

Wheelabrator Kemsley

Generating Station Power Upgrade

EIA Scoping Report

Request for Scoping Opinion under The Infrastructure Planning
(Environmental Impact Assessment) Regulations 2009 (as amended)

Prepared on behalf of K3 CHP Ltd
December 2016



WHEELABRATOR KEMSLEY GENERATING STATION - POWER UPGRADE

EIA SCOPING REPORT

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(Environmental Impact Assessment) Regulations 2009 (as amended)**

On behalf of K3 CHP Ltd.

Date: December 2016

Our Ref: OXF9163

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GLOSSARY

AADF	Annual Average Daily Flow
AOD	Above Ordnance Datum
ATC	Automated Traffic Counts
AQMA	Air Quality Management Area
BAP	Biodiversity Action Plan
BGS	British Geological Survey
BSI	British Standards Institution
CCW	Countryside Council for Wales
CEA	Cumulative Effects Assessment
CEH	Centre of Ecology and Hydrology
CIEEM	Chartered Institute of Ecology and Environmental Management
CHP	Combined Heat and Power
CRTN	Calculation of Road Traffic Noise
DCLG	Department of Communities and Local Government
DCO	Development Consent Order
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
EMMP	Ecology Mitigation and Management Plan
EQS	Environmental Quality Standards
ES	Environmental Statement
FRA	Flood Risk Assessment
HE	Highways England
HGV	Heavy Goods Vehicle
IBA	Incineration Bottom Ash
IED	Industrial Emissions Directive

IEMA	Institute of Environmental Management and Assessment
IPC	Infrastructure Planning Committee
IPPC	Integrated Pollution Prevention and Control
LCP	Large Combustion Plant
LDV	Light Duty Vehicle
LHA	Local Highways Authority
LNR	Local Nature Reserve
LOAEL	Lowest Observed Adverse Effect Level
LWS	Local Wildlife Site
NE	Natural England
NMA	Non-Material Amendment
NNR	National Nature Reserve
NPS	National Policy Statement
NPSE	Noise Policy Statement for England
NSIPs	Nationally Significant Infrastructure Projects
NSR	Noise Sensitive Receptor
OS	Ordnance Survey
PIA	Personal Injury Accident
PPG	Planning Practice Guidance
PPS	Planning Policy Statement
MW	Megawatt
MWe	Megawatt electric
PINS	Planning Inspectorate
SEP	Sustainable Energy Plant
SINC	Site of Importance for Nature Conservation
SOAEL	Significant Observed Adverse Effect Level
SPA	Special Protection Area
SRI	Sound Reduction Indices
SSSI	Site of Special Scientific Interest

TCPA Town and Country Planning Act

WFD Water Framework Directive

WTI Wheelabrator Technologies Inc.

1 INTRODUCTION

- 1.1 The Wheelabrator Kemsley Generating Station is a consented energy from waste plant which is currently under construction that will provide low pressure steam to the existing Kemsley Paper Mill and low carbon electricity to the grid. The Generating Station will help to diversify the long term energy requirements at the Paper Mill which is the second biggest recovered fibre-based paper operation in Europe.
- 1.2 K3 CHP Ltd (the Applicant) is preparing an application for development consent the primary purpose of which is to secure an increase in the maximum electrical power output of the consented Wheelabrator Kemsley Generating Station, from 49.9 Megawatts electrical (MWe) to up to 75 MWe – the power upgrade application. The route to consent for the power upgrade is described in Section 2.
- 1.3 An Environmental Statement (ES) for the Generating Station was prepared in 2010 (the 2010 ES) and planning permission has already been granted by Kent County Council under the Town and Country Planning Act 1990. A summary of the existing permissions is provided at Section 3.
- 1.4 The proposed increase in the power output of the Generating Station to a 75MWe facility means that consent to operate at that level will need to be granted by the Secretary of State for Department for Business, Energy & Industrial Strategy under the Planning Act 2008 which replaced the licensing provisions of the Electricity Act 1989, Section 36, for new generating stations greater than 50MW capacity¹. The new Wheelabrator Kemsley Power Upgrade (referred to as ‘the project’) is to be built pursuant to the terms of extant planning permissions which consented the existing facility, with the same benefits, but the applicant now wishes to operate the plant with a greater maximum electrical output. The consented scheme already allows the plant to operate at up to 49.9 MWe (gross) but the Applicant now wishes this maximum limit to increase to up to 75 MWe (gross). The power upgrade is the only reason for needing to seek a DCO. However, in order to secure one complete consent for the facility, the applicant will also seek consent for its construction and operation. There will be no change to the types and quantum of fuel throughput, nor any changes to emissions.
- 1.5 The upgraded facility would be considered a Nationally Significant Infrastructure Project (NSIP) requiring a Development Consent Order to be made under the provisions of the 2008 Act. In England, the Planning Inspectorate examines applications for development consent².
- 1.6 The Applicant is seeking to secure a new consent under the Planning Act 2008 for the project and proposes to undertake a voluntary Environmental Impact Assessment (EIA) to ensure all of the environmental effects of the development as consented and proposed are assessed in

¹ The 2008 Act sets out thresholds above which certain types of infrastructure development are considered to be nationally significant – in this case an electricity generating station of greater than 50MWe capacity

² Previously NSIPs were dealt with by the Infrastructure Planning Commission (IPC). Under the Localism Act 2011, the IPC was abolished and its functions transferred to the Planning Inspectorate’s National Infrastructure Directorate.

a formal EIA compliant with the EIA regulations relevant to the new consent³. In submitting the application in this way it is expected that the existing permission will be treated as a material consideration in the Secretary of State's decision making process.

The Applicant and Project Team

- 1.7 K3 CHP Limited is a wholly owned subsidiary of Wheelabrator Technologies Inc. (WTI). WTI is an industry leader in the safe and environmentally sound conversion of everyday residential and business waste, and other renewable waste fuels, into clean energy.
- 1.8 K3 CHP Limited has appointed RPS to manage the EIA process and to provide specialist topic input. RPS is a member of the Institute of Environmental Management and Assessment (IEMA) Quality Mark.

Purpose of this Report

- 1.9 This report has been prepared on behalf of K3 CHP Limited to support the request for a formal scoping opinion for the voluntary Environmental Impact Assessment (EIA) of the power upgrade of Wheelabrator Kemsley Generating Station. The site location is shown on Figure 1.
- 1.10 The process of identifying the issues to consider within the EIA process (establishing the scope of the assessment) is known as scoping. Scoping is not a mandatory requirement under The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, as amended (referred to hereafter as 'the EIA Regulations'). However, it is recognised as a useful part of the assessment process which helps to identify the main effects that a project is likely to have on the environment. A scoping opinion is an opinion from the Secretary of State on the information to be included in the ES.
- 1.11 This Scoping Report has been prepared by RPS on behalf of K3 CHP Ltd and sets out the proposed content, methodologies and key issues to be included in the EIA process and the resulting ES to be submitted with the application.
- 1.12 This report accompanies a request for a scoping opinion made under Regulation 8 (1) of the EIA Regulations. In accordance with Regulation 8 (3) the following information is included in this report:
- a plan sufficient to identify the land;
 - a brief description of the nature and purpose of the development and of its possible effects on the environment; and
 - such other information or representations as the person making the request may wish to provide or make.

³ The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009

- 1.13 Regulation 8 (6) requires the Directorate or relevant authority to adopt a scoping opinion within 42 days of the date of receipt of the request or within 42 days of the date of receipt any additional information that was required in order to adopt an opinion.
- 1.14 The Scoping Report is structured in sections relating to principal topic areas. The remainder of this report is structured as follows:
- Section 2 contains a summary of the legislative and planning context
 - Section 3 is a description of the project to be assessed
 - Section 4 provides an overview of the EIA process
 - Section 5 provides an outline of the proposed assessment approach including which topic areas will be covered in the EIA. This section also includes a description of baseline conditions followed by an opinion on the likelihood of environmental effects and consequently the studies and assessment approaches proposed to address these within the EIA.
 - Sections 6 to 13 describe the detailed methodologies proposed for each specialist topic
 - Section 14 summarises the approach to the assessment of cumulative and consequential effects
 - Section 15 concludes with the proposed structure of the ES.

2 POLICY AND LEGISLATIVE PROCESS

Consenting Process

- 2.1 Generating stations with a generating capacity of 50 MW or less are considered under the provisions of the Town and Country Planning Act 1990, as amended. Planning permission for the Wheelabrator Kemsley Generating Station was granted by Kent County Council in March 2012 (planning ref. SW/10/444).
- 2.2 Under the Planning Act 2008, as amended, generating stations with a generating capacity of more than 50 MW are defined as Nationally Significant Infrastructure Projects (NSIPs). As the proposed upgraded development involves increasing the generating capacity of the Wheelabrator Kemsley Generating Station to 75 MWe, the proposal would therefore fall under this regime.
- 2.3 Section 31 of the Planning Act requires a Development Consent Order (DCO) to be obtained for NSIPs. Applications for development consent are examined by the Planning Inspectorate. Following consideration of the application, the Planning Inspectorate (PINS) makes a recommendation to the Secretary of State. In this case, the Secretary of State for Business, Energy and Industrial Strategy will make the final decision on whether or not to grant the DCO for the proposed development.
- 2.4 The key stages in the DCO application process, from pre-application through to post-decision, along with the timescales associated with each key stage are illustrated in Inset 1.
- 2.5 In accordance with Section 104(2) of the Planning Act, the examining authority must have regard to the following in determining applications for consent:
- 'Any national policy statement which has effect in relation to development of the description to which the application relates (a 'relevant national policy statement');
 - Any local impact report (within the meaning given by Section 60(3)) submitted to the Directorate before the deadline specified in a notice under Section 60(2);
 - Any matters prescribed in relation to development of the description to which the application relates; and
 - Any other matters which the Panel or Council thinks are both important and relevant to its decision.'
- 2.6 Section 104(3) highlights the importance of National Policy Statements in relation to decision making, requiring applications to be decided '*in accordance with any relevant national policy statement, except to the extent that one or more subsections (4) to (8) applies.*' Subsections 104(4) to 104(8) only apply where on deciding the application in accordance with National Policy Statements:
- The decision would lead to breaching of international obligations or statutory duty;
 - The decision would be unlawful;

- The adverse impact of the development is considered to outweigh its benefits; or
- A condition prescribed for deciding an application otherwise than in accordance with a national policy statement would be met.

Inset 1: Graphical Representation of the DCO Application Process with Associated Timescales



Planning Policy Framework

National Policy Statements

2.7 National Policy Statements (NPSs) have been developed to guide the decision making process for NSIPs. The NPSs define the national need for certain types of infrastructure, as well as the issues to be considered by the examining body when assessing whether a location is acceptable for the type and scale of development proposed.

2.8 The NPSs of relevance to this application include:

- Overarching Energy National Policy Statement (EN-1);
- Renewable Energy Infrastructure National Policy Statement (EN-3); and
- Electricity Networks Infrastructure National Policy Statement (EN-5).

Overarching National Policy Statement (EN-1)

- 2.9 EN-1 (DECC 2011a) sets out national policy for energy infrastructure projects defined as NSIPs under the Planning Act 2008. It is noted that this document makes reference to the former Infrastructure Planning Commission (IPC), whose functions are now replaced by the Planning Inspectorate's National Infrastructure Directorate. Section 1.1 of this document states that:

'For such applications this NPS, when combined with the relevant topic-specific energy NPS, provides the primary basis for decisions by the IPC.' (paragraph 1.1.1)

- 2.10 Part 3 of the NPS considers the need for renewable energy development, stating that:

'The UK needs a mix of all types of energy infrastructure in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions.' (paragraph 3.1.1)

'The IPC should therefore assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the need for those types of infrastructure has been demonstrated by the Government and that this need is urgent.' (paragraph 3.1.3)

'The IPC should give substantial weight to the contribution which projects would make towards satisfying this urgent need when considering applications for development consent under the Planning Act 2008.' (paragraph 3.1.4)

- 2.11 Part 4.6 of the NPS relates to Combined Heat and Power (CHP), which is the technology relevant to the Wheelabrator Kemsley Generating Station, setting out the need for such generating stations in the context of national energy demand.
- 2.12 Part 5 of the NPS sets out environmental topic specific considerations to which the examining authority and the applicant should have regard. These have been considered during the development of this scoping report.

Renewable Energy Infrastructure National Policy Statement (EN-3)

- 2.13 EN-3 (DECC 2011b) relates specifically to renewable energy infrastructure. Section 2.5 provides guidance in relation to waste combustion projects, including projects that recover energy from waste. This section sets out environmental considerations to which the examining authority and the applicant should have regard. These have been considered during the development of this scoping report.

National Planning Policy Framework

- 2.14 In March 2012, the Government published its National Planning Policy Framework (NPPF) (DCLG 2012). This document replaces the former Planning Policy Statements and Planning Policy Guidance notes and provides guidance on a range of environmental topic areas.

Where relevant, the NPPF has been considered during the development of this scoping report.

Local Planning Context

2.15 In addition to the NPPFs, the Planning Inspectorate may consider the local development plan documents to be important and relevant. Local planning policy is set out in a range of documents, including:

- Swale Borough Local Plan 2008 (Swale Borough Council, 2008) – this was adopted in February 2008.
- Bearing Fruits 2031: draft Borough Local Plan (emerging) (Swale Borough Council, 2016) – a number of modifications to the draft Local Plan were consulted on in June 2016.
- Draft Core Strategy: Bearing Fruits (emerging) (Swale Borough Council, 2012) – consultation closed in July 2012.
- Kent Minerals and Waste Local Plan 2013-2030 (Kent County Council, 2016) – this was adopted in July 2016.

Other Relevant Guidance

2.16 In addition to the various guidance documents related to the Planning Act 2008, the Planning Inspectorate has prepared 17 Advice Notes that are intended to assist individuals and organisations to engage more effectively in the process for making, commenting or deciding upon applications for development consent for NSIPs.

Environmental Impact Assessment (EIA)

2.17 Environmental Impact Assessment (EIA) is the process of identifying and assessing the significant effects likely to arise from a proposed development. This requires consideration of the likely changes to the environment, where these arise as a consequence of the proposed development, through comparison with the existing and likely future baseline conditions in the absence of the proposed development.

EIA Directive

2.18 The legislative framework for EIA is set by European Directive 2011/92/EU, as amended by Directive 2014/52/EU (collectively referred to as the EIA Directive). Directive 2014/52/EU requires Member States to transpose its requirements into national law by 16 May 2017 and sets out arrangements for a transitional period from the regime laid down by Directive 2011/92/EU. These transitional measures require that the provisions of Directive 2011/92/EU should apply to projects for which the EIA process has been initiated or the application submitted within the transition period. Therefore, for the purposes of the Wheelabrator Kemsley Generating Station, Directive 2011/92/EU remains the relevant consideration. However, as a matter of good practice, the measures required by the amended Directive have been considered where appropriate in this Scoping Report.

EIA Regulations

- 2.19 The EIA Directive requires an EIA to be completed in support of an application for development consent for certain types of project. As stated above, the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 are the relevant Regulations (referred to hereafter as ‘the EIA Regulations’). The proposed project falls under Schedule 2 category 13(a) of the Regulations.
- 2.20 If the project were screened for EIA, then it would be considered against the criteria listed in Schedule 3 of the Regulations to determine whether or not the proposed development constitutes EIA development. In this situation, however, no screening opinion has been sought from PINS, and the applicant has instead chosen to submit a voluntary ES.

3 BACKGROUND AND CONSENTED SCHEME

Existing Permissions

- 3.1 In determining the scope of the ES, it is important to note that there is an extant 2012 consent on the proposed site for a generating station with a capacity to operate up to 49.9 MWe. A summary of the consent history is provided below.
- 3.2 An ES was submitted with the planning application to Kent County Council in 2010 (referred to hereafter as ‘the 2010 ES’) under the purposes of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 for the design proposed at that time. These regulations have subsequently been replaced by the Town and Country Planning (Environmental Impact Assessment) Regulations 2011, as amended).
- 3.3 The existing conditioned consents reflect the conclusions of the 2010 ES and the measures incorporated into the design to avoid, ameliorate or compensate for potential significant negative environmental effects together with any proposed enhancements to the environment – the mitigation measures.

Wheelabrator Kemsley Generating Station

- 3.4 Kent County Council granted planning permission for the development of the Wheelabrator Kemsley Generating Station in March 2012 (planning ref. SW/10/444). In addition, the following applications relevant to the facility have been submitted and granted planning permission:
- Application to Kent County Council for a non-material amendment to the site layout (planning ref. PAG/MC/SW/10/444/R) (granted September 2013). In summary, the non-material amendments included:
 - The number of air cooled condensers reduced from 10 to 8 including a reduction in building size;
 - Replacement of Bottom Ash building with firewater tank, landscaping and a surface water attenuation pond (replacement for deleted surface water attenuation swale);
 - Repositioning of stack arrangement 37m to the east;
 - Raising of development platform 0.5 m from 5.8 mAOD to 6.3 mAOD;
 - Revised access arrangements to tie-in with permitted scheme; and
 - Non material repositioning of flue gas treatment building, fuel bunker building, tipping hall and associated structures, elevations and cladding.
 - Application to Kent County Council to vary conditions (2) and (4) of planning permission SW/10/444 to allow a variation to the permitted hours of delivery to allow for 24 hours 7 days per week operation (planning ref. SW/12/506680) (granted April 2015); and

- Application to Kent County Council for a non-material amendment to the building footprint, elevation and site layout (planning ref. SW/10/444/RA) (granted December 2015). In summary, the non-material amendments included:
 - Repositioning of substation and transformers with 2 alternative options; and
 - Non material alterations to footprint, position, elevations, and cladding of air cooled condensers, turbine hall, flue gas treatment building, fuel bunker building, tipping hall and associated structures including gatehouse and weighbridge, and fire water tanks, etc.

3.5 The location of the Generating Station, IBA Facility and the areas used for access, utilities and drainage are shown on an indicative zone plan at Figure 3.

Access to Wheelabrator Kemsley Generating Station

3.6 The following applications have been made in relation to access provisions to serve the Kemsley Generating Station:

- Application to Kent County Council for the formation of an improved access road and associated development to serve the Wheelabrator Kemsley generating station (planning ref. SW/12/1001) (granted November 2012);
- Application to Kent County Council for a non-material amendment to provide for the repositioning and change to the capacity of the pond to accommodate surface water drainage from the access road (planning ref. PAG/SW/12/1001) (granted August 2013); and
- Application to Kent County Council for the variation of Condition 6 of planning permission SW/12/1001 to provide the formation of improved access road and associated development to serve Wheelabrator Kemsley Generating Station (planning ref. SW/13/1257) (granted February 2014).

Access Road to serve Kemsley Paper Mill

3.7 In addition, the following applications have been made in relation to the existing paper mill:

- Application to Swale Borough Council for formation of new rear access road and extension to trailer park to serve the Kemsley Paper Mill, together with security cabin and drainage pond (planning ref. SW/12/1011) (granted October 2012); and
- Application to Swale Borough Council for non-material amendment to planning permission SW/12/1011 for formation of new rear access road and extension to trailer park, together with security cabin and drainage pond (planning ref. SW/12/1011/NMA) (granted May 2014).

3.8 Details of the existing consents are provided at Appendix 1.

Incineration Bottom Ash building

3.9 Energy production from wastes generates Incineration Bottom Ash (IBA), the cooled burnt-out residue from the combustion process. This material is commonly processed to recover metals for recycling and secondary aggregates products used in the construction industry.

- 3.10 The original permission for the Wheelabrator Kemsley Generating Station (SW/10/444) included an Incineration Bottom Ash (IBA) processing building. The non-material amendment application that was approved in September 2013 (planning ref. PAG/MC/SW/10/444/R) removed the IBA building from the consented scheme.
- 3.11 The site layout of the proposed IBA Recycling Facility is shown in Appendix 3 – Submitted Plans for the IBA

Undetermined and Forthcoming Planning Applications

- 3.12 Concurrent with the build process for the Generating Station, the developer has lodged a separate planning application at Kent County Council for the construction of a standalone IBA facility adjacent to the Wheelabrator Kemsley Generating Station site (planning ref. KCC/SW/0265/2016).
- 3.13 As the EPC contractor has been appointed and the construction phase for the generating station has now commenced, the scheme has been further refined. An application is to be submitted for the approval of a further scheme of non-material amendments. In summary, the proposed non-material amendments include:
- Confirmation of substation and transformer compound option adjacent to stacks and extension of compound;
 - Deletion of substation and transformer compound option adjacent to the northern boundary;
 - Repositioning of the lower transformer to the north of the turbine hall, extension of concrete apron to the north and relocation of the fuel and waste water tank adjacent the northern boundary; and
 - Non material alterations to footprint, position, elevations, and cladding of air cooled condensers, turbine hall, flue gas treatment building, fuel bunker building, tipping hall and associated structures including gatehouse and weighbridge, and fire water tanks, etc, and including the introduction of a soot blower from the boiler hall, a hydraulic room, a gas bottle store and a HVAC cooler compound.
- 3.14 Additionally, further non-material amendments may be required for the approval of final design details of elevation louvers and to accommodate an IBA conveyor should the current application for the IBA Recycling Facility be approved.

Current Status of the Wheelabrator Kemsley Generating Station Implementation

- 3.15 Construction work for the Generating Station as consented by Kent County Council commenced in August 2016. The site of the plant itself has been cleared of vegetation and levelling works are being undertaken. It is therefore a committed development that forms part of the baseline. In particular, for the purpose of the proposed EIA, the existing baseline conditions will be taken as the stage of construction reached by March 2017 i.e. a consistent moment in time in the construction phase.

4 PROJECT FOR ASSESSMENT

Site Location and Surroundings

- 4.1 The site of the Wheelabrator Kemsley Generating Station lies adjacent to the Kemsley Paper Mill on the industrial northern edge of Sittingbourne, which forms the largest settlement within the district of Swale, Kent. Development in the area dates mainly from the 19th and 20th centuries, clustered around the A2 road and the railway, which pass through the centre of the town. The rapidly expanding industrial and commercial district which extends from the edge of Sittingbourne north to Ridham Docks forms the immediate context to the site.
- 4.2 The Kemsley Paper Mill site comprises a paper mill and associated infrastructure, including access, car parks and administration buildings. The site is accessed from the A249 via Swale Way (Western Entrance) or from Swale Way onto Barge Way (Northern Entrance). An internal access road which runs to the south and east of the paper mill buildings provides access to Swale Way.
- 4.3 The site of the Generating Station is located to the north east of the paper mill between East Road and the Swale Estuary, which separates the area of land on which the site sits from the Isle of Sheppey to the north. The route of a dismantled railway bisects the western and south western wedge of the site as it runs southwards away from Ridham Dock. The site location is shown on Figure 1.
- 4.4 The site of the proposed IBA Recycling Facility currently comprises bare ground, having previously been temporarily cleared of all vegetation due to stockpiling of rubble material by DS Smith Paper Ltd (the operators of the paper mill). Prior to clearance, the site comprised regenerating neutral grassland and some areas of dense scrub along with piles of temporarily-stored spoil.

Existing and Future Conditions

- 4.5 The Wheelabrator Kemsley Generating Station (as a 49.9 MWe facility) has already been consented by Kent County Council and is currently under construction. Under the existing programme of construction, the consented scheme is due to be completed and operational with an output of 49.9 MWe or subject to the DCO being granted, with an output of up to 75 MWe by June 2019.
- 4.6 The consented scheme under construction forms part of the baseline as a committed development and site conditions will not be constant. Therefore, progress of the construction phase will need to be fixed at a given point for consistency of the voluntary EIA update. The assumed existing site conditions will comprise a particular implementation milestone that best describes the construction progress and existing conditions on site at the time of undertaking the assessments. This is likely to be captured as at March 2017.
- 4.7 The baseline conditions to be described in the EIA are outlined in Section 5 of this report.

Project Description

- 4.8 Wheelabrator Kemsley Generating Station Power Upgrade ('the project') comprises the final construction design of the Wheelabrator Kemsley Generating Station (as consented by Kent County Council, inclusive of all of the changes as a result of non-material amendments including those subject to forthcoming applications) including that the plant would operate with a greater maximum electrical output of up to 75 MWe. The adjacent IBA Recycling Facility is included in the description of the Project' for EIA purposes, albeit the application for the IBA facility would be determined by Kent County Council. This is the project that will be assessed in the EIA. The assessment boundary for the project is shown on Figure 2.
- 4.9 Subject to the grant of development consent, the change to the consented scheme would be an operational change only and would arise through removal of a 'limiter' on the CHP turbine to ensure that it can generate up to 75 MW electrical output. For clarification, an overview of the main project components is provided below.

Overview of the Project

- 4.10 The project site is located on land adjacent to and immediately north east of the existing Kemsley Paper Mill as indicated in Figure 1. The site lies within the ward of Kemsley (0.85 km to the south west) and Milton Regis (2.6 km to the south west). Sittingbourne is approximately 2.5 km south of the proposal site. The town of Maidstone is 19.5 km to the south west, and Gillingham is 15 km to the west. The assessment boundary is approximately 12.55 hectares.
- 4.11 The Wheelabrator Kemsley Generating Station will process pre-treated waste fuel using a two line process, where all easily recoverable recyclates have been removed and would otherwise go to landfill – residual waste fuel. The residual waste fuel will be in the form of pre-treated waste comprising Solid Recovered Fuel waste, Commercial & Industrial waste and Municipal Solid Waste. The calorific value of a fuel is a measure of how much energy is available per tonne of waste. The mixed waste stream will have a predicted average net calorific value of 10.5 MJ/kg.
- 4.12 The sources of treated waste fuel have yet to be determined. Pre-treated waste will be sourced from Kent with the balance from London, the South East and elsewhere in the UK. Waste will be brought to the site by heavy goods vehicles. The plant may accept up to approximately 25,000 tonnes per annum of waste plastics from the paper mill.

Generating Station

- 4.13 The Wheelabrator Kemsley Generating Station is an energy from waste (EfW) plant that is designed to process waste and turn it into steam for use in the paper mill and electricity for the paper mill with excess electricity exported to the local distribution network. The Wheelabrator Kemsley Generating Station will reduce the mill's dependence on fossil fuel, improve the carbon footprint of the mill, ensure a greater degree of energy supply security and improve the competitive position of the mill.
- 4.14 There are four steps to the energy from waste process:
- 1) Reception of Waste Fuel

- 4.15 The plant will be capable of processing 550,000 tonnes of residual waste fuel each year. Residual Waste Fuel is delivered to the plant by HGV, within an enclosed container and weighed upon entry. The containers will transport waste fuel to a reception area that receives the waste, referred to as the Reception Hall and Waste Fuel Bunker. The waste fuel will be tipped into the bunker inside the Reception Hall, which is designed to accept up to 3,000 tonnes per day. This waste material can vary widely in moisture content and thermal value, so it's continually managed in the bunker to ensure consistency.

2) Thermal Treatment

- 4.16 At this stage, heat is applied to break the waste down into gases. Overhead cranes transfer the waste fuel into a feed hopper to the boiler. Inside each boiler, an inclined, reciprocating, metal grate slowly moves the trash through a thermal (heating) process, with minimum operating temperatures of 850°C.
- 4.17 Primary combustion air is fed into the furnace through the underside of the grates by a primary air fan. Secondary air will also be injected at high velocity through nozzles positioned in the walls of the combustion chamber above the level of the waste. This will create turbulence to help achieve complete combustion.

3) Conversion to a Transportable Form of Energy

- 4.18 The steam generation system is located above the grate. Hot combustion gases pass by a series of boiler tubes filled with water, where they are cooled. The water in the tubes is heated by the gas and becomes high-pressure steam. The steam is used to drive a turbine generator and produce electricity for sale to local utilities.
- 4.19 Low pressure steam is extracted for use as process steam within the paper mill. The steam required in the mill will be used at c. 9bara or at c.6bara. The steam is fed to the paper mill over an insulated pipe bridge which crosses the internal road to the west of the Generating Station site.
- 4.20 The Wheelabrator Kemsley Generating Station will generate up to 75 MWe gross electricity. The electrical energy is generated in the synchronous generator at a voltage of 10.5kV. This is transformed to a voltage of 400V and 700V to supply the plant itself. Electricity exported from the plant is fed to the local distribution grid via a transformer operating at 132kV. The plant will produce a minimum of 50 MWth per hour of steam which will be fed to Kemsley Paper Mill as an integral part of its energy supply.

4) Emissions Clean Up

- 4.21 Combustion gases will be cleaned before they are released to the atmosphere. After heat in the combustion gas is absorbed in the boiler to produce steam, the gas exits the boiler and enters a dry conditioned flue gas treatment system, whereby the flue gas from the grate is denitrified by a process which turns nitrogen oxides (NOx) produced during combustion to nitrogen and steam. The reducing agent is ammonium hydroxide, which reacts with nitrogen dioxide of the flue gases within a temperature range of 850°C and 950°C.
- 4.22 The flue gas is treated with water slaked lime which enables separation of chloride and sulphur dioxide. A dry sorption reactor (activated charcoal) is introduced to the flue gas to separate heavy metals, dioxins and furans by adsorption.

- 4.23 The gas then passes through a fabric filter where particulates (fly ash) are removed. The cleaned gas exits through the stack after a series of continuous emissions monitors analyse and record levels.
- 4.24 Most of the material precipitated in the fabric filter is initially moistened and then re-circulated using screw and mechanical conveyors. The remainder is transported by conveyors to a residue silo where the ash from the boiler flue is also collected. Once collected, the ash is loaded into sealed containerised vehicles and transported from the site for disposal within a permitted facility.
- 4.25 No waste water is produced in the dry conditioned flue gas treatment system.

5) Availability and Maintenance

- 4.26 It is assumed that each line will have >90% availability as a result of planned and unplanned downtime. A two line plant provides operational flexibility during periods of maintenance, enabling one line to be shut down whilst the second continues to operate. Down time will be for a period of about 3 weeks per line per year.

Table 1 - Summary of Generating Station Performance

	Units	Total
Maximum electricity generation capacity of the facility	MWe	Up to 75
Expected net electrical output	MWe	Circa 44.2
Expected net steam output	MWth	Circa 50
Expected net efficiency	%	Circa 47.1
Assumed annual average fuel net calorific value (NCV)	MJ/Kg	10.5
Expected annual availability	%	Circa 91.3
Expected annual exported electricity to grid	GWh	360
Fuel throughput based on NCV of 10.5 MJ/ kg and annual availability	Tonnes/a	550,000

Table 2 - Summary of Throughput

	Units	Assumed Average NCV Fuel (10.5 MJ/kg)
Fuel use	T/y	550,000
Bottom ash (wet)	T/y	138,000
FGT residue & Fly Ash	T/y	24,357

The Buildings

- 4.27 The design of the currently consented Wheelabrator Kemsley Generating Station is shown on the visualisations and elevation plans that were submitted to Kent County Council at Appendix 2.
- 4.28 The process equipment will be wholly enclosed within a building. The building will be divided into a number of distinct operational areas all of which relate to functions of the overall energy plant process. Elevations which show the location of the main components of the plant within the Wheelabrator Kemsley Generating Station building are set out within Appendix 2. The side panels as permitted will be clad in profiled steel sheeting in *terracotta*, *merlin grey*, *hamlet*, *anthracite* and *albatross* colour palette. The colour scheme as amended follows the style of the permitted scheme but introduces an element of variation to the overall cladding and colour configuration to accommodate internal design and structural requirements.

Drainage

- 4.29 The permitted scheme provides for foul water connection to existing services to the south and surface water drainage managed within the site. Surface water storage is accommodated in a single swale pond with a new outfall to the Swale Estuary.

Landscaping

- 4.30 Landscaping comprising tree, scrub and grassland establishment and a single swale pond. Nature conservation habitat with areas of tree and shrub planting consistent with an Ecological Mitigation and Management Plan for the consented scheme (Appendix 5).

The IBA Recycling Facility

- 4.31 IBA is a by-product of the incineration treatment process of waste materials at EfW facilities. The recycling process will extract valuable recyclable products such as ferrous and non-ferrous metals and produce a secondary aggregate for the construction industry known as Incinerator Bottom Ash Aggregate (IBAA). In the process of doing so, it will also recover ferrous and non-ferrous metals for reprocessing and re-use. IBA processing therefore moves the management of more waste up the waste hierarchy, contributes to sustainable waste management and contributes to sustainable aggregates production.
- 4.32 The plans and elevations for the IBA Recycling Facility are included at Appendix 3.

The Process

- 4.33 IBA is conveyed to the Recycling Facility from the adjacent Generating Station via conveyor to the dedicated IBA storage area, where it is stored prior to being transferred to the process building using mobile plant. Here, it is fed into a feed hopper for processing using a variety of mechanical processes, including vibrating screens, magnetic and eddy current separation. The process screens, separates and sizes the IBA and extracts the ferrous and non-ferrous metals. The processed IBA aggregates (IBAA) material is fed by conveyor for storage in temporary stockpiles in the dedicated storage area adjacent to the process building in the north west section of the site. From storage, it is loaded to vehicles for removal from the recycling facility and onward delivery. Recovered ferrous and non-ferrous metals are stored separately in containers pending their removal from the facility for recycling.
- 4.34 All IBAA leaving the recycling facility will be sheeted. All product and other materials will leave the site via the exit to the private road that links to Swale way and Barge Way and the wider highway network beyond having been weighed prior to leaving.
- 4.35 The layout, plant and equipment, and the buildings have the design capacity to accommodate and process up to 140,000 tonnes per year of IBA.

Storage Building

- 4.36 There will be a dedicated storage building for incoming IBA along the southern boundary of the site. This will be a steel frame construction with block panels to the side walls and covered. The storage building will have open frontages to the yard for the movement and storage of raw IBA.

Process Building

- 4.37 To the north of the central yard will be a larger Process Building, of steel frame construction. This building will be enclosed by vertically laid profiled metal cladding and a profiled metal cladding roof. The building will have roller shutter doors and one building entrance opening.
- 4.38 Within the Process Building will be the plant and equipment necessary for the crushing and screening of the IBA and the removal and sorting of metals using magnets and eddy currents.

Storage Areas

- 4.39 External to the Process Building, in the north west of the site, will be an external storage area for processed IBAA. This will be stockpiled externally at heights no more than 10 m, with heights reducing towards the enclosing boundaries.
- 4.40 External containers, for direct loading to vehicles, will be used for the storage of separated ferrous and non-ferrous metals, located alongside the Process Building.

Parking

- 4.41 Parking will comprise a total of 8 spaces, including a marked space for disabled, allow for visitor spaces and one motorbike parking space. A minimum of two undercover bicycle parking spaces for staff will be available in the car parking. Provision is made for short term HGV parking adjacent to the site staff parking area for drivers on breaks and, if required, whilst awaiting use of the weighbridge.

Drainage

- 4.42 All operational areas of the IBA site will be hard surfaced with an integral drainage system to manage both surface and foul drainage. The drainage system design will include provision to be able to reuse drainage water for onsite requirements such as yard cleaning and dust suppression. All site drainage will be managed via a sealed drainage system.
- 4.43 The onsite surface water drainage network for the site will be split into two separate drainage systems such that clean surface water runoff from building roof areas will be collected and discharged separately from runoff from external IBA storage and handling and vehicle parking areas. External hardstanding areas will be drained via a Class 1 bypass oil interceptor, sized to treat the full area of hardstanding to which it serves.
- 4.44 Clean surface water will be stored on site and discharged through a series of controls to the Swale Estuary through a new outfall.

Landscaping

- 4.45 Landscaping will be integral with that established for the permitted Generating Station described above.

Hours of Operation

- 4.46 The Wheelabrator Kemsley Generating Station will operate continuously for 24 hours per day, seven days a week. It will operate continuously throughout the year with the exception of planned shut downs and unplanned maintenance.
- 4.47 The IBA Recycling Facility is directly linked to the operations of the Generating Station, therefore the IBA Recycling Facility has been modelled on operating on a 24/7 basis with the only restriction being movements of HGV between 07.00 and 23.00 hrs. This includes working on Monday to Fridays, Saturdays, Sundays and Public Holidays throughout the year.

Access and Transport

- 4.48 The IBA facility will have a single access from the Generating Station access road. There will be no imports of raw IBA therefore the traffic will comprise staff vehicles and HGVs collecting loads of IBAA (approx. 42 HGV movements on average per day). A Transport Assessment was prepared for the IBA facility application.

Employment

- 4.49 The Wheelabrator Kemsley Generating Station will employ approximately 50 full time employees comprising operator shift staff, maintenance employees, weighbridge operators and administrative staff and plant management. In addition, an average of 100 contractors will be employed for planned shutdowns.
- 4.50 Some 6-12 staff will be employed at the IBA Recycling Facility with a maximum of 6 per shift.
- 4.51 During construction, approximately 500 contractors will work at the Generating Station site.

Timescales

- 4.52 It is intended that the application for development consent for the 75 MWe facility will be submitted by June 2017 whilst the consented scheme is under construction, prior to the plant becoming operational.
- 4.53 The aim is that the IBA Recycling Facility will have obtained planning permission from Kent County Council by June 2017.

Need for the Development

- 4.54 A number of National Policy Statements (NPS) for energy Infrastructure were designated by the SoS under the Planning Act 2008 on 19th July 2011. NPS EN-3, together with the Overarching NPS for Energy (EN-1), provides the primary basis for decisions on applications for 'nationally significant renewable energy infrastructure' defined at section 1.8 of EN-3, which includes 'energy from biomass and/or waste'.
- 4.55 The Overarching NPS for Energy (EN-1 Part 3) emphasises that the UK needs all of the types of energy infrastructure covered by EN-1, including energy from waste, that it is for industry to propose new energy infrastructure projects within the strategic framework set by the Government and that applications should be considered on the basis that the Government has demonstrated need as described and that substantial weight should be given to the contribution which projects make towards satisfying need. EN-1 Part 4 goes on to state that the decision maker should "...start with a presumption in favour of granting consent to applications for energy NSIPs... unless any more specific and relevant policies set out in the relevant NPSs clearly indicate that consent should be refused".
- 4.56 As part of the UK's need to diversify and decarbonise electricity generation, the Government is committed to dramatically increasing renewable energy generation and it notes that increasingly this may include plant powered by the combustion of waste and/or biomass, helping to avoid over- dependence on a single fuel type. Among current national waste policy, the Government 'Review of Waste Policy in England 2011' prioritises efforts to manage waste in line with the waste hierarchy while a further goal is to ensure "Recovery of energy from waste makes an important contribution to the UK's renewable energy targets minimising waste to landfill and helping to meet UK carbon budgets".
- 4.57 EN-3 Part 2.5 states that "Electricity generation from renewable energy is an important element in the Government's development of a low-carbon economy... a significant increase in generation from large-scale renewable energy infrastructure is necessary to meet the 15% renewable energy target'. Specifically "The recovery of energy from the combustion of waste, where in accordance with the waste hierarchy will play an increasingly important role in meeting the UK's energy needs..." and that the recovery of energy from the combustion of waste forms an important element of the waste management strategy in England and Wales. This section goes on to recognise the role that recovery of energy from waste can play in the delivery of waste management services in the UK, as long as schemes comply with the waste hierarchy and do not prejudice local, regional and national waste management strategies and plans.

- 4.58 In addition to the national planning policy position in relation to the need, the need for the proposed Generating Station has been previously established by the extant planning permission which is currently being lawfully constructed.
- 4.59 The White Paper which formed the basis of the Energy Act 2008 set out the Government's plans for tackling climate change by reducing carbon emissions whilst ensuring the availability of secure, clean, affordable energy.
- 4.60 The Proposed Development would contribute to meeting the landfill diversion targets under the European Landfill Directive by diverting material that is otherwise likely to be landfilled consistent with the waste hierarchy, utilising non-hazardous materials diverted from landfill in accordance with the Waste (England and Wales) Regulations 2011, which are derived from the Waste Framework Directive 2008/98/EC, Waste Management Plan for England (2013) and the National Planning Policy for Waste 2014.
- 4.61 This will save landfill space and reduce the associated methane emissions, whilst providing low carbon electricity in accordance with the aims of the Energy White Paper 2007, the UK Renewable Energy Strategy (2009) and NPSs for Energy 2011.
- 4.62 Changes to the current mix of electricity generating plant are occurring as a large number of existing oil, coal and nuclear power stations close as a result of the requirements of the European Industrial Emissions Directive (IED) (incorporating the requirements of the former Large Combustion Plant Directive (LCPD)) and/or as power stations reach the end of their operational lives. Projections quoted in EN-1 indicate that some 22 Gigawatts (GW) of electricity generating capacity will need to be replaced in the period up to 2020. This clearly underlines the urgency of the need to provide new electricity generating capacity to ensure security of supply to homes and businesses. EN-1 Part 3.4.4 also specifically recognises the increasing need in the UK for 'dispatchable' power, providing the ability to meet variations in electricity demand and supply, as can be provided by the Proposed Development. This section states that "As more intermittent renewable electricity comes onto the UK grid, the ability of biomass and Energy from Waste to deliver predictable, controllable electricity is increasingly important in ensuring the security of UK supplies".
- 4.63 NPS EN-1 also provides support for the CHP element of the proposal in relation to the paper mill. It identifies that to be "economically viable as a CHP plant, a generating station needs to be located close to industrial or domestic customers with heat demands. The distance will vary according to the size of the generating station and the nature of the heat demand. For industrial purposes, customers are likely to be intensive heat users such as chemical plants, refineries or paper mills."
- 4.64 It further establishes support for the proposed development and its displacement of energy generated from fossil fuels through provision of substantial additional positive weight. It sets out that the "Utilisation of useful heat that displaces conventional heat generation from fossil fuel sources is to be encouraged where, as will often be the case, it is more efficient than the alternative electricity/heat generation mix. To encourage proper consideration of CHP, substantial additional positive weight should therefore be given by the IPC to applications incorporating CHP."
- 4.65 The need for the Proposed Development will be assessed in detail in the context of the extant planning permission for the generating station and presented in a separate report which will

form part of the DCO application. This will include detailed consideration of the conformity of the Proposed Development with the waste hierarchy and the effects of the scheme on (and ability to support) as set out in national and local policy.

Alternatives Considered

- 4.66 Because the ES assesses the scheme under construction, no further alternatives to the generating station concept have been considered beyond the upgrade from 49.9 MWe to 75 MWe.
- 4.67 Nevertheless, a DCO is being sought for the construction and operation of the entire project and a comprehensive environmental assessment will be provided with the DCO application, in practice what remains to be decided in preparing the DCO application and will be consulted upon will primarily be focused upon any differences between the scheme as currently consented and now proposed. This includes:
- The increase in electrical power output from 49.9 MWe (gross) to up to 75 MWe (gross);
 - Any other minor changes that may be still be required to the facility now under construction which are not yet fixed;
 - Any additional mitigation measures that may be required as a consequence of a change in circumstances since the original consent was granted in 2012.
- 4.68 WTI will also be prepared to discuss the consented operational controls for the facility which are proposed to be mirrored in the DCO application and hear any representations that may be made with respect to these.

Alternative Sites

- 4.69 The ES for the consented scheme set out the alternatives considered during the process of identifying the site and the preferred technology. A summary of the key alternatives considered is provided here. Further detail is available in the ES that supported the application for the consented scheme (RPS, 2010).
- 4.70 The site selection process considered a range of siting options identified from sources such as waste and industrial land allocations within the adopted and emerging development plan documents, development plan employment land availability reports and work undertaken by RPS. A total of 52 sites were identified within the administrative area of Kent County Council. These sites were filtered by distance from the paper mill and according to whether they were of sufficient size to incorporate the Wheelabrator Kemsley Generating Station. A distance criterion of 2 km from the Kemsley Paper Mill was used, taking into account the need for the Wheelabrator Kemsley Generating Station to provide a viable source of sustainable energy for the mill. The distance reflected the maximum preferred distance for the developer to transport steam by pipeline. A size threshold of 4 hectares was used to ensure that the site could accommodate the Wheelabrator Kemsley generating station.
- 4.71 The remaining ten sites were appraised according to a range of planning and environmental criteria, including the following:
- Planning Vision;

- Sensitive Human Receptors;
- Landscape and Visual Consideration;
- Potential Impacts on Natural Environment;
- Potential Impacts on Historic Environment and Built Heritage;
- Road Access;
- Rail and Water Transport;
- Energy Utilisation;
- Flood Risk and Ground Water Vulnerability;
- Aerodrome Safeguarding Zones; and
- Air Quality Management Areas.

4.72 Following appraisal of the ten short listed sites, the site to the east of the existing Kemsley paper mill was selected. The reasons for the choice of the site over potential alternative sites included the following:

- The development, incorporating mitigation measures, was not likely to result in significant effects upon environmental conditions;
- The site located allows the Wheelabrator Kemsley generating station to be adjacent to the paper mill. This ensures the viability of the proposed development is maximised both in terms of infrastructure costs and the costs associated with a connecting pipeline;
- The site is within the applicants' ownership and no third party land or rights are required;
- The site was considered appropriate for the proposed development with respect to planning policy at that time, including the former Planning Policy Statement 25 (DCLG 2010).
- The site has been previously used for storage and is accessible by existing transport infrastructure. It is located within an industrial area which was allocated for employment purposes within the relevant development plan at the time of the site selection process.

4.73 Further details of the site selection process are provided in Appendix 5.1 of the 2010 ES.

Alternative Technology

4.74 Alternative technology options were considered within the 2010 ES, including fluidised bed technology, gasification, pyrolysis, plasma arc gasification and biological treatment (anaerobic digestion). Landfill was considered as an alternative waste management option, although this would not generate energy from the material and would not therefore meet the requirements of the paper mill for heat and electricity.

4.75 Of the remaining options, anaerobic digestion was not considered a viable option for providing the heat requirements to the paper mill on the site. Gasification and plasma arc gasification

solutions were considered technically unproven at the scale proposed and were therefore rejected. Moving grate and fluidised bed plant are proven technologies at the scale required and both have operational plant within the UK. Both of these options were considered to have advantages and disadvantages, but overall they are considered to have similar environmental performance. Moving grate technology was selected to be taken forward within the consented development.

Design Options

- 4.76 The proposed design and layout evolved through an iterative process that was informed by the landscape setting, taking into account the views of key stakeholders and the community, to ensure that the design was able to accommodate the technical requirements and capacities whilst responding positively to the setting of the site.
- 4.77 The proposed finishes were selected to give variation of texture to reduce the visual impact of the overall mass of the structure. All building materials were chosen having regard to sustainability considerations.

Alternative Electrical Output

- 4.78 As set out above, the consented scheme allows for power generation of 49.9 MWe. During development and detailed design of the consented scheme, K3 CHP Limited has identified the opportunity to increase the efficiency of the plant and so increase its electrical output. An alternative option of an increase to 75 MWe has therefore been considered following the grant of permission by Kent County Council. This option is now proposed to be taken forward in order to further reduce the reliance of Kemsley Paper Mill on fossil fuels and provide a greater security of energy supply.

5 APPROACH TO EIA

Information Required for EIA

- 5.1 Although there is no statutory provision as to the form of an ES, it must contain the information specified in Part II of Schedule 4 of the EIA Regulations, and as much of the relevant information in Part I of Schedule 4 as reasonably required to assess the effects of the project and which the developer can reasonably be required to compile. The specified information within Schedule 4 Parts I and II is set out in full below:

Part I

1. Description of the development, including in particular:
 - a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;
 - a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used;
 - an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation etc.) resulting from the operation of the proposed development.
2. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects.
3. A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and inter-relationship between the above factors.
4. A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:
 - The existence of the development;
 - The use of natural resources;
 - The emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant or appellant of the forecasting methods used to assess the effects on the environment.
5. A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
6. A non-technical summary of the information provided under paragraphs 1 to 5 of this Part.

7. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant or appellant in compiling the required information.

Part II

1. A description of the development comprising information on the site, design and size of the development.
 2. A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.
 3. The data required to identify and assess the main effects which the development is likely to have on the environment.
 4. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.
 5. A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.
- 5.2 The ES for the project will provide all information in Part II of the Schedule and, in addition, provide other relevant information under Part I. Together, the information supplied in the ES will provide a clear understanding of the likely significant effects of the project upon the environment. The following sections outline the overall approach to EIA in order to meet these legal requirements.

EIA Methodology

Relevant EIA Guidance

- 5.3 The EIA process will take into account relevant government or institute guidance, including:
- Department of the Environment, Transport and the Regions (DETR) (1997) Mitigation Measures in Environmental Statements. HMSO;
 - Institute of Environmental Management and Assessment (2004) Guidelines for Environmental Impact Assessment;
 - Institute of Environmental Management and Assessment (2011) The State of Environmental Impact Assessment Practice in the UK. Special Report; and
 - Department for Communities and Local Government (2014) Planning Practice Guidance at <http://planningguidance.planningportal.gov.uk>.
 - Planning Inspectorate (2015) Advice Note Seven: Preliminary Environmental Information, Screening and Scoping.
 - Planning Inspectorate (2015) Advice Note Seventeen: Cumulative Effects Assessment Relevant to Nationally Significant Infrastructure Projects.
- 5.4 Other topic specific specialist methodologies and good practice guidelines will be drawn on as necessary.

Key Elements of the Approach

5.5 The assessment of each environmental topic will form a separate chapter of the ES. For each environmental topic, the following will be addressed:

- Methodology and assessment criteria;
- Description of the environmental baseline (existing and future conditions);
- Identification of likely effects;
- Evaluation and assessment of the significance of identified effects, taking into account any measures designed to reduce or avoid environmental effects which form part of the project and to which the developer is committed; and
- Identification of any further mitigation measures envisaged to avoid, reduce and, if possible, remedy adverse effects (in addition to those measures that form part of the project).

Methodology and Assessment Criteria

5.6 Each topic chapter will provide details of the methodology for baseline data collection and the approach to the assessment of effects. Details of the proposed approach for each topic are provided in Section 5 of this Scoping Report. Each identified environmental topic will be considered by a specialist in that area. The identification and evaluation of effects will take into account relevant topic-specific guidance where available.

Description of the Environmental Baseline

5.7 As set out in Section 3 of this report, construction of the consented scheme is currently underway. Therefore it is proposed that the principle baseline conditions described in the ES include:

- ‘current baseline’ - The existing environmental conditions during construction (taken as March 2017); and
- ‘future baseline’ - The future environmental conditions in the opening year of operation (without the consented scheme) (2019).

5.8 As part of the EIA process, both the current and future baseline scenarios will be set out within the ES to set the context for the EIA process. Development that is permitted and committed would ordinarily form part of the baseline conditions against which to assess a project in EIA relevant to the geographic and temporal scope of the topic.

5.9 In this instance, the consented Generating Station is committed development because it will be constructed and operated as a 49.9 MWe facility even if a Development Consent Order is not granted for the power upgrade.

5.10 However, the infrastructure planning process requires developers to present environmental information in an accessible form and so the voluntary EIA update will first assess the project against the existing site conditions and then examine the residual effects of the power upgrade project versus the consented project. This will enable the competent authority to

understand the up to date likely environmental effects both with and without the proposed development forming part of the baseline. It is therefore proposed that a third baseline is used in the assessment:

- ‘consented future baseline’ - The future environmental conditions in the opening year of operation with the consented developments in place (2019).

Assessment of Effects

- 5.11 The EIA Regulations require the identification of the likely significant environmental effects of the project. Each topic chapter will take into account both the sensitivity of receptors affected and the magnitude of the likely impact in determining the significance of the effect.

Sensitivity or Importance of Receptors

- 5.12 Receptors are defined as the physical resource or user group that would be affected by a proposed development. The baseline studies will identify potential environmental receptors for each topic and will evaluate their sensitivity to the proposed development. The sensitivity or importance of a receptor may depend, for example, on its frequency or extent of occurrence at an international, national, regional or local level.

Magnitude of Impact

- 5.13 Impacts are defined as the physical changes to the environment attributable to the project. For each topic, the likely environmental impacts will be identified. The magnitude of the impact will be described using defined criteria within each topic chapter.
- 5.14 The categorisation of the impact magnitude may take into account the following four factors:
- Extent;
 - Duration;
 - Frequency; and
 - Reversibility.
- 5.15 Impacts will be defined as either adverse or beneficial. Depending on discipline, they may also be described as:
- Direct: Arise from activities associated with the project. These tend to be either spatially or temporally concurrent;
 - Indirect: Impacts on the environment which are not a direct result of the project, often produced away from the project site or as a result of a complex pathway.

Significance of Effects

- 5.16 Effect is the term used to express the consequence of an impact (expressed as the ‘significance of effect’), which is determined by correlating the magnitude of the impact to the sensitivity of the receptor or resource.

- 5.17 The magnitude of an impact does not directly translate into significance of effect. For example, a significant effect may arise as a result of a relatively modest impact on a resource of national value, or a large impact on a resource of local value. In broad terms, therefore, the significance of the effect can depend on both the impact magnitude and the sensitivity or importance of the receptor.
- 5.18 Levels of significance that will be used in the assessment, unless otherwise specifically outlined in this Scoping Report, include in descending order:
- Substantial;
 - Major;
 - Moderate;
 - Minor;
 - Neutral.
- 5.19 Where an effect is described as ‘neutral’ this means that there is either no effect or that the significance of any effect is considered to be negligible. All other levels of significance will apply to both adverse and beneficial effects. These significance levels will be defined separately for each topic within the methodology sections. In all cases, the judgement made as to significance will be that of the author of the relevant chapter with reference to appropriate standards/guidelines where relevant.

Cumulative Effects

- 5.20 The cumulative effects of the proposed development in conjunction with other proposed schemes will be considered. The cumulative effects assessment will consider any developments that are formally in the planning system at the time of submission. Kent County Council and Swale Borough Council will be consulted on the development types that might have an effect in combination with the proposed scheme. A list of identified schemes for consideration has been provided at Appendix 4.

Mitigation Measures

- 5.21 The EIA Regulations require that where significant effects are identified ‘a description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment’ should be included in the ES.
- 5.22 The development of mitigation measures is part of an iterative EIA process and has resulted in the design of the updated Kemsley Generating Station currently being implemented. The assessment of effects in the ES will therefore take into account all measures that form part of the project and to which K3 CHP Ltd are committed.
- 5.23 If in updating the assessment significant effects are predicted, it may be desirable to identify what are described as ‘further mitigation’ measures. These are measures that could also prevent, reduce and where possible offset any adverse effects on the environment but are not part of the assessed project.

Summary Tables

- 5.24 Summary tables will be used to summarise the effects of the project for each environmental topic.

6 INTRODUCTORY CHAPTERS

Chapter 1: Introduction

- 6.1 This chapter will provide the introduction to the ES, including details of the application, need for EIA and the structure of the ES.

Chapter 2: Project Description

- 6.2 The EIA will include a description of the project, which will form the basis of the assessment of effects. The EIA Regulations require an ES to include:

‘A description of the development comprising information on the site, design and size of the development.’

- 6.3 This project description chapter will include details of the site, together with a description of the key components of the proposed development. The description will include the following information, as far as practicable at the time of writing:

- Construction phase – a description of the key works, activities and processes that would be required during the construction phase;
- Operational phase – a description of the completed development and its use;
- Decommissioning phase - a description of the key works, activities and processes that would be required during the decommissioning phase.

- 6.4 Where options remain at the time of the assessment (with regard to construction techniques, for example), the ES will provide clear explanation of the assumptions made. Where appropriate, the realistic worst case scenario will be assessed.

- 6.5 Where mitigation measures have been identified and developed through the EIA process and have been incorporated as part of the project, details of these measures will be set out within the project description chapter.

Chapter 3: Need and Alternatives Considered

- 6.6 This chapter will briefly set out the need for the proposed development. In addition, the EIA Regulations require the alternatives considered by the applicant to be set out in the ES:

‘An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account environmental effects.’

- 6.7 This chapter will summarise the reasons for the selection of the site and provide an outline the alternatives considered during the EIA process, including a description of the alternative design and layout options that have been considered.

Chapter 4: Environmental Assessment Methodology

- 6.8 Details of the overall approach to EIA will be set out in this chapter, together with details of the scoping process, consultation undertaken and the overall approach to the assessment of significance. Topic specific methodologies, such as survey methods, will be provided in each topic chapter.

7 AIR QUALITY AND CLIMATE

Introduction

- 7.1 This section of the Scoping Report identifies the relevant impacts and effects on air quality on receptors from the construction, operation and decommissioning of the project.
- 7.2 For the construction and decommissioning phases, the key pollutant is dust, including both particulate matter that is suspended in the air, and deposited dust that has fallen out of the air onto surfaces and which can potentially cause temporary annoyance effects.
- 7.3 The principal source of operational emissions to the atmosphere from the Wheelabrator Kemsley Generating Station will be gases exhausted from the stack after clean up in the flue gas treatment system, pollutants from road traffic such as nitrogen oxides (NO_x) and particulate matter. It should be noted that there is no effect on emissions as a consequence of the upgrade in turbine specification. As such, there is no change in this aspect of the development.

Study Area

- 7.4 For the construction (or decommissioning) phase dust assessment areas within 350 m from the assessment boundary or within 50 m of the routes used by construction vehicles, up to 500 m from site entrances will be considered. For ecological receptors, the distance to the construction site boundary will be 50 m. These are the screening criteria set out in the Institute of Air Quality Management (IAQM) guidance (IAQM, 2014).
- 7.5 The study area for the assessment of operational effects will be a 10 km radius around the assessment boundary. For the cumulative impact assessment we will consider those projects identified by Kent County Council, where cumulative air quality effects are likely, considering in particular any overlap in the locations of maximum potential effect, based on available dispersion modelling reports. These locations are likely to be within 1 km and downwind of each facility.

Existing Baseline Conditions

- 7.6 Swale Borough Council (SBC), has designated four areas as Air Quality Management Areas (AQMA) due to high levels of nitrogen dioxide (NO₂) pollution from road traffic. The nearest AQMA, St Pauls Street, Sittingbourne is located approximately 2.5 km south west of the development site. A review of recent monitored concentrations has been undertaken to determine the existing baseline and to derive local background concentrations which are shown in Table 3.

Table 3 - Existing Background Concentrations

Pollutant	Background Concentration (µg.m ⁻³)	
	Short term	Long term
NO _x	32.8	16.4
NO ₂	25.8	12.9

Pollutant	Background Concentration ($\mu\text{g.m}^{-3}$)	
	Short term	Long term
PM ₁₀	(a)	20.0
SO ₂	5.64	2.82
CO	540	270
PM _{2.5}	(a)	10.9
HCl	0.6	0.3
HF	4.92	2.46
As	0.002	0.001
Cd	0.0004	0.0002
Cr	0.0046	0.0023
Cu	0.01	0.005
Pb	0.03	0.015
Mn	0.0134	0.0067
Hg	0.0002	0.0001
Ni	0.0064	0.0032
V	0.0148	0.0074
Tl	0.00002	0.00001
Sb	0.0028	0.0014
Co	0.0002	0.0001
Dioxins & Furans	6fg (TEQ) m ⁻³	
PAHs (B[a]P)	0.05 ng.m ⁻³	
PCBs	21.1 pg.m ⁻³	
NH ₃	2.0	1.0

Baseline Data

- 7.7 The baseline conditions for the majority of the pollutants have been based on the most recent measured concentrations. Where no recent monitoring in a representative location is available the baseline is assumed to be the same as site specific monitoring undertaken in 2008 (limited to selected metals, dioxins and furans). It is expected that concentrations will have stayed the same or reduced, in the absence of any new emissions sources. New emission sources (i.e. from waste incineration and energy recovery) will be identified and considered in the cumulative impact assessment or as a revision to the baseline data, based on published dispersion modelling assessments. Table 4 outlines the source of the baseline data for each pollutant.

Table 4 - Source of Baseline Data

Pollutant	Data Source for 2017 Baseline
NO _x	5 year average (2011-2015) from Maidstone Rural Automatic Monitor
NO ₂	5 year average (2011-2015) from Maidstone Rural Automatic Monitor
PM ₁₀	5 year average (2009-2013) from Chatham Luton Automatic Monitor
SO ₂	5 year average (2011-2015) from Maidstone Rural Automatic Monitor
CO	NAQIA

Pollutant	Data Source for 2017 Baseline
PM _{2.5}	Defra Mapped Concentration (2017)
HCl	Acid monitoring network- Average of 2011-2015
HF	Monitoring data – EPAQS 2005
As	Site specific monitoring from 2008
Cd	
Cr	
Cu	
Pb	
Mn	
Hg	
Ni	
V	
Tl	
Sb	
Co	
Dioxins & Furans	
PAHs (B[a]P)	
PCBs	3 year average (20010-2012) from TOMPS network for rural sites (Auchencorth Moss, Hazelrigg, High Muffles and Weybourne)
NH ₃	CEH 2015

Relevant Policy Context

7.8 Extracts from relevant policy are provided below.

- The Overarching National Policy Statement for Energy (EN-1) (Section 5.2) states:

Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the Environmental Statement (ES). The ES should describe:

any significant air emissions, their mitigation and any residual effects;

distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project;

the predicted absolute emission levels of the proposed project, after mitigation methods have been applied;

existing air quality levels and the relative change in air quality from existing levels; and

any potential eutrophication impacts.

- National Policy Statement for Renewable Energy Infrastructure (EN-3)** - *The applicant's EIA should include an assessment of the air emissions resulting from the proposed infrastructure and demonstrate compliance with the relevant regulations (paragraph 2.5.40)*

Proposed Scope of Assessment

- 7.9 It is proposed that the EIA includes an assessment of air quality effects associated with all phases of the project in the context of a current baseline environment (March 2017), and future baseline environment (2019), when the project is likely to become operational. This will allow the identification of appropriate mitigation to be adopted, based on the implementation of best available techniques through the environmental permit and the controls approved and adopted for the Generating Station and IBA Facility. This will establish whether the existing proposed mitigation is sufficient (see measures outlined below) and whether further mitigation is required.
- 7.10 In accordance with the overarching approach to the EIA, the chapter will also consider an assessment scenario that includes the consented Generating Station and IBA Facility (assumed to be permitted, constructed and operational by 2019) as part of the baseline, in order to isolate and understand the air quality effects of the power upgrade alone. It may be noted that, as there is no change in emissions, there should be no effect from the power upgrade alone.
- 7.11 The ES chapter would include an assessment of:
- the effects of dust created during the construction / decommissioning phase
 - operational air quality effects on nearby human and ecological receptors from stack emissions and operational traffic emissions generated by the project.
 - cumulative dust effects during the construction/decommissioning phase
 - Cumulative operational air quality effects from stack emissions and operational traffic.

Relevant Guidance Documents

- 7.12 The air quality chapter will be based on the following guidance:
- Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2014);
 - Land-Use Planning and Development Control: Planning for Air Quality (EPUK & IAQM, 2015); and,
 - Where appropriate, Local Air Quality Management Technical Guidance LAQM.TG16 (Defra, 2016b).

Proposed Approach

- 7.13 For the air quality assessment, background air quality will be characterised by drawing on information from the following public sources:
- Defra maps (Defra, 2016b) which show estimated pollutant concentrations across the UK in 1 km grid squares; and
 - Published results of local authority Review and Assessment (R&A) studies of air quality, including local monitoring and modelling studies.

- 7.14 For the assessment of impacts at nature conservation sites, background air quality will be characterised by drawing on information from the Air Pollution Information System (APIS, 2016).

Dust Effects during Construction (and Decommissioning)

- 7.15 The air quality assessment would include an assessment of the effects of dust created during the construction (decommissioning) phase, based on the previous assessment (there is no change in the methods of construction due to the power upgrade) and conditions imposed.
- 7.16 The potential effect on air quality from dust and particulates generated during the construction phase of the project will be assessed qualitatively, based on the previous assessment and the IBA facility assessment, having regard to the IAQM method 'Guidance on the assessment of dust from demolition and construction' (IAQM, 2014).
- 7.17 If the change in traffic numbers on local roads as a result of construction/decommissioning traffic exceeds the indicative threshold criteria set out in the EPUK/IAQM guidance (EPUK/IAQM, 2015), then an assessment of pollutants from construction vehicles will also be included (i.e. if there is a change of HDV flows of more than 100 AADT). It is expected that the construction/ decommissioning traffic movements would be considerably less than the operational traffic generated by the project.

Operational Air Quality Effects

- 7.18 An assessment would include operational air quality effects on nearby human and ecological receptors (including designated sites) from stack emissions and operational traffic emissions generated by the project.
- 7.19 Stack emissions will be based on the Industrial Emissions Directive (IED) daily average emission limits to determine the emissions in grams per second for each of the pollutants modelled. The current version of the ADMS model will be used to calculate effects at ground level for the following emissions:
- Oxides of nitrogen (NO_x);
 - Particulates (PM₁₀ and PM_{2.5} fractions, which relate to mean aerodynamic particle diameters of less than 10 µm and 2.5 µm respectively);
 - Sulphur dioxide (SO₂);
 - Carbon monoxide (CO);
 - Hydrogen chloride (HCl);
 - Hydrogen fluoride (HF);
 - Group 1 metals: cadmium (Cd) and thallium (Tl);
 - Group 2 metals: mercury (Hg);
 - Group 3 metals: antimony (Sb), arsenic (As), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb), manganese (Mn), nickel (Ni) and vanadium (V);

- Total organic carbon (TOC);
- Polychlorinated dibenzo-p-dioxins (PCDDs – dioxins); and
- Polychlorinated dibenzofurans (PCDFs – furans).

- 7.20 Process contributions will be added to the background concentrations to calculate the predicted environmental concentrations. These will be compared to environmental quality standards to ascertain the impact of the stack emissions.

Traffic Emissions during Operation

- 7.21 Initially any change in traffic flow will be evaluated. If appropriate, based on this change. Air quality impacts associated with the changes in traffic flow characteristics on the local road network will be calculated using ADMS-Roads.
- 7.22 Currently, AQMAs designated in the UK attributable to road traffic emissions are associated with high concentrations of NO₂ and PM₁₀. This assessment will focus on changes in NO₂ and PM₁₀ concentrations associated with the project. The impact from fine particulate matter, known as PM_{2.5} (a subset of PM₁₀) concentrations will also be considered.

Assessment Criteria

- 7.23 For the purposes of assessment, all identified receptors will be assumed to be of high sensitivity.
- 7.24 When describing the air quality impact at a sensitive receptor, the change in magnitude of the concentration will be considered in the context of the absolute concentration at the sensitive receptor. The EPUK/IAQM approach provides impact descriptors for individual sensitive receptors (EPUK & IAQM, 2015).
- 7.25 The UK AQS sets an annual-mean NO_x objective of 30 µg.m⁻³ to protect vegetation at designated sites (also known as the Critical Level).
- 7.26 For nitrogen (N) deposition, the predicted deposition rate will be compared with the relevant Critical Loads for nitrogen at the site.
- 7.27 In the absence of official guidelines for determining the significance of impacts for planning applications, an approach will be adopted that is consistent with the Defra/Environment Agency's (2016) guidance. For the purposes of this assessment, effects will be considered to be potentially significant if:
- the Predicted Contribution (PC) exceeds 1% of the relevant critical level/load; and
 - the resulting Predicted Environmental Concentration (PEC) is greater than 100% of the relevant critical level/load.

Cumulative Effects

- 7.28 Cumulative effects on nearby human and ecological receptors from emissions generated by the project in combination with emissions generated by other nearby development will be reviewed and included if any material changes in traffic flows are identified at any location within the study area (defined as a cumulative change of HDV flows of more than 100 AADT,

where the project contribution is more than 50% of this change). Cumulative effects from stack emissions will be assessed as described previously, based on published air quality assessments for other developments.

- 7.29 If there are any developments within 350 m of the assessment boundary that are likely to have overlapping construction programmes, then a cumulative dust risk assessment will be undertaken.

Transboundary Effects

- 7.30 Given the scale and nature of the facility, and noting that it is a low carbon operation, it is not considered to give rise to any transboundary effects.

Mitigation

Construction Phase:

- 7.31 An Environmental Monitoring and Mitigation Plan (Appendix 5) was approved for the Wheelabrator Kemsley Generating Station (required under Condition 12 of planning consent SW/10/444) which outlines the dust mitigation measures for construction.

Operational Phase

- Odour, dust and other potential environmental impacts from the plant will be controlled using best available techniques in accordance with the requirements of the EA Environmental Permit and the supporting environmental management system. Containment of dust and odour within the tipping hall will be achieved through the maintenance of negative pressure in the hall.
- The monitoring of flue gases will be achieved by the use of a Continuous Emissions Monitoring System (CEMS). The emission components to be monitored are specified in the Environmental Permit and will be reported to and made public by the Environment Agency.
- A Fugitive Emissions Risk Assessment and Management Plan has been prepared for the IBA Recycling Facility (Appendix 6).

Issues Proposed to be Scoped Out

- 7.32 If the change in traffic numbers on local roads as a result of construction/decommissioning traffic do not exceed the indicative threshold criteria set out in the EPUK/IAQM guidance (EPUK/IAQM, 2015), then an assessment of pollutants from construction vehicles will be scoped out of the chapter.
- 7.33 The Generating Station is unlikely to create significant operational Based on the measures that are outlined in the Fugitive Emissions Risk Assessment and Management Plan for the IBA Facility, there are unlikely to be significant effects of fugitive dust during operation of the facility. Therefore it is proposed that an
- 7.34 The project is not considered to give rise to any transboundary effects; therefore it is proposed transboundary effects are scoped out of the assessment.

8 ECOLOGY AND NATURE CONSERVATION

Introduction

- 8.1 This section of the Scoping Report identifies the ecology and nature conservation receptors of relevance to project and considers the likely significant impacts and effects from the construction, operation and maintenance, and decommissioning of the project.

Study Area

- 8.2 The study area will be the immediate environs of the site and the surrounding designated sites. Designated sites will be considered at the following radii:

- International sites - 10 km
- National/local sites – 2 km

Existing Baseline Conditions

Designated Sites

- 8.3 A number of statutory and non-statutory designated sites are located within 10 km of the assessment boundary:
- The Swale Special Protection Area (SPA) Ramsar and Site of Specific Scientific Interest (SSSI) (approximately 0.1 km east);
 - Medway Estuary and Marshes SPA, Ramsar and SSSI (approximately 2.1 km north west);
 - Elmley Island National Nature Reserve (NNR) (approximately 0.3 km north east); and
 - Milton Creek Local Wildlife Site (LWS) (approximately 0.2 km south east).
- 8.4 The eastern extent of the assessment boundary overlaps with The Swale Estuary Marine Conservation Zone boundary. Statutory conservation designations are shown on Figure 4.

Habitats

- 8.5 The site of the Generating Station is currently under construction and as such, has been cleared and levelled. Prior to commencement of construction, the habitat at the site of the Generating Station and IBA Recycling Facility consisted of a mosaic of grassland, ruderal and scrub, and an area used for stockpile by the adjacent paper mill. It was reported in the 2010 ES, that some parts of the site were considered to fall within the UK Biodiversity Action Plan (UKBAP) Habitat Open Mosaic Habitats on Previously Developed Land.

Protected Species

- 8.6 A number of surveys were required to support the 2010 ES. These revealed a number of species across the site including UK BAP and notable invertebrates species, bird species

(including those listed on the Annex 1 of the Birds Directive), Reptiles (including Slow-worm, Common Lizard and Grass Snake). Additionally, three species of bird listed on Schedule 1 of the Wildlife and Countryside Act (1981) were found to be breeding in a large area of reedbed to the north of the Generating Station development. This included Marsh Harrier, one of the interest features of The Swale SPA. Also undertaken for the 2010 ES, intertidal bird surveys of the nearby The Swale SPA/Ramsar/SSSI identified a broad range of species foraging throughout the year, including Black-tailed Godwit in internationally important numbers. No records of protected mammals using the site were identified.

- 8.7 Breeding bird surveys completed in 2016 on behalf of the planning application for the IBA Recycling Facility identified breeding Marsh Harrier present in the reedbed to the north of the Generating Station. Intertidal surveys were also started in January 2016 and will be completed in December 2016.

Mitigation Implemented to Date

- 8.8 As detailed above, the site of the Generating Station is currently under construction and as such, has been cleared and levelled. Much of the mitigation that is secured through the planning consent for the Generating Station has already been implemented (see Appendix 7). This includes:

- To mitigate the loss of the reptile, invertebrate and breeding bird habitat occupied by the Generating Station, large areas of species-rich rough grassland and scrub have been created to provide suitable habitat to be used as a receptor site for reptiles and increase the available habitat for breeding bird/invertebrates on a former landfill site to the immediate south of the Generating Station.
- . Areas of bare ground have also been created to ensure the matrix of habitats across the site that is of value as the “Open Mosaic Habitats on Previously Developed Land” BAP habitat is maintained;
- Completion of reptile translocation off the site of the Generating Station and IBA Recycling Facility into the newly-created habitats;
- Creation of seven reptile hibernacula;
- Collection of Annual Beard-grass seeds from within the Generating Station and IBA Recycling Facility footprints and their sowing in appropriate locations within the newly-created habitats;
- Creation of a 1 hectare reedbed at Harty Marsh Farm on the Isle of Sheppey that has since been adopted by the RSPB; and
- Erection of wooden palisade fencing along site boundaries with the reedbed to the north.

Baseline Data

- 8.9 As construction of the Generating Station is underway, and both the areas of both the Generating Station and the IBA have been cleared, there would be little merit in undertaking updated ecology surveys at the project site itself. However, on the basis that Updated breeding bird and intertidal ecology surveys were undertaken in 2016 for the adjacent IBA

application therefore no further surveys are deemed necessary to support the impact assessment.

8.10 International, national and local designated sites information for the study area will be obtained to support the Scoping Report and to inform the EIA process. Biological records will be obtained from the following sources:

- Kent and Medway Biological Records Centre;
- Kent Wildlife Trust;
- Kent Ornithological Society; and
- The Kent Field Club

Relevant Policy Context

- **Overarching National Policy Statement for Energy (EN-1):** *“Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the IPC consider thoroughly the potential effects of a proposed project.*

The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.”

Proposed Scope of Assessment

8.11 The ES chapter will include an assessment of the likely significant effects from the construction, operation and maintenance, and decommissioning of the project on ecology and nature conservation receptors in the context of a current baseline environment, and future baseline environment (2019), when the project is likely to become operational. This will establish whether the existing proposed mitigation is sufficient (see measures outlined below) and whether further mitigation is required.

8.12 In accordance with the overarching approach to the EIA, the chapter will also consider an assessment scenario that assesses the project against the consented future baseline (i.e. a future baseline that includes the consented Generating Station and IBA Facility, also assumed to be permitted, constructed and operational by 2019), in order to isolate and understand the environmental effects of the power upgrade alone.

8.13 The assessment will include consideration of the following:

- Effects on ecological receptors from permanent and temporary land take;
- Construction/ decommissioning phase effects e.g. disturbance to ecological receptors; and

- Operational phase effects e.g. effects of the built/landscape/drainage design and the operational characteristic of the project such as traffic and air quality emissions on features of interest of the SPA and other designations.

Relevant Guidance Documents

- The National Planning Policy Framework, Chapter 11: Conserving and enhancing the natural environment (DCLG, 2012);
- Planning Practice Guidance: Natural Environment (DCLG, 2014b);
- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition (Chartered Institute of Ecology and Environmental Management (CIEEM), 2016).

Proposed Approach

- 8.14 The ecology and nature conservation assessment process will be undertaken in accordance with the Guidelines for Ecological Impact Assessment (EclA) in the UK and Ireland – Terrestrial, Freshwater and Coastal, 2nd Edition (CIEEM, 2016).

Receptor Sensitivity

- 8.15 The ecology and nature conservation assessment process will be undertaken in accordance with *Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater and Coastal* (CIEEM, 2016).
- 8.16 Habitats, species populations and assemblages within the ecology and nature conservation study area will be evaluated with reference to their importance in terms of 'biodiversity conservation' and the need to conserve representative areas of habitats and genetic diversity of species populations. Ecological receptors are habitats or species that are of conservation concern and that could be affected by the project. The approach to determining the nature conservation value and/or sensitivity of each receptor is outlined in Table 5 below.

Table 5 - Proposed Method of Defining Sensitivity

Conservation value and/or sensitivity	Definition
Negligible	Including importance at local level. Commonplace feature of little or no habitat/historical significance. Loss of such a feature would not be seen as detrimental to the ecology of the area.
Low	Including importance at district level. A feature (e.g. habitat or population) that is of nature conservation value in a local context only, with insufficient value to merit a formal nature conservation designation.

Conservation value and/or sensitivity	Definition
Medium	<p>A feature (e.g. habitat or population), which is either unique or sufficiently unusual to be considered as being of nature conservation value from a county to regional level.</p> <p>Habitats or species that form part of the cited interest of a Local Nature Reserve (LNR), or some local-level designated sites, such as a Local Wildlife Site (LWS), also referred to as a non-statutory Site of Importance for Nature Conservation (SINC) or the equivalent, e.g., Ancient Woodland designation.</p> <p>Presence of Local Biodiversity Action Plan (LBAP) habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected.</p>
High	<p>Habitats or species that form part of the cited interest within a nationally designated site, such as an SSSI or a (National Nature Reserve (NNR).</p> <p>A feature (e.g., habitat or population) which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in a national context for which the site could potentially be designated as a SSSI.</p> <p>Presence of UKBAP habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected.</p>
Very high	<p>Habitats or species that form part of the cited interest within an internationally protected site, such as those designated under the Habitats Directive (e.g., SACs) or other international convention (e.g., Ramsar site).</p> <p>A feature (e.g. habitat or population) which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in an international/national context, such that the site is likely to be designated as a site of European importance (e.g., SAC).</p>

- 8.17 The criteria that will be referred to for the valuation of habitats and plant communities will include Annex III of the EC Habitats Directive, guidelines for the selection of biological SSSIs and criteria used by the local authority and Wildlife Trust for the selection of sites for local designation.
- 8.18 Individual species populations and communities will be valued on the basis of their size, recognised status (such as recognised through published lists of species of conservation concern and designation of Biodiversity Action Plan (BAP) status) and legal protection. For example, bird populations exceeding 1% of published information on biogeographic populations are considered to be of international importance; those exceeding 1% of published data for national populations are considered to be of national importance and so on.

- 8.19 In assigning values to species populations, it is important to take into account the status of the species in terms of any legal protection. It is also important to consider other factors such as its distribution, rarity, population trends and the size of the population which would be affected. For example, whilst the Great Crested Newt is protected under European law and therefore conservation of the species is of significance at the international level, this does not mean that every population of Great Crested Newt is internationally important. It is appropriate to consider the particular population in its local context. Therefore, in assigning values to species the geographic scale at which they are important has been considered. The assessment of value will rely on the professional opinion and judgement of experienced ecologists.
- 8.20 As part of the ecological impact assessment (EcIA) process due regard will also be paid to the legal protection afforded to species during the development of mitigation and compensation measures to be implemented during the project. For European protected species there is a requirement that the project should not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.
- 8.21 Plant communities will be assessed both in terms of their intrinsic value and as habitat for protected species whose habitat is also specifically protected and for species of nature conservation concern which are particularly associated with them.

Magnitude of Impact

- 8.22 The likely impacts of the project are determined through understanding how each receptor would be affected by the elements of the project. The terms used to define the magnitude of the impact of proposals are set out in Section 4 of this Scoping Report.

Significance of effect

- 8.23 The significance of predicted effects will be evaluated in accordance with the methodology set out in Section 4 of this Scoping Report. Taking into account the assessment methodology, an impact of high negative magnitude on a feature of less than district level importance would result in an effect of minor ecological and nature conservation significance, which would not be significant in EIA terms. Therefore, for the purpose of this impact assessment, receptor sites, habitats and species are considered further if they are of at least a district level of importance or sensitivity.

Cumulative Effects

- 8.24 Cumulative effects on ecology and nature conservation receptors arising from the project alongside other projects within the area from other industries/activities (e.g., industrial/commercial development, coastal infrastructure) would be included in the assessment.
- 8.25 The scope for impacts to interact to potentially create a more significant effect on ecology and nature conservation will be assessed in the EIA (i.e. project lifetime effects). Inter-relationships between impacts on ecology and nature conservation considered in isolation (e.g. impacts on individual species etc.) will also be considered together as part of the EIA process (i.e. receptor led effects).

Transboundary Effects

8.26 Given the site and its location, there is no potential for transboundary effects.

Mitigation

- Condition 8 of planning permission SW/10/444 specifies that all piling shall be by way of Auger other than where an alternative method is required for structural reasons. To avoid disturbance to breeding birds, particularly the Cetti's Warbler breeding period (April-August), impact piling was proposed to be avoided or achieved via vibro-piling methods that do not produce sudden, startling noises. The Generating Station is currently being built using only CFA methods to avoid such disturbance, with no impact piling intended.
- Ecological impacts identified during the planning process and covers mitigation measures relating to reptiles, habitat creation suitable for a range of nesting and foraging birds, protection of bird breeding habitats; habitat creation of open mosaic habitat on previously developed land/ habitat for invertebrates and mitigation for the nationally scarce Annual Beard-grass *Polypogon monspeliensis* are covered in Appendix 7. This report provides details of the work undertaken in accordance with the Ecological Mitigation and Management Plan to confirm that the Relocation Scheme has been satisfactorily implemented, and to ensure that the reptile population and annual beard-grass were moved in a sensitive manner and in accordance with best practice. It also provides details of the final site preparation works undertaken on site with respect to both the Generating Station and access road.
- Surface water management on the project site would be via a large attenuation pond on the site of the Generating Station and a settlement tank and swale on the site of the IBA recycling facility, both of which would have significant areas of Common Reed that would provide an increase in habitat for the species currently found breeding within the reedbed. The attenuation areas would also be designed to provide significant reptile and invertebrate habitat.
- A programme of monitoring of construction noise levels and appropriate bird movements will be implemented throughout construction phase. Appropriate noise abatement strategies would be put in place if any disturbances are recorded during monitoring visits.
- Habitat clearance will take place outside of the breeding season. If some work during the breeding season is unavoidable then an experienced ornithologist will make a thorough search of the identified area to make sure that there are no breeding birds present. If nesting birds are found then a suitable area surrounding the nest will be cordoned off and work will not commence on this area until the ornithologist is satisfied that breeding is over.
- Standard, best practice dust-suppression methods will be used throughout both construction and operation of the project, thereby avoiding any impacts as a result of dust settlement on habitats and species.
- Monitoring of the success of the habitat creation will be undertaken for the following year after construction works.

- Post development ecological monitoring surveys to assess the success of the mitigation will be carried out over the first five years after completion and any issues, such as the loss or reduction in any of the populations of species of conservation concern rectified through the implementation of appropriate strategies to be drawn up as necessary.
- Site speed limits should be slow enough to allow reptiles to move out of the way.

Issues Proposed to be Scoped Out

8.27 Transboundary effects will be scoped out of the ecology assessment.

9 HISTORIC ENVIRONMENT

Introduction

- 9.1 This section of the Scoping Report identifies heritage assets of relevance to the project and considers the potential impacts and effects from the construction, operation, maintenance and decommissioning of the project on these assets.

Study Area

- 9.2 The study area will be based upon recent experience of similar developments, the site visit and consideration of the landscape study, including the zone of theoretical visibility (ZTV) that will be defined for the LVIA chapter. This assessment, for the purpose of buried archaeology, focuses on a study area of 1km around the assessment boundary. For the purpose of the settings of heritage assets, the assessment focuses on a study area of 3km around the assessment boundary while taking into consideration evidence from a wider area if appropriate.
- 9.3 With respect to the settings of heritage assets, only those assets which lie within the ZTV are assessed, using that the guidance prepared by Historic England in their document “The Setting of Heritage Assets”(Historic England 2015) along with “Conservation Principles” (Historic England 2008).

Existing Baseline Conditions

- 9.4 The project is located within Historic Landscape Characterisation (HLC) type 12.3 ‘Industrial complexes and factories’ of the Kent Historic Landscape Characterisation (Croft et al., 2001). This HLC type has a high ability to withstand change. The project site is located within a landscape that has seen activity since early times and is of high archaeological potential.
- 9.5 The nearest Conservation Area is Milton Regis High Street, located some 2.5 km south west of the project site. The Tonge Conservation Area and the Sittingbourne Conservation Area are located some 2.9 km south east and some 2.9 km southwest of the project site, respectively. The nearest Registered Park and Garden is Doddington Place, some 9 km to the south of the project site.
- 9.6 As shown on Figure 5, no statutory designated sites (e.g. Scheduled Monuments, Listed Buildings) are present within the assessment boundary. The closest designated asset is Castle Rough, a Scheduled Monument (List entry Number 1013368), located some 500 m south west of the proposed development site. The closest listed buildings to the project site are Little Murston Farmhouse to the south east and Great Grovehurst Farmhouse to the west, both listed at Grade II.
- 9.7 Site investigation for the site of the Generating Station in 2009 has indicated that the development area is underlain by made ground to a depth of between 0.9 metres and 4.6 metres below current ground level. The site of the Generating Station was considered to be of low archaeological potential, with the possible exception of very deeply buried alluvium. The site of the Generating Station is currently under construction. Those excavating bulk material for the proposed fuel bunker will be briefed to the possibility of archaeological deposits in the

alluvial material being excavated and were under instruction to alert the Heritage and Conservation office at Kent County Council should anything of significance, in particular any wooden structures, be encountered.

Baseline Data

- 9.8 A review of heritage designations, including nationally designated sites, listed buildings and Conservation Areas has been undertaken utilising data sources including:
- Details of Listed Buildings, Scheduled Monuments, Battlefields, Registered Parks and Gardens, and World Heritage sites;
 - Historic Environment Records and Conservation Areas from Kent County Council; and
 - Historic mapping both published and unpublished including manuscript maps and historic Ordnance Survey maps.
- 9.9 A detailed, up to date, desk-based archaeological assessment will be undertaken to inform the EIA in accordance with the Chartered Institute for Archaeologists' Standards and Guidelines for desk-based assessments. The desk-based assessment will be based on the above data sources and will include:
- Conservation area character appraisals, where available;
 - Documentary resources from the Archaeology Data Service website (www.ads.ahds.ac.uk) and other web based sources as appropriate;
 - A review of relevant documentary and archival material held in libraries and archives will be undertaken. An iterative approach will be adopted during this process to determine the scope of the above consultations/searches; and
 - A walk-over by a suitably qualified and experienced archaeologist, to establish the extent of ground disturbance within the project site, the presence of previously unrecorded heritage assets, and/ or to further assess the potential of recorded heritage assets. In addition, the field visit will assess the suitability of any further survey techniques and will also provide an indication of the likely effect of the proposed development on the settings of heritage assets.
- 9.10 Based on the results of the desk-based assessment, subject to further discussion with the County Archaeologist, field surveys may be undertaken as appropriate.
- The scope of any field studies will be discussed with Kent County Council and Historic England, as required, prior to any work taking place.

