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Tees CCPP Project

The Tees Combined Cycle Power Plant Project
Land at the Wilton International Site, Teesside

Volume 1 - Chapter 3

Regulations – 6(1)(b) and 8(1)

Applicant: Sembcorp Utilities UK
Date: November 2017

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3.1 INTRODUCTION

3.1.1 General Considerations

In accordance with the Planning Act 2008 and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the 2009 EIA Regulations) ⁽¹⁾, the EIA process includes the following activities:

- establishing, through consultation, the scope of the Environmental Impact Assessment ('EIA') including obtaining a Scoping Opinion and consulting on preliminary environmental information;
- consideration of any potential alternatives sites, technologies, plant configurations etc;
- developing a comprehensive understanding of the existing baseline environmental conditions for the Project site and the relevant 'areas of influence' for each topic;
- identifying the potential environmental effects resulting from the project;
- determining how the potential environmental effects can be avoided, minimised, reduced or off-set through informed design and / or further mitigation and how its benefits may be enhanced;
- assessing the significance of the potential effects in conjunction with other effects arising from the Project and those from other neighbouring developments and / or sources for cumulative effects; and
- the development of practicable measures to mitigate, manage and monitor any significant residual effects.

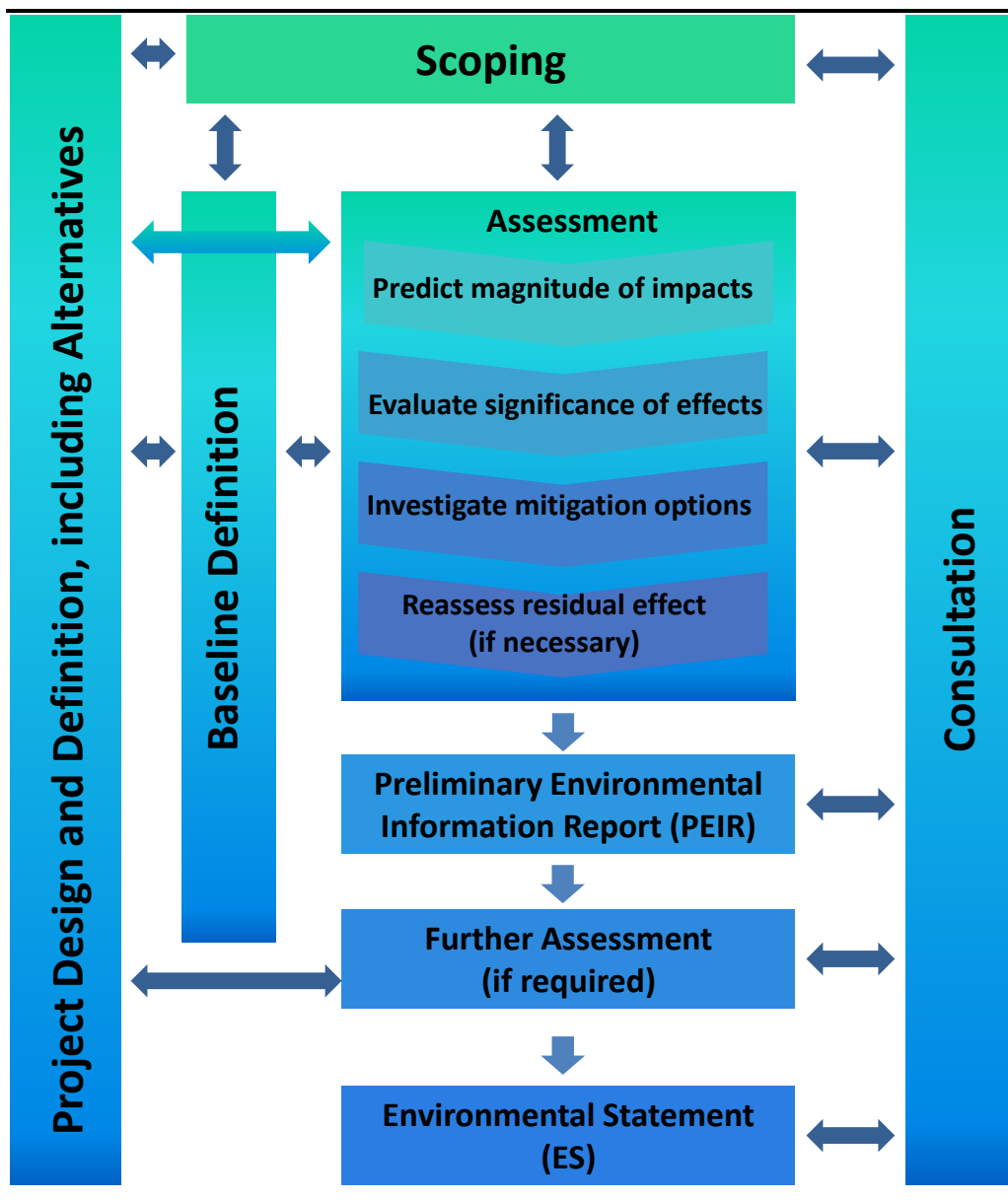
3.1 The impact assessment has followed a systematic process that predicts the impacts of the Project and evaluates the effects it is expected to have on aspects of the physical, biological and human environment. It identifies measures that will be taken to avoid, minimise, reduce, remedy, offset or compensate for adverse effects, and to provide benefits, as far as is reasonably practicable.

3.2 The overall approach followed is shown schematically in *Figure 3.1* and the key steps are described in the subsequent sections. It should be noted that

(1) Section 1.6 sets out how this ES addresses the 2017 EIA Regulations and transitional provisions regarding the applicability of the 2009 EIA Regulations.

EIA is not a linear process, but an iterative one, in which findings are revisited and modified as the application and the EIA progress.

Figure 3.1 Overview of EIA Process for DCO



3.1.2 Some Specific Requirements of the Regulations and DCO Process

Scoping

3.3 The purpose of scoping was to identify the likely significant effects of the Project that would require investigation and to develop the resulting terms of reference for the assessment studies. This involved the systematic consideration of the potential for interaction between activities involved in developing the Project, the impacts that arise from them and aspects of the physical, biological and human environment that may be affected. The process is referred to as 'scoping' and was advised by consultation.

- 3.4 An EIA Scoping Report (*Annex A*) for the Project was submitted to a range of consultees in February 2017 outlining the Project and proposed methods of environmental / social baseline collection and assessment. In March 2017 the Secretary of State responded with a Scoping Opinion (*Annex B*) including responses from a range of consultees. Scoping responses specific to each EIA topic are reproduced at the beginning of each topic chapter (*Chapters 6 to 15*).
- 3.5 The scoping process for the Project involved setting out the scope of the EIA in terms of its technical, spatial and temporal coverage and then, based on knowledge of the intended activity at the time of scoping and the Project's environmental and socio-economic setting, identifying the key issues for the EIA to address. The scoping process was advised by interaction with the Project design team. The scoping process also identified the key sources of information to be used in the EIA.
- 3.6 Scoping is discussed further in *Section 3.3*.

Preliminary Environmental Information

- 3.7 The purpose of the Preliminary Environmental Information is to enable the local community / consultees to understand the likely environmental and socio-economic effects of the Project at an early stage, thus informing their responses to consultation on the Project. This is reflected in the Department for Communities and Local Government (DCLG) Guidance ⁽¹⁾ which advises applicants to provide "sufficient preliminary environmental information to enable consultees to develop an informed view of the project. The information required may be different for different types and sizes of projects. It may also vary depending on the audience of a particular consultation."
- 3.8 Preliminary environmental information was provided in the form of a Preliminary Environmental Information Report (PEIR). Further information on the PEIR is provided in *Section 3.3*.
- 3.9 In June 2017 as required by Section 42 of the 2008 PA, Sembcorp consulted with those persons specified in Sections 42, 43, 44 and 47 of the Act, which included local authorities prescribed consultation bodies and the wider community. This consultation took the form of information compiled at that point in time on the Project's environmental and social impacts in a series of Preliminary Environmental Information Reports (PEIR) and a non-technical summary. The structure of the PEIR is detailed in *Table 3.1* below:

Table 3.1 *PEIR Structure*

| Document Title | PEIR Chapters and Annexes |
|-------------------------|---------------------------|
| Non-technical Summary | |
| Volume 1 – Introduction | 1 Introduction |

(1) Planning Act 2008: Guidance on the pre-application process. March 2015 Department for Communities and Local Government

| Document Title | PEIR Chapters and Annexes |
|------------------------|---|
| and technical chapters | |
| | 2 Legislation, Policy and Guidance |
| | 3 EIA Process and Methodology |
| | 4 Overview of Environmental and Socioeconomic Baseline |
| | 5 Project Description and Alternatives |
| | 6 Surface Water , Flood Risk Geology, Hydrogeology and Land Quality |
| | 7 Air Quality |
| | 8 Noise and Vibration |
| | 9 Ecology and Nature Conservation |
| | 10 Traffic and Transport |
| | 11 Archaeology and Cultural Heritage |
| | 12 Landscape and Visual Amenity |
| | 13 Socio-economic Characteristics |
| Volume 2 – Annexes | |
| | Annex A - Scoping Report |
| | Annex B - Scoping Option |
| | Annex C - FRA |
| | Annex D1 - Phase 1 |
| | Annex D2 - Envirocheck |
| | Annex D3 - Site Condition Report |
| | Annex E1 - Stack Height Assessment |
| | Annex E.2 - Green House Gas Assessment |
| | Annex F1 - Noise Baseline |
| | Annex F2- Noise Model Inputs And Results |
| | Annex G1 - Effects Of Air Quality On Nationally And Locally |
| | Annex G2 - Preliminary Ecological Appraisal |
| | Annex G.3 - Breeding Bird Survey |
| | Annex H - Habitats Regulations Assessment |
| | Annex I.1 - Transport Assessment |
| | Annex I.2 - Framework Construction Traffic Management Plan |
| | Annex J - Gazetteer of Non Designated Heritage Assets |
| | Annex K - Landscape and Visual Amenity |
| | Annex L - Construction Environmental Management Plan |

3.2 *EIA SCOPING*

3.2.1 *Overview*

3.10 When it is determined that an EIA will actually be required, the next stage in any EIA process is to identify the likely significant effects of the Project that will require investigation and to develop the resulting terms of reference for the assessment studies. This involves the systematic consideration of the potential for interaction between activities involved in developing the Project, the impacts that arise from them and aspects of the physical, biological and human environment that may be affected. The process is referred to as ‘scoping’ and is also advised by consultation (see *Section 3.3*).

3.11 The scoping process for the Project involved setting out the scope of the EIA in terms of its technical, spatial and temporal coverage and then, based on knowledge of the intended activity at the time of scoping and the Project's environmental and socio-economic setting, identifying the key issues for the EIA to address. The scoping process was advised by interaction with the Project design team and by some informal public consultation and meeting with technical consultees during preparation of the Scoping Report. The scoping process also identified the key sources of information to be used in the EIA.

