUMPTIONS

- 10.13.8 At this stage of the landscape and visual assessment the following assumptions have been made:
- The nature and location of the Proposed Scheme is based on the Project Description and parameters defined in **Chapter 2: Site and Project Description (Volume 1)**.
 - The preliminary ZTV (DSM) has been based on a height of 130m for the tallest structure (main flare stacks) of the Proposed Scheme at operation as shown on **Figure 10-2 (Volume 2)**.
 - The basis for the assessment in relation to the NTL land is that the area will have already been filled in by NTL ahead of construction of the Proposed Scheme (as defined in **Chapter 2: Site and Proposed Scheme Description (Volume 1)** and **Chapter 3: Approach to EIA (Volume 1)**).
 - Further surveys for this area will continue and a full impact assessment (plus BNG) will be reported at ES. If the consent is implemented this will result in the removal of habitat and infilling of an existing water body which will be reported at ES stage.
 - The final assessment of the Proposed Scheme will be undertaken once the Scheme design, Design Framework, Design Principles, Lighting Strategy and Mitigation are fixed and will determine residual effects.

10.14 REFERENCES

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