Relevant Policy Context

- **Overarching National Policy Statement for Energy (EN-1), Section 5.8:** ...The applicant should provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the

significance of the heritage asset. As a minimum the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, English Heritage or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact.

- Where a development site includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, representative visualisations may be necessary to explain the impact.
- The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents.

Proposed Scope of Assessment

- 9.11 It is proposed that the EIA includes an assessment of effects on heritage assets associated with all phases of the project in the context of a current baseline environment, and future baseline environment in 2019, when the project is likely to become operational (should there be any foreseeable differences in conditions). This will establish whether the existing proposed mitigation is sufficient and whether further mitigation is required.
- 9.12 In accordance with the overarching approach to the EIA, the chapter will also consider an assessment scenario that includes the project against the consented future baseline conditions, in order to isolate and understand the environmental effects of the power upgrade alone. It is noted that the increase in electrical capacity does not propose any change to the external appearance of the buildings from that already consented.
- 9.13 The potential impacts on the historic environment associated with the project that require assessment include:
- Direct impacts on heritage assets from construction work within the IBA site (potential for buried archaeological assets of the Generating Station site and the site is already under construction) (construction phase only)
 - Temporary impacts on the setting of heritage assets (construction phase only)
 - Temporary impacts on historic landscape (construction phase only)
 - Impact on the setting of heritage assets (operational/decommissioning phase)
 - Impacts on historic landscape (operational/decommissioning phase)

Relevant Guidance Documents

- Kent Historic Landscape Characterisation (Croft et al., 2001).
- Design Manual for Roads and Bridges, Volume 11, Section 3, Part 2 (HA 208/7) (Highways Agency et al., 2007).

Proposed Approach

9.14 Specifically, the following heritage assets will be considered:

- World Heritage Sites;
- Listed Buildings (both nationally and locally listed);
- Conservation areas;
- Locally important historic landscapes (including battlefields);
- Registered Parks and Gardens;
- Registered Battlefields;
- Scheduled Monuments; and
- Buried and above ground heritage assets.

Heritage Asset Sensitivity

9.15 The sensitivity of heritage assets will depend on factors such as the condition of the site and the perceived heritage value/importance of the site. The importance of the asset will in part be assessed in terms of national, regional or local statutory or non-statutory protection and grading of the asset.

9.16 There are no national government guidelines for evaluating the importance of heritage assets. For archaeological assets, the Department of Culture, Media and Sport (DCMS) has adopted a series of recommended (i.e. non-statutory) criteria for use in the determination of national importance when scheduling monuments. These are expressed in the document Scheduled Monuments - Identifying, Protecting, Conserving and Investigating Nationally Important Archaeological Sites under the Ancient Monuments and Archaeological Areas Act 1979 (DCMS, 2013).

9.17 For historic buildings, assessment of importance is usually based on the designations used in the Listed Building process. Where historic buildings are not listed professional judgement will be used.

9.18 The sub-topic of Historic Landscape is recognised as having significant overlaps with other topics, such as landscape and townscape and therefore a multi-disciplinary approach to assessment will be adopted. This is to avoid double counting and duplication of effort. There are also significant overlaps with the other cultural heritage sub-topics of archaeological remains and historic buildings.

Magnitude of Impact

Archaeological assets

9.19 The magnitude of an impact is assessed without regard to the value of the heritage asset. In considering the magnitude of impact, the principle established in Section 12 of the National Planning Policy Framework (NPPF) that preservation of the asset is preferred, and that total physical loss of the asset is least preferred, has been taken into account.

- 9.20 It is not always possible to assess the physical impact in terms of percentage loss and therefore it can be important in such cases to try to assess the capacity of the heritage asset to retain its character and significance following any impact. Similarly, impacts resulting from changes within the settings of buried archaeological assets may also be more difficult to assess as they do not involve physical loss of the resource and may be reversible.

Historic buildings

- 9.21 As for archaeological assets, the magnitude of impact in relation to historic buildings is assessed without regard to the importance of the asset, so the total destruction of an insignificant historic building has the same degree of magnitude of impact as the total loss of a high value historic building. Determination of the magnitude of impact is based on the principle that preservation of the asset and its setting is preferred and that total physical loss of the asset and/or its setting is the least preferred.

Historic landscapes

- 9.22 Historic landscapes cannot be destroyed or damaged but impacts on them can change their character. Impacts are assessed using evaluated HLC units, not the elements/parcels/components that contribute towards the character. There may be impacts resulting from changes within the settings of identified units, especially with regard to designated historic landscapes.

Significance of Effects

- 9.23 The significance of potential effects will be assessed by taking into account the potential magnitude of impacts (e.g. a high magnitude impact could involve the total loss of a heritage asset) and the sensitivity of heritage assets. The assessment matrix provided in Section 4 of this Scoping Report will be adopted. Any potential effects that are assessed as being 'Moderate' significance of effect or above will be considered to be significant in EIA terms. Potential effects that are considered to be of a 'Minor' significance of effect will be described, however they will not be considered to be significant in EIA terms.

Cumulative Effects

- 9.24 Cumulative impacts on the historic environment arising from the project alongside other developments within the study area will be considered within the Environmental Statement.

Transboundary Effects

- 9.25 On the basis that the ZTV is unlikely to extend beyond 15 km from the project site, no transboundary effects are likely to arise.

Mitigation

- 9.26 No mitigation is proposed.

Issues Proposed to be Scoped Out

- 9.27 It is proposed that the ES chapter will scope out transboundary effects as detailed above.

10 HYDROGEOLOGY AND GROUND CONDITIONS

Introduction

- 10.1 This section of the Scoping Report identifies the hydrogeology and ground conditions of relevance to the project and considers the likely significant impacts and effects from the construction, operation and maintenance, and decommissioning of the project on hydrogeology and ground conditions receptors.

Study Area

- 10.2 The study area will be defined as the area within the assessment boundary, plus any hydrogeological resources (i.e. aquifers) that have hydrological connectivity with the site.

Existing Baseline Conditions

Site of the Generating Station

- 10.3 A phase II site investigation was undertaken by RPS in July 2009 to categorise the baseline environment for the 2010 ES. This demonstrated that the site is underlain by a sequence of Made Ground, alluvial clay, London Clay and sand deposits. Shallow groundwater has been identified discontinuously across the site. A continuous groundwater body is present in the sand deposits at depth, although no significant pathway between these two groundwater bodies is anticipated. The Swale estuary is considered the principal receptor of shallow and deep groundwater on the site. Historically, the development area has been utilised for coal stockpiling. There is a closed landfill site currently situated to the south of site.
- 10.4 Subsequently, an Interpretative Ground Investigation Report was submitted to Kent County Council in August 2013 to discharge Condition 10 of planning permission SW/10/444 for the Generating Station in relation to contamination risk assessments. This provided more up to date information on the baseline environment than the 2010 ES. The main body of the report relates to the site investigation undertaken in May and June 2011, the results of four gas and groundwater monitoring rounds undertaken from June to August 2011, additional site investigation was undertaken in September 2012.
- 10.5 This report demonstrated the site as three areas that comprised an area of marsh land, a stockpile area and a contractor's laydown area. The contractor's laydown area was utilised during the Phase 2 extension to the existing fluidised combustion plant associated with the existing CHP (Combined Heat and Power) plant adjacent to the site. The area of stockpiled material was located in the south-west of the site and is understood to have been generated during the extension works.
- 10.6 The Kemsley Waste Disposal Site is located immediately to the south-east comprising a landfill of some 11 Ha in area. The landfill has been used for the disposal of wastes generated by the Kemsley Mill paper making processes since the commissioning of the mill in 1928. The history of land filling is varied with the earliest sections of land filling being relatively uncontrolled with limited engineered containment. Improved practices will have been implemented over time with capping over the whole site currently being undertaken. The

wastes historically received by the landfill have included general wastes, bark strippings, reject logs and timber, hardboard and hardboard strips, demolition rubble and building materials, mill garden waste; and primary effluent sludge cake. More recently, wastes have been limited to general waste (15%), primary/secondary mill effluent sludge cake (4%) and rejected plastics (81%). The capping system installed across the entire landfill between 1993 and 2004 comprises a 0.6 m clay cap overlain by a 0.4 protective layer of topsoil.

- 10.7 The project site lies adjacent to the River Swale to the east and the Milton Creek to the south. Both of these surface watercourses are considered to be potential receptors for potential contamination from the site.
- 10.8 The results of the technical assessments have not identified the need for remediation of soils or groundwater on the Generating Station Site in advance of the proposed construction works. Based on the gas risk assessment undertaken it has been concluded that the Generating Station development be classed as Characteristic Situation 2 (CS2) (CIRIA, 2007) 'Low Risk'. It is understood that landfill gas production at the Kemsley Waste Disposal site is managed to the satisfaction of the regulatory authorities. The Generating Station site is currently being cleared for construction.

Site of the IBA Recycling Facility

- 10.9 A desk top study (DTS) and preliminary risk assessment (PRA) report was produced in 2016 for the site of the IBA Recycling Facility. This assessment included a review of the previous intrusive ground investigations undertaken in this area. The report identified that the ground conditions beneath the site compromised the following, stated in stratigraphic order from shallowest to deepest:
- Made Ground proven to a thicknesses of between 0.9 m and 4.2 m+. The available ground investigation records identify that the Made Ground typically encountered as a gravelly clayey sand or gravelly sandy clay typically containing fragments of brick, concrete, wood, glass and metal.
 - Alluvium proven to a thickness of between 2 – 13 m. The available ground investigation records identify that the alluvium was encountered as soft becoming firm sandy clay during the most recent ground investigation.
 - London Clay Formation proven to a thickness of between 2.5 – 7 m. The available ground investigation records identify that the London Clay was encountered as stiff bluish grey clay.
 - Woolwich Formation proven to a thickness of between 7.8 and 18 m +. The available ground investigation records identify that the Woolwich Formation was encountered as dense sand with clay layers.
 - Thanet Sands Formation proven to a thickness of between 21 – 40 m. The published mapping suggests that this formation is present as either a fine grained sand with chert that can be clayey or glauconitic.
 - Upper Cretaceous White Chalk Subgroup. Thickness unproven. The published mapping suggests that this formation is present as Firm white chalk with nodular and tabular flint seams.

- The available ground investigation records identify that there are generally low levels of organic and inorganic contamination in soils, although asbestos has been identified to be present in places. Low levels of organic and inorganic contamination have been identified in groundwater.
- A qualitative risk assessment was undertaken considering the risk from the identified contamination. This assessment identified that chemical contamination at the site is unlikely to pose an unacceptable risk to human health based on the proposed commercial land use. However there is a potential risk posed from asbestos that has been identified in the Made Ground at the Assessment Site. It is considered that there is a low to moderate potential risk to controlled water based on the historical site uses and the potential presence of landfill and a refuse tip that may have compromised the low permeability layer of London Clay beneath the Assessment Site. The risk from gas is also considered to be low to moderate based on the potential presence of a landfill and refuse tip within the Assessment Site.

Baseline Data

10.10 It is considered that no further surveys are required to characterise the baseline conditions within the project site. The baseline is characterised from the information in the following documents and those documents referenced within:

- Interpretative Ground Investigation Report, Pre-Commencement Works for the Sustainable Energy Plant Kemsley Paper Mill, Sittingbourne, Kent, Prepared by RPS, June 2013, On Behalf of EEW Energy from Waste UK Limited (Ref: JER5481 R 130613 DH Interpretative Report.doc) ;
- Kemsley Paper Mill, Desk Top Study and Preliminary Risk Assessment, RPS, Prepared for WTI UK Limited, Ref: 160916 JER6846 Phase 1 DTS and PRA Kemsley Mill IBA Area Final.

Relevant Policy Context

10.11 A review of the National Planning Policy Statements has identified the following statements consider ground conditions and hydrogeology:

- Overarching National Policy Statement for Energy (EN-1)
- National Policy Statement for Renewable Energy Infrastructure (EN-3)

10.12 Section 4.10 of EN-1 considers pollution control and other regulatory regimes (Section 4.1). This section states that:

In considering an application for development consent, the IPC should focus on whether the development itself is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions or discharges themselves. The IPC should work on the assumption that the relevant pollution control regime and other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity, will be properly applied and enforced by the relevant regulator. It should act to complement but not seek to duplicate them.

- 10.13 Section 5.15 of EN-1 considers water quality and resources. This section states that:

Where the project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment as part of the ES or equivalent. (See Section 4.2.)

The ES should in particular describe:

the existing quality of waters affected by the proposed project and the impacts of the proposed project on water quality, noting any relevant existing discharges, proposed new discharges and proposed changes to discharges;

existing water resources¹⁴⁷ affected by the proposed project and the impacts of the proposed project on water resources, noting any relevant existing abstraction rates, proposed new abstraction rates and proposed changes to abstraction rates (including any impact on or use of mains supplies and reference to Catchment Abstraction Management Strategies);

existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project and any impact of physical modifications to these characteristics; and

any impacts of the proposed project on water bodies or protected areas under the Water Framework Directive and source protection zones (SPZs) around potable groundwater abstractions.

- 10.14 Section 2.5.85 of EN-3 considered the assessments required in relation to the abstraction or discharge of cooling waters. This section states that:

Where the project is likely to have effects on water quality or resources the applicant should undertake an assessment as required in EN-1, Section 5.15. The assessment should particularly demonstrate that appropriate measures will be put in place to avoid or minimise adverse impacts of abstraction and discharge of cooling water.

This policy will be relevant to the assessment of hydrogeology and ground conditions where the facility relies on abstraction or discharge to ground.

Proposed Scope of Assessment

- 10.15 The ES chapter will include an assessment of the likely significant effects from the construction, operation and maintenance, and decommissioning of the project on hydrogeological resources and receptors and ground conditions in the context of a current baseline environment (March 2017). This will establish whether the existing proposed mitigation is sufficient and whether further mitigation is required.
- 10.16 In accordance with the overarching approach to the EIA, the chapter will also consider an assessment scenario that includes an assessment of the effects of the project against the consented future baseline, in order to isolate and understand the air quality effects of the power upgrade alone.
- 10.17 The potential impacts of the project that will require assessment during construction and decommissioning include:

- Exposure of construction workers to contamination;
- Mobilisation of any existing contaminants into ground, groundwater, surface water and off-site; and
- Creation of new areas of contamination e.g. through spillage.
- Alteration of groundwater flow regime.

10.18 The potential impacts of the project that will require assessment during operation will include:

- Exposure of workers and site visitors to any contamination;
- Impact to controlled waters from contamination; and
- Alteration of groundwater flow regime.

Relevant Guidance Documents

10.19 The assessment methodology has taken consideration of the following key guidance documents:

- BS10175:2011 + A1:2013 Code of Practice for Investigation of Potentially Contaminated sites;
- BSI BS1377:1990 Methods of Test for Soils for Civil Engineering Purposes;
- BSI BS5930:1999 Code of Practice for Site Investigations;
- Model Procedures for the Management of Contaminated Land, Contaminated Land Report 11, Environment Agency, 2004;
- Contaminated Land Exposure Assessment (CLEA) Guidelines;
- The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment (2nd Edition), July 2009;
- Surface Water Environmental Quality Standards (EQS), UK Drinking Water Standards; and
- Assessing Risks Posed by Hazardous Ground Gases to Buildings, CIRIA Report C665.

Proposed Approach

10.20 The EIA assessment draw on the information presented in the summary report and will follow the source–pathway–receptor approach to identify potential sources of contamination within the study area, the type and location of environmental receptors and the pathways by which the receptors may be affected.

Table 6: Definitions of Sensitivity or Value

Sensitivity	Typical Descriptors	Examples
High	High importance and rarity, and limited potential for substitution.	On site future site occupants e.g. staff, through chronic exposure to contamination Principal aquifer with licensed groundwater abstractions Excellent quality surface water bodies
Medium	Medium importance and rarity, limited potential for substitution.	Off site future site occupants e.g. staff on adjacent sites Secondary A aquifer Good quality surface water bodies
Low	Low importance and rarity.	Secondary undifferentiated aquifer Satisfactory quality surface water bodies
Negligible	Very low importance and rarity.	Unproductive strata Poor quality surface water bodies

Magnitude of Impact

- 10.21 The magnitude of potential impacts will be qualitatively described and categorised based on the terminology in Table 7.

Table 7: Impact Magnitude Criteria

Magnitude	Criteria	Example / Description
High	Results in loss of attribute and likely to cause exceedance of statutory objectives and/or breaches of legislation.	Category 1 – Soil contamination that could result in a ‘contaminated land’ designation under Part IIA, i.e. significant possibility of significant harm to human health or controlled waters. Or A change of planning use deems that the concentrations of contaminants in the land may be harmful to receptors Remedial Action under Part IIA will be required Or Loss of resource or severe damage to characteristics, features or elements e.g. of a geologically designated site.
Medium	Results in impact on integrity of attribute or loss of part of attribute possibly with / without exceedance of Statutory objectives or with/ without breaches in legislation.	Category 2 - Soil contamination that could provide a strong case for considering that the risks are of significant concern so as to be designated as ‘contaminated land’ designation under Part IIA. Or A change of planning use deems that the concentrations of contaminants in the land may be harmful to receptors

Magnitude	Criteria	Example / Description
		Remedial Action under Part IIA will be required on a precautionary basis. Or Partial loss of/damage to characteristics, features or elements e.g. of a geologically designated site.
Low	Results in minor impact on attribute.	Category 3 – Soil contamination could arise but the concentrations would not be considered significant or there is a low likelihood of serious pollution. Or A change of planning use deems that the concentrations of contaminants in the land are not capable of harming receptors. It is unlikely that remedial action will be required, however land owners may consider remedial actions to reduce contamination outside of the Part IIA or planning regime. Or Minor damage to characteristics, features or elements e.g. of geological feature of interest.
Negligible	Results in no discernible change or an impact on attribute of insufficient magnitude to affect the use / integrity.	Soil contaminants present, but risk assessment suggests negligible / low risk to human health. Or Very minor damage to characteristics, features or elements e.g. of geological feature of interest.

Significance of Effect

- 10.22 The significance of likely effects during construction, operation and decommissioning of the project will be assessed by consideration of the sensitivity of the key attributes of the hydrogeology resources that may be affected and the magnitude of the predicted impact on them. The assessment will consider the likelihood of harm occurring, taking into account potential sources of contamination and receptors that may be affected by such contamination.
- 10.23 This will be in accordance with the assessment matrix and methodology outlined in Section 4 of this Scoping Report. For the purposes of this assessment any effect that is moderate or above will be considered to be significant in EIA terms.

Cumulative Effects

- 10.24 An assessment of cumulative effects is not considered to be required. As other schemes come forward for development, the land involved in those developments and any potential contamination within those sites will need to undergo assessment to evaluate the risks and the significance of effects posed by those developments. Following that assessment, any identified requirement for remediation should be completed prior to the start of, or as a justified part of, the construction phase. Accepting that other proposed developments in the

area around the site are adequately assessed, remediated and mitigated, they should themselves result in no significant adverse effects, and it is therefore considered that there would be no measurable cumulative effects requiring consideration.

- 10.25 The scope for impacts to interact to potentially create a more significant effect on surface water features resources as a result of hydrogeology and ground conditions effects will be assessed in the EIA.

Transboundary Effects

- 10.26 It is not considered that there is any potential for transboundary effects on hydrology or flood risk receptors to occur as a result of the project.

Mitigation

- 10.27 The mitigation measures to be implemented in relation to the power generation site have been established in support of, and agreed as part of the previous planning application and therefore can be defined with a high level of certainty. This is not the case for the Site the IBA Recycling Facility. The mitigation measures in relation to each of the two areas are set out within the following two sections.

Generation Station

- 10.28 Condition 8 of planning permission SW/10/444 stated that: All piling shall be by way of Auger other than where an alternative method is required for structural reasons. In such circumstances, the prior written consent of the Waste Planning Authority shall be required which shall only be given if it has been demonstrated that there is no resultant unacceptable risk to groundwater and then impact piling will not take place between 1 April and 31 August in any given year, subject to any prior written variation as approved by the Waste Planning Authority,
- 10.29 A number of mitigation measures were outlined in the Interpretative Ground Investigation Report which was submitted to discharge Condition 10, including:
- In line with CIRIA 665, the following mitigation measures for a characteristic Situation 2 for office, commercial and industrial developments are recommended:
 - (a) Reinforced concrete cast in situ floor slab (suspended, non suspended or raft) with minimum 1200g DPM;
 - (b) Block and beam or precast concrete slab and minimum 2000g DPM/or reinforced gas membrane;
 - (c) Possibly under floor venting or pressurisation in combination with (a) and (b) depending on use;
 - All joints to and penetrations to be sealed.
 - Although ground gas concentrations in the vicinity of the Generating Station building are low, it is assumed that potential risks posed to construction workers shall be mitigated through the appropriate risk assessments and resulting measures required under The

Construction (Design and Management) (CDM) Regulations 2007 and the COSHH Regulations 2002.

- Whilst the gas risk at the site has been assessed as low (Characteristic Situation 2), the construction of a basement slab supported by piles over a freely gassing waste mass will alter the current gas regime by the introduction of new gas barriers and pathways. Consideration should be given to the additional gas risk assessment as a consequence of the construction methods adopted and appropriate additional mitigation provided where appropriate.
- Given the location of the proposed site in isolation from adjacent residential areas or other sensitive receptors, the likelihood of such measures being required are considered reduced.
- **Development of a Contamination Discovery Strategy prior to the construction phase**, outlining the measures to be undertaken should visual and/or olfactory evidence of currently unknown contamination be identified during enabling and excavation works on the project site.
- **Piling Risk Assessment** - The proposed piling methodology is in-situ cast continuous flight auger piles supported within the London Clay and overlying Alluvium. Spoil will be removed prior to the injection of concrete under pressure from the base of the auger. On completion, all material below to the finish floor level and associated pile cap will have been removed and replaced with concrete. Consequently, no significant new contamination pollutant linkage will be created between potential contamination sources within Made Ground at the site and groundwater receptors within either alluvium, or more significantly the aquifer present below the London Clay which will not be penetrated by piling. Spoil arisings will be managed as part of the overall soil strategy for the site detailed within the Material Management Plan to be produced ahead of the main earthworks. An option of driven concrete piles is reserved should delays to the development be encountered during the construction of the foundations by potential time limitations placed on site working hours to limit noise disturbance. Should limited driven piles be used, all Made Ground will be removed from the surface and replaced with a suitably verified piling mat. Consequently, the risks of contamination displacement vertically to groundwater bearing strata within the Alluvium will be mitigated.
- **Soil Re-Use Strategy** - It is proposed to re-use site won material where appropriate during the construction phase, in order to reduce the volume of materials requiring off-site disposal. A Materials Management Plan detailing the proposed soil re-use strategy will be undertaken in advance of construction works. Material re-use shall be limited to natural materials that demonstrate the appropriate geotechnical properties with the absence of any visual or olfactory evidence of contamination. Any materials deemed unfit for re-use shall be stockpiled in accordance with the re-use strategy and subject to analysis for waste sentencing to determine the appropriate route for off site disposal.
- **Construction Phase Surface Water Drainage Strategy** - A surface water drainage strategy shall be developed for the construction phase to ensure that surface run-off is managed and direct run-off into the Sustainable Urban Drainage Systems (SuDs) installed on the site is prevented. The drainage strategy shall be delivered through the

safe systems of work (SSoW) developed in advance of the construction works commence.

- **Mitigating Risks to Construction Workers** - Any works undertaken on site by construction workers / ground workers should adhere to appropriate safe systems of work (SSoW) to minimise any potential risks posed to construction workers becoming exposed to contamination such as previously unidentified contamination including asbestos, gross inorganic and organic contamination and ordnance. This is usually dealt with through adherence to Construction Design and Management (CDM) Regulations 2007 (HMSO, 2007). This may include but may not be limited to the following:
 - Adherence to EEW Code of Construction Practice (CoCP);
 - Contractors are required to produce a Safe System of Work (SSoW) statement, which will include a method statement and an environmental risk assessment(s) to include watching briefs as appropriate;
 - Throughout all phases of construction a 'good housekeeping' policy will be applied, as outlined in the EEW CoCP. All work areas will be kept tidy and road surfaces will be kept clean and in a good condition. Relevant dust suppression measures and controls will be employed on the Application Site to minimise airborne dust.
 - In order to reduce the risk of pollution, plant and equipment will be continuously maintained in accordance with the manufacturer's specifications. In addition, plant and equipment will be located away from sensitive receptors and residential areas on or near to the site.
 - All site works will comply with relevant Environment Agency Pollution Prevention Guidelines: PPG6 - Working at Construction and Demolition Sites; PPG8 Safe Storage and disposal of used oils, and PPG5 - Works and maintenance in or near water: PPG5.
 - Development and implementation of an Environmental Management Plan (EMP), specific to the Generating Station in accordance with EEW Codes of Construction Practice. This will include all appropriate SSoW to mitigate potential impacts and exposure of constructions workers with respect to soil contamination, and to ensure work is carried out in a safe and environmental acceptable manner (i.e. minimising incidents such as accidental spillages, safe material storage / handling procedures, effective procedures to manage spills etc);
 - Appropriate measures to minimise dust during construction activities;
 - Waste Management Activities in line with the EMP and approach to minimise exposure and risks to workers; and
 - Long term groundwater monitoring to identify and further assess potential impacts from soil determinants in groundwater.

IBA Recycling Facility

- 10.30 The potential for contaminated land within the site will be assessed and the need for mitigation considered on the same basis as that for the Generating Station. Assessments will be undertaken to establish potential impacts on the hydrogeology and ground conditions. Remedial strategies will be developed where significant contamination is identified. A discovery strategy will be developed for the site as a whole.

Proposed Issues to be Scoped Out

- 10.31 It is not anticipated that there would be any transboundary effects arising from the project, therefore it is proposed that this is scoped out of the assessment.

11 HYDROLOGY AND FLOOD RISK

Introduction

- 11.1 This section of the Scoping Report identifies the hydrology and flood risk conditions of relevance to the project and considers the likely significant impacts and effects from the construction, operation and maintenance, and decommissioning of the project on hydrology and flood risk receptors

Study Area

- 11.2 A 500 m radius is considered appropriate for data collection taking into account the nature of the development and likely zone of influence on hydrological receptors. Given the landscape surrounding the development and ongoing anthropogenic activities it will be difficult to ascertain the exact source of any potential impacts on water quality beyond 500 m, this includes the Swale Estuary.

Existing Baseline Conditions

- 11.3 The site has been cleared and is currently under construction. At the time of writing the ES, the ground within the Generating Station site will be levelled to achieve the consented floor level of 6.3 m AOD.
- 11.4 Prior to construction, the site generally comprised undeveloped marsh land (together with a stock pile area used by the adjacent paper mill). Topographical data from the 2010 ES indicated that the site slopes from the west at an elevation of approximately 7.0 m AOD to approximately 4.0 m AOD in the east. The lowest elevations are located within the south east corner of the application area, 3.18 m AOD to 4.09 m AOD.
- 11.5 The natural site drainage is generally north and eastward with the topographical slope, but the natural drainage is affected by past surface water management at the site, notably internal bunds and associated ditches in the west of the site and a perimeter ditch along the western boundary. Land to the north of the site slopes to the north-east, and a number of natural drainage channels confirmed this. These drained into Kemsley Marsh and then flowed eastwards to discharge into the Swale. The Swale estuary is located to the east of the site, flowing in an easterly direction until its confluence with the North Sea approximately 16 km to the east of the site.
- 11.6 The project site lies partially within Flood Zones 2 and 3a and is therefore identified as having a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year (Figure 6). Fluvial flooding is not considered a risk at this site and no historical flooding has been recorded within the site. Historical flood mapping provided by the Environment Agency (EA) in February 2016 indicates that the application area was subject to flooding in 1953. No information on the level or depth of flooding has been supplied.

Baseline Data

- 11.7 An initial desk based review of literature and data sources will be undertaken to support the assessment and will likely include:

- British Geological Survey (BGS) 1:50,000 geological mapping
 - BGS Aquifer Designation Maps;
 - Environment Agency website (2016) (www.environment-agency.gov.uk);
 - The Centre for Ecology and Hydrology (CEH) (2012) (www.ceh.ac.uk);
 - Environment Agency (EA) Flood Hazard Mapping;
 - Kent County Council: Strategic Flood Risk Assessment (2013);
 - Medway Estuary and Swale Shoreline Management Plans (2008)
 - Met Office: Climate data (2016) (www.metoffice.gov.uk);
 - Ordnance Survey (OS) Landranger 1:50,000 Map;
 - North Kent Rivers Catchment Flood Management Plan (2009); and
 - River Basin Management Plan Thames River Basin District (2009)
- 11.8 Site-specific hydrological data will be obtained via consultation with the EA, Lead Local Flood Authority, Drainage Board, from Envirocheck/Groundsure, and site reconnaissance.
- 11.9 The baseline characterisation set out above enables the identification of the nature and likely significance of effects. The assessment considers the potential impacts to environmental receptors and the pathways by which the receptors may be affected. The following terms have the following meanings in this section.
- Source: waterbody, potential contaminant sources, ground/channel disturbance;
 - Pathway: the mechanism by which the source may affect a receptor; and
 - Receptor: identified features that may be affected, based on the sensitivity of the site.
- 11.10 This includes consideration of the probability of harm occurring, taking into account potential sources of flooding and receptors that may be affected.

Relevant Policy Context

- 11.11 Relevant European legislation includes:
- Water Framework Directive (WFD) 2000/60/EC
 - Environmental Quality Standards Directive 2008/105/EC
 - The Groundwater Directive 2006/118/EC
 - Groundwater Daughter Directive 2006/118/EC
 - Bathing Water Directives (76/160/EEC and 2006/7/EC)

11.12 Relevant English/UK legislation includes:

- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003
- Environment Act 1995
- Environmental Damage and Liability (Prevention and Remediation) Regulations 2009
- The Environmental Permitting (England and Wales) Regulations 2010 (as amended 2016)
- Floods and Water Management Act 2010
- Hazardous Waste (England and Wales) Regulations 2005
- Environmental Protection (Duty of Care) Regulations 1991 (as amended 2003)
- The Groundwater (Water Framework Directive) (England) Direction 2016
- Land Drainage Act 1991
- Water Resources Act 1991
- Coast Protection Act 1949

11.13 Relevant national and local policy and advice documents include:

- Overarching National Policy Statement for Energy (EN-1)
- National Policy Statement for Renewable Energy Infrastructure (EN-3)
- Kent County Council (2016) Kent Minerals and Waste Local Plan 2013-2030. Adopted July 2016.
- Sustainable building guidance for developers 2008
- Swale Borough Council (2008) Swale Borough Local Plan 2008, adopted February 2008.
- Swale Borough Council (2012) Draft Core Strategy: Bearing Fruits (March 2012)
- The National Planning Policy Framework (2012)
- The Planning Practice Guidance (online)

Proposed Scope of Assessment

11.14 The assessment will consider the effects of the project during the construction/decommissioning phase which could potentially include:

- Increase in flood risk from increasing the impermeable surfacing at the site (or the reverse for decommissioning phase)
- Increase in temporary flood risk from changing the surface run off during construction

- Deterioration of water quality of nearby watercourses / water bodies and WFD objectives
- 11.15 The operational phase effects could potentially include:
- Increase in flood risk from increasing the impermeable surfacing at the site
 - Deterioration of water quality of nearby watercourses / water bodies and WFD objectives
- 11.16 It is proposed that surface water features (including water dependent habitats), surface drainage and water quality are assessed in the context of the final drainage design and it is proposed that these elements are incorporated into the scope of the operational assessment.
- 11.17 The assessment will be in the context of a current baseline environment (March 2017), and future baseline environment (2019), when the project is likely to become operational. This will establish whether the existing proposed mitigation is sufficient and whether further mitigation is required.
- 11.18 In accordance with the overarching approach to the EIA, the chapter will also consider an assessment scenario that includes the consented Generating Station and IBA Facility (assumed to be permitted, constructed and operational by 2019) as part of the future baseline, in order to isolate and understand the air quality effects of the power upgrade alone. It is noted that the increase in electrical capacity does not propose any change to the external appearance of the buildings from that already consented.

Relevant Guidance Documents

- The following EA and DEFRA policy and guidance documents are relevant:
- Groundwater protection: Principles and practice (GP3), 2013 (EA)
- Water Discharge and Groundwater Activity Permits (TGN) 2012 (EA)
- Non-statutory technical standards for sustainable drainage systems (DEFRA)
- Surface Water Management Plan Technical Guidance (DEFRA)
- GOV.UK Environmental Management online (<https://www.gov.uk/topic/environmental-management>)
- Abandoned mines and the water environment, Environment Agency, 2008
- Control of Water Pollution from Construction Sites, CIRIA C532
- The SuDS Manual, CIRIA C753
- Control of water pollution from construction sites. Guidance for consultants and contractors (C532) 2001
- Environmental Good Practice on Site (Expansion of C502), CIRIA C650
- Culvert Design and Operation Guide, CIRIA C689
- Groundwater Control - Design and Practice, CIRIA C515

- Impact Risk Zones for Sites of Special Scientific Interest guidance 2016
- 11.19 Planning Practice Guidance documents have now been withdrawn by the EA. However they still provide a useful resource for managing on site activities.
- PPG 1 General Guide to the Prevention of Pollution
 - PPG 2 Above Ground Oil Storage Tanks
 - PPG 3 Use and design of oil separators in surface water drainage systems
 - PPG 4 Treatment and disposal of sewage where no foul sewer is available
 - PPG 5 Works and maintenance in or near water
 - PPG 6 Working at Construction and Demolition Sites
 - PPG 8 Safe Storage and Disposal of Used Oil
 - PPG 13 Vehicle Washing and Cleaning
 - PPG18 Managing Fire Water and Major Spillages
 - PPG 21 Polluting Incident Response Planning

Proposed Approach

- 11.20 Development specific Flood Risk Assessments were undertaken for each the Generating Station and the IBA Recycling Facility as part of the planning applications. A revised Flood Risk Assessment for the project site would be prepared that takes into consideration up to date guidance and practice, new hydrological model data supplied by the EA and amendments to the original consented development layout.
- 11.21 The significance of predicted impacts likely to occur during each phase of the project will be determined by consideration of the sensitivity of the key attributes of the hydrological environment and flood risk that may be affected and the magnitude of the predicted impact.

Sensitivity of Receptor

- 11.22 The sensitivity or value of a hydrological receptor or attribute is largely determined by its quality, rarity and scale.
- 11.23 The determination of value or sensitivity takes into account the scale at which the attribute is important. This can be defined as being at a local level, district level, county level, regional level; national or international level (e.g. Europe).
- 11.24 The definitions set out in Table 8 below have been followed in the consideration of sensitivity for this project. This table takes into account guidance provided in Table 2.1 A4.3 of the Design Manual for Roads and Bridges (DMRB) (Highways Agency *et al.*, 2009) and the author's professional judgement.

Table 8 Definition of terms relating to the sensitivity of receptors.

Sensitivity	Definition
Negligible	Receptor is of negligible value with no contribution to local, regional or national economy. Receptor is not vulnerable to impacts that may arise from the project and/or has high recoverability. Flood risk: Area outside flood plain or flood plain with very low probability of flooding industrial properties.
Low	Receptor is of low value with little contribution to local, regional or national economy. Receptor is not generally vulnerable to impacts that may arise from the project and/or has high recoverability. Flood risk: Flood plain with limited constraints and a low probability of flooding of residential and industrial properties.
Medium	Receptor is of minor value with small levels of contribution to local, regional or national economy. Receptor is somewhat vulnerable to impacts that may arise from the project and has moderate to high levels of recoverability. Flood risk: Flood plain with limited constraints and a low probability of flooding of residential and industrial properties.
High	Receptor is of moderate value with reasonable contribution to local, regional or national economy. Receptor is generally vulnerable to impacts that may arise from the project and recoverability is slow and/or costly. Flood risk: Flood plain or defence protecting between one and one hundred residential properties or industrial premises from flooding.
Very high	Receptor is high value or critical importance to local, regional or national economy. Receptor is highly vulnerable to impacts that may arise from the project and recoverability is long term or not possible. Flood risk: Flood plain or defence protecting more than one hundred residential properties from flooding.

Magnitude of Impacts

- 11.25 The magnitude of any predicted impact is dependent on its size, duration, timing (e.g., seasonality) and frequency (permanent, seasonal etc). A qualitative appraisal of the likely magnitude of the predicted impact will be provided within this assessment, taking into account the measures proposed to be adopted as part of the project to control such impacts. The magnitude of the predicted impact will be described using the criteria outlined in Table 9 below. This table takes into account guidance provided in Table 2.1, A4.4 of DMRB (Highways Agency *et al.*, 2009) and the author's professional judgement.

Table 9 Definition of terms relating to the magnitude of an impact upon receptors.

Magnitude	Definition
No change	No change from baseline conditions.
Negligible	Very slight change from baseline condition. Physical extent of impact is negligible and of short term duration (i.e., less than two years).
Low	Minor shift away from baseline, leading to a reduction in level of activity that may be undertaken. Impact is of limited temporal or physical extent and of short term duration (i.e., less than two years).
Medium	Loss or alteration to significant portions of key components of current activity. Impact is of moderate temporal or physical extent and of medium term duration (i.e., less than 20 years).
High	Total loss of ability to carry on activities. Impact is of extended temporal or physical extent and of long term duration (i.e., approximately 50 years duration).

Significance of Effects

- 11.26 The significance of predicted effects has been determined using publically available environmental data to take into account the sensitivity of the receptor and the magnitude of each impact. Table 10 below is used to inform the evaluation of the significance of effects. This table is based on guidance provided for linear schemes within the DMRB (Highways Agency *et al.*, 2008).

Table 10 Matrix used for assessment of significance showing the combinations of receptor sensitivity and the magnitude of effect.

Sensitivity of receptor	Magnitude of Impact				
	No Change	Negligible	Low	Medium	High
Negligible	Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Negligible	Negligible or minor	Negligible or minor	Minor	Minor or moderate
Medium	Negligible	Negligible or minor	Minor	Moderate	Moderate or major
High	Negligible	Minor	Minor or moderate	Moderate or major	Major or substantial
Very high	Negligible	Minor	Moderate or major	Major or substantial	Substantial

- 11.27 For the purposes of this assessment any effect that is moderate, major or substantial is considered to be significant in EIA terms. Any effect that is minor or below is not significant in EIA terms.

Cumulative Effects

- 11.28 Cumulative effects on hydrology and flood risk receptors arising from the project alongside other projects within the area from other industries/activities (e.g., industrial/commercial development, coastal infrastructure) would be included in the assessment.
- 11.29 The scope for impacts to interact to potentially create a more significant effect on ecology and nature conservation receptors or hydrogeological resources as a result of hydrology and flood risk effects will be assessed in the EIA.

Transboundary Effects

- 11.30 It is not considered that there is any potential for transboundary effects on hydrology or flood risk receptors to occur as a result of the project.

Mitigation

Construction Phase

- 11.31 The Surface Water Management and Foul Drainage Design Philosophy Statement prepared for the site includes a list of safeguard measures to prevent pollution during the construction phase of the development. General mitigation measures are outlined below. These measures have been adopted during the current consented scheme constructional works and shall continue to be implemented to minimise the risk of pollution and detrimental effects to the water interests around the site. Works on site shall generally follow the best practice guidelines outlined in Section 5 and 6 of CIRIA C532 – Control of Water Pollution from Construction Sites.
- Temporary foul drainage to serve the contractors welfare facilities will be provided at the start of works on site.
 - Refuelling and maintenance of machines shall be strictly controlled and oil storage tanks confined to locations remote from the perimeter of the site. All leaking or empty oil drums shall be immediately removed from site.
 - Well-constructed and designated storage areas shall be provided located more than 20m away from the site perimeter. Chemical or fuel storage shall comprise of impermeable boxes and appropriate bunding.
 - On site concrete batching plants (if utilised) are to be located more than 20m away from the site perimeter. The washing out of any concrete mixing plant or cleaning of ready mix concrete tankers shall be strictly controlled. The effluent from such cleaning shall be tankered off site or suitably treated using sedimentation tanks before the run-off is discharged.
 - A strict waste management system will be incorporated to prevent the disposal of construction or domestic rubbish entering the adjacent marshland areas. Waste materials will be properly stored on site.
 - Fill material imported to upfill to site will be sourced with due regard to leachate characteristics to the approval of the EA and Natural England. It is anticipated that the

storage pond required for the permanent works will be constructed in advance of the earthworks operations such that construction phase storage and settling pond capabilities are available from the start of the works, and to provide tidal inundation protection to the construction site.

- 11.32 Additionally, Condition 18 of planning permission SW/10/444 stated: Work on the proposed drainage outfall to the Swale (as shown on Figure 4.25 Proposed Drainage Layout of then Planning Applications Site Supporting Statement shall only take place between 1 April and 31 September in any given year.

Operational Phase (Measures Adopted as Part of Design)

- In order to achieve free discharge of the site drainage pipework to the Generating Station's storage pond for all rainfall events, the water level in the pond must not exceed 3.151 m AOD. Design peak rainfall intensities were increased by 20% as a precaution against the effects of climate change for this design statement. The consented finished floor level of the Generating Station is 6.3 m AOD.
- In order to achieve a free discharge for the IBA Recycling Facility, surface water runoff discharging from the attenuation swale, provide a workable lagoon and swale volume and storage depth, whilst providing a sufficient pond outfall pipe gradient to the Swale Estuary outfall, it is proposed to set the Swale Estuary outfall level at 1.75 m AOD, and reflects that proposed for the Generating Station.
- In order to ensure the attenuation lagoon will have protection against sea water inundation during extreme tide events, the top of bank level of the new storage lagoon will be set to a level of 5.88 m (600 m free board above the predicted 5.28 m AOD 2070 storm tide level). The level of ground floor to all new buildings proposed for the site shall be set at a level of 6.30 m AOD, which is approximately 1.02 m above the maximum predicted 2070 flood level, thus eliminating the risk of site flooding as a result of sea water inundation.

Issues Proposed to be Scoped Out

- 11.33 It is not expected that there will be any transboundary effects result from the project, therefore it is proposed that this is scoped out of the hydrology and flood risk assessment.

12 LANDSCAPE, TOWNSCAPE AND VISUAL IMPACT

Introduction

- 12.1 This section of the Scoping Report identifies the landscape, townscape and visual receptors that are of relevance to the project and considers the likely significant impacts and effects of construction, operation and maintenance and decommissioning of the project on these receptors.

Study Area

- 12.2 The landscape, townscape and visual resources study area will be defined by the project's Zone of Theoretical Visibility (ZTV). This would be based on stack height and main generating station building height. It is estimated that a maximum 15 km radius study area would be required.

Existing Baseline Conditions

- 12.3 The project site is located within the contrasting environments of the industrial townscape of Sittingbourne and the natural estuary landscape of The Swale. The site does not lie within any designated landscapes (Figure 7). However, the North Kent Marshes Special Landscape Area extends over The Swale and adjoining coastal landscape. The site has been identified as being located within the Sittingbourne Industrial/Commercial character area.
- 12.4 Nearby visual receptors include:
- Residents in Sittingbourne (views to the site are restricted to a relatively small number due to the location of the proposal site on the eastern side of the St Regis Paper Mill);
 - Users of Saxon Shore Way footpath (close and medium range views from the north and south, and close, medium and long range views from the east);
 - Users of the Elmley Nature Reserve on the Isle of Sheppey (close and medium range views); and
 - Users of Church Marshes Country Park.
- 12.5 Prior to commencement of construction, the site of the Generating Station previously comprised industrial land with areas of derelict hardstanding interspersed with colonising vegetation of ruderal species and scrub. The site of the Generating Station is currently under construction and as such, has been cleared and levelled. Construction progress as of March 2017 would likely include construction of the boiler slab, and bunker walls, bases of transformer bays. Piling to most areas would be complete.
- 12.6 The site areas have now been cleared of vegetation and the hardstanding has been broken up and removed or stockpiled prior to development.
- 12.7 The site of the IBA Recycling Facility currently comprises bare ground, having previously been temporarily cleared of all vegetation. Prior to clearance, the site comprised regenerating neutral grassland and some areas of dense scrub along with piles of temporarily-stored spoil.

Baseline Data

- 12.8 A ZTV of the project would be generated to establish the landscape, townscape and visual resources study area. A desk based review of legislative and planning context relevant to the site and landscape, townscape and visual issues associated with the proposed development would be identified. Baseline analysis work would be undertaken to identify the existing landscape character of the site, adjacent townscape of Sittingbourne and landscape of Kent and the Isle of Sheppey and their sensitivity to change. The baseline conditions of the project site in spring 2017 during construction of the generating station, would be identified and any significant changes in the landscape or townscape context, particularly residential or commercial allocations at Sittingbourne since the 2010 ES. Reference to any published landscape assessments would be made, including the Landscape Assessment of Kent 2004 and the Swale Landscape Character and Biodiversity Appraisal 2011 (Jacobs, 2011).
- 12.9 Baseline analysis work will be undertaken to confirm previous visual receptors from the 2010 ES and to identify any additional visual receptors that have arisen due to the implementation of new developments and their sensitivity to the proposed development.
- 12.10 The study area would be visited to identify the main public viewpoints and to identify baseline conditions, including reference to topography, existing vegetation, roads and built development. Prior to the site visit, the relevant planning officer at Kent County Council would be contacted to agree any additional viewpoint locations which should be included in the study.
- 12.11 The visual context of the proposals would be established, including the extent of views from public footpaths, residential properties, commercial properties, recreational areas/open space, roads and other receptors.

Relevant Policy Context

- **Overarching National Policy Statement for Energy (EN-1), Section 5.9:** *...The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England and local development plans in Wales.*

The applicant's assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character.

The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include light pollution effects, including on local amenity, and nature conservation.

- **National Policy Statement for Renewable Energy Infrastructure (EN-3):** *...The IPC should expect applicants to seek to landscape waste/biomass combustion generating station sites to visually enclose them at low level as seen from surrounding external viewpoints. This makes the scale of the generating station less apparent, and helps*

conceal its lower level, smaller scale features. Earth bunds and mounds, tree planting or both may be used for softening the visual intrusion and may also help to attenuate noise from site activities.

Proposed Scope of Assessment

12.12 The landscape, townscape and visual impact assessment will consider the likely significant effects of all phases of the project upon:

- Individual landscape and townscape features, elements and characteristics;
- landscape and townscape character; and
- Visual amenity and the people who view the landscape or townscape (visual receptors).

12.13 The assessment will consider the effects on the above receptors in the context of a current baseline environment (March 2017), and future baseline environment (2019), when the project is likely to become operational. The assessment will establish whether the existing proposed mitigation is sufficient and whether further mitigation is required.

12.14 In accordance with the overarching approach to the EIA, the chapter will also consider an assessment scenario that includes the consented Generating Station and IBA Facility (assumed to be permitted, constructed and operational by 2019) as part of the future baseline in 2019, in order to isolate and understand the environmental effects of the power upgrade alone. It is noted that the increase in electrical capacity does not propose any change to the external appearance of the buildings from that already consented.

Relevant Guidance Documents

- Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3) (Landscape Institute and Institute of Environmental Management and Assessment, 2013).

Proposed Approach

12.15 As set out in the GLVIA3, the LVIA will assess landscape and visual effects separately, although the procedure for assessing each of these is closely linked. A clear distinction will be drawn between landscape and visual effects as described below:

- Landscape effects relate to the effects of a project on the physical characteristics of the landscape and townscape and its resulting character and quality; and
- Visual effects relate to the effects on views experienced by visual receptors (e.g. residents, footpath users, tourists etc.) and on the visual amenity experienced by those people.

12.16 The LVIA will assess the short term effects of the construction and decommissioning phases and the long term effects relating to the operation and maintenance phase. ZTVs would be generated to show the extent of theoretical visibility of the project within the landscape, townscape and visual resources study area.

- 12.17 Consideration will be given to the likely seasonal variations in the visibility of the development, including variations in weather conditions and deciduous vegetation. Consideration will also be given to changes in the level of effects likely to take place as any new planting and existing planting matures.
- 12.18 The assessment would be illustrated by annotated photographs towards the existing site from publically accessible viewpoints. Photomontages would be prepared for key viewpoint locations to illustrate the proposals within the existing context of the surrounding landscape and townscape, based on the scope of photomontages within the 2010 ES.

Assessment Criteria

Receptor Sensitivity

- 12.19 The sensitivity of the landscape and townscape character areas to the type of change associated with the project will be considered. Table 11 below summarises criteria used to assess the sensitivity of the landscape to change.

Table 11: Landscape / Townscape Sensitivity to Change

Criteria	Definition
High	Landscape/ townscape value recognised by national designation. The landscape/ townscape resource has little ability to absorb change of the type proposed without fundamentally altering its present character and/or is of High importance or value. Sense of tranquillity or remoteness specifically noted in Landscape Character Assessment. High sensitivity to disturbance specifically noted in Landscape Character Assessment. The qualities for which the landscape/townscape is valued are in a good condition, with a clearly apparent distinctive character and absence of detractors.
Medium	Landscape/townscape value is recognised or designated locally. The landscape/townscape resource has moderate capacity to absorb change of the type proposed without significantly altering its present character and/or is of Medium importance or value. The landscape/townscape is relatively intact, with a distinctive character and few detractors; and is reasonably tolerant of change.
Low	The landscape/townscape resource is tolerant of change of the type proposed without detriment to its character and/or is of Low importance or value. Landscape/townscape integrity is low, with a poor condition and a degraded character with the presence of detractors such as dereliction; and the landscape/townscape has the capacity to potentially accommodate considerable change.

- 12.20 The sensitivity of visual receptors will be assessed. Sensitivity is dependent upon a number of factors including the location and context of the viewpoint, whether views are continuous, fragmented, or intermittent (i.e. the dynamic nature of a view gained while travelling through an area), the importance of views and the occupation and activity of the visual receptor. Influences such as the number of receptors affected, popularity of views and the significance of the views in relation to valued landscapes or features also determines the importance of views.

Table 12: Visual Receptor Sensitivity

Receptor Sensitivity	Definition
High	Large number or high sensitivity of viewers assumed. Viewers' attention very likely to be focused on landscape. E.g. Residents experiencing views from dwellings; users of strategic recreational footpaths and cycleways; people experiencing views from important landscape features of physical, cultural or historic interest, beauty spots and picnic areas.
Medium	Viewers' attention may be focused on landscape, such as users of secondary footpaths, and people engaged in outdoor sport or recreation. e.g. horse riding or golf. Occupiers of vehicles in scenic areas or on recognised tourist routes.
Low	May include people at their place of work, or engaged in similar activities, whose attention may be focussed on their work or activity and who may therefore be potentially less susceptible to changes in view. Occupiers of vehicles whose attention may be focused on the road.

Magnitude of Impact (Change)

- 12.21 The next stage of the assessment process will identify the potential magnitude of change to landscape or townscape character and views arising from the project. The assessment will distinguish between landscape or townscape impacts and impacts upon views. The former considers the impact upon landscape or townscape character taking account of direct impacts upon the physical resource (landform, vegetation, pattern, etc.) and also any indirect visual impacts arising from the project, which would be sufficient to impact on the inherent character of a landscape or townscape area. The latter considers the impact on views perceived by people from publicly accessible locations. Potential impacts are also considered in terms of their duration i.e. whether they are permanent or temporary.
- 12.22 The magnitude or scale of change brought about by the project upon both the existing landscape or townscape resource and upon views, both beneficial and adverse, will be assessed as set out in Table 13 below.

Table 13: Magnitude of Impact (Change)

Magnitude	Typical Descriptors
High	The proposed change may form a dominant or immediately apparent feature that would significantly alter and change view. Where there are substantial changes affecting the character of the landscape/townscape, or important elements through loss of existing features. Proposed development within or close to affected landscape/townscape. Scale, mass and form of development out of character with existing elements.
Medium	The proposed change may form a prominent new element that would affect and change the view. The proposed development forms a visible and recognisable feature in the

Magnitude	Typical Descriptors
	landscape/townscape. Proposed development is within or adjacent to affected character area/type. Scale of development fits with existing features.
Low	The proposed change may constitute only a minor component of wider views, which might be missed by the casual observer or receptor. Awareness of the proposed change would not have a marked effect on the overall view. Changes to the physical landscape/townscape, its character and the perception of the landscape/townscape are slight. Long distance to affected landscape/townscape with views toward the character area/type the key characteristic.
Negligible	Only a very small part of the proposed change would be discernible and / or it is at such a distance that it would be scarcely appreciated. Consequently it would have very little effect on view. The effect of change on the perception of the landscape/townscape, the physical features or the character is barely discernible or there is no change.

Significance of Effect

- 12.23 The final stage of the assessment process will identify the potential significance of landscape, townscape and visual effects using the matrix in Table 14 below, together with professional judgement.. This combines the previous assessments for magnitude and change and sensitivity of landscape/ visual receptor as follows.

Table 14: Assessment Matrix

Landscape, Townscape and Visual Sensitivity or Susceptibility	Magnitude Of Change			
	Large	Medium	Small	Negligible
High	Substantial	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible

The level of effects is described as substantial, major, moderate, minor or negligible. Where negligible adverse and beneficial effects occur within the same view or same landscape/townscape, the effect can be described as neutral on balance. In the assessment those levels of effect indicated as being 'substantial' or 'major' may be regarded as significant effects. An accumulation of individual 'moderate' effects, for instance experienced during a journey, may also be regarded as significant.

- 12.24 Any potential effects that are assessed as being 'Moderate' significance of effect or above will be considered to be significant in landscape or visual terms. Potential effects that are considered to be of a 'Minor' significance of effect are described, however they will not be considered to be significant in EIA terms.

Cumulative Effects

- 12.25 Cumulative impacts on landscape, townscape and visual resources arising from the project alongside other developments within the study area will be considered within the Environmental Statement.

Transboundary Effects

- 12.26 On the basis that the ZTV is unlikely to extend beyond 15 km from the project site, no transboundary effects are likely to arise.

Mitigation

- 12.27 No mitigation other than that already included as part of the design is proposed.

Issues Proposed to be Scoped Out

- 12.28 It is proposed that the ES chapter will scope out transboundary effects as detailed above.

13 NOISE AND VIBRATION

Introduction

- 13.1 This section of the Scoping Report considers the assessment of noise and vibration effects of relevance to the project and considers the potential impacts and likely significant effects from the construction, operation, maintenance and decommissioning of the project in terms of noise and vibration effects on prescribed receptors.

Study Area

- 13.2 The study area will include the nearest residential receptors in all directions, extended to include any other NSRs for which impacts are possible.

Existing Baseline Conditions

- 13.3 The Wheelabrator Kemsley generating station is located at St Regis Paper Mill at Kemsley, Sittingbourne, Kent. The site is bounded to the west by the paper mill, to the east by mudflats and waterway and to the north and south by Kemsley Marshes. The nearest residential receptors are in the north east of Kemsley and are approximately 1 km to the west. There are potential noise sensitive ecological receptors bordering the north, east and south of the site. Saxon Shore Way public footpath which follows the bank of the waterways, passes to the east of the site.
- 13.4 The A249 is located approximately 2 km to the north and west of the site and is accessed via Swale Way. The A249 connects with both the A2 west of Sittingbourne and the M2 at Junction 5 approximately 8 km south of the site. To the north, the A249 provides access to the Isle of Sheppey. At time of the 2010 ES, the first section of the Sittingbourne Northern Relief Road from the southern roundabout of the A249 'Dumbbell' junction north of Kemsley as far south as the Paper Mill was built. This road has now been fully constructed (completed in 2011) and its purpose is to relieve the A2 that runs east to west through Sittingbourne.

Baseline Data

- 13.5 Baseline noise data gathered to support the 2010 ES assessment and IBA Recycling Facility planning application to Kent County Council will be used to determine a representative baseline noise level across the site and wider area. No measurement of baseline vibration is required.

Relevant Policy Context

- **Overarching National Policy Statement for Energy (EN-1)**, Section 5.11: ...Where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment:
 - a description of the noise generating aspects of the development proposal leading to noise impacts, including the identification of any distinctive tonal, impulsive or low frequency characteristics of the noise;

- identification of noise sensitive premises and noise sensitive areas that may be affected;
- the characteristics of the existing noise environment;
- a prediction of how the noise environment will change with the proposed development;
- in the shorter term such as during the construction period;
- in the longer term during the operating life of the infrastructure;
- at particular times of the day, evening and night as appropriate;
- an assessment of the effect of predicted changes in the noise environment on any noise sensitive premises and noise sensitive areas; and
- measures to be employed in mitigating noise.

The nature and extent of the noise assessment should be proportionate to the likely noise impact.

The noise impact of ancillary activities associated with the development, such as increased road and rail traffic movements, or other forms of transportation, should also be considered.

Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance...

...The applicant should consult EA and Natural England (NE), or the Countryside Council for Wales (CCW), as necessary and in particular with regard to assessment of noise on protected species or other wildlife. The results of any noise surveys and predictions may inform the ecological assessment. The seasonality of potentially affected species in nearby sites may also need to be taken into account.

Proposed Scope of Assessment

- 13.6 It is proposed that the EIA includes an assessment of noise effects associated with all phases of the project in the context of a current baseline environment (March 2017), and future baseline environment (2019), when the project is likely to become operational. The assessment will establish whether the existing proposed mitigation is sufficient and whether further mitigation is required.
- 13.7 In accordance with the overarching approach to the EIA, the chapter will also consider an assessment scenario that includes the consented Generating Station and IBA Facility (assumed to be permitted, constructed and operational by 2019) as part of the baseline, in order to isolate and understand the noise effects of the power upgrade alone.
- 13.8 The potential noise impacts associated with the project include:
- Noise generated by construction plant located at the project site.
 - Vibration generated by construction plant, located at the project site.

- Noise arising from traffic generated during by the project, off-site.
- Operational noise, including noise from both fixed and mobile plant, including that from HGVs around the site.
- Operational vibration will be controlled at source, and would be most unlikely to be perceptible beyond the immediate structure of the buildings. A qualitative assessment, scoping out detailed predications is considered to be appropriate.

Relevant Guidance Documents

- BS 7445-1:2003 'Description and measurement of environmental noise – Part 1: Guide to quantities and procedures' (BSI, 2003).
- BS 7445-2:1991 'Description and measurement of environmental noise - Part 2: Guide to the acquisition of data pertinent to land use' (BSI, 1991).
- BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise' (BSI, 2014a).
- BS 5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration' (BSI, 2014b).
- BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' (BSI, 2014c).
- Calculation of Road Traffic Noise (CRTN) (Department of Transport, 1988).
- Design Manual for Roads and Bridges Volume 11, Section 3, Part 7: Noise and Vibration (DMRB) (Highways Agency *et al.*, 2011).

Proposed Approach

- 13.9 The baseline sound environment would be determined from the results of data acquired from measurement surveys undertaken following the guidance contained within BS 7445-1:2003, BS 7445-2:1991 and BS 4142:2014. Locations would be representative of the nearest noise sensitive receptors.

Construction Effects

- 13.10 Construction effects will be considered using the Code of practice for noise and vibration control on construction and open site, BS 5228-1:2009+A1:2014 Noise, and BS 5228-2:2009+A1:2014 Vibration. For construction noise, the BS 5228:1:2009+A1:2014 example method 1 – The ABC method criteria will be followed. Vibration generated from construction plant will be assessed qualitatively.

Operational Effects

- 13.11 Noise levels arising from the operation of the project would be predicted using SoundPLAN modelling software, implementing the methodology contained within ISO 9613-2. Broadband internal noise levels for the areas containing the most significant noise generating plant and Sound Reduction Indices (SRIs) of the facades of the building will be provided by the project

engineers. A generic spectral shape that is representative of internal diffuse reverberant noise levels within a project would be applied to the calculated source terms. A spectral shape would be applied to the SRIs that is representative of the type of cladding from which the project will be built.

- 13.12 The noise effects associated with an increase in the flow of HGVs on local roads, due to the operation of the project, would be predicted using the methodology contained within CRTN.

Decommissioning Phase

- 13.13 The potential effects during decommissioning will be qualitatively compared with those associated with the construction phase.

Receptor Sensitivity

- 13.14 The sensitivity of a receptor considers the susceptibility of people or operations to being disturbed or distracted by noise. This is based primarily on the use of the receptor. There is no nationally adopted guidance on how the sensitivity of an NSR should be determined.
- 13.15 Residential receptors would be treated as of Medium sensitivity. Receptors where people or operations are exceptionally sensitive to noise and vibration would be considered High sensitivity (such as auditoria, schools, hospitals etc.).
- 13.16 The classification of other receptors would be determined as they are identified.

Magnitude of Impact

- 13.17 Semantic scales in the DMRB (Volume 11, Section 3, Part 7, HD 213/11 Revision 1, Chapter 3, paragraph 3.37) would be used for impact magnitude related to change in road traffic noise. The threshold for significant operational noise effects at NSRs would follow BS 4142:2014, based on the summary of guidance from the NPSE and Planning Practice Guidance for Noise (PPGN).

Table 15 - Summary of Guidance from NPSE and PPGN

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential	Observed Adverse Effect	Mitigate and reduce to a minimum

Perception	Examples of Outcomes	Increasing Effect Level	Action
	for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.		
Significant Observed Adverse Effect Level (SOAEL)			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

- 13.18 From the guidance above, a BS 4142:2014 rating difference of 0 dB between the specific rating noise level and representative background would be considered to mark the LOAEL. A rating difference of +5 dB would be considered the SOAEL threshold. Consequently, noise levels below the LOAEL would be a negligible impact; levels between LOAEL and SOAEL would be a minor impact; and levels above the SOAEL would be a moderate or major impact.

Significance of Effect

- 13.19 'Effect' is the term used to express the consequence of an impact (expressed as the 'Significance of effect'), which is determined by correlating the magnitude of the impact to the sensitivity of the receptor or resource. The significance of an effect is defined within this assessment as follows:

- Negligible: An effect that is found not to be significant in the context of the stakeholder / regulator objectives or legislative requirements;
- Minor significance: An effect considered sufficiently small (with or without mitigation) to be well within accepted standards. No action is required if it can be controlled by adopting normal good working practices;
- Moderate significance: An effect within accepted limits and standards. Moderate impacts may cover a broad range, although the emphasis is on demonstrating that the effect has

been reduced to a level that is as low as reasonably practical, such effects should be recognised and addressed in consultation with particular stakeholders; and

- Major significance: An effect where a limit or standard may be exceeded.

13.20 There is no nationally adopted guidance on how the significance of noise effects should be determined. Table 16 below has been used as a guide for this assessment.

Table 16 - Matrix used for determining significance of effect from magnitude of impact and receptor sensitivity.

Sensitivity of receptor	Magnitude of impact				
	No Change	Negligible	Low	Medium	High
Negligible	Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Negligible	Negligible or minor	Negligible or minor	Minor	Minor or moderate
Medium	Negligible	Negligible or minor	Minor	Moderate	Moderate or major
High	Negligible	Minor	Minor or moderate	Moderate or major	Major

13.21 For the purposes of this assessment any effect that is moderate, major or substantial will be considered to be significant in EIA terms.

Cumulative Effects

13.22 Cumulative impacts on noise arising from the project alongside other projects within the area from other industries/activities (e.g., industrial/commercial development) would be included in the assessment.

13.23 The scope for impacts to interact to potentially create a more significant effect on ecological receptors will be assessed in the EIA.

Transboundary Effects

13.24 It is not considered that there is any potential for transboundary effects of noise and vibration as a result of the project.

Mitigation

Construction Phase

- An Environmental Monitoring and Management Plan was submitted to discharge condition 12 of planning permission SW/10/444 which detailed noise mitigation measures for construction. These include:

- a “soft start” to the piling operation;
 - sensitive location of equipment, compounds and plant maintenance areas as required in the British Standard for “noise control on construction and open sites” (BS 5228);
 - limited night time construction or operational activity that could produce “startling” noise;
 - commitment to the considerate contractors scheme in relation to timing and noise;
 - no access to the foreshore or designated sites;
 - retention of a “buffer” strip of habitat between the Swale SPA / Ramsar site and the nearest element of the development
 - daily monitoring to ensure works are not exceeding limitations
 - plant should be fitted with noise and vibration damping systems.
- Condition 8 of planning permission SW/10/444 states that all piling shall be by way of Auger other than where an alternative method is required for structural reasons. In such circumstances the prior written consent of the Waste Planning Authority shall be required which shall only be given if it has been demonstrated that there is no resultant unacceptable risk to groundwater and that impact piling will not take place between 1 April and 31 August in any given year, subject to any prior written variation as approved by the waste planning authority. The construction of the Generating Station is currently taking place using Continuous Flight Auger (CFA) piling with no impact piling intended.

Operational Phase (Measures Adopted as Part of the Design)

- Buildings for the Generating Station will be fully enclosed and will be insulated where appropriate in order to achieve acceptable noise levels at the closest sensitive receptor locations. Access and Exit doors within the plant that are in continuous operation during week days will incorporate rapid closing doors. When not in use, the doors will be closed at all times.
- All plant and equipment for the Generating Station will be located and operated within the confines of the proposed building environment to minimise noise, with the exception of the air cooler and the transformer
- The existing planning permission for the Generating Station site (SW/10/444) includes a condition to ensure that noise levels at the residential locations as set out in Figure 12.1 of Chapter 12 (Noise and Vibration) of the Environmental Statement (March 2010) attributable directly to the Development hereby permitted shall not exceed the background levels as set out in Appendix 12.5 of the Environmental Statement (March 2010) (Operational Noise Assessment) dated 24 November 2009.

Issues Proposed to be Scoped Out

- 13.25 Due to the nature of the development proposed, significant vibration effects from the plant are unlikely and therefore are proposed to be scoped out of the ES chapter.

14 TRAFFIC AND TRANSPORT

Introduction

- 14.1 This section of the scoping report identifies the relevant traffic, transport and highways receptors for the project and considers the likely significant effects from the construction, operation and maintenance and decommissioning of the onshore components of the project on those receptors.

Study Area

- 14.2 Roads and infrastructure within the study area have been identified from Ordnance Survey (OS) mapping and will include Barge Way, Swale Way between Barge Way and the A249, Swale Way to the south of Barge Way, the A249 north of Swale Way and the A249 south of Swale Way. These roads are shown on Figure 8.

Existing Baseline Conditions

- 14.3 The proposed site is located to the north of Sittingbourne on the Sittingbourne Relief Road (Swale Way), Kemsley. The project site is bounded by Kemsley Paper Mill to the west, Ridham Avenue to the south, Barge Way to the north and The Swale to the east. The A249 is located approximately 2 km to the north and west of the site and is accessed via Swale Way. The A249 connects with both the A2 west of Sittingbourne and the M2 at Junction 5 approximately 8 km south of the site. To the north, the A249 provides access to the Isle of Sheppey.
- 14.4 The Sittingbourne Northern Relief Road runs from the southern roundabout of the A249 'Dumbbell' junction north of Kemsley as far south as the roundabout on Great Easthall Way. Its eventual purpose is to connect to the A2 and relieve the A2 that runs east to west through Sittingbourne.
- 14.5 Two points of vehicular access are currently available to the existing Kemsley Paper Mill. The southern access is via Ridham Avenue to the south of the mill site and is used by HGVs (including those requiring use of the weighbridge) and staff and visitor cars. Ridham Avenue connects with the first section of the Sittingbourne Relief Road (Swale Way) at a roundabout west of the Paper Mill. The main site car park is provided to the south of the site. The other site access that is less intensively used is located at the north-east corner of the site and is accessed via Barge Way. The Generating Station and IBA would both be accessed via Barge Way (see Figure 8).
- 14.6 Traffic flows collected in 2016 show that there are approximately 19,000 vehicle movements per day on Swale Way and up to approximately 6,000 vehicle movements per day on Barge Way. Given the strategic nature and trunk road status of the A249, traffic flows are far higher and in the region of double those on Swale Way.
- 14.7 It is acknowledged the Wheelabrator Kemsley generating station nor the IBA would not be operational until 2019, therefore, consideration must be given to future baseline conditions in the opening year of operation.

Baseline Data

- 14.8 On refinement of the traffic and transport study area, existing traffic flow information will be obtained from the Local Highways Authority (LHA) (and Highways England (HE) where relevant) to identify the current capacity and potential constraints of the road network. This will include results from Automated Traffic Counts (ATC), Manual Classified Counts (MCC) and Annual Average Daily Flow (AADF) calculations along with historical (but recent) traffic surveys undertaken on behalf of K3 CP Ltd, if required.
- 14.9 Personal Injury Accident (PIA) data for road traffic accidents will be obtained from the LHA.
- 14.10 Records of existing bus service routes, cycle paths and train services will be obtained from Kent County Council, Swale Borough Council, Network Rail and relevant service operators.
- 14.11 New traffic surveys will be undertaken in 2016 and 2017 to supplement the LHA traffic flow data. Site visits may also be undertaken to audit the transport networks within the traffic and transport study area

Relevant Policy Context

- **Overarching National Policy Statement for Energy (EN-1), Section 5.13:** "...the applicant's ES should include a transport assessment, using the NATA/WebTAG methodology stipulated in Department for Transport guidance, or any successor to such methodology...Where appropriate, the applicant should prepare a travel plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts..."
- **National Policy Statement for Renewable Energy Infrastructure (EN-3):** Government policy encourages multi-modal transport and the IPC should expect materials (fuel and residues) to be transported by water or rail routes where possible. Applicants should locate new biomass or waste combustion generating stations in the vicinity of existing transport routes wherever possible... Road transport may be required to connect the site to the rail network, waterway or port. Therefore, any application should incorporate suitable access leading off from the main highway network. If the existing access is inadequate and the applicant has proposed new infrastructure, the IPC will need to be satisfied that the impacts of the new infrastructure are acceptable.

Proposed Scope of Assessment

- 14.12 It is proposed that the EIA includes an assessment of traffic generated from all phases of the project in the context of a current baseline environment (March 2017), and future baseline environment (2019), when the project is likely to become operational. This will establish whether the existing proposed mitigation is sufficient and whether further mitigation is required.
- 14.13 Additionally, the chapter would include an assessment of the predicted effects of traffic arising alongside other developments within the study area. For the assessment of cumulative

operational effects, it will be necessary to include developments that are permitted ('committed development') as part of the baseline.

- 14.14 In accordance with the overarching approach to the EIA, the chapter will also consider an assessment scenario that includes the consented Generating Station and IBA Facility (assumed to be permitted, constructed and operational by 2019) as part of the baseline, in order to isolate and understand the environmental effects of the power upgrade alone.

Relevant Guidance Documents

- Planning Practice Guidance: Travel Plans, Transport Assessments and Statements in Decision Taking (PPG, 2014a);
- Guidelines for the Environmental Assessment of Road Traffic (IEMA, 1993); and
- The Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment (Highways Agency *et al.* 2008).

Proposed Approach

- 14.15 Transport movements associated with the construction, operation and decommissioning phases of the IBA Recycling Facility and the Wheelabrator Kemsley Generating Station will be established.
- 14.16 A desktop review will then be undertaken to identify the key locations where transport issues may be raised including the potential disruption to rail services. These baseline studies will identify potential road network constraints and inform potential routes for delivery and construction and decommissioning vehicles. The assessment of impacts on the local road network will assess the flows predicted as a result of the traffic generated by the project against existing baseline flows. The scope and duration of predicted impacts will be quantified.
- 14.17 The significance of transport environmental effects is assessed by considering the interaction between the magnitude of the impacts and the sensitivity of the receptors in the vicinity of transport corridors. This assessment compares the baseline situation with the development, taking into account other schemes that are likely to affect future baseline conditions.
- 14.18 Consistent with the IEMA guidelines (1993), the following will be considered in this chapter:
- Driver Delay;
 - Severance of Routes;
 - Pedestrian Delay;
 - Fear and Intimidation (pedestrian amenity);
 - Accidents and Road Safety; and
 - Hazardous, Dangerous and Abnormal Loads.

- 14.19 The determination of the sensitivity of receptors to environmental effects will be broadly based on the criteria of value, adaptability, tolerance and reversibility. In terms of transport impacts, receptors comprise people living, using facilities and using transport networks in the area. Given that all persons are deemed to be of equal value, sensitivity to changes in transport conditions is generally focussed on vulnerable user groups who are less able to tolerate, adapt to and recover from those changes. Vulnerable groups would include school children and the elderly. The following table summarises the general criteria for identifying receptor sensitivity by relating the presence of vulnerable groups to identifiable physical features within the environment.

Table 17: Definition of terms relating to the sensitivity of traffic and transport.

Sensitivity	Definition
Very High	Those receptors with high sensitivity with site-specific reasons for being particularly sensitive to changes in traffic flows (e.g. community with high incidence of mobility impairment requiring to cross roads to access essential facilities).
High	Receptors of greatest sensitivity to traffic flows (e.g. schools, colleges, playgrounds, accident black spots, retirement homes, urban/residential roads without footways that are used by pedestrians, etc.).
Medium	Traffic flow sensitive receptors (e.g. congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycle ways, community centres, parks, recreation facilities, etc.).
Low	Receptors with some sensitivity to traffic flow (e.g. places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision, etc.).
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.

- 14.20 Magnitude is defined in general terms in guidance contained in Volume 11 of DMRB and is summarised in the context of transport in Table 18 below:

Table 18: Definition of terms relating to the magnitude of an impact upon traffic and transport receptors (Highways Agency *et al.*, 2008).

Magnitude	Definition
High	Substantial or total loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of highway safety. Severe delays to travellers (adverse). Large scale improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in highway safety and in delays to travellers (beneficial).
Medium	Moderate loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of highway safety. Severe delays to travellers (adverse). Moderate improvement in the capability for movement along and across

Magnitude	Definition
	transport corridors, major improvement in access to key facilities, in highway safety and in delays to travellers (beneficial).
Low	Some measurable loss of capability for movement along and across transport corridors, some measurable loss of access to key facilities and some measurable loss of highway safety. Some measurable increase in delays to travellers (adverse). Some measurable increase in the capability for movement along and across transport corridors, some measurable increase in access to key facilities and some measurable increase in highway safety. Some measurable increase in delays to travellers. Reduced risk of negative impacts occurring (beneficial).
Negligible	Very minor loss of capability for movement along and across transport corridors, very minor loss of access to key facilities and very minor loss of highway safety. Very minor increase in delays to travellers (adverse). Very minor increase in capability for movement along and across transport corridors, very minor increase in access to key facilities and very minor increase in highway safety. Very minor decreases in delays to travellers (beneficial).
No Change	No loss of capability for movement along and across transport corridors, no change of access to key facilities and highway safety. No delays to travellers.

- 14.21 With particular reference to severance for highly trafficked roads the above categories of magnitude of impact can be defined by the percentage change ranges set out in Table 1.3 below. Table 20 is based on IEMA Guidelines for the Environmental Assessment of Road Traffic (1993), paragraph 4.31.

Table 20: Magnitude (extent) of impact and changes in flows in relation to severance (IEMA, 1993).

Change in Traffic Flow	Magnitude (adverse or beneficial)
Change in total traffic or HGVs flows over 90%	High
Change in total traffic or HGVs flows 60 - 90%	Medium
Change in total traffic or HGVs flows 30 - 60%	Low
Change in total traffic or HGVs flows of less than 30%	Negligible

- 14.22 Transport environmental effects will also be assessed in terms of their duration, their frequency and in terms of their reversibility and these will be taken into account in identifying the significance of transport environmental effects of the SEP.
- 14.23 The significance of effects would be evaluated, taking into consideration the relevant policy context and the likely changes to baseline conditions. The significance levels would also be informed by the sensitivity and magnitude of effects and the significance matrix set out in Table 21.

Table 21: Significance Matrix for the Assessment of Transport and Traffic Effects

Sensitivity	Magnitude of impact				
	No change	Negligible	Low	Medium	High
Negligible	Negligible	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	Negligible	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	Negligible	Negligible/ Minor	Minor	Moderate	Moderate or Major
High	Negligible	Minor	Minor or Moderate	Moderate or Major	Major or Substantial
Very High	Negligible	Minor	Moderate or Major	Major or Substantial	Substantial

Source: HA 205/08, DMRB Volume 11, Section 2 Part 5, Table 2.4.

- 14.24 For the purposes of the assessment, those effects identified as being of ‘moderate’ or greater significance will be regarded as being significant in EIA terms. Effects of ‘minor’ or lesser significance will be identified but will not be considered significant in EIA terms. Effects can either be adverse or beneficial.

Cumulative Impacts

- 14.25 Cumulative impacts on traffic arising from the project alongside other projects within the area will be considered within the Environmental Statement. For traffic and transport the worst case scenario would be that which results in the highest levels of HGV movements, particularly at sensitive locations, if a combination of strategic projects were to come forward to construction at the same time.

Transboundary Impacts

- 14.26 Given the dispersion of vehicle movements across a road network, the number of vehicle movements decreases as the road network moves away from the site access. Therefore, the local road network to the site access is considered, as set out above, but there will be no transboundary impacts to consider.

Mitigation

- Good practice mitigation measures such as appropriate traffic control systems and defined access routes will be put in place
- Vehicular and pedestrian traffic will be separated using the existing site arrangements to mitigate risk of potential interface incidents. A defined route will be placed to direct the site personnel from the compound to the main construction site, this will be segregated to mitigate risk of collision between pedestrians and vehicles.
- There will be designated crossing points around the site to allow both pedestrian and vehicular access, in accordance with an approved Traffic Management Plan. Signage will

be displayed and a Tool Box Talk given to the workforce to ensure all personnel are aware of the routes and happy to use them prior to commencing their work.

- Directional signage for the building contractors will be placed in prominent positions off Barge Way directing construction/ visitor's traffic to the existing car park off the main site access road. Once entering the compound, a defined route will be in place directing the personnel traffic into the site compound parking area catering for the 100 parking spaces.
- Construction delivery and plant traffic will be directed by means of prominent signage into the site along the existing site haul road. On entry to the site a check point, with gateman/security guard in attendance, will be placed with visible signage requesting delivery drivers to sign in and notify site personnel prior to entry into the construction work area. All loads and tickets will be checked prior to the off-loading of materials and plant on site, or within the designated materials laydown area. All off-loading activities will be carried out under a permit to work procedure.

Issues Proposed to be Scoped Out

14.27 It is proposed that the ES chapter will scope out transboundary effects as detailed above.

15 SOCIO ECONOMICS

Introduction

- 15.1 This section of the Scoping Report identifies sources of information that will help define the baseline socio economic environment and the potential impacts and likely significant effects on identified socio economics receptors arising from the construction, operation and maintenance, and decommissioning of the project.

Study Area

- 15.2 The study area for consideration of socio economic effects would include the ward of Kemsley (at a local level), Swale Borough (at a district level), Kent County (at a county level) and the South East (at a regional level).

Existing Baseline Conditions

- 15.3 In 2015, the mid-year population estimate for Swale District was 142,000 (Office for National Statistics, 2015). In 2015, 78.8% of the resident population of the study area was economically active. This compares with 80.8% for the South East and 77.9% for Great Britain as a whole. Unemployment was at 5.9% compared with 4.1% in the South East and 5.1% across Great Britain. The 2011 Census recorded a total housing stock in the District of just under 60,000.
- 15.4 In terms of Employee Jobs, the study area's workforce is engaged in a diverse range of activities; with no one sector dominating the market. The study area is strongly represented in the Manufacturing Sector (12.5% compared with 6.2% in the South East and 8.3% in Great Britain), and has a particularly high proportion in the Transportation and Storage Sector (9.4% compared with 4.5% in the South East and 4.7% on Great Britain (Nomis Labour Market Profile, 2016).
- 15.5 In the 2013 Indices of Multiple Deprivation, out of 326 local authority areas, with 1st being the most deprived, Swale was ranked 88th (Department for Communities Local Government, 2011).

Baseline Data

- 15.6 The key sources of data used to assess the baseline environment include relevant national datasets from the Office for National Statistics (ONS) providing intelligence on population, labour market and employment base conditions. The analysis will draw on the most up to date sources of data available for all key socio-economic indicators although the year that the data relates to varies according to the release calendar for each dataset. The baseline year will therefore vary slightly across the indicators considered in the baseline.

Relevant Policy Context

- Overarching National Policy Statement for Energy (EN-1), Section 5.12: This assessment should consider all relevant socio-economic impacts, which may include:
 - the creation of jobs and training opportunities;

- the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;
- effects on tourism;
- the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. This could change the local population dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work (including community facilities and physical infrastructure such as energy, water, transport and waste). There could also be effects on social cohesion depending on how populations and service provision change as a result of the development; and
- cumulative effects – if development consent were to be granted to for a number of projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region.

Proposed Scope of Assessment

- 15.7 The project will assess the socio-economic effects of the project on employment, property values and also cumulative effects with other developments. This will be assessed for all phases of the project (i.e. construction, operation and decommissioning). The will be in the context of a current baseline and also a future baseline environment (in 2019).
- 15.8 In accordance with the overarching approach to the EIA, the chapter will also consider an assessment scenario that includes the project against the consented future baseline conditions, in order to isolate and understand the environmental effects of the power upgrade alone.
- 15.9 Whilst the scope of the socioeconomics topic may also include consideration of additional impacts on recreation and community resources, these aspects were not considered necessary for inclusion in the 2010 ES and therefore it is not proposed that these aspects are included in the revised EIA.

Relevant Guidance

- 15.10 There is currently very little Government regulation or guidance setting out the preferred method for, or content of an assessment of potential social and economic effects as part of an EIA. European Directive 2014/52/EU (Article 3 and Annex 4) states that the effects on population and material assets should be assessed when undertaking EIA. Otherwise, where relevant, the following guidance has been taken into account:
- The requirements of Environmental Impact Assessment (EIA) as set out by the Town and Country Planning (Environmental Impact Assessment) Regulations 2011; and,
 - Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Impact Assessment (IEMA 2004).

Proposed Approach

- 15.11 The extent to which the proposed development conforms with the relevant socio-economic policy at the appropriate spatial level will be assessed. The assessment will include an employment impact on the local labour market as a result of the proposed development, and a review of other relevant socioeconomic impacts, including consideration of the demands on existing infrastructure such as the housing market, open space and leisure facilities.
- 15.12 The chapter will describe the relevant planning policy in the context of the development; illustrate the potential direct, indirect and cumulative impacts during construction and operational phases of the proposed development, wider socio-economic impacts and mitigation measures.

Cumulative Effects

- 15.13 Cumulative socioeconomic impacts arising from the project alongside other projects within the area from other industries/activities (e.g., industrial/commercial/ waste developments) would be included in the assessment.

Transboundary Effects

- 15.14 Given the scale and nature of the facility, it is not considered to give rise to any transboundary effects.

Mitigation

- 15.15 No mitigation is proposed.

Issues to be Scope out of Assessment

- 15.16 It is acknowledged that the 2010 ES chapter considered the issues of landfill diversion, carbon footprint and Mill competitiveness. However, it is considered that these issues and other benefits are discussed elsewhere in the ES, specifically within the section that identifies the 'Need for the Development'.
- 15.17 It is proposed that the wider socioeconomic issues of recreation and community resources are scoped out of the ES chapter.

16 CUMULATIVE EFFECTS

- 16.1 This section describes the proposed approach to the Cumulative Effect Assessment (CEA) for the project. Cumulative impacts are defined as those that result from incremental changes caused by other reasonably foreseeable actions or other major developments alongside the project. Cumulative effects are therefore the combined effect of the assessed project in combination with the effects from a number of different projects, on the same single receptor/resource.
- 16.2 A fundamental requirement of undertaking the CEA is to identify those foreseeable developments or activities with which the project may interact to produce a cumulative impact. Interactions have the potential to arise during the construction, operation and maintenance, and decommissioning phases.
- 16.3 For the project CEA, other proposed major developments in the area will be taken into account within the CEA. PINS Advice Note Seventeen: Cumulative Effects Assessment Relevant to Nationally Significant Infrastructure Projects (PINS, 2015) recommends that, through consultation with Local Authorities and other relevant consenting bodies, other major developments in the area should be taken into account when conducting CEA, including those which are:
- Under construction;
 - Permitted application(s), but not yet implemented;
 - Submitted application(s) not yet determined;
 - Projects on the National Infrastructure Planning Portal's Programme of Projects;
 - Projects identified in relevant development plans; and
 - Projects identified in other plans and programmes as may be relevant.
- 16.4 In order to provide a comprehensive CEA of all relevant projects, the following sources will be searched to develop a CEA long list. The CEA long list will act as one of the key information key information sources to identify projects that could potentially have a cumulative impact with the SEP.
- Kent County Council Planning Application Search (www.kent.gov.uk)
 - Swale Borough Council Planning Application Search (www.swale.gov.uk)
 - Site Allocations in the adopted Swale Borough Local Plan 2008 (Swale Borough Council, 2008)
 - Site Allocations in the Emerging Local Plan for Swale Borough Council (Swale Borough Council, 2016).
 - Allocations in the emerging Core Strategy for Swale Borough Council (Swale Borough Council, 2012).

- Allocations in the adopted Kent Minerals and Waste Local Plan 2013-2030 (Kent County Council, 2016).
- National Infrastructure Planning Portal (<https://infrastructure.planninginspectorate.gov.uk/>).