3.12 The main aspects of the scoping process and its outcome are described in the following sections.

3.2.2 *Scope of the EIA*

Technical Scope

3.13 The Scoping Report presented a provisional assessment of some topics and sub-topics based on information for the Project Site that was already available and some early Project Site visits (eg for ecology, landscape and visual, and cultural heritage). Furthermore the status of the Project Site (ie a former power generation site) and the knowledge and feedback obtained from undertaking previous environmental studies leading to a local planning consent from 2008 enormously assisted the scoping process and developing the technical scope.

3.14 Table 8.1 of the Scoping Report (see *Annex A*) summarised the proposed technical scope for the EIA. The table sought to clearly set out how a topic/sub-topic would be taken forward in the EIA process and the degree of effort and emphasis that would be applied in each instance. For example where the evidence base and consultation feedback clearly indicated there was no scope for a likely significant effect a sub-topic was scoped out. Where the impact and effects for a topic/sub-topic were clearly understood and management and mitigation measures of known effectiveness could be reasonably expected to be put in place, the EIA considers such matters but does not necessarily examine them in great depth. Where there is uncertainty or the ability of the design to comply with legal standards needs to be demonstrated, the EIA takes the necessary steps in terms eg of Project Site surveys and numeric modelling, and other detailed assessments to address such matters.

3.15 The Scoping Opinion (*Annex B*) subsequently provided direction on matters to be scoped in and those which could be scoped out of the EIA. Each of the topic chapters (6 to 15) takes into account the elements of the Scoping Opinion relevant to its technical scope and describes how (and where) in the chapter it has addressed such matters.

3.16 In addition since undertaking the EIA scoping exercise and receiving the Scoping Opinion the Applicant is considering the possibility of a phased

development (see also *Chapter 5*). The EIA team has considered the implications of the possible phasing within the assessment.

3.17 Possible phasing of the Project means that each topic basis for assessment needs to capture an envelope that includes the following development scenarios.

- Scenario 1 comprises up to 1,700 MWe of power generation in operation (base case) with a single construction phase of up to 39 months.
- Scenario 2 comprises two separate construction phases each of 39 months with up to 850 MWe of CCGT operating in the baseline for the second phase of construction. The two phases of construction could be separated by up to five years. Once both phases are complete there would be up to 1,700 MWe of power generation in operation.

3.18 The above possible scenarios influence the assessment approach as set out in *Table 3.2*.

Table 3.2 *The Influence of Project Phasing on the Technical Scope of the EIA*

| Topic | Consideration of Phasing |
|---|---|
| Contaminated land, water resources and flood risk - construction | Scenario 1 construction is worst case. No change from scoping. |
| Contaminated land, water resources and flood risk - operation | Scenario 1 is worst case. No change from scoping. |
| Air quality - construction | Scenario 1 construction is worst case. No change from scoping. |
| Air quality - operation | Scenario 1 is worst case. No change from scoping. |
| Noise - construction | Scenario 1 is worst case but some consideration may need to be given to Scenario 2 in terms of cumulative effects of 850 MW operation plus construction impacts. Very minor change from scoping. |
| Noise - operation | Scenario 1 is worst case. No change from scoping. |
| Ecology - construction | Scenario 1 construction is worst case. No change from scoping. |
| Ecology - operation | Scenario 1 is worst case. No change from scoping. |
| Habitats Regulations Assessment - operation | Scenario 1 is worst case. No change from scoping. |
| Landscape and Visual - construction | Scenario 1 construction is worst case but some consideration may need to be given Scenario 2 in regards to visual effects of building one 850 MW plant next to an operating 850 MW plant. Very minor change from scoping. |
| Landscape and Visual - operation | Scenario 1 is worst case. No change from scoping. |
| Cultural heritage (setting effect on cultural heritage assets only) | As for landscape and visual above |
| Traffic and Transport - construction | It is likely that Scenario 1 would constitute worst case but with traffic effects occurring against backgrounds separated by up to five years effects could be different and so both scenarios require assessment. Minor change from scoping. |
| Traffic and Transport - operation | Scenario 1 is worst case. No change from scoping. |
| Socio-economic characteristics - | There is not actually a worst (or best) case as they are |

| Topic | Consideration of Phasing |
|--|---|
| construction | slightly different and so both Scenarios require assessment. Minor change from scoping. |
| Socio-economic characteristics - operation | There will be effectively no difference. No change from scoping. |

3.19 The influence of a phased development is minor for some of the topics examined in scoping but on review of the Scoping Opinion it causes no material changes to the technical scope for any topic.

Spatial Scope

3.20 In general terms, the spatial, or geographical, scope of the assessment takes into account the following factors:

- the physical extent of the proposed works, as defined by the Project design;
- the nature of the baseline environment and the manner in which the impacts are likely to be propagated; and
- the pattern of governmental administrative boundaries, which provide the planning and policy context for the Project.

3.21 For example, any potential construction effects on habitats would tend to be confined to those areas physically disturbed by the works, whilst the effects of noise or visual intrusion could potentially be experienced at some distance from the works.

3.22 Appropriate study areas have been considered for each environmental topic by the specialists undertaking that assessment, and in agreement with the relevant consultees where required. The study areas adopted for each topic are described in *Chapters 6 to 15*.

Temporal Scope

3.23 The temporal scope of the assessment generally refers to the time periods over which impacts may be experienced. This will be established for each discipline, where appropriate through discussion with the relevant statutory consultees.

3.24 Terms used to qualify the duration of an impact or effects will tend to be specific to the topic being considered.

3.25 Construction phase impacts may potentially arise during the whole of the construction works, which is expected to last approximately 39 months in the event the Project is constructed in a single stage. In the event of a phased development there would be two periods of construction each lasting 39 months. Where the potential phasing of the development has an influence on

how impacts and effects need to be assessed the approach to dealing with this is described in the relevant topic chapter (*Chapters 6 to 15*).

3.26 The construction phase (or phases) will not be one continuous activity of the same intensity. There will be periods of noisy activity and periods of more intensive traffic movements. The overall construction phase will be divided up into component activities so that the durations of particular impacts and effects can be assessed and clearly reported.

3.27 The construction phase would be timed to avoid overlapping with any other significant Sembcorp activity in the Wilton area to the extent this is practicable.

3.28 The assessment will also take into account the time of day during which works are likely to be undertaken, notably whether they are undertaken during daytime or night-time periods.

3.29 For the operational phase, the temporal scope will be determined by the predicted date of the commencement of generation which will be within approximately three years of commencement of construction, and thereafter the anticipated operating lifetime of the Project.

3.30 The Project will have a lifespan of at least 25 years and is not expected to result in any abnormal environmental conditions as a result of or following decommissioning.

3.3 *CONSULTATION*

3.3.1 *The Requirements*

3.31 DCLG Guidance on pre-application consultation emphasises the importance of early pre-application consultation and cites the following as forming the benefits that it can bring to all parties:

- helping the applicant identify and resolve issues at the earliest stage, which can reduce the overall risk to the project further down the line as it becomes more difficult to make changes once an application has been submitted;
- enabling members of the public to influence proposed projects, feedback on potential options, and encouraging the community to help shape the proposal to maximise local benefits and minimise any downsides;
- helping local people understand the potential nature and local impact of the proposed project, with the potential to dispel misapprehensions at an early stage;

- enabling applicants to obtain important information about the economic, social and environmental impacts of a scheme from consultees, which can help rule out unsuitable options;
- enabling potential mitigating measures to be considered and, if appropriate, built into the project before an application is submitted; and
- identifying ways in which the project could, without significant costs to promoters, support wider strategic or local objectives.

3.32 Sembcorp has duly considered the DCLG guidance, the requirements of the Planning Act 2008 and has conducted honest, meaningful, inclusive and clear consultation. Sembcorp ensured that the proposals were communicated to stakeholders during the early stages of the Project, resulting in greater opportunity for consultees to influence the design of the Project.

3.3.2 *EIA Scoping Consultation*

3.33 Sembcorp submitted a Scoping Report to the Planning Inspectorate in February 2017. The Planning Inspectorate in turn sent the document on to a range of consultees and collated responses.

3.34 The primary purpose of the Scoping Report was to provide information and details on the Project, which enabled the Planning Inspectorate to respond to the accompanying request for an EIA Scoping Opinion, made pursuant to Regulation 8 of the 2009 EIA Regulations.

3.35 The Scoping Report also provided consultees with relevant information on the Project and enabled them to identify the key environmental issues from the initial stages in the development of the Project thus allowing early recognition of these issues in the evolution of design and decision-making.

3.36 The Planning Inspectorate responded with a Scoping Opinion in March 2017. The Scoping Opinion is available on the Planning Inspectorate website and was also included in the PEIR as *Annex B*. The Scoping Opinion raised a number of matters pertaining to the EIA process and noted that the main potential issues to be address within the EIA were:

- air quality impacts, particularly in relation to deposition on European nature conservation sites;
- landscape and visual impacts, particularly in relation to prominent elements of the Project, such as the stacks; and
- construction traffic and transport impacts, particularly in relation to movement of abnormal loads on the local road network.

3.37 More specific matters were also raised (including consultation responses) and were considered as appropriate in preparing the PEIR and subsequently, this ES.

3.3.3 *Pre-Application Consultation*

3.38 Pre-application consultation is a formal requirement for a DCO application under the Planning Act 2008 (the Act 2008). Before making an application for a DCO to the Planning Inspectorate, Sembcorp consulted a range of stakeholders, including the local community, statutory consultees and other interested parties.