- 16.5 The zone of influence of the project for each environmental topic will be established for the topics proposed to be scoped into the EIA. The zone of influence for the cumulative assessment will be outlined in the EIA.
- 16.6 This process has already begun and the long list of developments identified so far is included at Appendix 4. The full list of plans or projects to be included in the cumulative effects assessment will be developed and agreed as part of ongoing consultation.
- 16.7 Once the long list is complete, a short list of developments will be generated which identifies developments that likely to have a temporal overlap or give rise to cumulative effects for each of the topics due to the scale and nature of the development.
- 16.8 Information will then be gathered on each of these developments to help inform the assessment and understand the proportion of effect of the proposed project.

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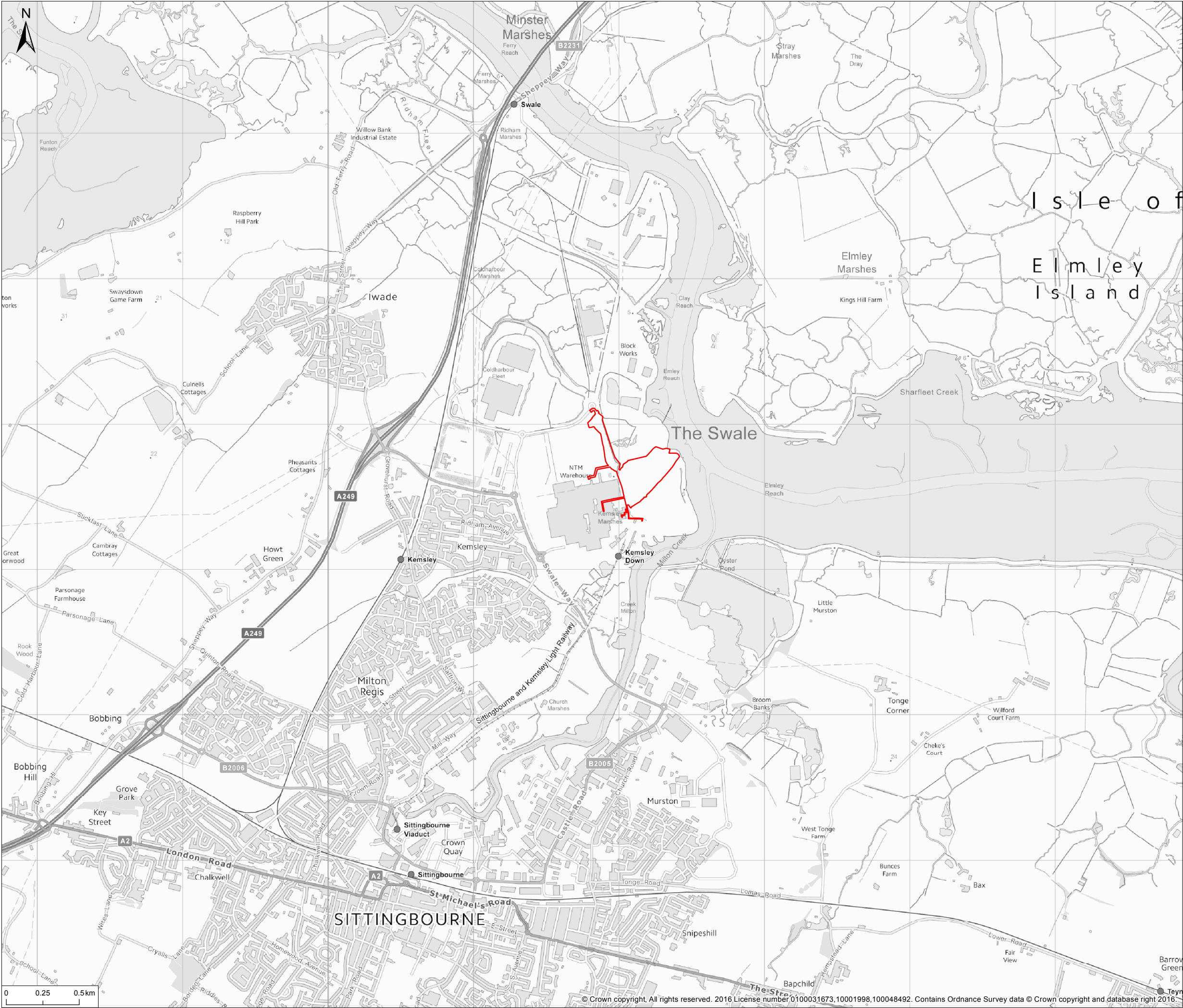
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FIGURES



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Legend

Assessment Boundary

Rev	Description	Date	Initial	Checked



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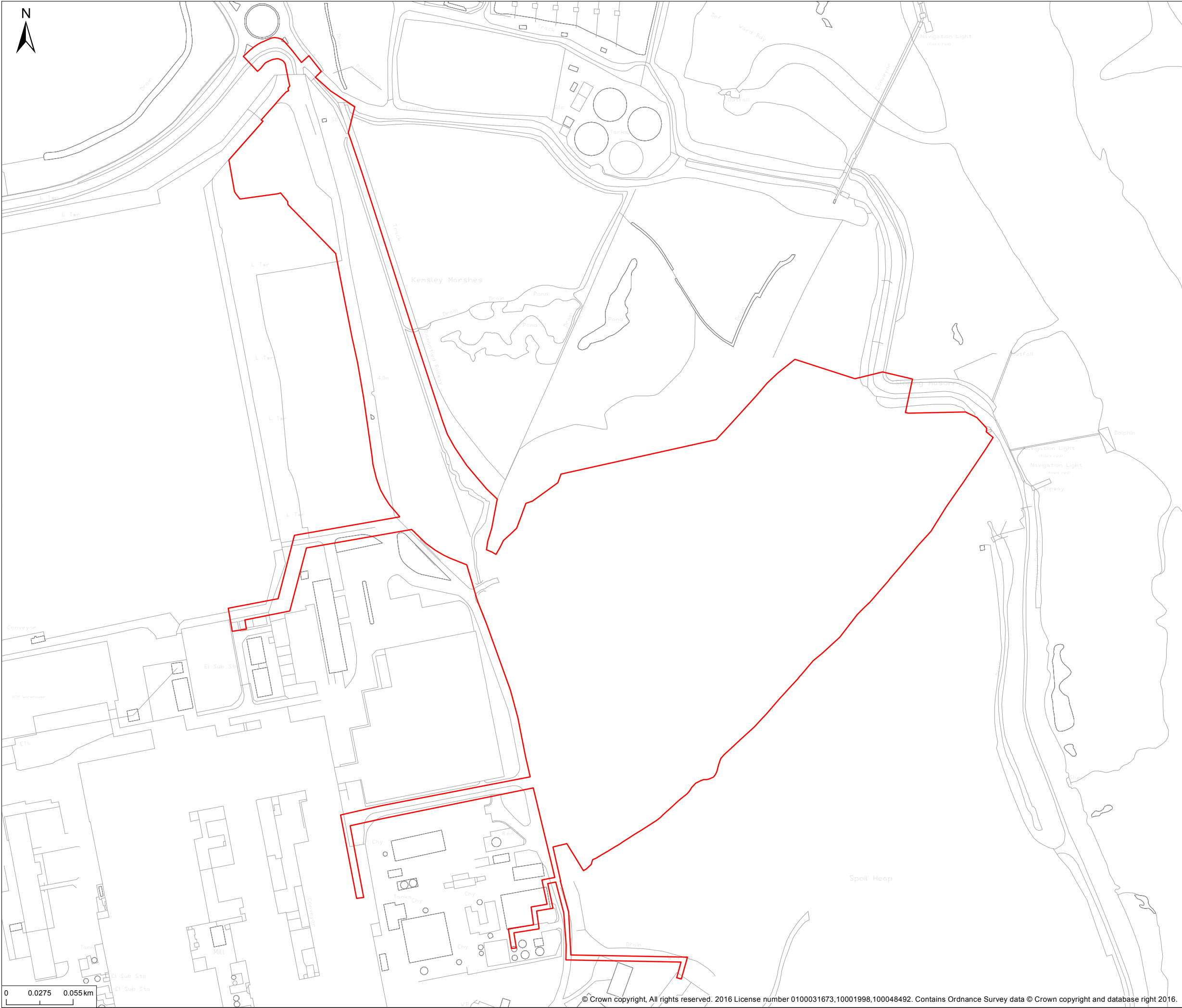
Client **K3 CHP Ltd**

Project **Wheelabrator Kemsley Generating Station – Power Upgrade**

Title **Site Location Plan**

Status	Drawn By:	PM/Checked By
FINAL	CR	NF
Job Ref	Scale @ A3	Date Created
OXF9163	1:25,000	DEC 2016
Figure Number	Rev	
1	-	

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Legend

Assessment Boundary (12.55ha)

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Client **K3 CHP Ltd**

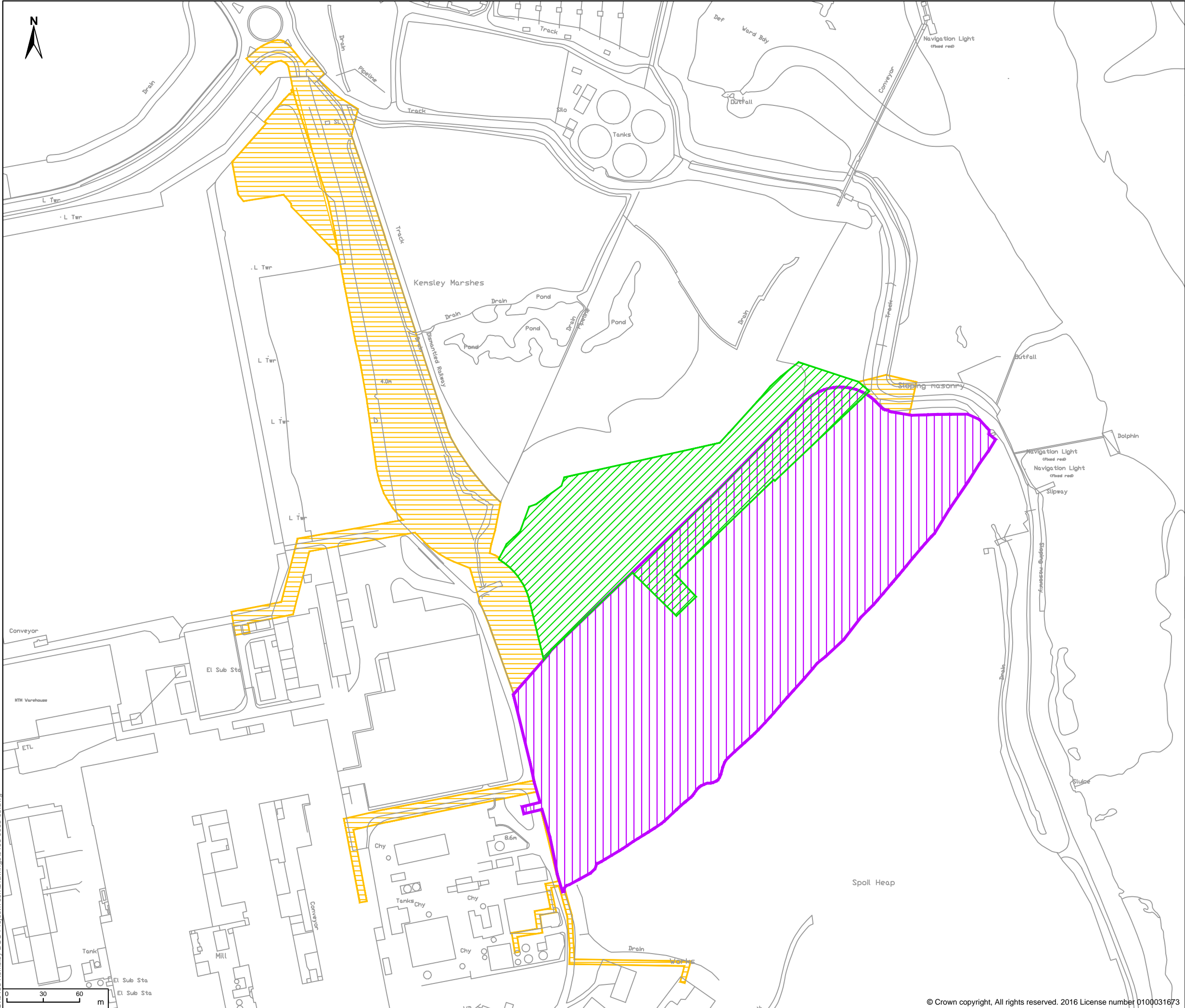
Project **Wheelabrator Kemsley Generating Station – Power Upgrade**

Title **Assessment Boundary**

Status	Drawn By:	PM/Checked By
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Job Ref	Scale @ A3	Date Created
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- Legend**
-  Generating Station
 -  IBA
 -  Access utilities and drainage

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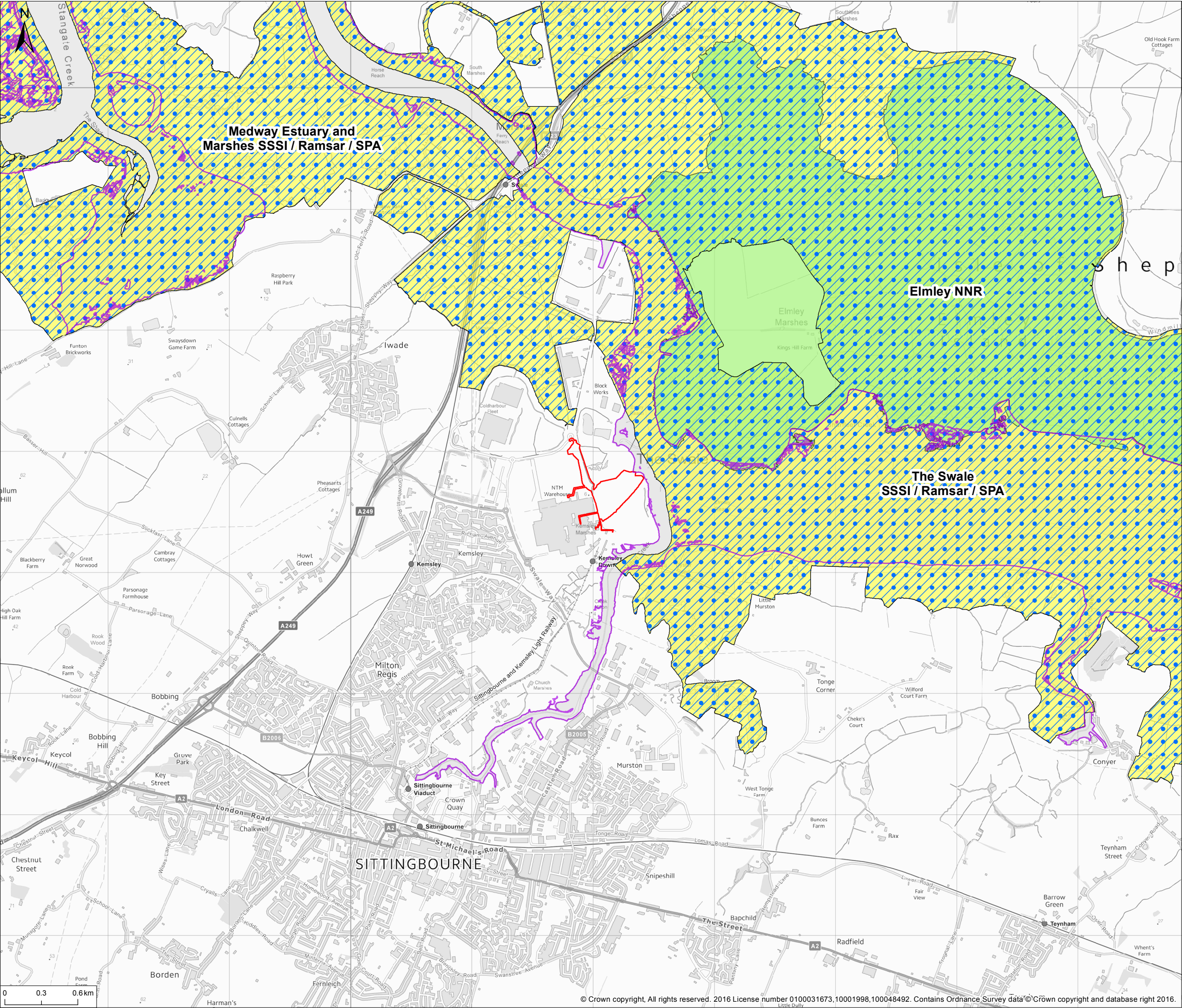
Client **K3 CHP Ltd**

Project **Wheelabrator Kemsley Generating Station - Power Upgrade**

Title **Zone Plan - indicative**

Status	Drawn By	PM/Checked by
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Legend

- Assessment Boundary
- Ramsar Site
- Special Protection Area
- National Nature Reserve
- Sites of Special Scientific Interest
- The Swale Estuary Marine Conservation Zone

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Client **K3 CHP Ltd**

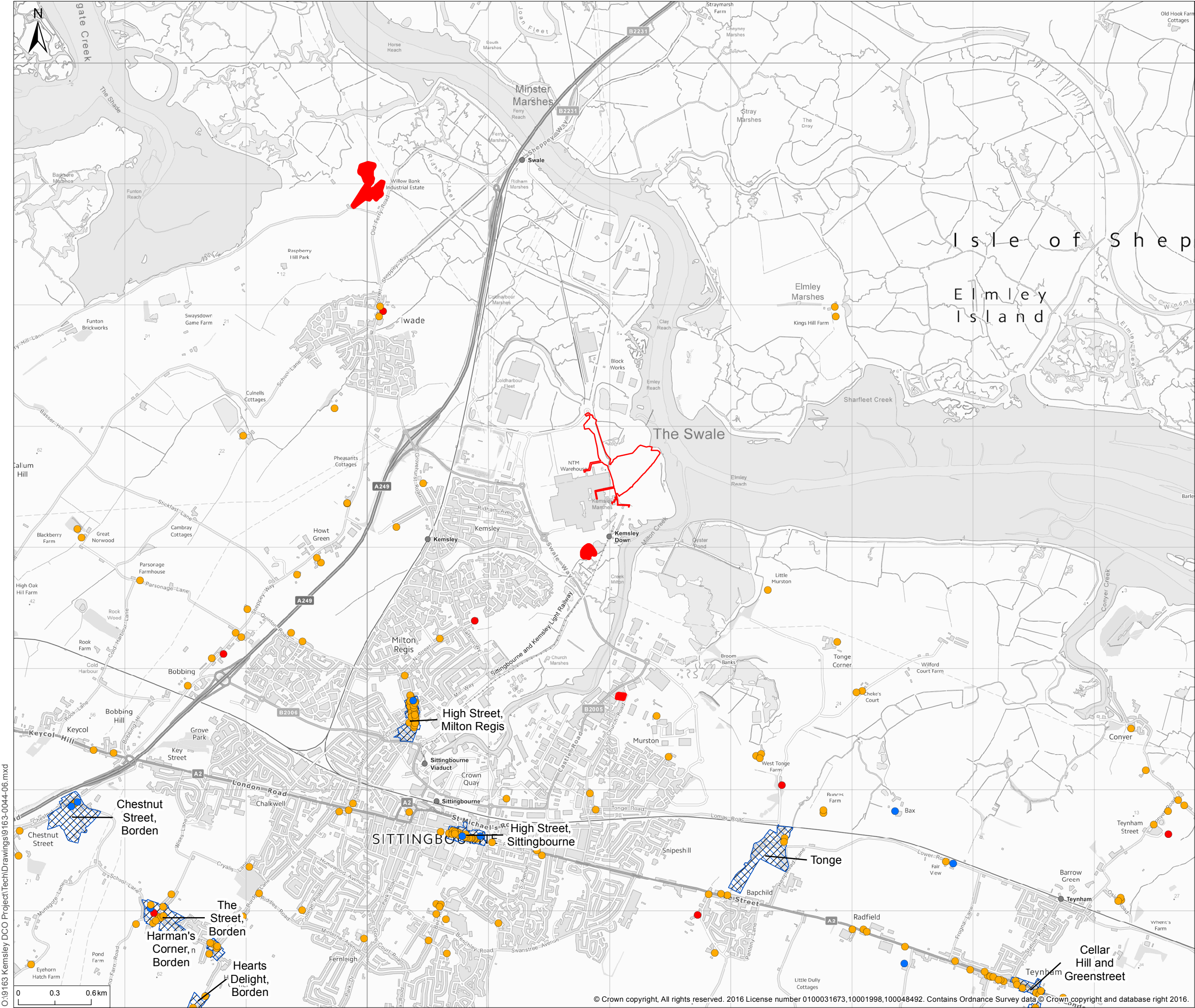
Project **Wheelabrator Kemsley Generating Station – Power Upgrade**

Title **Statutory Nature Conservation Designations**

Status	Drawn By:	PM/Checked By
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Job Ref	Scale @ A3	Date Created
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Figure Number	Rev
4	-

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Legend

- Assessment Boundary
- Grade I Listed Building
- Grade II Listed Building
- Grade II* Listed Building
- Scheduled Monument
- Conservation Area

Rev	Description	Date	Initial	Checked

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Client **K3 CHP Ltd**

Project **Wheelabrator Kemsley Generating Station – Power Upgrade**

Title **Historic Environment**

Status **FINAL** Drawn By: **CR** PM/Checked By: **NF**

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- Legend**
- Assessment Boundary
 - Flood Zone 3
 - Flood Zone 2

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Client

K3 CHP Ltd

Project

Wheelabrator Kemsley Generating Station – Power Upgrade

Title

EA Flood Map

Status

FINAL

Job Ref

OXF9163

Figure Number

6

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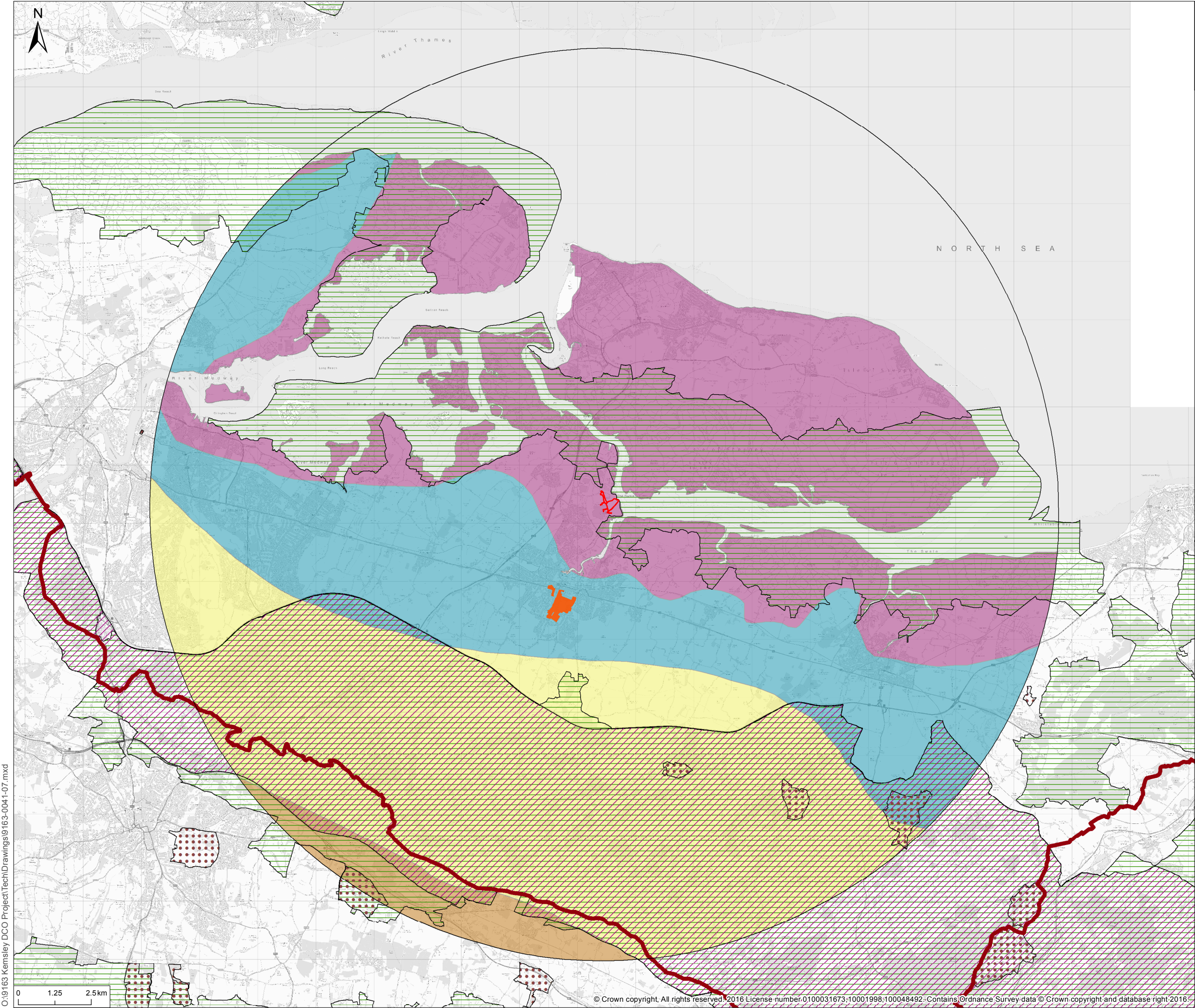
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- Legend**
- Assessment Boundary
 - National Trail
 - Registered Park and Garden
 - Area of Outstanding Natural Beauty
 - Special Landscape
 - Area of High Townscape
- National Character**
- Greater Thames Estuary
 - North Downs
 - North Kent Plain
 - Wealden Greensand

Rev	Description	Date	Initial	Checked



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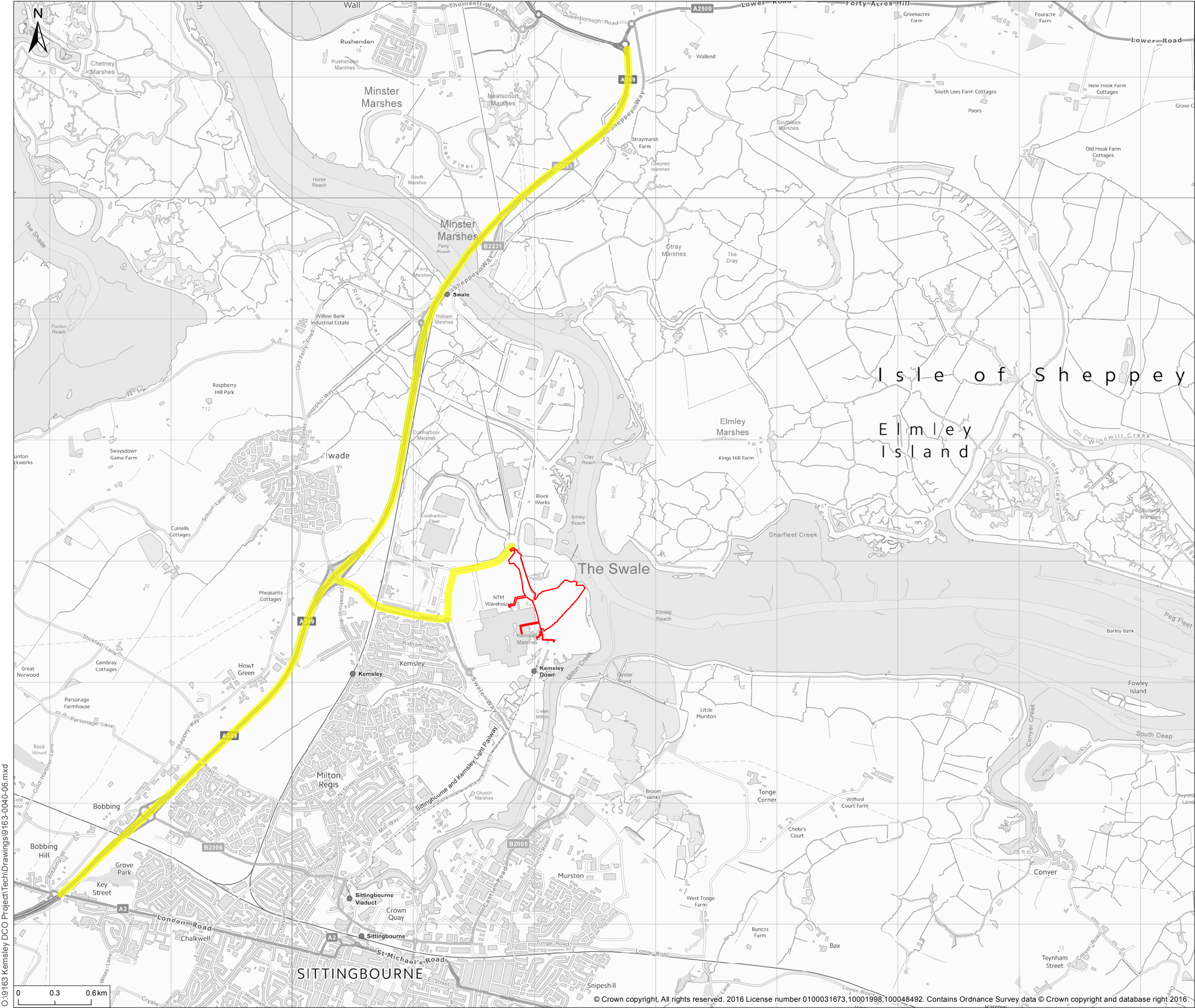
Client K3 CHP Ltd

Project Wheelabrator Kemsley Generating Station – Power Upgrade

Title Landscape Character and Designations

Status	Drawn By:	PM/Checked By
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Job Ref	Scale @ A3	Date Created
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- Legend**
- Assessment Boundary
 - Proposed operational access route

Rev	Description	Date	Initial	Checked



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Client **K3 CHP Ltd**

Project **Wheelabrator Kemsley Generating Station – Power Upgrade**

Title **Proposed HGV Access Route**

Status	Drawn By:	PM/Checked By
FINAL	CR	NF
Job Ref	Scale @ A3	Date Created
OXF9163	1:30,000	DEC 2016
Figure Number	Rev	
8	-	

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APPENDICES

APPENDIX 1: DETAILS OF EXISTING CONSENTS



St Regis Paper Co Ltd & E.ON Energy from
Waste UK Ltd
C/o RPS Planning and Development Ltd
3rd Floor
34 Lisbon Street
Leeds
West Yorkshire
LS1 4LX

FAO Mr J Standen

Planning Applications Group

First Floor, Invicta House
County Hall
Maidstone
Kent ME14 1XX
Fax: 01622 221072
Tel: 08458 247303

Website: www.kent.gov.uk/planning
DirectDial/Ext: 01622 221054

Minicom: 08458 247905 (hearing impaired)

Ask for: Mr M Clifton

Your ref:

Our ref: PAG/MC/SW/10/444

Date: 6 March 2012

Dear Sir/Madam

PROPOSAL: SW/10/444 – DEVELOPMENT OF A SUSTAINABLE ENERGY PLANT TO SERVE KEMSLEY PAPER MILL, COMPRISING WASTE FUEL RECEPTION, MOVING GRATE TECHNOLOGY, POWER GENERATION AND EXPORT FACILITY, AIR COOLED CONDENSERS, TRANSFORMER, BOTTOM ASH HANDLING FACILITY, OFFICE ACCOMMODATION, VEHICLE PARKING, LANDSCAPING, DRAINAGE AND ACCESS. LAND TO THE NORTH EAST OF KEMSLEY PAPER MILL, KEMSLEY, SITTINGBOURNE, KENT.

The County Council's Planning Applications Committee considered the above application at its meeting on 12 April 2011 whereby it resolved that subject to the satisfactory completion of a legal agreement to secure offsite mitigation for the purposes of nature conservation, permission be granted.

Following the recent completion of the legal agreement on 5th March 2012, I hereby enclose a copy of the permission; please note the conditions imposed and the informatives as described.

Yours faithfully

Head of Planning Applications Group ^{AM}

CC1 (Detailed)



Reference Code
of Application: SW/10/444

KENT COUNTY COUNCIL

**TOWN & COUNTRY PLANNING ACTS
TOWN AND COUNTRY PLANNING (GENERAL DEVELOPMENT PROCEDURE)
(ENGLAND) ORDER 2010**

Notification of Grant of Permission to Develop Land

To: St Regis Paper Co Ltd & E.ON Energy from Waste UK Ltd
C/o RPS Planning and Development Ltd
3rd Floor
34 Lisbon Street
Leeds
West Yorkshire
LS1 4LX

TAKE NOTICE that the KENT COUNTY COUNCIL, the County Planning Authority under the Town and Country Planning Acts, having taken environmental information submitted in support of the proposal into consideration, **HAS GRANTED PERMISSION** for development of land situated to the North East of Kemsley Paper Mill, Kemsley, Sittingbourne, Kent and being development of a sustainable energy plant to serve Kemsley Paper Mill, comprising waste fuel reception, moving grate technology, power generation and export facility, air cooled condensers, transformer, bottom ash handling facility, office accommodation, vehicle parking, landscaping, drainage and access referred to in your application for permission for development dated the twenty third day of March 2010, as amplified in the letters from RPS dated 5 October 2010 enclosing further supplementary reports in respect of biodiversity information and information to inform an appropriate assessment together with a separate report in response to observations made by the Environment Agency, 15 October 2010, 26 November 2010 and 17 March 2011 enclosing a plan entitled Kent & Hinterland, SUBJECT TO THE CONDITIONS SPECIFIED hereunder:-

- (1) The development to which this permission relates shall be begun not later than the expiration of 5 years commencing with the date of this permission.

Reason; To comply with Section 91 of the Town and Country Planning Act 1990 (as amended).

- (2) The Development to which this permission relates shall be carried out strictly in accordance with the details submitted with the application together with those further details to be submitted for approval.

Reason; For the avoidance of doubt and to maintain control over the application site.

- (3) The maximum number of Heavy Goods Vehicle movements to and from the Application Site shall not exceed a combined total of 258 movements per day save for movements in accordance with Condition (5) subject to any prior written variation as approved by the Waste Planning Authority.

Reason; In the interest of highway safety pursuant to Policy W22 of the Kent Waste Local Plan.

- (4) Waste deliveries shall only take place between 07:00 and 18:00 hours Monday to Friday inclusive and 07:00 and 13:00 hours on Saturdays, no waste deliveries shall take place on Saturday afternoon, Sunday or Bank/Public Holidays save for those deliveries in accordance with condition (5) and subject to any prior written variation as approved by the Waste Planning Authority.

Reason; In order to avoid nuisance from noise pursuant to Policy W18 of the Kent Waste Local Plan.

- (5) Waste deliveries originating from and returning to the railway depot at Ridham Docks accessing and egressing the Application Site by the use of Ridham Dock Road shall not be subject to conditions (3) and (4) of the permission.

Reason; In order to encourage the reduction in the number of HGV movements generated by the Development on the local public road network.

- (6) Prior to the Commencement of Development a strategy to encourage the use of the railway in the vicinity of the Application Site as a means of transporting waste deliveries to the Development hereby permitted shall be submitted to and approved in writing by the Waste Planning Authority and thereafter implemented in accordance with the approved strategy.

Reason; In order to encourage the reduction in the number of HGV movements generated by the Development on the local public road network.

- (7) With the exception of construction using the concrete slip-forming method, construction using constant pore methods for concrete laying and internal process works relating to mechanical and/or electrical equipment installation, construction activities shall only take place between 07:00 and 19:00 hours Monday to Friday inclusive and 07:00 and 16:00 hours Saturday and Sunday with no construction activities to take place on Bank or Public Holidays subject to any prior written variation as approved by the Waste Planning Authority.

Reason; In order to avoid any adverse disturbance to breeding birds pursuant to policies W18 and W21 of the Kent Waste Local Plan and Policy SP2 of the Swale Borough Local Plan.

- (8) All piling shall be by way of Auger other than where an alternative method is required for structural reasons. In such circumstances the prior written consent of the Waste Planning Authority shall be required which shall only be given if it has been demonstrated that there is no resultant unacceptable risk to groundwater and that impact piling will not take place between 1 April and 31 August in any given year, subject to any prior written variation as approved by the Waste Planning Authority.

Reason; In order to avoid any risks to groundwater pursuant to Policy W19 of the Kent Waste Local Plan and in order to avoid any disturbance to breeding birds pursuant to the requirements of PPS9 and policies W18 and W21 of the Kent Waste Local Plan.

- (9) Noise levels as measured at the residential locations as set out in Figure 12.1 of Chapter 12 (Noise and Vibration) of the Environmental Statement (March 2010) attributable directly to the Development hereby permitted shall not exceed the background levels as set out in Appendix 12.5 of the Environmental Statement (March 2010) (Operational Noise Assessment) dated 24 November 2009.

Reason; In order to avoid any adverse impact from noise pursuant to Policy W18 of the Kent Waste Local Plan.

- (10) Prior to the commencement of development the following components of a scheme to deal with the risks associated with contamination of the Application Site shall each be submitted to and approved in writing by the Waste Planning Authority and thereafter implemented in accordance with the approved scheme:-

1.1 A preliminary Risk Assessment which has identified:-

- (a) All previous uses; and
- (b) Potential contaminants associated with those uses; and
- (c) A conceptual model of the Application Site indicating sources, pathways and receptors; and
- (d) Potentially unacceptable risks arising from contamination at the Application Site.

1.2 A site Investigation Scheme based on the Preliminary Risk Assessment under 1.1 above shall identify those receptors which are most likely to be affected by contamination.

1.3 A Detailed Risk Assessment shall be undertaken of those receptors identified in the Site Investigation Scheme.

1.4 A Detailed Risk Assessment shall inform an Options Appraisal and Remediation Strategy for those receptors identified in the Site Investigation Scheme and shown by the detailed Risk Assessment to require remediation. Details of the required remediation measures recommended for implementation shall be included in the Detailed Risk Assessment.

1.5 The recommendations of the Detailed Risk Assessment shall be undertaken in accordance with the provisions therein.

1.6 A Verification Plan shall present data and evidence to show that the recommendations in the Detailed Risk Assessment have been undertaken. The Verification Plan shall set out details of any long term monitoring of pollutant linkages that is required and shall provide mechanisms for ongoing maintenance arrangements and contingency actions.

Following the commencement of Development any long term monitoring or maintenance arrangements and contingency actions identified shall be undertaken as provided for subject to any prior written variation as approved by the Waste Planning Authority.

Reason; To ensure the Development is consistent with the requirements of PPS23 (Planning and Pollution Control) and to ensure any risks to groundwater and surface waters are appropriately mitigated pursuant to Policy W19 of the Kent Waste Local Plan.

- (11) Prior to the Commencement of Development a scheme for the provision and management of a buffer zone alongside and including the ditch within the west of the application area as shown on Figure 4.2 of the Planning Application Supporting Statement shall be submitted to and approved in writing by the Waste Planning Authority. Thereafter the Development shall be carried out in accordance with the approved scheme subject to any written variation as approved by the Waste Planning Authority. The Scheme shall include the following:

- (a) Plans showing the extent and layout of the buffer zone; and
- (b) Details demonstrating how the buffer zone will be protected during construction of the Development and managed/maintained over the longer term.

Reason; In order to protect the ecological value of the ditch pursuant to the objectives in PPS9 (Biodiversity and Geological Conservation) and Policy NRM5 of the South East Plan.

- (12) Prior to the Commencement of Development a detailed Environmental Management Plan including Construction Method Statement to incorporate the proposed migration as outlined in the document entitled 'Appendix 9.6 Information for an Appropriate Assessment' for suppression of dust, construction noise, lighting and visual disturbance shall be submitted to and approved in writing by the Waste Planning Authority and thereafter be implemented as approved.

Reason; In order to protect the bio-diversity and geological interests for the Application Site and surrounding area consistent with the principles set out in PPS9 (Biodiversity and Geological Conservation) and Policy W21 of the Kent Waste Local Plan.

- (13) Prior to the Commencement of Development a programme of archaeological work shall be submitted to the Waste Planning Authority for approval which shall include details of specification and timetables. The programme shall thereafter be implemented as approved.

Reason; To ensure that features of archaeological interest are properly examined and recorded to be consistent with the principles as set out in PPS5 (Planning and Historic Environment).

- (14) Prior to the Commencement of Development details of a scheme of landscaping and tree planting shall be submitted to the Waste Planning Authority for approval and shall thereafter be implemented as approved.

Reason; In order to help reduce the visual impact of the Development.

- (15) All trees and shrubs planted under the scheme as approved under condition (14) above shall be maintained for a period of 5 years. Any trees or shrubs that either die, are lost, damaged or become diseased during this 5 year period shall be replaced with a tree or shrub of the same species within the next available planting season.

Reason; In order to help reduce the visual impact of the Development.

- (16) The Development hereby permitted shall be carried out strictly in accordance with the Flood Risk Assessment (FRA) submitted in support of the application and which includes the following detailed mitigation measures:-

1.1 The surface water management scheme outlined within Appendix 4 of the FRA (Surface Water Management and Foul Drainage Philosophy Statement) and the storage areas shown on drawings 16315 AO 0600 and 16315 AO 0301 within Appendix B shall be constructed and operational prior to the acceptance of waste by the Development.

1.2 A safe route into and out of the Application Site to an appropriate safe haven shall be identified and provided.

1.3 Finished floor levels are to be set in accordance with the FRA.

Reason; In order to reduce the risk of flooding and to ensure the safe access and egress from and to the Application Site pursuant to the requirements of PPS25 (Development and Flood Risk).

- (17) All surface water drainage from the Application Site discharging to a local water course shall be attenuated for a 1:100 year return storm with a limited discharge of 7 litres per second per hectare or the equivalent run off from a Greenfield site for a 1:2 year storm.

Reason; In order to reduce the risk of flooding and ensure the safe access and egress from the Application Site pursuant to the requirements of PPS25 (Development and Flood Risk).

- (18) Work on the proposed drainage outfall to the Swale (as shown on Figure 4.25 Proposed Drainage Layout of the Planning Application Site Supporting Statement) shall only take place between 1 April and 31 September in any given year.

Reason; In order to protect over-wintering birds on the Application Site and surrounding area consistent with the principles set out in PPS9 (Biodiversity and Geological Conservation).

- (19) All fuels, oils and other liquids with the potential to contaminate the Application Site shall be stored in a secure bunded area in order to prevent any accidental or unauthorized discharge to the ground. The area for storage shall not drain to any surface water system. Where it is proposed to store more than 200 litres of any type of oil on the Application Site it must be stored in accordance with the provisions of the Control of Pollution (Oil Storage) (England) Regulations 2001. Where a drum or barrel has a capacity of less than 200 litres a drip tray capable of retaining 25% of the maximum capacity of the drum or barrel may be used in lieu of storing the drum or barrel in the secure bunded area.

Reason; In order to prevent any unacceptable risk to the environment pursuant to Policy W19 of the Kent Waste Local Plan.

- (20) Prior to their installation/construction on the Application Site details of the storage bunkers (as shown on Figure 4.2 of the Planning Application Supporting Statement) into which waste would initially be tipped shall be submitted to the Waste Planning Authority for approval and then subsequently installed/constructed in accordance with such approved details.

Reason; To ensure that in the event of the plant shutting down that any waste stored in the storage bunkers can be readily removed or contained in a manner so as to prevent the creation of any unacceptable and unpleasant odours in the interests of residential amenity.

- (21) Details of an external lighting strategy which follows best practice to reduce the impact of light spillage on the adjacent SPA and Ramsar site shall be submitted to the Waste Planning Authority for approval prior to the installation of external lighting on the Application Site. External lighting shall only be installed on the Application Site in accordance with the approved lighting strategy.

Reason; In order to protect the bio-diversity and geological interests of the Application Site and surrounding area consistent with the principles set out in PPS9 (Biodiversity and Geological Conservation) and Policy W21 of the Kent Waste Local Plan.

- (22) Other than waste arising from within Kent all waste used as a fuel in the Sustainable Energy Plant hereby permitted shall be pre-treated. Unless otherwise agreed in writing by the Waste Planning Authority no less than 20% of the annual waste throughput shall be pre-treated waste sourced from within the area defined as Hinterland shown on the plan attached to the letter from RPS dated 17 March 2011 entitled KENT & HINTERLAND and which includes Kent, Tandridge, Thurrock and Medway.

Reason; To ensure that waste processed at the plant is sourced consistent with the principles set out under policies W3 and W4 of the South East Plan and PPS10 (Planning for Sustainable Waste Management) which seek to secure waste management capacity sufficient to achieve net regional and sub-regional self sufficiency having regard to the proximity principle.

- (23) In the event that Kemsley Paper Mill no longer requires heat and/or power from the Sustainable Energy Plant hereby permitted, the operator of the plant shall submit a scheme to the Waste Planning Authority for approval setting out details of the steps that will be taken to identify alternative users of the heat and/or power generated.

Reason; To ensure that the plant continues to operate as a means of providing a sustainable supply of energy consistent with the objectives set out in PPS10 (Planning for Sustainable Waste Management).

Town and Country Planning (Development Management Procedure) (England) Order 2010

This application has been determined in accordance with the Town and Country Planning Acts, and in the context of the Government's current planning policy guidance and the relevant Circulars, together with the relevant Development Plan policies.

The summary of reasons for granting approval is as follows:-

The County Council is of the opinion that the proposed development gives rise to no material harm, is in accordance with the development plan and that there are no material considerations that indicate that the decision should be made otherwise. The County Council also considers that any harm as a result of the proposed development would reasonably be mitigated by the imposition of the attached conditions.

In addition please be advised of the following informative:

Please note the expiry date on your decision notice, along with all other conditions imposed. You are advised any conditions which require you to formally submit further details to the County Planning Authority for approval may be required to be formally discharged **prior** to commencement of operations on site, or within a specified time. It is your responsibility to ensure that such details are submitted. **Failure to do so may mean that any development carried out is unlawful** and which may ultimately result in the permission becoming incapable of being legally implemented. It is therefore strongly recommended that the required details be submitted to this Authority in good time so that they can be considered and approved at the appropriate time. **Note that from 6th May 2008 each submission of details pursuant to conditions attracts an application fee of £85.**

Dated this sixth day of March 2012

(Signed) 

Head of Planning Applications Group

INVICTA HOUSE
COUNTY HALL
MAIDSTONE
KENT ME14 1XX

TOWN AND COUNTRY PLANNING ACT 1990

NOTIFICATION TO BE SENT TO AN APPLICANT WHEN THE COUNTY COUNCIL REFUSES PLANNING PERMISSION OR GRANTS IT SUBJECT TO CONDITIONS

- This permission is confined to permission under the Town and Country Planning Act 1990, the Town and Country Planning (Development Management Procedure) (England) Order 2010, and the Town and Country Planning (Applications) Regulations 1988 and does not obviate the necessity of compliance with any other enactment, by-law, or other provision whatsoever or of obtaining from the appropriate authority or authorities any permission, consent, approval or authorisation which may be requisite.
- Section 53 of the County of Kent Act 1981 (access for Fire Fighting Purposes) will apply to this permission if it relates to building works, and will be considered when plans are deposited with the appropriate authority for approvals under the Buildings Regulations 1995.
- If the applicant is aggrieved by the decision of the County Planning Authority to refuse permission for the proposed development or to grant permission or approval subject to conditions, he may appeal to the Secretary of State for the Environment, in accordance with Section 78(1) of the Town and Country Planning Act 1990. If he wants to appeal then he must do so within six months of the date of this notice using a form which is obtainable from the Secretary of State at The Planning Inspectorate, Room 315A, Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN – Tel: 0117 372 6372; or online at www.planningportal.gov.uk/pcs The Secretary of State can allow a longer period for giving notice of an appeal, but will not normally be prepared to exercise this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to the Secretary of State that the County Planning Authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.
- In practice, the Secretary of State does not refuse to consider appeals solely because the County Planning Authority based their decision on a direction given by the Secretary of State.
- If permission to develop land is refused or granted subject to conditions, whether by the County Planning Authority or by the Secretary of State for the Environment, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor can he render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted. In these circumstances he may serve on the Council of the county district in which the land is situated, a purchase notice requiring that Council to purchase his interest in the land in accordance with the provisions of Chapter 1 of Part VI of the Town and Country Planning Act 1990.
- In certain circumstances, compensation may be claimed from the County Planning Authority if permission is refused or granted subject to conditions by the Secretary of State on appeal or on reference of the application to him. The circumstances in which such compensation is payable are set out in Section 114 and related provisions of the Town and Country Planning Act 1990.
- Where this decision relates to development which has been the subject of Environmental Impact Assessment the validity of the Council's decision may be challenged by making an application to the High Court within three months from the date of this decision. If you require further advice on making any High Court challenge, or making an application for Judicial Review, you should consult a solicitor or other advisor, or contact the Crown Office at the following address: Administrative Court at the Royal Courts of Justice, Queen's Bench Division, Strand, London, WC2 2LL – Tel: 020 7947 6655; or online at www.courtservice.gov.uk



D S Smith & EEW (UK)
c/o RPS planning & Development
3rd Floor
34 Lisbon Street
Leeds
West Yorkshire
LS1 4LX

For the attention of Mr J Standen

Planning Applications Group

First Floor, Invicta House
County Hall
Maidstone
Kent ME14 1XX
Fax: 01622 221072
Tel: 08458 247303

Website: www.kent.gov.uk/planning

Email: planning.applications@kent.gov.uk

Direct Dial/Ext: 01622 221054

Textbox: 08458 247905 (hearing impaired)

Ask for: Mike Clifton

Your ref:

Our ref: PAG/MC/SW/10/444/R

Date: 2 September 2013

Dear Sir/Madam

APPLICATION NO: SW/10/444/R

PROPOSAL: Application for a non-material amendment to the site layout

LOCATION: Sustainable Energy Plant, Kemsley Paper Mill, Sittingbourne, Kent,

The County Council as County Planning Authority has considered the amended details submitted by you in respect of the above proposal.

The Authority hereby approves the non-material amendment details dated 5 August 2013 and received with accompanying Planning Statement and accompanying drawing numbers:

Figure 4.1 A - Permitted Site Location Plan
Figure 4.2 A - Proposed Building Layout
Figure 4.3 A - Proposed Site Layout
Figure 4.4 A - South East Elevation
Figure 4.5 A - North East Elevation
Figure 4.6 A - South West Elevation
Figure 4.7 A - North West Elevation
Figure 4.8 A - Main Building Proposed South East Elevation
Figure 4.9 A - Main Building Proposed North East Elevation
Figure 4.10 A - Main Building Proposed South West Elevation
Figure 4.11 A - Main Building Proposed North West Elevation
Figure 4.12 A - Site Layout and Access
Figure 4.13 A - Proposed Structure for Air Cooled Condenser (URC) Elevations
Figure 4.14 A - Switchgear Building (UBA) Floor Plans
Figure 4.17 A - Turbine Building Layout
Figure 4.18 A - Fire Water Supply Station Layout
Figure 4.19 A - Office and Staff Amenities Building (UYA) Floor Plans
Figure 4.20 A - Proposed Gatehouse Floor Plan and Elevation
Figure 4.21 A - Landscape Masterplan

As part of the Council's commitment to equalities if you have any concerns or issues with regard to access to this information please contact us for assistance.

Figure 4.22 A - Boundary Treatment
Figure 4.24 A - Site Sections
Figure 4.25 A - Proposed Drainage Layout
Figure 4.26 A - Proposed Levels/Site Plan
Figure 4.27 A - Fuel Bunker Level -6.5 m, Level + 0.00 m
Figure 4.28 A - Fuel Bunker Level +21.25 m, Level +27.5 m
Figure 4.29 A - Fuel Bunker Section A-A
Figure 4.30 A - Fuel Bunker Section B-B & C-C
Figure 4.31 A - Tipping Hall Layout Level + 0.00 m
Figure 4.32 A - Tipping Hall Section A-A
Figure 4.33 A - Overall Roof Layout Comparison Drawing
Figure 4.34 A - Illustrative Visualisation 1 of 7
Figure 4.35 A - Illustrative Visualisation 2 of 7
Figure 4.36 A - Illustrative Visualisation 3 of 7
Figure 4.37 A - Illustrative Visualisation 4 of 7
Figure 4.38 A - Illustrative Visualisation 5 of 7
Figure 4.39 A - Illustrative Visualisation 6 of 7
Figure 4.40 A - Illustrative Visualisation 7 of 7

to allow for revisions to the site layout as a formal amendment pursuant to condition 2 of the details previously approved under the consent reference SW/10/444 granted on 6 March 2012.

In addition please be advised of the following informative:

You are advised that all other conditions imposed under planning permission SW/10/444 remain in effect and that those details previously approved pursuant to that permission shall be complied with unless superseded by the details hereby approved.

Yours faithfully


Head of Planning Applications Group



RPS Planning & Development
34 Lisbon Street
Leeds
LS1 4LX

Planning Applications Group
First Floor, Invicta House
County Hall
Maidstone
Kent ME14 1XX
Tel: 03000 411200

Website: www.kent.gov.uk/planning
Email: planning.applications@kent.gov.uk
Direct Dial/Ext: 03000 413350
Text relay: 18001 03000 417171
Ask for: Mr Mike Clifton
Your ref:
Our ref: SW/14/506680
Date: 21 April 2015

TOWN AND COUNTRY PLANNING ACT 1990

Dear Sir/Madam

APPLICATION: SW/14/506680

PROPOSAL: Section 73 application to vary conditions (2) & (4) of planning permission SW/10/444 to allow a variation to the permitted hours of delivery to allow for 24 hours 7 days per week operation

LOCATION: Land at Kemsley Paper Mill, Kemsley, Sittingbourne, Kent, ME10 2TD

The above mentioned planning application received for the formal observations of the County Council, as County Planning Authority has now received consideration.

I write to inform you that the County Planning Authority resolved that planning permission be granted as set out in the attached formal notification.

Please note the conditions imposed and the informatives as described.

Yours faithfully

Sharon Thompson
Head of Planning Applications Group

KENT COUNTY COUNCIL

**TOWN AND COUNTRY PLANNING ACTS
TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE)
(ENGLAND) ORDER 2015**

NOTIFICATION OF GRANT OF PERMISSION TO DEVELOP LAND

To: D S Smith & Wheelabrator Technologies
c/o RPS Planning & Development
34 Lisbon Street
Leeds
LS1 4LX

TAKE NOTICE that the KENT COUNTY COUNCIL, the County Planning Authority under the Town and Country Planning Act, HAS GRANTED PERMISSION for development of land situated at Land at Kemsley Paper Mill, Kemsley, Sittingbourne, Kent, ME10 2TD and being the Section 73 application to vary conditions (2) & (4) of planning permission SW/10/444 to allow a variation to the permitted hours of delivery to allow for 24 hours 7 days per week operation, referred to within the application for permission for development dated 11 November 2014, received on 13 November 2014, as amplified in the Email from Jonathan Standen (RPS) dated 12 February 2015. Accordingly condition (4) of planning permission SW/10/444 shall be deleted and condition (2) shall now read:

2. The development to which this permission relates shall be carried out strictly in accordance with the details submitted with the application as varied together with those further details to be submitted for approval.

Reason: For the avoidance of doubt and to maintain planning control over the development

Town and Country Planning (Development Management Procedure) (England) Order 2015

This application has been determined in accordance with the Town and Country Planning Acts, and in the context of the Government's current planning policy and associated guidance and the relevant Circulars, together with the relevant Development Plan policies., including the following, and those referred to under the specific conditions above:-

- Where necessary the planning authority has engaged with the applicant(s) *[and other interested parties]* to address and resolve issues arising during the processing and determination of this planning application, in order to deliver sustainable development, to ensure that the details of the proposed development are acceptable and that any potential impacts can be satisfactorily mitigated.

The summary of reasons for granting approval is as follows:-

- The County Council is of the opinion that the proposed development gives rise to no material harm, is in accordance with the development plan and that there are no material considerations that indicate that the decision should be made otherwise.

In addition please be advised of the following informatives:

1. Please note the expiry date on your decision notice, along with all other conditions imposed. You are advised any conditions which require you to submit further details to the County Planning Authority for approval may need to be formally discharged **prior** to commencement of operations on site, or within a specified time. It is the applicant's responsibility to ensure that such details are submitted. The County Council may consider it appropriate to carry out consultations and other procedures prior to giving a formal decision on these matters and it is unlikely that this will take less than 4 weeks. The above information should be taken into account when programming the implementation of the permission. **Any development that takes place in breach of such conditions is likely to be regarded as unlawful** and may ultimately result in the permission becoming incapable of being legally implemented. It is therefore strongly recommended that the required details be submitted to this Authority in good time so that they can be considered and approved at the appropriate time.
2. You are advised that all other conditions imposed on planning permission SW/10/444 remain in effect.

Dated this Twenty first day of April 2015

(Signed)..........
Head of Planning Applications Group

KENT COUNTY COUNCIL
PLANNING APPLICATIONS GROUP
FIRST FLOOR, INVICTA HOUSE
COUNTY HALL
MAIDSTONE
KENT ME14 1XX

TOWN AND COUNTRY PLANNING ACT 1990

NOTIFICATION TO BE SENT TO AN APPLICANT WHEN A LOCAL PLANNING AUTHORITY REFUSE PLANNING PERMISSION OR GRANT IT SUBJECT TO CONDITIONS

- This permission is confined to permission under the Town and Country Planning Act 1990, the Town and Country Planning (Development Management Procedure) (England) Order 2010 (as amended) and the Town and Country Planning (Applications) Regulations 1988 and does not prevent the need to comply with any other enactment, by-law, or other provision whatsoever or of obtaining from the appropriate authority or authorities any permission, consent, approval or authorisation which may be required.

Appeals to the Secretary of State

- If you want to appeal against your local planning authority's decision then you must do so within 6 months of the date of this notice.
- Appeals must be made using a form which you can obtain from the Secretary of State at Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6PN (Tel: 0303 444 5000) or online at www.planningportal.gov.uk/pcs.
- The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.



Wheelabrator Technologies and DS Smith
PLC
C/o Mr Andrew Stevenson
RPS Planning & Development
Suite D10
Josephs Well
Hanover Walk
Leeds
West Yorkshire
LS3 1AB

Planning Applications Group
First Floor, Invicta House
County Hall
Maidstone
Kent ME14 1XX
Tel: 03000 411200

Website: www.kent.gov.uk/planning
Email: planning.applications@kent.gov.uk
Direct Dial/Ext: 03000 413350
Text relay: 18001 03000 417171
Ask for: Mr Mike Clifton
Your ref:
Our ref: SW/10/444/RA
Date: 18 December 2015

**TOWN AND COUNTRY PLANNING ACT 1990 (as amended)
PLANNING ACT 2008**

Dear Mr Stevenson

APPLICATION NO: SW/10/444/RA

PROPOSAL: Non material amendment to building footprint and elevation and site layout as shown on amended plans

LOCATION: Land at Kemsley Paper Mill, Kemsley, Sittingbourne, Kent, ME10 2TD

The County Council as County Planning Authority has now considered the amended details submitted in respect of the above proposal.

The Authority hereby approves the application for a non-material amendment dated 19 November 2015 as set out in the letter from RPS dated 19 November 2015 with accompanying drawing numbers:

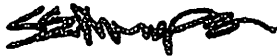
- Figure 4.1B – Permitted Site Location
- Figure 4.3B – Proposed Site Layout
- Figure 4.4B – South East Elevation
- Figure 4.5B – North East Elevation
- Figure 4.6B – South West Elevation
- Figure 4.7B – North West Elevation
- Figure 4.12B – Site Layout & Access
- Figure 4.13B – Proposed Structure for Air Cooled Condenser Elevations
- Figure 4.18B – Proposed Structure for Fire Water Supply Elevation
- Figure 4.20B – Proposed Gatehouse Floor Plan and Elevation
- Figure 4.21B - Landscape Masterplan
- Figure 4.22B – Boundary Treatment
- Figure 4.34B – Illustrative Visualisation 1 of 7
- Figure 4.35B – Illustrative Visualisation 2 of 7

- Figure 4.36B – Illustrative Visualisation 3 of 7
- Figure 4.37B – Illustrative Visualisation 4 of 7
- Figure 4.38B – Illustrative Visualisation 5 of 7
- Figure 4.39B – Illustrative Visualisation 6 of 7
- Figure 4.40B – Illustrative Visualisation 7 of 7

to allow for revisions to the building footprint and elevation and site layout as a formal amendment pursuant to condition (2) of the details previously approved on 2 September 2013 under the consent reference SW/10/444/R.

In addition you are advised that all other conditions imposed under planning permission SW/10/444 remain in effect and that those details previously approved pursuant to that permission shall be complied with unless superseded by the details hereby approved.

Yours faithfully



Head of Planning Applications Group



DS Smith & EEW (UK)
C/o RPS Planning & Development
34 Lisbon Street
Leeds
LS1 4LX

Planning Applications Group

First Floor, Invicta House
County Hall
Maidstone
Kent ME14 1XX
Fax: 01622 221072
Tel: 08458 247303

Website: www.kent.gov.uk/planning

Email: planning.applications@kent.gov.uk

Direct Dial/Ext: 01622 221054

Textbox: 08458 247905 (hearing impaired)

Ask for: Mr Mike Clifton

Your ref:

Our ref: PAG/SW/10/444/RVAR

Date: 23 September 2013

Dear Sir/Madam

PROPOSAL: SW/10/444/R6,10,11,12,13,14 &20 DETAILS PURSUANT TO CONDITIONS 6 (RAIL STRATEGY), 10 (CONTAMINATION RISK), 11 (BUFFER MANAGEMENT ZONE), 12 (ENVIRONMENTAL MANAGEMENT PLAN), 13 (ARCHAEOLOGY), 14 (LANDSCAPING) AND 20 (DETAILS OF THE WASTE BUNKER) OF PLANNING PERMISSION SW/10/444. LAND AT KEMSLEY PAPER MILL, KEMSLEY, SITTINGBOURNE, KENT, ME10 2TD

The County Council as County Planning Authority has now considered details pursuant to conditions 6 (Rail Strategy), 10 (Contamination Risk), 11 (Buffer Management Zone), 12 (Environmental Management Plan), 13 (Archaeology), 14 (Landscaping) and 20 (Details of the Waste Bunker) of planning permission reference SW/10/444, granted on 6 March 2012.

The Authority hereby approves the details set out in RPS letter dated 5 August 2013, received with accompanying Planning Statements entitled 'Application for Approval of Details Reserved by Condition' and 'Scheme for Discharge of Condition 10' dated July 2013, as amended by drawing number 16315/A1/4.21A Rev E received with accompanying RPS letter dated 17 September 2013 and as further amended by drawing number 16315/A1/4.21A Rev F entitled '*Landscape Masterplan*' as satisfying the requirements of the aforementioned conditions (6), (10), (11), (12), (13), (14) & (20).

In addition, please be advised of the following informative(s):

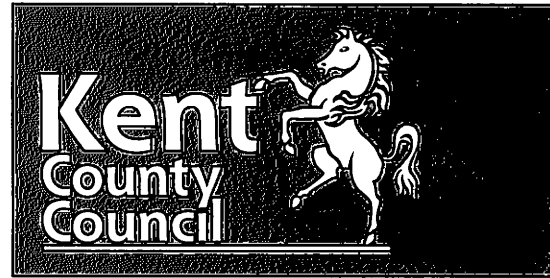
1. Please also be advised that all other conditions attached to permission reference SW/10/444 remain unchanged by this notice.
2. Please note the expiry date on your decision notice, along with all other conditions imposed. You are advised any conditions which require you to formally submit further details to the County Planning Authority for approval may be required to be formally discharged **prior** to commencement of operations on site, or within a specified time. It is your responsibility to ensure that such details are submitted. **Failure to do so may mean that any development carried out is unlawful** and which may ultimately result in the permission becoming incapable of being legally implemented. It is therefore strongly recommended that the required details be submitted to this Authority in good time so that

they can be considered and approved at the appropriate time. **Note that from 21st November 2012 submission of details pursuant to conditions attracts an application fee of £97**

Yours faithfully



Sharon Thompson
Head of Planning Applications Group



CC1 (Detailed)

Reference Code
of Application: SW/12/1001

KENT COUNTY COUNCIL

**TOWN AND COUNTRY PLANNING ACTS
TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE)
(ENGLAND) ORDER 2010**

Notification of Grant of Permission to Develop Land

To: DS Smith PLC & E.ON Energy from Waste Ltd
C/o RPS
3rd Floor
34 Lisbon Street
Leeds
LS1 4LX

TAKE NOTICE that the KENT COUNTY COUNCIL, the County Planning Authority under the Town and Country Planning Acts, HAS GRANTED PERMISSION for development of land situated at Kemsley Paper Mill, Kemsley, Sittingbourne, Kent and being the formation of improved access road and associated development to serve Kemsley Sustainable Energy Plant referred to in your application for permission for development dated the twentieth day of June 2012, with the letter from RPS dated 20 June 2012, 'Planning Application Supporting Statement' dated June 2012 (Ref: DLE2410) together with additional supporting information as set out in the e mail from Jonathan Standen sent on 19 September 2012, with attached 'Reptile Survey Report' dated 5 September 2012 (Ref: JPP1804) and 'Flood Risk Assessment' (Ref: JER5440), SUBJECT TO THE CONDITIONS SPECIFIED hereunder:-

- (1) The development to which this permission relates shall be commenced not later than the expiration of 5 years commencing with the date of this permission.

Reason: To comply with Section 91 of the Town and Country Planning Act 1990 (as amended).

- (2) The development to which this permission relates shall be carried out strictly in accordance with the details submitted with the application together with those further approved details required to be submitted for approval by the County Planning Authority.

Reason: For the avoidance of doubt and to maintain control over the development.

- (3) During construction provision shall be made on the site, to the satisfaction of the Local Planning Authority, to accommodate operative's and construction vehicles loading, off-loading or turning on the site.

Reason: In the interest of highway safety.

- (4) Prior to the works commencing on site details of parking for site personnel / operatives / visitors shall be submitted to and approved by the County Planning Authority and thereafter shall be provided and retained throughout the construction of the development.

Reason: In the interest of highway safety.

- (5) As an initial operation on site, precautions shall be taken during the progress of the works to guard against the deposit of mud and similar substances on the public highway in accordance with proposals to be submitted to and approved by the County Planning Authority. Such proposals shall include washing facilities by which vehicles have their wheels, chassis and bodywork cleaned and washed free of mud and similar substances.

Reason: In the interest of highway safety.

- (6) Surface water run-off from the site shall be restricted to a maximum of 5 litres/second, with on-site storage provided for the 1 in 100 year event (+CC).

Reason: In order to ensure that the development is consistent with the objectives of the National Planning Policy Framework (NPPF) and to ensure that surface and ground water resource interests are protected pursuant to policy W19 of the Kent Waste Local Plan 1998.

- (7) Prior to the commencement of the development details of a management and maintenance plan of the drainage system shall be submitted to and approved by the County Planning Authority and thereafter shall be implemented as approved.

Reason: In order to ensure that the development is consistent with the objectives of the NPPF and to ensure that surface and ground water resource interests are protected pursuant to policy W19 of the Kent Waste Local Plan 1998.

- (8) Prior to the commencement of the development a scheme for the provision and management of a buffer zone alongside and including the ditch within and to the east of the application area as shown on Figure 4 Rev C of the planning application supporting statement, shall be submitted to and approved in writing by the County Planning Authority. The scheme shall provide for a strategy to improve the ditch and associated banking for water vole. Thereafter the development shall be carried out in accordance with the approved scheme subject to any written variation as approved by the County Planning Authority. The scheme shall include the following:

- (a) Plans showing the extent and layout of the buffer zone.
- (b) Details demonstrating how the buffer zone will be protected during construction of the development and managed/maintained over the longer term.
- (c) The strategy shall include provision for an updated water vole survey to be carried out prior to works commencing.

Reason: In order to conserve and enhance biodiversity interests consistent with the objectives set out in the NPPF and policy W21 of the Kent Waste Local Plan.

Town and Country Planning (Development Management Procedure) (England) Order 2010

This application has been determined in accordance with the Town and Country Planning Acts, and in the context of the Government's current planning policy guidance and the relevant Circulars, together with the relevant Development Plan policies, including those referred to under the specific conditions above.

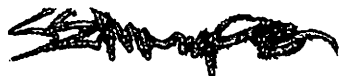
The summary of reasons for granting approval is as follows:-

The County Council is of the opinion that the proposed development gives rise to no material harm, is in accordance with the development plan and that there are no material considerations that indicate that the decision should be made otherwise. The County Council also considers that any harm as a result of the proposed development would reasonably be mitigated by the imposition of the attached conditions.

In addition please be advised of the following informative:

Please note the expiry date on your decision notice, along with all other conditions imposed. You are advised any conditions which require you to formally submit further details to the County Planning Authority for approval may be required to be formally discharged **prior** to commencement of operations on site, or within a specified time. It is your responsibility to ensure that such details are submitted. **Failure to do so may mean that any development carried out is unlawful** and which may ultimately result in the permission becoming incapable of being legally implemented. It is therefore strongly recommended that the required details be submitted to this Authority in good time so that they can be considered and approved at the appropriate time. **Note that from 6th May 2008 each submission of details pursuant to conditions attracts an application fee of £85**

Dated this fifth day of November 2012



(Signed).....
Head of Planning Applications Group
H.H

INVICTA HOUSE
COUNTY HALL
MAIDSTONE
KENT ME14 1XX

TOWN AND COUNTRY PLANNING ACT 1990

NOTIFICATION TO BE SENT TO AN APPLICANT WHEN THE COUNTY COUNCIL REFUSES PLANNING PERMISSION OR GRANTS IT SUBJECT TO CONDITIONS

- This permission is confined to permission under the Town and Country Planning Act 1990, the Town and Country Planning (Development Management Procedure) (England) Order 2010, and the Town and Country Planning (Applications) Regulations 1988 and does not obviate the necessity of compliance with any other enactment, by-law, or other provision whatsoever or of obtaining from the appropriate authority or authorities any permission, consent, approval or authorisation which may be requisite.
- Section 53 of the County of Kent Act 1981 (access for Fire Fighting Purposes) will apply to this permission if it relates to building works, and will be considered when plans are deposited with the appropriate authority for approvals under the Buildings Regulations 1995.
- If the applicant is aggrieved by the decision of the County Planning Authority to refuse permission for the proposed development or to grant permission or approval subject to conditions, he may appeal to the Secretary of State for the Environment, in accordance with Section 78(1) of the Town and Country Planning Act 1990. If he wants to appeal then he must do so within six months of the date of this notice using a form which is obtainable from the Secretary of State at The Planning Inspectorate, Room 315A, Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN – Tel: 0117 372 6372; or online at www.planningportal.gov.uk/pcs The Secretary of State can allow a longer period for giving notice of an appeal, but will not normally be prepared to exercise this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to the Secretary of State that the County Planning Authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.
- In practice, the Secretary of State does not refuse to consider appeals solely because the County Planning Authority based their decision on a direction given by the Secretary of State.
- If permission to develop land is refused or granted subject to conditions, whether by the County Planning Authority or by the Secretary of State for the Environment, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor can he render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted. In these circumstances he may serve on the Council of the county district in which the land is situated, a purchase notice requiring that Council to purchase his interest in the land in accordance with the provisions of Chapter 1 of Part VI of the Town and Country Planning Act 1990.
- In certain circumstances, compensation may be claimed from the County Planning Authority if permission is refused or granted subject to conditions by the Secretary of State on appeal or on reference of the application to him. The circumstances in which such compensation is payable are set out in Section 114 and related provisions of the Town and Country Planning Act 1990.
- Where this decision relates to development which has been the subject of Environmental Impact Assessment the validity of the Council's decision may be challenged by making an application to the High Court within three months from the date of this decision. If you require further advice on making any High Court challenge, or making an application for Judicial Review, you should consult a solicitor or other advisor, or contact the Crown Office at the following address: Administrative Court at the Royal Courts of Justice, Queen's Bench Division, Strand, London, WC2 2LL – Tel: 020 7947 6655; or online at www.courtservice.gov.uk



D S Smith & EEW (UK)
c/o RPS planning & Development
3rd Floor
34 Lisbon Street
Leeds
West Yorkshire
LS1 4LX

For the attention of Mr J Standen

Planning Applications Group

First Floor, Invicta House
County Hall
Maidstone
Kent ME14 1XX
Fax: 01622 221072
Tel: 08458 247303

Website: www.kent.gov.uk/planning

Email: planning.applications@kent.gov.uk

Direct Dial/Ext: 01622 221054

Textbox: 08458 247905 (hearing impaired)

Ask for: Mike Clifton

Your ref:

Our ref: PAG/SW/12/1001

Date: 29 August 2013

Dear Sir

APPLICATION NO: SW/12/1001

PROPOSAL: Application for a non-material amendment to provide for the repositioning and change to the capacity of the pond to accommodate surface water drainage from the access road

LOCATION: Sustainable Energy Plant, Kemsley Paper Mill, Sittingbourne, Kent,

The County Council as County Planning Authority has now considered the amended details submitted by you in respect of the above proposal.

The Authority hereby approves the non-material amendment details dated 25 July 2013 and received on 26 July 2013 with accompanying Surface Water Drainage Design Statement (Ref: IBH0370) and accompanying drawing numbers:

Figure 3 C – Planning Boundary and proposed Layout

Figure 4 E – Proposed Internal Layout and Section

Figure 5 C – Drainage Layout

to allow for the repositioning and size of the drainage pond as a formal amendment pursuant to condition (2) as previously approved under the consent reference SW/12/1001 granted on 5 November 2012.

In addition please be advised of the following informative:

You are advised that all other conditions imposed under planning permission SW/12/1001 remain in effect and that those details previously approved pursuant to that permission shall be complied with unless superseded by the details hereby approved.

As part of the Council's commitment to equalities if you have any concerns or issues with regard to access to this information please contact us for assistance.

Yours faithfully

A handwritten signature in black ink, appearing to be 'S. M. P.' or similar, written in a cursive style.

Head of Planning Applications Group



RPS Planning & Development
3rd Floor
34 Lisbon Street
Leeds
LS1 4LX

Fao: Mr J Standen

Planning Applications Group

First Floor, Invicta House
County Hall
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Fax: 01622 221072
Tel: 08458 247303

Website: www.kent.gov.uk/planning
Email: planning.applications@kent.gov.uk
Direct Dial/Ext: 01622 221058
Textbox: 08458 247905 (hearing impaired)
Ask for: Mr Harry Burchill
Your ref:
Our ref: SW/13/1257
Date: 4 February 2014

TOWN AND COUNTRY PLANNING ACT 1990

Dear Sir/Madam

APPLICATION: SW/13/1257

PROPOSAL: Variation of condition 6 to provide the formation of improved access road and associated development to serve Kemsley sustainable Energy Plant (SW/12/1001)

LOCATION: Kemsley Paper Mill, Kemsley, Sittingbourne, Kent, ME10 2TD

The above mentioned planning application received for the formal observations of the County Council, as County Planning Authority has now received consideration.

I write to inform you that the County Planning Authority resolved that planning permission be granted as set out in the attached formal notification.

Please note the conditions imposed and the informative as described.

Yours faithfully

Sharon Thompson
Head of Planning Applications Group

KENT COUNTY COUNCIL

**TOWN AND COUNTRY PLANNING ACTS
TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE)
(ENGLAND) ORDER 2010 (as amended)**

NOTIFICATION OF GRANT OF PERMISSION TO DEVELOP LAND

To: DS Smith & EEW (UK) Ltd
c/o RPS Planning & Development Ltd
3rd Floor
34 Lisbon Street
Leeds
LS1 4LX

TAKE NOTICE that the KENT COUNTY COUNCIL, the County Planning Authority under the Town and Country Planning Act, HAS GRANTED PERMISSION for development of land situated at Kemsley Paper Mill, Kemsley, Sittingbourne, Kent, ME10 2TD and being the variation of condition 6 to provide the formation of improved access road and associated development to serve Kemsley sustainable Energy Plant (SW/12/1001), referred to within the application for permission for development dated 16 September 2013, received on 19 September 2013, as amplified and amended by details referred to in the attached schedule, SUBJECT TO THE CONDITIONS SPECIFIED hereunder:

1. The development to which this permission relates shall be begun not later than the expiration of 3 years beginning with the date of this permission. [Written notification of the actual date of commencement shall be sent to the County Planning Authority within 7 days of such commencement].

Reason: To comply with Section 91 of the Town and Country Planning Act 1990 (as amended).

2. The development hereby permitted shall be carried out and completed in all respects strictly in accordance with the submitted details, documents and plans submitted with application SW/12/1001, SW/12/1001/R and approved pursuant to the subsequent conditions approved under SW/12/1001/RVAR.

Reason: For the avoidance of doubt and to maintain planning control over the development

3. During construction provision shall be made on the site, to the satisfaction of the Local Planning Authority, to accommodate operatives and construction vehicles loading, off-loading or turning on site.

Reason: In the interest of highway safety

4. Details of parking for site personnel/operatives/visitors submitted and approved under application SW/12/1001/RVAR shall be implemented and maintained throughout the construction of the development.

Reason: In the interests of highway safety

5. The scheme to guard against the deposit of mud and debris on the highway approved under SW/12/1001/RVAR shall be implemented in accordance with the approved details.

Reason: In the interests of highway safety

6. There shall be on site storage provided for a 1 in 100 year event +CC. The drainage channel into which the permitted site drains shall be maintained in accordance with the details set out within table 1 of the approved Drainage Management and Maintenance plan (September 2013).

Reason: In order to ensure the development is consistent with the objectives of the National Planning Policy Framework (NPPF) and to ensure that surface and groundwater resource interests are protected pursuant to policy W19 of the Kent Waste Local Plan 1998.

7. The Drainage system shall be implemented as per details approved under application SW/12/1001/RVAR

Reason: In order to ensure the development is consistent with the objectives of the National Planning Policy Framework (NPPF) and to ensure that surface and groundwater resource interests are protected pursuant to policy W19 of the Kent Waste Local Plan 1998.

8. The Scheme for the provision of a buffer zone submitted under SW/12/1001/RVAR shall be carried out in accordance with the approved details.

In order to conserve and enhance the biodiversity interests consistent with the objectives set out in the NPPF and policy W21 of the Kent Waste Local Plan.

Town and Country Planning (Development Management Procedure) (England) Order 2010 (as amended)

This application has been determined in accordance with the Town and Country Planning Acts, and in the context of the Government's current planning policy and associated guidance and the relevant Circulars, together with the relevant Development Plan policies, including those referred to under the specific conditions above.

Where necessary the planning authority has engaged with the applicant to address and resolve issues arising during the processing and determination of this planning application, in order to deliver sustainable development, to ensure that the details of the proposed development are acceptable and that any potential impacts can be satisfactorily mitigated.

The summary of reasons for granting approval is as follows:-

The County Council is of the opinion that the proposed development gives rise to no material harm, is in accordance with the development plan and that there are no material considerations that indicate that the decision should be made otherwise. The County Council also considers that any harm as a result of the proposed development would reasonably be mitigated by the imposition of the attached conditions.

In addition please be advised of the following informative:

1. Please note the expiry date on your decision notice, along with all other conditions imposed. You are advised any conditions which require you to submit further details to the County Planning Authority for approval may need to be formally discharged **prior** to commencement of operations on site, or within a specified time. It is the applicant's responsibility to ensure that such details are submitted. The County Council may consider it appropriate to carry out consultations and other procedures prior to giving a formal decision on these matters and it is unlikely that this will take less than 4 weeks. The above information should be taken into account when programming the implementation of the permission. **Any development that takes place in breach of such conditions is likely to be regarded as unlawful** and may ultimately result in the permission becoming incapable of being legally implemented. It is therefore strongly recommended that the required details be submitted to this Authority in good time so that they can be considered and approved at the appropriate time.

Dated this Fourth day of February 2014

(Signed) 
Head of Planning Applications Group

KENT COUNTY COUNCIL
PLANNING APPLICATIONS GROUP
FIRST FLOOR, INVICTA HOUSE
COUNTY HALL
MAIDSTONE
KENT ME14 1XX

Schedule 1

Schedule of Documents Permitted Under Planning Permission: SW/13/1257

Document Title / Description / Reference / Author	Received/Dated
<p>Application for Planning Permission (Town and Country Planning Act 1990)</p> <p>Planning Application Supporting Statement dated (Ref: DLE2410)</p> <p>Email from Jonathan Standen 19 September 2012 with attached "Reptile Survey Report" (Ref: JPP1804)</p> <p>Flood Risk Assessment (Ref: JER6045)</p> <p>As amended and/or amplified by:</p> <p>Letter from RPS</p> <p>Letter from Jonathan Standen dated 16 September 2013 (Ref OXF7883)</p> <p>Email from Jonathan Standen to Harry Burchill sent 10 December 2013 11:09</p>	<p>Dated June 2012</p> <p>Dated 5 September 2012</p> <p>Received 19 September 2013</p> <p>dated 20 June 2012</p> <p>Received 19 September 2013</p>

TOWN AND COUNTRY PLANNING ACT 1990

NOTIFICATION TO BE SENT TO AN APPLICANT WHEN A LOCAL PLANNING AUTHORITY REFUSE PLANNING PERMISSION OR GRANT IT SUBJECT TO CONDITIONS

- This permission is confined to permission under the Town and Country Planning Act 1990, the Town and Country Planning (Development Management Procedure) (England) Order 2010 and the Town and Country Planning (Applications) Regulations 1988 and does not obviate the necessity of compliance with any other enactment, by-law, or other provision whatsoever or of obtaining from the appropriate authority or authorities any permission, consent, approval or authorisation which may be requisite.

Appeals to the Secretary of State

- If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990.
- Appeals must be made using a form which you can get from the Secretary of State at Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6PN (Tel: 0303 444 5000) or online at www.planningportal.gov.uk/pcs.
- The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.



D S Smith & EEW (UK)
c/o RPS Planning & Development
34 Lisbon Street
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For the attention of Mr J Standen

Planning Applications Group
First Floor, Invicta House
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Fax: 01622 221072
Tel: 08458 247303

Website: www.kent.gov.uk/planning
Email: planning.applications@kent.gov.uk
Direct Dial/Ext: 01622 221054
Textbox: 08458 247905 (hearing impaired)
Ask for: Mr Mike Clifton
Your ref:
Our ref: PAG/SW/12/1001/RVAR
Date: 5 February 2014

Dear Sir/Madam

PROPOSAL: SW/12/1001/R4, 5, 7 & 8 DETAILS PURSUANT TO CONDITIONS 4 (PARKING DURING CONSTRUCTION), 5 (SCHEME TO GUARD AGAINST THE DEPOSIT OF MUD), 7 (MANAGEMENT AND MAINTENANCE PLAN FOR THE DRAINAGE SYSTEM AND 8 (SCHEME FOR THE PROVISION OF A BUFFER MANAGEMENT ZONE FOR THE DITCH) OF PLANNING PERMISSION SW/12/1001. LAND AT KEMSLEY PAPER MILL, KEMSLEY, SITTINGBOURNE, KENT ME10 2TD

The County Council as County Planning Authority has now considered details pursuant to conditions 4 (parking during construction), 5 (scheme to guard against the deposit of mud), 7 (management and maintenance plan for the drainage system and 8 (scheme for the provision of a buffer management zone for the ditch) of planning permission reference SW/12/1001, granted on 5 November 2012.

The Authority hereby approves the details set out in RPS letter dated 25 July 2013 and received with accompanying supporting statement (set out as an annex to the letter dated 25 July 2013), as further amplified by 'Drainage Management and Maintenance Plan' (dated September 2013), 'Flood Risk Assessment' (ref JER6045) and 'Surface water Drainage Design Statement' (dated September 2013) received with RPS email of 16 September 2013 as satisfying the requirements of the aforementioned conditions (4), (5), (7) & (8).

In addition, please be advised of the following informatives:

1. Please also be advised that all other conditions attached to permission reference SW/12/1001 remain unchanged by this notice.
2. Please note the expiry date on your decision notice, along with all other conditions imposed. You are advised any conditions which require you to formally submit further details to the County Planning Authority for approval may be required to be formally discharged **prior** to commencement of operations on site, or within a specified time. It is your responsibility to ensure that such details are submitted. **Failure to do so may mean that any development carried out is unlawful** and which may ultimately result in the permission becoming incapable of being legally implemented. It is therefore strongly recommended that the required details be submitted to this Authority in good time so that they can be considered and approved at the appropriate time.

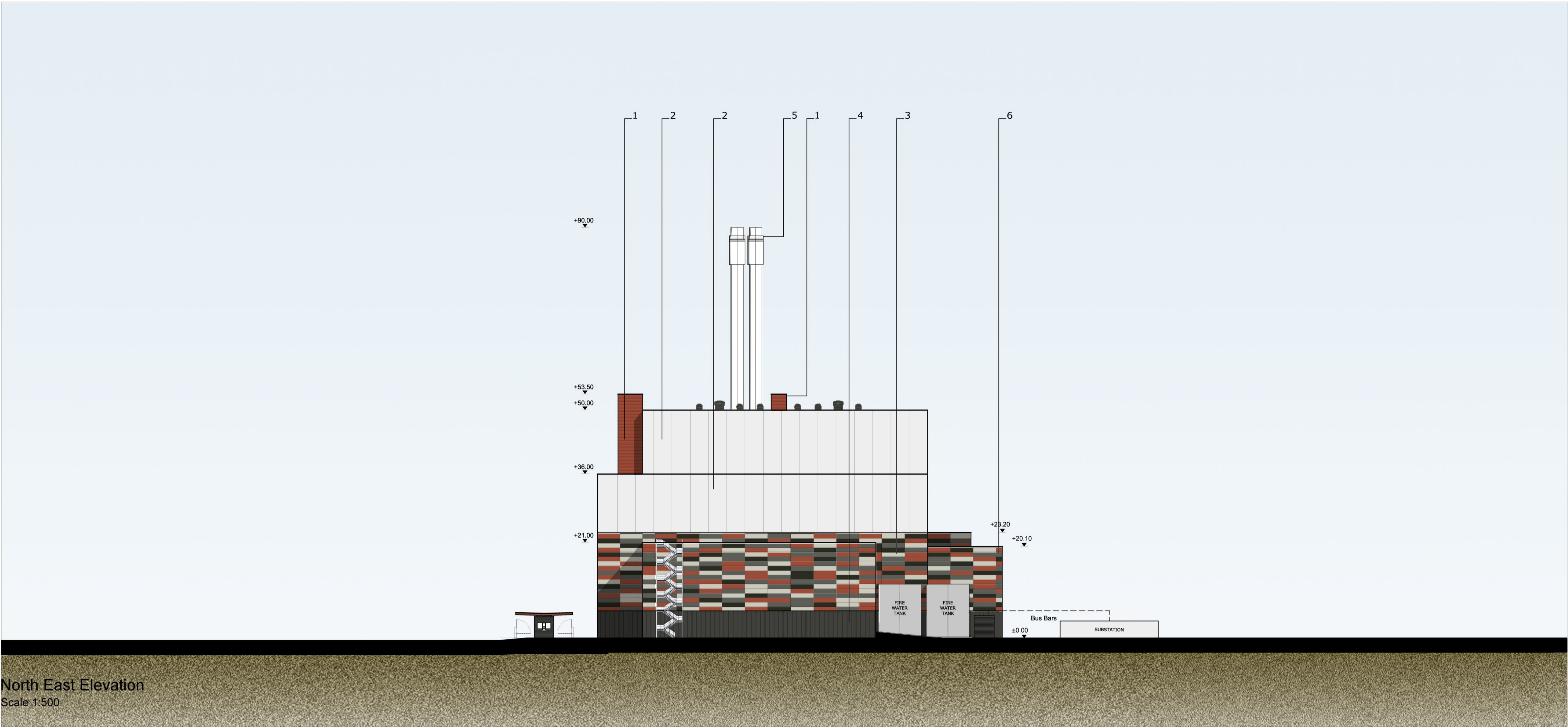
Note that from 21st November 2012 submission of details pursuant to conditions attracts an application fee of £97

Yours faithfully

A handwritten signature in black ink, appearing to read 'S. M. P.', is written over the printed name.

Head of Planning Applications Group

APPENDIX 2: ELEVATIONS AND VISUALISATIONS OF GENERATING STATION



North East Elevation
Scale 1:500

notes :

1. If this drawing has been received electronically it is the recipients responsibility to print the document to the correct scale.
2. All dimensions are in millimetres unless stated otherwise. It is recommended that information is not scaled off this drawing.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.
4. Information based on drawing reference: 15015 F0006.

10m SCALE 1:500

10m SCALE 1:1000

Key:

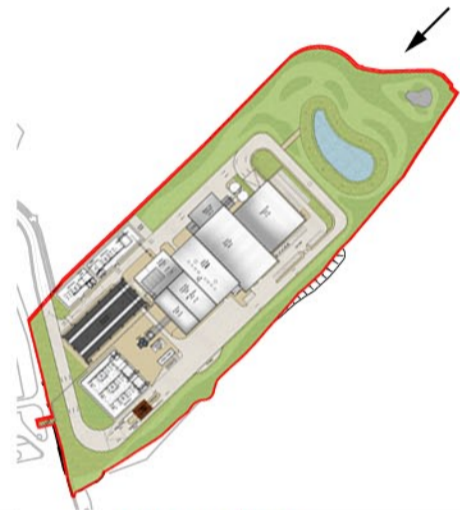
1. Horizontally laid Sinusoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Terracotta' (matt finish) / RAL 040 40 40
2. Vertically laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Albatross' / RAL 240 80 05
3. Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
4. Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016
5. Stack - Colour 'Light Grey' / RAL 7035
6. Horizontally laid Flat profile cladding sheet with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002

All Doors and Louvres to match adjacent cladding colour

Polyester powder coated aluminium window frames and Brise Soleil - Colour 'Anthracite' (matt finish) / RAL 7016

Metal external handrails and plant support - Colour 'Anthracite' (matt finish) / RAL 7016 (with contrasting elements to comply with building regulations)

Paladin fencing and gates - Colour 'Anthracite' (matt finish) / RAL 7016



Drawing for PLANNING purposes only

L	Updated to suit current site layout received from EPC contractor	MK	JAT	17.11.15
K	Updated as per client comments 26.10.15.	MK	JAT	28.10.15
J	Updated to suit current building layout received from EPC contractor	DEC	JAT	20.10.15
H	Logo's updated.	LMA	ST	02.08.13
G	Elevations updated. Logo's updated.	AJL	RS	10.07.13
F	Elevation information, title block and key updated.	JAT	SG	08.10.12
E	E.ON logo added. Building extents confirmed.	KRy	PRP	15.02.10
D	Stack colour reference amended. Crane area material changed to concrete. UMA extents confirmed.	AJL	PRP	18.01.10
C	Key updated, Brise Soleil added. Other minor amendments to drawing.	SMG	PRP	17.12.09
B	Elevation altered to show UEB.	AJL	PRP	23.11.09
A	Key added. Keyplan Updated. Building Elements Labelled.	AJL	PRP	19.11.09

rev	amendments	by	ckd	date
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W www.rpsgroup.com
E rpsnewark@rpsgroup.com



Project Kemsley Sustainable Energy Plant

Title North East Elevation

Drawing Status Preliminary	Date Created 11.11.09	Drawing Scale 1:500
Project Leader AWY	Drawn By SMG	Initial Review RS

Drawing Number 16315 / A1 / P / 0111 L

FIGURE 4.5B

notes :

1. If this drawing has been received electronically it is the recipients responsibility to print the document to the correct scale.
2. All dimensions are in millimetres unless stated otherwise. It is recommended that information is not scaled off this drawing.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.
4. Information based on drawing reference: 15015 F003.

10m SCALE 1:500

10m SCALE 1:1000

Key:

1. Horizontally laid Sinusoidal profile insulated cladding panel with Colorcoat HPS2008 Ultra coating - Colour 'Terracotta' (matt finish) / RAL 040 40 40
2. Vertically laid Flat profile insulated cladding panel with Colorcoat HPS2008 Ultra coating - Colour 'Albatross' / RAL 240 80 05
3. Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS2008 Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
4. Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS2008 Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016
5. Stack - Colour 'Light Grey' / RAL 7035
6. Horizontally laid Flat profile cladding sheet with Colorcoat HPS2008 Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002

All Doors and Louvres to match adjacent cladding colour

Polyester powder coated aluminium window frames and Brise Soleil - Colour 'Anthracite' (matt finish) / RAL 7016

Metal external handrails and plant support - Colour 'Anthracite' (matt finish) / RAL 7016 (with contrasting elements to comply with building regulations)

Paladin fencing and gates - Colour 'Anthracite' (matt finish) / RAL 7016



Drawing for **PLANNING** purposes only

L	Updated to suit current site layout receiver from EPC contractor.	MK	JAT	17.11.15
K	Updated as per client comments 26.10.15.	MK	JAT	28.10.15
J	Updated to suit current building layout received from EPC contractor	DEC	JAT	20.10.15
H	Logo's updated.	LMA	ST	02.08.13
G	Elevations updated. Logo's updated.	AJL	RS	10.07.13
F	Elevation information, title block and key updated.	JAT	SG	08.10.12
E	E.ON logo added. Building extents clarified.	KRy	PRP	15.02.10
D	Stack colour reference amended.	AJL	PRP	18.01.10
C	Key and notes updated and minor amendments to drawing.	SMG	PRP	17.12.09
B	Building levels information clarified. Keyplan Updated. Stack height confirmed.	AJL	PRP	25.11.09
A	Key added. Keyplan updated. Building elements labelled.	AJL	PRP	19.11.09

rev	amendments	by	ckd	date
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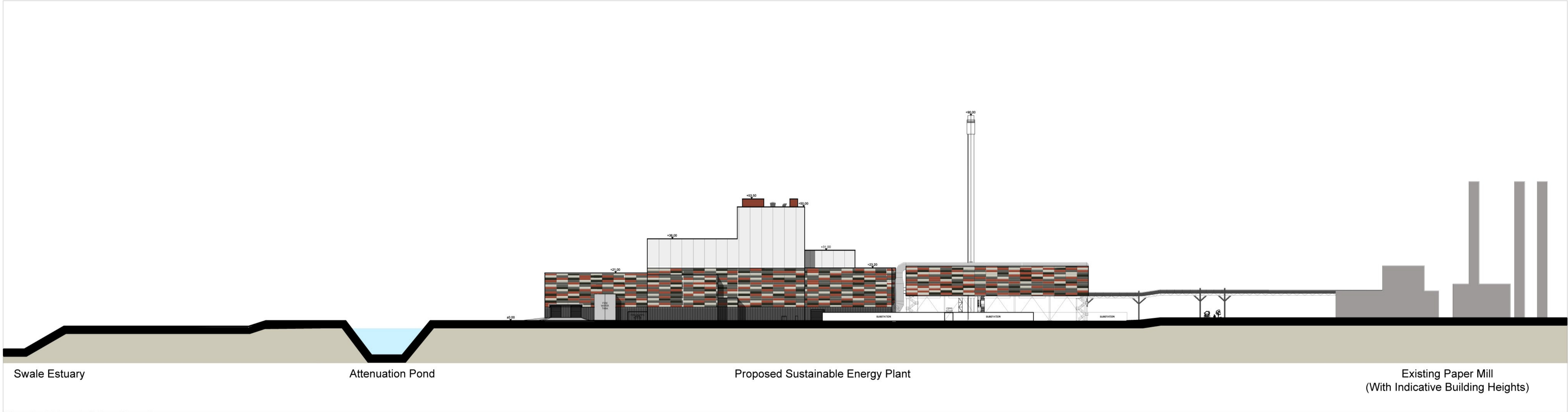
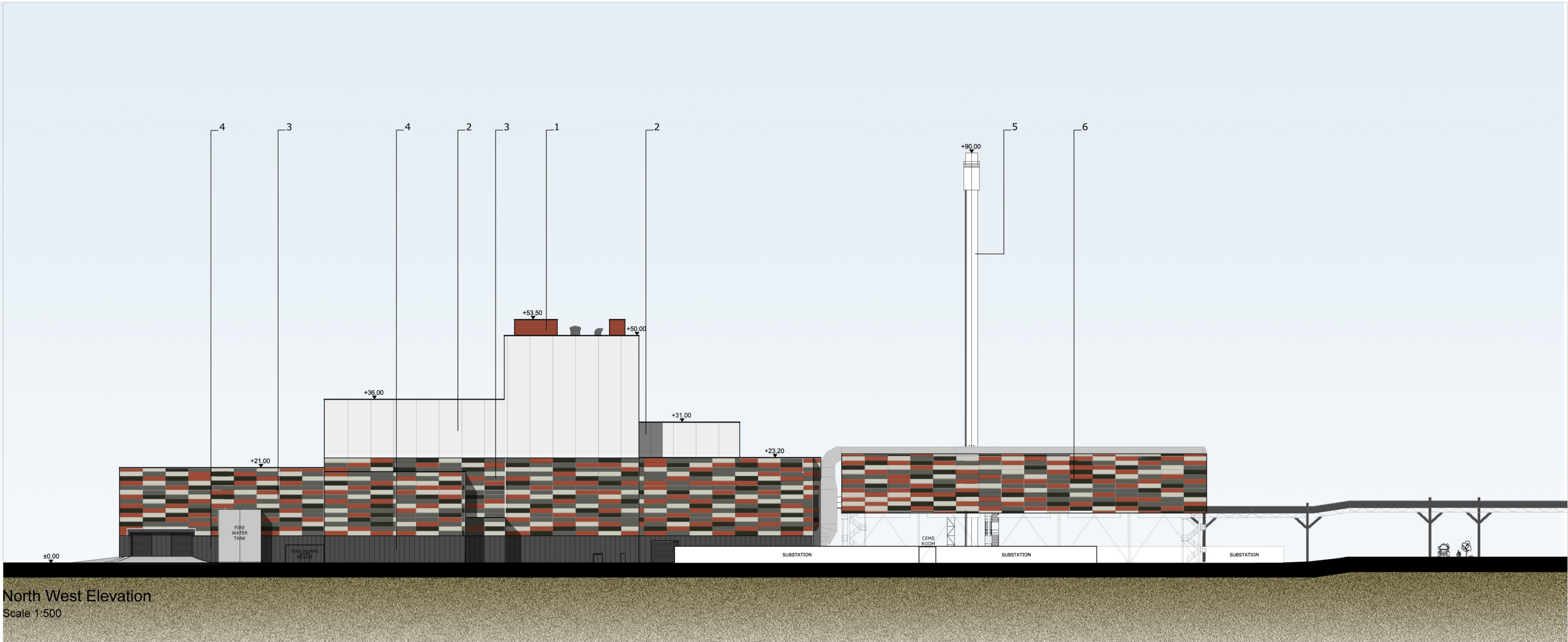
Project **Kemsley Sustainable Energy Plant**

Title **North West Elevation**

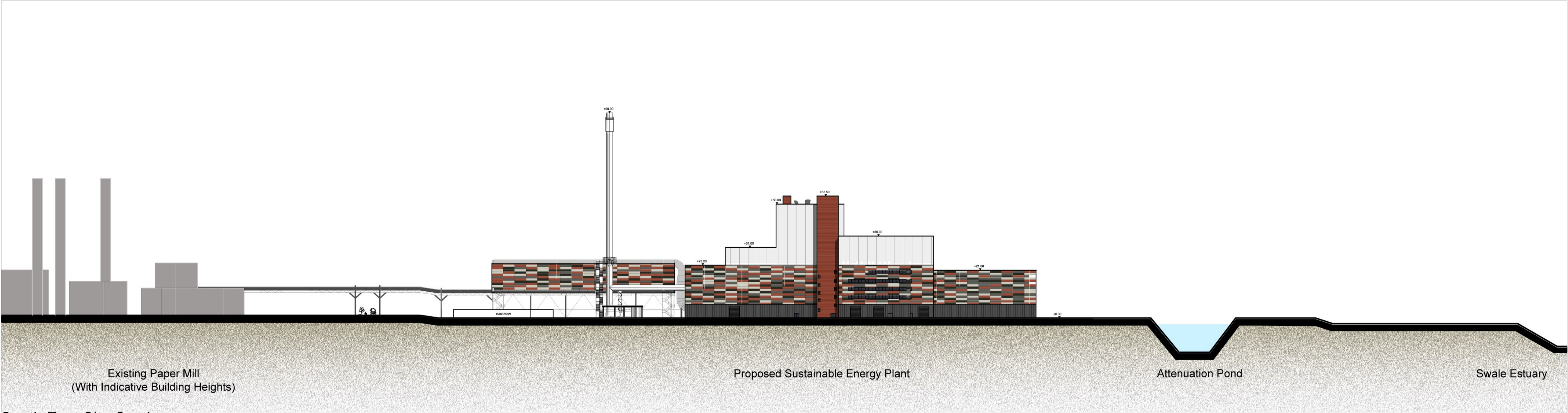
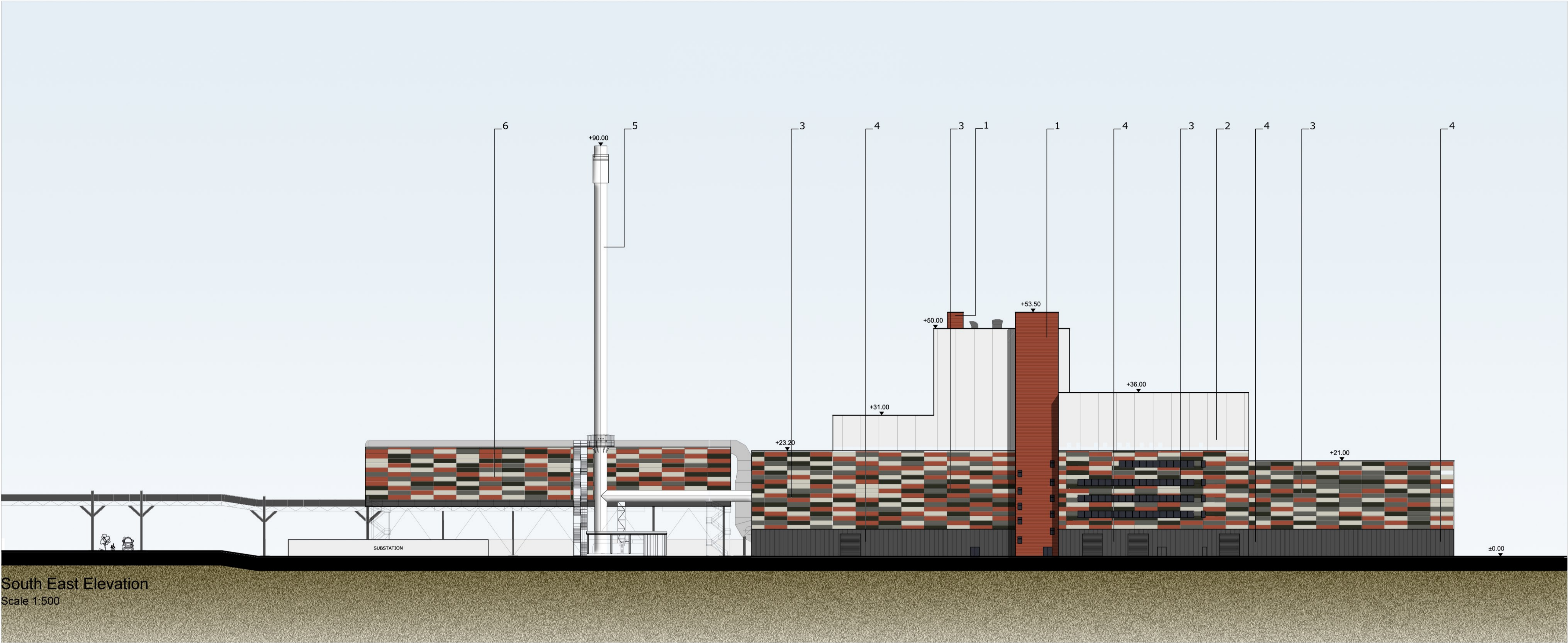
Drawing Status Preliminary	Date Created 11.11.09	Drawing Scale 1:500
Project Leader AWY	Drawn By SMG	Initial Review RS

Drawing Number **16315 / A1 / P / 0113 L** Rev

FIGURE 4.7B



North West Site Section
Scale 1:1000



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notes :

1. If this drawing has been received electronically it is the recipients responsibility to print the document to the correct scale.
2. All dimensions are in millimetres unless stated otherwise. It is recommended that information is not scaled off this drawing.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.
4. Information based on drawing reference: 15015 F005.

10m SCALE 1:500

10m SCALE 1:1000

Key:

1. Horizontally laid Sinusoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Terracotta' (matt finish) / RAL 040 40 40
2. Vertically laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Albatross' / RAL 240 80 05
3. Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating - 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
4. Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016
5. Stack - Colour 'Light Grey' / RAL 7035
6. Horizontally laid Flat profile cladding sheet with Colorcoat HPS200® Ultra coating - 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002

All Doors and Louvres to match adjacent cladding colour
Polyester powder coated aluminium window frames and Brise Soleil - Colour 'Anthracite' (matt finish) / RAL 7016
Metal external handrails and plant support - Colour 'Anthracite' (matt finish) / RAL 7016 (with contrasting elements to comply with building regulations)
Paladin fencing and gates - Colour 'Anthracite' (matt finish) / RAL 7016



Drawing for **PLANNING** purposes only

M	Updated to suit current site layout received from EPC contractor	MK	JAT	17.11.15
L	Updated as per client comments 26.10.15.	MK	JAT	28.10.15
K	Updated to suit current building layout received from EPC contractor	DEC	JAT	20.10.15
J	Logo's updated	LMA	ST	02.08.13
H	Elevations updated. Logo's updated.	AJL	RS	10.07.13
G	Elevation information, title block and key updated	JAT	SG	08.10.12
F	Logo confirmed	PRP	AJL	03.03.10
E	E.ON logo added.	KRy	PRP	15.02.10
D	Stack colour reference amended. Crane area material changed to concrete.	AJL	PRP	18.01.10
C	Key and notes updated and minor amendments to drawing.	SMG	PRP	16.12.09
B	Building levels information clarified. Keyplan Updated. Stack height confirmed.	AJL	PRP	25.11.09
A	Key added. Keyplan updated. Building elements labelled.	AJL	PRP	19.11.09

rev	amendments	by	ckd	date
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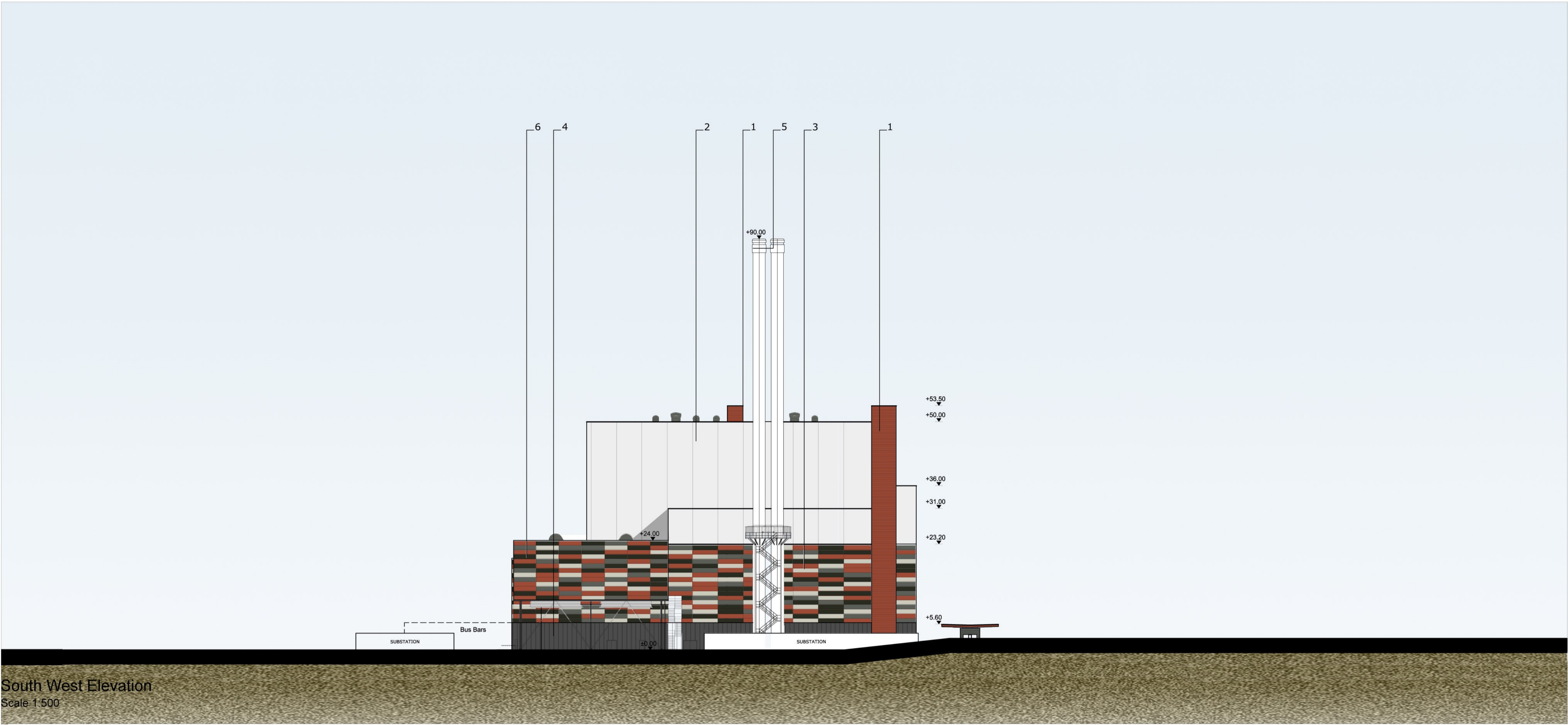
Project **Kemsley Sustainable Energy Plant**

Title **South East Elevation**

Drawing Status **Preliminary**
Date Created **11.11.09**
Project Leader **AWY**
Drawn By **SMG**
Drawing Scale **1:500**
Initial Review **RS**

Drawing Number **16315 / A1 / P / 0110 M**
Rev

FIGURE 4.4B



South West Elevation
Scale 1:500

notes :

1. If this drawing has been received electronically it is the recipients responsibility to print the document to the correct scale.
2. All dimensions are in millimetres unless stated otherwise. It is recommended that information is not scaled off this drawing.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.
4. Information based on drawing reference: 15015 F004.

10m SCALE 1:500

10m SCALE 1:1000

Key:

1. Horizontally laid Sinusoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Terracotta' (matt finish) / RAL 040 40 40
2. Vertically laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Albatross' / RAL 240 80 05
3. Horizontally laid Flat profile insulated cladding panel with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
4. Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016
5. Stack - Colour 'Light Grey' / RAL 7035
6. Horizontally laid Flat profile cladding sheet with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002

All Doors and Louvres to match adjacent cladding colour

Polyester powder coated aluminium window frames and Brise Soleil - Colour 'Anthracite' (matt finish) / RAL 7016

Metal external handrails and plant support - Colour 'Anthracite' (matt finish) / RAL 7016 (with contrasting elements to comply with building regulations)

Paladin fencing and gates - Colour 'Anthracite' (matt finish) / RAL 7016



Drawing for PLANNING purposes only

N	Updated to suit current site layout received from EPC contractor	AE	JAT	17.11.15
M	Updated as per client comments 26.10.15.	MK	JAT	28.10.15
L	Updated to suit current building layout received from EPC contractor	DEC	JAT	20.10.15
K	Logo's updated	LMA	ST	02.08.13
J	Elevations updated. Logo's updated.	AJL	RS	10.07.13
H	Elevation amended to suit comments.	JAT	SG	12.10.12
G	Elevation information, title block and key updated	JAT	SG	08.10.12
F	E.ON logo added. Building extents clarified.	KRy	PRP	15.02.10
E	Stack colour reference amended. UMA extents confirmed.	AJL	PRP	18.01.10
D	Key updated and minor amendments to drawing.	SMG	PRP	17.12.09
C	Building levels information clarified. Key updated. Stack material indicated.	AJL	PRP	25.11.09
B	Key & materials information added.	AJL	PRP	23.11.09
A	Key added. Keyplan Updated. Building Elements Labelled.	AJL	PRP	19.11.09

rev	amendments	by	ckd	date
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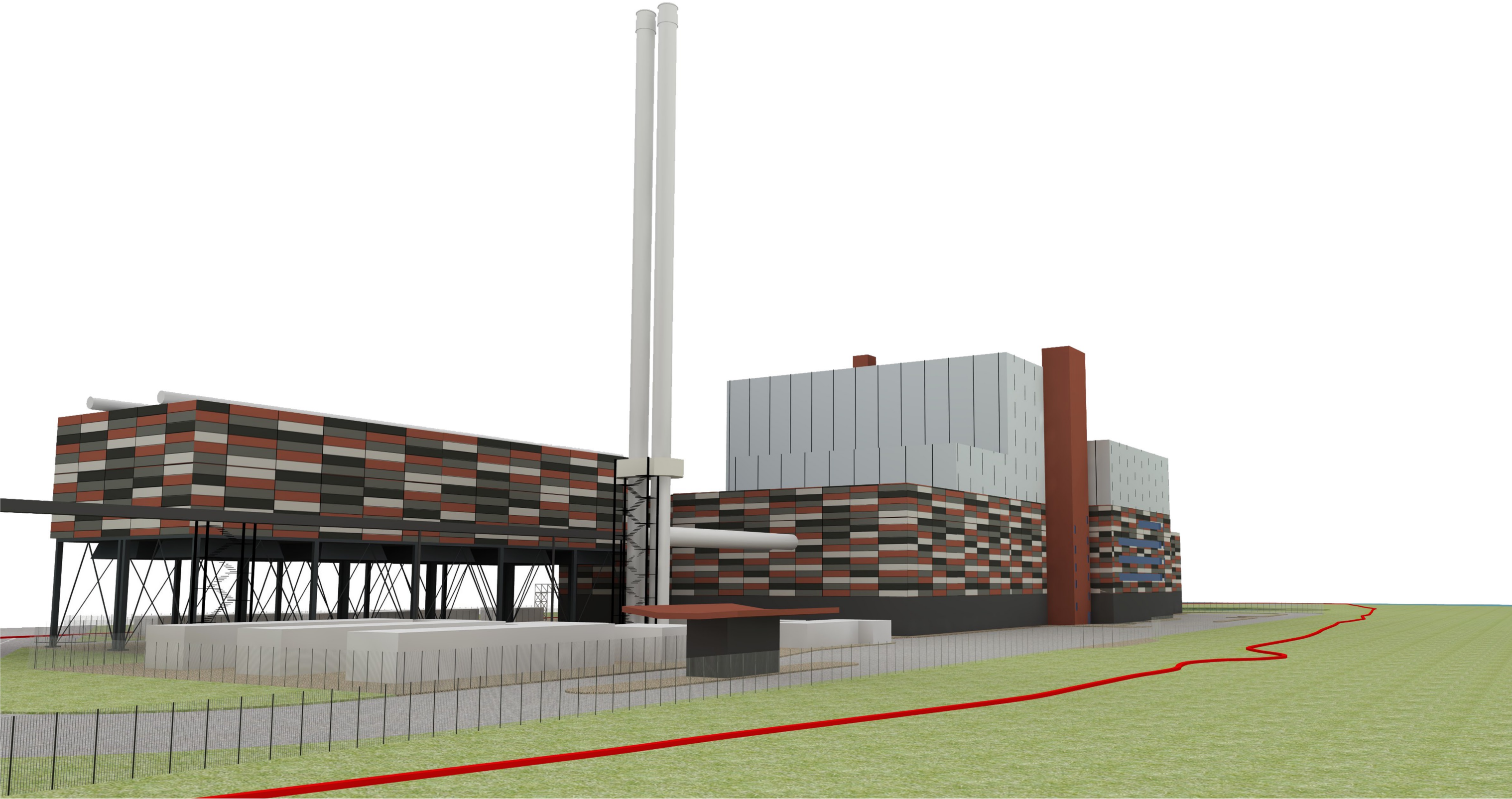


Project Kemsley Sustainable Energy Plant

Title South West Elevation

Drawing Status	Date Created	Drawing Scale
Preliminary	11.11.09	1:500
Project Leader	Drawn By	Initial Review
AWY	SMG	RS

Drawing Number 16315 / A1 / P / 0112 N

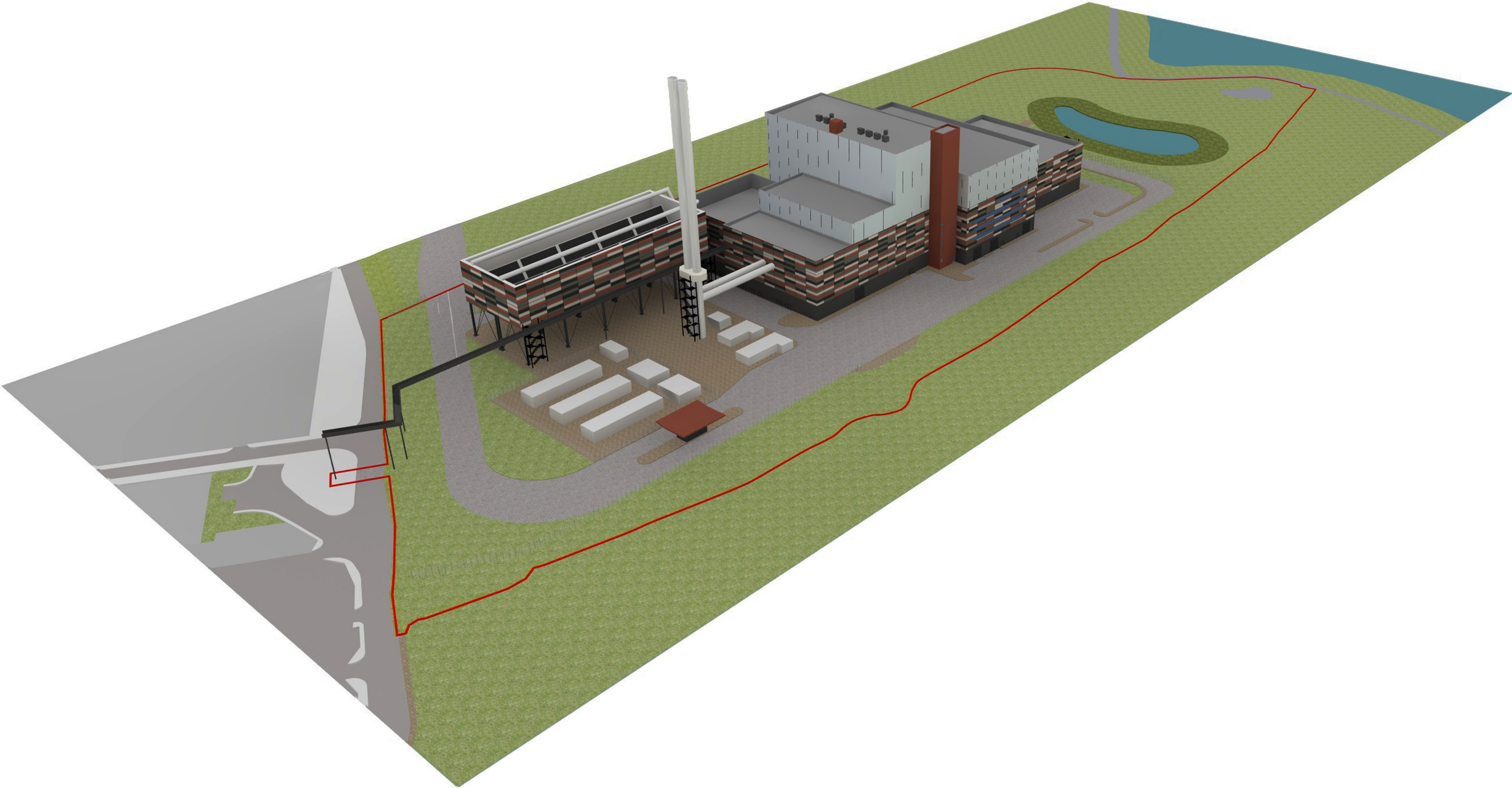


Kemsley Sustainable Energy Plant
Illustrative Visualisation 1 of 7

16315 / P/0150
FIGURE 4.34B

Rev J
18/11/15
Scale NTS @ A3

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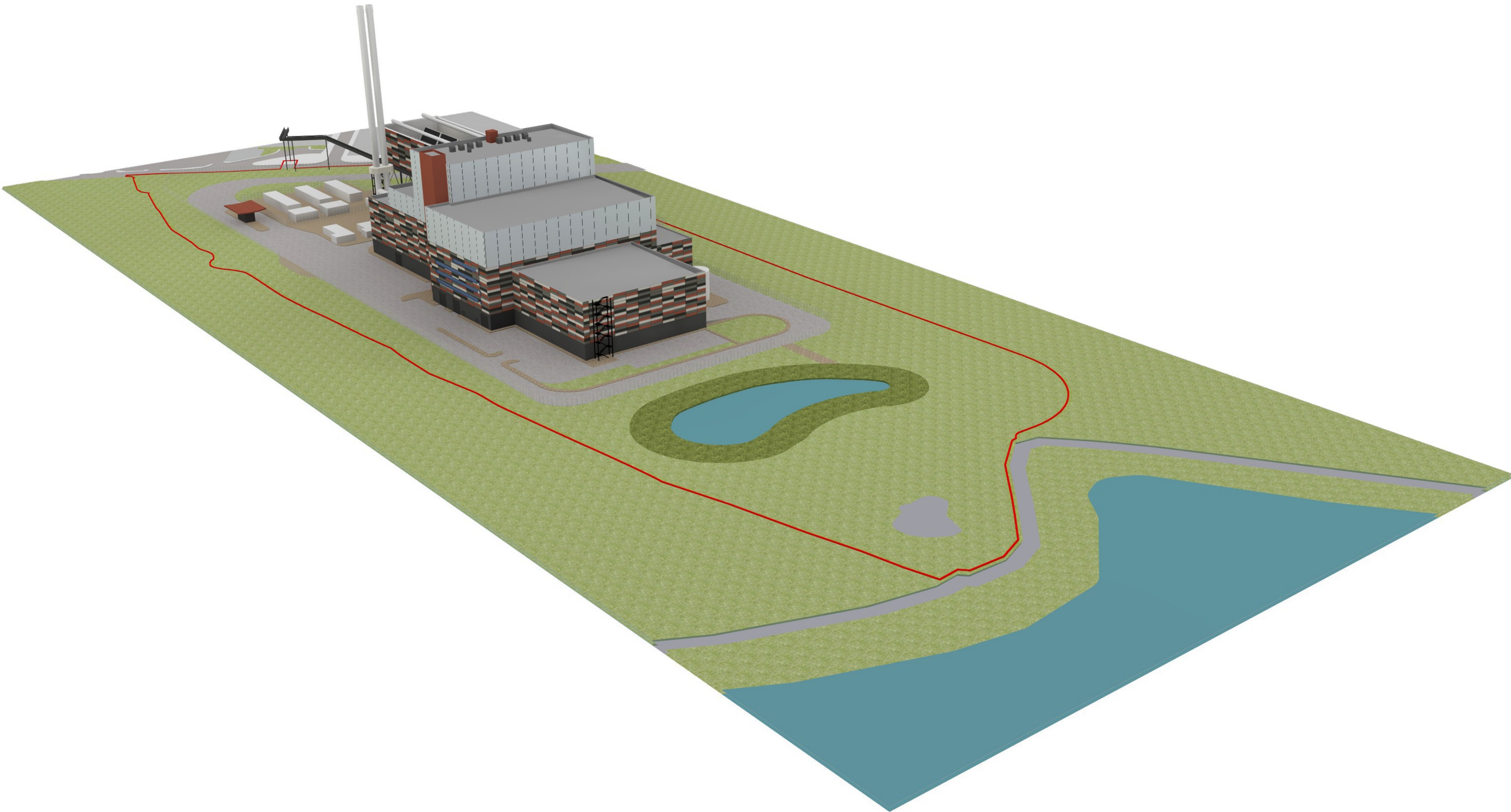


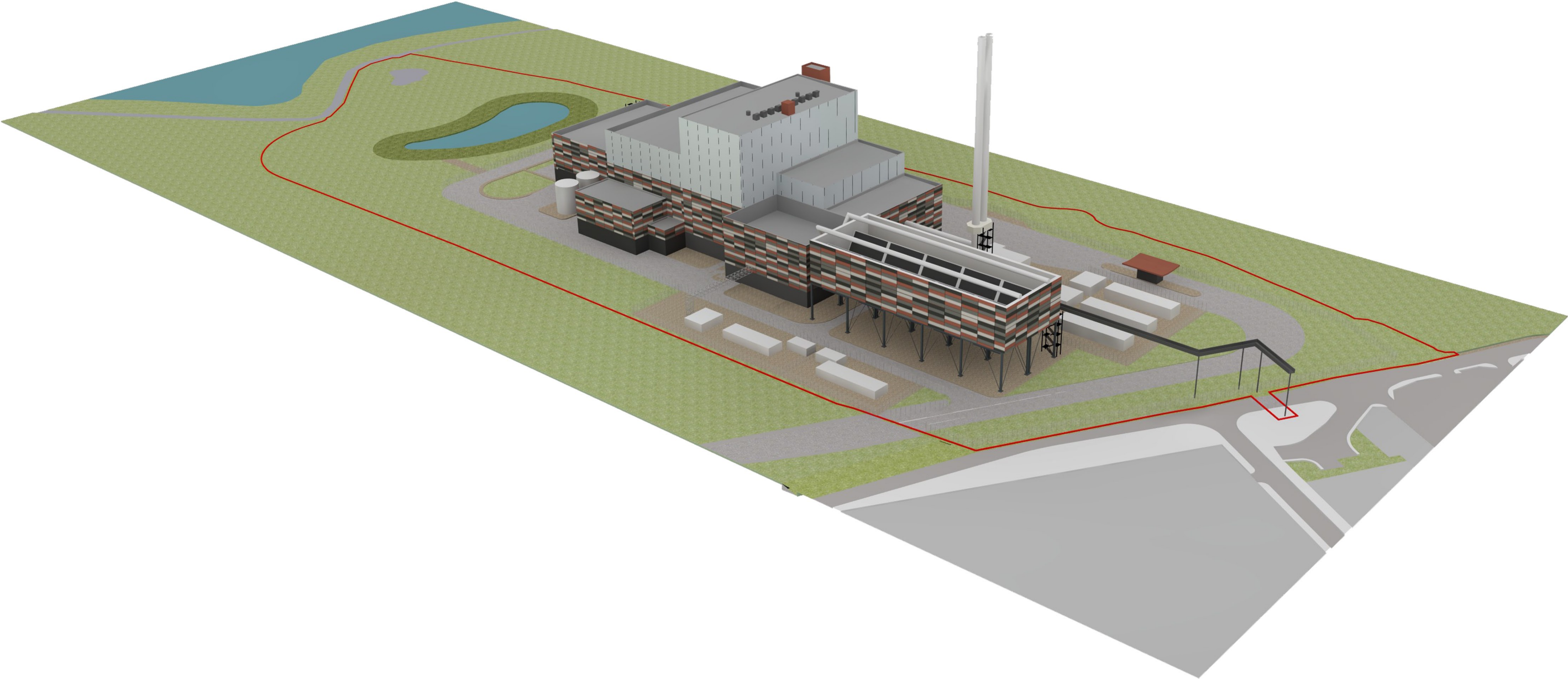
Kemsley Sustainable Energy Plant
Illustrative Visualisation 2 of 7

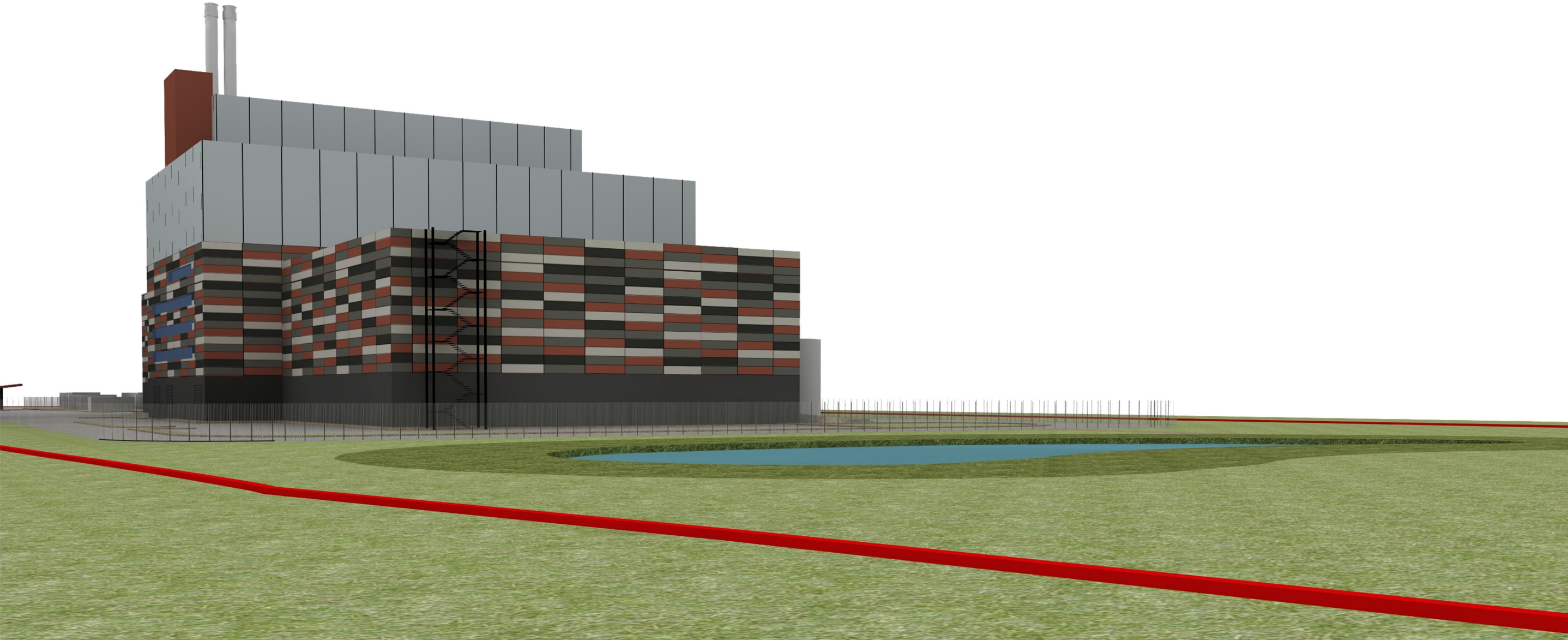
16315 / P/0151
FIGURE 4.35B

Rev J
18/11/15
Scale NTS @ A3

RPS





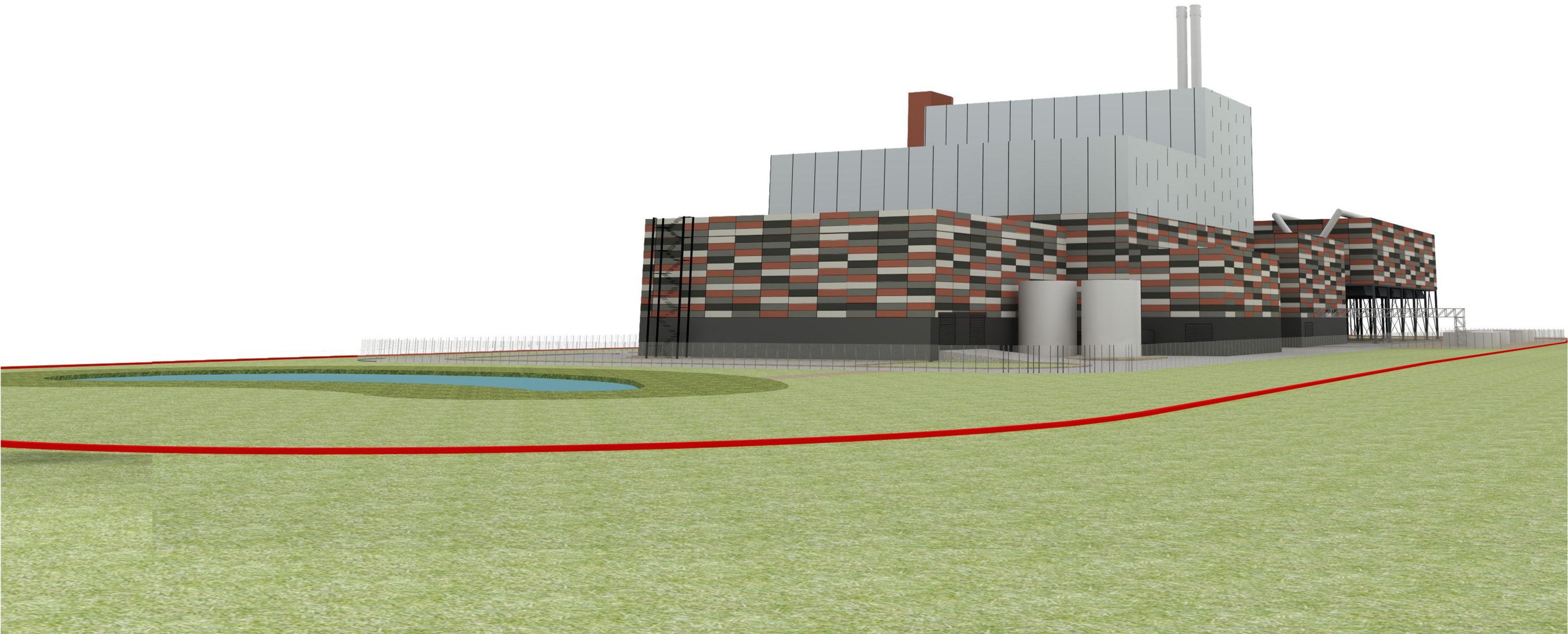


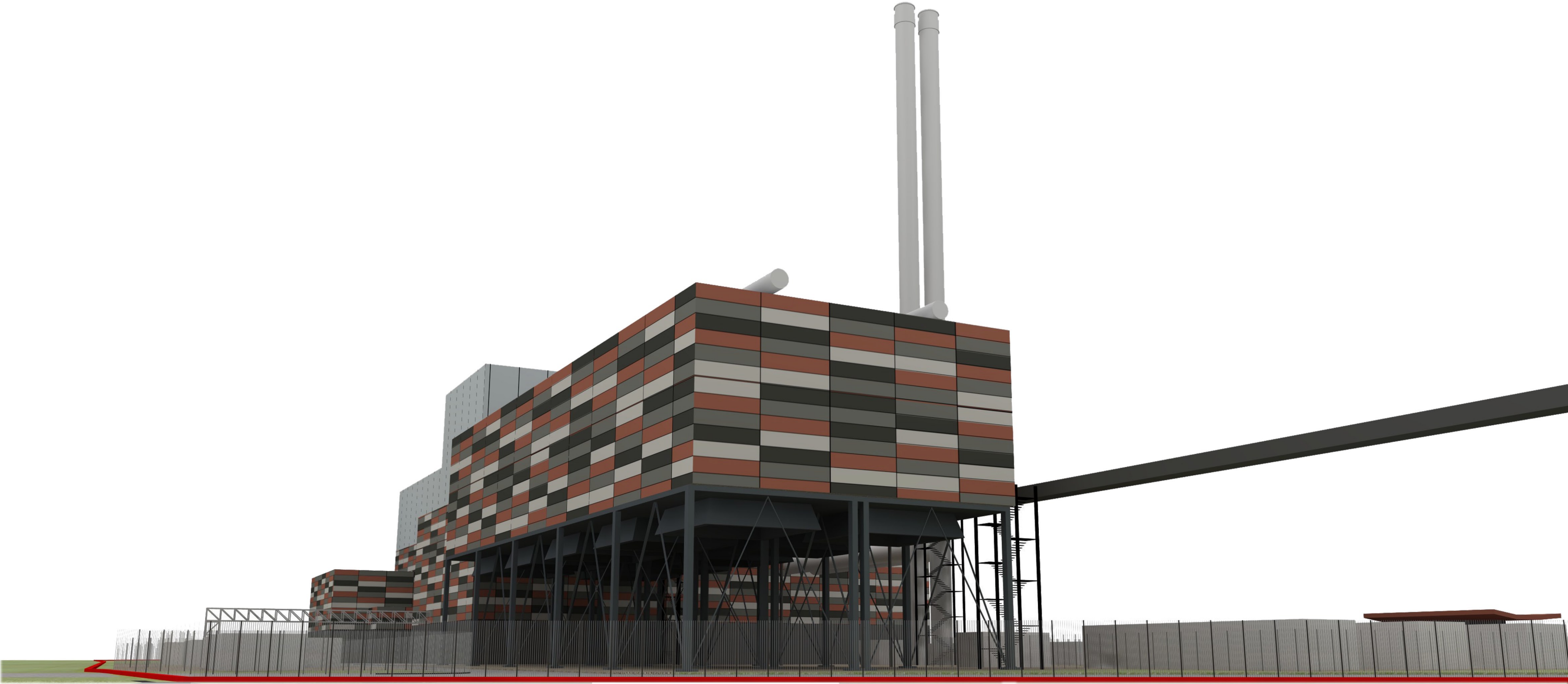
Kemsley Sustainable Energy Plant
Illustrative Visualisation 5 of 7

16315 / P/0154
FIGURE 4.38B

Rev H
18/11/15
Scale NTS @ A3

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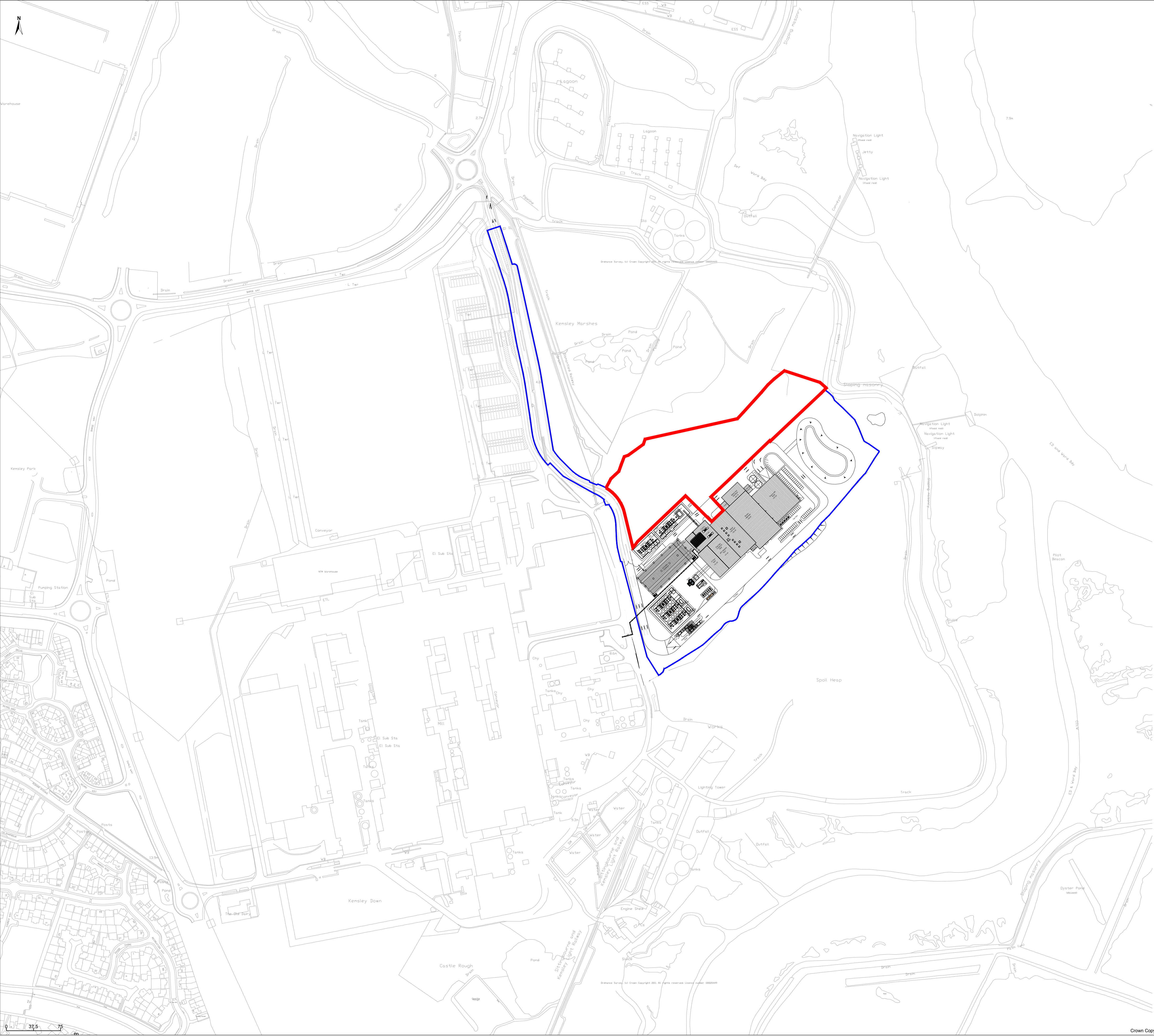
Kemsley Sustainable Energy Plant
Illustrative Visualisation 7 of 7

16315 / P/0156
FIGURE 4.40B

Rev J
18/11/15
Scale NTS @ A3

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APPENDIX 3: SUBMITTED PLANS FOR THE IBA RECYCLING FACILITY



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- Legend
- Application boundary
 - Land under applicants control

Rev	Description	Date	Initial	Checked



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Client Kemsley IBA

Title Site Location Plan

Status	Drawn By	PM/Checked by
DRAFT	RM	AS
Job Ref	Scale @ A1	Date Created
OXF9163	1:2500	Sep 2016

Figure Number	Rev
9163-0027-03	.

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- Legend
- Application boundary
 - Buildings
 - Storage areas
 - Mown grass
 - Tussock grass
 - Scrub mix
 - Balancing pond
 - Reed bed/Marginal plants
 - Bare ground for reptiles
 - Reinforced grass

Note: Configuration is indicative

Rev	Description	Date	Initial	Checked



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Client
Project

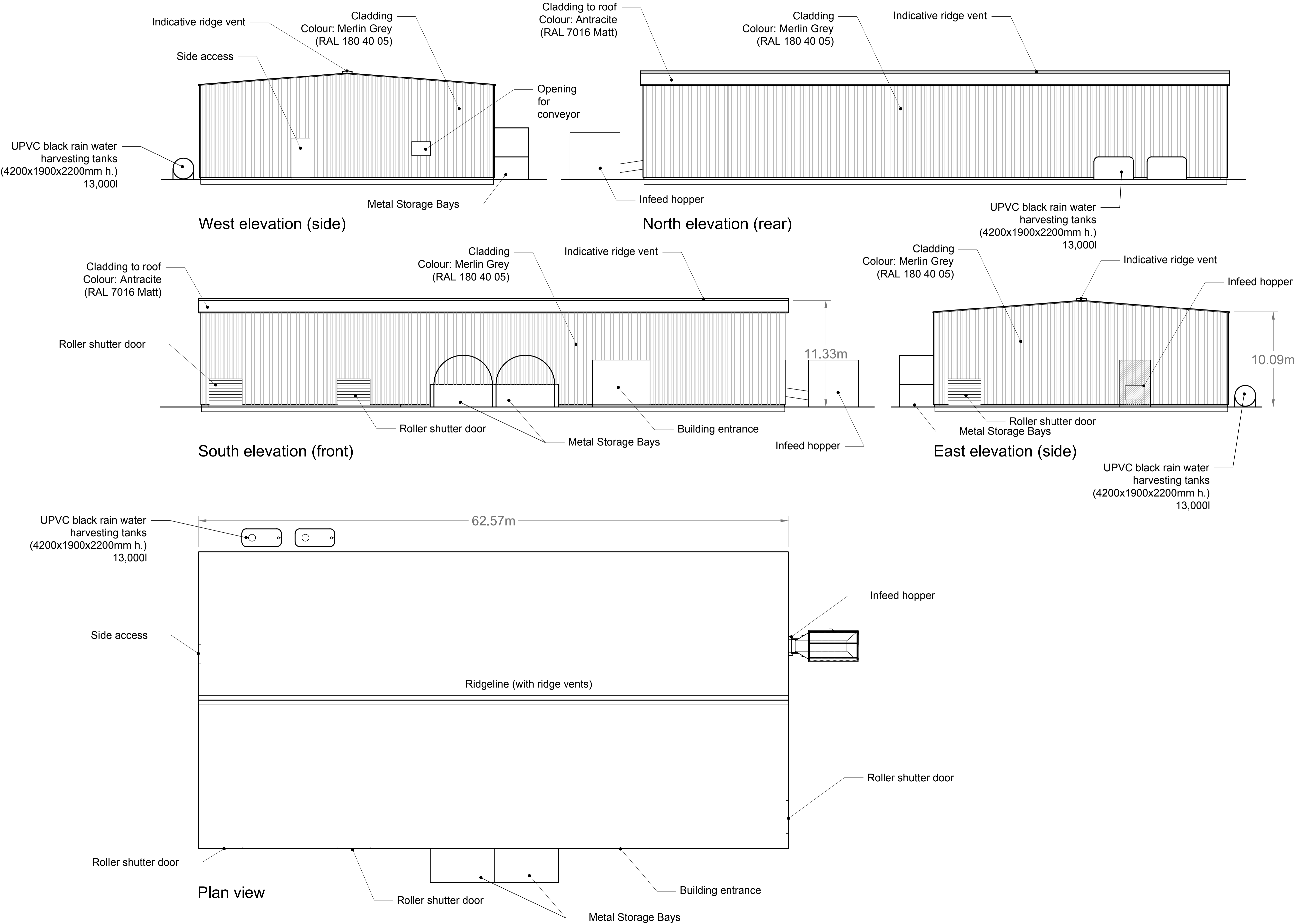
Wheelabrator
TECHNOLOGIES

Kemsley IBA

Title

Site Layout Plan

Status	Drawn By	PM/Checked by
DRAFT	RM	AS
Job Ref	Scale @ A1	Date Created
OXF9163	1:750	Jul 2016
Figure Number		Rev
9163-0012-13		.



Note: Configuration is indicative

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Client

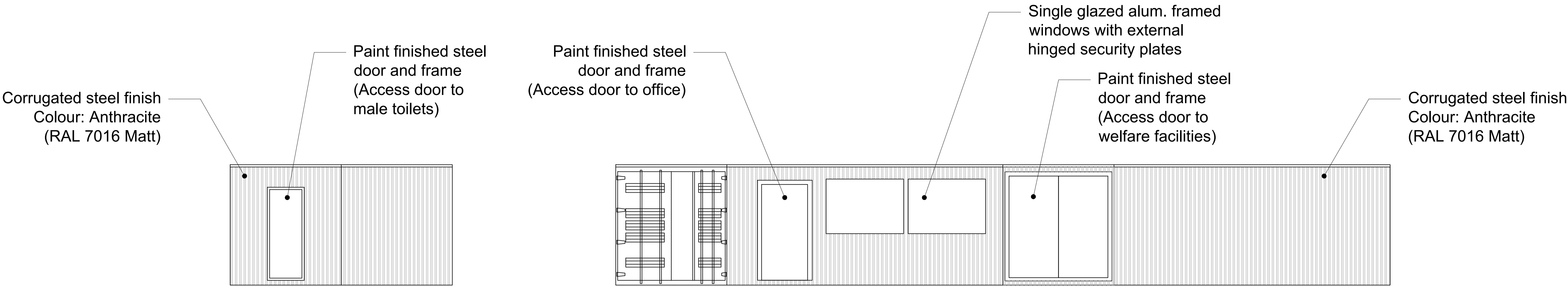
Project Kemsley IBA

Title

Process Building Plan and Elevations

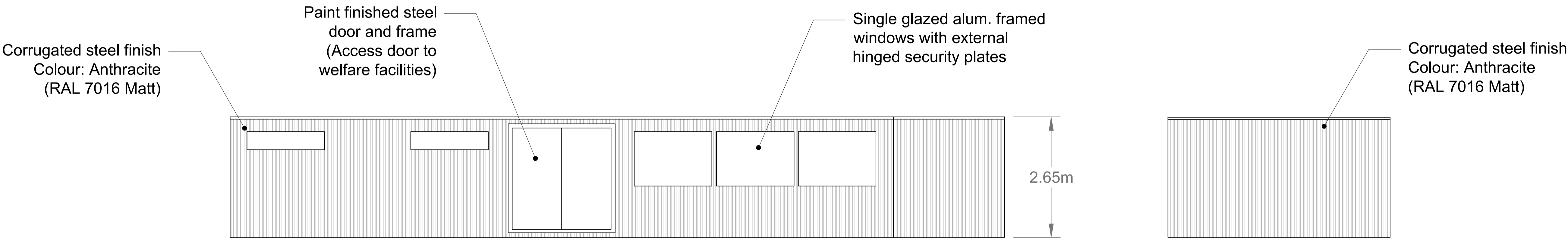
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Job Ref OXF9163 Scale @ A1 1:200 Date Created Jul 2016

Figure Number 9163-0016-06 Rev .



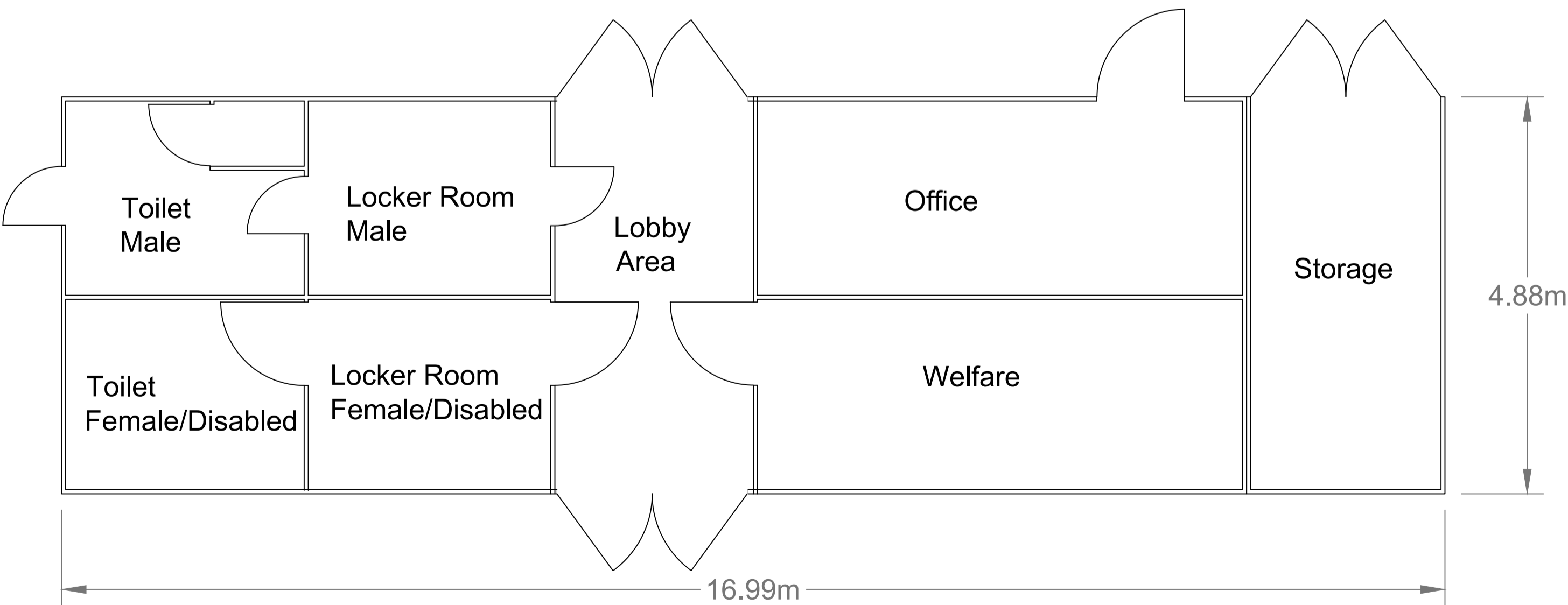
Southwest elevation (side)

Northwest elevation (front)



Southeast elevation (rear)

Northeast elevation (side)



Plan view

Legend

Note: Configuration is indicative

Rev	Description	Date	Initial	Checked



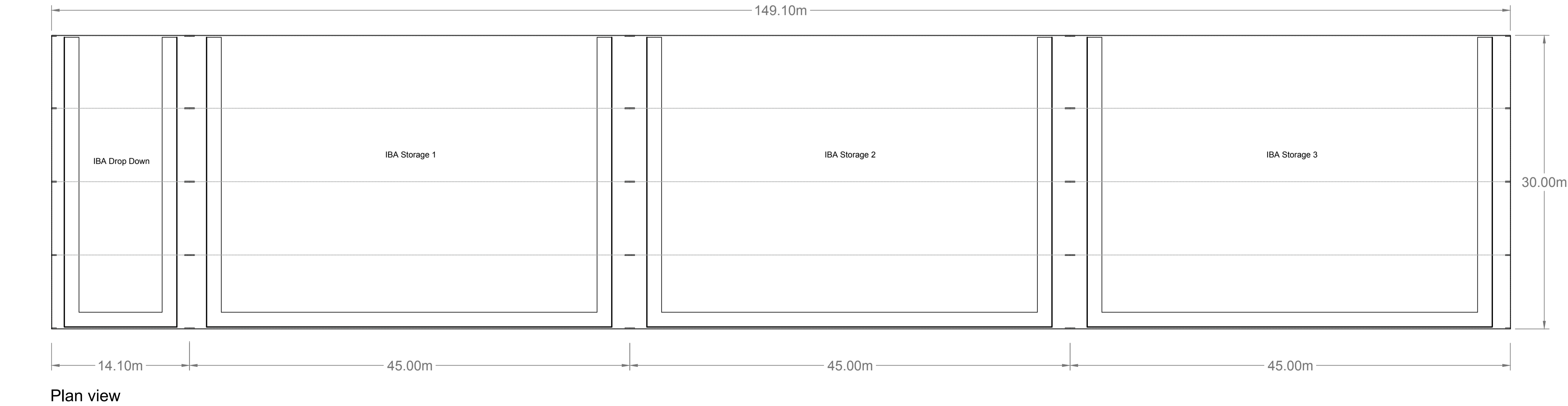
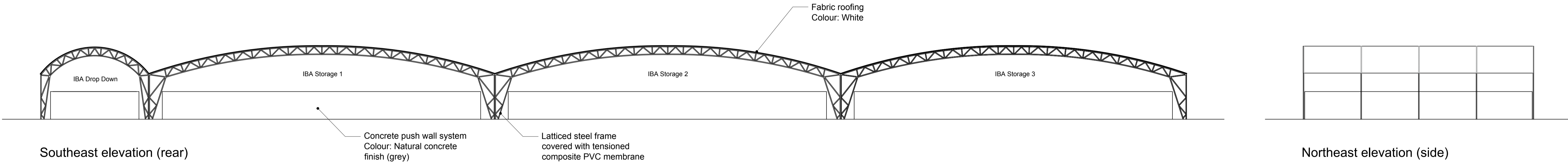
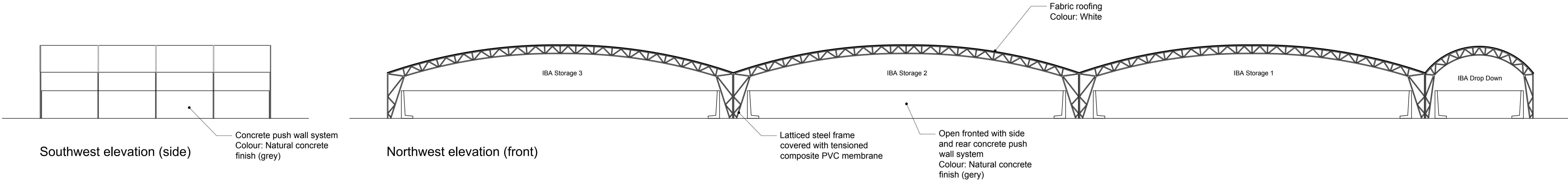
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Client
Project Kemsley IBA

Title
Indicative Office and Welfare
Building Plan and Elevations

Status DRAFT	Drawn By RM	PM/Checked by AS
Job Ref OXF9163	Scale @ A1 1:50	Date Created Jul 2016
Figure Number 9163-0017-05	Rev .	



Rev	Description	Date	Initial	Checked



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Client
Project Kemsley IBA

Title
IBA Storage Building
Plan and Elevations

Status
DRAFT
Job Ref
OXF9163
Figure Number
9163-0018-06

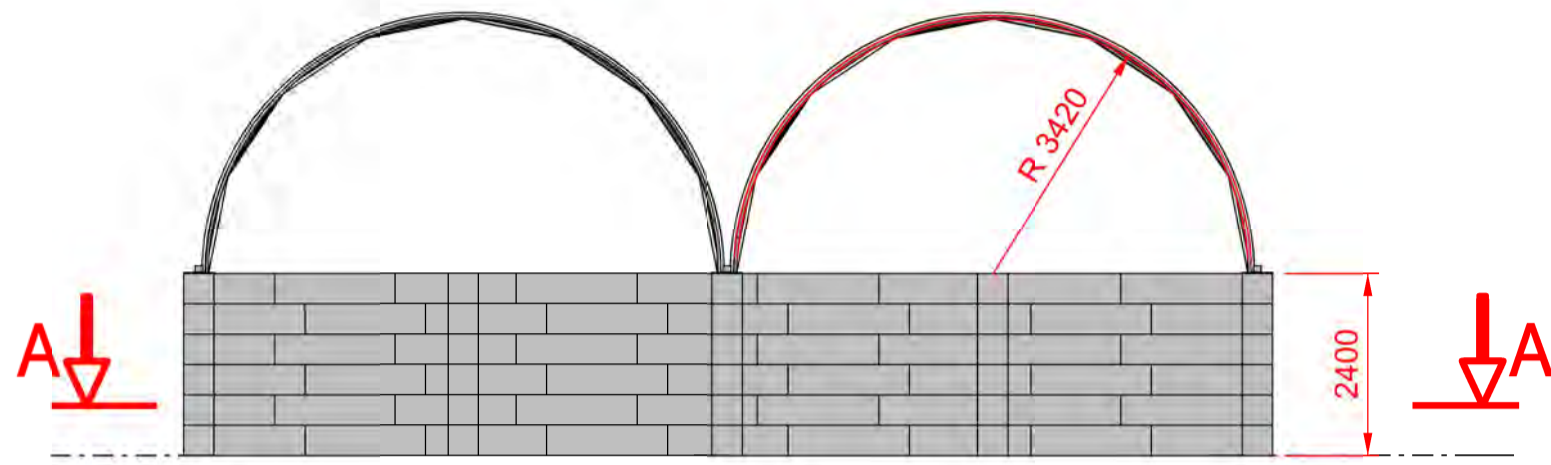
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Scale @ A1
1:250

PM/Checked by
AS
Date Created
Jul 2016
Rev
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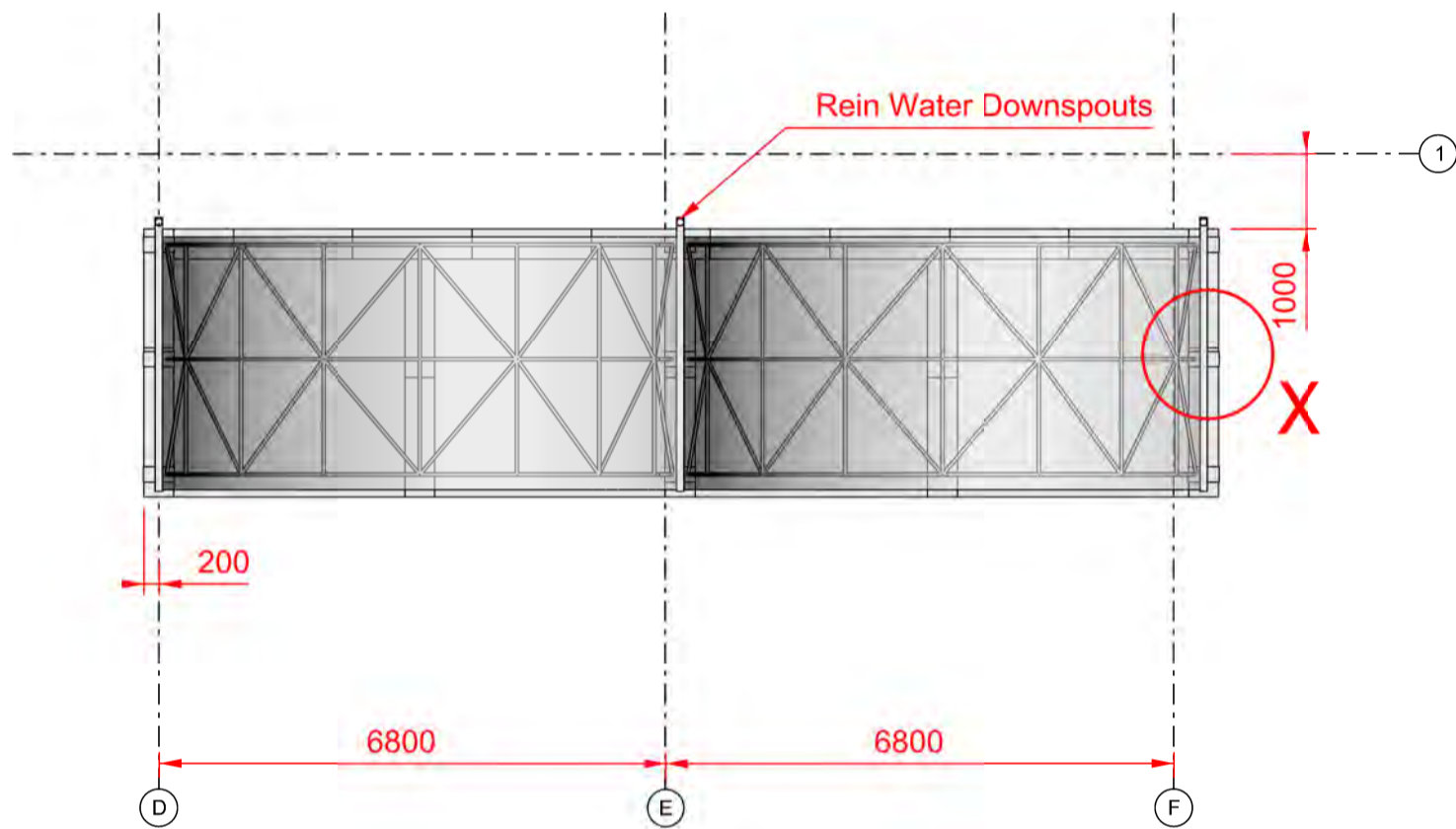
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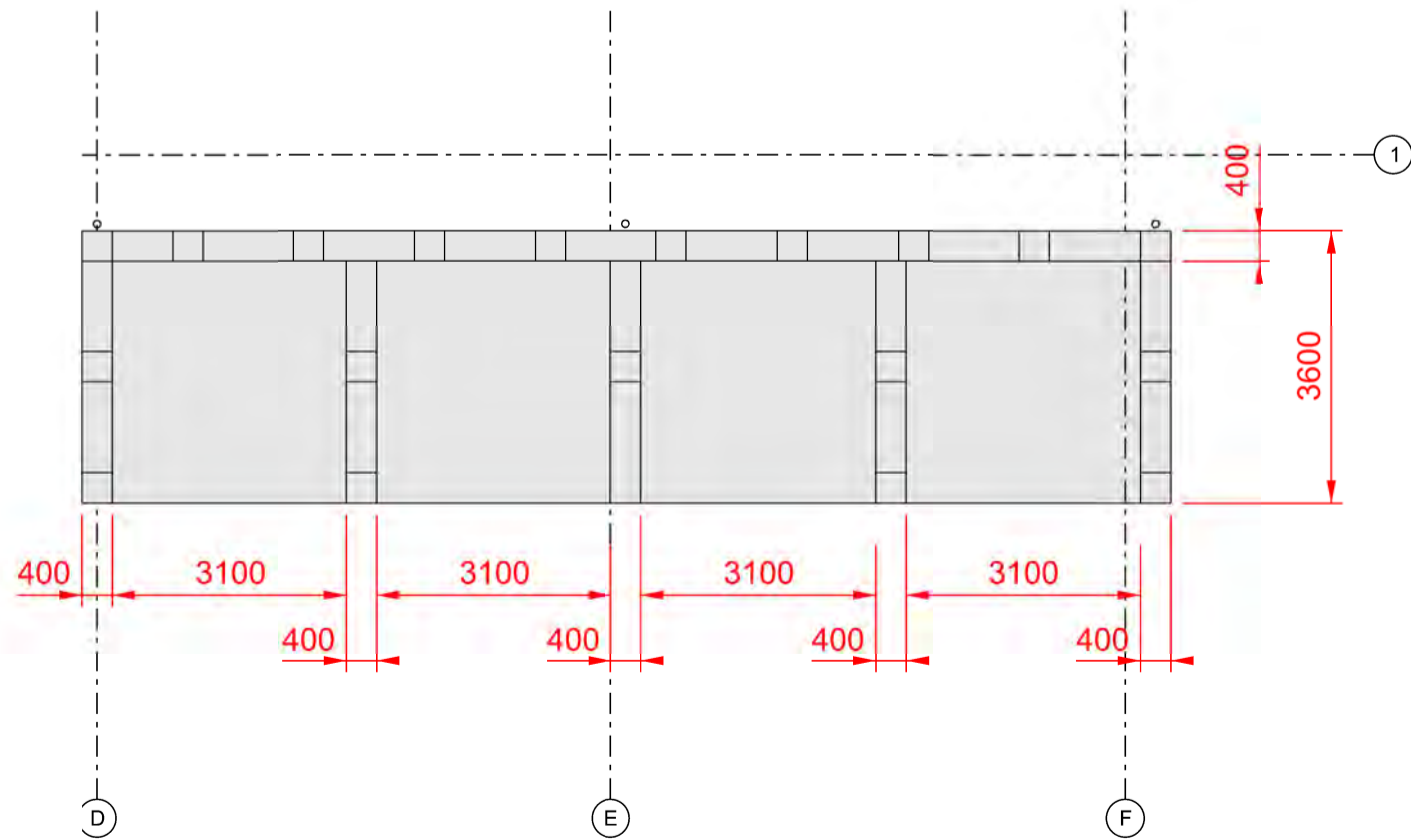
View from Southeast
M1:100



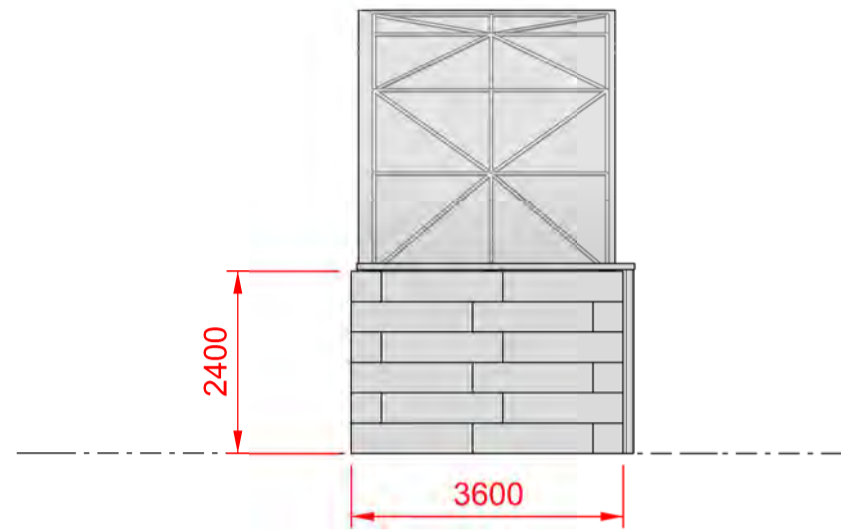
Top View
M1:100



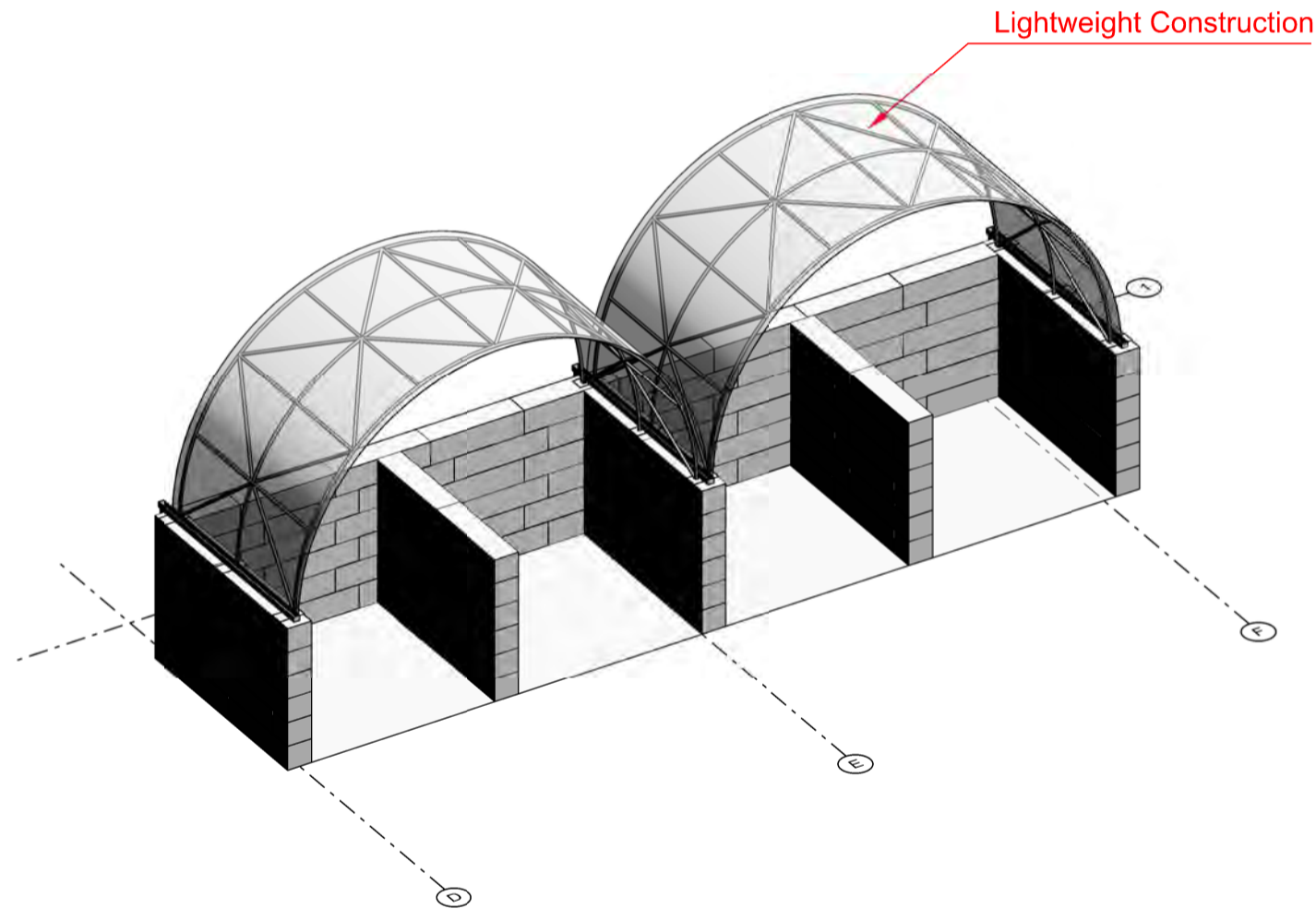
Section A-A
M1:100



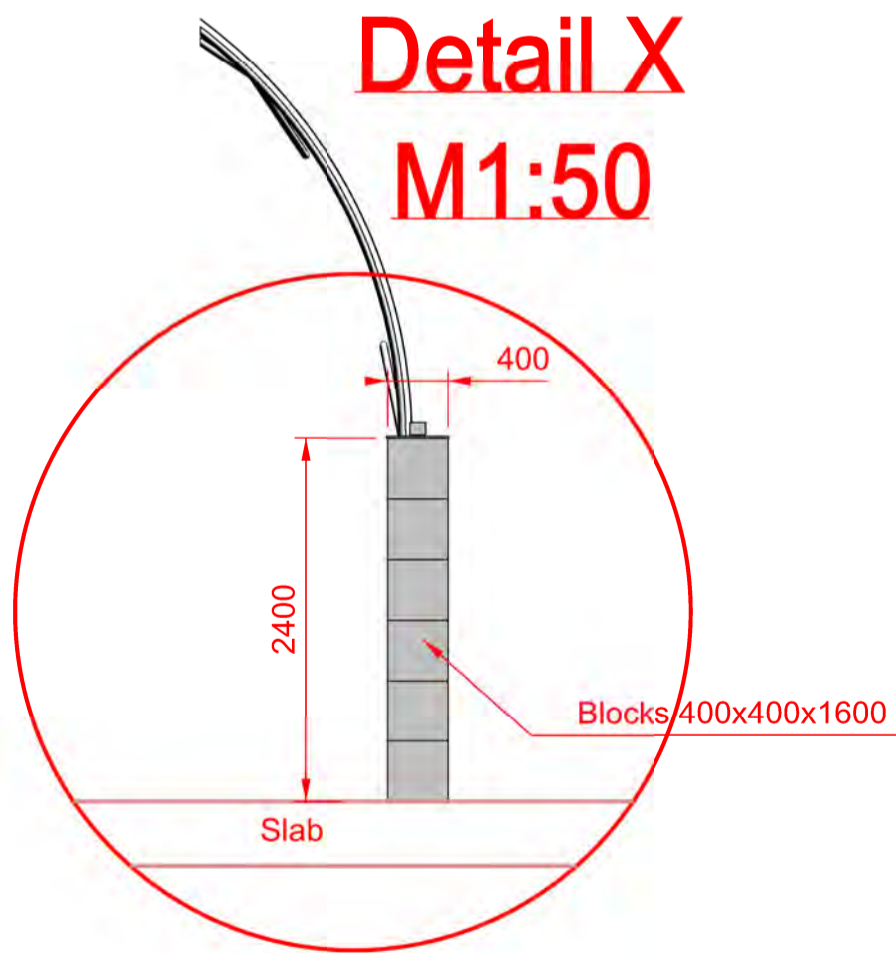
View from Northeast
M1:100



ISO VIEW
M1:400



Detail X
M1:50



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Legend

Application boundary

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Client DS Smith / Wheelabrator Technologies
Project K3 CHP Facility
Title Metal Storage Bays Plan and Elevations
Status DRAFT Drawn By AJC PM/Checked by AS
Job Ref OXF9163 Scale @ A1 Date Created Aug 2016
Figure Number 9163-0021-03 Rev -

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APPENDIX 4: LIST OF SCHEMES IDENTIFIED FOR CUMULATIVE EFFECTS ASSESSMENT

Planning Applications and Consented Developments						
ID	Local Authority	Location	Application Reference	Description	Status	Note
1	Swale Borough Council	Kemsley Mill	16/501228/FUL	Construction of a new baling plant building within an existing waste paper storage yard.	Granted May 2016	
2	Swale Borough Council	Land off Kemsley Fields Business, Park Barge Way	15/500348/COUNTY	Install advance conversion and energy facility to produce energy and heat.	Granted January 2016	
3	Swale Borough Council	Land south of Kemsley Mill	14/500327/OUT	Outline application for up to 8000m ² of Class B1 and B2 floor space	Granted July 2016	Allocated Site A2
4	Swale Borough Council	Land north of Quinton Road	15/506121/ENVSCR	EIA scoping and Screening opinion for the construction of up to 1,100 new dwellings	Screening and scoping opinion	Allocated site MU 1
			16/506014/EIASCO			
5	Swale Borough Council	Kemsley Mill	SW/12/1035	Remodelling of existing car park to provide improved visitor and disabled car parking and landscaping.	Granted October 2012	Allocated Site A2
6	Swale Borough Council	Sep Ridham Dock Facility	SW/12/0167	Refurbishment and use of existing rail sidings and hardstanding infrastructure to provide four rail sidings, office building and associated facilities.	Granted May 2012	
7	Swale Borough Council	Ridham Dock	SW/12/1132	Extension to wood storage area and improvements to site access	Granted November 2012	
8	Swale Borough Council	Ridham Dock	14/502737/EIASCO	Request for scoping opinion for a Combined Heat and Energy Plant at Ridham 'B'	Scoping opinion	

Planning Applications and Consented Developments						
ID	Local Authority	Location	Application Reference	Description	Status	Note
9	Swale Borough Council	Ridham Dock/Kemsley Paper Mill	16/506935/COUNTY	Steam pipeline connecting the Ridham Dock Biomass Facility to the DS Smith Paper Mill.	Submitted September 2016 – Awaiting decision	
10	Swale Borough Council	Land at Crown Quay Lane	16/503939/ENVSCR	Screening opinion for a proposed development of up to 450 residential units	Non EIA	
11	Swale Borough Council		15/502912/FULL	Demolition of existing warehouse buildings and development of 162 houses and 80 flats	Submitted April 2015 - Awaiting decision	
12	Swale Borough Council	Flopast Ltd, Howt Green, Sheppey Way	14/506167/OUT	Demolition of existing buildings. Outline application for the erection of 42 dwellings	Submitted December 2014 – Awaiting decision	
13	Swale Borough Council	Land south of Iwade, Kent	16/506193/ENVSCR	Screening opinion for proposed residential development of 275 dwellings	Non EIA	
14	Swale Borough Council	Sittingbourne Mill and Wharf site	SW/11/0159	Hybrid application seeking outline planning permission for leisure use floorspace, community floorspace, 150 residential units, retail food store, petrol filling station and car parking.	Granted February 2012.	
				Further reserved matters applications for phased approach		

Planning Applications and Consented Developments						
ID	Local Authority	Location	Application Reference	Description	Status	Note
15	Swale Borough Council	Parcel H East Hall Farm, Sittingbourne	15/510149/REM	Approval of reserved matters following outline approval of SW/12/0260 for the construction of 68 dwellings	Granted 2016 June	Allocated Site A13.9
16	Swale Borough Council	Freesia Grovehurst Road, Sittingbourne, ME10 2RB	14/502582/FUL	Demolition of the existing bungalow and the construction of 15 new houses with a new access road	Granted 2016 June	Allocated site A13.8
17	Kent County Council	Countryside Recycling Storage Land, Ridham Dock	KCC/SW/0019/2016	The construction and operation of a hypsum recycling building with plant and machinery	Granted 2016 April	
18	Kent County Council	Land to the north of the DS Smith Paper Mill	SW/11/1291	Anerobic digester and associated ground profiling and landscaping	Granted 2012 July	
Allocated Sites						
A1	Bearing Fruits Consultation Document	Land north and west of Kemsley Mill	Bearing Fruits Plan	B class employment uses		
MU2	Bearing Fruits Consultation	Land at North East Sittingbourne	Bearing Fruits Plan	Mixed use development comprising 43,000m2 of B class employment, minimum of 106 dwellings and 31ha if open space		

Planning Applications and Consented Developments						
ID	Local Authority		Location	Application Reference	Description	Status
		Document				
H2/H7/H5		Local Plan	East Hall Farm	Local Plan	Outline planning permission for 550 dwellings at East Hall but could be increased to 750 dwellings	

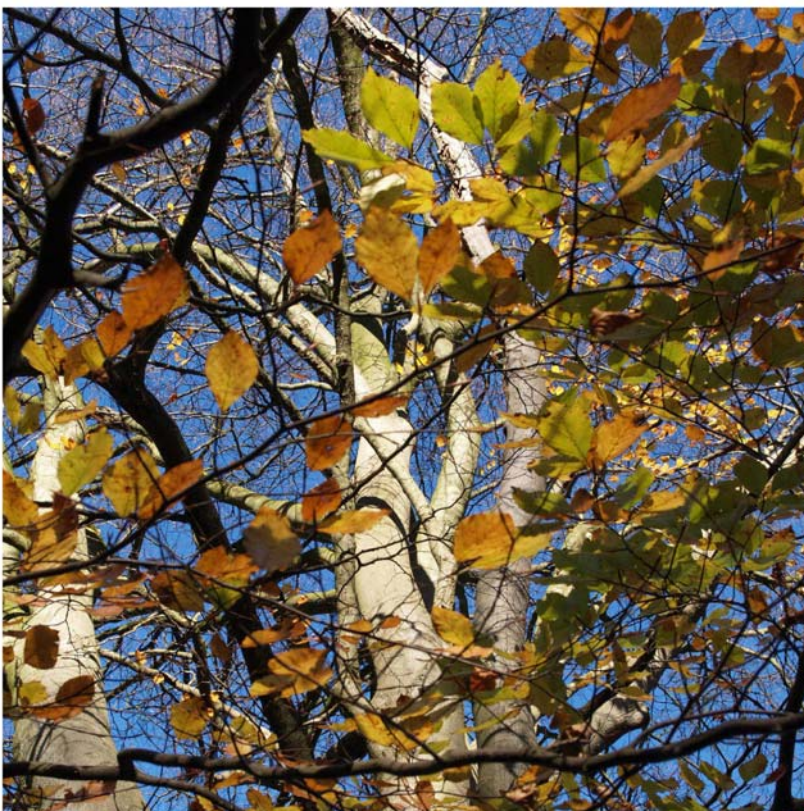
APPENDIX 5: ENVIRONMENTAL MONITORING AND MITIGATION PLAN (GENERATING STATION)

Kemsley Sustainable Energy Plant

Environmental Monitoring and Mitigation Plan

Kemsley, Kent

July 2013







Kemsley Sustainable Energy Plant

Environmental Monitoring and Mitigation Plan

Kemsley, Kent

July 2013

Prepared by:	Paul Hayward MSc, BSc (Hons), MIEnvSc, AIEMA	Assistant Air Quality Consultant		22/7/13
Reviewed & checked by:	Jennifer Stringer M.Eng (Hons), MSc, AIEMA	 Associate		22/7/13
Authorised by:	Daniel Smyth BSc (Jt Hons), MSc, DIC	Senior Director		22/7/13
Date of issue:	22 July 2013			
Revision:	2			
Project number	JAS5624			
Document file path:	O:\Jobs_5000-6000\5624s\EMMP\Deliverable\5624s_EMMP_rev2_20130722.docx			

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Quality Management

Revision History				
Rev	Date	Status	Reason for revision	Additional comments
0	16/05/2013	Draft	Draft working document for SISK input	-
1	09/07/2013	Final	Submission to council.	-
2	22/07/2013	Final	Client comments. Submission to council.	