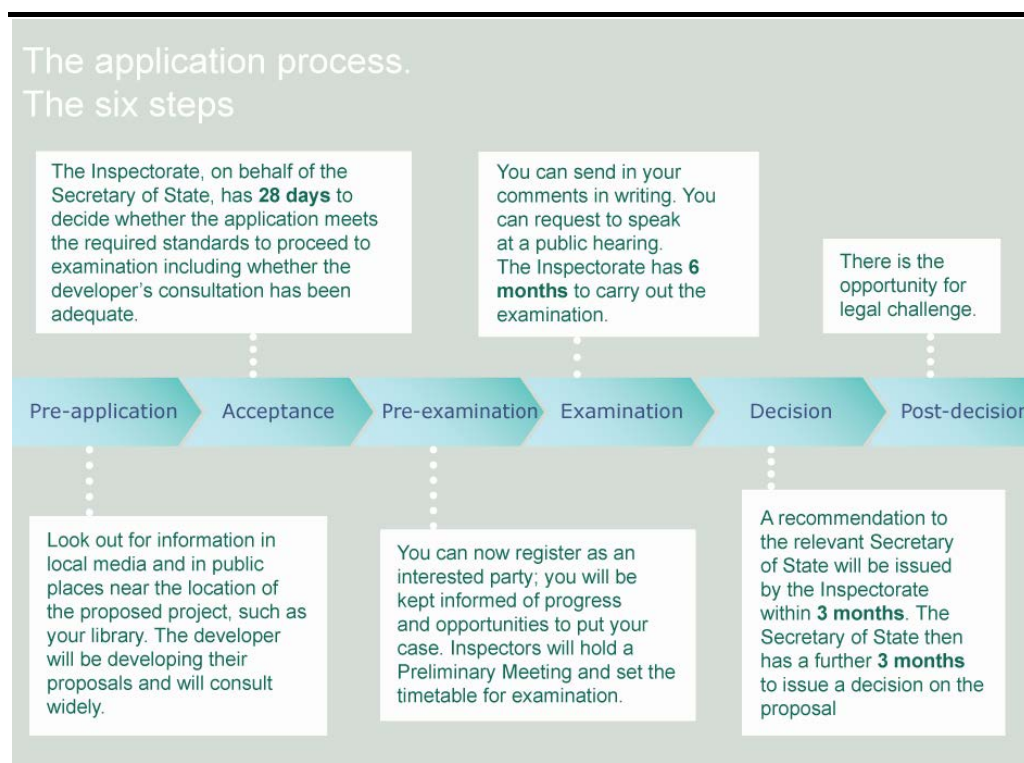
3.39 Key requirements of the Act 2008 that relate to pre-application consultation include the following.

- Sections 42 – 45 requires consultation of a wide range of statutory consultees, landowners, lessees, occupiers, tenants, local authorities in which development is proposed and adjoining local authorities. At least 28 days must be allowed for these consultations.
- Section 46 requires consultation material to be submitted to the Planning Inspectorate on or before the section 42 consultation is begun.
- Section 47 requires local community consultation; Sembcorp published its Statement of Community Consultation (SOCC) for this Project in late May to early June 2017. This is available to download from the Redcar and Cleveland Council Planning Portal under reference R/2017/0276/NID.
- Section 48 concerns publicity of the proposed application.
- Section 49 requires consideration of all relevant responses to the consultations under sections 42, 47 and 48. This will be important in deciding the final form of the Project and the associated DCO application.
- Section 37 includes a requirement to produce a Consultation Report to accompany the DCO application. This document details how sections 42, 47 and 48 have been complied with. It also gives details of any relevant responses to these consultations and details of the account taken of such responses.

3.40 Prior to the DCO submission extensive consultation was undertaken with a wide range of organisations and the public. The first public meeting was undertaken on the 4 July 2017 with subsequent exhibitions on the 7th and 13th of July 2017. Further information on public consultation is available within the Consultation Report (DCO Doc Ref No 5.1) and from the Project website: www.tccpp.co.uk.

3.41 Feedback from the consultation on the PEIR has informed the development of this EIA which has in turn informed part of the DCO submission. The stages of the DCO process are shown below in *Figure 3.2*.

Figure 3.2 *The DCO Application Process*



Source: <http://infrastructure.planningportal.gov.uk/wpcontent/uploads/2013/03/Application-process-diagram2.png>

3.42 A number of responses were received to this consultation and subsequent face to face meetings were held to further discuss matters raised. Further details on the consultation carried out can be found within the Consultation Report (DCO Document No Ref 5.1). A summary of key responses and how this ES has endeavoured to address them is presented in each of the technical topic chapters (*Chapters 1 to 15*).

3.4 ***BASELINE ENVIRONMENTAL AND SOCIOECONOMIC CONDITIONS***

3.43 To provide a baseline ⁽¹⁾ against which the effects of the Project can be assessed, the ES describes the physical, biological and human environmental conditions that will prevail in the absence of the Project, the existing environment, together with inter-relationships between elements of them. The existing environment description includes information on all receptors and resources that were identified during scoping as having the potential to be significantly affected by the Project. It also includes information (such as meteorological data) that has been used to make the assessment (eg

(1) The term baseline is used to describe the existing conditions without the Project.

atmospheric dispersion modelling). Details are provided in the topic chapters and annexes of the ES.

3.44 The description of the existing environment has the following main objectives:

- to identify the pre-Project conditions in areas potentially affected by the Project and highlight those that may be vulnerable to aspects of the Project;
- to describe and where possible quantify their characteristics (nature, condition, quality, extent, etc.) now and over the term of the Project ⁽¹⁾;
- to provide data to aid the prediction and evaluation process; and
- to inform judgements about the quality, importance, and sensitivity of resources and receptors.

3.45 The sources of information and methods of data collection are described in detail in the topic chapters (6 to 15).

3.5 *INTERACTION WITH PROJECT DESIGN AND RESPONDING TO FEEDBACK/LOCAL SENSITIVITIES*

3.5.1 *Developing the Project Description*

3.46 A key aspect of the EIA has been the interface between the EIA team and the Project design team. The Project design team has provided information for the assessment relating to the nature of the Project, its planning, construction and operation (see also *Chapter 5*). As the EIA has progressed the results have been fed back to the Project design team and, where appropriate, modifications have been made or mitigation measures have been agreed and integrated. This has been an iterative process during the EIA to date.

3.47 As a power station operated on the Project Site plot for over 15 years Sembcorp were fully aware of the local sensitivities surrounding power generation plant and industrial process plant in general. Accordingly in developing the Project, Sembcorp considered historic concerns raised by the local community and stakeholder feedback.

3.48 The key design factors with the potential to influence environmental effects (and thus subject to optimisation) include:

(1) Where appropriate, the future baseline takes into account trends that are apparent in the current baseline (eg flood risk, traffic flows).

- orientation of the in-line powertrain (steam turbine / generator / gas turbine / heat recovery steam generator (HRSG) / stack) – either north to south or vice versa, or east to west or vice versa;
- location of the hybrid cooling tower;
- optimum stack height; and
- requirement for area reserved for future carbon capture readiness (CCR).

3.49 *Table 3.3* provides a concise summary of the key matters considered in responding to the above design factors.

Table 3.3 *Key Environmental Design Factors*

| Potential Concern | Design Response |
|---|---|
| Noise – In particular steam venting during ‘normal’ operations which was common on the now demolished station for various reasons and noise from the cooling towers | <ul style="list-style-type: none"> • Testing the plant orientation via running differing plant configurations to verify whether the adopted design was acoustically preferable. Based on these model runs the adopted layout offers the best acoustic performance in terms of minimising predicted increases over ambient noise levels at noise sensitive receptors. • Locating the Cooling Towers further away from the noise receptor to the south east of the plot. The powertrain buildings and the existing sound wall provide additional acoustic attenuation from these noises sources. • Proposing a turbine building even though the gas turbine units will be inside an acoustic enclosure to provide noise attenuation from the powertrain. • Proposing cladding on the sides of the HRSG to provide further noise attenuation from the steam piping and silenced vents. • Steam vent: any normal operation vents will have silencers installed and emergency steam relief vents will only operate in extreme condition for safety reasons. |
| Visual Impacts: visual intrusiveness of permanent structures and stacks, particularly to residential areas to the southeast of the plot. | <p>Locating the stacks in an optimum position towards the north of the plot to minimise visual intrusiveness to Lazenby and Grangetown.</p> <p>Stack height to be optimised between visual impact and air quality. Initial assessments have already indicated a reduction from 90 m to 75 m stacks is possible.</p> |
| Plumes: visual intrusiveness of plumes from cooling towers | Hybrid cooling tower technology will be used which will have a much reduced visual plume than the original cooling tower plumes (associated with the now decommissioned station). |

3.50 As the process has progressed since the issue of the PEIR and during the consultation process, the description of the Project in *Chapter 5* has been revised to include embedded mitigation measures reflecting a clear unambiguous commitment by Sembcorp.

3.5.2 *Identifying Probable Effects Whilst Retaining Sufficient Design Flexibility*

3.51 As noted in the Scoping Report it is important to retain design flexibility to respond to emerging economic circumstances and technological advances to enable the commercialisation of this technology. A degree of flexibility will, therefore, be built into the Project design.

3.52 This need for flexibility does, however, introduce some complexity into the EIA process. The 2009 EIA Regulations require an Environmental Statement (ES) to provide a description of the location, design and size of the project to enable the likely significant environmental effects to be assessed and to enable the decision maker, statutory consultees and the public to make a properly informed response.

3.53 In summary a balance has to be sought, therefore, between defining the Project in enough detail to assess effects, while leaving enough flexibility to enable the Project to be successfully delivered under conditions which may be subject to change, such as connection to the carbon transport and storage network. The adopted approach is to provide a reasonable worst scenario as a basis for assessing the effects of the Project. In practice the EIA takes account of all the reasonable variations (up to the worst case scenario from an environmental perspective) and presents the likely significant effects of these where appropriate. Such an approach is good practice, as reflected in the Planning Inspectorate's Advice note 9 'Rochdale Envelope' (Advice Note 9).

3.54 In accordance with Advice Note 9 and especially as the Project is in the Front End Engineering Design (FEED) stage, assessments are based, where necessary, on an evaluation of the realistic 'worst case scenario'. For each environmental and socioeconomic topic these are listed early in the chapter under the sub-heading: *Basis of Assessment including Realistic Worst Case Scenario*. Each chapter states what has been assumed relating to that particular topic to allow the assessments to be completed whilst the design process is still ongoing. So for instance the landscape and visual modelling has assumed buildings are larger than the current design to allow some flexibility whilst ensuring the assessment is based on a tenable worst case scenario.

3.5.3 *Consideration of Alternatives*

It is noted that Schedule 4 (paragraph 18) of the 2009 EIA Regulations ⁽¹⁾ requires developers to outline the main alternatives studied by them and an indication of the main reasons for their choice, taking into account environmental effects. As part of the EIA process a review of feasible alternatives from an environmental perspective has been undertaken during the development of the Project. Further details are provided in *Chapter 5*.

(1) Schedule 4 paragraph 2 of the 2017 EIA Regulations.

3.55 In addition, at a more impact or topic specific level, mitigation options are reviewed. This is to demonstrate that where there are several ways in which a mitigation objective can be achieved different technical, economic and environmental/social benefits need to be considered in the course of determining which option the Project will adopt and the reasons why.

3.6 *ASSESSMENT OF EFFECTS*

3.6.1 *General Considerations*

3.56 The assessment of effects is an iterative process that considers four questions.

1. Prediction: what will the effect be to resources and receptors as a consequence of the proposed Project?
2. Evaluation: does this effect matter? How important or significant is it?
3. Mitigation: what can be done about it?
4. Residual effect: is it still significant?

3.57 Where significant residual effects remain, further options for mitigation are considered and effects re-assessed to see if they can be reduced further within the context of what is technically feasible and cost-effective.