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2	Construction Method Statement	3
3	Monitoring and Mitigation Plan	8
	Dust.....	8
	Noise and Vibration.....	12
	Light & Visual Effects	13
	Other Recommended Mitigation/Monitoring Measures	13

Glossary / Acronyms

References

Appendices

Appendices

Appendix 1: Construction Method Statements

Appendix 2: Lighting Plan

Appendix 3: Drainage Plan

Appendix 4: Landscaping Plans

Appendix 5: Waste Management Plan

Appendix 6: Appropriate Assessment

1 Introduction

Environmental Monitoring and Mitigation Plan

- 1.1 This Environmental Monitoring and Mitigation Plan (EMMP) is intended to provide a detailed description of the construction methodologies for the proposed Sustainable Energy Plant (SEP) and a breakdown of the environmental monitoring and mitigation measures that are recommended in order to reduce any ecological effects, at nearby sensitive sites, to an acceptable level. This document has been produced in order to satisfy Planning Condition 12 from the *Kemsley Discharge Log*, as detailed in Box 1 below.

Box 1 – Planning Condition 12

Prior to the Commencement of Development a detailed Environmental Management Plan including Construction Method Statement to incorporate the proposed migration as outlined in the document entitled 'Appendix 9.6 Information for an Appropriate Assessment' for suppression of dust, construction noise, lighting and visual disturbance shall be submitted to and approved in writing by the Waste Planning Authority and thereafter be implemented as approved.

Structure

- 1.2 The remainder of this EMMP is split into two key sections, a Construction Method Statement and a Monitoring and Mitigation Plan. For clarity, a concise summary of these aspects is provided within the main document, with full details provided in the appendices. The full structure is as detailed in Box 2 below, with reference made to appendices where appropriate.

Box 2 – Structure of the EMMP

Construction Method Statement

- Programme of Works
 - Appendix 1 – Construction Method Statements
- Site Preparation and Access/Egress
- Lighting
 - Appendix 2 – Lighting Plan
- Excavation
- Drainage
 - Appendix 3 – Drainage Plan
- Construction and Engineering Methods
 - (Appendix 1 – Construction Method Statements)
- Ancillary Developments
- Materials and Storage
- Hours of Operation and Shift Pattern
- Environmental Design and Landscaping
 - Appendix 4 – Landscaping Plans
- Waste Management
 - Appendix 5 – Waste Management Plan
- Decommissioning

Monitoring and Mitigation Plan

- Dust Effects and Mitigation
- Noise and Vibration Effects and Mitigation
- Lighting and Visual Effects and Mitigation
- Other Ecology Effects and Mitigation
 - Appendix 6 – Appropriate Assessment

Proposed Development

- 1.3 The energy requirements at Kemsley Paper Mill are currently met by the onsite Combined Heat and Power (CHP) plant which is fuelled by natural gas, a fossil fuel based energy source, and by a Waste to Energy plant which burns rejects and other waste from the paper making process, in the form of sludge. The mill is an intensive user of energy, consuming 55 MWe per hour of electricity and 150 MWth per hour of steam.
- 1.4 For a number of reasons, there is a strategic need for Kemsley mill to diversify its fuel source and, in doing so, reduce its reliance on fossil fuel based energy sources. The proposed SEP will reduce the mill's dependence on fossil fuel, reduce the carbon footprint associated with its energy generation, ensure a greater degree of energy supply security and improve the competitive position of the mill.
- 1.5 The SEP will have a generation capability of 48.5 MWe per hour of electricity. Under the anticipated electricity and gas pricing outlook, the SEP will usually be set up to generate 36 MWe per hour of electricity and provide in excess of 50 MWth per hour of steam to the mill. However, if required, the SEP will be able to increase its steam provision to fulfil the mill's entire demand, with its electricity requirements being met by the national grid.
- 1.6 The fuel source of the SEP will be approximately 500,000 to 550,000 tonnes per annum of pre-treated waste. This will comprise Solid Recovered Fuel, Commercial & Industrial and pre-treated Municipal Solid wastes. This may include up to approximately 25,000 tonnes per annum of waste plastics arising from the paper making process, which are currently sent to landfill.
- 1.7 The SEP therefore has the dual role of an energy generating station and a waste management facility.
- 1.8 In summary, the Kemsley SEP facility will comprise:
 - An SEP facility with an expected throughput of approximately 550,000 tonnes per annum and two stacks of 90 m in height above ground level;
 - An integrated steam turbine-generator plant for power generation of approximately 48.5 MW of electricity net;
 - Grid connection cables, plant and equipment to enable electricity to be supplied to the public supply network;
 - The provision of a steam off-take connection;
 - Associated offices to accommodate the administration and management staff for the SEP facility;
 - Ancillary developments including weighbridges, access and internal roads and parking facilities; and
 - Landscape and biodiversity enhancement areas within the site boundary to improve the overall appearance, biodiversity benefits and functionality of the site.

2 Construction Method Statement

Introduction

- 2.1 The proposed work is to build “Kemsley Combined Heat and Power Facility (K3)”. The facility shall produce steam for the adjacent DS Smith paper factory and electricity for the factory and the national grid.
- 2.2 The works shall include the design, procurement, construction, erection, commissioning, testing and certifying the K3 facility, along with associated drainage and hard standings.
- 2.3 John Sisk and Sons Ltd (Sisk) are to ensure operational access for DS Smith is provided throughout, with provision of parking, pedestrian and vehicular access, and emergency egress throughout each phase of works.
- 2.4 Enabling and access works include:
- Extension of the existing trailer park to the DS Smith Paper mill to allow the introduction of a new drainage system inclusive of ponds, underground services, trailer parking area and in doing so, also providing a separate access road to the future Sustainable Energy Plant (SEP) Site.
 - Retention of the existing parking area, to be repaired as necessary, whilst the extended area will comprise of new circulation and parking construction. To complete these works and maintain operations for DS Smith, Sisk are phasing the works. All phasing and commissioning work to be agreed with DS Smith in advance of each phase.

Programme of Works

- 2.5 A detailed Programme of Works is included in Appendix 1.
- 2.6 Works will be broken down into four main activities comprising of the Site Set Up and three main phases, plus SEP Access Road:
- First Activity – Site Set up, will be completed prior to contract commencement date. This is to allow John Sisk and Sons Ltd time to complete all ancillary items prior to the anticipated start date. This will aid the efficiency of completing all 3 phases within the 12 week period.
 - Phase 1/2/3 (see Phasing diagram - drawing KEW 001 in Appendix) – These will be completed sequentially. This is to allow DS Smith to maintain a parking facility for their vehicles as the facility will remain live throughout construction duration. Once a phase is complete Sisk will move on to the next. The completed sections will be handed over to DS Smith upon completion.
 - SEP Access Road – Works associated with this area will be completed during the time allocated for Phase 1 through 3. Works within the SEP Road area will be coordinated with

those works within the phases and also with the required operation of the facility. Final surfacing of the road will be completed once the Main SEP Site is completed.

2.7 Following enabling works, site establishment, etc., civil works will be the predominant activity during the first year, with a combination of Civil & Process activities for the following years. Works will focus on the core process areas before expanding into all areas of the site. Works will be phased approximately as follows:

- **Bunker / Turbine Hall / Boiler** – to allow process contractor to start:
 - Foundations & Piling
 - RC Structures
 - Steel / Cladding / Roofing
 - Process Installation
 - Building Services and Architectural fit-out
- **Ancillary Areas:**
 - Tipping Hall / Flue Gas / ACC / Admin – which will follow for second stage process install
 - Piling / Foundations
 - R.C Structures
 - Steel Structures
 - Cladding / Roofing
 - Building Services
- **Plant Interface**
- **Other Site Structures:**
 - Sprinklers / Fuel Storage / Electrical Compound
- **Site Services:**
 - Progress main lines throughout the job
- **Hard Landscaping:**
 - Roads / Ponds / Storage etc. local connections at hard landscaping
- **Soft Landscaping:**
 - To progress as laydown areas are cleared.

Site Preparation and Access/Egress

Initial setup:

2.8 Demarcation of the working area will be via temporary Heras fencing. Given the DS Smith parking requirements, Sisk will be phasing the works and relocating the site boundary accordingly

for each of those phases. Segregated pedestrian routes and clear vehicular access into the area will be maintained at all times.

- 2.9 There will be designated crossing points to allow pedestrian and vehicular access to each working area. A Traffic Management Plan will be in place to ensure a timed access for each contractor requiring entry to the working area.
- 2.10 Signage will be displayed and a Tool Box Talk given to the workforce upon transition from phase to phase. This will include advice with regard to the key potential environmental impacts of the project, and required mitigation where applicable.

SEP site:

- 2.11 Segregated pedestrian routes and vehicular routes will be established throughout the compound area and planned accordingly for access onto the site. This will allow all personnel safe efficient access to each working area. Routes will be inspected daily to ensure all routes are kept clear and safe for use.
- 2.12 There will be designated crossing points around the site to allow both pedestrian and vehicular access, in accordance with an approved Traffic Management Plan. Signage will be displayed and a Tool Box Talk given to the workforce to ensure all personnel are aware of the routes and happy to use them prior to commencing their work.
- 2.13 There will be a security hut to log all deliveries coming to and from site whilst ensuring all drivers are entering site with the correct PPE.

Lighting

- 2.14 Sisk shall provide task lighting as required during installation works, to aid completion of their contract activities. The permanent lighting scheme will be installed by DS Smith.
- 2.15 A full lighting Plan is included in Appendix 2.

Ancillary Developments

- 2.16 Sisk will provide the following cabins for the duration of the trailer park extension works:
 - 3no Contractor Office cabins
 - Changing / Drying Room
 - Induction / Meeting Room
 - Toilet Block
 - Security Hut
 - Generator & Tank
 - Wheelwash.

Excavation

- 2.17 To be completed in accordance with detailed design.

Drainage

- 2.18 To be installed in accordance with detailed design. The Proposed Drainage Layout for the SEP (Drawing 16315/A0/0301) is included in Appendix 3.

Construction and Engineering Methods

- 2.19 Upon possession of site Sisk will meet with EEW UK / DS Smith to ensure services are decommissioned where alterations / upgrading works are to take place. Those services being retained will be located and marked prior to breaking the ground.
- 2.20 Once services are disconnected and/or located then works will progress in accordance with a subcontractor site specific method statement, risk assessment and the necessary Permit to work issued by Sisk and DS Smith. Task specific Risk Assessment and Method Statements are to be produced by the subcontractor. Once on site, the on-site Supervision will request all necessary Permits from DS Smith and in turn Sisk will be responsible for issuing to the subcontractor after satisfactory review of all information associated.

Method of Construction would follow the sequence below:

- Install Wheel wash
 - Locate services
 - Decommission Services
 - Site Clearance
 - Installation of Underground Services
 - Excavation of pond
 - Strip & Grade existing ground to formation level
 - Cast bases for lighting/CCTV/Signage
 - Complete road formation
 - Lay new surfacing
 - Installation of fencing
 - White lining
 - Install barriers/fencing
 - Where fencing / barriers are shown within footpath areas, these will be surfaced on completion of fencing / barriers.
- 2.21 Once subcontractors are appointment for each package they will produce job specific method statements which will describe in detail the installation procedures associated with each element.

- 2.22 Detailed Construction Methodologies are provided in Appendix 3.

Materials and Storage

- 2.23 Full details of materials and storage are to be confirmed, pending placement of subcontractors and finality of specification.
- 2.24 For access/egress, provisional materials required are stone, sand, pipe bedding, warning tape, asphalt, concrete, kerbing, lighting columns, ducting, drainage, fencing/barriers and possible planting materials/plants. Materials will be brought to site just in time to allow efficient use of storage areas.
- 2.25 Provisionally, for plant and equipment we would require: piling rigs, cranes, 360 Excavators, Dumpers, roller, wacker plate, floor saw, breakers, generators, flood lights, accommodation/office supplies, fencing, signs, locks, skips, EDM, wheelbarrow, shovels, trowels.
- 2.26 Storage areas are noted on the drawings within the phasing diagrams in Appendix 1.

Hours of Operation and Shift Pattern

- 2.27 Monday to Friday 7.30am – 6.00pm.

Environmental Design and Landscaping

- 2.28 To be completed in accordance with RPS detailed design.
- 2.29 The Detailed Landscaping Scheme for the access / parking area (Drawing 16315/A1/5) and Landscaping Masterplan for the SEP (Drawing 16315/A1/4.21A) are included in Appendix 4.

Waste Management

- 2.30 Designated waste skips to be provided by John Sisk, on site for contractors waste.
- 2.31 The Waste Management Plan is included in Appendix 5.

Decommissioning

- 2.32 It is likely that the car parks and access routes would still be required for any future development on the SEP site and will be retained for future use.

3 Monitoring and Mitigation Plan

Dust

Effects

- 3.1 The major influence on air quality throughout the construction phase of the proposed development is likely to be dust-generating activities such as movement of plant vehicles both on and around the development site.
- 3.2 Activities that may cause fugitive dust emissions include:
- earthworks;
 - handling and disposal of spoil;
 - wind-blown particulate material from stockpiles;
 - movement of vehicles, both on and off site; and
 - handling of loose construction materials.
- 3.3 It is normally possible, by proper control, to ensure that dust deposition does not give rise to nuisance impacts. Routine dust control measures would normally ensure that the risk of long-term impacts is insignificant, although short-term events may occur (for example, due to technical failure or exceptional weather conditions).
- 3.4 The level and distribution of construction dust emissions will vary according to factors such as the type of dust, duration and location of dust-generating activity, weather conditions and the effectiveness of suppression measures.
- 3.5 The main effect of any dust emissions, if not mitigated, would be nuisance due to soiling of surfaces, particularly windows, cars and laundry.
- 3.6 Possible impacts on ecology from dust deposition include:
- altering water chemistry of water bodies;
 - chemical reactions or reduced photosynthesis in leaves;
 - deposition of alkaline dust may change species composition, especially in more acidic communities; and
 - trees may drop their leaves early following exposure to high levels of dust.

Recommended Mitigation/Monitoring

- 3.7 The IAQM Dust and Air Emissions Mitigation Measures [1] document lists mitigation measures for low, medium and high risks. Due to the large site area (approximately 68,000 m²) and the sensitivity and close proximity of the ecological receptors, the dust risk from the proposed development is considered to be high.

- 3.8 The dust mitigation measures described as “highly recommended” for high risk sites in the IAQM guidance are listed below, by category. Though these measures are mostly general good practise measures, they are all applicable to reducing the dust risk at sensitive ecological receptors.

Communications

- Implement a stakeholder communications plan that includes community engagement before and during work on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.

Dust Management Plan

- Implement a Dust Management Plan (DMP) (which may include measures to control other emissions), approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.
- Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. If the site is within a large AQMA (i.e. larger than 500m from the site), this should be extended to include all other high risk construction sites within the AQMA. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes).

Monitoring

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked.
- When activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions increase the frequency of inspections.
- Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Commence baseline monitoring at least three months before work

commences on site or, if it a large site, before work on a phase commences. A shorter monitoring period or concurrent upwind and downwind monitoring may be agreed by the local authority. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction [2].

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. Use screening intelligently where possible – e.g. locating site offices between potentially dusty activities and the receptors.
- Erect solid screens or barriers around the site boundary.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Depending on the duration that stockpiles will be present and their size - cover, seed, fence or water to prevent wind whipping.

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible.
- Use enclosed chutes, conveyors and covered skips, where practicable.
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Only use registered waste carriers to take waste off-site.
- Avoid bonfires and burning of waste materials.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. Use hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. Only remove the cover in a small areas during work and not all at once.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
 - Use water-assisted dust sweeper(s) on the access and local roads, to remove, as soon as practicable any material tracked out of the site. This may require the sweeper being continuously in use.
 - Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
 - Record all inspections of haul routes and any subsequent action in a site log book.
 - Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
 - Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as practicable.
 - Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site).
 - Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. This can be in the form of a static drive through facility or a manually operated power jet.
- 3.9 With the implementation of the “highly recommended” measures, the risk should be reduced to medium, or even low.
- 3.10 The IAQM document also provides measures described as “desirable” for high risk sites. These are as follows:
- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
 - Bag and remove any biological debris or damp down such material before demolition.
 - For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
 - Avoid dry sweeping of large areas.
 - Access gates to be located at least 10m from receptors where possible.
- 3.11 The IAQM has also published Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites [2]. Monitoring is recommended for any site where the risk before mitigation is higher than negligible.
- 3.12 For high-risk sites, the guidance recommends daily visual inspections to check for dust emissions across the perimeter, monitoring dustfall (as mass deposition rate and/or soiling rate) at nearby receptors, together with monitoring of dust flux across the site boundary (if there is a need to distinguish the contributions of the site from other sites or the general background). Continuous

PM₁₀ monitoring is also recommended if there are people nearby (e.g. houses, offices, schools, etc. within 350 m) who would be exposed.

Noise and Vibration

Effects

- 3.13 The proposals have the potential to generate significant noise during both site preparation and construction stages, notably as a result of ground clearance, vehicle movements and piling. Very loud noise (which can be defined as greater than 70 dB L_{Aeq}) and percussive noises have the potential to disturb birds, increasing time spent alert and in flight, reducing the available time to feed. Potential effects on the Swale SPA / Ramsar site are of particular concern.
- 3.14 Natural England has confirmed that it would appear that the movement of birds between the Swale and Medway Estuaries and Marshes SPA / Ramsar site is limited for most species, with the exception of Knot and to a lesser extent Redshank. Consequently, only two of these species need to be considered in relation to the effects of noise on the qualifying species of the Medway Estuary and Marshes SPA / Ramsar site.

Recommended Mitigation/Monitoring

- 3.15 The main avoidance and mitigation measures incorporated into the method to ensure that noise will have no significant adverse effects on any qualifying species of the Swale SPA / Ramsar site or Medway Estuary and Marshes SPA / Ramsar site include:
- A “soft start” to the piling operation;
 - Sensitive location of equipment, compounds and plant maintenance areas as required in the British Standard for “noise control on construction and open sites” (BS 5228) [3];
 - Limited night time construction or operational activity that could produce “startling” noise;
 - Commitment to the considerate contractors scheme in relation to timing and noise;
 - No access to the foreshore or designated sites; and
 - Retention of a “buffer” strip of habitat between the Swale SPA / Ramsar site and the nearest element of the development.

Light & Visual Effects

Effects

- 3.16 Lighting during both construction and operational phases of the proposed development has the potential to disturb the qualifying species of the Swale SPA / Ramsar site, as well as potentially Redshank on the Medway Estuary and Marshes SPA / Ramsar site due to the apparent movement of this species between the two sites. Available research indicates that ecological impacts following introduction of lighting could potentially include:
- Disruption of the daily rhythms of some species of plant resulting in changes in growth and flowering times;
 - Prolonged settling of nocturnal insects resulting in reduced feeding, breeding and egg laying;
 - Reduced ability of some species such as the Ground Lackey Moth to attract males and increased mortality of larvae due to delayed or failure to produce wintering pupae; and
 - Disruption of nocturnal bird behaviour such as roosting and feeding.
- 3.17 Although there is limited data on the extent to which the area is covered by the planning application is used by birds at night, it is increasingly being recognised that use birds make of both intertidal and terrestrial areas is potentially underestimated by studies that rely on daytime surveys alone. Light from the proposed development has the potential to illuminate both terrestrial and intertidal areas that support qualifying species of the Swale SPA / Ramsar site.
- 3.18 Due to the close proximity of the Swale SPA / Ramsar site and because the Kemsley foreshore is used by qualifying species, the effects of lighting are considered a potentially significant issue.

Recommended Mitigation/Monitoring

- 3.19 Lighting specific mitigation measures include:
- Commitment to the considerate contractors scheme in relation to timing and lighting;
 - No direct lighting of any designated areas; the development area at its closest will be 300 m from the Swale SPA / Ramsar site;
 - Careful siting of construction compounds;
 - Relatively low level directional lighting that limits spillage, glare or additional sky flow; and
 - Positioning of lighting so that it is screened from designated areas by the existing flood defences.

Other Recommended Mitigation/Monitoring Measures

- 3.20 The primary purpose of this document is to outline the recommended mitigation measures to prevent significant adverse effects to ecological receptors on nearby sensitive sites, particularly

the Swale SPA / Ramsar site. Mitigation measures specific to dust, noise and lighting are detailed above, however a number of other specific and general mitigation and monitoring measures are also recommended for ecological effect mitigation purposes.

3.21 Further recommended measures include:

- Avoidance of direct habitat loss;
- Provision of areas within the development site to support the species found on nearby Natura 2000 sites;
- Change in the management regimes of the areas of habitat being retained on the site through a comprehensive mitigation strategy and water level management plan;
- Inclusion of appropriate treatment and pollution prevention measures during both construction and operation of the SEP (as the surface water will continue to discharge into the Swale;
- Alterations to outfall structures or volumes discharged will be approved by the appropriate regulatory body or bodies;
- Monitoring studies in relation to changing the outfall, including hydromorphological and ecological, through all months of the year and through all states of the tide;
- The surface water drainage should incorporate Sustainable Urban Drainage Systems features to provide attenuation and storage, providing a range of additional environmental benefits; and
- Investigation and possible implementation of a site-wide water level management plan.

3.22 A number of mitigation measures included in the IAQM Dust and Air Emissions Mitigation Measures document [1] as “highly recommended” for high risk sites have been included below, rather than in the air quality section, as they are considered pertinent general mitigation measures:

- Implement a stakeholder communications plan that includes community engagement before and during work on site.
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
- Implement a Travel Plan that supports and encourages sustainable staff travel (public transport, cycling, walking, and car-sharing).

- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Ensure all vehicles switch off engines when stationary – no idling vehicles.
- Avoid scabbling if possible.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.

Glossary / Acronyms

AQMA – Air Quality Management Area

CCTV – Closed Circuit Television

CHP – Combined Heat and Power

DMP – Dust Management Plan

EMMP – Environmental Monitoring and Mitigation Plan

IAQM – Institute of Air Quality Management

PPE – Personal Protective Equipment

SEP – Sustainable Energy Plant

SPA – Special Protection Area

Appendices

Appendix 1: Method Statement

Contract: Kemsley Enabling Works – DS Smith Papermill **Date:** 20/05/13

Statement By: Angela Tinsley

Work Activity: Extension to Existing Trailer Park



Contents

1. Scope of Works
2. Sequence of Works
3. Arrangements for demarcation / Access & Egress
4. Method of Construction Engineering
5. Schedule of Plant, Equipment & Materials
6. Environmental Control Measures
7. Supervising Arrangements
8. Training Requirements
9. PPE
10. Site Rules & Emergency Procedures

Appendix

- A. Location Plan
- B. Phasing Plans
- C. Risk Assessment
- D. Management Chart



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1. Scope of Works

To extend the existing trailer park to the DS Smith Paper mill to allow introduction of new drainage system inclusive of ponds, underground services, trailer parking area & in doing so, also providing a separate access road to the future Sustainable Energy Plant (SEP) Site.

Existing parking area to be retained & repaired as necessary, whilst the extended area will comprise of new circulation & parking construction. To complete these works & maintain operations for DS Smith John Sisk and Sons Ltd are phasing the works. All phasing & commissioning work to be agreed with DS Smith in advance of each phase.

See appendix A – Location Plan

2. Sequence of Works

Works will be broken down into 4 main activities comprising of the Site Set Up & 3 main phases & SEP Access Road.

First Activity – Site Set up, will be completed prior to contract commencement date. This is to allow John Sisk and Sons Ltd time to complete all ancillary items prior to the anticipated start date. This will aid the efficiency of completing all 3 phases within the 12 week period.

Phase 1/2/3 – Will be completed sequentially. This is to allow DS Smith to maintain a parking facility for their vehicles as the facility will remain live throughout construction duration. Once a phase is complete John Sisk and Sons Ltd will move on to the next. The completed section will go into use by DS Smith.

SEP Access Road – Works associated with this area will be completed during the time allocated for Phase 1 through 3. Works within the SEP Road area can be coordinated with those works within the phases & also with the required operation of the facility. Final surfacing of the road will be completed once the Main SEP Site is completed.

3. Arrangements for demarcation of the works Access/Egress - Protection of others affected by the work

Demarcation of the working area will be via temporary heras fencing. Given the DS Smith parking requirements we shall be phasing the works & relocating the site boundary accordingly for each of those phases. Each time ensuring a segregated pedestrian routes & clear vehicular access into the area.

There will be designated crossing points to allow pedestrian & vehicular access to each working area. A Traffic Management Plan will be in place to ensure a timed access for each body requiring entry to the working area.

Signage will be displayed & Tool Box Talk given to the workforce upon transition from phase to phase.

See appendix B – Phasing Plans.

4. Method of Construction & Engineering

Upon possession of site John Sisk and Sons Ltd will meet with E.ON/DS Smith to ensure services are decommissioned where alterations/upgrading works are to take place. Alternatively those services remaining should be located & marked prior to breaking the ground.

Once services are disconnected &/or located then works can progress in accordance with subcontractor site specific (RAMS in full))RAMS & the necessary Permit to work issued by John Sisk and Sons Ltd & DS Smith. RAMS to be produced by the subcontractor upon placement of package. Once on site, the on-site Supervision will request all necessary Permits from DS Smith & in turn John Sisk and Sons Ltd to issue to the subcontractor after satisfactory review of all information associated.

Method of Construction would follow the sequence below;

- Site Set up
- Install Wheel wash
- Locate services
- Decommission Services
- Site Clearance
- Installation of Underground Services
- Excavation of pond
- Strip & Grade existing ground to formation level
- Cast bases for lighting/CCTV/Signage
- Complete road formation



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- Lay new surfacing
- Installation of fencing
- White lining
- Install barriers/fencing
- Where fencing / barriers are shown within footpath areas, these will be surfaced on completion of fencing / barriers.

Once subcontractors are appointment for each package they will produce job specific method statements which will describe in detail the installation procedures associated to each element.

5. Schedule of Plant/Equipment/Materials

Numbers & types TBA, pending placement of subcontractors & finality of specification.

Provisionally, for plant & equipment we would require 360 Excavators, Dumpers, roller, whacker plate, Floor Saw, Breakers, Generators, Flood Lights, accommodation/office supplies, fencing, signs, locks, skips, EDM, wheelbarrow, shovels, trowels.

Provisional materials required are stone, sand, pipe bedding, warning tape, asphalt, concrete, kerbing, lighting columns, ducting, drainage, fencing/barriers & possible planting.

6. Environmental Control Measures / Monitoring

Consideration & control measures will be required for the following items;

- **Potable Water** – initial testing to ensure water is fit for consumption
- **Dust** – reviewed daily to ensure wetting down is administered where & when required.

Wetting down of roads can be either by the means of a hose/trailer & bowser. Existing roads are concrete so the main issue will be the transfer of mud from the excavated areas to the hard surfaces. To overcome this issue we will locate a wheel-wash at the point of access/egress to each phase of the works. This can be easily relocated as we progress the works to ensure the wheel wash is located in the most suitable area for the works being completed at that time.

Another possible area where dust could be generated is by cutting kerbs/concrete for example. To overcome this we will not allow dry cutting on site, only wet.

- **Noise** – daily to ensure works are not exceeding limitations
- **Lighting** – daily/weekly to ensure temporary lighting is causing no visual concern to the facility or neighbours
- **Dewatering** – to be completed in accordance with an approved Dewatering Method Statement. Testing & monitoring as required.
- **Road Cleaning** – as required by deployment of road sweep

Others;

- **Temporary Works** – inspected daily/weekly as required. Register of all temporary works to be held in the site offices & be reviewed by the Temporary Works Coordinator & Temporary Works Supervisor. Any personnel working in or around a temporary works item should be made aware & have read the relevant method statement associated to that area.
- **COSHH (Control Of Substances Hazardous to Health)** – a register of all COSHH on site will be held in the H&S file.

Each subcontractor will review their RAMS & COSHH data sheets to ensure they are happy with the work & materials they are to use. Signed registers & RAMS to be held within the Sisk office. At any time the operative is able to review this documentation. Should they be unhappy with the procedures laid out, Sisk will review further with the subcontractors Management before any labour will commence work in this activity.

Once reviewed Tool Box Talk to be administered to the operatives to ensure any revisions to methods are completely understood by the workforce. Supervisors on site to ensure personnel are using materials properly & also using the correct PPE as intended.

Subcontractors' to provide their labour with all necessary & appropriate PPE.

All inspections to be recorded in the respective registers & held within the Sisk site offices. Should the contract be audited at any time, there should be a clear & orderly set of files within the office which denotes all inspections/methods/monitoring deployed on site.

Information should be present to support the daily/weekly control measures being expended on those items listed above.



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See appendix C – Risk Assessment.

7. Supervising Arrangements

Site will require a Site Manager & setting out Engineer to be based on site full time. Both personnel will be responsible for supervising all work activities throughout the duration of the project.

There will be a visiting H&S Manager, QS & CM who will attend site weekly/fortnightly to provide assistance & support in the progression of the works.

Off site there will also be support from the Environmental Manager.

Site Hours will generally be Monday to Friday 7.30am – 6pm.

See appendix D – Management Chart.

8. Training Requirements

In order to work within the DS Smith facility all personnel require Client Contractor National Safety Group, Construction Skills Certification Scheme or Institution of Occupational Safety & Health training.

Sisk operate a policy of ensuring all personnel hold a current CSCS card. Should the personnel be operating plant then we require a CPC card.

In addition to the CSCS card Sisk supervisors will also have completed Site Manager Safety Training S training. From that point Subcontractor Supervisors will have more task specific training for example avoidance of buried services/confined space training or changing abrasive wheel training etc.

Sisk staff are continually trained as part of their personal development plan. Evidence of which can be provided upon request.

9. Personal Protective Equipment

Basic PPE for all Sisk Staff & Personnel on site are;

- Protective footwear – no riggers allowed
- Hi-Vis Jacket – yellow
- Full length trousers, long sleeve tops
- Hard Hat
- Eye Protection
- Gloves

Any task specific PPE to be determined in the site specific RAMS for each particular trade.

10. Site Rules/ Emergency Procedures

Site Rules Do's















- All personnel to complete Neovia Site Induction
- All personnel to complete Sisk Site Induction
- All personnel to be signed up to general permit to work











- **DO** Report & Sign in at security when entering site
- **DO** Sign out when leaving site



- **DO** Wear eye safety protection glasses at all times
- **Other eye protection required for specific tasks** for specific tasks such as grinding, welding etc this will require the use of full-face visor as well as goggles.
- **Type of eye protection to be specified by detailed risk assessment**
- **Full face visor to be used with all abrasive wheels**

	<ul style="list-style-type: none"> <u>DO</u> Wear a safety helmet at all times in construction areas. <u>DO</u> Chin straps should be worn when working on roofs, elevated areas etc
	<ul style="list-style-type: none"> <u>DO</u> Wear safety footwear (Boots) incorporating steel toecaps and reinforced mid soles. <u>Rigger boots are not permitted</u>
	<ul style="list-style-type: none"> <u>DO</u> wear Gloves Gloves are mandatory in SISK areas only <u>Type of eye protection to be specified by detailed risk assessment</u> This includes supervisors
	<ul style="list-style-type: none"> <u>DO</u> Wear Hi Vis vest / jacket with your employer's name / logo printed on the back. All hi-vis vests jackets must be orange in colour All high vis clothing must be in good condition and clean.
	<ul style="list-style-type: none"> <u>Hearing protection must be carried by all persons on site and used where signs are displayed or where a risk assessment/ method statement states.</u>
	<ul style="list-style-type: none"> <u>DO</u> Take care while driving on-site and observe the site speed limit of 15 MPH Internal Roads, 10MPH Car Parks.
	<ul style="list-style-type: none"> <u>DO</u> proceed to the Assembly Point in the Site compound. The location of the assembly point will be pointed out during your induction. <u>Any changes in the emergency procedure will be communicated through toolbox talks</u> Know where all emergency exit doors / routes are for the area you are working in. (These can change daily)
	<ul style="list-style-type: none"> <u>DO</u> Contact your Supervisor in the event of an emergency.
	<ul style="list-style-type: none"> <u>DO</u> Report all accidents, near misses and unsafe work conditions to your immediate Supervisor or Safety Officer. <u>Neovia First Aid & Emergency Number ext 600</u> In the event of a fire call raise the alarm, call Neovia Security on 01455 826601 & proceed to nearest exit to assemble at designated muster point Follow emergency procedures
	<ul style="list-style-type: none"> <u>DO</u> Ensure that all electrical tools are 110V or lower. <u>DO</u> Ensure there are no overhead or buried power lines in your work area. <u>All tools must be PAT tested on a 6 monthly basis.</u> <u>All site accommodation will be PAT tested on a yearly basis</u> <u>All equipment must be clearly tagged with PAT tested stickers/ labels</u>
	<ul style="list-style-type: none"> <u>DO</u> Keep work areas tidy at all times operate a "clean as you go" system of work.
Site Rules Don'ts	
	<ul style="list-style-type: none"> <u>DO NOT use Neovia Skips for waste, use designated skips in Sisk contractor compound</u>
	<ul style="list-style-type: none"> <u>DO NOT</u> Carry out work on roofs, hot work, work on electrical installations, enter confined spaces, excavations, enter live areas of the store or make connections to services without authorisation from the Sisk/ Neovia Logistics or without having a permit in place.
	<ul style="list-style-type: none"> <u>DO NOT</u> Use faulty tools, plant or equipment – Report such defects to you Supervisor. <u>DO NOT</u> Operate any Plant/Machinery unless you have been trained / certified and have a

	current certificate/ticket.
	<ul style="list-style-type: none"> • <u>DO NOT</u> park on site or cause obstruction for facility vehicles • <u>Use the dedicated car parking</u>
	<ul style="list-style-type: none"> • <u>DO NOT</u> SMOKE on site • Smoking is only permitted in designated areas which are clearly defined around the site
	<ul style="list-style-type: none"> • <u>DO NOT</u> Enter site if you are under the influence of alcohol or drugs. Consume food or drink outside of the compound area. This includes the car park.
	<ul style="list-style-type: none"> • <u>DO NOT</u> Ride as a passenger on any forklift, dumper, JCB or other mobile plant. • <u>DO NOT</u> Drive any vehicle unless you are authorised to do so, hold a full driving licence/ CSCS card and are over 18.
	<ul style="list-style-type: none"> • <u>DO NOT</u> Remove boards, handrails or tamper in any way with scaffolding unless qualified & authorized to do so to do so.
	<ul style="list-style-type: none"> • <u>DO NOT</u> Work with any chemical or hazardous material unless you know the proper precautions to be taken, storage requirements and Protective equipment • <u>SDS / COSHH sheet must be referred to, to confirm handling and emergency requirements</u> required
	<ul style="list-style-type: none"> • <u>DO NOT</u> Change abrasive/cutting wheels unless you are trained

Additional DS Smith Rules;

- Pedestrians to use footpaths & designated crossing points
- Wear hearing protection when entering a marked area
- Must wear seatbelts on mobile plant
- Only trained personnel to use lifting plant/equipment
- Segregate waste & dispose in the designated skips
- Do not dispose of any substance down the drains
- Adhere to the Permit to Work procedures DS Smith general requirements below, however more specific permits like 'hot works' will require job specific forms. Once DS Smith Permit to work in place then Sisk in turn will issue a permit to operating personnel. All relevant staff must be signed up to the permit at all times. (Ref Doc: DS Smith Contractor Induction 2013)

Contract: Kemsley Combined Heat and Power Facility (K3) **Date:** 01/07/13

Statement By: Angela Tinsley

Work Activity: Sustainable Energy Plant at DS Smith Papermill



Contents

11. Scope of Works
12. Sequence of Works
13. Arrangements for demarcation / Access & Egress
14. Method of Construction Engineering
15. Schedule of Plant, Equipment & Materials
16. Environmental Control Measures
17. Supervising Arrangements
18. Training Requirements
19. PPE
20. Site Rules & Emergency Procedures

Appendix

- E. Location Plan
- F. Risk Assessment
- G. Management Chart



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1. Scope of Works

The proposed work is to build 'Kemsley Combined Heat and Power Facility (K3)'. The facility shall produce electricity for the national grid, as well as steam for the adjacent DS Smith paper factory (the paper mill)

Waste will generally be delivered from Kent, North London and South-eastern UK and shall arrive by road or by train to the Ridham Dock handling station, where it will be transferred to HGVs in containers for delivery to the Site.

The Works shall include the design, procurement, construction, erection, commissioning and testing, and certifying of the K3 facility, complete with new site access road, associated drainage and hard standings.

See appendix A – Location Plan

2. Sequence of Works

Initially we will focus on the following areas of works;

- **Enabling Works**
- **Site Establishment**
- **Laydown / Access Road**

Civil Works be the predominant activity during the 1st year, with a combination of Civil & Process activities for the following years. We will focus on the core process areas before expanding into all areas of site;

- **Bunker / Turbine Hall / Boiler** – to allow process contractor to start
 - Foundations & Piling – both trades will then continue into the remaining areas
 - R.C Structures
 - Steel / Cladding / Roofing
 - Process Installation
 - Building Services & Architectural fit-out following the completion of process contractor
- **Ancillary Areas**
 - Tipping Hall / Flue Gas / ACC / Admin – which will follow for second stage process install
 - Piling / Foundations
 - R.C Structures
 - Steel Structures
 - Cladding / Roofing
 - Building Services
- **Plant Interface**
 - Early for temp services
 - Later for process utilities
- **Other Site Structures**
 - Sprinklers / Fuel Storage / Electrical Compound
- **Site Services**
 - Progress main lines throughout the job
- **Hard Landscaping**
 - Roads / Ponds / Storage etc local connections at hard landscaping
- **Soft Landscaping**
 - To progress as laydown areas are cleared

3. Arrangements for demarcation of the works Access/Egress - Protection of others affected by the work

Demarcation of the working area will be via temporary heras fencing which shall be established upon possession of the site. The site boundary will remain until the completion of the project.

Segregated pedestrian routes & vehicular routes will be established throughout the compound area & planned accordingly for access out onto the site. This will allow all personnel safe efficient access to each working area. Routes will be inspected daily/weekly to ensure all routes are kept clear & safe for use.

There will be designated crossing points around the site to allow both pedestrian & vehicular access, in accordance with an approved Traffic Management Plan. Signage will be displayed & Tool Box Talk given to the workforce to ensure all personnel are aware of the routes & happy to use them prior to commencing their work.

There will be a security hut to log all deliveries coming to & from site whilst ensuring all drivers are entering site with the correct PPE.



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4. Method of Construction & Engineering

Upon possession of site John Sisk and Sons Ltd will meet with E.ON/DS Smith to ensure services are decommissioned where alterations/upgrading works are to take place. Alternatively those services remaining should be located & marked prior to breaking the ground.

Once services are disconnected &/or located then works can progress in accordance with subcontractor site specific risk assessment & method statements along with the necessary Permit to work, issued by John Sisk and Sons Ltd & DS Smith. RAMS to be produced by the subcontractor upon placement of package. Once on site, the on-site Supervision will request all necessary Permits from DS Smith & in turn John Sisk and Sons Ltd to issue to the subcontractor after satisfactory review of all information associated.

Method of Construction would follow the sequence below;

- Site Set up
- Install Wheel wash
- Locate services
- Decommission Services
- Site Clearance
- Installation of piling matt
- Install piling/pile caps
- Excavate bunker
- Installation of Underground Services/ducting
- Cast ground slabs
- Cast walls
- Excavate/line pond
- Installation of steelwork
- Installation of cladding/roofing
- Install M&E
- Install Fixtures & Fittings
- Cast bases for lighting/CCTV/Signage
- Complete road formation
- Lay new surfacing
- Installation of fencing
- White lining
- Install barriers/fencing

Once subcontractors are appointment for each package they will produce job specific method statements which will describe in detail the installation procedures associated to each element.

5. Schedule of Plant/Equipment/Materials

Numbers & types TBA, pending placement of subcontractors & finality of specification.

Provisionally, for plant & equipment we would require piling rigs, cranes, 360 Excavators, Dumpers, roller, whacker plate, Floor Saw, Breakers, Generators, Flood Lights, accommodation/office supplies, fencing, signs, locks, skips, EDM, wheelbarrow, shovels, trowels.

Provisional materials required are steel, cladding, roofing, brick/block-work, stone, sand, pipe bedding, warning tape, asphalt, concrete, pumps, kerbing, lighting columns, ducting, drainage, fencing/barriers, internal decorations, fixtures/fittings & possible planting.

6. Environmental Control Measures / Monitoring

Consideration & control measures will be required for the following items;

- **Potable Water** – initial testing to ensure water is fit for consumption
- **Dust** – reviewed daily to ensure wetting down is administered where & when required.

Wetting down of roads can be either by the means of a hose/trailer & bowser. Existing roads are concrete so the main issue will be the transfer of mud from the excavated areas to the hard surfaces. To overcome this issue we will locate a wheel-wash at the point of access/egress to each phase of the works. This can be easily relocated as we progress the works to ensure the wheel wash is located in the most suitable area for the works being completed at that time.

Another possible area where dust could be generated is by cutting kerbs/concrete for example. To overcome this we will not allow dry cutting on site, only wet.

- **Noise** – daily to ensure works are not exceeding limitations



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- **Lighting** – daily/weekly to ensure temporary lighting is causing no visual concern to the facility or neighbours
- **Dewatering** – to be completed in accordance with an approved Dewatering Method Statement. Testing & monitoring as required.
- **Road Cleaning** – as required by deployment of road sweep

Others;

- **Temporary Works** – inspected daily/weekly as required. Register of all temporary works to be held in the site offices & be reviewed by the Temporary Works Coordinator & Temporary Works Supervisor. Any personnel working in or around a temporary works item should be made aware & have read the relevant method statement associated to that area.
- **COSHH (Control Of Substances Hazardous to Health)** – a register of all COSHH on site will be held in the H&S file.

Each subcontractor will review their RAMS & COSHH data sheets to ensure they are happy with the work & materials they are to use. Signed registers & RAMS to be held within the Sisk office. At any time the operative is able to review this documentation. Should they be unhappy with the procedures laid out, Sisk will review further with the subcontractors Management before any labour will commence work in this activity.

Once reviewed Tool Box Talk to be administered to the operatives to ensure any revisions to methods are completely understood by the workforce. Supervisors on site to ensure personnel are using materials properly & also using the correct PPE as intended.

Subcontractors' to provide their labour with all necessary & appropriate PPE.

All inspections to be recorded in the respective registers & held within the Sisk site offices. Should the contract be audited at any time, there should be a clear & orderly set of files within the office which denotes all inspections/methods/monitoring deployed on site.

Information should be present to support the daily/weekly control measures being expended on those items listed above.

See appendix B – Risk Assessment.

7. Supervising Arrangements

Site will have a significant team of personnel based on site full time. (Management Chart shows the Core Team.) Area engineers & foreman reporting to a Project Manager, in turn reporting to the Main Contracts Manager.

There will also be a full time H&S Advisor based on site, whilst the H&S Manager will be based off-site visiting weekly/fortnightly. H&S Manager will be able to provide further assistance to the onsite Advisor & give all of the necessary support to aid the safe progression of the works.

There will be on onsite commercial team dedicated to managing & maintaining all aspects of client/subcontractors requirements.

Off site there will also be support from the Environmental Manager & Regional Director as required.

See appendix C – Management Chart.

8. Training Requirements

In order to work within the DS Smith facility all personnel require Client Contractor National Safety Group, Construction Skills Certification Scheme or Institution of Occupational Safety & Health training.

Sisk operate a policy of ensuring all personnel hold a current CSCS card. Should the personnel be operating plant then we require a CPCS card.

In addition to the CSCS card Sisk supervisors will also have completed Site Manager Safety Training S training. From that point Subcontractor Supervisors will have more task specific training for example avoidance of buried services/confined space training or changing abrasive wheel training etc.

Sisk staff are continually trained as part of their personal development plan. Evidence of which can be provided upon request.

9. Personal Protective Equipment










Basic PPE for all Sisk Staff & Personnel on site are;















- Protective footwear – no riggers allowed
- Hi-Vis Jacket – yellow
- Full length trousers, long sleeve tops
- Hard Hat
- Eye Protection
- Gloves

Any task specific PPE to be determined in the site specific RAMS for each particular trade.

10. Site Rules/ Emergency Procedures


Site Rules Do's

	<ul style="list-style-type: none"> • All personnel to complete Neovia Site Induction • All personnel to complete Sisk Site Induction • All personnel to be signed up to general permit to work
	<ul style="list-style-type: none"> • <u>DO Report & Sign in</u> at security when entering site • <u>DO Sign out</u> when leaving site
	<ul style="list-style-type: none"> • <u>DO</u> Wear eye safety protection glasses at all times • <u>Other eye protection required for specific tasks</u> for specific tasks such as grinding, welding etc this will require the use of full-face visor as well as goggles. • <u>Type of eye protection to be specified by detailed risk assessment</u> • <u>Full face visor to be used with all abrasive wheels</u>
	<ul style="list-style-type: none"> • <u>DO</u> Wear a safety helmet at all times in construction areas. • <u>DO</u> Chin straps should be worn when working on roofs, elevated areas etc
	<ul style="list-style-type: none"> • <u>DO</u> Wear safety footwear (Boots) incorporating steel toecaps and reinforced mid soles. • <u>Rigger boots are not permitted</u>
	<ul style="list-style-type: none"> • <u>DO</u> wear Gloves • Gloves are mandatory in SISK areas only • <u>Type of eye protection to be specified by detailed risk assessment</u> • This includes supervisors
	<ul style="list-style-type: none"> • <u>DO</u> Wear Hi Vis vest / jacket with your employer's name / logo printed on the back. • All hi-vis vests jackets must be orange in colour • All high vis clothing must be in good condition and clean.
	<ul style="list-style-type: none"> • <u>Hearing protection must be carried by all persons on site and used where signs are displayed or where a risk assessment/ method statement states.</u>
	<ul style="list-style-type: none"> • <u>DO</u> Take care while driving on-site and observe the site speed limit of 15 MPH Internal Roads, 10MPH Car Parks.
	<ul style="list-style-type: none"> • <u>DO</u> proceed to the Assembly Point in the Site compound. The location of the assembly point will be pointed out during your induction. • <u>Any changes in the emergency procedure will be communicated through toolbox talks</u> • Know where all emergency exit doors / routes are for the area you are working in. (These can change daily)

	<ul style="list-style-type: none"> <u>DO</u> Contact your Supervisor in the event of an emergency.
	<ul style="list-style-type: none"> <u>DO</u> Report all accidents, near misses and unsafe work conditions to your immediate Supervisor or Safety Officer. <u>Neovia First Aid & Emergency Number ext 600</u> In the event of a fire call raise the alarm, call Neovia Security on 01455 826601 & proceed to nearest exit to assemble at designated muster point Follow emergency procedures
	<ul style="list-style-type: none"> <u>DO</u> Ensure that all electrical tools are 110V or lower. <u>DO</u> Ensure there are no overhead or buried power lines in your work area. <u>All tools must be PAT tested on a 6 monthly basis.</u> <u>All site accommodation will be PAT tested on a yearly basis</u> <u>All equipment must be clearly tagged with PAT tested stickers/ labels</u>
	<ul style="list-style-type: none"> <u>DO</u> Keep work areas tidy at all times operate a "clean as you go" system of work.
Site Rules Don'ts	
	<ul style="list-style-type: none"> <u>DO NOT</u> use Neovia Skips for waste, use designated skips in Sisk contractor compound
	<ul style="list-style-type: none"> <u>DO NOT</u> Carry out work on roofs, hot work, work on electrical installations, enter confined spaces, excavations, enter live areas of the store or make connections to services without authorisation from the Sisk/ Neovia Logistics or without having a permit in place.
	<ul style="list-style-type: none"> <u>DO NOT</u> Use faulty tools, plant or equipment – Report such defects to you Supervisor. <u>DO NOT</u> Operate any Plant/Machinery unless you have been trained / certified and have a current certificate/ticket.
	<ul style="list-style-type: none"> <u>DO NOT</u> park on site or cause obstruction for facility vehicles <u>Use the dedicated car parking</u>
	<ul style="list-style-type: none"> <u>DO NOT</u> SMOKE on site Smoking is only permitted in designated areas which are clearly defined around the site
	<ul style="list-style-type: none"> <u>DO NOT</u> Enter site if you are under the influence of alcohol or drugs. Consume food or drink outside of the compound area. This includes the car park.
	<ul style="list-style-type: none"> <u>DO NOT</u> Ride as a passenger on any forklift, dumper, JCB or other mobile plant. <u>DO NOT</u> Drive any vehicle unless you are authorised to do so, hold a full driving licence/ CSCS card and are over 18.
	<ul style="list-style-type: none"> <u>DO NOT</u> Remove boards, handrails or tamper in any way with scaffolding unless qualified & authorized to do so to do so.
	<ul style="list-style-type: none"> <u>DO NOT</u> Work with any chemical or hazardous material unless you know the proper precautions to be taken, storage requirements and Protective equipment <u>SDS / COSHH sheet must be referred to, to confirm handling and emergency requirements required</u>
	<ul style="list-style-type: none"> <u>DO NOT</u> Change abrasive/cutting wheels unless you are trained

Additional DS Smith Rules; (applicable to activities outside of main site boundary)

- Pedestrians to use footpaths & designated crossing points
- Wear hearing protection when entering a marked area
- Must wear seatbelts on mobile plant
- Only trained personnel to use lifting plant/equipment
- Segregate waste & dispose in the designated skips
- Do not dispose of any substance down the drains
- Adhere to the Permit to Work procedures DS Smith general requirements below, however more specific permits like 'hot works' will require job specific forms. Once DS Smith Permit to work in place then Sisk in turn will issue a permit to operating personnel. All relevant staff must be signed up to the permit at all times. **(Ref Doc: DS Smith Contractor Induction 2013)**



Requester: _____

GENERAL PERMIT TO WORK / CONFINED SPACE
This permit can only be issued by an Authorised Person

1. ISSUE

Work Order _____ OR Method Statement _____ OR S&OW _____
OR Other (i.e. Dynamic Risk Assessment) _____
Equipment/Location where the work is to be done _____
Description of the Work to be done _____


Isolations	Key No.	Initials	Isolations	Key No.	Initials

Key Safe No. _____ Personal Lock No. _____

Control Measures / Precautions _____

ADDITIONAL DOCUMENTS
Hot work Permit No. _____ Working at Height Permit _____ Excavation Permit _____ HV Permit _____

☐ Confined Space Required. (Section 3 to be completed prior to entry)



I hereby certify that the above Isolations / Control Measures / Precautions have been applied.
ALL OTHER PARTS ARE DANGEROUS
Signed _____ PRINT NAME _____ Time _____ Date _____
Being an Authorised Person possessing authority to issue a General Permit to Work for the work specified.

PERMIT NO. _____

2. ACCEPTANCE BY PERSON IN CHARGE OF THE WORK, HAVING AUTHORITY TO RECEIVE A PERMIT
I hereby declare that I accept responsibility for this General Permit to Work and that I am the person in charge of carrying out the work referenced in section 1.
Signed _____ Print Name _____ Company _____ Time _____ Date _____
I understand that it is my duty to brief all the persons in the working party and complete the briefing log in section 7.

3. CONFINED SPACE (Where applicable)

TYPE OF GAS	%	PPM	LEL	UEL	SPECIALIST ADVISOR'S SIGNATURE	TIME	DATE

G/S Purged of gasses or fluids	G/S heat stress assessed	Winch & tripod / davit
Pushing of hazardous substances	Adequate lighting	Escape sets for each entrant
Drains left open	Correct PPE worn by entrants	Means of summoning help
Safe means of access & egress	Personnel G/S trained	Adequate rescue provision
G/S ventilated to ensure airflow	Safety harness & lifelines	Continuous monitoring

Confined Space safety watchman is _____
Confined Space may now be entered, Signed _____ Print Name _____

4. PERMIT TRANSFER
Permit transfer must be done by an authorised person & be completed on all copies of permit.

FIRST TRANSFER:
FROM Receiver, Print Name _____ Sign _____ Time _____ Date _____ Authorised Person _____
TO Receiver, Print Name _____ Sign _____ Time _____ Date _____ Authorised Person _____

SECOND TRANSFER:
FROM Receiver, Print Name _____ Sign _____ Time _____ Date _____ Authorised Person _____
TO Receiver, Print Name _____ Sign _____ Time _____ Date _____ Authorised Person _____

5. CLEARANCE
The Working Party under my control has been warned that any equipment specified is no longer safe to work on and not to carry out further works in the area referred to. All equipment and tools are clear. All guards that have been removed within this General Permit to Work have been replaced.

☐ THE WORKING PARTY HAS BEEN WITHDRAWN
☐ COMPLETED WORK

☐ INCOMPLETE WORK
Comments _____

Signed _____ Print Name _____ Company _____ Time _____ Date _____

6. CANCELLATION
I being an Authorised Person hereby certify that this General Permit to Work and all copies of the same is now cancelled and that the machinery and plant are no longer safe to work on.
Signed _____ Print Name _____ Time _____ Date _____
Being an Authorised person possessing authority to cancel a General Permit to Work for the work specified.

Emergency Procedures;

- Make your way to the nearest exit & head to the fire assembly point
- Assemble at the muster point, remain until role call has been taken
- DS Smith Emergency number – 01795 51 4111 (First Aid & Emergency Response Team)

Non Emergency Procedures

- Feeling tired or injury – 01795 51 4100 (First Aid)

All accidents / incidents to be reported to the Sisk Supervision & in turn Sisk to report to DS Smith Site Contact.

Signed: _____

Date: _____



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Appendices:

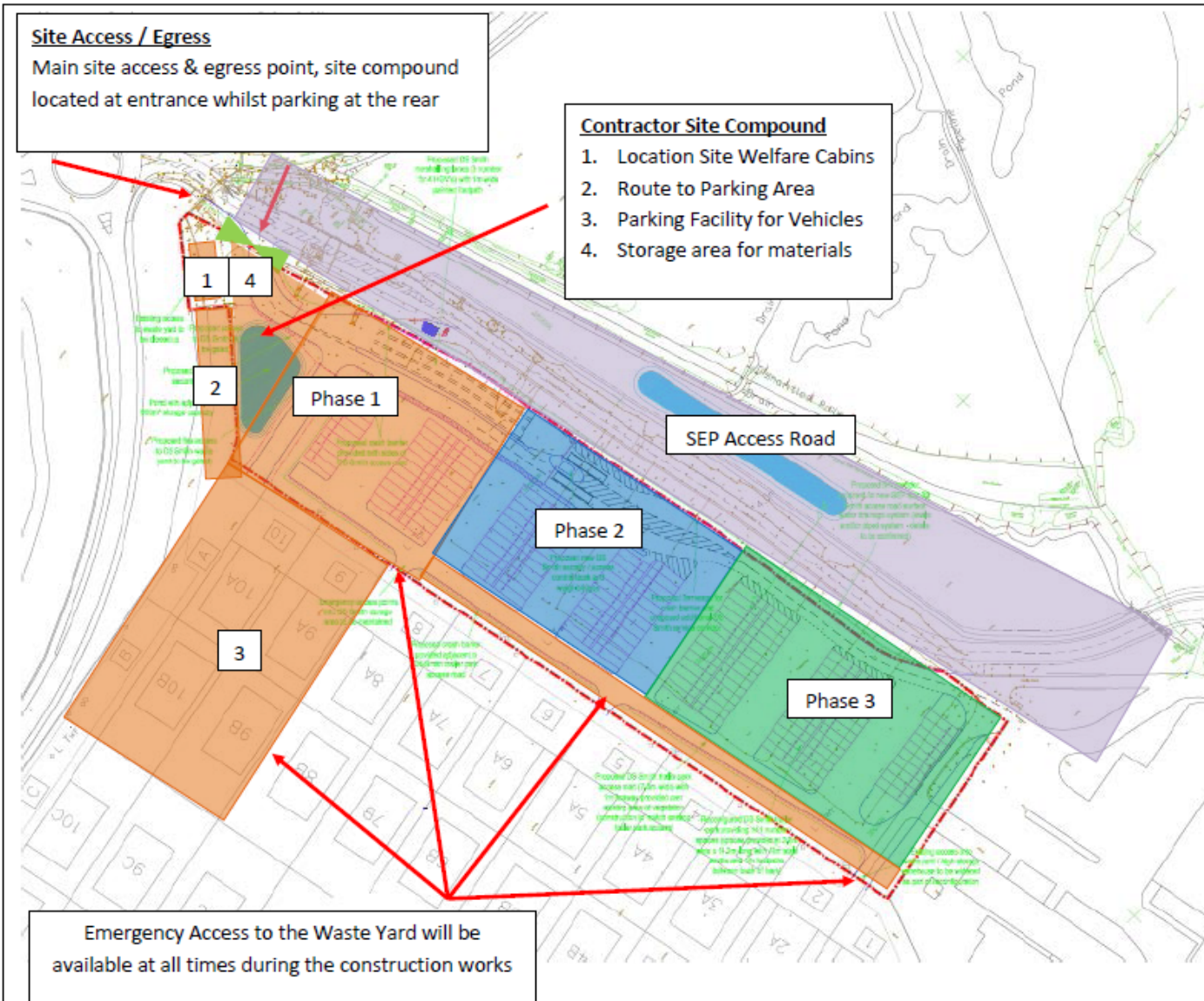
- A. Location Plan
- B. Phasing Plans
- C. Risk Assessment
- D. Management Chart

Appendix A Location Plan – Kemsley



	<p>John Sisk & Son Limited Job Specific Method Statement</p>	<p>SFSA 48 Rev 00 Jan 2004</p>
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Appendix B – Phasing Plans (Rev B)

All Phases

Extension / upgrade works to the trailer park will be split into 3 Phases to allow DS Smith to continue use of the parking facility.

Phase 1 – New Extended Areas

Phase 2 – Upgrade Works to Parking

Phase 3 – Upgrade Works to Parking

SEP Access Road – New Pond & Drainage / New SEP Road

(Elements of works within area for 'SEP' will be commenced during the previous 3 Phases of the trailer park works. 'SEP' works are outside of the DS Smith operational area therefore no restriction on commencement dates.)

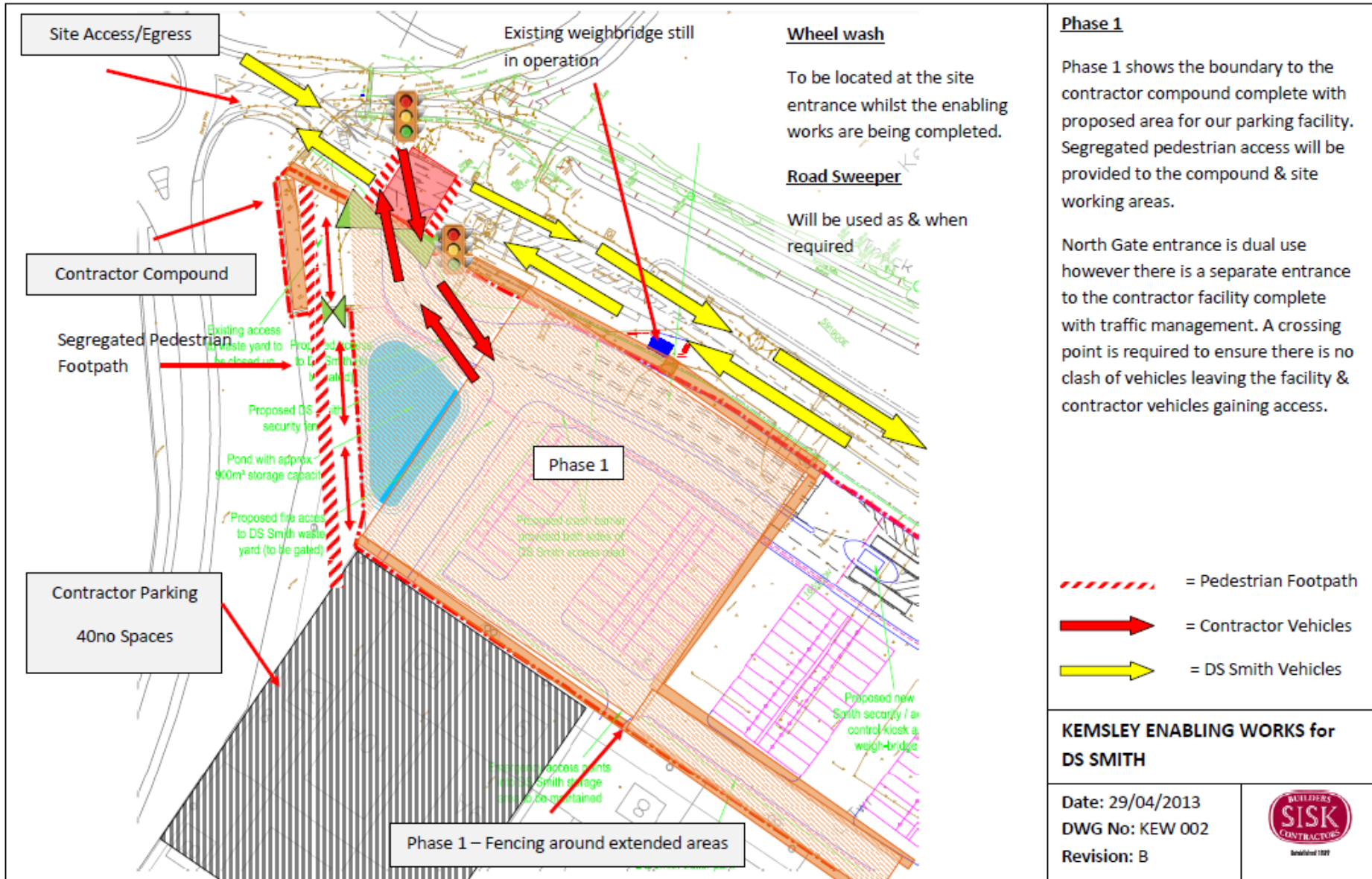
**KEMSLEY ENABLING WORKS for
DS SMITH**

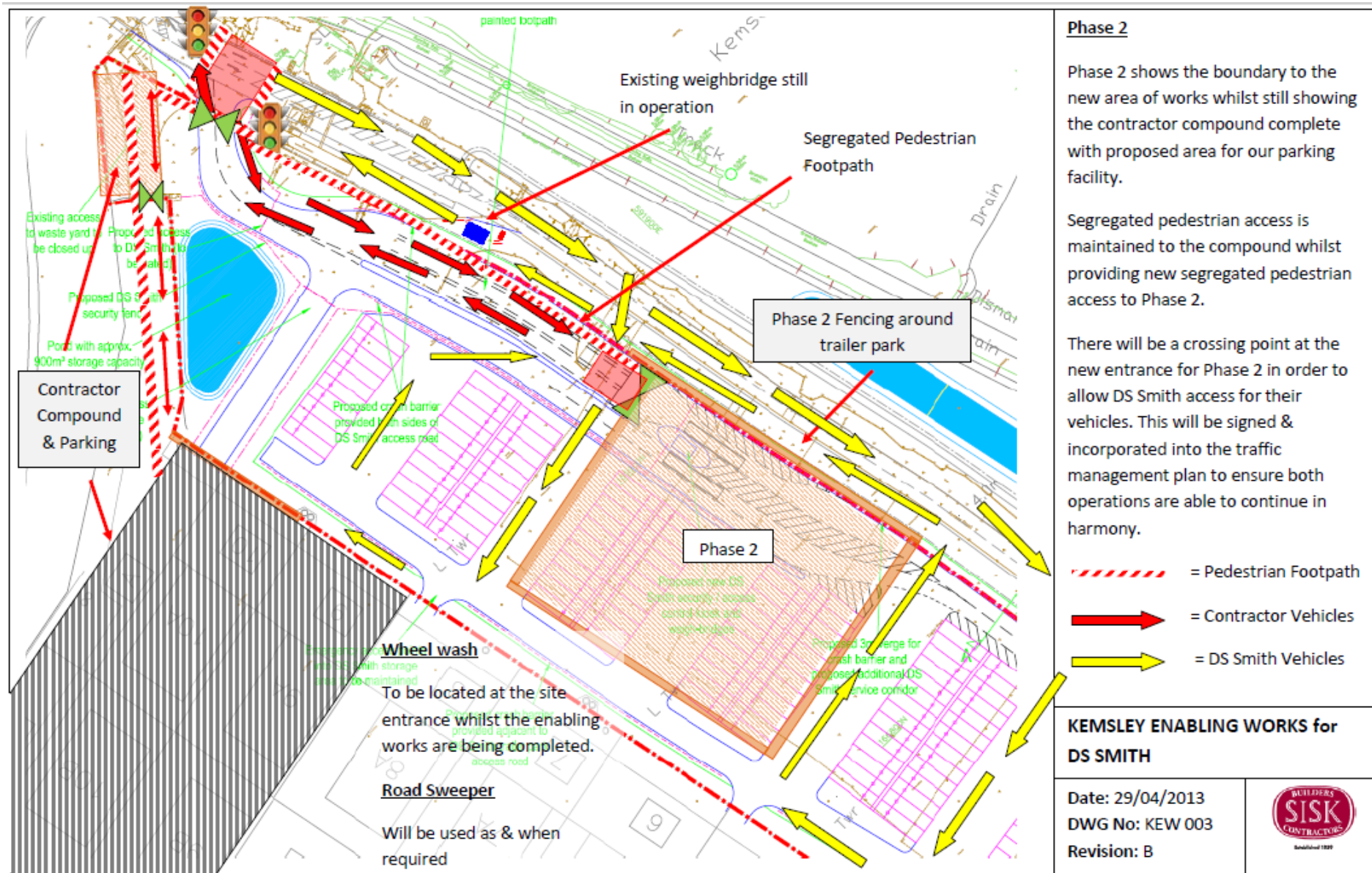
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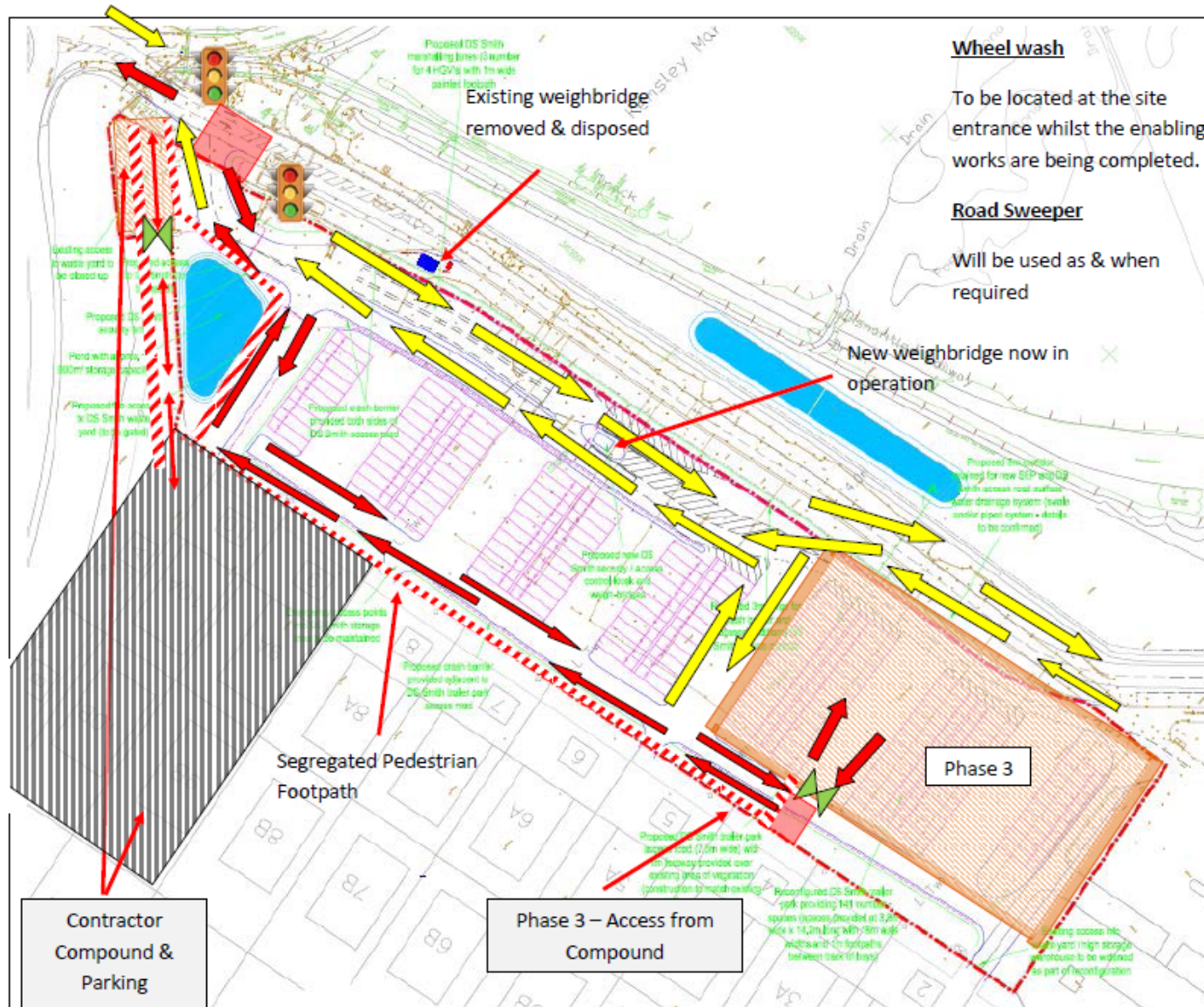
DWG No: KEW 001

Revision: B









Phase 3

Phase 3 shows the boundary to the new area of works whilst still showing the contractor compound complete with proposed area for our parking facility.

Segregated pedestrian access is maintained to the compound whilst providing new segregated pedestrian access to Phase 3.

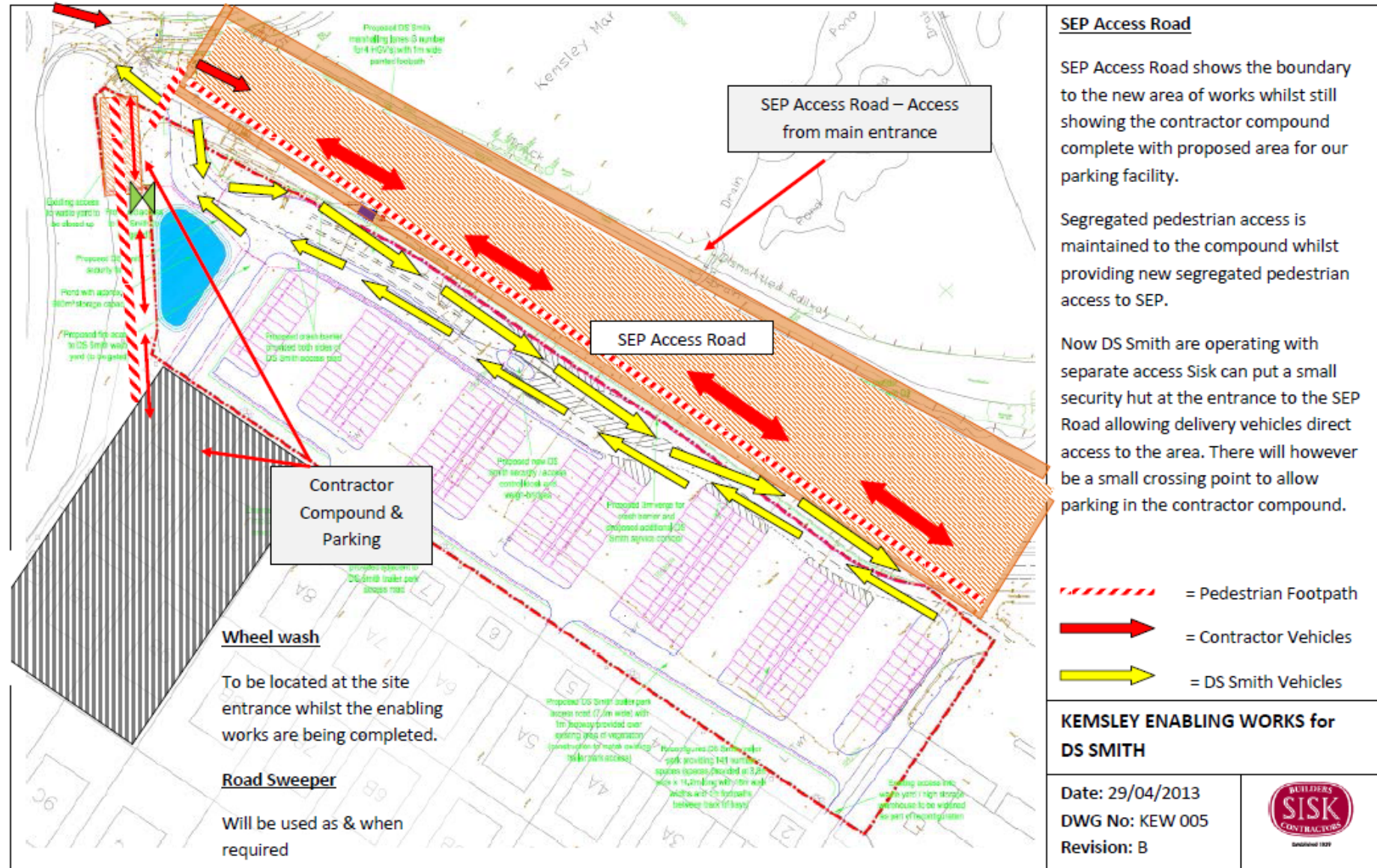
There will be a crossing point at the new entrance for Phase 3 in order to allow DS Smith access for their vehicles. This will be signed & incorporated into the traffic management plan to ensure both operations are able to continue in harmony.

-  = Pedestrian Footpath
 = Contractor Vehicles
 = DS Smith Vehicles

**KEMSLEY ENABLING WORKS for
DS SMITH**

Date: 29/04/2013
DWG No: KEW 004
Revision: B





	<p>John Sisk & Son Limited Job Specific Method Statement</p>	<p>SFSA 48 Rev 00 Jan 2004</p>
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Appendix C – Risk Assessment



John Sisk & Son Limited
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No	Outline of Operation	Main Hazards Identified	Control Arrangements Required	Documentation Required	Date
1	Unloading operations	Falls from height Vehicle striking pedestrians Collision with other Plant or Crane/load Falling or toppling loads Toppling or surcharge of materials/pipes Overturning of vehicle Manual Handling	Adequate proprietary fall mitigation measures in place where work at height cannot be eliminated. Trained vehicle marshal to supervise and control all movement of reversing vehicles. Adequate segregation of pedestrians and plant. Controlled and supervised storage area/unloading area. Competent lifting planning, supervision, co-ordination and execution. Provision of safe means of stacking and storing materials likely to move, surcharge or collapse. Minimise manual handling by use of mechanical means determined through risk assessment. All vehicles to be proven roadworthy and be in possession of all required proof of maintenance, inspection and examination. All works to be carried out under 'take 5' procedure.	Contractor RAMS Proof of training Neovia Vehicle Entry Procedure Sisk Plant Arrival SFSA 52 Sisk Crane Arrival SFSA 32 Lifting Plan	
2	Mobile Plant Movement	Collision with pedestrians or other plant. Overturning. Crushing of pedestrians against static object. Operators struck by falling objects	Safely designed vehicle routes to avoid reversing where possible. Routes must not traverse inclines. Clearly marked and maintained safe pedestrian routes, crossing points and refuges. Edge protection and anchored stop blocks at excavation edges. Trained operators. Fully functional audible and visual warning devices. Daily pre use checks by operator, formal recorded weekly inspections. Vehicle marshalling for all reversing operations. Attendant spotters for excavators. All works to be carried out under 'take 5' procedure.	Traffic Management Plan Vehicle and pedestrian safety rules. Contractor RAMS CPCS or equivalent licences. Weekly Inspection (Contractor Returns System) Neovia Vehicle Entry Procedure Sisk Plant Arrival SFSA 52 Sisk Crane Arrival SFSA 32 Lifting Plan	
3	Establishment of Site Accommodation	'Unloading operations' Manual Handling Electricity Waterborne disease (Weils disease) Toppling or collapse of temporary building/structure Contact with buried services Fire	Minimise manual handling by use of mechanical means determined through risk assessment. All site electrical equipment for use in offices and welfare must be PAT tested. Temporary Electrical services are to be installed and tested to current IEE (17 th Edition) Wiring Regulations by a competent electrician, using an approved safe system of work. Good hygiene practices after any contact with groundwater or mud. Gloves to be worn as standard PPE. Temporary accommodation will be erected in accordance with manufacturers design and instructions by competent persons using a safe system of work. Temporary accommodation will be fire rated in accordance with 7 th Edition 'Fire Prevention on Construction Sites' Code of practice. No smoking other than at designated smoking points. Safe systems of work are to be employed for any work requiring anything to be placed in the ground, under a Permit To Work system. All works to be carried out under take 5.	Cross refer to No 1 Contractor RAMS Temporary electrical safety certification. Proofs of competence. Manufacturers design and instruction documents Permit to Dig/Excavate/Drive Piles. Induction Weil's disease warning cards. Fire Risk Assessment Fire safety and emergency plan.	
4	Establishment of Fencing and pedestrian segregation	Buried Services Manual Handling Vehicle impact with pedestrian Slips, trips and falls Flying particles (wind blown dust)	1. All plant operators to be competent to operate plant provided. 2. Warning signage and minimum speed limits to be displayed in work area. 3. All site specific PPE required including hi visibility clothing to be worn at all times. Correct glove type to be worn. 4. A Method Statement to be prepared by subcontractor. 5. Ground surveyed with CAT scanner or similar equipment before excavation	Contractor RAMS Proofs of competence. Manufacturers design and instruction documents Permit to Dig/Excavate/Drive Piles.	



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			<p>commences to determine presence of any buried services. Refer to CITB GE700 Site Safety Notes, HS(G) 47 and HS(G) 185 for further details.</p> <ol style="list-style-type: none"> Permit to dig required prior to any excavation or ground penetration work. Information concerning the health risks and associated precautions relating to Weil's Disease to be given to all persons working in excavations Only correct and tested lifting equipment to be used. All lifting equipment to be suitable for the intended work, have relevant certificates of thorough test and inspections, and be inspected weekly with records kept by the subcontractor responsible. All plant operators will be over the age of 18 years, trained, certificated and authorised to drive fork lift and be responsible for daily maintenance, report of defects and completion of registers. All workers and supervisors to hold approved competence cards such as CSCS All works to be carried out under 'take 5' procedure. 	<p>Induction Weils disease warning cards.</p>	
5	Bulk Muck Shift	<p>Deep Excavations Collapse of structures Contaminated ground Buried Services Confined Spaces Slips trips and falls Falling / flying objects Openings and ducts Restricted access Moving Plant Moving machinery parts Noise and vibration Contractor interfaces</p>	<ol style="list-style-type: none"> Where possible designated vehicle routes to be established that segregate pedestrians from moving plant. Where this is the case prominent warning signs to be displayed. See HS(G) 144 "The safe use of vehicles on construction sites" for further information. Where possible reversing is to be avoided and reduced by including one-way systems on site. Mobile plant to be suitable for the work and site conditions. All mobile plant to be so designed that there is adequate visibility all round the machine. Where this is not possible mobile plant must be fitted with additional visibility aids such as convex mirrors or CCTV to overcome blind spots. A Banks man should assist all delivery vehicles when they arrive or leave the site where there is a risk to pedestrians. Pre-tender Safety Plan to be used to provide information concerning ground conditions, known contaminates services etc. All utilities requested for information of services prior to commencement of excavations. A detailed Method Statement and site-specific Risk Assessment to be prepared by contractor. See separate assessment for controls relating to overhead power cables. Ground surveyed with CAT scanner or similar equipment before excavation commences to determine presence of any buried services. See Section 28 of the CITB GE700 Site Safety Notes, HS(G) 47 and HS(G) 185 for further details. PPE to include safety footwear, hard hats and hi-visibility clothing. All plant and equipment to be operated by competent, trained and certified persons. Competence to be checked during induction and a register of all plant operators to be kept on site. All plant to be maintained in good working order with a maintenance log kept. All plant and equipment to be tested and inspected in line with legislative requirements and the John Sisk & Son Ltd safety Management procedure HS 09. No lone working. Plant should be fitted with noise and vibration damping systems. 	<p>Traffic Management Plan Vehicle and pedestrian safety rules Contractor RAMS Proofs of competence Evidence of inspection maintenance and examination of plant Plant arrival checklist SFSA 52 Contractor returns Permit to excavate</p>	



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			16. All site personnel to receive induction. 17. All works to be carried out under 'take 5' procedure. Site environmental code of practice and sections 31 Part 1 and Part 2 of the CITB GE700 to be complied with.		
6	Excavations	Falls from height Confined spaces Falling objects Oxygen displacement/ build up of gases or fumes Collapse or slump of sides Site vehicle over running /overturning into excavation Collapse of spoil heap Heavy rain or snow Flooding (egress of water table), Weils disease	1. Clients Pre-tender Safety Plan to be used to provide information concerning ground conditions, known contaminates services etc. All utilities requested for information of services prior to commencement of excavations. 2. A detailed Method Statement to be prepared by groundwork's contractor. 3. A Permit to Work/Dig system is to be used. 4. Operatives will report to John Sisk & Son Ltd Site Office and attend an in respect of site safety. 5. Ground to be excavated will be surveyed with a CAT scanner or similar prior to any excavation taking place. Refer to separate Risk Assessment & Method Statement for the specific controls etc. reading this operation. Ground surveyed with CAT scanner or similar equipment before excavation commences to determine presence of any buried services. See Section 28 of the CITB GE700 Site Safety Notes, HS(G) 47 and HS(G) 185 for further details. 6. Having identified all underground services and taken appropriate precautions all services will be exposed using safe digging techniques in accordance with HSG 47 Avoiding Danger from Underground Services. 7. Once all underground cables are exposed and made safe mechanical excavation will take place using a wheeled excavator. 8. Excavated material will be moved away from the excavation to a safe place. 9. Wheel stops to be used where plant has to approach edge of excavation (Dumpers etc.). Traffic routes will be sited away from excavations where possible. 10. Planned provision and use of a suitable support system for the sides of the excavation where it is deeper than 1.0m. Excavations shallower than this may also need temporary support if ground conditions demand it. See Section 10 of the CITB GE700 Site Safety Notes and HS(G) 185 "Health and Safety in excavation" for further details. The support system is to be installed by competent persons. 11. Where there is sufficient room the excavation sides may be battered back or stepped as an alternative to providing earthwork support. All methods of preventing collapse of the sides of an excavation will be in accordance with the guidance provided by HSG 185 "Health and Safety in Excavations Be safe and shore." 12. All excavations deeper than 2 metres will have edge protection and toe-boards around them to prevent people falling more than 2 metres and to prevent a risk of falling materials. 13. Once the sides of the excavation are protected against suitable collapse operatives will be permitted to enter the excavation using a safe system such as a secured access ladder. 14. Hard hats to be worn by everyone working in or near the excavation. 15. Information concerning the health risks and associated precautions relating to Weil's disease to be given to all persons working in excavations. 16. Warning signs, adequate fencing or covering for excavations and excavations back filled as soon as possible.	Contractor RAMS Proofs of competence. Manufacturers design and instruction documents Permit to Dig/Excavate/Drive Piles. Induction Weil's disease warning cards.	



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			17. Materials to be stock piled away from the edge of the excavation. 18. Ladder access to be into the supported part of the excavation, tied and extending at least 1.0m above the top of the excavation. 19. Only correct and tested lifting equipment to be used. 20. All plant and equipment to be operated by competent, trained and certified persons. 21. Excavations to be inspected by competent person in accordance with legislative requirements and Anglo Holt safety procedure HS09. 22. No Hot Work to take place in the excavation. 23. All works to be carried out under take 5. All lifting equipment to be suitable for the intended work, have relevant certificates of thorough test and inspections, and be inspected weekly with records kept by the subcontractor responsible.		
7	Installation of Shoring systems	Manual handling Falling / flying objects Falls from height Slips trips and falls Confined Spaces Openings/ Ducts Collapse / failure of shoring Overturning of plant Component failure Adverse weather Lifting operations Vehicle and pedestrian impact. Noise Lone Working Contractor interfaces Vibration, Weils disease Fire and Explosion	1. All methods of shoring are to be proprietary systems, or designed by a competent designer and erected/dismantled by a competent contractor produces a detailed Method Statement. This is to include systems to ensure no-one is permitted to work in excavations whilst shoring is being installed. Designers of shoring systems are covered by the CDM regulations and should design out identified risks as much as possible. 2. All erection and removal must be carried out only after the temporary works co-ordinator has ensured that the correct procedures have been followed to ensure safety by design. Shoring must only be erected under the direct supervision of a competent person. Proof of competence must have been provided to Site Management upon arrival on site for the first time and before any work starts. 3. All shoring components to be moved where possible by mechanical means. Where a crane is to be used (including an excavator), additional controls are to be implemented (see separate assessment). 4. Suitable working platforms to be provided minimising the use of ladders. Where work is to be carried out where someone could fall more than 2 metres then provision of suitable access, edge protection, and toe-boards must be taken into consideration. Bridging must also be protected by double guard rails and toe boards to prevent falls. 5. All materials to be stored in designated areas until used. Once removed, all materials to be promptly removed away from the area to ensure they do not obstruct the work or access areas. No waste materials or small items of timber are to be left lying around. All nails to be promptly removed or made safe. 6. The working area is to be segregated off and only authorised persons permitted entry. Suitable warning signs to be erected. 7. Where the installation or dismantling of shoring will be carried out in a confined space, a Permit to Work system is to be operated. Suitable safe access routes to be provided. 8. All equipment to be regularly inspected by the users. Shoring will be inspected before the start of every shift and after any event likely to affect it's strength or stability. These inspections will be recorded. 9. All large or heavy items requiring machining will be suitably supported where possible. Loading of these supports will either be by mechanical means or	Contractor RAMS Proofs of competence. Manufacturers design and instruction documents Permit to Dig/Excavate/Drive Piles. Induction Weil's disease warning cards.	



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			<p>assistance by another operator.</p> <p>10. Suitable Personal Protective Equipment (PPE) will be provided and worn.</p> <p>11. No Lone working under any circumstances.</p> <p>12. Where Hot Work will take place additional precautions such as a Hot Work Permit must be implemented. Hot work must not be carried out where there is a risk of explosive atmospheres. Gas monitoring is required.</p> <p>13. All portable electrical appliances are to be 110v.</p> <p>14. All works to be carried out under take 5.</p> <p>Site environmental code of practice and sections 31 Part 1 and Part 2 of the CITB GE700 to be complied with.</p>		
8	Lifting Operations	<p>Deep Excavations</p> <p>Poor ground conditions</p> <p>Falling/flying objects</p> <p>Openings and Ducts</p> <p>Moving site plant</p> <p>Pedestrians</p> <p>Clash with other cranes</p> <p>Moving machinery parts</p> <p>Component Failure</p> <p>Manual Handling</p> <p>Noise</p> <p>Hazardous substances</p> <p>Poor planning and supervision</p> <p>Untrained workers</p>	<p>1. Refer to Section 21 of the CITB GE700 Site Safety Notes for further clarification of crane signals, safe lifting techniques etc.</p> <p>2. Detailed method Statement required from contractor setting out the safe system of work and controls to be implemented. This must include the size of crane that will be used, special bearing requirements for out-riggers, access/movement requirements positioning of the crane.</p> <p>3. When reversing the driver cannot see if anyone is standing behind the vehicle when reversing. Therefore additional visibility aids must be provided such as mirrors, CCTV radar etc., to improve the field of vision to enable the driver to be alerted to the presence of anyone standing behind the crane during reversing operations.</p> <p>4. Crane to be operated by trained, competent driver who is over age of 18. Proof of competence to be provided to the site manager before the crane is permitted to start work on site.</p> <p>5. All lifting equipment (including the Crane) and lifting accessories are to have been tested/inspected in accordance with legislative requirements (refer to Section 21 of the CITB GE700 Site Safety Notes for these) and to provide proof of such to site management. All lifting equipment and accessories are also to have documented weekly inspections.</p> <p>6. There is to be no lifting or lowering of people by the crane unless by use of proprietary man riding equipment and all statutory examination requirements have been met for lifting persons.</p> <p>7. All cranes and their associated lifting accessories must be clearly marked with their maximum safe working load (SWL). There must also be an indicator showing the safe load at each operating radius. The crane must be fitted with automatic safe load indicators, radius load indicators and motion limit switches together with their audio-visual warning systems.</p> <p>8. Where there are overhead power cables the crane jib is to come no closer than 6 metres to them at any time. If this distance cannot be maintained the power-lines must be isolated before-hand. The danger area must be clearly marked off with stakes, flags etc., where it is necessary to pass below overhead power cables.</p> <p>9. Crane must be sited on a stable and level base which is capable of withstanding the loads imposed upon it.</p> <p>10. Trained, competent slingers/ signallers to be in charge of all lifting operations.</p>	<p>Contractor RAMS</p> <p>Lifting Plan.</p> <p>Proofs of competence.</p> <p>Manufacturers design and instruction documents</p> <p>Crane Mat design / CBR testing results, and temp works approval docs.</p>	



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			<p>Proof of competence to be provided to the site manager before work starts on site.</p> <ol style="list-style-type: none"> Loads must be correctly slung and made secure to prevent any part of them slipping or falling. Precautions must be taken to prevent the load hitting an obstruction or knocking anything down. Loads must not be suspended or carried over areas occupied by persons. However where this is not practicable the safe system of work must include measures to minimise the risk to those below the load. Slings must be attached properly to the lifting equipment and multiple slings must be connected by a ring or shackle. All ropes, slings and shackles must be in good order and knotted ropes, chains or slings must not be used. This includes those which have been shortened or joined by nuts and bolts through the links. There must be no lifting operations in high winds and reference must be made to the crane manufacturer's instructions for further guidance regarding this. All works to be carried out under 'take 5' procedure. <p>Site environmental code of practice and sections 31 Part 1 and Part 2 of the CITB GE700 to be complied with.</p>		
9	Steel Reinforcement	<p>Slips trips and falls Manual handling Falls from height Falling materials/objects Collapse of structures Component failure Lifting operations Impalement injuries Flying particles Hot work/fire/explosion Noise and vibration Plant movement and pedestrians</p>	<ol style="list-style-type: none"> Reinforcement is to be stored safely in authorised areas. The prep area is to be kept clean and free from trip and slip hazards, such as off-cuts of bar, tying wire etc. Single use lifting bags are not permitted to be used on site as a lifting accessory. They are to be destroyed and disposed of on delivery. Refer to controls for loading and unloading operations for steel delivery. Refer to general controls for mobile plant movement. Refer to general controls for lifting operations. Tag lines are to be used where appropriate. Steel reinforcement structures are to be constructed to the design drawings. They are to be properly secured to prevent toppling or sagging, prior to shuttering being fixed. Working platforms c/w double guard rails and toe-boards shall be used wherever possible in preference to ladders. Any use of ladders will only be authorised by Sisk using the steps / ladder permit system SFSA 50 and 50 a. All reinforcement posing a risk to workers who could suffer impalement injuries from a fall, trip or slip MUST be capped by proprietary caps, or timber trough boxes. Persons using abrasive wheels must be equipped with suitable PPE, and must be trained to use and change wheels. Hot works permit must be in place and adhered to for all hot cutting. Hearing protection zones must be established where statutory noise action levels are likely to be exceeded, and the wearing of hearing protection enforced therein. HAVS monitoring is to be carried out by contractor management on all persons using vibrating tools. All works to be carried out under 'take 5' procedure. 	<p>Contractor RAMS Evidence of trainings HAVS monitoring records Lifting plan Design drawings Height rescue plan</p>	



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10	Concreting operations	Overhead obstructions Lifting operations Mobile plant and pedestrians Hazardous substances, chemical burns Moving parts of machinery Falling/flying objects Component failure Noise and vibration Compressed Air Falls from height Falls on level Slips and trips	<ol style="list-style-type: none"> 1. Method statement for concrete pouring to take account of access requirements for the concrete pump including any overhead obstructions. Where there are overhead obstructions the pump supplier is to provide site management with the minimum clearance requirements of the pump. 2. Adequate PPE to be worn by all operatives working in close proximity to concreting operations. 3. Concrete delivery lines must be monitored for signs of damage, and inspected at least weekly, and the results recorded. 4. Tracked plant must not be permitted to track over concrete delivery lines. Wheeled plant is to avoid driving over lines wherever possible. 5. Working platforms c/w double guard rails and toe-boards shall be used wherever possible in preference to ladders. Any use of ladders will only be authorised by Sisk using the steps / ladder permit system SFSA 50 and 50 a. 6. HAVS monitoring must be carried out on workers using vibrating tools, pokers etc. 7. All compressed air tools will be maintained in a safe condition, and will be fitted with safety lanyards at all hose connections and couplings. 8. All concrete wagons will manoeuvre only under the supervision of a trained vehicle Marshall. 9. Coupling of delivery lines must be through proprietary means only. 10. Concrete hoses must be secured to prevent whipping action at all times during pumping. 11. Operatives must not kneel in wet concrete. 12. Thorough washing or showering should be carried out after working with concrete. There should be no contact of concrete with unprotected skin. 13. Supervisors are required to carry out skin welfare checks regularly with their workers. 14. Banks man to direct concrete delivery wagons and all reversing operations. 15. Concrete pumps will only be driven by trained competent operatives over the age of 18 years, who are holders of a Certificate of Competence, copy of which will be retained with site records. Drivers must be in possession of machine manufacturer's manual of guidance or notes. 16. All machines must be in good order and have been inspected before being used. 17. Delivery end of boom to be kept as close as possible to bed recessing the concrete. Operative to be kept clear of immediate point of delivery. 18. All guards around the moving parts on the pump are to be in good condition. 19. Communication method between driver/banks man (radios, line of site, signalling). 20. Maintain good standards of housekeeping. 21. Excavations to be clearly fenced off. 22. Site environmental code of practice and sections 31 Part 1 and Part 2 of the CITB GE700 to be complied with. 23. All works to be carried out under take 5. 	<p>Contractor RAMS Evidence of trainings HAVS monitoring records Lifting plan Design drawings Height rescue plan</p> <p>Weekly Contractor H&S Returns</p>	
11	Scaffolding	Falls from height	<ol style="list-style-type: none"> 1. All scaffolds & working platforms will be constructed in accordance with 	Contractor RAMS	



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		Falling/flying objects Manual Handling Collapse of structures Mobile plant movement Hot works Confined Spaces Restricted access Component failure Adverse weather Deep excavations Contractor interfaces	British Standards, Manufacturers instructions, designs & comply with legislative requirements. All scaffolds will comply with the provisions of the Work at Height Regulations 2005, and the NASC TG20:08 Guidance. Clarification regarding the requirements is in Part 5 of the CITB GE700 Site Safety Notes kept by the Site Manager. 2. Scaffolds will only be erected, altered or dismantled by qualified trained operatives who hold a Scaffolders Record Card working for the appointed contractor. 3. The erection of a scaffold must be carefully planned in advance including specialist design if necessary. 4. All scaffold components will be inspected before being used. Defective material will not be used, including ropes & boards. 5. No scaffold will be used until it has been inspected by a competent person, who will be responsible for entries in a scaffold register. It will be inspected at least every 7 days, or after any alteration, addition or dismantlement. Any scaffold erected outside will also be inspected following any inclement weather likely to have affected its stability. 6. Scaffold to be fitted with suitable edge protection including guard rails and toe boards. Protection against materials falling from heights will be provided by using netting, fans & brickguards as necessary. However where netting and brick-guards are used an intermediate guard-rail must be used. 7. Additional bracing/support may be necessary for scaffold with side netting to reduce the risk from wind loadings. 8. Suitable notices will be prominently displayed on incomplete structures. 9. Safe access & egress to working platforms will be via Class 1 heavy duty ladders, suitably restrained to prevent them falling. 10. All scaffold materials will be stored and kept apart from other materials when not in use. 11. Scaffolds will be properly maintained and every part securely fixed to prevent accidental displacement. 12. Loads on scaffold must be evenly distributed, materials must not be kept on scaffold unless needed within a reasonable time. 13. All scaffold must be clearly marked to highlight its boundaries where there is a risk of members of the public coming into contact with it. 14. Scaffolding code of practice will be complied with when erecting/altering/dismantling the scaffold. 15. Reference is to be made to Section 5 of the CITB GE700 Site Safety Notes for further guidance on the controls required. 16. All works to be carried out under take 5. Site environmental code of practice and sections 31 Part 1 and Part 2 of the CITB GE700 to be complied with.	Evidence of competence and training. Lifting plan where appropriate Designs and temp works approvals. Height rescue plan Weekly Contractor H&S Returns	
12	Dewatering	Contaminated ground Weils Disease Hepatitis Tetanus	1. All dewatering plant is to conform to community requirements (BS EN), and relevant product directives. 2. Workers are to be provided with all information regarding hazards to their health from ground contaminants, from pre construction information, or other	Contractor RAMS Weekly Contractor H&S Returns Plant Arrival Checklist	



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		Working parts of machinery Pressurised pipelines Slips, trips and falls Deep excavations	<p>reports and surveys carried out since issue of PCI.</p> <ol style="list-style-type: none"> All plant is to undergo the SISK plant arrival checks before being allowed for use on site. All operatives to be made aware of risks of ground bourne or waterborne diseases at induction. Method statement, risk assessment and relevant COSHH assessments will be required from the contractor prior to dewatering works. Dewatering to be carried out by competent persons. Pressurised lines to be connected using proprietary connections which are fit for purpose. All plant and lines are to be inspected before use and at least weekly (results recorded). Lines are to be kept out of walking or vehicle routes. See general controls for excavations. All works to be carried out under take 5. 		
13	Plant maintenance	Moving Plant and vehicles Component failure Lack of training Moving parts of machinery	<ol style="list-style-type: none"> Plant supplier/hirer to ensure maintenance engineer is competent. All operators of mobile plant to provide proof of competence before starting work on site. All drivers to be over age of 18, trained, certified & authorised to drive plant as required. Under no circumstances are Dumpers to be operated by any unauthorised persons. Certificates must be kept on site available for inspection and a list of authorised persons kept. All plant & equipment to be maintained in good order. Proof of statutory test and inspections to be provided before work commences on site. All plant including mobile plant, lifting equipment, harness and lines etc to be inspected in accordance with John Sisk & Son Ltd safety management procedure HS09. All lifting equipment to be suitable for the intended work, have relevant certificates of thorough test and inspections, and be inspected weekly with records kept by the subcontractor responsible. Plant and machinery must be maintained in accordance with manufacturer's instructions. When Mobile plant or equipment is to be worked on the wheels must be locked and the hydraulically operated lifting arms at rest before work on the braking system, hydraulics or wheels commences. Where hydraulically operated equipment has to be elevated for work to be carried out it must be rigidly supported using props or ram sleeves. Where work involves engine cooling systems, hydraulic systems and compressed air, suitable arrangements must be made to depressurise them under controlled conditions. When jacking is used to raise the plant to enable access under it the jacking must be on firm level ground and packing placed under the recommended positions to prevent collapse if the jack fails. No hot work is to take place on wheels or the fuel system unless the tyres have been removed and the fuel system drained down, purged and filled with water. All hot work will be carried out under the conditions of a Hot Work Permit. Where work is to be carried out near moving parts clothing and hair must be kept clear. 	Contractor RAMS Proof of competence. Weekly Contractor H&S Returns	



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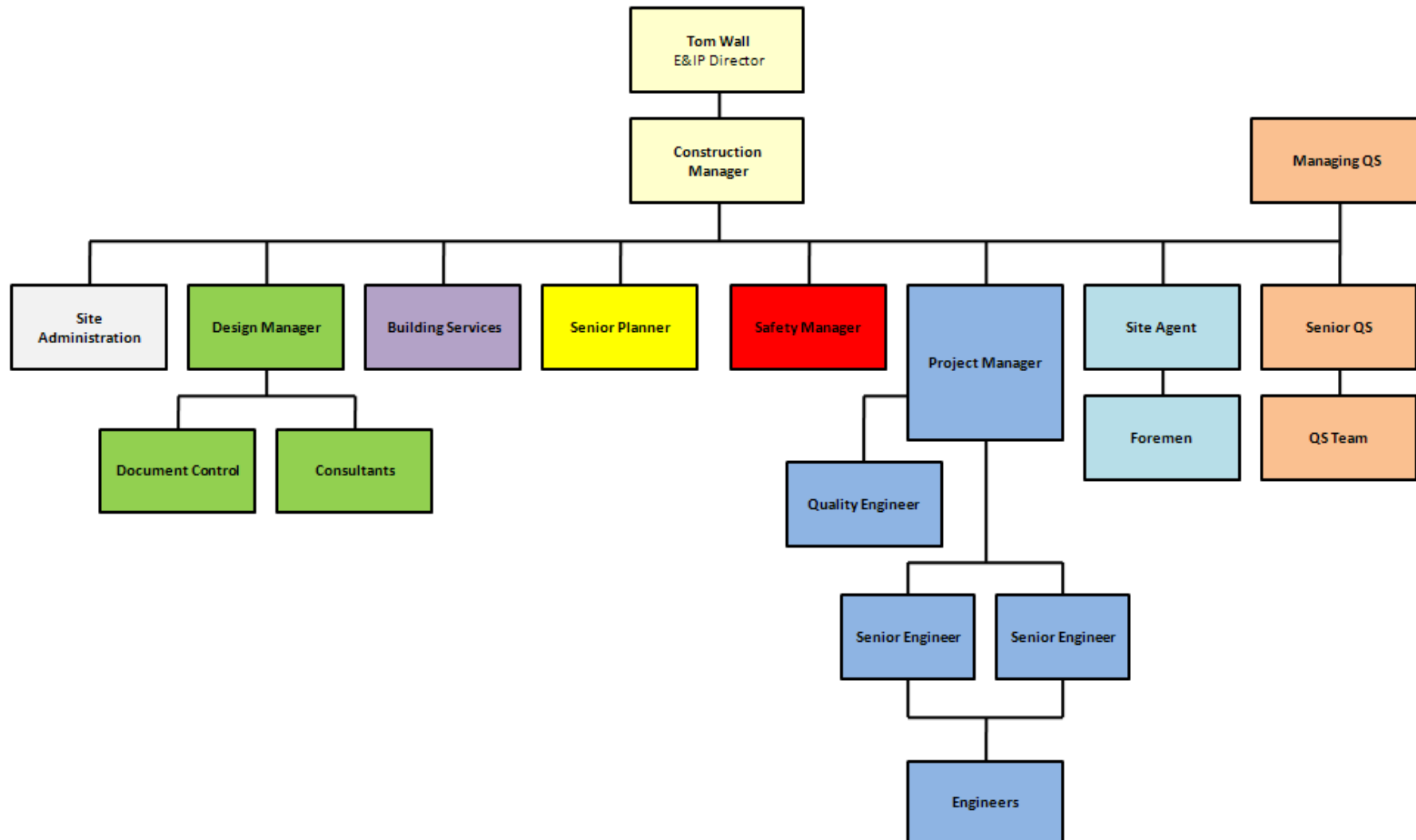
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			11. All guards must be replaced when work is complete and before the machine is switched on. 12. COSHH Assessments to be carried out on all substances involved. 13. Where work is to involve looking up any part of the machine consideration should be given to the use of eye protection to stop particles (mud, grease, oil etc) from falling into the eyes. 14. All works to be carried out under take 5. Site environmental code of practice and sections 31 Part 1 and Part 2 of the CITB GE700 to be complied with.		
14	Asbestos	Hazards associated with hazardous/ carcinogenic materials.	1. A full type 3 survey has been done on site by the client. The survey has located and highlighted the existence of asbestos. The possibility of further asbestos being discovered exists. If asbestos is discovered, then work in the area must cease and the find must be reported to site management. 2. All Asbestos/ and asbestos areas will be highlighted with warning signs erected. 3. All works on removing asbestos pipe lagging, insulation and sheeting will be done by competent licensed contractors. 4. All works on removing asbestos pipe lagging, insulation and sheeting will be done by competent licensed contractors under an approved detailed RAMS. 5. All buildings containing Asbestos will be have restricted access while asbestos is being removed 6. "Asbestos on site" will be covered during site induction and all personnel coming onto site will be advised of the existence of asbestos, location of asbestos and the controls around it. 7. All asbestos will be bagged, tagged and removed to a licensed waste facility 8. All works to be carried out under 'take 5' procedure.	Contractor approved RAMS Proof of competence for company and operators. Waste dockets tracking.	
15	Electrical	Manual Handling, Noise, vibrations, Cartridge operated tools, Live services, powering up, Dust, Access & egress, Housekeeping, Mobile plant (contact with) Working At height, PPE (failure to wear), Hot Works (grinding), Crane works, MEWP works, hand tools power tools, Weils disease	1. All works to be carried out under approved RAMS. 2. All workers to be competent in their works and competent in the use of any plant, or tool which they will be using. 3. During making live works, all works will be carried out under a lock out tag out system/ or similar. 4. All live systems must be locked out and under a permit control 5. All works to be carried out under 'take 5' procedure.		

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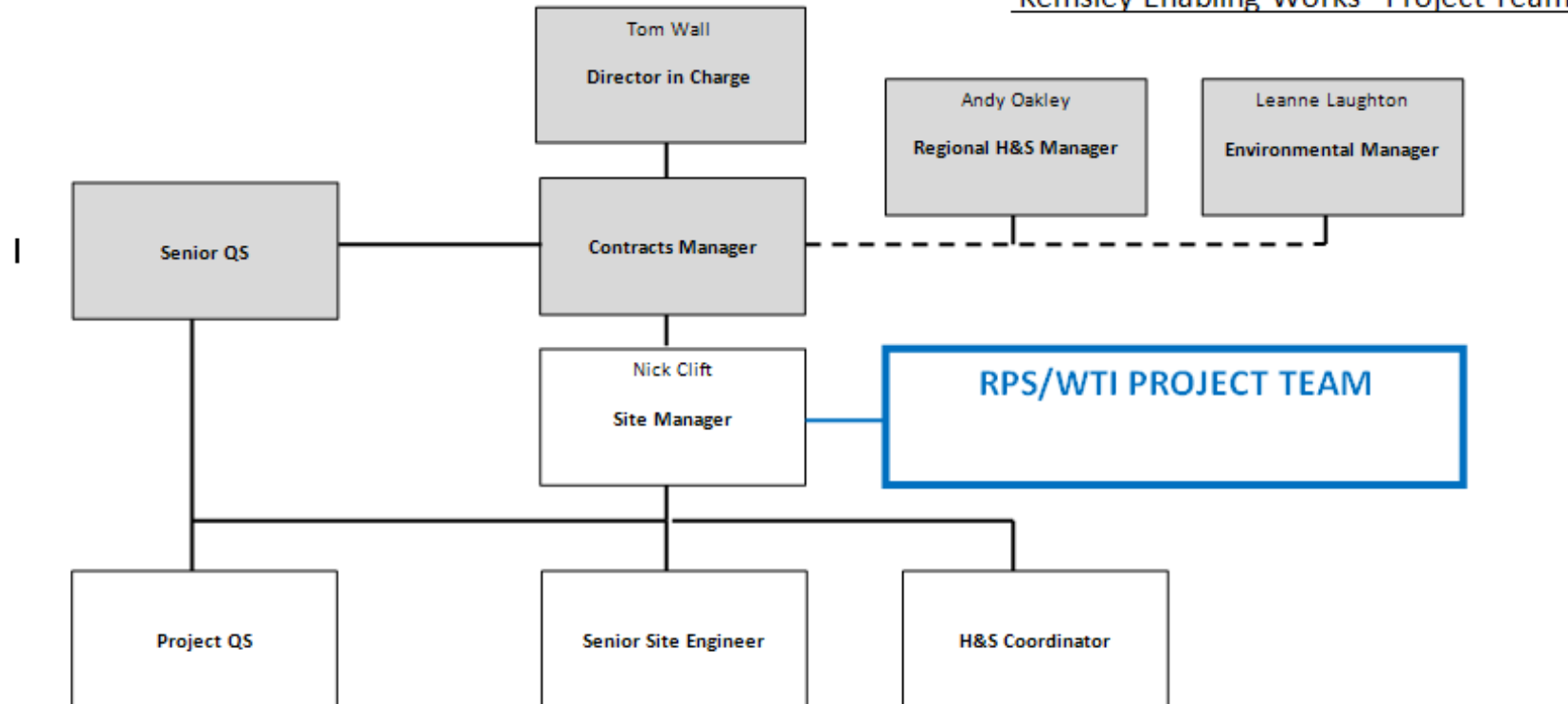
Appendix D – Management Chart

UK Energy & Industrial Process
Kemsley Sustainable Energy Plant, Management Chart – CORE TEAM





Kemsley Enabling Works - Project Team



Full Time Allocation

Part Time Allocation

Project Duration 12 Weeks

wheelabrator

DS Smith Paper



Appendix 2: Lighting Plan

This will be available closer to commencement of operations.

Appendix 3: Drainage Plan

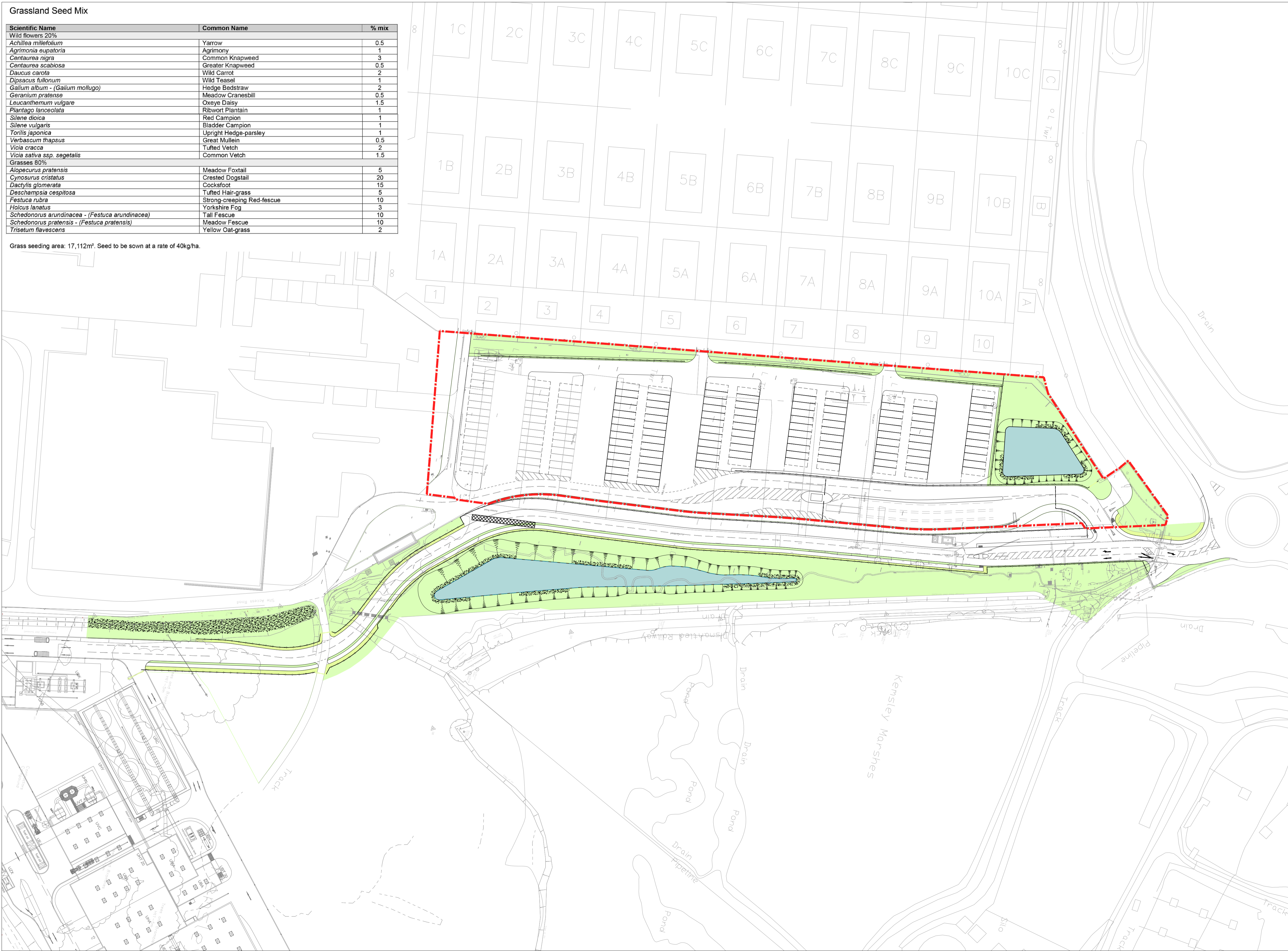


Appendix 4: Landscaping Plans

Grassland Seed Mix

Scientific Name	Common Name	% mix
Wild flowers 20%		
<i>Achillea millefolium</i>	Yarrow	0.5
<i>Agrimonia eupatoria</i>	Agrimony	1
<i>Centaurea nigra</i>	Common Knapweed	3
<i>Centaurea scabiosa</i>	Greater Knapweed	0.5
<i>Daucus carota</i>	Wild Carrot	2
<i>Dipsacus fullonum</i>	Wild Teasel	1
<i>Galium album</i> - (<i>Galium mollugo</i>)	Hedge Bedstraw	2
<i>Geranium pratense</i>	Meadow Cranesbill	0.5
<i>Leucanthemum vulgare</i>	Oxeye Daisy	1.5
<i>Plantago lanceolata</i>	Ribwort Plantain	1
<i>Silene dioica</i>	Red Campion	1
<i>Silene vulgaris</i>	Bladder Campion	1
<i>Torilis japonica</i>	Upright Hedge-parsley	1
<i>Verbascum thapsus</i>	Great Mullein	0.5
<i>Vicia cracca</i>	Tufted Vetch	2
<i>Vicia sativa ssp. segetalis</i>	Common Vetch	1.5
Grasses 80%		
<i>Alopecurus pratensis</i>	Meadow Foxtail	5
<i>Cynosurus cristatus</i>	Crested Dogtail	20
<i>Dactylis glomerata</i>	Cocksfoot	15
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	5
<i>Festuca rubra</i>	Strong-creeping Red-fescue	10
<i>Holcus lanatus</i>	Yorkshire Fog	3
<i>Schedonorus arundinacea</i> - (<i>Festuca arundinacea</i>)	Tall Fescue	10
<i>Schedonorus pratensis</i> - (<i>Festuca pratensis</i>)	Meadow Fescue	10
<i>Trisetum flavescens</i>	Yellow Oat-grass	2

Grass seeding area: 17,112m². Seed to be sown at a rate of 40kg/ha.



notes :

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2. All dimensions are in millimetres unless stated otherwise. It is recommended that information is not scaled off this drawing.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Legend

- Proposal application boundary
- Mown grass
- Meadow grass
- Balancing pond
- Reed bed/Marginal plants

Note: Reference to OS of existing paper mill provided by St Regis Paper Mill in DWG format and topographical survey provided by Eon.



Drawing for PLANNING purposes only

G			
F			
E			
D			
C			
B	Layout amendments	AVG	July 2013
A	Grass areas	AVG	JS July 2013
rev	amendments	by	ckd date



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DS SmithPaper



Project Kemsley Trailer Park and Access

Title Detailed Landscaping Scheme

Drawing Status Preliminary Project Leader RS	Date Created July 2013 Drawn By AVG	Drawing Scale 1:1000 Initial Review JS
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Drawing Number 16315 /A1 / 5	Rev B
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Planting Schedule

Trees

Species	Size	Number
<i>Betula pendula</i> – Silver Birch	Feathered Standard, 1.8-2.4m high, rootballed	43
<i>Malus sylvestris</i> – Crab Apple	Light Standard, 8-10cm girth, rootballed	18
<i>Populus tremula</i> – Aspen	Feathered Standard, 1.8-2.4m high, rootballed	12

Trees supported with a softwood timber stake 100mm dia. 1500mm long, driven 500mm into the ground and secured with a 'Rubberlock' tree tie. Trees to be protected by 450mm high plastic spiral rabbit guards.

Scrub Mix

Species	Size	% mix	Plot 1 8,255m ²	Plot 2 600m ²	Plot 3 300m ²	Plot 4 335m ²	Plot 5 225m ²	Plot 6 160m ²	Total
<i>Acer campestre</i> – Field Maple	450-600mm high 1+1 transplants	10	413	30	15	17	11	8	494
<i>Corylus avellana</i> – Hazel	450-600mm high 1+1 transplants	15	620	45	22	25	16	12	740
<i>Crataegus monogyna</i> – Hawthorn	450-600mm high 1+1 transplants	25	1032	75	37	42	27	20	1,233
<i>Prunus spinosa</i> – Blackthorn	450-600mm high 1+1 transplants	10	413	30	15	17	11	8	494
<i>Rosa canina</i> - Dog rose	450-600 mm 1+1 Transplants	20	826	60	30	34	22	16	988
<i>Salix caprea</i> – Goat willow	450-600mm high 1+1 transplants	20	826	60	30	34	22	16	988

Plants to be protected by 450mm high plastic spiral rabbit guards. Plants to be planted in groups of 7 to 9 of the same species at 1.5m centres.

Marginal Plants

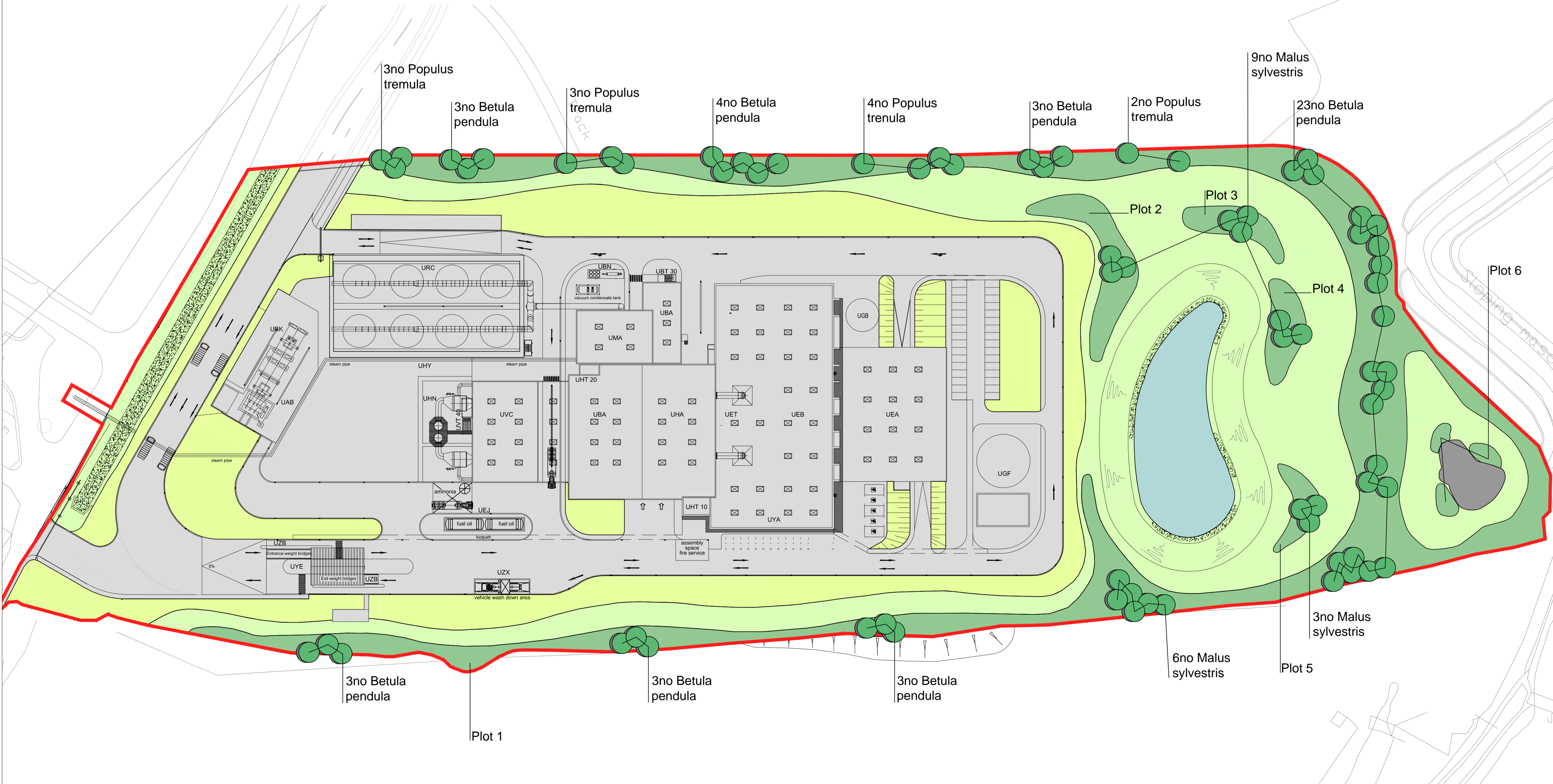
Species	Total Area
<i>Phragmites australis</i> – Common reed	650m²

Reeds to be established along water course and within balancing pond through scattering seed panicles from locally sourced donor site.

Grassland Seed Mix

Scientific Name	Common Name	% mix
Wild flowers 20%		
<i>Achillea millefolium</i>	Yarrow	0.5
<i>Agrimonia eupatoria</i>	Agrimony	1
<i>Centaurea nigra</i>	Common Knapweed	3
<i>Centaurea scabiosa</i>	Greater Knapweed	0.5
<i>Daucus carota</i>	Wild Carrot	2
<i>Dipsacus fullonum</i>	Wild Teasel	1
<i>Galium album</i> - (<i>Galium mollugo</i>)	Hedge Bedstraw	2
<i>Geranium pratense</i>	Meadow Cranesbill	0.5
<i>Leucanthemum vulgare</i>	Oxeye Daisy	1.5
<i>Plantago lanceolata</i>	Ribwort Plantain	1
<i>Silene dioica</i>	Red Campion	1
<i>Silene vulgaris</i>	Bladder Campion	1
<i>Torilis japonica</i>	Upright Hedge-parsley	1
<i>Verbasum thapsus</i>	Great Mullein	0.5
<i>Vicia cracca</i>	Tufted Vetch	2
<i>Vicia sativa ssp. segetalis</i>	Common Vetch	1.5
Grasses 80%		
<i>Alopecurus pratensis</i>	Meadow Foxtail	5
<i>Cynosurus cristatus</i>	Crested Dogtail	20
<i>Dactylis glomerata</i>	Cocksfoot	15
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<i>Trisetum flavescens</i>	Yellow Oat-grass	2

Grass seeding area: 25,100m². Seed to be sown at a rate of 40kg/ha.



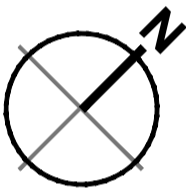
notes :

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3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Legend

- Application site
- Mown grass
- Meadow grass
- Scrub mix
- Trees
- Balancing pond
- Reed bed/Marginal plants
- Bare ground for reptiles

Note: Reference to OS of existing paper mill provided by St Regis Paper Mill in DWG format and topographical survey provided by Eon.



Drawing for PLANNING purposes only

G			
F			
E			
D	Ditch extension	AVG	July 2013
C	Layout amendments	AVG JS	July 2013
B	Tree location amendments	AVG JS	July 2013
A	Layout amendments	AVG PE	July 2013
rev	amendments	by	ckd date



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Project Kemsley Sustainable Energy Plant

Title Landscape Masterplan

Drawing Status Preliminary Project Leader RS	Date Created June 2013 Drawn By AVG	Drawing Scale 1:750 Initial Review PE
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Drawing Number 16315 / A1 / 4.21A	Rev D
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Appendix 5: Waste Management Plan

This will be available closer to commencement of operations.

Appendix 6: Appropriate Assessment



Development of a Sustainable Energy Plant.

St Regis Paper Mill, Kemsley

On behalf of St. Regis Paper Mill Co.

Environmental Statement

Appendix 9.6:

Information for an Appropriate Assessment

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RPS Planning & Development

9 KEMSLEY SUSTAINABLE ENERGY PLANT (SEP)

INFORMATION FOR AN APPROPRIATE ASSESSMENT

INTRODUCTION

- 9.1 The need for an Appropriate Assessment is set out in Article 6(3) of the Habitats Directive and interpreted into British law by Regulation 48 of the Habitats Regulations (Table 9.1).

Table 9.1 Legislative basis for a Habitats Regulations Assessment

The legislative basis for Habitat Regulations Assessment		
Habitats Directive	Article 6(3)	Any plan or project not directly connected with or necessary to the management of a Special Protection Area (SPA) or Special Area of Conservation (SAC) but likely to have a significant effect thereon, either individually or in-combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.
Habitats Regulations	Regulation 48	A competent authority, before deciding to give any consent for a plan or project which is likely to have a significant effect on a European site shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives

- 9.2 The Habitats Directive applies the precautionary principle to relevant designated areas, in so much as plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of a SPA or SAC, collectively termed Natura 2000 sites. This is in contrast to Environmental Assessment requirements where the findings (as documented in an Environmental Statement) should be 'taken into account' during preparation of the plan or project.
- 9.3 It is Government policy (as outlined in Planning Policy Statement 9: Biodiversity and Geological Conservation) for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) to be treated as having equivalent status to Natura 2000 sites. As such, information to inform a local authority Appropriate Assessments needs to cover features of any relevant Ramsar site.

- 9.4 In undertaking an assessment, competent authorities must have regard to both direct and indirect effects on an interest feature of the Natura 2000 site, as well as cumulative effects. This may include consideration of features and issues outside the boundary of a Natura 2000 site. Department for Communities and Local Government guidance states that an assessment should be proportionate to the geographical scope of the plan or project and that it need not be done in any more detail, or using more resources, than is useful for its purpose (CLG, 2006).
- 9.5 Plans and projects for which it is not possible to conclude no adverse effect on the integrity of Natura 2000 sites, may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

SCOPE AND OBJECTIVES

- 9.6 Whilst it is the responsibility of the competent authority to determine whether it can be concluded there is no adverse effect, it is the responsibility of applicants to submit sufficient information to enable such a determination to be made.
- 9.7 The purpose of this Appendix is therefore to collate and provide sufficient information to enable Kent County Council to undertake a Habitat Regulations Assessment of the potential effects of the planning application for land at Kemsley on the Natura 2000 network. It draws upon information within the Environmental Statement, notably Chapter 9; Ecology, but purposely does not repeat the detail contained within these chapters. Instead, it provides sufficient stand alone information, with references to other more detailed sections where necessary, for Kent County Council to be able to make an informed decision.
- 9.8 Current guidance suggests the following sites should be included in the scope of a Habitats Regulations Assessment:
- All Natura 2000 sites within the authority's boundary; and
 - Other sites shown to be linked to the proposed development through a known 'pathway'
- 9.9 The planning application is for a new Sustainable Energy Plant on land to the north of Milton Creek, on the west side of the Swale.
- 9.10 The development programme is set out in Chapter 4 of the Environmental Statement. The key activities are:

- Site preparation and enabling works;
- Piling to establish appropriate foundations;
- Main construction; and
- Commissioning of the SEP

9.11 No Natura 2000 sites or Ramsar sites lie wholly or partly within the boundary of the area covered by the planning application. However, based on the nature of the proposed development, the findings of the technical chapters of the Environmental Statement and discussions with Natural England, it has been decided that the following seven Natura 2000 and Ramsar sites require consideration as to whether they could be affected:

- Swale SPA;
- Swale Ramsar;
- Medway Estuary and Marshes SPA;
- Medway Estuary and Marshes Ramsar;
- Thames Estuary and Marshes SPA;
- Thames Estuary and Marshes Ramsar, and
- Queendown Warren SAC.

METHODOLOGY

Key Principles

9.12 The key principles adopted during the collation and analysis of information are set out in Table 9.2.

Table 9.2 Key principles underpinning the assessment methodology

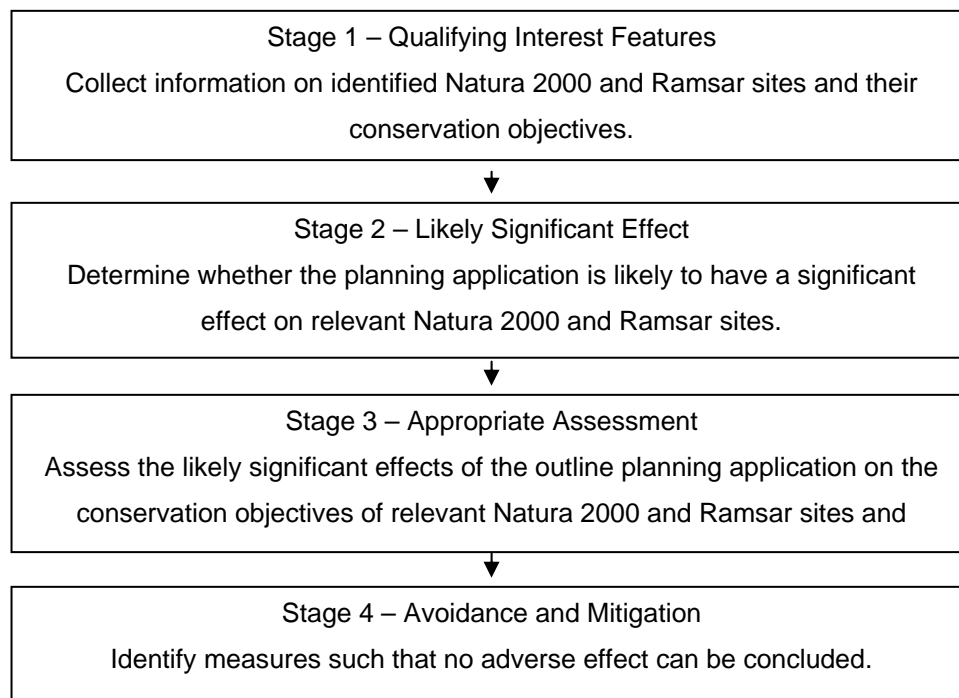
Key principles underpinning the assessment methodology	
Principle	Rationale
Use of best available existing information	We will use best available existing information to inform the assessment. This will include ecological information gathered on behalf of St Regis, information made available through production of the Environmental Statement and information from other sources, including Natural England, British Trust for Ornithology, the Environment Agency and others.
Proportionality	We will ensure that the level of detail provided in the assessment reflects the level of detail in the planning application (i.e. that the assessment is

	proportionate).
Consultation	We will ensure continued consultation with both Natural England and the Environment Agency and other stakeholders during production of the assessment and ensure that we take on board their comments.
Transparency in the assessment process	We will endeavour to keep the process as open, transparent and simple as possible while ensuring an objective and rigorous assessment in compliance with the Habitats Directive, Habitats Regulations and emerging best practice.
Audit trail	We will ensure that the process followed and the conclusions reached are clearly documented to ensure there is a clear audit trail.

Process

- 9.13 Figure 1 below outlines the stages of HRA according to Department for Communities and Local Government guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

Figure 1: Four-stage approach to Habitat Regulation Assessment (Source: CLG, 2006)



Stage 1 – Qualifying Interest Features

- 9.14 Natural England has provided copies of the relevant citations and confirmed both the

- conservation objectives and Regulation 33 advice to be taken into account. The conservation objectives provide the basis for determining what is currently, or may cause, a significant effect, and for informing the scope of appropriate assessments.
- 9.15 Natural England has confirmed that whilst the assessment should focus on the citations, due regard should be given to subsequent reviews of qualifying features available from the UK Joint Nature Conservation Committee (JNCC). Whilst a revised SPA Review network has been formally accepted by government, this has not yet been adopted by the European Commission. In accordance with advice from Natural England, in addition to the citation, analysis is therefore also carried out against the latest UK SPA data forms available from the JNCC. In terms of assessment, whichever gives the greater protection is used under the precautionary principle. Under Government advice, Proposed SPAs (pSPA) should also be treated as having protection under the Habitats Regulations.
- 9.16 In addition to qualifying interest features, it is necessary to explore the environmental features and conditions required to maintain the integrity of the seven Natura 2000 and Ramsar sites, as well as both current condition and trends in environmental processes.

Stage 2 - Likely Significant Effect

- 9.17 The second stage is to determine whether there is a likely to be a significant effect. This is essentially a risk assessment to decide whether a more detailed assessment is required, and if so, the scope of the issues and features to be addressed. This involves identifying the potential pathways through which the planning application could affect the interest features of relevant Natura 2000 and Ramsar site, and then accessing in broad terms the magnitude of each effect to determine whether it is likely to have a significant effect. In making this determination, we have taken into account the risk of an effect not just on those sites within the administrative boundary of Swale Borough Council, but in line with best practice, considered potential ways in which the application could impact upon other relevant Natura 2000 or Ramsar sites.
- 9.18 The main purpose of this stage is to screen out those aspects of the proposal that can be considered not likely to have a significant effect, as well as those features of each relevant Natura 2000 and Ramsar site that are not likely to be significantly affected. Judgements have been based on sound reasoning and within the context of best available knowledge on the various ways in which development of the nature proposed could impact on the interest features of the relevant Natura 2000 and Ramsar sites. If it cannot be concluded with confidence that adverse effects are unlikely, then under the precautionary principle, it is assumed that the issue requires more detailed consideration.
- 9.19 In determining likely significant effect, as well as any subsequent analysis, historical data

from a variety of different sources has been used. The principal source has been data collected over the last ten years through the Wetland Bird Survey (WeBS). This is a joint scheme between the British Trust for Ornithology (BTO), the Wildfowl and Wetlands Trust (WWT), the Royal Society for the Protection of Birds (RSPB) and the JNCC, and comprises Core Counts and Low Tide counts.

- 9.20 For both types of count, sites are divided into a number of pre-determined sub-divisions, each of which is usually allocated to an experienced volunteer recorder. Core Counts are undertaken annually to monitor population sizes, determine trends in numbers and to identify important sites for waterbirds. Coastal wetlands like the Swale are primarily monitored at high tide when birds are congregated at roosts, though not all sub-divisions may be counted each year.
- 9.21 Low Tide Counts are undertaken on selected estuaries each year in the period two hours either side of low tide, to determine the distribution of waterbirds during low tide and to identify important feeding areas (Austin *et al*, 2008). Low tide data over the last ten years was available for the Swale for 2001/2002 (good coverage), the Medway Estuary and Marshes for 1996/1997 (good coverage), 2004/2005 (partial) and 2005/2006 (partial), for the Thames Estuary and Marshes for 1998/1998 (partial), January 2000 (partial) and November 2002 (partial).
- 9.22 Further information was obtained from a variety of other reputable data sources, both published and unpublished, notably the Kent Bird Reports of the Kent Ornithological Society.
- 9.23 A suite of ecological surveys of the site and its surroundings have also been completed, including the habitats surveyed and scoped for their importance for invertebrates, targeted breeding bird surveys and intertidal waterbird surveys of the swale in the vicinity of the proposal site.
- 9.24 The methodology for the breeding bird surveys involved standard territory (registration) mapping techniques as detailed in Bibby *et al*. (2000). This method is based on the observation that many species during the breeding season are territorial. This is found particularly amongst passerines, where territories are often marked by conspicuous song, display, and periodic disputes with neighbouring individuals. Registrations of birds were recorded using standard BTO two letter species codes. Specific codes were also used for singing, calling, movements between areas, flying, carrying food, nest building, aggressive encounters and other behaviour.
- 9.25 The expected outcome of this technique is that mapped registrations fall into clusters, approximately coinciding with territories. Where a species has closely packed territories

(e.g. Reed Warbler), the mapping of simultaneously singing birds becomes essential. Territory boundaries are taken to be between such birds.

- 9.26 The study area was walked at a slow pace in appropriately fine weather in order to locate and identify all individual birds. All field boundaries and suitable breeding habitats were walked. Visits were undertaken early in the morning, generally between 05:30–10:00. The whole survey area was covered in each visit, using suitable optical equipment to observe bird behaviour. Survey routes were mapped and routes were alternated on each visit, to ensure that all areas were covered at various times of day across the duration of the survey. Surveys were undertaken between April and June 2009 with a total of six survey visits taking place.
- 9.27 The survey methodology for the intertidal surveys involved monthly counts of the waterbirds using the Kemsley foreshore. A total of sixteen survey visits were undertaken during February to May 2009 and a further sixteen between October 2009 and January 2010.

Stage 3 - Appropriate Assessment

- 9.28 When a plan or project cannot be 'screened out' as being unlikely to have a significant effect on a Natura 2000 or Ramsar site, it is necessary to progress to explore whether there are any adverse effects, and if so, devise suitable avoidance and mitigation measures to be able to conclude no adverse effect. Experience suggests that the best approach to addressing this is on a site by site basis, with avoidance / mitigation measures focused on the environmental conditions needed to maintain site integrity. The steps involved in are outlined in Figure 2:

Figure 2: Steps involved in the Appropriate Assessment

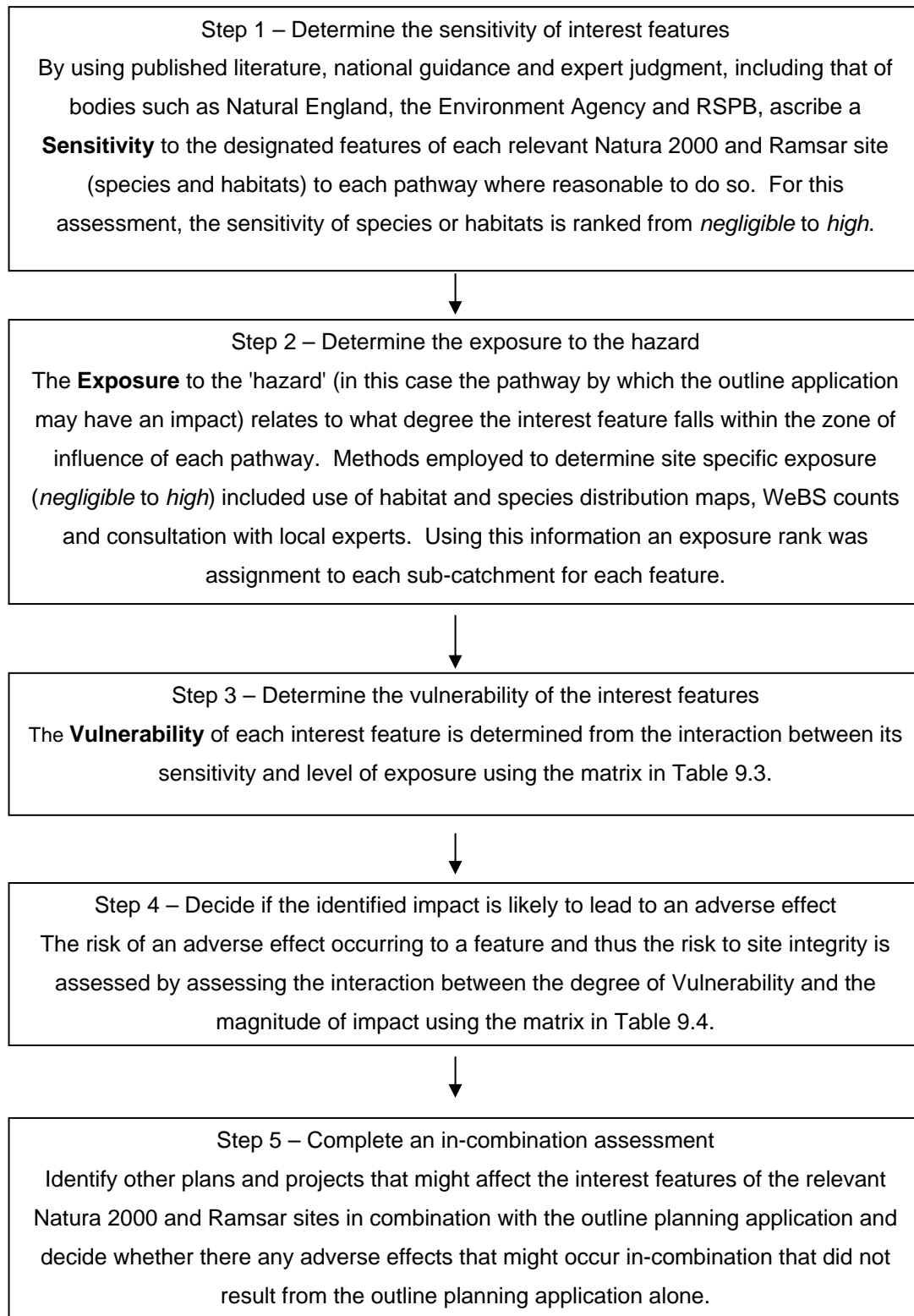


Table 9.3 Determining the Vulnerability of interest features Exposure

	Exposure to hazard				
Sensitivity of feature		High	Medium	Low	Negligible
	High	High	High	Medium	Low
	Medium	High	Medium	Low	Negligible
	Low	Medium	Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Table 9.4 Determination of Adverse Effect

	Magnitude of impact				
Vulnerability of feature		High	Medium	Low	Negligible
	High	Yes	Yes	Yes	No
	Medium	Yes	Yes	No	No
	Low	Yes	No	No	No
	Negligible	No	No	No	No

Stage 4 – Avoidance and Mitigation Measures

- 9.29 This involves developing measures to avoid the effect entirely, or as a minimum to mitigate the impact sufficiently that its effect on the integrity of a Natura 2000 or Ramsar site is rendered insignificant. In evaluating whether an identified impact is likely to have an adverse effect, we have relied upon both recognised standards and professional judgement. In the absence of quantifiable data, under the precautionary principle the approach we have adopted is that if an adverse effect cannot be confidently ruled out, avoidance or mitigation measures must be provided.
- 9.30 This is in line with Department for Communities and Local Government guidance that the level of detail of the assessment, whilst meeting the relevant requirements of the Habitats Regulations, should be ‘appropriate’ to the level of plan or project that it addresses.

STAGE 1 - QUALIFYING INTEREST FEATURES

The Swale

- 9.31 The Swale separates the Isle of Sheppey from the Kent mainland. To the west it adjoins the Medway Estuary, to the east the outer Thames Estuary. It consists of a complex of grazing marsh with ditches, and intertidal saltmarshes and mud-flats. The grazing marsh

is the most extensive in Kent and there is much diversity both in the salinity of the dykes (which range from fresh to strongly brackish) and in the topography of the fields.

- 9.32 The Swale Ramsar was designated in 1993. In addition to qualifying under criterion 3a by virtue of regularly supporting over 20,000 waterfowl, with an average peak count of 57,600 birds for the five winter period 1986/1987 to 1990/1991, and under criterion 3c by supporting, in winter, internationally important populations of four species of migratory waterfowl, the Swale also qualifies under Criterion 2a of the Ramsar Convention by supporting a number of species of rare plants and invertebrates (Table 9.5).

Table 9.5 Qualifying plant and invertebrate species for the Swale Ramsar

Ramsar Criteria	Scientific Name	Species Name
Nationally rare and scarce plant species	<i>Lactuca saligna</i>	Least Lettuce
	<i>Peucedanum officinale</i>	Hogs Fennel
	<i>Bupleurum tenuissimum</i>	Slender Hare's-ear
	<i>Spartina maritima</i>	Small Cord-grass
	<i>Inula crithmoides</i>	Golden Samphire
	<i>Ranunculus baudotii</i>	Brackish Water Crowfoot
	<i>Ceratophyllum submersum</i>	Soft Hornwort
	<i>Carex divisa</i>	Divided Sedge
	<i>Trifolium squamosum</i>	Sea Clover
	<i>Hordeum marinum</i>	Sea Barley
Red Data Book invertebrates	<i>Bagous cylindrus</i>	An aquatic weevil
	<i>Erioptera bivittata</i>	A crane fly
	<i>Lejops vittata</i>	A hoverfly
	<i>Poecilobothrus ducalis</i>	A small dancefly
	<i>Micronecta minutissima</i>	A water bug
	<i>Malachius vulneratus</i>	A beetle
	<i>Philonthus punctus</i>	A predatory rove beetle
	<i>Campsicnemus magius</i>	A small dolichopodid fly
	<i>Elachiptera rufifrons</i>	A small chloropid fly
	<i>Myopites eximia</i>	A picture-winged fly

- 9.33 The intertidal flats are extensive, especially in the east of the site, and support a dense invertebrate fauna. These invertebrates, together with beds of algae and Eelgrass *Zostera* spp., are important food sources for waterbirds. Locally there are large Mussel

Mytilus edulis beds formed on harder areas of substrate. The wide diversity of coastal habitats combine to support important numbers of waterbirds throughout the year.

- 9.34 The diverse mix of habitats within the Swale support internationally important populations of wintering birds. It supports outstanding numbers of waterfowl with some species regularly occurring in nationally or internationally important numbers. The Swale SPA was classified in 1985 and extended in 1993. The qualifying bird interest features listed in the SPA Citation, current SPA data form and Ramsar citation, together with the criteria used for this assessment (in line with Natural England advice this is whichever provides the strongest protection) are presented in Table 9.6.
- 9.35 During severe winter weather elsewhere, the Swale can assume even greater national and international importance as a cold weather refuge. Wildfowl and waders from many other areas arrive, attracted by the relatively mild climate, compared with continental European areas, and the abundant food resources available.
- 9.36 The boundary of the Swale SPA / Ramsar site lies some 150 metres to the east of the area covered by the proposal.

Table 9.6 Qualifying Birds Species of the Swale

	Scientific Name	SPA Citation	SPA Data Form	Ramsar	Criteria
Regularly supporting more than 1% of the GB breeding population of an Annex 1 species in summer					
Avocet	Recurvirostra avosetta	24 pairs, representing 6.2% of British population	-	-	24
Regularly used by 1% or more of the GB population of an Annex 1 species in the winter					
Hen Harrier	Circus cyaneus	11 representing 1.4% of British winter population	-	11 representing 1.4% of British winter population	11
Migratory species regularly occurring over winter					
Great Crested Grebe	Podiceps cristatus	-	-	300 representing 3% of the British winter population	300
White-fronted Goose	Anser albifrons	-	-	1,875 representing 31.2% of British population	1,875
Dark-bellied Brent Goose	Branta bernicla bernicla	2,850 representing 1.6% of the world population and 3.1% of the British winter population	1,961 representing 0.7% of the Western Siberia/ West Europe population	2,850 representing 1.6% of the world population and 3.1% of the British wintering population	2,850
Shelduck	Tadorna tadorna	-	-	1,650 representing 2.2% of the British population	1,650
Wigeon	Anas Penelope	9,500 representing 1.2% of the North West Europe	-	9,500 representing 1.2% of the North West Europe	9,500

		population and 3.8% of the British population		population and 3.8% of the British population	
Gadwall	Anas strepera	-	-	74 representing 1.2% of the British population	74
Teal	Anas crecca	-	-	2,100 representing 2.1% of the British population	2,100
Pintail	Anas acuta	-	-	435 representing 1.7% of the British population	435
Shoveler	Anas clypeata	-	-	340 representing 3.7% of the British population	340
Oystercatcher	Haematopus ostralegus	-	-	3,700 representing 1.3% of British winter population	3,700
Avocet	Recurvirostra avosetta	37 representing 3.7% of the British population	-	37 representing 3.7% of the British population	37
Ringed Plover	Charadrius hiaticula	-	-	260 representing 1.1% of the British population	260
Grey Plover	Pluvialis squatarola	1,550 representing 1% of the East Atlantic Flyway population and 7.3% of the British population	-	1,550 representing 1% of the East Atlantic Flyway population and 7.3% of the British population	1,550
Knot	Calidris canutus	-	-	2,650 representing 1.2% of the British population	2,650
Little Stint	Calidris minuta	-	-	4 representing 20% of	4

				the British population	
Dunlin	<i>Calidris alpina</i>	13,000 representing 3% of British wintering population	12,394 representing 2.3% of the British population	13,000 representing 3% of British population	13,000
Ruff	<i>Philomachus pugnax</i>	28 representing 1.8% of British population	-	28 representing 1.8% of British population	28
Black-tailed Godwit	<i>Limosa limosa</i>	-	-	220 representing 4.4% of British population	220
Curlew	<i>Numenius arquata</i>	-	-	1,950 representing 2.1% of British population	1,950
Spotted Redshank	<i>Tringa erythropus</i>	-	-	5 representing 2.5% of British population	5
Redshank	<i>Tringa totanus</i>	3,100 representing 2% of the East Atlantic Flyway population and 4.1% of the British population	1,640 representing 0.9% of Eastern Atlantic population	3,100 representing 2% of the East Atlantic Flyway population and 4.1% of the British population	3,100
Assemblage					
Regularly supporting over 20,000 waterfowl		57,600	65,588	57,600	65,588
Diverse assemblage of breeding waterfowl (not otherwise	<i>Tadorna tadorna</i> <i>Anas strepera</i> <i>Anas crecca</i>	Shelduck Gadwall Teal	Shelduck Gadwall Teal		Present Present Present Present

listed)	Anas platyrhynchos	Mallard	Mallard		Present
	Gallinula chloropus	Moorhen	Moorhen		Present
	Fulica atra	Coot	Coot		Present
	Haematopus ostralegus	Oystercatcher	Oystercatcher		Present
	Charadrius hiaticula	Ringed Plover	Ringed Plover		Present
	Pluvialis squatarola	-	Grey Plover		Present
	Vanellus vanellus	Lapwing	Lapwing		Present
	Numenius arquata	-	Curlew		
	Tringa tetanus	Redshank	Redshank		
	Recurvirostra avosetta	Avocet	-		
	Anas clypeata	Shoveler	-		
	Podiceps cristatus	Great Crested Grebe	-		
	Aythya farina	Pochard	-		
	Aythya fuligula	Tufted Duck	-		
Diverse assemblage of winter waterfowl (not otherwise listed)	Acrocephalus scirpaceus	-	Reed Warbler		Present
	Emberiza schoeniclus	-	Reed Bunting		Present Present

Medway Estuary and Marshes

- 9.37 The Medway Estuary forms a single tidal system with the Swale to the east and joins the outer Thames Estuary between the Isle of Grain and Sheerness. It has a complex arrangement of tidal channels, which drain around islands of saltmarsh. The mud-flats are rich in invertebrates and also support beds of *Enteromorpha* and some Eelgrass *Zostera* spp. Small shell beaches occur, particularly in the outer part of the estuary. Together these form the largest area of intertidal habitats of value for nature conservation in Kent and are representative of the estuarine habitats found on the North Kent coast. Grazing marshes intersected by dykes and fleets are present in places inside the sea walls around the estuary.
- 9.38 The Medway Estuary and Marshes Ramsar site was designated in 1993. In addition to qualifying under Criterion 3a by virtue of regularly supporting over 20,000 waterfowl with an average peak count of 53,900 birds recorded in the five-year winter period 1986/1987 to 1990/1991, and under Criterion 3c by regularly supporting internationally or nationally important wintering populations of migratory species of waterfowl, the Medway Estuary and Marshes Ramsar also qualifies under Criterion 2a of the Ramsar Convention by supporting a number of species of rare plants and animals (Table 9.7).
- 9.39 The Medway Estuary and Marshes SPA was classified in 1993 and the citation prepared for that classification, together with the most recent SPA Data have been used to inform this assessment. The qualifying bird interest features listed in the SPA Citation, current SPA data form and Ramsar citation, together with the criteria used for this assessment (in line with Natural England advice this is whichever provides the strongest protection) are presented in Table 9.8.
- 9.40 The boundary of the Medway Estuary and Marshes SPA and Ramsar site lies just over 2km from the area covered by the Proposal site.

Table 9.7 Medway Estuary and Marshes Ramsar qualifying plant and invertebrate species

Ramsar Criteria	Scientific Name	Species Name
Nationally-scarce plant species	Hordeum marinum Parapholis incurva Polypogon monspeliensis Puccinellia fasciculata Bupleurum tenuissimum Trifolium squamosum Chenopodium botryodes Rumex maritimus Ranunculus baudotii Inula crithmoides Salicornia perennis Salicornia pusilla	Sea Barley Curved Hard-grass Annual Beard-grass Borrer's Saltmarsh-grass Slender Hare`s-ear Sea Clover Small Goose-foot Golden Dock Brackish Water-crowfoot Golden Samphire Perennial Glasswort One-flowered Glasswort
British Red Data Book invertebrates	Polistichus connexus Cephalops perspicuus Poecilobothrus ducalis Anagnota collini Baris scolopacea Berosus spinosus Malachius vulneratus Philonthus punctus Malacosoma castrensis Atylotus latistriatus Campsicnemus magius Cantharis fusca Limonia danica	A ground beetle A fly A dancefly A fly A weevil A water beetle A beetle A rove beetle Ground Lackey Moth A horsefly A fly A soldier beetle A crane fly

Table 9.8 Qualifying Birds Species of the Medway Estuary and Marshes

	Scientific Name	SPA Citation	SPA Data Form	Ramsar	Criteria
Annex 1 Species Regularly Breeding in Numbers of European Importance					
Avocet	Recurvirostra avosetta	28 pairs representing 7% of the breeding population in Britain	28 pairs representing at least 6.2% of the British breeding population	28 pairs representing 7% of the breeding population in Britain	28 pairs
Common Tern	Sterna hirundo	-	77 pairs representing at least 0.6% of the British breeding population	-	77 pairs
Little Tern	Sterna albifrons	24 pairs representing 1% of the breeding population in Britain	28 pairs representing at least 1.2% of the British breeding population	24 pairs representing 1% of the breeding population in Britain	28 pairs
Annex 1 Species Regularly Wintering in Numbers of European Importance					
Bewick's Swan	Cygnus columbianus bewickii	-	161 representing at least 0.2% of the wintering population in Britain	-	161
Avocet	Recurvirostra avosetta	70 representing 7% of the population in Britain	314 representing at least 24.7% of the wintering population in Britain	-	314
Migratory Species Regularly Wintering in Numbers of European Importance					
Great Crested Grebe	Podiceps cristatus	250 representing 2.5% of British wintering population	-	250 representing 2.5% of British wintering population	250
Dark-bellied Brent	Branta bernicla bernicla	4,130 representing 2.4%	3,205 representing 1.1%	4,130 representing 2.4%	4,130

Goose		of the world population and 4.6% of British winter population	of the winter population in Britain	of the world population and 4.6% of British winter population	
Shelduck	<i>Tadorna tadorna</i>	5,900 representing 2.3% of the North West European population and 7.9% of the British winter population	4,465 representing 1.5% of the winter population in Britain	5,900 representing 2.3% of the North West European population and 7.9% of the British winter population	5,900
Wigeon	<i>Anas penelope</i>	5,200 representing 2.0% of British winter population	4,346 representing 1.6% of British winter population	5,200 representing 2.0% of British winter population	5,200
Teal	<i>Anas crecca</i>	2,400 representing 2.4% of British winter population	1,824 representing 1.3% of British winter population	2,400 representing 2.4% of British winter population	2,400
Pintail	<i>Anas acuta</i>	980 representing 1.4% of the North West European wintering and 3.9% of the British winter population	697 representing 1.2% of British winter population	980 representing 1.4% of the North West European wintering and 3.9% of the British winter population	980
Shoveler	<i>Anas clypeata</i>	150 representing 1.7% of British winter population	76 representing 0.8% of British winter population	150 representing 1.7% of British winter population	150
Oystercatcher	<i>Haematopus ostralegus</i>	3,300 representing 1.1% of British winter population	3,672 representing 1% of British population	3,300 representing 1.1% of British winter population	3,672
Ringed Plover	<i>Charadrius hiaticula</i>	740 representing 1.4% of	768 representing 1.6% of	740 representing 1.4% of	768

		the East Atlantic Flyway population and 3.2% of the British wintering population	British wintering population	the East Atlantic Flyway population and 3.2% of the British wintering population	
Grey Plover	<i>Pluvialis squatarola</i>	4,810 representing 3.2% of East Atlantic Flyway population and 22.9% of British wintering population	3,406 representing 2% of the wintering population in Britain	4,810 representing 3.2% of East Atlantic Flyway population and 22.9% of British wintering population	4,810
Knot	<i>Calidris canutus</i>	3,690 representing 1.0% of the East Atlantic Flyway and 1.6% of the British wintering population	541 representing 0.2% of the wintering population in Britain	3,690 representing 1.0% of the East Atlantic Flyway and 1.6% of the British wintering population	3,690
Dunlin	<i>Calidris alpina</i>	22,900 representing 1.6% of the East Atlantic Flyway and 5.3% of the British wintering population	25,936 representing 1.9% of the wintering population in Britain	22,900 representing 1.6% of the East Atlantic Flyway and 5.3% of the British wintering population	25,936
Black-tailed Godwit	<i>Limosa limosa</i>	390 representing 7.9% of British winter population	957 representing 12.9% of population in Britain	390 representing 7.9% of British winter population	957
Curlew	<i>Numenius arquata</i>	1,900 representing 2.1% of British winter population	1,900 representing 1.7% of population in Britain	1,900 representing 2.1% of British winter population	1,900

Spotted Redshank	<i>Tringa erythropus</i>	17 representing 8.5% of British winter population	-	17 representing 8.5% of British winter population	17
Redshank	<i>Tringa totanus</i>	4,180 representing 2.7% of the East Atlantic Flyway and 5.5% of the British wintering population	3,690 representing 2.1% of the wintering population in Britain	4,180 representing 2.7% of the East Atlantic Flyway and 5.5% of the British winter population	4,180
Greenshank	<i>Tringa nebularia</i>	12 representing 3.0% of British winter population	10 representing 2.6% of population in Britain	12 representing 3.0% of British winter population	12
Turnstone	<i>Arenaria interpres</i>	630 representing 1.4% of British winter population	561 representing 0.9% of population in Britain	630 representing 1.4% of British winter population	630
Assemblage					
Regularly supports over 20,000 birds		53,900	65,496	47,637	65,496
Diverse assemblage of breeding waterfowl (not otherwise listed)	<i>Gavia stellata</i>	-	Red-throated Diver		Present
	<i>Phalacrocorax carbo</i>	-	Cormorant		Present
	<i>Tadorna tadorna</i>	Shelduck	-		Present
	<i>Anas crecca</i>	Teal	-		Present
	<i>Anas platyrhynchos</i>	Mallard	Mallard		Present
	<i>Anas clypeata</i>	Shoveler	-		Present
	<i>Aythya ferina</i>	Pochard	Pochard		Present
	<i>Circus cyaneus</i>	-	Hen Harrier		Present
	<i>Falco columbarius</i>	-	Merlin		Present
	<i>Haematopus ostralegus</i>	Oystercatcher	-		Present

	Charadrius hiaticula Vanellus vanellus Tringa tetanus Asio flammeus Alcedo atthis,	Ringed Plover Lapwing Redshank - -	- Lapwing - Short-eared Owl Common Kingfisher		Present Present Present Present Present
Diverse assemblage of wintering species (not otherwise listed)	Gavia stellata Phalacrocorax carbo Anas platyrhynchos Aythya ferina Circus cyaneus Falco columbarius Recurvirostra avosetta Pluvialis apricaria Vanellus vanellus Asio flammeus Alcedo atthis,	Red-throated Diver Cormorant Mallard Pochard Hen Harrier Merlin - Golden Plover - Short-eared Owl Common Kingfisher	Red-throated Diver Cormorant Mallard Pochard - - Avocet - Lapwing - -		Present Present Present Present Present Present Present Present Present Present Present

Thames Estuary and Marshes

- 9.41 The Thames Estuary and Marshes consists of an extensive mosaic of grazing marsh, saltmarsh, mudflats and shingle characteristic of the estuarine habitats of north Kent. Freshwater pools and some areas of woodland provide additional variety and complement the estuarine habitats. Whilst the majority is situated in Kent along the south shore of the Thames estuary, additional areas are located along the north shore of the Thames Estuary.
- 9.42 The Thames Estuary and Marshes Ramsar was designated in 2000. In addition to qualifying under criterion 5 as it is used regularly by over 20,000 waterfowl in any season and under criterion 6 as it is used regularly by 1% or more of the biogeographic populations of migratory species of waterfowl, it also qualifies under criterion 2a of the Ramsar Convention by supporting a number of species of rare plants and animals (Table 9.9).
- 9.43 The Thames Estuary and Marshes SPA was classified in 2000. The qualifying bird interest features listed in the SPA Citation, current SPA data form and Ramsar citation, together with the criteria used for this assessment (in line with Natural England advice this is whichever provides the strongest protection) are presented in Table 9.10.
- 9.44 The boundary of the Thames Estuary and Marshes SPA and Ramsar site lies just under 10 km from the area covered by the Proposal site.