3.58 The overall approach is described in *Figure 3.3* below and the following sections provide additional detail.

3.6.2 *Types of Impacts and Effects Assessed*

3.59 The process followed during scoping and onwards through the overall EIA has considered the positive and negative effects of the Project which are defined as follows.

- Positive or beneficial effects are those that are considered to present an improvement to the existing conditions or to introduce a new desirable factor.
- Negative or adverse effects are those considered to result in deterioration in existing conditions or to introduce a new undesirable factor.

3.60 Effects only bear significance if they are experienced by a receptor. Aspects of the environment considered as receptors in scoping and the EIA, to the extent they may be applicable to the Project, are as follows.

- The physical environment, which includes: geology and soils; water resources; air; and noise and vibration.

- The biological environment, which includes: habitats; flora and fauna; biodiversity at the community, species and genetic levels; and protected areas.
- The human environment, which includes: people and their resources; public welfare, amenity and safety; employment and incomes; business and economic activity, including agriculture, tourism, and industrial/energy infrastructure; and sites and features of archaeological, historic, traditional, cultural or aesthetic interest.

Figure 3.3 EIA Methodology

Identify Impact

The scoping process will identify the potentially most important/significant impacts and effects (including secondary, indirect and cumulative) for the assessment to address. This will be done through a combination of:

- looking at the nature of the project activities and the impacts they will give rise to;
- looking at the project's environmental and social setting and those aspects which are likely to be most sensitive/vulnerable to impacts from the project;
- applying professional understanding gained from the evidence base; and
- considering inputs from stakeholders through consultation.

Decisions will then be made on which impacts and effects to assess or to prioritise in the assessment (scoping in and scoping out) and how to assess them (proposed methodology).

Predict Magnitude

The project's impacts will be quantified in terms of eg:

- landtake area or habitat loss;
- proportion of an ecological population exposed to impact;
- change in noise levels or pollution at a receptor; and
- numbers of jobs generated in the local economy.

In predicting magnitude the effect of all the project mitigation in place (i.e. committed to by Sembcorp) will be taken into account.

For some impacts, especially noise, air and water pollution, significance can be assessed directly against numerical criteria and standards. For exceedances, further mitigation must be incorporated by the project to reduce the magnitude of the impact (and the significance of its effect).

For other impacts nominal levels of magnitude (e.g. small, medium, large) may be adopted based on widely recognised factors such as: the nature of a change (what is affected and how); its size, scale or intensity; its geographical extent and distribution; its duration, frequency, reversibility and, for unplanned events, likelihood of occurrence .

Some activities will result in changes to the environment that may be immeasurable or undetectable or within the range of normal natural variation. Such changes will be assessed as having no impact or to be of negligible magnitude and will not lead to significant effects.

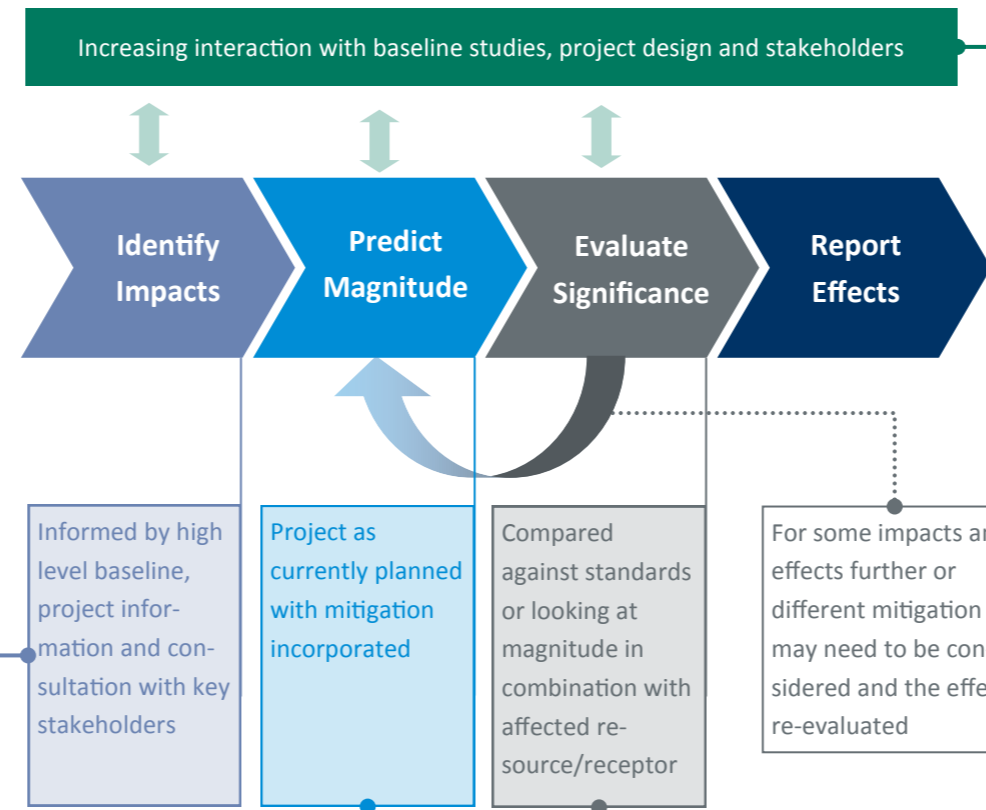
Evaluate Significance

In evaluating significance, the EIA process seeks to inform regulators and stakeholders about the effects of the project in a way that helps them make decisions on whether to approve and allows them to develop suitable conditions to attach to an approval. The evaluation of significance should ideally demonstrate legal compliance at least (e.g. compliance with quantified standards, avoidance of effects on legally protected resources).

In the absence of quantified standards, significance can be evaluated through considering the magnitude of an impact in combination with the importance/quality/value of the receptor or resource that is affected, also considering the response (or sensitivity) of a resource or a receptor to a particular impact. Effects of more than minor significance may warrant re-examination to see if an impact magnitude can be reduced further. Different mitigation options may be examined and the reasons for selecting one and rejecting others explained. Some impacts/effects that cannot be adequately mitigated may need to be addressed through the consideration of offsets or compensation.

The evaluation process may go through one or more iterations of working with project design to develop suitable mitigation and re-evaluating impacts and effects.

While the above provides a general framework for identifying impacts and assessing the significance of their effects, in practice the approaches and criteria applied across different environmental and socio-economic topics vary.



Describe Baseline

Baseline data will be collected to better understand the potentially most important impacts and effects identified in scoping. Baseline data may quantify existing exposure levels (e.g. for noise, air and water pollution), identify vulnerable populations of animals or people, more clearly delineate valued cultural property and ecosystem services etc.

Where a baseline aspect cannot be quantified then nominal levels of importance, quality or value (low, medium, high) will be assigned based on widely accepted criteria in fields such as ecology, cultural heritage, landscape and socioeconomic assessment. Inter-relationships between elements of the baseline will be identified.

Interact with Project Design

The EIA process will interact with the project design team to develop a basis for the assessment (for example quantities of emissions, noise levels of equipment, sizes of structures). The EIA process will also interact with design to assess 'best available technology' and mitigation options, especially when after initial assessment some impacts may need to be further reduced.

Consult Stakeholders

Ongoing stakeholder consultation, post-scoping, is good practice in EIA and is undertaken to refine the assessment and present preliminary findings to stakeholders to elicit early responses and help make the Environmental Statement as fit for purpose as possible.

| | | Magnitude of Impact | | |
|---|--------|---------------------|----------|-------|
| | | Small | Medium | Large |
| Quality/Importance/Sensitivity of Resource/Receptor | High | | | Major |
| | Medium | | Moderate | |
| | Low | Not Significant | | |

3.61 The term resources is used to describe features of the environment such as ecosystem services, habitats, species and cultural features which are valued by society for their intrinsic worth and/or their social or economic contribution. The term receptor is generally used to define mobile species of fauna, people and communities who may be affected by the project.

3.62 In identifying significant effects, the EIA also takes into account their nature and duration, as follows.

- Site-specific effects: effects that result from a geographically localised impact and which are significant primarily at a neighbourhood or district level.
- Wider effects: effects that are individually significant at a regional level, but which may not be significant locally.
- Temporary effects: effects that generally persist for a limited period only, due for example to particular construction activities (eg noise and vibration from construction plant) and which are reversible.
- Permanent effects: effects resulting from an irreversible change to the baseline environment (eg loss of ancient woodland).
- Shorter-term effects are predicted to last only for the duration of the activity giving rise to the impact (eg earthworks causing dust to be mobilised onto a neighbouring land use).
- Longer-term effects are predicted to continue through operation or beyond the cessation of the activity giving rise to the impacts concerned but will cease in time.
- Continuous effects occur continuously or frequently.
- Intermittent effects are occasional or occur only under specific circumstances (eg during commissioning or annual maintenance).
- Direct effects: effects that arise from the impact of activities that form an integral part of the Project (eg new infrastructure).
- Indirect or induced effects: effects that arise from the impact of activities not explicitly forming part of the Project.
- Secondary effects: effects that arise as a result of an initial effect of the scheme (eg reduced amenity of a community facility as a result of construction noise and vibration).

- Cumulative effects: effects that result from incremental changes caused by other past, present or reasonably foreseeable development together with those from the Project.

3.63 Finally the EIA has, where necessary, assessed both:

- routine effects resulting from planned activities in the construction and operation of the Project; and
- non-routine effects arising from unplanned or accidental events.

3.64 It is important to note that the above terms are not necessarily used to 'label' effects but are factors considered in assessing significance. For example, all else being equal, an effect of long duration or high frequency is more likely to be of significance than the converse.

3.6.3 *Mitigation*

3.65 One of the key objectives of an EIA is to identify and define socially and environmentally acceptable, technically feasible and cost effective mitigation measures. These should avoid unnecessary damage to the environment; safeguard valued or finite resources, natural areas, habitats and ecosystems; and protect humans and their associated social environments. For each significant adverse effect of the Project identified during the EIA process, the specialists undertaking the assessments have identified mitigation measures that are consistent with statutory requirements and good practice in their respective field. These measures have been committed to through a number of means, for example: integration into design; by inclusion of management procedures; or through a Construction Environmental Management Plan (CEMP); a draft of which is included in *Annex L* of this ES.

3.66 Mitigation measures are developed to avoid, minimise, reduce or remedy (eg reinstate or restore) for any negative effects identified, and to create or enhance positive effects such as environmental and social benefits. In this context, mitigation measures are taken to include design measures and construction practices, as well as management actions, *Chapter 17* of this ES provides a summary of mitigation measures to be undertaken by the Project. These measures are often established through industry standards and may include:

- changes to the design of the Project during the design process (eg location of components, size of structures, emissions controls);
- construction working practices (eg routing of construction traffic, dust suppression, noise management); and
- operational plans and procedures (eg Environmental Management Systems, Emergency Response Plans).

- 3.67 For effects that are initially assessed to be of major significance, a design change is usually required to avoid, minimise or reduce these, followed by a reassessment of significance. For effects assessed to be of moderate significance, specific mitigation measures such as engineering controls are usually required to reduce the impacts and their effects to as low as reasonably practicable levels. This approach takes into account the technical and financial feasibility of mitigation measures. Effects assessed to be of minor significance are usually managed through the implementation of management plans, such as the CEMP, good industry practice, operational plans and procedures.
- 3.68 The mitigation measures developed during the EIA process, as well as standard industry practice measures, have been fully committed to by Sembcorp as integral aspects of the Project. EIA is intended to ensure that decisions on projects are made in full knowledge of their likely significant effects on the environment and society. As noted below, the residual effects and their significance are reported in this ES are based on the Project as planned and designed fully inclusive of all proposed mitigation.
- 3.6.4 *Reporting Residual Effects***
- 3.69 Residual effects, once mitigation measures have been applied, are classified as not significant or still significant (albeit reduced), as appropriate. Where effects are still significant, the mitigation options considered and the reasons for selecting particular measures are also reported.
- 3.70 Reporting the significance of a residual effect is based on:
- the predicted magnitude of an impact taking into consideration all the mitigation measures the Project is committed to that are relevant to that impact; and (where appropriate)
 - the quality or importance of the receptor and its sensitivity (to a specific impact).
- 3.71 Where a quantified standard exists, eg for noise or air quality, the evaluation process is a simpler one of comparing the predicted magnitude of the (mitigated) impact with the appropriate standard.
- 3.72 The degree of significance attributed to residual effects is related to the weight the EIA team considers should be given to them in making decisions on the Project and, where appropriate, the application of DCO requirements.
- 3.73 Ideally through the design, EIA and consultation processes by the time of an application a project should be designed to avoid residual effects of major significance.
- 3.74 Effects of moderate significance are considered important to decision making, warranting careful attention to ensure conditions regarding mitigation and

monitoring employ the most appropriate (technically feasible and cost-effective) measures.

3.75 Effects of minor significance are brought to the attention of decision-makers but will be identified as warranting little if any weight in the decision; mitigation will typically be achieved using normal good practice, eg via the construction environmental management plan (CEMP).

3.76 Where concerns remain over the significance of residual effects and there is no scope to reduce the significance of the effect through practicable mitigation measures aimed directly at the impact then the EIA has considered ways to offset the effect.

3.6.5 *Cumulative Effects*

Introduction

3.77 The Project's impacts and effects are considered in the context of both baseline conditions and together with schemes which are in development or may be developed in future, and the resultant environmental effects of the schemes coexisting with the Project. These effects are termed cumulative effects.

3.78 The assessment considers the accumulation of effects on people and the environment, even if the Project, when assessed on an individual basis, may have effects that are not significant.

3.79 EN-1 ⁽¹⁾ makes reference to consideration of cumulative effects in paragraph 4.2.5, stating that:

"The ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence)."

3.80 Further, the 'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions' ⁽²⁾ provides the following guidance on cumulative effects:

"In practical terms, the extent of the assessment in terms of how far into the past and into the future will be dependent upon the availability and quality of information..."

"...it is only reasonable to consider current events and those that will take place in the foreseeable future. Furthermore, the assessment can only be based on the data that is readily available."

(1) Overarching National Policy Statement for Energy (EN-1), July 2011

(2) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (<http://ec.europa.eu/environment/eia/eia-studies-and-reports/guidel.pdf>).

3.81 It should be noted that for a scheme to be considered in the cumulative assessment, the principles set out in the guidance documents discussed above are followed, meaning that only schemes that could reasonably be presumed to go ahead and for which sufficient information was available have been taken into account.

Cumulative Effects Assessment Methodology

3.82 There are several methods for assessing cumulative effects including models, matrices and threshold analysis. The method adopted for this EIA broadly follows the guidance set out in the Planning Inspectorate's Advice Note 17: Cumulative Effects Assessment, December 2015 and includes six distinct stages as follows.

- Stage 1: identifying impacts from the Project that may contribute to cumulative effects on resources and receptors.
- Stage 2: defining the area of influence of Project impacts in terms of specific geographical and temporal boundaries.
- Stage 3: identification of third party developments ('screened development') within the above area of influence, followed by screening the Project impacts identified in Stage 1 above to establish their potential for acting cumulatively on resources and receptors with impacts from the screened development.

3.83 The above three stages identify the schemes and specific topics scoped into the EIA for further assessment. The following three stages set out how the cumulative effects are subsequently assessed in the EIA.

- Stage 4: individual topics defined the level of detail to be adopted within the assessment through identification of such matters as potential cause and effect relationships between the Project and screened developments and the relative magnitude of impacts from the Project and screened developments that contribute to potential cumulative effects.

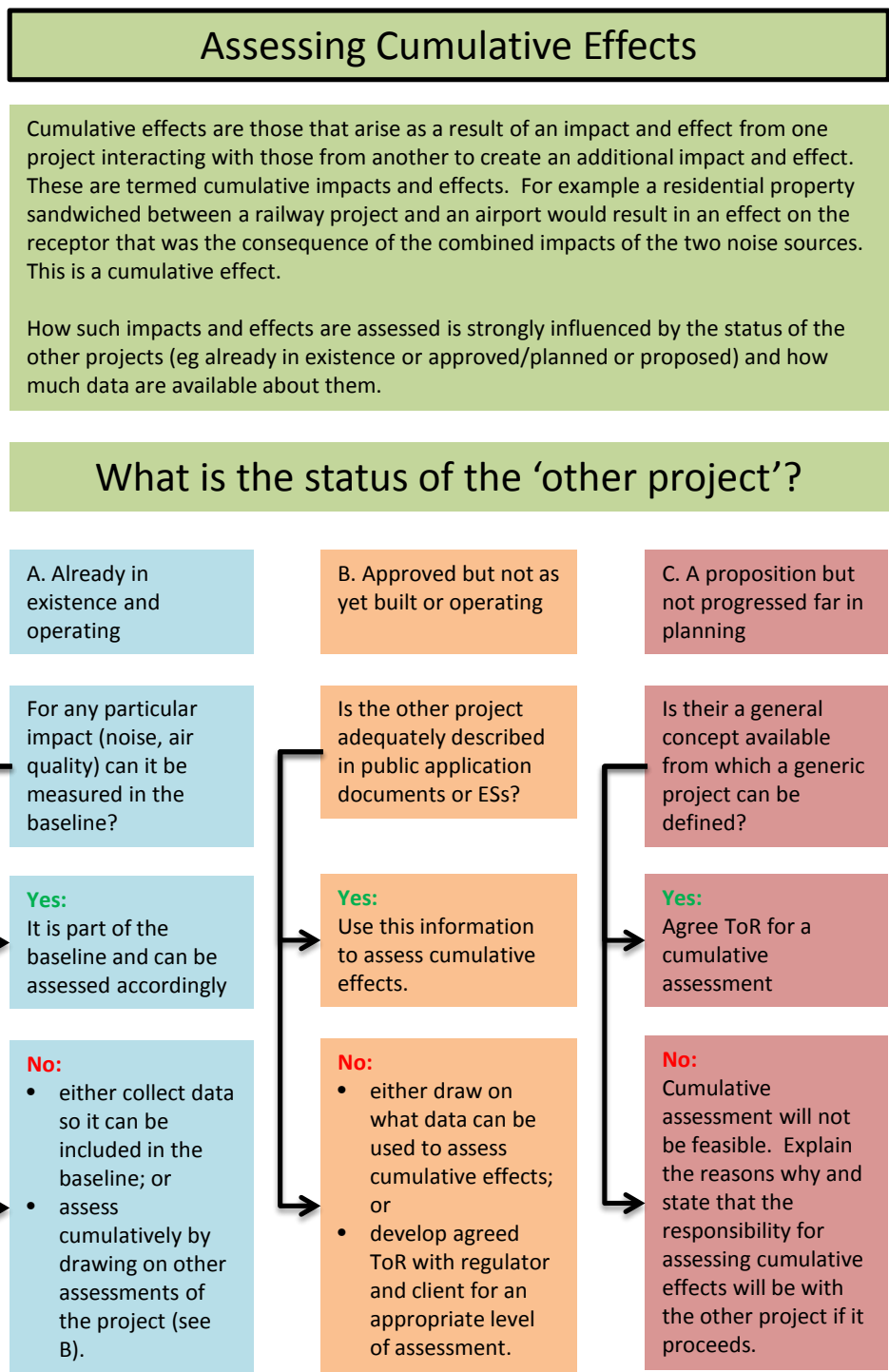
3.84 Cumulative effects were assessed to different levels of detail depending on the degree of risk involved in the effect and the level of detail available for the screened developments. For example the air quality assessment modelled operational emissions from the Project but considered other air quality impacts on the receptors it affects in terms of available data from the modelling of screened developments or through qualitative assessment where such data are not available.

- Stage 5: identification of potential impact pathways for cumulative effects to occur and determining and the extent to which the Project contributes to such impacts and effects.

- Stage 6: proposed mitigation for impacts that contribute to cumulative effects taking into account measures already identified in the EIA. Where appropriate, additional measures are identified where practicable to avoid, minimise or reduce the contribution of Project impacts to significant cumulative effects. Where appropriate, monitoring is also suggested to deal with uncertainty in conclusions in agreement with consultees and other stakeholders.

3.85 The assessment of cumulative effects is an iterative process with consultation input on projects and plans to be screened in and the results of the assessment informing the Project design and its environmental mitigation. *Figure 3.4* graphically represents Stages 3 to 5.

Figure 3.4 Cumulative Effects Methodology (Stages 3-5)



Stage 1: Identifying Project Impacts with Potential to Contribute to Cumulative Effects

3.86

To undertake a cumulative assessment it is necessary to identify the main impacts from the Project that have the potential to contribute to cumulative effects in combination with impacts from other projects / plans. The assessment team identified impacts and effects on environmental / social receptors via this scoping exercise; this process is further refined during the subsequent stages of the assessment process.

The topics and impacts detailed in *Table 3.4* below were identified at this early stage as having the potential to contribute to cumulative effects.