Table 9.9 Qualifying plant and invertebrate species for the Thames Estuary and Marshes Ramsar

Ramsar Criteria	Scientific Name	Species Name
Nationally rare plant species	<i>Chenopodium chenopodioides</i>	Saltmarsh Goosefoot
Nationally scarce plant species	<i>Alopecurus bulbosus</i> <i>Bupleurum tenuissimum</i> <i>Carex divisa</i> <i>Hordeum marinum</i> <i>Inula crithmoides</i> <i>Polypogon monspeliensis</i> <i>Puccinellia fasciculata</i> <i>Puccinellia rupestris</i> <i>Salicornia pusilla</i> <i>Stratiotes aloides</i>	Bulbous Foxtail Slender Hare's-ear Divided Sedge Sea Barley Golden Samphire Annual Beard Grass Borrer's Saltmarsh-grass Stiff Saltmarsh-grass Glasswort Water Soldier

	Trifolium glomeratum Trifolium squamosum Zostera angustifolia Zostera noltii	Clustered Clover Sea Clover Narrow-leaved Eelgrass Dwarf Eelgrass
Endangered invertebrate species	Bagous longitarsis	A weevil
Vulnerable invertebrate species	Henestaris halophilus Bagous cylindrus Polystichus connexus Erioptera bivittata Hybomitra expollicata Lejops vittata Poecilobothrus ducalis Pteromicra leucopeza Philanthus triangulum Lestes dryas	A groundbug A weevil A ground beetle A crane fly A horse fly A hoverfly A dancefly A snail killing fly A solitary wasp A damselfly
Rare invertebrate species	Cercyon bifeneistratus Hydrochus elongates H.ignicollis Ochthebius exaratus Hydrophilus piceus Malachius vulneratus Philonthus punctus Telmatophilus brevicollis Campsicnemus magius Haematopota bigoti Stratiomys longicornis Baryphyma duffeyi.	A water beetle A water beetle A water beetle A water beetle A water beetle A beetle A rove beetle A fungus beetle A fly A horsefly A soldier fly A spider

Table 9.10 Qualifying Birds Species of the Thames Estuary and Marshes

	Scientific Name	SPA Citation	SPA Data Form	Ramsar	Criteria
Regularly used by 1% of more of the GB population of an Annex 1 species in the winter					
Avocet	<i>Recurvirostra avosetta</i>	283 representing 28.3% of British wintering population	283 representing 28.3% of British wintering population	-	283
Hen Harrier	<i>Circus cyaneus</i>	7 representing 1.0% of the British wintering population	7 representing 1.0% of the British wintering population	-	7
Migratory species regularly occurring over winter					
Grey Plover	<i>Pluvialis squatarola</i>	2,593 representing 1.7% of the East Atlantic wintering population	2,593 representing 1.7% of the East Atlantic wintering population	2,593 representing 1.7% of the East Atlantic wintering population	2,593
Knot	<i>Calidris canutus</i>	4,848 representing 1.4% of Northeast Canada/ Greenland/Iceland/ North West Europe population	4,848 representing 1.4% of the Northeast Canada/ Greenland/ Iceland/North West Europe population	4,848 representing 1.4% of Northeast Canada/ Greenland/Iceland/ North West Europe population	4,848
Dunlin	<i>Calidris alpina</i>	29,646 representing 2.1% of North Siberia/Europe/ West Africa population	29,646 representing 2.1% of North Siberia/Europe/ West Africa population	29,646 representing 2.1% of North Siberia/Europe/ West Africa population	29,646

Black-tailed Godwit	<i>Limosa limosa</i>	1,699 representing 2.4% of the Iceland breeding population	1,699 representing 2.4% of the Iceland breeding population	1,699 representing 2.4% of the Iceland breeding population	1,699
Redshank	<i>Tringa totanus</i>	3,251 representing 28.3% of the Eastern Atlantic wintering population	3,251 representing 28.3% of the Eastern Atlantic wintering population	3,251 representing 28.3% of the Eastern Atlantic wintering population	3,251
Migratory species regularly occurring on passage					
Ringed Plover	<i>Charadrius hiaticula</i>	1,324 representing 2.6% of the Europe/Northern Africa wintering population	1,324 representing 2.6% of the Europe/Northern Africa wintering population	1,324 representing 2.6% of the Europe/Northern Africa wintering population	1,324
Assemblage					
Regularly supporting over 20,000 waterfowl		75,019	75,019	75,019	75,019
Nationally important populations	<i>Tadorna tadorna</i>	Shelduck	-	Shelduck	Present
	<i>Anas strepera</i>	Gadwall	-	Gadwall	Present
	<i>Anas crecca</i>	Teal	-	Teal	Present
	<i>Anas acuta</i>	Pintail	-	Pintail	Present
	<i>Anas clypeata</i>	Shoveler	-	Shoveler	Present
	<i>Aythya ferina</i>	Pochard	-	Pochard	Present
	<i>Aythya fuligula</i>	Tufted Duck	-	Tufted Duck	Present

Queendown Warren SAC

9.45 Queendown Warren consists of *Bromus erectus* grassland. This priority habitat type comprises calcareous grasslands containing an important assemblage of rare and scarce species, including Early Spider-orchid *Ophrys sphegodes*, Burnt Orchid *Orchis ustulata* and Man Orchid *Aceras anthropophorum*. Important orchid assemblage sites are defined in the *Interpretation Manual of European Union Habitats* (European Commission DG Environment 2007) as localities which meet one or more of the following criteria:

- hosts a rich suite of orchid species;
- hosts an important population of at least one orchid species considered not very common on the national territory, or
- hosts one or several orchid species considered to be rare, very rare or exceptional on the national territory

9.46 During the most recent condition assessment process, 100% of Queendown Warren SSSI was adjudged to be in favourable condition. The key environmental conditions that support the features of European interest are:

- maintenance of grazing;
- minimal recreational trampling;
- minimal air pollution – nitrogen deposition may cause reduction in diversity, and sulphur deposition can cause acidification;
- absence of direct fertilisation, and
- well-drained soils.

SUPPORTING HABITATS

9.47 Whilst the qualifying species listed for SPA and Ramsar sites are referred to as interest features, the ecologically important habitats supporting each feature have also been identified as sub-features. The supporting habitats of the Swale SPA, Medway Estuary and Marshes SPA and Thames Estuary and Marshes SPA and are presented in Table 9.11.

9.48 The Medway Estuary and Marshes SPA and Ramsar site, the Thames Estuary and Marshes SPA and Ramsar site and the Swale SPA and Ramsar site include terrestrial, intertidal and subtidal areas. Some species, such as the internationally important wintering population of Hen Harrier on the Thames Estuary and Marshes SPA, are

dependent on the terrestrial supporting habitats, notably areas of grazing marsh. Other qualifying species also use areas of the Natura 2000 sites above the highest astronomical tide for breeding, such as Avocet, feeding, such as Curlew and Redshank, or roosting when displaced from mudflats at high tide.

Table 9.11 Percentage of supporting habitat sub-features

	Swale SPA	Medway SPA	Thames SPA
Estuaries, mudflats, sandflats and lagoons	39.0	67.0	57.3
Saltmarsh	5.0	15.0	1.5
Shingle and sea cliff	1.0	-	0.9
Standing water	2.0	1.0	5.6
Bogs, marshes and fens	-	1.0	3.7
Dry grassland	-	1.0	1.9
Wet grassland	-	15.0	29.1
Other arable land	47.0	-	-
Other land (waste land, industrial sites)	6.0	-	-
Total	100%	100%	100%

- 9.49 The intertidal and subtidal components of the Medway Estuary and Marshes SPA and Ramsar site, the Thames Estuary and Marshes SPA and Ramsar site and the Swale SPA and Ramsar site are termed European marine sites. Under Regulation 33(2a) of the Habitats Regulations, 1994, Natural England has a duty to advise other relevant authorities as to the conservation objectives of each European marine site. Conservation objectives focus on the habitat conditions necessary to support the interest features in recognition that bird populations may change as a reflection of national or international trends. Sub-features are identified which describe the key habitats within the marine site component of the SPA.

Marine Component of the Swale SPA

- 9.50 Internationally important assemblage of waterfowl including internationally important populations of regularly occurring migratory bird species
- 9.51 The two key supporting sub-features (habitats) are:
- Mudflats

- Saltmarsh

- 9.52 Mudflats are a rich source of invertebrates and provide the main feeding ground for wintering species such as Grey Plover and Redshank, which occur in internationally important numbers, and the other nationally important waterfowl species which contribute to the waterfowl assemblage. In addition mudflats do support plant life, including eel-grass and algae. These are valuable as food for the internationally important populations of Dark-bellied Brent Goose and Wigeon, especially when inland feeding sites are frozen.
- 9.53 Saltmarsh is the predominantly vegetated part of the intertidal zone and its importance for birds is again for high tide roosting and feeding. Whilst the characteristics of the vegetation varies because the plants are adapted to a particular degree of tidal exposure, areas of Saltmarsh within the Swale SPA also varies because of grazing by domestic livestock. Where the vegetation is kept short by grazing livestock, wildfowl which are themselves grazers, including Wigeon and Dark-bellied Brent Goose, can feed. Around high tide, the creeks within the saltmarsh are the only exposed areas of mud, as mudflats in the lower parts of the estuary are still covered by the tide. Wading birds will feed within these creeks. Where there is shallow water within the saltings it is especially suitable for dabbling duck.
- 9.54 Subject to natural change the conservation objective for these sub-features is to maintain them in favourable condition.

Marine Component of the Medway SPA

Internationally important populations of regularly occurring Annex 1 species

- 9.55 The four key supporting sub-features (habitats) are:
- Mudflats
 - Saltmarsh
 - Shallow inshore waters
 - Shingle beaches
- 9.56 Mudflats are a rich source of invertebrates and provide the main feeding ground for wintering species such as Avocet which occur in internationally important numbers. In summer, they also provide a feeding area for Avocet, which are known to move their young into the intertidal area when feeding grounds on the landward side of the sea walls become unsuitable.
- 9.57 Saltmarsh is the predominantly vegetated part of the intertidal and varies because the

plants at each level within its vertical profile are adapted to their particular degree of tidal exposure. The importance of the saltmarshes for birds is for high tide roosting by Avocet.

- 9.58 Shallow in-shore waters are listed as a sub-feature for the Medway (but not the Swale) because they are used by Little Tern and Great Crested Grebe, both of which are Annex 1 species which occur in nationally important numbers.
- 9.59 Shingle beaches, such as those that occur in Stoke Saltings, are used for nesting by Little Tern. They prefer a shallow sloping shoreline that provides protection against flooding.
- 9.60 Subject to natural change the conservation objective for these sub-features is to maintain them in favourable condition.

Internationally important assemblage of waterfowl including internationally important populations of regularly occurring migratory bird species

- 9.61 The three key supporting sub-features (habitats) are:
- Mudflats
 - Saltmarsh
 - Shallow coastal waters
- 9.62 The mudflats in the Medway Estuary and Marshes SPA provide the main feeding ground for wintering species which occur in internationally important numbers, such as Knot, Grey Plover Dunlin and Redshank, as well as other nationally important waterfowl species which contribute to the waterfowl assemblage.
- 9.63 The saltmarsh in the Medway Estuary and Marshes SPA provide roosting and feeding grounds for wintering species which occur in internationally important numbers, as well as other nationally important waterfowl species which contribute to the waterfowl assemblage.
- 9.64 Great Crested Grebe feed in the shallow waters of the Medway, and at the time of classification, occurred in nationally important numbers.
- 9.65 Subject to natural change the conservation objective for these sub-features is to maintain them in favourable condition.

Marine Component of the Thames Estuary and Marshes SPA

Internationally important populations of regularly occurring Annex 1 species

9.66 The two key supporting sub-features (habitats) are:

- Mudflats
- saltmarsh

9.67 Mudflats are extensive within the Thames Estuary and Marshes SPA, with over 2,250 ha on the south bank of the Thames. The mudflats are a rich source of invertebrates (shell fish and worms) and provide feeding grounds for wintering avocet. The mudflats at Higham and Mucking in the west of the site are particularly important for this species.

9.68 Saltmarshes are not extensive in the Thames Estuary and Marshes SPA, but nevertheless provide important high tide roost sites for birds, particularly at Higham in the west of the site. Shallow water within the saltings also provide suitable habitat for feeding birds.

9.69 Subject to natural change the conservation objective for these sub-features is to maintain them in favourable condition.

Internationally important assemblage of waterfowl including internationally important populations of regularly occurring migratory bird species

9.70 The three key supporting sub-features (habitats) are:

- mudflats
- saltmarsh
- intertidal shingle

9.71 Mudflats are a rich source of invertebrates and provide the main feeding ground for wintering species such as Dunlin, Knot and Black-tailed Godwit, which occur in internationally important numbers, and the other nationally important waterfowl species which contribute to the waterfowl assemblage. In addition, mudflats do support plant life, including algae and some very limited eel-grass and algae. These can be valuable as food for wildfowl, especially when inland feeding sites are frozen. Mudflats also provide important roosting areas for internationally important assemblages of waterfowl and its qualifying species.

9.72 Saltmarsh is not extensive in the Thames Estuary and Marshes SPA, but nevertheless provide important high tide roost sites for the internationally important assemblage of

waterfowl and its qualifying species. Upper saltmarsh in particular provide high tide roost sites. The vegetation varies because the plants at each level within its vertical profile are adapted to their particular degree of tidal exposure. Also in parts, the vegetation varies because of grazing by domestic livestock. Where the vegetation is kept short by grazing livestock, wildfowl which are themselves grazers, including Teal, can feed. Where there is shallow water within the saltings, it is especially suitable for dabbling duck.

- 9.73 Small areas of intertidal shingle and cobble beaches on the south bank of the Thames provide important roost sites for wading birds displaced from the mudflats at high tide.
- 9.74 Subject to natural change the conservation objective for these sub-features is to maintain them in favourable condition.

Queendown Warren SAC

- 9.75 The Queendown Warren SAC, on the south-facing slope of a dry chalk valley, comprises grassland and woodland. The former has a diverse flora and there are a good variety of invertebrates present, including the Adonis blue butterfly. Potter's Wood is mainly sweet chestnut coppice with oak standards, but with beech, hazel and other species along the southern edge. Uncommon plant species occur, such as lady orchid and yellow bird's nest.

STAGE 2 - LIKELY SIGNIFICANT EFFECT

- 9.76 This section deals with the screening of likely significant negative effects on the qualifying feature and sub-features of the relevant Natura 2000 and Ramsar sites. Based on the conservation objectives of the relevant sites, discussions with Natural England and information supplied by them, including site citations, the environmental pathways that could result in a significant effect may be summarised as:
- Direct loss or damage of habitats within a designated site or of nearby areas used by interest species;
 - Change in management regimes (e.g. grazing / mowing of marshland) of habitats within a designated site or of nearby areas used by interest species;
 - Loss of future space to allow for managed realignment to avoid coastal squeeze;
 - Urbanisation that results in over shadowing, reduction of sight lines or which hinders flight paths;

- Air quality;
- Water quality;
- Hydrological changes, including in the balance of saline and non-saline conditions;
- Disturbance (activity, recreation, noise and lighting); and
- Introduction or spread of non-native invasive species

9.77 The likelihood of the development proposed within the planning application having a significant effect is discussed for each of these environmental pathways in turn below.

Direct loss or damage of habitats used by interest species

9.78 The proposal will result in no direct loss of any area of habitat designated as SPA, pSPA SAC or Ramsar site during either its construction or operation.

9.79 The proposal Site does not support any of the plant species listed on the Swale Ramsar citation, but does currently supports one qualifying plant species of the Medway Estuary and Marshes Ramsar site (Annual Beard-grass). As the Proposal site is outside the boundary of this Ramsar site, it can only be seen as providing a refuge area and additional source of seed material. Consequently, with appropriate mitigation to ensure these species continue to be present, it can be concluded that the effects of the loss of habitat outside the Ramsar boundary but which supports qualifying plant species, can be screened out on the grounds of not likely to have a significant effect.

9.80 The scoping of the potential for the habitats currently within the Proposal site to support qualifying invertebrates leads to the conclusion that the majority of the qualifying species of the Swale Ramsar site or Medway Estuary and Marshes Ramsar site are likely to be present, being mostly reliant on saline/brackish ditch habitats typical of these sites, but not present on the Proposal site.

9.81 Further, none of the supporting habitats listed as being important for the invertebrate species (saltmarsh and grazing marsh) are present within the Proposal site.

9.82 Following surveys of the Proposal site in 2009/2010, no qualifying bird species of either the Swale SPA and Ramsar site or Medway Estuary and Marshes SPA and Ramsar site were recorded utilising the Proposal site for breeding and/or foraging. The Proposal site provides little in the way of suitable habitat for any of the SPA cited breeding species. This is based upon:

- the Proposal site does not contain any habitat suitable for wintering

Ramsar/SPA Citation/Data Form species, such as Dark-Bellied Brent Goose, Teal, Oystercatcher and Ringed Plover,

- the poor quality of much of the available habitat within the Proposal site boundary for roosting;
- past construction activity in parts of the site;
- breeding bird surveys undertaken in 2009; and
- no SPA / Ramsar species were noted during any of the other surveys during 2007/2009/2010 roosting on the Proposal site.

9.83 It is therefore concluded that the terrestrial areas of the Proposal site do not regularly support significant numbers of roosting birds either of qualifying individual species or assemblages of the Swale SPA / Ramsar site or the Medway Estuary and Marshes SPA / Ramsar site.

9.84 There is no evidence that the Proposal site is regularly used as a significant feeding or roosting site during passage or winter by any qualifying species of either the Swale SPA / Ramsar site or the Medway Estuary and Marshes SPA / Ramsar site.

9.85 Consequently, it is concluded that the effects of direct habitat loss on qualifying invertebrates as well as breeding, passage and wintering birds can be screened out on the grounds of not likely to have a significant effect.

Change in habitat management regimes

9.86 The majority of the existing land use in the vicinity of the Proposal site is in industrial use, notably the paper mill immediately to the west or brownfield land, including a capped tip to the southeast. The planning application will therefore result in no change to current management regimes of any sub-feature of a SPA or Ramsar during either the construction or operation of the SEP. It will also not result in any direct detrimental change in habitat management of any land adjacent to either the Swale SPA / Ramsar site or the Medway Estuary and Marshes SPA and Ramsar site. Consequently, the effects of change in habitat management regimes can be screened out on the grounds of not likely to have a significant effect.

Loss of future space to allow for managed realignment

9.87 There is evidence that rising sea levels are causing intertidal habitats, notably saltmarsh and mudflats, to migrate landwards across all the designated sites under consideration. However, such landward migration can be rendered impossible due the presence of the

sea wall and other flood defences, resulting in a reduction in both the extent and quality of some sub-features through coastal squeeze. The removal or landward relocation of defences is seldom possible in existing built up areas and new development which takes place immediately behind sea walls and flood defences can result in it no longer being possible to move the defences landwards to accommodate replacement of eroded or drowned out intertidal habitats.

- 9.88 The Proposal site is located in the north of Milton Creek and currently lies vacant. Much of the land in the area is predominantly low-lying and the majority is within Flood Zone 3 on the Environment Agency Flood Map. As detailed in the Flood Risk Assessment, the entire Proposal site is considered to be an area benefiting from defences.
- 9.89 The planning application will result in no loss of undeveloped land immediately behind the primary sea and flood defences, it can be concluded that in relation to loss of future space to allow for managed realignment there is no likely significant effect.

Urbanisation

- 9.90 Industrial development in close proximity of Natura 2000 and Ramsar sites has the potential to over shadow areas of habitat within designated sites, or areas used by the interest features of such sites, as well as obstruct flight paths and lines of sight of qualifying species reducing the appeal of the habitat or increasing the risk of fatalities through collisions.
- 9.91 There is evidence that the Swale foreshore to the east of the Proposal site (within the SPA / Ramsar site) as well as the lower reaches of Milton Creek to the south of the Proposal site (outside the Swale SPA / Ramsar) support important numbers of wintering waterbirds. A summary of the available data for qualifying species is presented in Table 9.12 but see also Appendix 9.5:

Table 9.12 : Waterbird data for the Kemsley Foreshore (February-March 2009)

Species	Peak count during February - March 2009 at Kemsley study area		5yr Peak mean for Swale SPA (2002/03-2006/07)	Great Britain 1% Threshold	International 1% Threshold
	Number of birds	% of SPA population			
SPA Citation / Data Form Species					
Dark-bellied Brent Goose	0	0	1,754	981	2,000
Dunlin	223	2.4	9,202	5,600	13,300
Redshank	210	18.7	1,127	1,200	2,800
Ramsar Species / SPA Assemblage					
Shelduck	102	4.8	2,114	782	3,000
Wigeon	158	0.9	18,521	4,060	15,000
Teal	403	8.3	4,812	1,920	5,000
Pintail	174	22.0	790	279	600
Oystercatcher	600	12.2	4,910	3,200	10,200
Avocet	80	13.4	595	50	730
Ringed Plover	28	8.5	(328)	330	730
Grey Plover	62	3.9	1,576	530	2,500
Black-tailed Godwit	1,500	105.3	1,425	150	470
Curlew	156	13.0	1,201	1,500	8,500
Additional Assemblage Species					
Little Grebe	21	31.3	67	78	4,000
Turnstone	68	15.7	434	500	1,500
Total waterbird assemblage	3,929	5.1		-	-
Total SPA waterbird assemblage			76,323	-	-

- 9.93 The data in Table 9.12 indicates that the Kemsley foreshore holds significant numbers of two Citation / Data Form species of the Swale SPA / Ramsar assemblage, namely Oystercatcher and Ringed Plover and Avocet. No direct loss of the habitat used by these species would occur as a result of the proposed SEP. This conclusion is further substantiated by the wintering birds surveys started in October and run through to January 2010 to cover full passage and winter periods (Appendix 9.5).
- 9.94 Examination of the proposed SEP reveals that there will be no likely significant effects on any Natura 2000 or Ramsar sites as a result of over shadowing. This is because the Proposal site is set around 150 metres away from the boundary of the Swale SPA / Ramsar site. The layout of the buildings also means they are aligned away from the Swale SPA / Ramsar (as opposed to parallel to it).
- 9.95 Natural England has indicated that the Habitats Regulations cover interest features utilising adjacent habitats. The Proposal site contains no habitats regularly utilised by qualifying species from the Swale SPA and Ramsar site.
- 9.96 Due to the presence of the existing paper mill to the west, and ridge of higher land beyond, the Proposal site is not seen as being strategically located between the Swale SPA / Ramsar site and the Medway Estuary and Marshes SPA / Ramsar site in terms of flight paths.
- 9.97 Natural England has confirmed that it would appear that the movement of birds between the Medway Estuary and Marshes and the Swale is limited for most species, with the exception of Knot and to a lesser extent Redshank.
- 9.98 Whilst it would appear that the effects of urbanisation on the qualifying species of the Swale SPA / Ramsar and Medway Estuary and Marshes SPA and Ramsar site could be screened out on the grounds of not likely to have a significant effect, in line with advice from Natural England, this issue is taken through to Stage 3 in relation the interest features of the Swale SPA / Ramsar site due to the waterbird interest recorded on adjoining intertidal areas.

Air quality

- 9.99 The two main air quality issues during construction are dust and increased traffic emissions. Levels of understanding of air quality effects on semi-natural habitats and qualifying interest species of Natura 2000 sites are relatively in their infancy. The Air Pollution Information System (APIS) is a publicly available support tool for UK conservation and regulatory agencies, industry and local authorities to help assess the potential effects of air pollutants on habitats and species. It aims to enable a consistent

approach to air pollution assessment across the UK. This specifically includes informing assessments required under the Habitats Regulations. Consequently, reference has been made to the information contained within the APIS website.

Construction Dust

- 9.100 The potential for dust release exists during the construction phase, with potential sources including site clearance, earthworks and construction. Possible impacts on ecology from dust deposition include:
- altering water chemistry of ponds, lakes and possibly watercourses;
 - chemical reactions or reduced photosynthesis in leaves;
 - deposition of alkaline dust may change species composition, especially in more acid communities; and
 - trees may drop their leaves early following exposure to high levels of dust
- 9.101 The precise behaviour of dust, its residence time in the atmosphere and distance travelled before being deposited depend on a number of factors. These include the characteristics of the dust, local topography, the presence of structures that may intercept dust and wind direction and strength. The prevailing wind direction in the UK is from the south and south-west. The land to the north and east of the site is therefore at most risk of increased deposition of dust as a result of construction activities. Nevertheless, based on studies elsewhere, it is anticipated that the majority of dust would be deposited in the area immediately surrounding the source (up to 100 metres away) and that no change in level of exposure is expected beyond 300 metres from the site.
- 9.102 The boundary of the Swale SPA and Ramsar site is over 140 metres to the north east of the Proposal site and therefore outside the area potentially most affected. The site boundary runs parallel to the shore at this location. The intertidal zone is subject to daily coverage by the tide and the nearest area of grazing marsh on the far shore of the Swale is over 600 metres away. The closest part of the Medway Estuary and Marshes SPA and Ramsar to the Proposal site where construction works is 2 km to the north and therefore outside the area potentially affected by dust.
- 9.103 This, together with implementation of techniques to control dust and airborne particulate matter, to ensure compliance with relevant standards and guidelines, it can be concluded that in relation to construction dust, there is no likely significant effect. This issue is therefore screened out from further analysis.

Traffic

- 9.104 The major impacts of air pollutants on coastal habitats and grasslands in the UK as a result of traffic are ozone, nitrogen deposition and acidification. According to the Department for Transport's Transport Analysis Guidance, beyond 200 metres the contribution of vehicle emissions from the roadside to local pollution levels is not significant (Department for Transport, 2009). This is therefore the distance that has been used to determine whether Natura 2000 and Ramsar sites are likely to be significantly affected by the proposed development.
- 9.105 Chapter 6 of the Environmental Statement indicates an expected increase in traffic on the A429 as a result of the proposed development. The majority of the increase in traffic will be at least 2 km from the boundary of the Swale SPA / Ramsar site and Medway Estuary and Marshes SPA / Ramsar site. The issue of pollution from increased traffic is therefore screened out from further assessment as it can be concluded it is not likely to have a significant effect on any of the qualifying species and sub-features of the Swale SPA / Ramsar site or Medway Estuary and Marshes SPA and Ramsar site.

Operational Emissions

- 9.106 The principal source of operational emissions to atmosphere will be gases exhausted from the stack after treatment in the flue gas treatment system. The combustion of waste during the operation of the SEP will give rise to atmospheric emissions of a number of pollutants in low concentrations which will be regulated under the Waste Incineration Directive (WID) 2000/76/EC. The key emissions are nitrogen oxides (NO_x), sulphur dioxide (SO₂), hydrogen chloride (HCl) and ammonia (NH₃).
- 9.107 The most significant harmful effects of emissions on ecosystems are those known to result from:
- deposition to land of nitrogen (N deposition), which contributes to the eutrophication of habitats; and
 - deposition of NO_x, SO₂, NH₃ and to a lesser extent HCl, which contribute to the acidification of habitats.
- 9.108 As such, the issue of emissions from the operation of the SEP plant is taken through to the next stage for further consideration. In line with Natural England advice, whether it can be concluded emissions do not have an adverse effect will be assessed against the qualifying species or sub-features of the Swale SPA / Ramsar site, Medway Estuary and Marshes SPA and Ramsar site, Thames Estuary and Marshes SPA / Ramsar site and

Queendown Warren SAC.

Water quality

- 9.109 The quality of the water entering Natura 2000 and Ramsar sites is an important determinant of habitat condition and hence the species they support. Water pollution refers to the introduction of substances or energy that has a deleterious effect on the ability of an area to support its qualifying features. Poor water quality can have a range of ecological impacts. These include:
- at high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour;
 - some industrial chemicals and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life; and
 - eutrophication, the enrichment of plant nutrients in water, increases plant growth with high levels of macroalgal growth potentially smothering the mudflats used as feeding areas by qualifying bird species. The decomposition of organic matter that often accompanies eutrophication can deoxygenate water. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen.
- 9.110 Whilst coastal grazing marsh is sensitive to deteriorations in water quality, no such areas will receive surface water drainage from the Proposal site. It is therefore concluded that there will be no likely significant effect on the grazing marsh sub-feature of any of the SPA and Ramsar sites under consideration.
- 9.111 The proposed development will significantly increase the impermeable area of the site and hence could potentially increase both the volume and nature of surface water run-off and hence its capacity to pollute receiving waterbodies. The Proposal site currently includes a surface water drainage system which serves to drain the Proposal site through an outfall to the Swale. Estuaries can be subject to many types of water pollution and being at the top of their food chains wintering birds often provide a sensitive indicator. Oil is one of the most visible forms of water pollution and around estuaries sources can include small, but chronic losses from shore-based activities such as construction sites and industrial premises. Qualifying species on the Swale Ramsar site such as Great Crested Grebe are generally most at risk since these swim on the water. Wading birds are generally less affected unless oil settles on the mudflats or toxic dispersants are used

(Campbell *et al*, 1978).

- 9.112 A site-wide surface water pollution prevention system will be developed to prevent the discharge of contaminated surface water to the Swale. The key measures to prevent water pollution are as follows:
- the surface water drainage, including the primary gravity drainage channels and associated systems will remain the responsibility of St Regis;
 - surface water drainage will continue to be discharged to the Swale or the foul water system where appropriate;
 - As the mobilisation of contaminants during construction works can lead to increased pollution loadings, appropriate treatment (e.g. settlement) and pollution prevention measures (e.g. interceptors) will be provided to prevent polluted flows from being discharged into the Swale
- 9.113 The overall philosophy for the design of the surface water pollution prevention system for the site is to manage surface water sustainably and to ensure that discharged waters do not constitute a pollution risk.
- 9.114 It is proposed that all clean surface water from the site is discharged to receiving storage ponds. Minor fuel/oil spillages from plant within Site will enter surface water drainage systems and be treated through class 1 full retention interceptors. Incidents that could result in volumes of fuel/oil which exceed the capacity of the interceptors, would involve contaminated water being discharged directly to the storage ponds, with closure valve retaining the water within the ponds for a tanker to remove off site. Therefore there should be no significant impact from operational drainage on the SPA.
- 9.115 These ponds will also provide protection against flooding of the site during rainfall and tidal events, and prevent uncontrolled discharge water entering areas of land adjacent the site, such as the SPA. The system is designed to cater for 1 in 100 year storms
- 9.116 Implementation of these measures during both construction and operational phases of the proposed development limits the risk of a significant pollution incident. Consequently, it can be concluded that the issue of water pollution can be screened out on the grounds of not likely to have a significant effect.

Hydrological changes

- 9.117 No hydrological changes to terrestrial areas of the Swale SPA and Ramsar site (or any other SPA or Ramsar site) will occur as a result of the proposed development.
- 9.118 A series of ditches drain eastwards via an outfall to the Swale. The ditch system

provides storm water storage when the outfall is tide locked and a flap valve prevents tidal waters entering the system. A site-wide Drainage Strategy has been developed with the aim of ensuring that surface water runoff is suitably managed. The key features are as follows:

- the site will be expected, wherever possible, to utilise practical systems for the collection and re-use of water, particularly from roof areas, to help reduce both potable water demand and surface water runoff all surface water drainage will continue to be discharged to the Swale;
- a new primary drainage system will replace the existing surface water drainage system in a phased manner as the development is brought forward, and
- attenuation of surface water runoff will be dealt with in individual detailed planning applications for each individual development plot and is expected to make use of techniques such as SUDS

- 9.119 The proposed development will therefore result in changes to the existing freshwater flows across the Kemsley foreshore into the Swale.
- 9.120 Significant changes to the hydrology of estuaries have the potential to affect the balance between saline, brackish and freshwater conditions, as well as change erosion, sediment transport and depositional processes of estuarine systems. The only potential hydrological impact on the Swale from the proposed changes in the volumes discharged from the outfalls. In view of the small size of these relative to the Swale, which is principally comprised of sea water, the issue of changes to estuary scale hydrology or hydromorphology can be screened out on the grounds of not likely to have a significant effect.
- 9.121 Several species of birds have been recorded using freshwater flows and flow channels across intertidal areas for feeding, roosting, drinking and preening/bathing (Environment Agency, 2007). Ravenscroft and Beardall (2003) further examined the importance of freshwater flows over mudflats of East Anglian estuaries for wintering wading birds and wildfowl. They found that some species were present around most flows and that certain species, including qualifying species of the Swale SPA and Ramsar site such as Dark-bellied Brent Goose, were consistently recorded in greater numbers around flows than would be expected from average densities. However, the small numbers precluded statistical analysis. There was though evidence of a large turnover of some species of birds using flows, with flocks of Knot for example alighting briefly in flows before dispersing. Overall, the findings indicated potentially significant proportions of the

populations of some species were making use of flows.

- 9.122 The proposed alterations to the drainage network associated with the Proposal site could lead to changes in discharge rates and volumes of water draining into the Swale. This in turn could lead to an impact on intertidal or marine qualifying and supporting features of the Swale SPA / Ramsar site, such as changes in sedimentation patterns along the creek generated by the outfall. This in turn could influence usage of the flows by species for which the site is designated for activities such as preening, drinking and bathing. Consequently, the effects of changes in freshwater volumes cannot be screened out from this assessment on the grounds of not likely to have a significant effect. This issue is therefore taken through to the next stage to determine whether it can be concluded it does not have an adverse effect on the Swale SPA and Ramsar site.

Disturbance

- 9.123 Disturbance can be caused by activity, recreation, noise and lighting.

Activity

- 9.124 The movement of people and plant during both the construction phase and operation of the proposed development may be visible to a proportion of the Citation / Data Form species of waterbirds using the intertidal areas of the Swale SPA / Ramsar site. Such activity can disturb birds through causing increased anxiety and flight. The distance at which a bird will take flight due to perceived danger is variable between species, activity type and habituation to human contact. The greatest effect is associated with human presence on the intertidal zone of estuaries. A study on disturbance to waterfowl on estuaries produced by the Wader Study Group (Davidson and Rothwell, 1993), suggested an average flight distance of 148 metres for Shelduck.
- 9.125 Studies also suggest disturbance is less significant when human presence is restricted to the edge of inter-tidal areas and even less significant when some distance from intertidal areas. Numbers of species such as Shelduck, Black-tailed Godwit, Curlew and Redshank, have though been shown to be lower on the upper shore where a footpath, is used close to where they would otherwise occur (Burton *et al*, 2002a).
- 9.126 It is considered there is a limited potential for disturbance to be caused by activity when account is taken of the fact that:
- the closest part of the Proposal site which could potentially result in activity disturbance is some 150 metres from boundary of the Swale SPA / Ramsar site;

- the nearest intertidal zones of the Swale to the Proposal site already receive a high degree of visual protection from the Proposal site due to the presence of the seawall;
- bird distribution studies have shown limited numbers of SPA / Ramsar Citation or Data Form bird species on the intertidal area adjacent to the proposed development site;
- waterbirds feeding or loafing on the Swale or Milton Creek in the vicinity of the Proposal site have a high degree of habituation to people due to the presence of the Saxon Shore Way public footpath along the seawall, sailing on the Swale and use of personalised watercraft (jet skis) along Long Reach of the Swale;
- concentrations of waterbirds occurring on the opposite shore of the Swale are over 400 metres from the Proposal site and separated from it by the Swale channel and seawall;

9.127 Consequently, it is concluded that activity disturbance in the form of plant or people movement during both the construction and operation of the proposed development can be screened out as not likely to have a significant effect.

Recreation

9.128 People from a wide-ranging catchment that includes the whole of Kent extensively use the shoreline of the Swale for recreational activity. This includes waterborne activities e.g. personal watercraft on Long Reach of the Swale by Kingsferry Bridge, sailing on the Swale and land-based activities e.g. dog walking. Activities of walkers (particularly dog walkers) and water-borne recreation can, particularly if carried out in winter, have a significant disturbing effect upon large numbers of waterfowl thus increasing energetic expenditure (as birds have to take flight more frequently) and competition on the less disturbed mudflats.

9.129 The potential for disturbance to SPA / Ramsar Citation / Data Form species from recreation activities by either construction or subsequent operational staff is considered low. Whilst the site is less than 150 metres from the Saxon Shore Way that runs along the Swale seawall, this will be fenced off during construction of the proposed Kemsley SEP. The operational nature and characteristics of the Kemsley Mill site means that access will continue to be restricted and measures put in place to prevent incursion outside of defined areas.

9.130 Whilst there is access to the Saxon Shore Way at the southern end of the site, currently

very little or no use is made of this by Kemsley Mill staff. It is possible that there will be increased recreational usage made of the Saxon Shore Way during both construction and operation of the site, as Sittingbourne is well within potential travel distance over lunch break. However, it should be borne in mind that Milton Creek is outside the SPA and that dogs will not be permitted on site. Therefore it is anticipated that few if any construction and operational staff will access the Swale SPA. Consequently, it is concluded that activity disturbance in the form of plant (machinery) or people movement during both the construction and operation of the proposed development can be screened out as not likely to have a significant effect.

Noise

- 9.131 The Proposal site has the potential to generate significant noise during both site preparation and construction stages, notably as a result of ground clearance, vehicle movements and piling. Very loud noise (which can be defined as greater than 70 dB) and percussive noises have the potential to disturb birds, increasing time spent alert and in flight, reducing the available time to feed. Due to the nearness of the Swale SPA / Ramsar site, the effects of noise cannot be screened out from this assessment on the grounds of not likely to have a significant effect. This issue is therefore taken through to the next stage for further consideration of whether it can be concluded it does not have an adverse effect on the integrity of the Swale SPA / Ramsar site.
- 9.132 Natural England has confirmed that it would appear that the movement of birds between the Swale and Medway Estuary and Marshes is limited for most species, with the exception of Knot and to a lesser extent Redshank. Consequently, only these two species need to be considered in relation to the effects of noise on the qualifying species of the Medway Estuary and Marshes SPA / Ramsar site.

Lighting

- 9.133 Lighting during both construction and operational phases of the proposed development has the potential to disturb the qualifying species of the Swale SPA / Ramsar site, as well as potentially Redshank on the Medway Estuary and Marshes SPA / Ramsar site due to the apparent movement of this species between the two sites. Available research indicates that ecological impacts following introduction of lighting could potentially include:
- Disruption of the daily rhythms of some species of plant resulting in changes in growth and flowering times;

- Prolonged settling of nocturnal insects resulting in reduced feeding, breeding and egg laying;
- Reduced ability of female moths such as the Ground Lackey Moth to attract males and increased mortality of larvae due to delayed or failure to produce wintering pupae; and
- Disruption of nocturnal bird behaviour such as roosting and feeding,

9.134 Although there is limited data on the extent to which the area covered by the planning application is used by birds at night, it is increasingly being recognised that the use birds make of both intertidal and terrestrial areas is potentially underestimated by studies that rely on daytime surveys alone. Light from the proposed development has the potential to illuminate both terrestrial and intertidal areas that support qualifying species.

9.135 Due to the nearness of the Swale SPA / Ramsar site and because the Kemsley foreshore is used by qualifying species, the effects of lighting cannot be screened out on the grounds of not likely to have a significant effect. This issue is therefore taken through to the next stage for further consideration of whether it can be concluded it does not have an adverse effect on the integrity of the Swale SPA / Ramsar site and Medway Estuary and Marshes SPA / Ramsar site in relation to Redshank.

Introduction or spread of non-native invasive species

9.136 The movement of people and traffic, as well as importation of material and plants to a site, can result in the introduction of non-native species to a site. However, with appropriate good practice measure the risk of this can be managed.

9.137 Ground works can also result in the spread of non-native species present on a site. The only non-native invasive species currently known to be in the area, though not on the Proposal site is Japanese Knotweed. Again, appropriate measure can reduce the risk of this species spreading.

9.138 The issue of introducing and spread of non-native species is therefore screened out from this assessment on the grounds of not likely to have a significant effect.

STAGE 3 – APPROPRIATE ASSESSMENT

9.139 A summary of the outcomes of Stage 2 is presented in Table 9.13.

Table 9.13 Summary of Stage 2 Conclusions

	Screening	Designated Site	Feature
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	Outcome		
Direct loss of habitats	No Likely Significant Effect		
Change in management regimes	No Likely Significant Effect		
Loss of future space for managed realignment	No Likely Significant Effect		
Urbanisation	Through to Stage 3	Swale SPA / Ramsar site	Wintering birds
		Medway Estuary and Marshes SPA / Ramsar site	Wintering birds (Redshank only)
Air quality	Through to Stage 3 (Operational emissions only)	Swale SPA / Ramsar	Grazing marsh sub-feature / Ramsar plant species / wintering birds
		Medway Estuary and Marshes SPA / Ramsar site	Grazing marsh sub-feature / Ramsar plant species / wintering birds
		Thames Estuary and Marshes SPA / Ramsar site	Grazing marsh sub-feature / Ramsar plant species / wintering birds
		Queensdown Warren SAC	Chalk grassland
Water quality	No Likely Significant Effect		
Hydrological changes	Through to Stage 3	Swale SPA / Ramsar site	Mudflat sub-feature / wintering birds / invertebrates
		Medway Estuary and Marshes SPA / Ramsar site	Wintering birds (Knot and Redshank only)
Disturbance	Through to Stage 3 (noise and lighting only)	Swale SPA / Ramsar site	Wintering Birds
		Medway Estuary and Marshes SPA / Ramsar site	Wintering birds (Knot and Redshank only)

Introduction or spread of non-native invasives	No Likely Significant Effect
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- 9.140 It is concluded that the planning application for the Kemsley SEP cannot be screened out as being unlikely to result in significant effects on Natura 2000 and Ramsar sites, because of the potential following pathways: urbanisation, air quality, hydrological changes and disturbance. A more detailed assessment to identify if it can be concluded that these do not have an adverse effect is presented below.

Urbanisation

- 9.141 The Proposal site is located on the west side of the Swale. The open character of the site means that an assessment needs to be made on whether the proposed development could affect sight lines or reduce the functioning of the Swale to act as a corridor for qualifying species to move along the Swale and in the case of Redshank and Knot between the Swale and Medway Estuary. Few studies of the impact of urbanisation have been found and as a result this assessment is based on field observations, best available information and the precautionary principle.
- 9.142 Natural England has advised that it is only possible to judge the significance of any impact associated with urbanisation through an understanding of the key feeding and roosting locations on the Swale and how close these are to the Proposal site

Waterbird Distribution

- 9.143 The Kemsley foreshore and mouth of Milton Creek attract a range of estuary bird species for both feeding and loafing, though no specific wading bird roost was identified in the surveys undertaken. Data from the Kemsley foreshore counts, low tide WeBS and other reputable sources indicates these areas support >1% of the Swale SPA / Ramsar site flock for two SPA / Review species, namely Dunlin and Redshank and nine Ramsar /SPA assemblage species.

Dunlin

- 9.144 Three races of Dunlin regularly occur in Britain. The main wintering population is of the nominate race, whose breeding range extends from Scandinavia northwards and eastwards. During passage, birds from the *arctica* and *schinzii* races, which breed in Greenland and Iceland, the latter also in Britain, supplement numbers on British estuaries (Collier *et al*, 2005).

- 9.145 At 293,882, the British maximum for Dunlin in 2006/2007 was the lowest since 1970, a time when far fewer sites were counted for WeBS (Austin *et al*, 2008). The steady decline in national peak numbers over the last decade has been reflected on The Swale where the peak winter Core (high tide) count over the winter of 2006/2007 of 4,612 was the lowest for many years and almost half the peak of 9,000 recorded during the low tide counts over the winter of 2001/2002.
- 9.146 The five year peak winter mean on the Swale over the most recent five winters for which WeBS Core Counts (2002/2003 – 2006/2007) is available from the BTO is 9,202. This is below the threshold for international importance. Although the Swale historically supported internationally important numbers of Dunlin, the decline means it now only supports nationally important numbers for this species.
- 9.147 Numbers of Dunlin on the Swale tend to increase rapidly from September to a peak between December and February. Following this peak numbers rapidly decline with very few birds recorded on/after March. This is generally consistent with the national picture where numbers of wintering dunlin remain relatively stable from December to February and decline sharply in March and April as birds depart for breeding grounds (Austin *et al*, 2008).
- 9.148 Distribution maps for the low tide count carried out in 1992/1993 showed Dunlin to be widespread throughout the Swale, though with the highest concentrations in the inner reaches (Cranswick *et al*, 2003). In the 2001/2002 low-tide count, Dunlin were again recorded in their highest concentrations in the inner reaches and off Seasalter at the mouth of the Swale some 15 km to the east of the Proposal Site.
- 9.149 The ornithological fieldwork for the SEP proposal shows that relatively low numbers of Dunlin were recorded feeding on the mudflats adjacent to the Proposal Site. Approximately 2% of the estimated size of the SPA flock on the Swale were recorded within the survey area. This is below the percentage expected if Dunlin were preferentially attracted to the area of evenly distributed.
- 9.150 Dunlin tend to be highly mobile as they move between feeding areas and roost sites, which on the Swale notably include Elmley Marshes on Sheppey and Oare Marshes some 10 km to the east of the Proposal Site. Most movements appear to be over areas of intertidal habitat or the Swale Channel.

Redshank

- 9.151 At 74,883, the British maximum for Redshank in 2006/2007 (the most recent winter for which data is available) had fallen for the third year running and was the lowest since the

winter of 1986/1987(Austin *et al*, 2008). Peak counts on most key sites for this species, including the Swale, were below average. The five year peak winter mean on the Swale over the most recent five winters for which WeBS Core Counts (2002/2003 – 2006/2007) is available from the BTO is 1,127. This is almost a third of the peak mean stated on the Ramsar citation.

- 9.152 Ringing recoveries at a number of estuaries in Britain have found Redshank are highly site-faithful during the winter (Wernham *et al*, 2002). The available low tide data from 1992/1993 and 2001/2002 indicates Redshank make use of the intertidal mudflats throughout of the Swale in relatively low densities, though with the highest concentrations occurring in the creeks. This is consistent with the ornithological data from the fieldwork undertaken for the SEP planning application which suggests approximately 19% of the estimated size of the SPA flock on the Swale were recorded on the mudflats adjacent to the Proposal Site.
- 9.153 Natural England has advised that there is evidence of interchange between the populations of Redshank on the Swale and Medway Estuary. Large high tide roosts occur in the west of the Medway Estuary at Burntswick/Greenborough Island Motney and to a lesser extent on Chetney Marshes which separates the Swale channel from the Medway Estuary, as well as on the grasslands and pools at Oare Marshes.

Shelduck

- 9.154 The five year peak winter mean for Shelduck on the Swale over the most recent five winters for which WeBS Core Counts (2002/2003 – 2006/2007) is available from the BTO is 2,114. At 48,667, the British maximum for Shelduck in 2006/2007 was the lowest for about 30 years, albeit only slightly lower than that of 2005/2006 (Austin *et al*, 2008). Numbers on most key sites, including the Swale were the lowest for many years. Shelduck predominantly forage on intertidal mudflats and the available low tide data indicate this species is widely distributed throughout the Swale.
- 9.155 The ornithological fieldwork for the SEP proposal shows that relatively low numbers of Shelduck were recorded feeding on the mudflats adjacent to the Proposal Site. Approximately 4.8% of the estimated size of the SPA flock on the Swale were recorded within the survey area.

Teal

- 9.156 The five year peak winter mean of Teal on the Swale over the most recent five winters for which WeBS Core Counts (2002/2003 – 2006/2007) is available from the BTO is 4,812. Over the winter of 2006/2007 the peak monthly totals of Teal in Britain were the lowest

for several years, falling by a quarter compared to the previous year (Austin *et al*, 2008). Although numbers of Teal have generally been increasing over the past decades, peak numbers on the Swale have generally been falling. The available low tide data from 1992/1993 and 2001/2002 indicates Teal are fairly widespread throughout of the Swale, with the highest concentrations occurring in the inner reaches and creeks, including in the vicinity of the Proposal Site. This is consistent with the data from the fieldwork undertaken for this planning application which showed approximately 8% of the estimated size of the SPA flock on the Swale were recorded within the survey area.

Pintail

- 9.157 The five year peak winter mean of Pintail on the Swale over the most recent five winters for which WeBS Core Counts (2002/2003 – 2006/2007) is available from the BTO is 790. Pintail numbers in Britain have shown some fluctuation over the past few decades but on the whole have been fairly stable (Austin *et al*, 2008). Distribution maps for the low tide counts carried out in 1992/1993 and 2001/2002 showed the inner Swale was the key area for Pintail, notably the area off Elmley Island opposite Milton Creek.
- 9.158 The ornithological fieldwork for the SEP proposal shows that a significant percentage (approximately 22%) of the estimated size of the Pintail flock on the Swale was recorded on the mudflats adjacent to the Proposal Site.

Oystercatcher

- 9.159 The five year peak winter mean of Oystercatcher on the Swale over the most recent five winters for which WeBS Core Counts (2002/2003 – 2006/2007) is available from the BTO is 4,910. At 216,308, the British maximum for this widespread and numerous species over the winter of 2006/2007 was slightly higher than that of the previous year and around 10% lower than the average of the past ten years (Austin *et al*, 2008). During this time there has been a slight but steady decline in the number of Oystercatchers in Britain. Lower than average counts were noted on several sites, in 2006/2007 including the Swale where peak counts had previously remained fairly constant between 5,000 and 6,000.
- 9.160 Oystercatcher predominantly forage on intertidal mudflats and the available low tide data indicates that this was one of the more widespread species on the Swale. Although the ornithological fieldwork for the SEP proposal shows that a significant percentage (approximately 12%) of the estimated size of the Oystercatcher flock on the Swale was recorded on the mudflats adjacent to the Proposal Site, the highest densities were on the outer, more coastal reaches, notably on the north shore of the Swale between Harty

Ferry and Shellness, approximately 10 km to east of the Proposal site.

- 9.161 Where wintering Oystercatcher occur on intertidal areas at low tide has traditionally been related to the distribution of their prey. In Britain, they are found exclusively on the coast, notably where there are good stocks of shellfish (Goss-Custard, 1996).). Although Oysters (*Ostrea edulis*) were historically probably a major food source, the Peppery Furrow Shell (*Scrobicularia plana*) and similarly sized Common Cockle (*Cerastoderma edule*) are now more usual prey (Goss-Custard *et al*, 2004). They will also consume Baltic Tellin (*Macoma balthica*), Common Limpet (*Patella vulgata*), and Mussel (*Mytilus edulis*), as well as crabs and worms (Zwarts *et al*, 1996).
- 9.162 This is recognised as the principal sector on the Swale for this species both for feeding and for roosting. Oystercatcher are known to fly to communal roosts at high tide and a significant increase on numbers has been reported on the Sheppey side of the Swale near Harty Ferry since 1998/99 (Banks *et al*, 2005).

Avocet

- 9.163 At 6,615, the British maximum for Avocet over the winter of 2006/2007 (the most recent for which data are available) was the highest ever recorded and reflected a prolonged increase in numbers (Austin *et al*, 2008). The five year peak winter mean of Avocet on the Swale based on WeBS Core Counts 2002/2003 – 2006/2007 provide by the BTO is 595. The peak number of Avocet recorded on the Swale has varied considerably over this five year period surpassing the international threshold in both 2003/2004 and 2004/2005 (Banks *et al*, 2006). The current wintering population of Avocet on the Swale is far in excess of the mean peak stated on the Ramsar citation and is now above the threshold for a site of national importance in Britain.
- 9.164 Distribution maps for the low tide count carried out in 1992/1993 showed the inner estuary was the key area on the Swale for this species. The low tide count in 2001/2002 showed that on the Swale this species occurred mainly off Spitend, Elmley Island. The ornithological fieldwork for the SEP proposal shows that a significant percentage (approximately 13%) of the estimated size of the Avocet flock on the Swale was recorded on the mudflats adjacent to the Proposal Site.
- 9.165 Avocet tend to be highly mobile as they move between feeding areas and roost sites, which on the Swale includes Oare Marshes some 10 km to the east of the Proposal Site. Most movements appear to being over areas of intertidal habitat or the Swale Channel.

Ringed Plover

- 9.166 The five year peak winter mean of Ringed Plover on the Swale over the most recent five winters for which WeBS Core Counts (2002/2003 – 2006/2007) is available from the BTO is 328. Given that passage numbers of Ringed Plover moving through Britain each spring and autumn are substantially higher than those remaining to overwinter, the peak British maximum of 11,377 over 2006/2007 occurred in August, at which time the Swale held nationally important numbers of this species (Austin *et al*, 2008). Following a decade and a half of steady decline, the most recent data suggests winter numbers in Britain may have started to stabilise.
- 9.167 The ornithological fieldwork for the SEP proposal shows that approximately 8% of the estimated size of the Ringed Plover flock on the Swale was recorded on the mudflats adjacent to the Proposal Site. Ringed Plover predominantly forage on intertidal mudflats and the available low tide data over the winter indicate that whilst it is one of the relatively more widespread species on the Swale, the highest densities occur on either the inner reaches or most outer flats. Significant numbers therefore occur well away from the Proposal Site.

Grey Plover

- 9.168 The five year peak winter mean of Grey Plover on the Swale over the most recent five winters for which WeBS Core Counts (2002/2003 – 2006/2007) is available from the BTO is 1,576, which is very close to the mean figure stated on the Ramsar citation.
- 9.169 At 33,808, the counted British maximum over the winter of 2006/2007 for this species was around 20% lower than in the previous year and was the lowest since 1987/1988 (Austin *et al*, 2008). The underlying trend in Grey Plover numbers has remained downwards since the mid-1990s. Much of this decline has been attributed to an eastward shift in the population (Maclean and Austin, 2008), which may help explain the continuing performance in peak mean Grey Plover numbers on the Swale.
- 9.170 In winter, Grey Plover predominantly forage on intertidal mudflats and the available low tide data indicates that whilst this is one of the more widespread species on the intertidal zone of the Swale, the highest densities were on the inner reaches, notably off Harty Ferry and Shellness on the north side of the Swale where a localised and sustained increase in numbers was recorded between 1993/94 and 1996/97 and on the intertidal flats off Nagden Marshes on the southern side of the main channel. As Grey Plover also use the more coastal flats of the outer reaches of the Swale, this species occurs well away from the Proposal Site.
- 9.171 The ornithological fieldwork for the SEP proposal shows that approximately 4% of the estimated size of the Grey Plover flock on the Swale was recorded on the mudflats

adjacent to the Proposal Site. Studies have shown that grey plover will use the same feeding areas from tide to tide and also from year to year (Wernham *et al*, 2002).

Black-tailed Godwit

- 9.172 The ornithological fieldwork for the SEP proposal shows that over 100% of the estimated size of the Black-tailed Godwit flock on the Swale was recorded on the mudflats adjacent to the Proposal site. The five year peak winter mean of Black-tailed Godwit on the Swale based on WeBS Core Counts 2002/2003 – 2006/2007 provided by the BTO is 1,425 and has remained relatively stable over the last five years. This winter peak mean is more than a six-fold increase over the peak mean stated on the Ramsar citation. This is consistent with the national trend which shows overall numbers of Black-tailed godwit wintering in Britain have continued to rise since the early 1980s. At 29,406, the British maximum over 2006/2007 (the most recent for which data are available) was slightly lower than the previous year's figure and below 30,000 for the first time in five years (Austin *et al*, 2008).
- 9.173 Black-tailed Godwit predominantly forage on intertidal mudflats and the available low tide data indicates that most Black-tailed Godwit occur on the inner reaches of the Swale particularly on the north side of the Swale off Elmley. The main concentration is therefore close to the Proposal Site. Black-tailed Godwit tend to be highly mobile as they move between feeding areas and roost sites, which on the Swale includes a notable roost sites at Elmley on Sheppey some 4 km to the east and Oare Marshes some 10 km to the east of the Proposal Site, where over 700 have been recorded. Most movements appear to being over areas of intertidal habitat or the Swale Channel.

Curlew

- 9.174 There has been a decline in the numbers of curlew wintering in Britain since 2000/2001, though more recent peak counts indicate that this decline may have stabilised. At 83,259, the British maximum over the winter of 2006/2007 for this species was around 10% higher than in the previous year, although was in line with the average for the past five years (Austin *et al*, 2008).
- 9.175 Peak wintering numbers of Curlew on the Swale underwent a sizable and prolonged decline over the period 1993/94 – 2003/04 (Banks *et al*, 2005). The five year peak winter mean of Curlew on the Swale over the most recent five winters for which WeBS Core Counts (2002/2003 – 2006/2007) is available from the BTO is 1,201. Whilst well below the five year peak mean stated on the Ramsar citation, it does show that numbers appear to have stabilised more recently.

- 9.176 Distribution maps for the low tide count carried out in 1992/1993 and 2001/2002 showed that whilst Curlew were one of the more widespread species on the Swale, the highest densities occurred on the inner estuary. This is consistent with the ornithological fieldwork for the SEP proposal shows that over 13% of the estimated size of the Curlew flock on the Swale was recorded on the mudflats adjacent to the Proposal Site.
- 9.177 Curlew are known to be fairly mobile and will also commonly use areas of grazing pasture and marshland for both feeding and roosting, including at Elmley on the Isle of Sheppey.

Assessment

- 9.178 The effects that the proposed development could have on the qualifying features of the Swale SPA / Ramsar site and Redshank in relation to the Medway Estuary and Marshes SPA / Ramsar site through impairing lines of sight or flight lines has been assessed for the Proposal Site based on the following design criteria:
- the main alignment of the proposed SEP is east to west and therefore away from (as opposed to parallel to) the Swale SPA / Ramsar site;
 - the first of SEP building (the UEU) visible from the Swale will be 17.5 metres high and located 210 metres from the low water mark;
 - the second major building (the UEB) will be 50 metres high and located 385 metres from the low water mark;
 - the chimney stack of the SEP will be c90 metres high and located 520 metres from the low water mark.
- 9.179 The nearest part of the proposed development associated with the Proposal Site will be 210 metres from the low water mark and separated from it by the sea wall. In order to determine the intrusion affect of the development on waterbirds using the intertidal areas adjacent to the Proposal site, calculations were made to see whether the development could visually intrude into the line of sight of waterbirds. Calculations were undertaken for a bird 0.5 m in height (an average for wildfowl) standing on the mean low water mark taking into account the presence of the intervening sea wall with an average height of 5.5 m AOD.
- 9.180 The calculations indicate that a 0.5 metre high waterbird located at the low water mark would be able to see some approximately the top 9 metres of the proposed UEA building located on the very edge of the proposed development, approximately the top 11 metres of the proposed UEB building and approximately the top 20 metres of the chimney stacks

located 520 metres away.

- 9.181 Few studies have been found to inform the assessment of whether it can be concluded such visual intrusion will not have an adverse effect. It is safe to assume that waterbirds would not be disturbed more than they are at present on those parts of the Swale foreshore from which there would be no additional visual intrusion. This includes approximately the upper half of the foreshore due to the presence of the existing seawall. It is also safe to assume that there will be no visual impact on those areas which lie further away from the Proposal Site than the maximum distance at which waterbirds are disturbed by the presence of new structures.
- 9.182 The available literature suggests that to ensure no adverse effect, there should be no significant increase in obstruction of lines of sight within 200 metres of foraging wading birds. This is less for some species such as Redshank and Teal which are commonly found on the narrower and more enclosed creeks and upper reaches of estuaries. The general tameness of wading birds on the Swale to human activity and structures is recognised on RSPB local group and birdwatching society websites. Whilst such habituation is often cited, there appear to be relatively few studies on this issue.
- 9.183 The potential impact of landscape features on wintering waterbirds using intertidal mudflats was considered by Burton *et al* (2002b) on six estuaries by relating numbers of waterbirds to the presence of nearby footpaths, roads, railroads, and towns. They found that there was not always a negative relationship with Ringed Plover numbers being higher close to towns. Waterbirds may also compensate for reduced feeding due to the presence of a structure by feeding for longer, sometimes at an increased rate, either during the daytime or when this is insufficient switch to, or increase, feeding during the night when the physical presence of a structure like the proposed Kemsley SEP several hundred metres away would have no relevance.
- 9.184 Given that:
- the location of the proposed buildings and distance from the Swale means there will be no over-shadowing apart from a minor effect at sunset;
 - there will be no change in sightlines across much of the adjacent intertidal areas of the Swale due to the proposed heights of the buildings, distances involved and presence of the existing seawall;
 - whilst the buildings will be in view from the low water line, they will be static and therefore less likely to cause disturbance than a moving object), over 200 metres away and blend visually into the Kemsley Paper Mill behind;

- the percentage of the 360° view of a bird on the mean low water mark line through which the proposed 85 metre wide proposed development would be visible is approximately 6.4 %;
- where currently inadequate, additional screening measures will be incorporated into the design to further reduce visual intrusion.

- 9.185 It can be concluded that there will be negligible obstruction of sight-lines or overshadowing on the Swale intertidal area. It is therefore concluded that the proposed development would not affect the suitability of the adjacent intertidal areas for feeding or result in areas being abandoned by waterbirds.
- 9.186 In relation to flight lines, the majority of waterbird movements in the vicinity of the Proposal site appear to be along Swale between feeding and roosts sites. For most species the major roost sites appear to be to the east of the Proposal Site, notably on the south side of Sheppey between Harty Ferry and Shellness and the pools at Oare Marshes. With the Proposal Site being located towards the western end of the Swale SPA/ Ramsar site, this observation is substantiated by the advice from Natural England that there appears to be relatively little interchange between the waterbird populations of the Swale and Medway Estuary apart from Knot and Redshank.
- 9.187 Whilst there is evidence that birds move between feeding and roosting sites there is no evidence that they make use of the Proposal site as a flyway. The literature on flight lines indicates that the risk of disturbance would be more significant where new facilities are located immediately adjacent to foraging and roosting sites or in areas currently comprising open countryside. The risk appears lower if facilities are situated in areas where there is already some form of industrial or commercial activity.
- 9.188 The proposed buildings of the Kemsley SEP will be in keeping with the existing Kemsley Mill. This, together with the retention of significant open areas of the Proposal Site between the proposed development and the Swale, means that it can be concluded there will be no substantial interference with flight-lines of qualifying birds species as a result of the proposed Kemsley SEP and that it would not impair the movement of waterbirds over the adjacent intertidal areas or Swale channel.
- 9.189 It is concluded that in relation to urbanisation there is no adverse effect on the integrity of the wintering birds of the Swale SPA / Ramsar site or the Medway Estuary and Marshes SPA / Ramsar in relation to wintering Redshank.

Air Pollution

- 9.190 An assessment of the effects of emissions to air from the proposed facility on European

designated sites has been established as being required. Following good practice, and discussions with Natural England, all European and nationally designated sites within 10 km have been considered within this assessment. Due to the large area of some of these designations, a series of discrete receptors were included within the modelling to account for the geographic variation of predicted concentrations.

- 9.191 The assessment of impacts on ecological receptors has been undertaken assuming emissions from the stack at the Waste Incineration Directive (WID) long-term emission limits. This is a precautionary approach to the assessment of the potential effect of emissions from the plant on ecological receptors and represents the worst-case scenario for contributions from the proposed WTP.
- 9.192 Habitats within each site may be affected through changes in:
- ambient atmospheric pollutant concentrations; and
 - deposition of certain compounds.
- 9.193 The potential effects on habitats within protected sites are quantified by comparing the maximum Process Contributions (PC) and Predicted Environmental Concentrations (PEC) (incorporating a maximum background concentration) to empirically derived thresholds above which damage to vegetation is known to occur (Environmental Quality Standards: EQS). Two EQSs are used to assess the potential effect of emissions on sensitive ecological receptors. These are:
- Critical levels; and
 - Critical loads.
- 9.194 Critical levels and critical loads are quantitative estimates of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge. The critical load relates to the quantity of pollutant deposited from air to the ground, whereas the critical level is the gaseous concentration of a pollutant in the air.
- 9.195 Critical levels for the protection of vegetation and ecosystems are specified within relevant European Air Quality Directives and corresponding UK air quality regulations as outlined in the National Air Quality Strategy (NAQS). Process Contributions (PC) and Predicted Environmental Concentrations (PEC) of NO_x, SO₂ and NH₃ at each site have been calculated and compared with the relevant critical level: 30 µg.m⁻³ in the case of NO_x, 20 µg.m⁻³ in the case of SO₂ and 3 µg m⁻³ in the case of NH₃.
- 9.196 Although the mudflat components of the Swale SPA / Ramsar site, Medway Estuary and Marshes SPA and Ramsar site and Thames Estuary and Marshes SPA and Ramsar site

are not known to be sensitive to atmospheric nitrogen deposition (www.apis.ac.uk), the grazing marsh components (on which the wintering and breeding birds rely for feeding and roosting) are known to be sensitive.

- 9.197 Background levels of acid deposition and nitrogen deposition based on NO_x, SO₂ and NH₃ concentrations at each of the designated sites have been derived from the APIS website (www.apis.ac.uk). As they can vary across a site, particularly when sites are large; the highest background level was used in the assessment. Although the SEP is based on a two line design, with each served by its own flue and stack, these are only 5 metres apart and have therefore been modelled as a single effective stack, in line with good practice guidance published by the Environment Agency.
- 9.198 The approach to the assessment of emissions from the SEP stack after treatment in the flue gas treatment system has involved a quantitative assessment of NO_x, SO₂ HCl and NH₃ deposition on designated ecological sites within 10 km of the proposed facility utilising “new generation” Gaussian dispersion models ADMS 4.1 and AERMOD. No dispersion model is wholly accurate and all models will produce variations in results under certain conditions. Model uncertainty has been considered in this assessment by using both ADMS and AERMOD PRIME. Such an approach is again in line with good practice advocated by the Environment Agency.
- 9.199 The plume dispersion model has taken into account:
- National Weather Prediction (NWP) data generated by the meteorological office., including wind direction, wind speed, cloud cover, temperature and atmospheric stability, particularly vertical motion, based on observations from the nearest meteorological station;
 - terrain, including areas of higher ground which can significantly affect (usually increase) ground level deposition concentrations;
 - roughness of the terrain over which the plume passes (principally agricultural in this case) as this can have a significant effect on dispersion the ;
 - building wake effects as movement of air over and around buildings generates areas of flow circulation, which can lead to increased ground level concentrations.
- 9.200 Full methods used to calculate the PC for all pollutant species can be found in Chapter 7 (Air Quality Assessment) of the EIA.
- 9.201 The critical load for acid and nitrogen deposition depends on the habitat type potentially affected. APIS includes a number of broad habitat types for use in the searchable

database of critical loads. The habitats within each site to be assessed therefore need to be assigned to one of these APIS habitat types.

- 9.202 The critical loads for acid deposition and N deposition can vary across a site. The lowest critical load for each ecological site has been used in the assessment.
- 9.203 Additionally, the citation for each designated site was investigated to determine what habitats occurred within the site. Subsequent to this, a corresponding APIS website habitat category was assigned.
- 9.204 APIS was further consulted to obtain the data for critical levels and background atmospheric concentrations of NO_x and SO₂ and the critical load and deposition of nitrogen and acid for each corresponding habitat type at the OS grid reference of the designated site. The background levels all pollutants in the tables below are the maximum figures for that conservation site derived from APIS.

Site Relevant Critical Loads Assessment of SACs and SPAs

- 9.205 SACs and SPAs have been evaluated using the information in the Site Relevant Critical Loads tool in APIS (www.apis.ac.uk). An overview of each interest feature for each site is provided and critical loads (or critical load functions) are assigned to each feature if it is sensitive to either nutrient nitrogen or acidity. Furthermore, deposition data for nitrogen and sulphur at each site is provided.
- 9.206 To assess the significance of the predicted acid deposition against the relevant critical load function (CLF), the radial distance from the origin of the graph through the modelled deposition point to the critical function line is calculated. The distance from the origin to the modelled deposition point is divided by the radial distance to give a percentage.
- 9.207 The Site Relevant Critical Loads tool in APIS may also provide information on species sensitivity to acid and N deposition, and this information is referred to in the relevant evaluation sections where applicable.

Ecological Evaluation Criteria

- 9.208 Maximum PC and PEC of NO_x, SO₂, NH₃, acid deposition and N deposition are compared against the relevant EQS for the relevant habitat type. Potentially significant impacts are predicted if the maximum PC exceeds 1% of the relevant EQS and the PEC exceeds the relevant EQS.
- 9.209 Also, in cases where the EQS was already exceeded by background deposition rates, the Environment Agency's guidance (Environment Agency 2007a) states that: "Where the concentration within the emission footprint in any part of the European site(s) is less than

1% of the relevant long-term benchmark (EAL, Critical Level or Critical Load), the emission is not likely to have a significant effect alone or in combination, irrespective of the background levels”.

- 9.210 When comparing the maximum PC within a site against the EQS, it has been assumed that the maximum PC level affects the whole site. This is a conservative approach to the assessment and ensures that the predicted effects represent a worst-case scenario.

Air Quality impacts of the proposed Waste Treatment plant on nature conservation sites

- 9.211 Full results from the air quality modelling can be found in Appendix 9.2 and Chapter 9 Ecology and Nature Conservation of the EIA. Details relevant to the current assessment of impacts on European protected sites are summarised here.

Ambient concentrations of NO_x, SO₂ and NH₃

- 9.212 The PC NO_x comprises <1% of the EQS and/or the PEC NO_x is not predicted to exceed the relevant EQS (critical level for NO_x) for all designated sites within the assessment area. Therefore, no significant impacts are predicted on these sites from increased concentrations of NO_x resulting from the operation of the SEP facility.
- 9.213 The PC SO₂ comprises <1% of the EQS and/or the PEC SO₂ is not predicted to exceed the relevant EQS at any designated site within the assessment area. Therefore, no significant impacts are predicted on these sites from increased concentrations of SO₂ resulting from the operation of the SEP facility.
- 9.214 The PEC NH₃ comprises <1% of the EQS and/or the PEC NH₃ is not predicted to exceed the relevant EQS at any designated site within the assessment area. Therefore, no significant impacts are predicted on these sites from increased concentrations of NH₃ resulting from the operation of the SEP facility.

Acid deposition - Ramsar and SAC

- 9.215 Pollutants including NO_x, SO₂ and ammonia all contribute to acid deposition. The National Expert Group on Trans boundary Air Pollution (2001) concluded that:
- By 2010, deposited nitrogen was expected to be the major contributor to acidification, replacing the reductions in SO₂;
 - Whilst critical loads for acidification were exceeded in 71% of UK ecosystems in 1997, this was expected to decline to 47% by 2010; and

- Reduced inputs of acidity and nitrogen from the atmosphere may allow chemical and biological recovery from previous air pollution impacts to begin, but the timescales of these processes will be long compared to the timescales of reductions in emissions.
- 9.216 More recently, Grice *et al* (2006) and Grice *et al* (2007) suggested that air quality in the UK will improve significantly over the next 15 years due primarily to reduced emissions from amongst other things road transport.
- 9.217 The effects of acid deposition usually result from the leaching of base cations from exchange sites in the soil. Habitats and species can be affected through both wet (acid rain) and dry deposition. Some sites will be more at risk than others depending on soil type, bed rock geology, weathering rate and buffering capacity. Grasslands which are already moderately acidic are more at risk than those which are base rich. The clay soils and input of spring water from the Chalk to the marshes of the north Kent probably helps maintain them as relatively base rich and therefore at less risk of acidification.
- 9.218 The PC acid deposition is predicted to comprise <1% of the EQS/CLF at the Thames Estuary and Marshes Ramsar site and Queensdown Warren SAC. At the other two Ramsar sites assessed (The Swale Ramsar and Medway Estuary and Marshes Ramsar) the PC acid deposition was >1% of the EQS. However, at all these sites, the habitats present are considered not sensitive to acid deposition (www.apis.ac.uk), despite the apparent high deposition rates etc. The SSSIs that underpin these sites are currently considered to be in favourable condition by Natural England (<http://www.natureonthemap.org.uk/>), with no evidence suggesting that the previously experienced levels of acid deposition had any adverse impacts. Therefore significant impacts on these sites as a result of increased levels of acid deposition resulting from the operation of the facility are considered very unlikely.
- 9.219 The PC acid deposition is predicted to comprise <1% of the minimum critical load function (CLF) for all of those features of interest that are sensitive to acid deposition at all SPAs within the assessment area. Therefore, no significant impacts are predicted on interest features of SPAs as a result of acid deposition from the proposed SEP facility.
- 9.220 Further, following European-wide industrial compliance with the requirements of the Large Combustion Plant Directive and Limitation of Sulphur in Liquid Fuels Directive, background levels of acid deposition have declined in recent years - at the Swale and Medway Estuary and Marshes SPAs they are predicted to decline from 1.74 and 1.96 keq.ha⁻¹.year⁻¹, respectively, in 2003 to 1.5 and 1.71 keq.ha⁻¹.year⁻¹ in 2010 (www.apis.ac.uk), a decline of 14% and 13%, respectively. Consequently, even when the SEP is in operation, predicted levels of acid deposition at the above sites (PEC of

1.63 and 1.717 keq.ha⁻¹.year⁻¹, respectively) will still be less than experienced at the sites in recent years.

Nitrogen deposition

- 9.221 Nitrogen deposition is of particular concern for semi-natural grasslands that are not fertilised. In these situations, plant species composition is adapted to nutrient poor conditions, with low productivity. This may therefore apply to some qualifying plant species of the Swale Ramsar and Medway Estuary and Marshes Ramsar sites. Enhanced nitrogen supply from atmospheric deposition tends to favour the growth of some grasses at the expense of some other species, which may be of more conservation interest (e.g. Bobbink and Roelofs 1995, UBA 1996). Plant communities most at risk are those rich in bryophytes and where species richness is comprised of slow growing species. Grazing marshes appear therefore to be less sensitive to atmospheric nitrogen deposition, although there appears limited specific information available regarding the impacts on this habitat type, especially as management regimes may obscure or modify some of the relationships between atmospheric deposition and habitat change.
- 9.222 According to the World Health Organisation (WHO), the critical NO_x concentration (threshold) for the protection of vegetation is an annual loading of 30 µgm⁻³ (WHO, 2000). This is based on ecological studies that have determined the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur as a result of atmospheric nitrogen deposition.
- 9.223 The grazing marshes of the Swale SPA/ Ramsar site, Medway Estuary and Marshes SPA / Ramsar site and Thames Estuary and Marshes SPA / Ramsar site within 10 km of the Proposal site do not currently exceed the critical threshold for nitrogen deposition, NO_x or acid deposition. Improvements in air quality since data used by the Air Pollution Information System means that the total average deposition rates should be further reduced by 2% per year to estimate background deposition rates. As the majority of the background data in APIS is from 2003, this means that the baseline will be around 16% lower than the data presented in Appendix 9.2 of the Environmental Statement by the time the construction activities for the Kemsley SEP are scheduled to commence (2011), further decreasing the likelihood of any significant impact.
- 9.224 The pollutants that contribute to nitrogen deposition derive mainly from ammonia (NH₃) and nitrogen oxides (NO_x) emissions. While these pollutants may lead to acidification, nitrogen deposition refers to the pollutant dose that may lead to nitrogen eutrophication. NH₃ emissions result primarily from the decomposition and volatilisation of animal wastes and are therefore not considered further. Nitrogen oxides are produced naturally by

lightning and also to a small extent by microbial processes in soils. Of man-made sources, around half are derived from motor vehicles, about one-quarter from power stations and the rest from other industrial and domestic combustion processes. NO_x emissions are therefore widely dispersed, but unlike emissions of sulphur dioxide, emissions of nitrogen oxides are only falling slowly in the UK, as emission control strategies for stationary and mobile sources are offset by increasing numbers of road vehicles.

Conclusion

- 9.225 In conclusion, in relation to the Ramsar sites within the study area, the PC nitrogen deposition comprises <1% of the EQS within the assessment area. Therefore, it can be concluded there will be no adverse effects on these sites from increased Nitrogen deposition resulting from the operation of the SEP facility. In relation to SPAs within the study area and Queendown Warren SAC, The majority of interest features are either insensitive to N deposition or sensitive indirectly via potential impacts on their habitats. As PC N deposition comprises <1% of the minimum EQS at all SAC/SPAs within the assessment area, no adverse effects are predicted on these sites from increased Nitrogen deposition resulting from the operation of the SEP facility.

Disturbance

- 9.226 A number of studies have suggested that disturbance from construction and operational activities may affect both the behaviour and distribution of water birds including their biological fitness (i.e. survival rate and fecundity). Studies indicate that waterbirds are likely to be more sensitive to infrequent disturbance such as different, sudden or surprising stimuli rather than prolonged disturbance.
- 9.227 One of the key factors in the level of disturbance has been attributed to the actual presence of people with the results of the various studies suggesting waterbirds are often less abundant along parts of the shore where there is heavy human activity. In a study by Fitzpatrick and Bouchez, (1998), the most important factor determining the amount of scanning done by Redshank, Oystercatcher and Curlew on a beach in County Antrim was shown to be the presence of people. Burger (1988) found that demolition work reduced the feeding efficiency of waterbirds throughout the day and for an average of one hour afterwards. Burton *et al* (2002a) provided evidence to suggest that onshore construction work may have longer term effects. This was based on the observation that the use of adjacent mudflats in Cardiff Bay by Oystercatcher, Curlew, Dunlin, Redshank and perhaps Shelduck was reduced during the 11-year period of construction works

associated with the construction of the barrage.

- 9.228 Studies that have tested the possibility that birds are less abundant in places where disturbance from human activity is frequent have often not fully considered all potential variables. Some studies have failed to find that onshore construction works have an effect on adjacent bird populations. Pearson *et al* (1990), for example, found little evidence to suggest disturbance from onshore construction activities in Poole Harbour affected most species of wading birds feeding on adjacent mudflats. Comparing the numbers of birds over two winters during which construction took place with the numbers that occurred there in the previous winter revealed little change in numbers of Oystercatcher, Grey Plover and Dunlin, though Curlew numbers were lower.
- 9.229 A study by Gill *et al* (2001a) into the differences in bivalve densities along the shore found that shore based activities which caused Black-tailed Godwit to frequently fly away, had no effect on the densities of bivalves (a food source Black-tailed Godwit) on the estuaries of the east of England. This study took place at a range of spatial scales, from small patches of mudflat up to whole estuaries and using a range of measures of human activity. Differences in bivalve densities would have been expected if Black-tailed Godwit, the main predator of this resource, had been permanently prevented from feeding in disturbed areas. This suggests birds were exploiting the available food resource once the disturbance has subsided, including potentially at night suggesting that even if a change in bird distribution is recorded owing to disturbance from human activity, the effects may only be temporary and not necessarily reflect a negative effect. .
- 9.230 Most studies of disturbance on wintering wading birds and wildfowl have focused on the effects of disturbance on their behaviour such as the distance at which birds fly away and whether their distribution is changed as a consequence of this disturbance. However, It is recognised that the real measure of the impact of disturbance on birds is how it affects their biological fitness including survival rate and fecundity of birds (Brown and Langston 2000, Gill and Sutherland 2000, Gill *et al*, 2001a, Gill *et al* 2001b, Goss-Custard 2003a, Hill *et al*, 1997, Madsen 1994, Robinson and Pollitt 2002).
- 9.231 The responses of birds to disturbance often involve activities that are energetically costly (e.g. flying) or affect the behaviour in a way that might reduce food intake or moving to less preferred and potentially less profitable feeding sites. Studies have attempted to measure these costs, which have been shown to be sometimes considerable. However, because estimating the impact of disturbance on fitness has seldom been truly possible, most studies make the precautionary assumption that if bird behaviour is affected, there is a risk that their fitness might also be affected.
- 9.232 This is clearly not always the case and because birds react to disturbance this should not

- be taken to mean their fitness is necessarily reduced. A review of relevant studies carried out by Goss-Custard (2007) showed that whilst a reduction in fitness as a result of disturbance is suggested by some studies, others indicate that this is not always the case. Most studies remain undecided on when the frequency of disturbance reaches the point at which fitness would be reduced because the increased demand for energy could not be met in the reduced time available for feeding.
- 9.233 Studies have also been undertaken as regards whether waterbirds can compensate for the losses of time and energy resulting from disturbance by altering their behaviour or by habituating to human activities (Davidson and Rothwell, 1993). Short flight distances in response to disturbance of Curlew, Redshank and Oystercatcher on a beach in County Antrim were attributed to habituation by Fitzpatrick and Bouchez (1998). Waterbirds may also feed for longer, sometimes at an increased rate, either during the daytime or when this is insufficient switch to, or increase, feeding during the night. Many papers claim that birds habituate to frequent disturbance arising from a variety of causes, though few studies appear to have been carried out. Most evidence tends to be anecdotal and use habituation as an explanation of the relative tameness of the birds.
- 9.234 The sensitivity of waterbirds to disturbance may also decrease through the winter. The distance to which Oystercatcher on a mussel bed on the Exe would forage from a stationary person for example decreased over the winter (Stillman and Goss-Custard, 2002). This was interpreted as a result of the birds progressively finding it harder to find food as the winter progressed and therefore prepared to take greater risk than to their becoming habituated to disturbance.
- 9.235 Flight distances of waterbirds were measured on the Exe Estuary during the winters of 2002 and 2003 (Goss-Custard 2003b). In 2002 this included measuring the flight distances of birds feeding alongside an elevated walkway. Very few birds of the five common species studied (Avocet, Dunlin, Black-tailed Godwit, Curlew and Redshank) flew away at distances above 100 metres. It was considered likely that in the circumstances birds had become habituated to the presence of people moving at a steady pace and not outlined against the sky. In 2003, flight distances were measured against activities on top of seawalls 4-6 metres above the level of the mudflats at various locations around the estuary. Very few of the nine species studied (including seven relevant to this assessment: Oystercatcher, Avocet, Grey Plover, Dunlin, Black-tailed Godwit, Curlew and Redshank) flew away at distances above 200 metres.
- 9.236 It is well reported that flight distances vary between species, as well during different activities, times of day, stages of the tide and between different sites. Goss-Custard (2007) reports that flight distance varied tenfold (27 metres to 250 metres) between

studies of roosting birds and by an even greater difference (7 metres to 350 metres) in foraging birds. Flight distance can be influenced by many parameters including species, flock size, habitat, direction of activity, time of day and time of year. In the absence of site specific flight measurements for the Swale, on the basis of flight distance measured on the Exe Estuary, it is considered that a distance of 200 metres or more from the Proposal Site can be used to define the buffer zone between human activity in the form of people or plant (machinery) moving at a steady pace and not outlined against the sky and waterbirds if the frequency of disturbance is not to be increased above present day levels.

- 9.237 As has been shown birds may habituate to disturbance and therefore it is not considered that the short term higher levels of general disturbance associated with construction, nor the longer term but lower level disturbance associated with operational works are likely to have a significant effect. Whether it can be concluded the effects of noise and vibration, and lighting during construction and operational works do not have an adverse effect is determined below.

Noise and vibration

Construction

- 9.238 It is recognised that Infrequent, short, sharp 'percussive' noises have the potential to cause the greatest disturbance (Burton *et al*, 2002a). Such noises are considered most likely to be generated during the construction phase, and be a comparatively uncommon event during the operation of the proposed works.
- 9.239 Noise created during the construction phase has the potential to effect wading birds and waterfowl using the Swale SPA / Ramsar site and the Medway Estuary and Marshes / Ramsar site. Peak levels of sound in relation to the planning application are most likely to occur from the impact of concrete breaking and pneumatic drilling during site preparation and piling during construction. These activities can have an impact on bird species at a distance of up to 250 metres and is based on published research and studies by the Environment Agency for the Humber Estuary Tidal Defences scheme (Environment Agency, 2000). The Environmental Statement for the Humber Defences states that: 'sudden noise in the region of 80dB appears to elicit a flight response in waders up to 250 metres from the source, with levels below this to approximately 70dB causing flight or anxiety behaviour in some species.'
- 9.240 Evans and Ward (2001) aimed to quantify the background levels of noise on the Tees Estuary, a heavily industrialised site. The background noise levels as measured at the

mid-tide shoreline were found to be on average 47.5dB. The zone of impact in which waterbirds were considered potentially at risk from noise was considered to be a radius of 500 metres. This figure has been used as a worst-case scenario. Site preparation and construction work producing levels of noise in excess of 80dB within 500 metres of the Swale SPA / Ramsar site therefore have the potential for an adverse effect.

- 9.241 Noise created during the construction phase from piling works, HGV movements and other plant activities has the potential to disturb birds wintering within the SPA/Ramsar, causing them to cease feeding or fly away from the area of influence. It is recognised that loud and 'percussive' noises have the greatest potential to cause disturbance and a threshold has been identified from the published scientific literature of 80 dB L_{Amax} . The main intertidal areas of the Swale Ramsar/SPA used by wintering citation birds recorded by the foreshore monitoring are over 200 m from the areas of the Proposal Site where significant noise events may occur.
- 9.242 The maximum noise has been modelled at the main intertidal area of the SP/Ramsar to be no more than 65 dB L_{Amax} (see Figure 9.10). As a result no effect is predicted due to construction noise.
- 9.243 In terms of exposure, very little of the Swale falls within the worst case area that could be affected (see Figure 9.10 of the Environmental Statement). However, bird data for this area indicates that it does support significant numbers of qualifying bird species of the Swale SPA / Ramsar site. The vulnerability rating is therefore considered to be high.
- 9.244 Disturbance by noise, including large amplitude 'startling' components such as piling will also be avoided and mitigated by a work programme and method statement including where the use of a 'soft start' to the piling operation during winter months and the scheduling of works to ensure that piling during the most sensitive periods (i.e. during the worst weather conditions over winter when the birds are potentially highly stressed) is undertaken at the points furthest away from the more sensitive receptors.
- 9.245 There is a limited potential for disturbance to be caused by noise during construction when account is taken of the facts that:
- The waterbird assemblages feeding around the Swale, Medway and Thames estuaries are already habituated to an extent to construction noise;
 - Bird distribution studies have shown small but not significant populations of birds feeding in the area contained within 500 metres of the proposal site; and
 - Construction noise is temporary and reversed once construction activity ceases in any one day, in any one week and at the end of the construction of the structures.

- 9.246 The outcome is that it can be concluded that noise will have no adverse effect on any qualifying species or the waterbird assemblage of the Swale SPA / Ramsar site or the Medway Estuary and Marshes SPA / Ramsar site.

Operational

- 9.247 People getting in and out of vehicles, including shutting doors is thought to cause more disturbance than continuous low-intensity disturbances such as low-level continuous noise (Hill *et al*, 1997). It is generally thought that birds may habituate to continual noise so long as there is no large-amplitude 'startling' component (Hockin *et al*, 1992). In a review of studies on waterbird disturbance, Goss-Custard (2007) concluded that there was nothing in his literature review to challenge this view.
- 9.248 The area to the west of the Proposal Site is already relatively noisy due to the presence of Kemsley Mill. In terms of sensitivity, waterbirds appear to habituate to continual noise provided there is no large amplitude 'startling' component. It is considered that there is a low potential for sudden noises during the operational phase of the development to cause disturbance impacts on SPA cited/review birds.
- 9.249 Sudden noise created during the operational phase from valve releases associated with the slag and combustion residues processing plant (UEW and UEU), HGV movements and other plant activities has the potential to disturb birds wintering in the area to cause them to cease feeding or fly away from the area of influence. It is recognised that loud and 'percussive' noises have the greatest potential to cause disturbance and a threshold has been identified from the published scientific literature of 80 dB L_{Amax} .
- 9.250 Waterbirds occurring on the intertidal area are at their closest, 100 m from the construction Site boundary and the maximum noise has been modelled here using the indicative source point of noise for valve release at the northern end of the Site to be no more than 35 dB L_{Amax} (see Figure 9.11). The majority of waterbirds however occur in areas where the maximum noise has been modelled as 30 dB L_{Amax} or less. As a result there is no predicted effect due to sudden noises during the operational phase.
- 9.251 The general increase in ambient noise post-construction is not expected to constitute a significant effect on the waders and waterfowl using the Medway Estuary and Marshes SPA / Ramsar site or the Thames Estuary and Marshes / Ramsar site.