Table 3.4 *Project Impacts with Potential to Contribute to Cumulative Effects*

| Topic | Potential Impacts |
|---------------------------------|---|
| Air Quality | <ul style="list-style-type: none"> During operation the key consideration will be the potential combined effect of emissions to atmosphere (from the Project and other combustion activities, especially thermal power plants) and their combined potential effect on human and ecological receptors. Cumulative impacts of road traffic on air quality are automatically considered through the application of traffic growth factors in the Traffic Assessment. Dust generating activities during construction could act cumulatively on receptors with dust generating activities from screened development in very close proximity. |
| Surface Water | <ul style="list-style-type: none"> Surface water will be managed within the Project Site and effluent discharges will be required to meet the requirements of the Environment Agency in accordance with The Water Environment (Water Framework Directive) (England and Wales) Regulations. Potential cumulative effects with other discharges are fully considered under the permitting process. |
| Flood Risk | <ul style="list-style-type: none"> Residual flood risk to the Project and from the Project is anticipated to be low and will be entirely managed within the Project Site. There is no potential contribution to any cumulative risks of flooding. |
| Ecology and Nature Conservation | <ul style="list-style-type: none"> During construction potential cumulative disturbance effects could occur with screened development in close proximity. During operation the key consideration will be the potential combined effect of emissions to atmosphere (from the Project and other combustion processes) and subsequent pollutant and acid deposition on designated sites. |
| Socio-economic | <ul style="list-style-type: none"> The Project will be set against a background of a variety of economic development activity and in a regional context will have economic and employment benefits. However, it is not considered necessary for the purposes of the EIA to assess such cumulative positive impacts. Potential negative effects on people and human health are considered in the context of other topics (eg noise, air quality and traffic). |
| Noise | <ul style="list-style-type: none"> The impact of noise on nearby receptors during construction and operation of the Project combined with noise from screened development needs to be considered. |
| Traffic | <ul style="list-style-type: none"> Cumulative traffic effects are assessed as a matter of course in Transport Assessments by including future growth of traffic flows due to general increase in road use by residents and businesses. |
| Cultural Heritage | <ul style="list-style-type: none"> The Project and screened development combined could potentially affect the setting of the same scheduled monuments. |
| Geology/ Land Contamination | <ul style="list-style-type: none"> All impacts related to geology and contamination will be managed within the Project Site and there is no potential for cumulative effects with screened development. |
| Landscape and Visual | <ul style="list-style-type: none"> During operation screened development is considered in terms of potential for inter-visibility. Cumulative effects during construction are not considered in detail as it is a temporary activity (of relatively short duration) where the impacts are 'replaced' by the operational Project. |

Stage 2: Defining the Area of Influence (or Potential Zone of Project Impact)

3.88 A key requirement of the assessment process is to appropriately define study areas (for baseline survey, modelling etc.) so that the Project's area of influence can be understood. The area of influence takes into consideration the areas / receptors likely to be affected by:

- the Project activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the Project;
- effects from unplanned but predictable potential effects caused by the Project that may occur later or at a different location; and
- indirect effects (if appropriate).

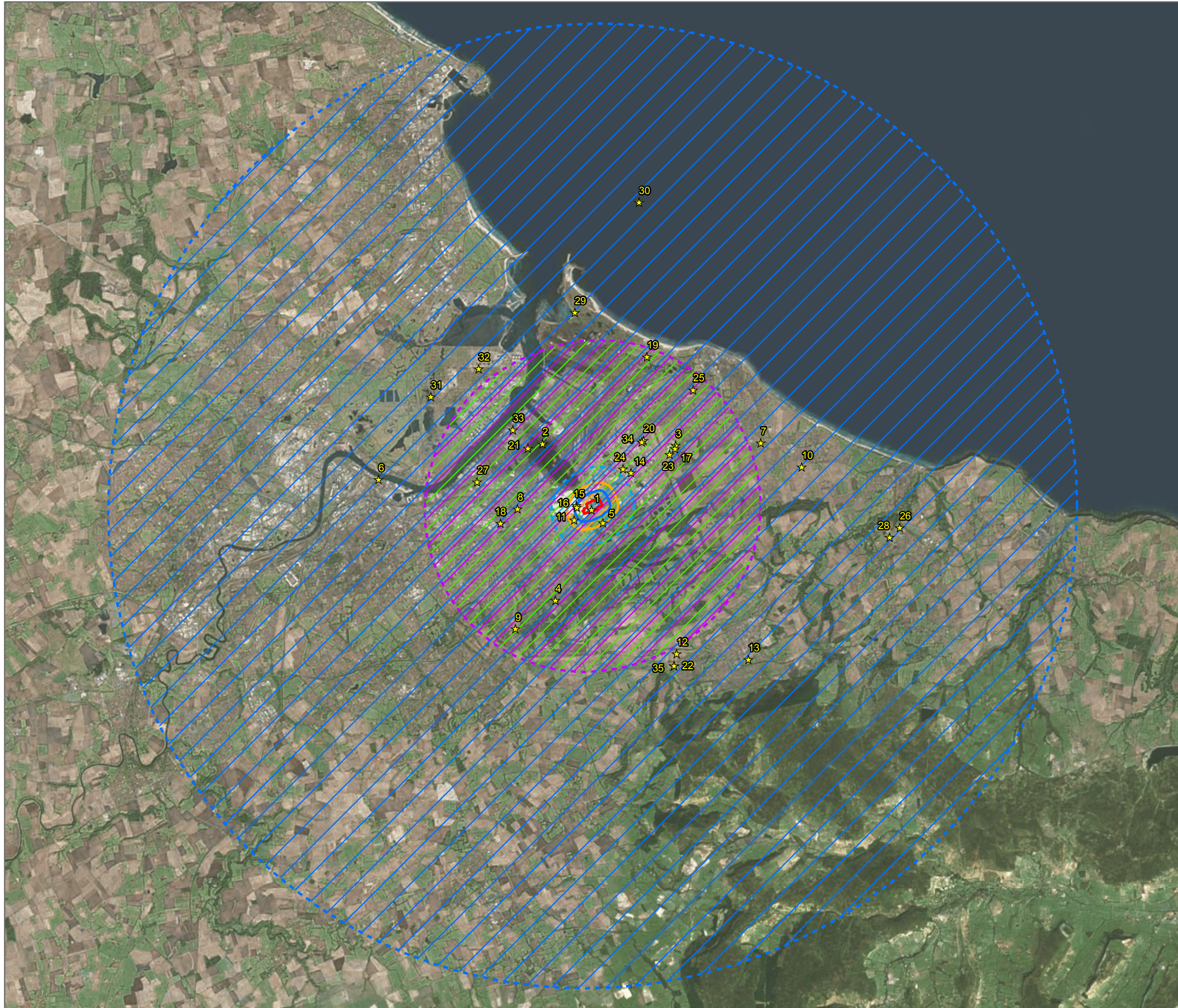
3.89 As the adopted areas of influence are defined by individual topics they vary. A summary of adopted areas is provided below in *Table 3.5*.

Table 3.5 *The Project's Areas of Influence for the Purpose of Screening other Development for Inclusion in the Cumulative Effects Assessment*

| Topic | Assumed study area |
|---------------------------------|--|
| Air Quality | Assumed study area is, at a minimum, the statutory 15 km radius from the Project Site for Natura 2000 sites. Projects considered are those that are likely to include a significant combustion process and accordingly emissions of pollutants to atmosphere. A nominal impact zone of 250 m is considered for construction dust. |
| Surface Water | The Project will be constructed on the site of a former power station, utilising the existing water supply and drainage networks that are present within the Wilton International Site. Water supply and surface water was therefore scoped out for consideration. |
| Flood Risk | Residual flood risk to and from the Project is anticipated to be low and would be entirely managed within the Project Site; this topic was therefore scoped out. |
| Ecology and Nature Conservation | Assumed study area is, at a minimum, the statutory 15 km radius from the Project Site for Natura 2000 sites due to the pathway for effects from operational emissions to atmosphere. A nominal 500 m radius around the Project Site is considered for construction disturbance to fauna. |
| Socio-economic | On the basis that the Project would be set against a background of a variety of economic development activities, and would have regional economic and employment benefits this topic was scoped out. |
| Noise | Construction maximum 1 km (considered conservative). Operation maximum 1 km (considered conservative). |
| Traffic | Intrinsically considered within the Traffic Assessment. |
| Cultural Heritage / archaeology | Limited to the effect on the setting on scheduled monuments and as per landscape and visual (see below). |
| Geology and Land Contamination | On the basis all ground condition and contamination impacts would be confined (if any actually arise) to the Project Site and there would be no great requirement for off-site soil disposal this topic was scoped out. |
| Landscape and visual | Study area determined by zone of visual influence model and professional judgement informed by site visit up to a 5 km radius from the Project Site. |

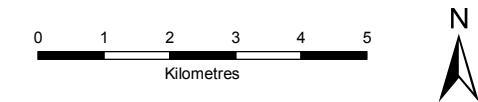
Development and Topics Screened for Further Assessment in the EIA

- 3.90 Other projects (ie screened development) with the potential to contribute to cumulative effects with the Project have been identified as follows.
- Local Planning Authority, PINS, Section 36 and Section 37 Electricity Act and Transport and Works Act applications (granted or still pending) relating to sites within a 15km radius during the past five years.
 - Existing developments screened in or out depending on their location with respect to the Project Site (as described in *Table 3.5*).
 - Potential contribution to cumulative effects with the Project identified and assessed as likely to occur or not (ie screened in or out of the assessment).
- 3.91 On the basis of the above exercise *Figure 3.5* presents the locations and reference numbers for the screened development. The identified potential schemes are summarised in *Table 3.6* below which also presents the results of the screening exercise (undertaken during the scoping phase and presented in the Scoping Report) to determine which topics/screened development would require more detailed assessment in the EIA. The screening exercise was undertaken as follows.
- For each screened development, a judgement was made by the EIA team of its likely main impacts based on the nature of the development (for example a combustion project could have material operational emissions to atmosphere; a housing development would not). No judgement was made on magnitude and this was considered a precautionary approach.
 - For each type of impact the screened development was screened into or out of the need for further assessment in the EIA based on the separation distance between the Project and the screened development with respect to the area of influence for that type of impact.
- 3.92 *Table 3.6* presents the outcome of the above process.
- 3.93 Subsequently during the EIA, each cumulative scheme/impact topic that was screened in for further assessment was given specific consideration within the topic *Chapters 6 to 15* (as well as in the Habitats Regulations Assessment (*Annex H*)).



- ★ Planning Application Locations*
- ▭ Indicative Site Boundary
- Cumulative Assessment - Air Quality Study Area**
 - ▭ Nominal Impact Zone for the Effects of Construction Dust (250m)
 - ▭ Nominal Impact Zone for Effects of Operational Emissions to Air on Human Health and Ecological Receptors (15km)
- Cumulative Assessment - Cultural Heritage/Archaeology Study Area**
 - ▭ Nominal Impact Zone for Effects on the Setting of Cultural Heritage Features (5km)
- Cumulative Assessment - Ecology and Nature Conservation Study Area**
 - ▭ Nominal Impact Zone for Construction Disturbance Effects on Fauna (500m)
- Cumulative Assessment - Landscape and Visual Study Area**
 - ▭ Nominal Impact Zone for Landscape and Visual Effects During Operation (5km)
- Cumulative Assessment - Noise Study Area**
 - ▭ Nominal Impact Zone for Effects from Construction/Operation Noise (1km)

*Numbered locations refer to the provisional screened developments listed and described in more detail in Table A1.3.



| | |
|------------------|--------------|
| SCALE: 1:115,000 | VERSION: A01 |
| SIZE: A3 | DRAWN: WB |
| PROJECT: 0375193 | CHECKED: GTS |
| DATE: 04/05/2017 | APPROVED: RE |

Figure 3.5
Location of Screened Development



PROJECTION: British National Grid

Table 3.6 Screening of Significant Planning Applications within 15 km of the Project Site for Potential Cumulative Effects

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|---------------------------------------|--|---|-------------|---|------------------------------|---------------------|---------------------------------|------|
| Mapping Reference | Transport and Works Act Applications | | | | | | | |
| 2 | Teesport (Land Acquisition) Order TWA/06/APP/03 SI No. 2008/1238 | Teesport, Teesside | Approved | Expansion of container terminal facilities at Teesport. The proposed development will increase the port's capacity from around 250,000 TEU a year to around 1.5 million TEU a year. | Operational emissions to air | Y | Within impact zone | 2.58 |
| Disturbance of fauna | | | | | N | Outside impact zone | | |
| Construction noise | | | | | N | Outside impact zone | | |
| Operational noise | | | | | N | Outside impact zone | | |
| Construction dust | | | | | N | Outside impact zone | | |
| Cultural Heritage setting | | | | | Y | Within impact zone | | |
| Landscape and visual during operation | | | | | Y | Within impact zone | | |
| Mapping Reference | Town and Country Planning Act Applications | | | | | | | |
| 3 | R/2016/0663/OOM | Land north of Kirkleatham Business Park and west of Kirkleatham Lane Redcar | Pending | Outline planning application for up to 550 residential units with associated access, landscaping and open space on 23ha of agricultural land located. | Disturbance of fauna | N | Outside impact zone | 3.38 |
| Construction noise | | | | | N | Outside impact zone | | |
| Construction dust | | | | | N | Outside impact zone | | |
| Cultural Heritage setting | | | | | Y | Within impact zone | | |
| Landscape and visual during operation | | | | | Y | Within impact zone | | |
| 4 | R/2016/0326/OOM | Land north | Refused | Outline application for 400 residential | Disturbance of | N | Outside | 3.06 |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|-----------------|---|---------------------|---|---------------------------------------|-------------|---------------------------------|------|
| | | of Woodcock Wood and West of Flatts Lane Normanby | (undergoing appeal) | houses including new vehicular and pedestrian accesses, infrastructure, open space and landscaping (all matters reserved except for access). | fauna | | impact zone | |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | | Landscape and visual during operation | Y | Within impact zone | |
| 5 | R/2015/0678/OOM | Land at Wilton International Redcar | Pending | Outline application (all matters reserved) for installation of two underground sections of high voltage electrical cables and fibre-optic cable associated with Dogger Bank Teesside A & B offshore wind farms. | Disturbance of fauna | N | Outside impact zone | 0.54 |
| | | | | | Construction noise | Y | Within impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| 6 | R/2015/0149/OOM | Teesdock Teesdock Road Grangetown | Approved | MGT Teesside Ltd (MGT) proposes to construct a wood chip dryer in Teesport, on the banks of the Tees Estuary. The planning application is for an outline planning permission with all matters reserved. The wood chip dryer will be located within a larger site of 14 hectare which is being developed as a renewable energy plant with combined heat and power. | Operational emissions to air | Y | Within impact zone | 6.66 |
| | | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Operational noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | | Landscape and visual during operation | N | Outside impact zone | |
| 7 | R/2014/0428/OOM | Land south of Redcar | Approved | Outline application for residential development (150 units). | Disturbance of fauna | N | Outside impact zone | 5.73 |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|-----------------|---|---|---|---------------------------------------|-------------|---------------------------------|------|
| | | Road Redcar | | | Construction noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | | Landscape and visual during operation | N | Outside impact zone | |
| 8 | R/2014/0372/OOM | Land at Low Grange Farm South Bank | Approved | Outline application for residential development (up to 1,250 dwellings) (all matters reserved). | Disturbance of fauna | N | Outside impact zone | 2.36 |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | | Landscape and visual during operation | Y | Within impact zone | |
| 9 | R/2014/0304/OOM | Longbank Farm Farmbank Road Ormesby TS7 9EF | Refused, undergoing appeal (approved with considerations) | Outline planning application for residential development (320 units) including vehicular and pedestrian accesses off Ormesby Bank and associated landscaping. | Disturbance of fauna | N | Outside impact zone | 4.42 |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | | Landscape and visual during operation | Y | Within impact zone | |
| 10 | R/2013/0669/OOM | Land to the south of Marske-by- | Refused, under appeal | Outline application for up to 1,000 dwellings together with ancillary uses and a neighbourhood centre, park- | Disturbance of fauna | N | Outside impact zone | 6.8 |
| | | | | | Construction noise | N | Outside | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|-----------------|--|--|--|----------------------|---------------------|---------------------------------|------|
| | | the-Sea bounded by Longbeck Road, A1085 and A174 Marske by the Sea | | and-ride car park; petrol filling station; drive-thru; public house/restaurant and 60 bed hotel with details of access. | | impact zone | | |
| | | | | Construction dust | N | Outside impact zone | | |
| | | | | Cultural Heritage setting | N | Outside impact zone | | |
| | | | | Landscape and visual during operation | N | Outside impact zone | | |
| 11 | R/2012/0757/OOM | Mannion Park Broadway Grangetown | Approved | Project consists of 250 dwellings and around 11,500 square metres of B1 office and light industrial uses. Vehicular access to the development will be taken from the A1085 Broadway; this will involve the provision of a new roundabout access into the site. | Disturbance of fauna | N | Outside impact zone | 0.62 |
| | | | | Construction noise | Y | Within impact zone | | |
| | | | | Construction dust | N | Outside impact zone | | |
| | | | | Cultural Heritage setting | Y | Within impact zone | | |
| | | | | Landscape and visual during operation | Y | Within impact zone | | |
| 12 | R/2012/0617/OOM | Land west of Galley Hill Estate Stokesley Road Guisborough | Refused, under appeal (approved with conditions) | Outline application for residential development (max. 350 dwellings); public open space; play area; new vehicular and pedestrian accesses and associated landscaping. | Disturbance of fauna | N | Outside impact zone | 5.25 |
| | | | | Construction noise | N | Outside impact zone | | |
| | | | | Construction dust | N | Outside impact zone | | |
| | | | | Cultural Heritage setting | N | Outside impact zone | | |
| | | | | Landscape and visual during operation | N | Outside impact zone | | |
| 13 | R/2016/0613/FFM | Cleveland Gate Spring Wood Road, off Rectory | Approved | Part detailed and part outline planning application for the erection of a business park (use class B1a), 1.1 ha site area, includes 79 parking spaces. | Disturbance of fauna | N | Outside impact zone | 6.86 |
| | | | | Construction noise | N | Outside impact zone | | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|-----------------|---|-------------|---|---------------------------------------|-------------|---------------------------------|------|
| | | Lane Guisborough | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | | Landscape and visual during operation | N | Outside impact zone | |
| 14 | R/2016/0484/FFM | Former Croda Site Wilton International Redcar | Approved | Proposed anaerobic biogas production facility and combined heat and power plant. | Operational emissions to air | Y | Within impact zone | 1.68 |
| | | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Operational noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | | Landscape and visual during operation | Y | Within impact zone | |
| 15 | R/2016/0418/FFM | Wilton Waste Treatment Wilton Site Lazenby | Approved | Retention as built of the CSG Wilton facility as a hazardous waste transfer and treatment site for processing a range of hazardous and non-hazardous waste including recovery of waste oils and oil contaminated wastes as well as a biological treatment facility for hazardous liquids. | Operational emissions to air | Y | Within impact zone | 0.49 |
| | | | | | Disturbance of fauna | Y | Within impact zone | |
| | | | | | Construction noise | Y | Within impact zone | |
| | | | | | Operational noise | Y | Within impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|-----------------|---|-------------|--|---------------------------------------|--------------------|---------------------------------|------|
| | | | | Landscape and visual during operation | Y | Within impact zone | | |
| 16 | R/2015/0682/FFM | Wilton Waste Treatment ltd Wilton Site Lazenby | Approved | Provision of oil refinery at Wilton Waste Treatment Plant to enable the recovery of lubricating base oils, fuels and other hydrocarbon products from waste oils. | Operational emissions to air | Y | Within impact zone | 0.49 |
| | | | | | Disturbance of fauna | Y | Within impact zone | |
| | | | | | Construction noise | Y | Within impact zone | |
| | | | | | Operational noise | Y | Within impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | | Landscape and visual during operation | Y | Within impact zone | |
| 17 | R/2015/0741/FFM | Land at Kirkleatham Business Park Troisdorf Way Kirkleatham Redcar | Approved | Flood alleviation scheme; works to include a flood storage area; flood bunds; diversion of the watercourse responsible for the flooding; amendments to existing culverts; provision of maintenance access from Troisdorf Way and associated works. | Disturbance of fauna | N | Outside impact zone | 3.26 |
| | | | | | Construction noise | N | Outside impact zone | |
| 18 | R/2015/0690/FFM | South Bank Community Primary School Poplar Grove South Bank TS6 6SY | Approved | Demolition and rebuild of school with associated temporary construction access. | Disturbance of fauna | N | Outside impact zone | 2.93 |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | N | No material change from | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|-----------------|--|-------------|--|---------------------------------------|----------------------------------|---------------------------------|------|
| | | | | | | baseline | | |
| | | | | Landscape and visual during operation | N | No material change from baseline | | |
| 19 | R/2014/0820/FFM | Land at Tod Point Road Redcar | Approved | Erection of 24 industrial units with associated infrastructure and perimeter fencing 2.0m in height. | Disturbance of fauna | N | Outside impact zone | 5.12 |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | | Landscape and visual during operation | N | Outside impact zone | |
| 20 | R/2014/0626/FFM | Wilton International Complex Redcar | Approved | Mineral (polyhalite) granulation and storage facility involving the construction on buildings, conveyor systems, substations, water treatment plant, internal access roads, car parking, attenuation ponds, landscaping, restoration and aftercare, and construction of a tunnel portal including the landforming of spoil and associated works. | Disturbance of fauna | N | Outside impact zone | 2.75 |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | | Landscape and visual during operation | Y | Within impact zone | |
| 21 | R/2013/0608/FFM | Teesport Waste Treatment Facility Grangetown TS6 6UG | Approved | Waste treatment facility. | Operational emissions to air | Y | Within impact zone | 2.83 |
| | | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Operational noise | N | Outside impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) |
|-------------|-----------------|----------|--|--|--------------|---------------------|---------------------------------|
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| 22 | R/2013/0651/FFM | Approved | Residential development (188 dwellings) with associated vehicular and pedestrian accesses including landscaping. | Disturbance of fauna | N | Outside impact zone | 5.55 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| 23 | R/2013/0501/FFM | Approved | Extension to existing factory building with ancillary new access roads. | Disturbance of fauna | N | Outside impact zone | 3.03 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| 24 | R/2012/0314/FFM | Approved | Construction of a polyethylene terephthalate (PET) chemical plant. | Operational emissions to air | Y | Within impact zone | 1.65 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|-----------------|---|-------------|--|------------------------------|---------------------|---------------------------------|----------------|
| | | Wilton International Site TS10 4XZ | | | | impact zone | | |
| | | | | Operational noise | N | Outside impact zone | | |
| | | | | Construction dust | N | Outside impact zone | | |
| | | | | Cultural Heritage setting | Y | Within impact zone | | |
| | | | | Landscape and visual during operation | Y | Within impact zone | | |
| 25 | R/2012/0829/FFM | The Closes Estate; land North of Roseberry Road. | Approved | Redevelopment comprising the erection of 288 dwellings and ancillary works (amended scheme). | Disturbance of fauna | N | Outside impact zone | 4.98 |
| | | | | Construction noise | N | Outside impact zone | | |
| | | | | Construction dust | N | Outside impact zone | | |
| | | | | Cultural Heritage setting | Y | Within impact zone | | |
| | | | | Landscape and visual during operation | Y | Within impact zone | | |
| 26 and 28 | R/2012/0110/FFM | Land north of Hamsterley Way / south of A174, sites A & B, Church Hill, Skelton | Approved | Erection of 262 residential units including garages; vehicular and pedestrian accesses with associated landscaping (amended scheme). | Disturbance of fauna | N | Outside impact zone | Site A 9.45 |
| | | | | Construction noise | N | Outside impact zone | Site B 9.73 | |
| | | | | Construction dust | N | Outside impact zone | | |
| | | | | Cultural Heritage setting | N | Outside impact zone | | |
| | | | | Landscape and visual during operation | N | Outside impact zone | | |
| 27 | R/2012/0934/RSM | Land at Imperial | Approved | Proposed anaerobic digestion plant (steel portal framed building), | Operational emissions to air | Y | Within impact zone | 3.72 |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|--|--|--|-------------|--|---------------------------------------|-------------|---------------------------------|------|
| | | | | including external concrete hardstanding, car parking area and new sub-station (resubmission). | Disturbance of fauna | N | Outside impact zone | |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Operational noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | | Landscape and visual during operation | Y | Within impact zone | |
| Planning Inspectorate | | | | | | | | |
| 29 | TR030002 York Potash Harbour Facilities Order | Harbour facility at Bran Sands, Teesside, on the south bank of the River Tees. | Granted | Harbour facilities for the bulk shipping of polyhalite. The harbour facility will be serviced by a conveyor system to transfer the finished material product to the site from a Materials Handling Facility (which is subject of a separate planning application to Redcar & Cleveland Borough Council) and includes facilities to enable the bulk loading of vessels including a new quay with ship loading facilities and berthing area. | Disturbance of fauna | N | Outside impact zone | 6.28 |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Operational noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | | Landscape and visual during operation | N | Outside impact zone | |
| Electricity Act (1989) Section 36 and Section 37 Applications | | | | | | | | |
| 30 | Offshore wind farm - S36 EDF (Northern Offshore Wind) | Teesside, mouth of River Tees | Approved | EDF (Northern Offshore Wind) applying for offshore wind farm comprising 30 wind turbines. | Disturbance of fauna | N | Outside impact zone | 9.68 |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Cultural Heritage | N | Outside | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|--|----------------------|-------------|---|------------------------------|---------------------|---------------------------------|------|
| | Teesside | | | setting | | impact zone | | |
| | | | | Landscape and visual during operation | N | Outside impact zone | | |
| 31 | CHP CCGT - S36 Thor Cogeneration Seal Sands, Teesside | Seal Sands, Teesside | Approved | Thor Cogeneration has applied to construct and operate a CHP CCGT generation station. | Operational emissions to air | Y | Within impact zone | 6.21 |
| | | | | Disturbance of fauna | N | Outside impact zone | | |
| | | | | Construction noise | N | Outside impact zone | | |
| | | | | Operational noise | N | Outside impact zone | | |
| | | | | Construction dust | N | Outside impact zone | | |
| | | | | Cultural Heritage setting | N | Outside impact zone | | |
| | | | | Landscape and visual during operation | N | Outside impact zone | | |
| 32 | CHP CCGT - S36 Norsea Pipelines Ltd Seal Sands Teesside | Seal Sands, Teesside | Approved | Northsea Pipelines Ltd applying for CHP CCGT generating station. | Operational emissions to air | Y | Within impact zone | 5.68 |
| | | | | Disturbance of fauna | N | Outside impact zone | | |
| | | | | Construction noise | N | Outside impact zone | | |
| | | | | Operational noise | N | Outside impact zone | | |
| | | | | Construction dust | N | Outside impact zone | | |
| | | | | Cultural Heritage setting | N | Outside impact zone | | |
| | | | | Landscape and visual during operation | N | Outside impact zone | | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|--|---------------------|-------------|---|---------------------------------------|-------------|---------------------------------|------|
| 33 | Biomass - S36 MGT Teesside Limited Teesside Renewable Energy | Teessport, Teesside | Approved | MGT Teesside Limited applying to construct and operate a biomass fuelled renewable generating station. | Operational emissions to air | Y | Within impact zone | 3.53 |
| | | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Operational noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | | Landscape and visual during operation | Y | Within impact zone | |
| 33 | Biomass - S36 MGT Teesside Limited Teesside Renewable Energy Plant, Teessport | Teessport, Teesside | Approved | MGT Teesside Limited applying for extension to biomass fuelled renewable generating station. | Operational emissions to air | Y | Within impact zone | 3.53 |
| | | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Operational noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | | Landscape and visual during operation | Y | Within impact zone | |
| 33 | Biomass/S36C Electricity Act 1989 MGT Teesside / | Teessport, Teesside | | MGT Teesside Limited applying for revision to previous application to increase maximum output to 299MW. | Operational emissions to air | Y | Within impact zone | 3.53 |
| | | | | | Disturbance of fauna | N | Outside impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|---------------------------------------|-----------------|--|-------------|--|------------------------------|---------------------|---------------------------------|------|
| Teesdock, Grangetown, Middlesbrough | | | | Construction noise | N | Outside impact zone | | |
| | | | | Operational noise | N | Outside impact zone | | |
| | | | | Construction dust | N | Outside impact zone | | |
| | | | | Cultural Heritage setting | Y | Within impact zone | | |
| | | | | Landscape and visual during operation | Y | Within impact zone | | |
| 34 | R/2014/0627/FFM | The York Potash Project, Doves Nest Farm | Approved | The winning and working of polyhalite by underground methods including the construction of a minehead at Doves Nest Farm involving access, maintenance and ventilation shafts, the landforming of associated spoil, construction of buildings, access roads, car parking and helicopter landing site, attenuation ponds, landscaping, restoration and aftercare and associated works. In addition, the construction of an underground tunnel between Doves Nest Farm and land at Wilton that links to the mine below, comprising 1 shaft at Doves Nest Farm, 3 intermediate access shaft sites, each with associated landforming of associated spoil, construction of buildings, access roads and car parking, landscaping, restoration and aftercare, the construction of a tunnel portal at Wilton comprising buildings, | Operational emissions to air | Y | Within impact zone | 2.75 |
| Disturbance of fauna | N | Outside impact zone | | | | | | |
| Construction noise | N | Outside impact zone | | | | | | |
| Operational noise | N | Outside impact zone | | | | | | |
| Construction dust | N | Outside impact zone | | | | | | |
| Cultural Heritage setting | Y | Within impact zone | | | | | | |
| Landscape and visual during operation | Y | Within impact zone | | | | | | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project Site (km) | |
|-------------|-----------------|------------------------------------|--|---|---------------------------------------|-------------|---------------------------------|------|
| | | | landforming of spoil and associated works. | | | | | |
| 35 | R/2015/0393/RSM | Land at Stokesley Road Guisborough | Approved | Residential development (188 dwellings) with associated vehicular and pedestrian accesses including landscaping (resubmission). | Disturbance of fauna | N | Outside impact zone | 5.55 |
| | | | | | Construction noise | N | Outside impact zone | |
| | | | | | Construction dust | N | Outside impact zone | |
| | | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | | Landscape and visual during operation | N | Outside impact zone | |

3.6.6 *Indirect Effects*

3.94 In order to operate, the Project will require connections to the National Grid Electricity Transmission System and to a gas supply. The Project Site already contains the necessary connection infrastructure and therefore there will be no additional need for works beyond the application boundary.

3.95 These connections are within the Project Site and associated connection works are limited as follows.

- They would not constitute EIA development in their own right.
- They will not affect any protected areas.
- The works will be minor, localised and temporary (estimated duration).
- The works are made up of standard activities and there will be no impacts that could not be adequately managed in order to avoid any significant effects on people and the environment.
- The immediate area of the works is of low environmental sensitivity.

3.96 As such there is no scope for indirect effects as a result of the Project.

3.7 *ASSUMPTIONS, TECHNICAL DIFFICULTIES AND UNCERTAINTY*

3.97 Every effort has been made to obtain data concerning the existing environment and to accurately predict the effects of the Project.

3.98 The Project-specific aspects of this ES have drawn upon existing literature, project-specific documentation, personal communication with consultees, stakeholders and local experts and site-specific surveys and studies. This ES is therefore based on the best available information at the time of publication.

3.99 The EIA has been undertaken during the initial FEED phase of the Project and therefore some of the technical aspects of the construction / operation have yet to be determined. Where an alternative could incur additional effects, these are discussed within the relevant sections.

3.100 Even with a final project description and an unchanging environment, predictions of impacts and their effects on resources and receptors can by definition be uncertain. Predictions can be made using varying means ranging from qualitative assessment and expert judgement (including reference to the evidence base) through to quantitative techniques (eg modelling). The accuracy of predictions depends on the methods used and the quality of the input data for the Project and the environment. Where an assumption has been made, the nature of any uncertainty which stems from it is presented.

3.101 Where uncertainty affects the assessment of effects a conservative (ie reasonable worst case) approach to assessing the likely residual effects has been adopted with mitigation measures developed accordingly.

3.102 To verify predictions and to address areas of uncertainty, monitoring will be a key aspect of environmental management for the construction and operation of the Project.