Night Lighting

Construction

- 9.252 The key attributes that determine the effect that night lighting has on qualifying features

appears to be its proximity, type, direction and intensity.

- 9.253 It has been assumed that there will be little night working during construction of the proposed Kemsley SEP. Night lighting during construction is therefore expected to be limited to compounds for security and safety reasons and temporary work areas where engineering works are required outside normal working hours or security and safety reasons.
- 9.254 Outside of initial site wide works, night lighting during construction will be limited to that part of the Proposal site required to develop each phase. The characteristics of the night lighting during construction will be downward facing and shielded to reduce spillage, involve lighting on relatively short columns or temporary structures and use luminaries of only the necessary wattage. The lighting will therefore be equal to or less intense than that of the existing security night lighting on Kemsley Mill to the west
- 9.255 The effect of night lighting during construction will therefore have no adverse effect on the qualifying species of the Swale SPA / Ramsar site or Medway Estuary and Marshes SPA / Ramsar site in relation to Redshank for the following reasons:
- It will be over 150 metres away from the boundary of any designated site;
 - It will be limited to specific areas, temporary in nature and not add significantly to the existing night light loading of the area.

Operational

- 9.256 Night lighting during operation of the proposed Kemsley SEP could also be a potential source of disturbance to the qualifying features (both flora and fauna) of the Swale SPA / Ramsar site and Medway Estuary and Marshes SPA / Ramsar site in relation to Redshank. The design of this lighting will be directional to reduce spillage into other areas. Existing developments to the west of the Proposal site will also act as a shield to reduce the impact of the additional lighting on surrounding areas. The secondary flood defence in the southeast of the site will also shield the Swale foreshore from direct lighting
- 9.257 Whilst this will limit the impact on static qualifying species, it is more difficult to quantify whether this will be sufficient for more mobile species, such as wildfowl and wading birds, without a detailed knowledge of the night time use of an area. The distribution of wildfowl and wading birds in daylight hours cannot always be taken to indicate that this is where they occur at night. Grey Plover for example, a qualifying species of the Swale Ramsar site have been shown to meet the majority of their energy requirements at night due to the nocturnal emergence of preferred polychaete prey (Dugan, 1981).

- 9.258 The study on the risk of bird strike in response to the suggestion of an airport at Cliffe (Department for Transport, 2006) included two weeks attempting to assess night time behaviour and movements to ascertain if this differed greatly (or unpredictably) from daytime movements and behaviour. The results included night time movements of both Oystercatcher and Curlew.
- 9.259 In areas of high disturbance wildfowl and wading birds may need to switch to, or increase, feeding at night to meet their daily energy requirements. Nocturnal feeding by Teal for example has been reported particularly when disturbed during daylight hours (Guillemain *et al*, 2000). Work by Burton and Armitage, (2005) on the Severn Estuary has also shown that Redshank use a greater number of sites at night, including areas not used during the day due to disturbance. Sitters (2000) proposed five hypotheses for the role of night foraging:
- Preference for day with supplementary feeding at night;
 - Preference for night with supplementary feeding during the day;
 - Indifferent to time or day;
 - Even spread to avoid peaks of body weight; and
 - Feed whenever possible.
- 9.260 For probing species like Dunlin, feeding in darkness probably makes little or no difference since they principally feed by tactile cues. Species that use visual signs will either feed less efficiently at night or switch to using tactile cues, whilst those species with superior vision in poor light conditions may continue to use visual cues. During the hours of darkness Oystercatcher which feed principally by sight are known to feed at under half the daytime rate. It is possible that a moderate increase in light levels could therefore benefit sight-feeding waders such as Oystercatcher and Redshank, both of which have been recorded feeding on the Kemsley foreshore.
- 9.261 The use of areas at night for roosting and foraging by wildfowl and wading birds is though complex, appearing to vary between species (Zwarts *et al*, 1990, Dodd and Colwell, 1998) as well as seasonally (Dodd and Colwell, 1996). Wildfowl and wading birds may become habituated to increased lighting and the additional lighting from the proposed development is not considered to have a cumulative effect on existing light levels close to the development area.
- 9.262 The light scheme for the operational phase will follow best practice to minimise light impacts. The operational lighting design incorporates street lighting and flood lighting located on the Site buildings to provide illumination to roads, car parks and hard standing

areas.

- 9.263 The street lighting is fitted with a flat glass profile to minimize light spill. The lighting levels for the final operational plant can be seen to drop to a level of 1 lux (bright moonlight) within an average distance of 12 m from the Site boundary (see Appendix 8.2). Given the boundary of the Ramsar/SPA is over 140 m from the Site, combined with the current significant lighting surrounding the Kemsley Paper Mill and associated roads there will be no significant impact from the operational lighting.
- 9.264 The effect of night lighting during operation of the Kemsley SEP will therefore have no adverse effect on the qualifying species of the Swale SPA / Ramsar or Medway Estuary and Marshes SPA / Ramsar site in relation to Redshank for the following reasons:
- It will be over 150 metres away from the boundary of any designated site;
 - It will be limited to specific areas, notably access routes and car parks;
 - The type of lighting will be carefully selected and directional to ensure no unnecessary illumination into surrounding areas, and
 - It will not add significantly to the existing night light loading of the area to which flora and fauna are likely to have become accustomed.

Hydrological Change

- 9.265 The Proposal site and surrounding areas are currently served by a man-made drainage system that discharges into the Swale. The proposed development will result in the construction of a significant number of new impermeable surfaces such as building roofs and paved areas. As part of the planning application, a site-wide drainage system has been developed that will ensure that the rate of surface water runoff is controlled.
- 9.266 As the site is developed, the owners will undertake to revitalise the existing primary drainage systems, providing additional attenuation storage where appropriate. It is also proposed that a new primary gravity drainage system will replace the existing surface water drainage system in a phased manner as the development is brought forward. If necessary, subject to approval by the appropriate regulatory body or bodies, the outfall will be modified to facilitate improved discharge.
- 9.267 The planning application therefore identifies changes to the existing freshwater flows across the Kemsley foreshore, which may in turn lead to changes in the hydromorphology of the discharge channel. Several species of birds have been recorded using freshwater flows and flow channels across intertidal areas of estuaries for feeding, roosting, drinking and preening/bathing (Environment Agency, 2007). Ravenscroft and

Beardall (2003) found that some species were present around most flows and that certain species were consistently recorded in greater numbers around flows than would be expected from average densities. Although the small numbers precluded statistical analysis, there was evidence of a large turnover of some species of birds using flows. Overall, the findings indicated potentially significant proportions of the populations of some species were making use of flows.

- 9.268 The exposure to the potential hazard relates to what degree each interest feature and the supporting habitat it uses falls within the zone of influence of the proposed change in freshwater flow regimes. Feature specific levels of exposure have been assigned to each of the qualifying species primarily on the basis of the monthly winter bird counts of the intertidal areas adjacent to the Proposal site collected on behalf of St. Regis. This has been supplemented by analysis of other available data, including WeBS low tide counts, and a review of relevant literature concerning habitat requirements.
- 9.269 Suggested sensitivities of those qualifying waterbirds of the Swale SPA / Ramsar site to freshwater flows have been ascribed based on previous studies (Enviros Consulting Ltd., 2005). As all bird species require freshwater in one way or another to support suitable habitats, feeding, and hunting areas for example, a rank of negligible was not ascribed to any bird species.
- 9.270 Data on the exposure and sensitivity of qualifying species recorded on the intertidal areas adjacent to the Proposal site of the Swale SPA / Ramsar to freshwater flows are presented in Table 9.2.

Table 9.14 Kemsley foreshore waterbird exposure and sensitivity to freshwater flows

Species	> 1% SPA Total Population	High Sensitivity to Freshwater Flow	Taken Forward for Further Assessment
SPA Citation / Review Species			
Dunlin	Yes	No	No
Redshank	Yes	Yes	Yes
Ramsar Species / SPA Assemblage			
Shelduck	Yes	Yes	Yes
Wigeon	No	Yes	No
Teal	Yes	No	No
Pintail	Yes	Yes	Yes
Oystercatcher	Yes	No	No

Avocet	Yes	Yes	Yes
Ringed Plover	Yes	No	No
Grey Plover	Yes	No	No
Black-tailed Godwit	Yes	No	No
Curlew	Yes	No	No

9.271 An assessment of the vulnerability of four species to the effects of the proposed changes to freshwater flows across the intertidal foreshore at Kemsley is presented below.

Shelduck

- 9.272 The number of Shelduck recorded wintering in Britain increased from when wildfowl counts began in 1948 to a peak of around 70,000 in the mid-1970s (Lack, 1986) after which peak counts remained relatively stable until the mid 1990s with the exception of occasional high numbers associated with prolonged frozen conditions on the Waddenzee (Ridgill and Fox, 1990). Since then, there has been a gradual decline in the peak national count with 48,667 in 2006/2007 the lowest maximum for around 30 years, albeit only slightly lower than the that of 2005/2006 (Austin *et al*, 2008). This decline is in line with research showing UK breeding numbers declined by 38% between 1994 and 2004 (Raven *et al*, 2005). The spate of mild winters may also have had a bearing as when there is severe weather on the continent more Shelduck move from the Wadden Sea to estuaries southern Britain (Baillie *et al*, 1986).
- 9.273 Shelduck numbers on the Swale have fluctuated greatly since the beginning of the WeBS reporting period, though generally increased to a peak of over 3,000 in the late 1990s. Since then the peak number of Shelduck over-wintering on the Swale has declined sufficiently over the medium-term and short-term to trigger Medium-Alerts. Despite the inherent variability in numbers exhibited by this species, as both national and regional numbers have undergone declines of a lesser magnitude this would suggest that adverse local conditions could be partially responsible for the downturn in numbers on this site (Maclean and Austin, 2008).
- 9.274 Although found on the sandy estuaries of northwest England and reported to make use of coastal grasslands, the majority of wintering Shelduck in Britain occur on the muddier estuaries of eastern and southern England such as the Swale (Banks *et al*, 2006). Although they tend to disperse as the winter progresses, on estuaries like the Swale numbers usually remain high due to the arrival of Shelduck from the main moulting site of the Waddenzee well into the New Year. Peak numbers normally therefore occur on

estuaries in January or February (Musgrove *et al*, 2001).

- 9.275 On intertidal mudflats, Shelduck tend to be highly gregarious and feed chiefly by sieving wet sediment through their bill. Such a feeding strategy demands considerable quantities of food and for this reason they tend to capture abundant but small invertebrates and plant material on or near the surface of intertidal mudflats rather than larger but more deeply buried prey items (Atkinson-Willes, 1963).
- 9.276 The principal food item is the small gastropod snail *Hydrobia ulvae*. Whilst this occurs in a wide range of salinities (Jackson, 2000), highest numbers are reported occur in areas of generally lowered salinity (15-30‰). Shelduck has been shown to exhibit five distinct feeding methods relating to the state of the tide and behaviour of *Hydrobia* (Bryant and Leng, 1975). These include dabbling at the waters edge and up-ending in shallow water. Shelduck have been shown to feed on a wide range of other invertebrates living in the surface sediment and where *Hydrobia* are scarce have been noted to feed notably on oligochaete and ploychaete worms (Anders *et al*, 2008), some species of which can occur in higher densities near creeks and channels.
- 9.277 Shelduck therefore predominantly forage on intertidal mudflats and the available low tide data indicate this species is widely distributed throughout the Swale, with particular concentrations noted in the major creeks and side channels.
- 9.278 In view of:
- Shelduck are distributed throughout the Swale;
 - Shelduck principally feed on *Hydrobia* which whilst able to tolerate a wide range of salinities occurs in higher densities in reduced salinities but is generally absent from low salinity areas and is therefore not generally present in freshwater flows; and
 - Although Shelduck feed on a variety of other prey, including worms that have been shown to occur in higher densities near freshwater flow channels, they tend to occur in higher densities on sheltered areas of wet mud, notably the larger side creeks.

- 9.279 It can be concluded that the proposed hydrological changes will have no adverse effect on site integrity for Shelduck on the Swale SPA / Ramsar site.

Pintail

- 9.280 Pintail is a rare breeding bird in Britain, as in the rest of Europe. Declines in numbers of breeding Pintails have been recorded from Russia, Finland, Estonia, Denmark, Poland

- and Ukraine (Berndt and Kauppinen 1997). Of the three European wintering populations of this species, the north-west European is the smallest, and has shown a long pattern of slow decline (BirdLife International, 2004). This has been attributed primarily to habitat loss and degradation in both breeding and wintering areas.
- 9.281 Most of the Pintail occurring in winter migrate from more northern and eastern breeding areas in Iceland, Fennoscandia and Russia (Stroud *et al*, 2001). The European distribution in winter has traditionally been concentrated on a small number of coastal sites where Pintail form large flocks on brackish coastal lagoons and estuaries, as well as flooded grassland and large lakes and reservoirs.
- 9.282 Flocks of Pintail became a regular visitor on British estuaries, particularly those of north-west England and north Wales, during the mid 1950s (Piotrowski, 2003). In the UK, numbers of non-breeding Pintail increased by 3.5% between 1966 and 1995. During this time there were periods when numbers remained relatively consistent or even declined slightly (Kershaw, 1998) as well as years when numbers were significantly higher due to influxes from mainland Europe during harsh weather conditions (Ridgill and Fox 1990; Berndt and Kaupinnen 1997; Scott and Rose 1996).
- 9.283 Numbers recorded in Britain since then have fluctuated considerably, with the peak counts in 2001/2002 and 2002/2003 being amongst the highest ever recorded (Cranswick *et al*, 2005). Since then Pintail numbers have been more stable (Austin *et al*, 2008). Peak numbers in Britain can show a double peak over the winter. One hypothesis for this is differences in the timing of movements of different sub-populations away from their breeding grounds. Icelandic Pintail for example may arrive in early winter and disperse before the later arrival of continental birds when weather systems push them further west (Cranswick *et al*, 1999).
- 9.284 Trends in winter numbers in Britain have varied both between regions and between habitats with numbers increasing at some sites, notably lakes, reservoirs and flooded mineral workings. At the same time, numbers on some estuaries and coastal sites have generally stabilised, suggesting the birds are undergoing some re-distribution to less traditional habitats. The picture is though complicated by Pintail being extremely mobile during the winter (Stroud *et al*, 2001). This mobility causes local changes in distribution and changes to the relative importance of individual sites through the winter (Owen *et al*. 1986). Numbers of birds at individual sites also fluctuate markedly between years indicating a low degree of site fidelity (Pollitt *et al*. 2000) and a high degree of opportunism for temporarily suitable sites such as flooded fields (Brown and Smart, 2002).
- 9.285 Peak winter counts on the Swale have fluctuated markedly between years. The peak

count over the winter of 1997/1998 was around 40% below average for the time (Cranswick *et al*, 1999). Following a run of relatively low peak counts in the late 1990s, the five year average dropped below the international threshold in 1999/2000 (Musgrove *et al*, 2001). Following a run of peak counts of just below 1,000 in the early 2000's, the five year average for the Swale again rose above the international threshold. In the most recent five years for which data are available, peak counts have fallen to around 600-700 (Austin *et al*, 2008).

- 9.286 Analysis of WeBS low tide count data for the Swale indicates that the north side of the inner Swale opposite Milton Creek was the principal feeding area for Pintail. The main flock there occurs in an area unaffected by freshwater flows. The peak count of 218 from the fieldwork on the mudflats adjacent to the Proposal site carried out for the proposed development represented some 22% of the population on the Swale based upon the five-year mean peak (2002/2002 – 2006/2007).
- 9.287 Pintail are known to eat a wide variety of plant material, including seeds, tubers and vegetative parts of aquatic plants and sedges, and, in summer, also consume aquatic invertebrates, amphibians and small fish (Hoyo *et al*. 1992). On British estuaries they have been found to depend largely on small snails of the genus *Hydrobia*. Whilst this occurs in a wide range of salinities (Jackson 2000), highest numbers are reported occur in areas of generally lowered salinity (15-30‰). On grazing marshes, seeds have been shown to be by far the most important food (Owen *et al*. 1986).
- 9.288 Being omnivorous, their distribution on estuaries is not related to a particular prey. Studies by Ravenscroft (1998) on the Stour Estuary suggest an association between some species of waterfowl and freshwater flows. Pintail showed statistically greater densities closer to flows when compared with the remaining areas of mudflat. A study on the distribution of birds associated with some freshwater flows on the Medway Estuary (Marcus Kohler Associates, 2002) concluded that Pintail were one of six species which occurred at significantly higher densities within freshwater creeks than in adjacent mudflats. The study also noted that Pintail may preferentially use creeks for loafing. Other studies have shown that on estuaries Pintail will preferentially sift the soft mud at the waters edge (Piotrowski 2003).
- 9.289 In view of:
- Pintail on the Swale are mainly located on the opposite shore to the Proposal site where they will be unaffected by any hydrological changes as a result of the proposed development;
 - Pintail feed on *Hydrobia*, which is able to tolerate a wide range of salinities, as

well as a wide a wide range of other prey, including seeds;

- Pintail are opportunistic feeders and will utilise areas of grassland which are not related to freshwater flows;
- Pintail tend to occur in higher densities on sheltered areas of wet mud, including the mid-lower shore and in larger side creeks, which will be unaffected by any hydrological changes associated with the Proposal site;
- Flows will continue to be discharged across the Kemsley foreshore as a result of the proposed development.

9.290 It can be concluded that the proposed hydrological changes will have no adverse effect on site integrity for Pintail on the Swale SPA / Ramsar site.

Avocet

- 9.291 Having been absent from the UK as a breeding species for 100 years, Avocets became re-established in Suffolk in 1947 (Cadbury and Olney 1978; Cadbury *et al.* 1989). Considerable expansion in breeding numbers and range (including into Kent) has occurred since the mid 1970s, principally as a result of habitat management at key breeding sites (Gibbons *et al.* 1993). Wintering numbers have similarly risen in Britain with the counted British maximum of 6,615 over the winter of 2006/2007 (the latest for which data are available) the highest ever recorded (Austin *et al.* 2008).
- 9.292 In addition to reflecting growth in the British breeding population, it is likely that the considerable increase in wintering numbers has been supplemented by immigration from the Netherlands and Denmark, where the breeding population doubled in 15 years, probably as a result of eutrophication in the Wadden Sea increasing food supply and the creation of artificial breeding sites Delta area (Hagemeijer and Blair, 1997, Hotker and West, 2005).
- 9.293 Peak winter numbers on the Swale over the last ten years have generally been in the range of 300-500 hundred. A particularly low peak winter count of 145 was recorded in 2000/2001 (Pollitt *et al.* 2003) whereas the peak count of 1,290 over the winter of 2004/2005 meant the Swale held the second highest site total for the year in Britain (Banks *et al.* 2006). The low tide distribution maps for this species on the Swale show that in both 1992/1993 and 2001/2002 Avocet were principally located between Spitend Point at Elmley and Conyer Creek, some 5 km to the east of the Proposal site.
- 9.294 The behaviour of wintering Avocet feeding on intertidal areas has been studied on estuaries both in the UK and Europe. By far the most common feeding strategy has bene

shown to be a sweeping action in shallow water (Moreira, 1995a). This was non-prey specific, with species ingested mainly comprising small crustaceans like *Corophium volutator* oligochaetes, spionid worms and *Capitella capitata* (a polychaete worm). *C. volutator* is a euryhaline species capable of living in environments of variable salinity (Neal and Avant, 2006). Although it can potentially occur over much of the shore, growth seems to be fastest at 15-20‰ (McLusky, 1967) and a salinity of over 7.5‰ is required for reproduction (McLusky, 1968). As such they tend not to occur in the bottom of creeks with a freshwater flow.

- 9.295 Studies, including work on Suffolk and Essex estuaries, show the distribution and abundance of the invertebrate prey of Avocet to be more related to large-scale zonation patterns. The salinity of the upper shore for example is higher than on the lower shore due to the greater influence of seawater at high tide (Little, 2000). In a detailed study of the use of the mudflats of the Tagus estuary in Portugal, Moreira (1995b) found that the density of Avocet on the upper shore was much higher than on the lower shore, possibly as a consequence of the effect of salinity on invertebrate populations.
- 9.296 There are few reported studies dealing with the distribution of birds like the Avocet along the salinity gradient of an estuary. The zonation of the non-breeding waterbird community has though been described in detail for the Schelde Estuary, which has a complete salinity gradient (Ysebaert *et al*, 2000). Non-prey specific species of birds like the Avocet that feed in soft and silty sediments were generally found to be concentrated in the mesohaline reaches of an estuary (5-18 parts per thousand). This could suggest that they are at least partially salinity dependent.
- 9.297 Other research has shown Avocet to be one of the species of wading birds least associated with the salinity gradient, or if there is an association, it is with higher salinities rather than lower salinities. Lourenco *et al* (2005) for example found that the density of Avocet was highest near channels draining from saltmarsh that contained no freshwater flow. The association of this species of wading bird with drainage channels may therefore be more related to the physical characteristics of the sediment, perhaps increasing the ability to capture prey. The use made of channels with a freshwater flow is though likely to be different from the use made of channels with no freshwater flow, including for example drinking.
- 9.298 Two other less commonly observed feeding strategies used by Avocet wintering on estuaries include worm specific and *Scrobicularia plana* (peppery furrow shell snail) specific (Moreira, 1995b). In the worm-specific strategy, Avocet preyed mainly on ragworm (*Nereis diversicolor*). There is evidence that this species prefers areas of low salinity (Oglesby, 1969), though it remains unclear whether such brackish conditions are

the favoured habitat or if the conditions serve to limit competition from other species (Little, 2000). The Peppery Furrow Shell is able to tolerate low salinities only in thick mud (Pizzolla, 2002) which are less attractive to feeding Avocet.

- 9.299 The presence of freshwater flows appeared to have little bearing on the wintering distribution of Avocet in studies on Suffolk and Essex estuaries which found no statistical association between the presence of Avocet and freshwater flows (Ravenscroft, 2005). Whilst the Enviros Consulting Ltd. (2005) considered Avocet to be highly sensitive to changes in freshwater flows, this is principally based on their breeding requirements. Based on the above analysis, this is considered overly precautionary. In view of :
- Avocet on the Swale are mainly located 5 km away from the Proposal site where they will be unaffected by any hydrological changes as a result of the proposed development;
 - Avocet are opportunistic feeders and will predate a range of invertebrate prey across a range salinities;
 - Specific studies on Suffolk and Essex estuaries found no statistical association between the presence of Avocet and freshwater flows;
 - High densities of Avocet have been shown to occur near drainage channels with no freshwater flow,
 - Flows will continue to be discharged across the Kemsley foreshore as a result of the proposed development.

- 9.300 It can be concluded that the proposed hydrological changes will have no adverse effect on site integrity for Avocet on the Swale SPA / Ramsar site.

Black-tailed Godwit

- 9.301 The majority of the non-breeding Black-tailed Godwit recorded in Britain are of Icelandic origin (*islandica*). A small number are of the nominate race, principally passage birds occurring in the east and south of England, where some a few also breed (Collier *et al*, 2005). From less than 100 Black-tailed Godwit wintering in Britain in the early 1930s, apart from the cold winter of 1962/1963, numbers gradually increased until the early 1970s (Prater, 1975). This rise was attributed to increased breeding success in Iceland in response to milder climatic conditions (Cranswick *et al*, 1999). Cold springs and poor summer weather resulted in a decline in numbers in the early 1970s after which they steadily increased again. Between 1981/1982 and 1988/1992 wintering numbers in Britain increased from 4,700 to 7,410 (Cayford and Waters, 1996).

- 9.302 The increase in the Icelandic race of the Black-tailed Godwit has shown no signs of abating. In line with this growth in the estimated breeding population the numbers recorded wintering in Britain has continued to rise despite some indications in the mid to late 1990s that peak counts were beginning to stabilise. The peak winter count of over 31,000 over the winter of 2002/2003 was the highest to that date by a considerable margin (Cranswick *et al*, 2005). The data suggested that wintering numbers had increased by 42% over the preceding ten years and by 73% over the preceding 25 years.
- 9.303 The national increase has been driven largely by rises on sites in the south and southeast of England. Despite this, the peak numbers recorded on the Swale over the last ten years for which data are available apart from one high count over 2,000 in 2000/200 have generally remained between 1,000 and 1,500. Following uncharacteristically high numbers in the early to mid-1990s, a medium-term Medium-Alert has been triggered (Maclean and Austin, 2008). Regionally numbers have remained relatively stable, which together with the fact that numbers generally fluctuate markedly, means the significance of the decline is hard to assess.
- 9.304 Although the numbers of Black-tailed Godwit wintering on the Swale has been compared against the national and international thresholds set out on the SPA/ Ramsar site citations and SPA Review, these are clearly out of date as the peak British peak count has until recently exceeded the stated international population estimate. The international threshold for Black-tailed has now been updated to 470 (Austin *et al*, 2008). This may help explain why the mudflats adjacent to the Proposal site apparently support over 100% of the Swale population. It is also explained by the low tide distribution maps for this species on the Swale showing that in both 1992/1993 and 2001/2002 Black-tailed Godwit were principally located in the inner reaches between Elmley Hills and Conyer Creek.
- 9.305 The Icelandic breeding population of Black-tailed Godwit spends the winter principally feeding on the estuaries of Ireland, Britain and France (Gill *et al*, 2001a). Those wintering in Britain tend to be highly gregarious and form tight flocks on areas of mudflat where they can feed on larger invertebrates, including Lugworm (*Arenicola marina*) and Ragworm (Hale, 1980). Lugworm has been shown to be absent from intertidal freshwater seepage areas, whereas Ragworm do occur in higher densities in such areas (Tyler-Walters, 2008, Budd, 2008). As euryhalines, this species is able to tolerant a wide range of salinities from full sea water down to about 5‰ (Barnes, 1994), though prolonged periods of low salinity (<8‰) can adversely affect reproduction (Ozoh and Jones, 1990).
- 9.306 Whilst this could explain why this species has been observed to cluster around

freshwater (Enviros Consulting Ltd. 2005), Black-tailed Godwit are known to feed on other prey, notably bivalves. In a study on East Anglian estuaries, Gill *et al* (2001a) found these were actually the most abundant food source throughout the winter. Polychaetes were only included in the diet in significant proportions towards the end of the winter. *Scrobicularia plana*, *Macoma balthica* and Sand Gaper (*Mya arenaria*) comprised on average 88% of the bivalves consumed. Whilst *Mya arenaria* tolerates a wide range of salinities (Strasser, 1999) and *Scrobicularia plana* is able to tolerate low salinities in thick mud (Pizzolla, 2002), *Macoma balthica* is reported to prefer salinities in the range of 15-35‰ and may die if subjected to lower salinities (Kristensen, 1958).

- 9.307 With their very long straight bill, Black-tailed Godwit tend to feed in areas of finer sediment where they can wade in water or probe wet mud for prey (Holden and Sharrock, 2002). In a study attempting to determine how the movement of the tide line influences the use of intertidal flats by wading birds, Granadeiro *et al* (2005) revealed some species, including Black-tailed Godwit, actively followed the tide line. Densities near the tide line were up to five times higher than elsewhere. In a study on creeks fed only by drainage from saltmarshes, Lourenco *et al*, (2005) also found the densities of several species including Black-tailed Godwit peaked 1-2 metres from the channel. Whilst the sloping banks of creeks were largely avoided, Black-tailed Godwit were frequently observed foraging on the channel bed. This suggested they were attracted to the soft muddy bottoms covered by water that was generally too deep (>10cm) for smaller waders.
- 9.308 Numbers of Black-tailed Godwit have been found to be significantly lower where a footpath follows the line of the seawall (Burton *et al*, 2002b). As such, they tend to make little use of channels and flows on the upper shore. Small freshwater flows which peter out on the upper shore are therefore less used by this species even though it is known to move around considerably during the course of a winter. Whilst this means flocks can occur almost anywhere there are suitable feeding conditions, prey intake rates appear to be a major factor in determining habitat choice (Goss-Custard, 1980). A study of seasonal changes in diet on southern and eastern coastal wintering sites revealed that at the start of winter of Black-tailed Godwit forage on estuarine mudflats but apparently responded to prey depletion later in the winter by switching to exploit higher prey densities, notably earthworms on meadows (Gill *et al*, 2001a).
- 9.309 In view of :
- Black-tailed Godwit occupy reaches of the Swale where they will be unaffected by any hydrological changes as a result of the proposed development;

- Black-tailed Godwit tend to avoid the upper shore where there is a footpath along the seawall, as in the case of mudflats near the Proposal site;
- Black-tailed Godwit feed on a range of invertebrate prey across a range of salinities;
- High densities of Black-tailed Godwit have been shown to occur along the tide line and near drainage channels with no freshwater flow and ,
- Flows will continue to be discharged across the Kemsley foreshore as a result of the proposed development.

9.310 It can be concluded that the proposed hydrological changes will have no adverse effect on site integrity for Black-tailed Godwit on the Swale SPA / Ramsar site.

STAGE 4 – AVOIDANCE AND MITIGATION

Avoidance and mitigation measures

Direct loss of habitats

- 9.311 The proposed development will not result in the direct loss of any areas of habitat within a Natura 2000 or Ramsar site. In terms of areas used by qualifying species, the proposed development will not result in the direct loss of any habitat used by qualifying species of nearby Natura 2000 sites. It will however result in the loss of areas outside of the designated boundary that may support plant species listed on the Medway Estuary and Marshes Ramsar site citation. Mitigation in the form of providing areas within the development site to support these species and mechanisms to ensure they continue to occur are included within the design concept for the site.

Change in management regimes

- 9.312 The planning application for the Kemsley SEP will not result in a change of management of any areas of habitat within a Natura 2000 or Ramsar site or nearby areas used by qualifying species. Future management of the areas of habitat being retained on site is being addressed within a comprehensive mitigation strategy, as well as, potentially, through a water level management plan, for the site.

Loss of future space to allow for managed realignment

- 9.313 This issue was screened out on the grounds of no likely significant effect. As such, no avoidance and mitigation measures are proposed.

Urbanisation

- 9.314 The proposed Kemsley SEP will result in minimal over shadowing of habitats within the Swale SPA / Ramsar site (just before sunset). It will also not result in the reduction of sight lines or hinder flight paths for any qualifying species of the Swale SPA / Ramsar site or Medway Estuary and Marshes SPA / Ramsar site, in relation to Redshank.
- 9.315 Avoidance measures incorporated into the design include aligning buildings away from the Swale SPA / Ramsar site and setting the buildings 150 metres back from the boundary of the Swale SPA / Ramsar site.

Air quality

9.316 The results of the assessment identified that construction of the proposed development could give rise to emissions of dust. Adopting appropriate mitigation measures will ensure there are no significant effects on qualifying features or their supporting habitats.

Measures are expected to include:

- commitment to the considerate contractors scheme;
- minimisation of dust generation wherever appropriate (e.g. cutting rather than breaking);
- damping down when conditions require;
- wheel and body washing of vehicles where appropriate; and
- vehicles carrying material to be sheeted as required;

9.317 The operation of the SEP will result in emissions to air, though these are shown to not exceed critical levels/loads (see Appendix 9.3 of the Environmental Statement) for all qualifying features or that the supporting habitats are insensitive to the pollutant issue (acid deposition, for example). Therefore, it is concluded the proposed development does not have an adverse effect on any of the SPAs, Ramsar sites or SAC considered and no mitigation is proposed.

Water quality

9.318 All surface water drainage will continue to discharge to the Swale. The main avoidance measures incorporated into the design of the Proposal site to prevent water pollution include appropriate treatment and pollution prevention measures during both construction and operation of the SEP.

Hydrological changes

9.319 Changes to the surface water drainage network could potentially result in hydrological and hence geomorphological changes to the freshwater flow through the outfall into the Swale. The main mitigation measures incorporated into the design of the proposed development to ensure it can reasonably be concluded changes in freshwater flows will have no adverse effect on any qualifying species of the Swale SPA / Ramsar or Medway Estuary and Marshes SPA / Ramsar site in relation to redshank include:

- alterations to outfall structures or volumes discharged will be discussed and approved by the appropriate regulatory body or bodies and it is envisaged that

discharge rates (taking the attenuation ponds into account) will be similar to that currently experienced;

- studies in relation to changing the outfall, including hydromorphological and ecological, including continued surveys of the use of foreshore by wading birds and wildfowl through all months of the year and through all states of the tide;
- the surface water drainage incorporating Sustainable Urban Drainage Systems features to provide attenuation and storage, providing a range of additional environmental benefits; and
- opportunity will be taken to investigate and implement a site-wide water level management plan.

Disturbance

9.320 The three main potential pathways taken through to Stage 3 in relation to disturbance are activity, noise and lighting.

9.321 The main avoidance and mitigation measures incorporated into the design of the proposed Kemsley SEP to ensure it can reasonably be concluded that activity resulting in visual intrusion will have no adverse effect on any qualifying species of the Swale SPA / Ramsar and Medway Estuary and Marshes SPA / Ramsar site in relation to Redshank include:

- commitment to the considerate contractors scheme in relation to timing, noise and lighting;
- no access to the foreshore or designated sites, and
- retention of a 'buffer' strip of habitat between the Swale SPA / Ramsar and the nearest element of development.

9.322 Recognising that there is a risk of disturbance to a proportion of the waterbird assemblage from the most 'startling' of noises that could be generated from the proposed development, notably during construction activities, a method statement will be prepared to avoid and mitigate such effects. The main avoidance and mitigation measures incorporated into the design to ensure it can reasonably be concluded that noise will have no adverse effect on any qualifying species of the Swale SPA / Ramsar site and Redshank in relation to the Medway Estuary and Marshes SPA / Ramsar site include:

- a 'soft start' to the piling operation;

- sensitive location of equipment, compounds and plant maintenance areas as required in the British Standard for 'Noise control on construction and open sites' (BS 5528), (British Standards Institution, 2009) and
- limited night time construction or operational activity that could produce 'startling' noise.

9.323 Although neighbouring development already extensively uses night lighting, the main avoidance and mitigation measures incorporated into the design of the proposed Kemsley SEP to ensure it can reasonably be concluded that lighting during both construction and operation will have no adverse effect on any qualifying species of the Swale SPA / Ramsar site and Medway Estuary and Marshes SPA / Ramsar site in relation to Redshank include:

- no direct lighting of any designated areas which at its closest will be 300 metres from the Swale SPA / Ramsar site;
- careful siting of construction compounds;
- relatively low level directional lighting that limits spillage, glare or additional sky flow, and
- lighting will be screened from designated areas by the existing flood defences.

Introduction or spread of non-native invasive species

9.324 This issue was screened out on the grounds of no likely significant effect.

Summary of conclusions in relation to no 'alone' adverse effects

9.325 The residual effects of the proposed scheme in relation to each of the potential construction and operation pathways acting alone once the avoidance and mitigation measures have been applied are summarised in Table 9.17. No residual adverse effects have been identified.

Table 9.17 Summary of conclusions in relation to no alone adverse effects

Feature	Activity	Likely Significant Effect	No Adverse Effect
Swale SPA / Ramsar site (breeding birds)	All activities	No likely significant effect	No adverse effect
Swale SPA / Ramsar site	Habitat loss	No likely significant	No adverse effect

Feature	Activity	Likely Significant Effect	No Adverse Effect
(wintering birds)		effect	
	Change in management regime	No likely significant effect	No adverse effect
	Loss of space for managed realignment	No likely significant effect	No adverse effect
	Urbanisation	Likely significant effect	No adverse effect
	Air quality	Likely significant effect	No adverse effect
	Water quality	No likely significant effect	No adverse effect
	Hydrological changes	Likely significant effect	No adverse effect
	Disturbance from people and plant activity	Likely significant effect	No adverse effect
	Recreational disturbance	No likely significant effect	No adverse effect
	Noise	Likely significant effect	No adverse effect
	Lighting	Likely significant effect	No adverse effect
	Introduction or spread of invasive species	No likely significant effect	No adverse effect
Swale Ramsar site (Invertebrate habitat)	Habitat loss	No likely significant effect	No adverse effect
	Change in management regime	No likely significant effect	No adverse effect
	Loss of space for managed realignment	No likely significant effect	No adverse effect
	Urbanisation	No likely significant effect	No adverse effect
	Air quality	Likely significant effect	No adverse effect

Feature	Activity	Likely Significant Effect	No Adverse Effect
	Water quality	No likely significant effect	No adverse effect
	Hydrological Changes	Likely significant effect	No adverse effect
	Disturbance from people and plant movements	No likely significant effect	No adverse effect
	Recreational disturbance	No likely significant effect	No adverse effect
	Noise	Likely significant effect	No adverse effect
	Lighting	Likely significant effect	No adverse effect
	Introduction or spread of invasive species	No likely significant effect	No adverse effect
Medway SPA / Ramsar site (Redshank only)	Habitat loss	No likely significant effect	No adverse effect
	Change in management regime	No likely significant effect	No adverse effect
	Loss of space for managed realignment	No likely significant effect	No adverse effect
	Urbanisation	Likely significant effect	No adverse effect
	Air quality	Likely significant effect	No adverse effect
	Water quality	No likely significant effect	No adverse effect
	Hydrological changes	Likely significant effect	No adverse effect
	Disturbance from people and plant movements	Likely significant effect	No adverse effect
	Recreational disturbance	No likely significant effect	No adverse effect
	Noise	Likely significant effect	No adverse effect

Feature	Activity	Likely Significant Effect	No Adverse Effect
	Lighting	Likely significant effect	No adverse effect
	Introduction or spread of invasive species	No likely significant effect	No adverse effect
Medway Estuary and Marshes Ramsar (Plants – Annual Beard Grass)	Habitat loss	No likely significant effect	No adverse effect
	Change in management regime	No likely significant effect	No adverse effect
	Loss of space for managed realignment	No likely significant effect	No adverse effect
	Urbanisation	Likely significant effect	No adverse effect
	Air quality	Likely significant effect	No adverse effect
	Water quality	No likely significant effect	No adverse effect
	Hydrological changes	Likely significant effect	No adverse effect
	Disturbance from people and plant movements	No likely significant effect	No adverse effect
	Recreational disturbance	No likely significant effect	No adverse effect
	Noise	No likely significant effect	No adverse effect
	Lighting	Likely significant effect	No adverse effect
	Introduction or spread of invasive species	No likely significant effect	No adverse effect
Thames Estuary and Marshes SPA / Ramsar site	Air quality	Likely significant effect	No adverse effect
Queendown Warren SAC	Air quality	Likely significant effect	No adverse effect

Conclusions

- 9.327 It is considered that when the proposed mitigation measures are taken into account during both construction and operation of the proposed development, it can be concluded that the Proposal site alone will have no adverse effects on any qualifying feature of supporting feature of any of the Natura 2000 or Ramsar sites considered.

STAGE 5 – IN-COMBINATION ASSESSMENT

- 9.328 In-combination effects are those that result from incremental changes caused with other current or reasonably foreseeable plans and projects. There are two main types of in-combination effect:
- Combined effects on a particular receptor of individual effects from the proposed Kemsley SEP, and
 - Effects from other developments (both construction and operation) which individually may be considered not significant, but when considered together could have a significant cumulative effect.
- 9.329 Through discussion with Swale Borough and Natural England, plans and projects relevant to the pathways for potential effects on the qualifying features or supporting features of the Swale SPA / Ramsar site, Medway Estuary and Marshes SPA / Ramsar site, Thames Estuary and Marshes SPA / Ramsar site and Queendown Warren SAC associated with the Proposal site have been identified. These have been assessed to determine whether it can be concluded that the planning application for the Kemsley SEP would not cause a significant effect upon the features of the European sites in-combination with the effects of these other plans or projects. In view of the potential pathways for in-combination effects, the key in-combination plans and projects that could have combined or cumulative effects on

Plans

- 9.330 For the purposes of this assessment, we have reviewed the following plans, other more technical reports and papers are referenced in the text as appropriate:

Plans reviewed for in-combination effects

Plan	Author	Description
South East Plan	Government Office for the South East (2009)	Sets out a vision for the future of the south-east region of England to 2026, outlining how

		to respond to challenges facing the region such as housing, the economy, transport and protecting the environment. Also calls for infrastructure delivery programmes to be agreed before major new developments begin
Local Development Framework – Topic Paper 10 Water	Swale Borough Council (2009)	Provides access to the baseline information that Swale Borough Council intends to use in the preparation of its Development Plan Documents and Supplementary Planning Documents.
Swale Strategic Flood Risk Assessment	Halcrow (2009)	<p>Developed in conjunction with the Environment Agency to:</p> <ul style="list-style-type: none"> - inform the Local Development Framework and guide development to the safest areas;; - update the Environment Agency's online flood risk maps for Swale;; - assist Development Control decisions - assist Developers in the preparation of Flood Risk Assessments - help prioritise and target improvements to flood defences and prepare for flood emergencies
Business Plan 2010 - 2015	Southern Water (2009)	Water supply and wastewater treatment to the Proposal site
Business Plan 2010- 2015	South East Water (2009)	Drinking water supply to land to the east and south of the Proposal site.
Water for Life and Livelihoods - Consultation Response Document to the draft Thames River Basin Management Plan	Environment Agency (2009a)	Details on the key points raised and how the Environment Agency intends to deal with the comments
Draft River Basin Management Plan, Thames River Basin	Environment Agency (2009b)	Describes the pressures that the water environment faces, the current state of the water environment in the river basin district,

District December 2008 (Corrected 2009)		and sets out the actions are needed to address the pressures to meet the objectives for the river basin district. It sets out what improvements are possible by 2015 and what difference these will make to catchments, estuaries, the coast and groundwater
TE2100 Plan - Consultation Document	Environment Agency (2009c)	Sustainable flood risk and coastal habitat management
North Kent Rivers Catchment Flood Management Plan – Main Stage Report	Environment Agency (2008)	High-level strategic planning tool through which the Environment Agency seeks to work with other key decision-makers to identify and agree policies for sustainable flood risk management for the area which includes the Kemsley Proposal site.
Swale Borough Local Plan 2008	Swale Borough Council (2008)	<p>Provides policies and proposals relating to development and other use of land in the Borough, with the exception of the extraction of minerals and the management of waste. In so doing it seeks to:</p> <ul style="list-style-type: none"> - apply Government land use planning policy at a local level, including its objective of securing sustainable development - provide a detailed basis for planning decisions by identifying sites for particular purposes, and criteria based policies against which development proposals will be assessed - present local and detailed planning issues to the public, and to foster the community's engagement in the plan making process - provide a basis for decisions on the investment of private and public resources and the management of land.

Draft Water Resource Management Plan	South East Water (2008a)	Reassessment of water resource needs for the next 25 years to maintain the long-term balance between increasing demand and available supply of drinking water to most of Kent, 70% of which is from over 150 boreholes and wells, with the remainder from six river intakes and surface water reservoirs.
Water Resource Management Plan Strategic Environmental Assessment (SEA) – Environmental Report	South East Water (2008b)	Assesses the potential impact of the draft Water Resources Management Plan on the environment, including the Swale, land to the east of Milton Creek and Chalk aquifers to the south of the Proposal site.
Sustainability Appraisal Scoping Report for the Swale LDF Core Strategy	Scott Wilson (2008a)	Background context on the implications of various issues and options in relation to aggregates, waste, housing and employment to inform the Local Development Framework Core Strategy
Sustainability Appraisal Scoping Report for the Sittingbourne Town Centre and Milton Creek Supplementary Planning Document	Scott Wilson (2008b)	Intended to help provide a comprehensive and long-term Planning Framework for the next 20 years, upon which investment decisions by the public and private sectors can be based.
Swale Green Grid Strategy	Swale Borough Council (2007)	Background to green infrastructure in the Borough
Thames Gateway Delivery Plan	CLG (2007)	Development within the Thames Gateway that could act in-combination, including through direct loss/damage of habitats, urbanisation, changes to freshwater flows, pollution and disturbance.
Medway Estuary and Swale Shoreline Management Plan – Consultation Draft	Halcrow (2007)	Sustainable flood risk management along the Swale and around the Medway Estuary. Defines flooding and erosion risks to people and the developed, historic and natural environment within the plan area over the next

		century. Identifies the preferred policies for managing those risks and the consequences of implementing the preferred policies.
Corporate Plan 2007-2011: Shaping the Future of Swale	Swale Borough Council (2006a)	Background to development within Swale
Sustainable Communities Plan 2016, Priority Swale	Swale Borough Council (2006b)	Community Strategy for Swale
Swale Forward Regeneration Framework	Swale Forward (2006)	Background to SPD
Sustainability Appraisal of the South East Plan	South East England Regional Assembly, (2006)	The Sustainability Appraisal for the Regional Spatial Strategy
Appropriate Assessment of the South East Plan	Scott Wilson / Levett-Therivel (2006)	The Appropriate Assessment for the Regional Spatial Strategy
Medway Regeneration Framework 2006-2016	Medway Council (2006)	Strategic framework for integrated growth through regeneration, including the biggest brown field industrial re-development site in the southeast on the Isle of Grain.
North Kent and Swale Catchment Abstraction Management - Final Strategy	Environment Agency (2004)	Background on hydrology, abstraction and licensing
Local Plan	Medway Council (2003)	Strategic, development and environmental policies within the Unitary Authority

9.331 An in-combination assessment should consider both the geographical location and the likely timings of plans. As each plan is at a different stage within the planning process, it is difficult to fully ascertain the levels of potential combined and cumulative effects based on the information currently available. Nevertheless, the in-combination effects through the potential pathways considered in relation to the Proposal site are presented below.

Direct loss of habitats used by interest species

- 9.332 Some direct loss of habitat within the Swale SPA / Ramsar site as well as nearby areas used by interest species are predicted as a result of the plans reviewed, notably the Medway Estuary and Swale Shoreline Management Plan and Medway Local Plan. However, the in-combination effect does not change the conclusion that in relation to direct loss of habitats used by qualifying species the Kemsley SEP does not have an adverse effect on the integrity of any of the sites since the SEP proposals do not increase the area of direct habitat loss from any of the sites considered.

Change in management regimes

- 9.333 The main changes to the management of terrestrial habitats within the Swale SPA / Ramsar site, or nearby land that supports qualifying species, is through agricultural intensification, adoption of different grazing/mowing regimes or neglect. As the proposed Kemsley SEP will not be constructed on grazing marsh, is not located adjacent to grazing marsh and the part of the site nearest the Swale SPA / Ramsar site are to be managed through an comprehensive mitigation strategy there are no in-combination effects.
- 9.334 Maintenance of ditches and suitable hydrological conditions are also considered critical to the favourable condition of the marshland habitats within the Swale SPA / Ramsar site and nearby land that supports qualifying species. The Environment Agency and Lower Medway Internal Drainage Board (IDB) are responsible for the maintenance of the primary watercourses and structures in the area of the Proposal site. A Water Level Management Plan has been prepared to balance and integrate the requirements of activities including agriculture, land drainage and nature conservation. As ditches within the Proposal site are to be retained, extended, and managed to perform both their drainage function and provide wildlife habitat there are no in-combination effects.

Loss of future space to allow for managed realignment to avoid coastal squeeze

- 9.335 Only the outermost parts of the Medway and Swale Estuaries were included in the original "open coast" Shoreline Management Plan (SMP) developed for north Kent in 1996. This was in line with the guidance at that time. The absence of a strategic framework for the management of flood and erosion risks in the Swale was recognized as hindering decision making on long-term policies for the area. The Environment Agency who have permissive powers for undertaking flood defence works therefore developed a strategic flood risk management plan for the area in line with the SMP guidance.
- 9.336 In the Medway Estuary and Swale Shoreline Management Plan (Halcrow, 2007) the long-

term policy for the Kemsley stretch of coast within policy unit E4 26: Sayes Court to north Elmley Island, is to hold the line. Under this policy, the recommended long-term plan for the majority of the Swale is to allow the coastline to realign to a more naturally functioning system, whilst continuing to provide flood defence to the large floodplain and isolated properties. It is recognised that this section of shoreline provides an opportunity for environmental enhancement and habitat creation through a managed realignment policy.

- 9.337 A high proportion of land within Swale Borough falls within the Environment Agency's tidal flood zones. A Strategic Flood Risk Assessment (SFRA) for Swale (Halcrow, 2009) provides greater clarity of flood zones within the borough for present day, for 2070 (for commercial development) and 2115 (for housing), taking into account the effects of climate change. The SFRA assessed 9 potential development areas in detail. In terms of tidal flood risk Sittingbourne Town Centre, Iwade and Faversham Town Centre have significant proportions of their areas in Flood Zone 1 (low risk). Other areas (including Milton Creek) had extensive areas covered by the tidal flood zones.
- 9.338 The proposed Kemsley SEP is consistent with the policies in the shoreline management plan and the SFRA as such there are no significant in-combination effects.

Urbanisation

- 9.339 The site at Kemsley is largely vacant. The plans under review, notably those associated with the regeneration of Sittingbourne will result in increased urbanisation in the vicinity of the Proposal site which could have an in-combination effect on qualifying species.
- 9.340 Sittingbourne has experienced rapid growth in recent years with the population rising to some 55,000. Prospects for opening up new employment and housing sites, notably areas to the north of the town to be further developed as a location for manufacturing activity, largely depend on the Northern Relief Road (NRR) going ahead. This is a combination of two schemes: the Milton and Kemsley Distributor Road (MKDR) and the Northern Distributor Road (NDR).
- 9.341 The aim of the MKDR is to open up strategic sites for employment and housing development at Ridham and Kemsley, giving them better access from the A249 Trunk Road and providing a by-pass for Milton Regis and Kemsley. The NDR forms the North and Eastern arm of the NRR and by crossing Milton Creek provides direct East-West access for existing and new employment and housing sites joining to the A2. Together the MKDR/NDR projects are integral to the strategic plan for the area as a whole and are required to deliver the majority of housing and development within the Sittingbourne-Sheerness 'Zone of Change'.

- 9.342 A planned new waterfront district will aim to re-connect Sittingbourne with the Swale and the Saxon Shore Way. A green corridor of water, reeds, open spaces and pathways will link Sittingbourne to the Swale Estuary Marshes (CLG, 2008). The proposed Kemsley SEP is set back from the boundary of the Swale SPA / Ramsar site, which together with the retention of an undeveloped zone adjacent to the Swale means that the final development will be buffered from the designated site boundary and that there are no significant in-combination effects.

Air pollution

- 9.343 Data from APIS (www.APIS.ac.uk) and air quality modelling undertaken during the preparation of the Environmental Statement associated with the SEP indicates that the only background concentrations (particularly of Nitrogen deposition) only represent c60% of the critical load/level for the Swale SPA / Ramsar site and Medway Estuary and Marshes SPA / Ramsar site. Background rates of acid deposition already exceed critical loads in many areas around the Proposal site, but none of the qualifying features/supporting habitats within the designated sites are listed as being sensitive to this (www.APIS.ac.uk).
- 9.344 It is highly unlikely therefore that any in-combination increase in pollutant concentration as a result of emissions from the Kemsley SEP will result in sufficiently large additions to deposition rates to exceed the critical level/load even in the context of other development plans or increases in vehicle movements along the A249 as a result of development elsewhere in the area.
- 9.345 Further, given the well-documented expected reductions in atmospheric concentrations of NO_x and SO₂ as a result of the implementation of legislation relating to air quality, current background levels are expected to drop by approximately 2% a year (Highways Agency, 2005).
- 9.346 It is concluded that the proposed Kemsley SEP will have no adverse in-combination effects on the qualifying features or supporting features of any of the Natura 2000 or Ramsar sites under consideration.

Water pollution

- 9.347 There are considered to be no in-combination effects with incidental pollution events due to shipping in the Swale as the proposed SEP plant will not result in increased shipping within the Swale SPA / Ramsar site.
- 9.348 The Thames River Basin Management Plan for estuarine waters indicates that the water

- quality of Milton Creek and the Swale in the vicinity of the Proposal site is currently classed as moderate for ecological quality and a fail for chemical quality and that this status is expected to remain unchanged until at least the next reporting period in 2015.
- 9.349 Historically Milton Creek was polluted by effluent from Sittingbourne Paper Mill at the head of the Creek and Kemsley Paper Mill and creosote plant at the mouth of the Creek, as well as from Sittingbourne Sewage Treatment Works. In 2001, the Environment Agency undertook surveys of discharges into Natura 2000 sites in north Kent as part of the review of consents required by the Habitats Regulations. The results indicated that Milton Creek was the most contaminated area surveyed and contained concentrations of several determinands at significantly higher levels than any other sites elsewhere in the Swale or Medway Estuary. It was concluded that dredging and disturbance of this material would disturb the sediment resulting in a release of toxins into the water environment which could adversely impact the Swale SPA.
- 9.350 According to South East Water, within the North Kent and Swale catchment the water quality of Frognal Drain which runs into the Swale via Conyer Creek 4 km to the east of the Proposal site, suffers from the influence of the final effluent discharged from Teynham Wastewater Treatment works. Water quality is limited by reduced dilution rates and the physical characteristics of the watercourse. This has been recognised as a problem and action will be taken through the Periodic Review to improve sewage discharge into Frognal Drain (Teynham), as well as Milton Creek and Faversham Creek (Environment Agency, 2009d).
- 9.351 Any increase in surface water run-off due to development involving large impermeable surfaces could potentially lead to a reduction in water quality. Whilst this would predominately be downstream of the Proposal site, due to the tidal nature of the Swale the risk extends in both directions from the outfall. The main risk would be via an accidental localised pollution event, such as an increase in silt. Changes in loading with nutrient rich matter can impact both the structure and functioning of estuary ecosystems (Day *et al*, 1989). Despite a growing body of scientific research, considerable uncertainty remains over the impact nutrient enrichment has on estuarine wintering birds due to complex interactions and variability in environmental conditions making cause and effect difficult to distinguish. A rise in productivity due to a moderate increase in organic loading may though lead to higher numbers of some species (Burn and Drewitt, 1999).
- 9.352 Despite the suggestion of a correlation between higher numbers of wintering birds and moderate increases in nutrient loading, the causal link has not yet been shown conclusively and is not consistent across all species (Green *et al*, 1991). It is not, therefore, a foregone conclusion that a decrease in nutrient loading will result in a

- decrease in bird numbers. Nevertheless, a decline in wintering bird numbers has been linked to improvements in water quality on some estuaries. This includes declines in wading birds on the Clyde against an upward trend in regional numbers (Burn and Drewitt, 1999), declines in Shelduck on the Axe Estuary and a sharp fall in the numbers of Pochard and Tufted Duck on the Severn following the transfer of discharges to a new offshore pipe in 2001 and improved treatment in 2002 (Burton *et al*, 2003).
- 9.353 In most cases, changes to waste water treatment and subsequent improvements in water quality have been too recent for any long-term impacts on waterbird numbers to be apparent. Whilst the effects of a sustained and significant reduction of nutrient inputs on the wintering waterfowl population on the Swale SPA / Ramsar Site are difficult to predict, there is a concern that numbers may currently be artificially high and that a sustained improvement in water quality could therefore lead to reduced numbers at a more natural equilibrium. The Environment Agency has commented that, while nutrient levels within the Thames Estuary are high, this does not result in the smothering macroalgal growth that is having an adverse effect upon other European marine sites. The interconnected nature of the Thames and Medway estuaries with the Swale implies that similar conclusions are likely to apply.
- 9.354 Natural freshwaters, estuaries and coastal waters with high levels of nitrates which can cause a high growth of algae and other plants which can affect species living in the water, and the quality of the water overall are considered Sensitive areas (eutrophic). Areas designated to help fulfil the requirements of EC Directives are classed Sensitive (Bathing Waters) or Sensitive (Shellfish waters). Whilst the Eastern Swale and north side of Sheppey are classed as Sensitive Areas, there are also no bathing waters within the vicinity of the proposed Kemsley SEP.
- 9.355 There is an expectation that developers will incorporate measures within the development footprint to improve the quality of surface water run-off. Within the Local Plan, Swale Borough Council outlines measures such as SUDS which will help to attenuate water run-off. All reasonable measures to control the quality of surface water runoff into the Swale SPA / Ramsar site have been incorporated into the design of the Kemsley SEP. As such, there is not anticipated to be any deterioration in Swale SPA / Ramsar site features or sub-features due to increased wastewater run-off as a result of the proposed development, even considered in-combination with development of 10,800 homes in Swale Borough (notably at Queenborough/Rushenden or Sittingbourne) as set out in the South East Plan.
- 9.356 Groundwater quality is generally classed as good in the North Kent and Swale catchment, with no detectable evidence of saline intrusion. According to the North Kent

and Swale CAMS, there is one relevant groundwater clean-up operation underway. This relates to a former insecticide plant in Sittingbourne and it is possible that the groundwater in the area has been affected by the long history of industrial activity. Marginal quality water can be found in the confined Chalk and Lower Tertiaries aquifers due to ion-exchange. The use of fertilisers and pesticides but the area around the Proposal site is not included in a Nitrate Vulnerable Zone.

9.357 Much of the work needed within Swale to improve groundwater quality will be through addressing diffuse and point source pollution (Environment Agency, 2009d). The Environment Agency indicates the risk to groundwater supplies from potentially polluting activities and accidental releases of pollutants by defining Source Protection Zones (SPZ) around wells, boreholes and springs used for major potable uses, in particular public drinking water supply. The zones are used, in conjunction with Groundwater Protection: Policy and Practice to set up pollution prevention measures in areas at higher risk and to monitor the activities of potential polluters nearby. There are no SPZ within or near the Proposal site.

9.358 Therefore, no in-combination effects of the development of the Kemsley SEP and other development plans are considered likely since the drivers for any change are far from certain and unlikely to be directly attributable to increased development.

Hydrological changes

9.359 Due to the strategic nature of water supply, development to be delivered under the planning application needs to be considered in-combination with other plans affecting not just its environs, but north Kent and further afield. The Appropriate Assessment of the South East Plan notes that the proposed level of development within Kent as a whole is likely to result in increased water abstraction from both surface and groundwater sources.

9.360 Kemsley is supplied with drinking water by Southern Water and is within the Kent Medway Water Resource Zone (WRZ) which extends from Gravesend in the west to Sittingbourne in the east and the North Downs in the south. The geology of the area means that 76% of the water supply to the Kemsley / Sittingbourne area is sourced from the Chalk. The aquifer is considered to be in hydraulic continuity with the Lower London Tertiaries and London clays that overlay it in places, though the situation is complicated due to the presence of gravels and sands.

9.361 The surface water in this low-lying catchment is made up of many spring fed streams which are reliant on ground water levels. Stream flow is affected by abstraction from the North Downs Chalk and the Lower London Tertiaries. One of the key features of the catchment is its extensive grazing marsh habitats, which are dependent on maintained

- water levels. Levels are managed by the implementation of Water Level Management Plans. A number of studies have been commissioned to clarify the groundwater interaction between the Chalk and the overlying deposits. This has included investigations aimed at resolving whether groundwater and more importantly the spring flow, emitting from the Lower London Tertiaries, was originating from the underlying Chalk aquifer. The results showed that the interaction varied considerably.
- 9.362 The Environment Agency's North Kent Catchment Abstraction Management plan notes that the Sittingbourne Chalk and Lower London Tertiaries Management Unit is currently 'over-abtracted', while the Unit between Sittingbourne and the Medway Estuary and Marshes SPA/Ramsar at Iwade has 'no water available.' As part of their Restoring Sustainable Abstraction programme, the Environment Agency will therefore seek to secure downward variations of existing licences in the Kent Medway WRZ through the renewal of time limited licences.
- 9.363 The Environment Agency recognises that the expected scale of future development will have a substantial demand-driven pressure on the maintenance (or increase) of licences. Although Catchment Abstraction Management Plans have no in-built means of avoiding this potential conflict, it is expected that the implications of the water resource status of the catchment will be noted by the water companies and the planning authorities and that plans and policies will be adjusted accordingly. It is assumed that efforts will be made to reconcile conflicting demands through the effective management of the demand for water and through other sustainable water management initiatives.
- 9.364 The Appropriate Assessment of the draft South East Plan notes that development in the context of a further 139,420 new homes within Kent is likely to result in increased water abstraction from sources that supply the Swale with freshwater and potentially therefore a decline in freshwater flows. In developing and implementing the Sittingbourne Town Centre and Milton Creek Supplementary Planning Document it is understood that the Council liaised with Southern Water in order to ensure that the development is able to be supplied by water without requiring damaging levels of abstraction from tributaries of any European sites including the Swale SPA / Ramsar site and the Medway Estuary and Marshes SPA / Ramsar site.
- 9.365 The Environment Agency has confirmed that abstraction licences have also been assessed in accordance with European legislation and the Habitats Regulations, 1994 through their Review of Consents process. An Appropriate Assessment was submitted to Natural England in March 2006 for review. Natural England has confirmed they are in agreement with the findings. As no abstraction licence was identified as having an adverse effect on any of the designated features all abstraction licences will be

reaffirmed. Consequently, there are no significant in-combination effects with the proposed Kemsley SEP.

- 9.366 In order to protect water supplies, Southern Water has a number of strategies contained within its emerging Water Resource Management Plan. To 2015, they will focus on inter-zonal water transfer, groundwater source improvements, metering and leakage reduction. By 2020, a waste-water recycling scheme, and a licence variation on a ground water supply should ensure adequate capacity for the Kent Medway WRZ. In the light of current and predicted improvements in water supply, most of Kent is predicted to be in water surplus (sufficient water to support expected additional demand) through to 2026.
- 9.367 To further improve sustainability in relation to water, Swale Borough Council sets out expectations for new development to incorporate water efficiency measures. The planning application sets out an expectation that wherever possible the design will utilise practical systems for the collection and re-use of water, particularly from roof areas, to reduce potable water demand. Within the context of the measures being implemented by Southern Water and the Environment Agency, it is considered that no further measures are required to ensure that the proposed development does not have an adverse effect on any other Natura 2000 / Ramsar site under consideration.

Disturbance

- 9.368 The potential for disturbance on the qualifying features of the Medway Estuary and Marshes SPA / Ramsar, Thames Estuary and Marshes and Swale SPA and Ramsar has been raised as an area of concern. An activity atlas (Medway Swale Estuary Partnership, 2004) identified a number of key areas where water borne and shore-based activities were concentrated. These included sailing in the Swale, personalised watercraft in Long Reach and the Saxon Shore way. The area is already subject to heavy disturbance from these activities.
- 9.369 The strategic planning framework for this area of North Kent is to promote further recreational activity where this is compatible with nature conservation interests, including the qualifying features and supporting habitats of designated sites. This includes promoting further access along the Saxon Shore Way, linking the new Church Marshes Country Park with the western section of Milton Creek.
- 9.370 The activity atlas showed a clear relationship between season and levels of recreational activity as well as most leisure activities being centred on sailing and other water sports and there are three marinas (including Milton Creek) – i.e. on the river itself. The only activity to show a clear increase during the winter months was bird-watching. The reduction in all other aspects of activity lowers the potential to cause disturbance. This,

together with the SEP planning application specifically excluding any activity on or near the shore means there are no significant in-combination effects.

- 9.371 Disturbance as a result of increased levels of background noise is unlikely to occur. The Swale Estuary area is already subject to high levels of background noise as a result of the many industrial activities present around its shores. Birds using the SPA will already be habituated to this. The development of the SEP will not result in substantial increases above the already noisy background. Therefore, no in-combination impacts are therefore likely.
- 9.372 The area of the proposed SEP is already subject to extensive night lighting from neighbouring properties, including Kemsley Paper Mill and associated industrial activity. Of the projects reviewed, only the BP Windfarm is likely to result in further lighting in the vicinity of the Proposal site. In view of the mitigation and avoidance measures incorporated into the design of the proposed SEP, it is concluded there will be no significant in-combination effects.

Introduction or spread of non-native invasive species

- 9.373 No activity envisaged to be part of the Kemsley SEP will introduce non-native species to the area and there are therefore no in-combination impacts that might increase the introduction of non-native species.
- 9.374 No invasive non-native species are currently present within the Proposal site boundary. Therefore, the development of the proposed development will not result in the increased spread of these species from the site.
- 9.375 In order to ensure that no non-native invasive species are allowed to establish on site, a suitable management plan will be produced. This will include details to ensure that activities associated with the development do not carry invasive species either to or away from the site. Therefore, no significant in-combination impacts are foreseen.

Projects

- 9.376 For the purposes of this assessment, we have reviewed the following projects (planning application numbers, where available, are included in parenthesis), other more technical reports and papers are referenced in the text as appropriate:
- 9.377 The purpose of this section is to assess the cumulative effects of the scheme, with proposed developments near the site that are currently in the planning process or have been approved but are not yet constructed. The relevant proposals considered are:

- Sittingbourne Northern Relief Road
- Anaerobic Digestion plant at Kemsley Paper Mill
- Biomass Combined Heat and Power Plant at Countryside Ltd, Ridham Dock
- Biomass Combined Heat and Power Plant at sites 4 and 7, Ridham Dock
- Iwade Expansion
- East Hall Farm
- Sittingbourne Town Centre regeneration
- Queenborough and Rushenden Rejuvenation Project
- Kent Science Park
- Thistle Hill
- Port of Sheerness Wind Farm

Summary of in-combination effects

9.378 The potential for cumulative effects between the proposed development and the other proposals is dependent on those developments resulting in residual effects for the same habitats, species and populations as those using the Proposal site. Given the distance the majority of these developments are from the Proposal site, potential cumulative impacts with the SEP proposals could occur to the following:

- The Swale SPA / Ramsar site
- The Medway Estuary and Marshes SPA / Ramsar site

Sittingbourne Northern Relief Road

9.379 The Sittingbourne Northern Relief Road is located to 0.75 km south west of the Proposal site. This project involves construction of a road bypassing Sittingbourne town centre and crossing Milton Creek, linking to the Ridham Avenue on the opposite side of the existing Paper Mill to the Proposal site.

9.380 Significant impacts from the Sittingbourne Northern Relief Road proposals could occur to:

- The Swale SPA / Ramsar site

9.381 Construction on the creek crossing was due to start in September 2009. However, the subsequent phase of construction is currently delayed due to a lack of consensus on the proposed route and design of the road. Assuming it were to go ahead, there is the

potential for impacts as a result of increased traffic movements and associated pollution. Traffic pollution is unlikely to have a significant impact more than 100 metres from the source (Bignal *et al.* 2007). As the boundary of the Swale SPA / Ramsar site is over 500 metres from the proposed route, cumulative air pollution impacts with the Kemsley SEP considered not likely to have a significant effect.

- 9.382 There is also the potential for impacts due to noise and changes in water quality. The Environment Agency has advised that there should be no disturbance to the sediments of Milton Creek. On the basis that the appropriate mitigation techniques set out in the Environmental Statement will be undertaken in the development of the new relief road, any cumulative impacts on the qualifying features of the Swale SPA / Ramsar site with the proposed SEP would be negligible. Therefore, no cumulative construction or operational impacts in-combination with the Kemsley SEP could occur.

Anaerobic Digestion Plant, Kemsley Paper Mill (St Regis)

- 9.383 The proposed Anaerobic Digestion Plant (AD Plant) is 0.5 km to the north of the Proposal site, on the far side of the reedbed, adjacent to the Swale sea wall. The site is currently in use as an aerobic digestion facility and will be upgraded as part of the on-going requirements for waste water treatment that forms part of the EU Water Framework Directive.
- 9.384 A scoping opinion has been requested from Kent County Council who raised the following concerns in relation to Natura 2000 and Ramsar sites:
- impact to the Swale SPA / Ramsar sites;
 - impact to Medway Estuary and Marshes SPA / Ramsar sites;
 - impacts on flora and invertebrates and
 - impacts on SPA birds; and
- 9.385 There is not currently a planning application submitted for this proposal and as such it is difficult to assess cumulative impacts with the proposed SEP. However, potential cumulative impacts could be to the Swale SPA / Ramsar site and Medway Estuary and Marshes SPA / Ramsar site via changes to air quality and noise. These would need to be assessed during the production of the EIA / Habitats Regulations Assessment for the AD Plant. However, given that the SEP proposal is considered unlikely to result in any impact on the designated sites in the area, cumulative impacts on the qualifying features and supporting habitats are unlikely

Ridham Dock CHP (Countryside Recycling Ltd)

- 9.9.2 The proposed biomass combined heat and power plant at Countryside Recycling Ltd is located 1 km north of the Proposal site. The site is currently used as a waste management centre. An environmental statement for the application was submitted to Kent County Council in November 2009 (WYG 2009). This identified a range of potential impacts to various local receptors including via construction noise. However, suitable mitigation is provided to ensure that this does not occur, including through the timing of works (the loudest of which will be within the existing building). No cumulative impacts to interest features of European designated sites are therefore anticipated with these elements.
- 9.9.3 Potential impacts were also identified to as a result of emissions to air from the CHP plant, including localised acidification of nearby grazing marsh. There is the potential, therefore, for cumulative impacts to the Swale SPA, Ramsar site via changes to air quality. The principal habitat of concern is grazing marsh, particularly the area directly opposite the site on the Sheppey side of the Swale. However, given that APIS does not list this habitat type as sensitive to acidification (www.apis.ac.uk), no cumulative impacts with the Kemsley SEP are predicted on this or any other interest feature of a European designated site.

Ridham Dock CHP (Evonik New Energies UK Ltd)

- 9.386 The proposed biomass and combined heat and power plant at sites 4 and 7, Ridham Dock, Kent is located 1.5 km to the north of the Proposal site. In response to a request for a scoping opinion from Kent County Council, under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, the following issues in relation to Natura 2000 and Ramsar sites were identified:
- impact to the Swale SPA / Ramsar sites;
 - impact to Medway Estuary and Marshes SPA / Ramsar sites;
 - disturbance to SPA / Ramsar site during construction and operation, notably by noise,
 - deterioration of SPA habitat due to waterborne emissions;
 - deterioration of SPA habitat due to changes in hydrological regimes;
 - impact of lighting on nocturnal bird species;

- air quality, including potentially changes to habitat due to smothering of vegetation and/or habitat from particulates and due to acidification and/or nutrient enrichment from airborne emissions.

9.387 There is not currently a planning application submitted for this proposal. As such, it is difficult to assess cumulative impacts with the proposed Kemsley SEP. However, there could be potential cumulative impacts to the Swale SPA / Ramsar and Medway Estuary and Marshes SPA / Ramsar site via changes to air quality. This together with disturbance, water quality, and hydrological changes would need to be assessed during the production of the EIA and Habitats Regulations Assessment for the CHP. However, given that the SEP proposal is considered unlikely to result in any impact on the designated sites in the area, cumulative impacts on the qualifying features and supporting habitats are unlikely.

Lwade Expansion Project

9.388 The proposed Lwade Expansion Project is located 1.5 km to the north west of the Proposal site and is to further expand the village of Lwade. The development will not be granted planning permission until the developments within the Ridham and Kemsley Employment Area or the village centre have commenced and so there will be no overlap of build times. Therefore, no cumulative construction impacts could occur.

9.389 It is assumed that all operational impacts to protected species will be mitigated according to any Environmental Statement submitted with the development and therefore any cumulative impacts will be negligible.

9.390 Potential impacts on the Swale SPA / Ramsar site have been identified as a result of increases in housing development, population and recreational pressure within the local area. However, recreational disturbance has been screened out of the current application impact assessment (there being no increase in recreational pressure as a result of the development) and therefore cumulative impacts with the SEP would be negligible.

East Hall Farm

9.391 The East Hall Farm residential development is currently under construction as a phased development located 2 km to the south of the Proposal site. The majority of the site has already been built-out and the remainder is due for completion in 2010. As the development of the SEP plant is not expected to start until 2011 there will be no or very limited overlap in timing of construction operations. Therefore, there are considered to be no in-combination impacts on the designated sites in the area.

Sittingbourne Town Centre Regeneration

- 9.392 The proposed Sittingbourne Town Centre Regeneration Masterplan area is located 2 km to the south of the Proposal site. This involves redevelopment of the town centre to include new retail space, civic buildings, residential housing and infrastructure links.
- 9.393 Given the broad nature of the Masterplan, exact impacts have not been identified. The potential effects of the development on European designated sites are described in the Appropriate Assessment accompanying the Masterplan proposal (Scott Wilson 2009).
- 9.394 The principal impact identified was that of increased recreational pressure. This has been screened out as a potential impact as a result of the SEP and therefore any cumulative impacts will be negligible.
- 9.395 The Habitats Regulations Assessment prepared for the Sittingbourne Town Centre Regeneration is currently being updated following receipt of comments from public consultation. This includes advice from Natural England that further consideration needs to be given to the effects of urbanisation on the Swale SPA / Ramsar site.
- 9.396 Urbanisation impacts on the Swale SPA/Ramsar site as a result of the proposed SEP are not considered to be significant. Therefore, it is any cumulative impacts as a result of urbanisation and the Sittingbourne Town Centre Regeneration project are considered to be negligible.

Queenborough and Rushenden Regeneration Project

- 9.397 The Queenborough and Rushenden Regeneration Project is located 4.5 km to the north of the Proposal site. This project involves development of an area on the west side of the Isle of Sheppey for residential and commercial use, employment space, community facilities and services, open spaces, a CHP plant and a marina. It is one of the largest developments in the Swale Borough and biodiversity impacts were identified through the Habitats Regulations Assessment (Campbell Reith 2009a) / Environmental Assessment accompanying the planning application for the proposal (Campbell Reith 2009b). Likely significant effects from the Queenborough and Rushenden Regeneration Project proposals could occur to:
- Swale SPA / Ramsar site
 - Medway Estuary and Marshes SPA / Ramsar site
- 9.398 The development is a long-term project being taken forward in a series of phases. The phase 1 residential development at Neats Court started in 2008. This is an on-going regeneration scheme with an indicative Masterplan adopted by Swale Borough Council

on the 18th November 2009. Given that the majority of the development has yet to achieve full planning permission, detailed in-combination impacts are difficult to assess. It can be assumed that all impacts to qualifying features and sub-features (including of the Swale SPA / Ramsar site and /Medway Estuary and Marshes SPA / Ramsar site) will be mitigated in line with any Environmental Statement/Appropriate Assessment submitted with detailed planning applications for the individual components of the Masterplan as they come forward for development. Any cumulative impacts will therefore be unlikely to have a significant effect.

Kent Science Park

- 9.399 The proposed development at Kent Science Park is located 6 km to the south of the Proposal site. This involves expanding the park by 4 ha. The potential ecological effects of the development are described in the Environmental Statement accompanying the planning application for the proposal (E.ON 2005).
- 9.400 The character and distance of the proposed Science Park from the Proposal site, together with the lack of any ecological connectivity make any cumulative impacts on designated sites unlikely to have a significant effect.

Thistle Hill

- 9.401 The Thistle Hill development is located approximately 7 km to the north east of the Proposal site and is a substantial residential development. The development is being phased, with some phases having already been completed.
- 9.402 Thistle Hill is a considerable distance from the Proposal site and not linked to it ecologically. Therefore, any cumulative impacts with the Kemsley SEP would be unlikely to have a significant effect on designated sites.

Port of Sheerness Wind Farm (Peel Energy)

- 9.403 The Port of Sheerness Wind Farm is being developed along the Lappel Bank dock wall adjacent to the Medway Estuary and is around 7.5 km north of the site. It will comprise four 125 metre high 2.5–3-MW turbines and was granted planning permission in March 2009.
- 9.404 The distance from the Proposal site and the fact that in relation to the Medway Estuary and Marshes SPA / Ramsar site, it is only relevant to Redshank, make cumulative impacts unlikely to have a significant effect.

CONCLUSIONS

- 9.405 The Natura 2000 and Ramsar sites identified as potentially affected by the planning application are:
- Medway Estuary and Marshes SPA / Ramsar site
 - Thames Estuary and Marshes SPA / Ramsar site
 - Swale SPA / Ramsar site
 - Outer Thames Estuary pSPA
- 9.406 Of nine potential pathways identified, four were screened out has not likely to have a significant effect. The following potential pathways were taken forward for more detailed consideration:
- urbanisation;
 - air pollution;
 - change in fresh water flows; and
 - disturbance – noise and night lighting.
- 9.407 Appropriate avoidance and mitigation measures have been incorporated into the design of the proposed SEP to be able to draw a conclusion of no adverse effect on all of the qualifying features of the Natura 2000 and Ramsar sites under consideration.
- 9.408 The in-combination effects would be the cumulative effect of development on SPA/Ramsar species due either to indirect impacts on the SPA/Ramsar sites (lighting, noise access) or loss of habitat outside the designation but used by SPA/Ramsar species. Mitigation measures in the form of design, retention and enhancement of existing habitats are proposed to offset these impacts for all the developments that have been assessed. For those plans and projects where impacts are unknown at this time, best practice would be followed to reduce and mitigate impacts so that overall the in-combination effects would be negligible.
- 9.409 However, based on the wide array of where the developments are geographically and within the planning process; and the fact that it is unlikely that they would occur at the same time, impacts on both SPA/Ramsar sites are considered to be negligible.
- 9.410 The final conclusion is that the planning application will have no adverse effects on the integrity of the following sites:
- The Swale SPA and Ramsar

- Medway Estuary and Marshes SPA and Ramsar
- Thames Estuary and Marshes SPA and Ramsar
- Outer Thames Estuary pSPA

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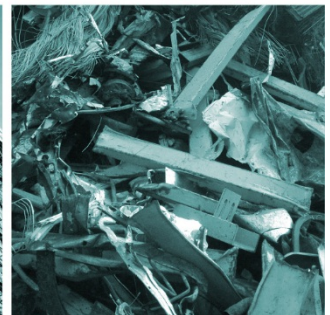
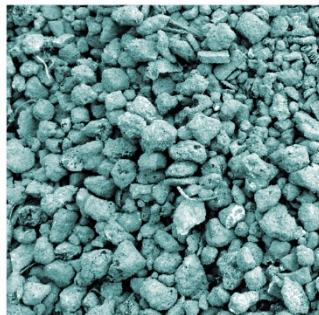
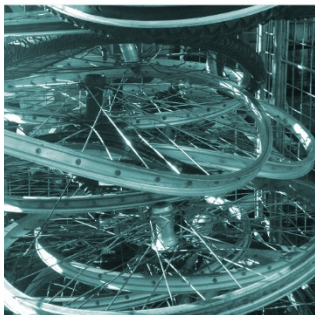
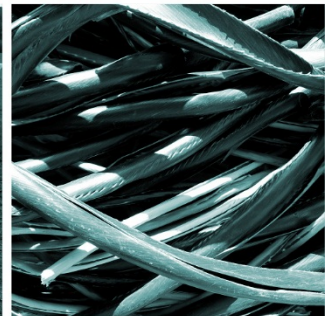
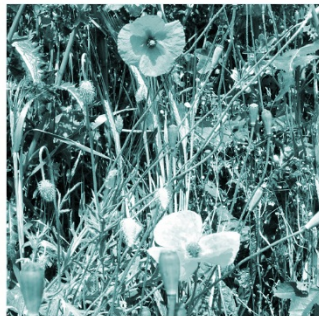
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APPENDIX 6: FUGITIVE EMISSIONS RISK ASSESSMENT AND MANAGEMENT PLAN

KEMSLEY IBA RECYCLING FACILITY

FUGITIVE EMISSIONS RISK ASSESSMENT AND MANAGEMENT PLAN

July 2016



REPORT SCHEDULE

Client: Wheelabrator Technologies

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1. RISK ASSESSMENT

1.1. Introduction

- 1.1.1. Wheelabrator Technologies (WTI), is proposing to develop an Incinerator Bottom Ash (IBA) Recycling Facility (the Facility) on land adjacent to the Kemsley Sustainable Energy Plant (SEP). The Facility will have the capacity to recycle up to 140,000 tonnes per annum of IBA, using the IBA as a resource, or raw material, to produce a sustainable source of secondary aggregates known as IBAA and to recover metals for further processing. This avoids the need to dispose of the IBA to landfill. An integral part of the process is maximising the removal of metals from the IBA for reprocessing and reuse.
- 1.1.2. The IBA Recycling Facility at Kemsley will accept IBA only from the Kemsley Sustainable Energy Plant (SEP). The SEP already recovers the energy value of municipal/household and industrial waste through a controlled combustion process, which generates electricity. Incinerator Bottom Ash (IBA) results from this process. This IBA will be delivered to the Kemsley IBA Facility for recycling via conveyor. The recycling process will produce a secondary aggregate for the construction industry known as Incinerator Bottom Ash Aggregate (IBAA). In the process of doing so, it will also recover ferrous and non-ferrous metals for reprocessing and re-use. The Facility will offer a sustainable and local solution to the area managing its own waste, consistent with the proximity principle and self-sufficiency, and the opportunity to reduce the area's reliance on primary won aggregates.
- 1.1.3. All the IBA treated at the Facility will be non-hazardous and will be subject to testing in accordance with Technical Guidance WM3 – Classification and Assessment of Waste (1st Edition 2015).
- 1.1.4. The recycling process ensures that maximum value will be recovered from IBA, diverting material away from landfill and viewing the waste as a resource. The Facility will make a significant contribution to the delivery of sustainable waste management in the local area.
- 1.1.5. Pre application discussions have been held between Kent County Council (KCC) and H&C Consultancy Ltd (acting on behalf of WTI) regarding the proposed planning application. It has been confirmed with WCC that the application will be submitted as an application for full planning permission under the Town and Country Planning Act 1990.
- 1.1.6. Discussions between H&C and KCC were also held to establish if, following consideration of the likely significance of the environmental effects of the proposed development, and taking into account the technical Assessments WTI propose to undertake the proposals should be the subject of a full Environmental Impact Assessment (EIA).
- 1.1.7. The discussions between H&C and KCC also included the views of Natural England and the Environment Agency and concluded that the proposals were unlikely to require an EIA. It was agreed that a formal screening assessment would be conducted by KCC in the usual way on receipt of the application.
- 1.1.8. Forming part of the planning application is this Fugitive Emissions Risk Assessment and Management Plan (FEMP). This FEMP demonstrates that through the consideration of risks and implementation of mitigation measures there will be no unacceptable adverse environmental effects arising from fugitive emissions and no consequential detriment (including airborne dust) reaching any nearby sensitive receptors as a result of the proposed development operations.

- 1.1.9. The Environment Agency (EA) will regulate the Facility, under an Environmental Permit (EP), to ensure it operates in an environmentally acceptable way and uses Best Available Techniques (BAT). An application for an EP is to be prepared and submitted following the submission of this planning application.

1.2. Site Setting, Surrounding Land Uses and Location of Receptor

- 1.2.1 The Site's location is shown in Drawing No: 9163-0027-03. It is centred upon OS grid reference TQ920667 (NGR 592169, 166647) and comprises 2.65 hectares of land located immediately adjacent to the Kemsley SEP on the outskirts of Kemsley.
- 1.2.2 The site lies adjacent to the line of a dismantled rail line that formerly connected with the branch line between Sittingbourne and the Isle of Sheppey. No evidence of this rail line is now visible in the vicinity of the site. An existing narrow gauge rail line runs from appoint to the south-east of the existing paper mill to the south-west into Sittingbourne. This was formerly used to transport materials between the existing Kemsley paper mill and another paper mill in Sittingbourne. The line is now used for informal and recreational purposes.
- 1.2.3 The site is approximately rectangular shaped and is bounded by Kemsley Paper Mill to the west, the consented Kemsley SEP site to the south, Barge Way to the north and The Swale river to the east.
- 1.2.4 There are residential property locations that are considered to be Nosie Sensitive receptors, Dwellings ta Reams Way and Walsby Drive.
- 1.2.5 The proposed site is located to the north of Sittingbourne Relief Road (Swale Way) and the site is bounded by the Kemsley Paper Mill to the west and, the consented Sittingbourne SEP to the south, Barge Way to the north and the Swale River to the East.
- 1.2.6 The closest watercourse to the proposed development is Milton Creek, which flows in a north – northeast direction in an open channel immediately south / south east of the Site. The Swale, which is a strip of sea running between the mouth of the River Medway and the North Sea, separating the Isle of Sheppey runs approximately 30 m to the east of the Site. A number of unnamed watercourses flow within a 1 km vicinity of the application area.
- 1.2.7 EA mapping shows the Site is not located within a Source Protection Zone (SPZ). The majority of the application area is located within an area identified as Flood Zone 2. However, following a ground profiling exercise the site would be lifted above the flood zones into Flood Zone 1.
- 1.2.8 British Geological Survey (BGS) online map (Accessed October 2015) indicates that the Site is underlain by superficial deposits Alluvium – Clay, Silty, Peaty, Sandy. The bedrock within the application area consists of the London Clay Formation (bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay).
- 1.2.9 There are seven statutory sites (excluding sites designated for geological interest), largely designated on the basis of wintering or passage populations of birds, within 5 km of the survey area. The location and boundaries of each site are shown in the Ecological Impacts Assessment at Appendix 3.

1.3. Potentially Sensitive Receptors

1.3.1. The existing site is bounded by

- Kemsley Paper Mill to the west;
- The consented Kemsley SEP site to the south;
- Barge Way to the north; and
- The Swale River to the east.

1.3.2. The nearest sensitive receptors are The Swale river (0.17km distant), designated as SPA/Ramsar/SSSI and the Elmley NNR (0.39km distant). These locations are identified in the Ecological Impacts Assessment at Appendix 3.

1.3.3. The Medway Estuary and Marshes, at a distance of approximately 2.4 km, are also designated as SPA/Ramsar/SSSI.

1.3.4. There are seven statutory wildlife sites within 2.5km of the Application Site:

Table 1: Statutory Wildlife Sites Within 2.5km

Site Name	Type	Approximate Area (Ha)	Distance from Site (Km)
The Swale	SPA/Ramsar/SSSI	6,515	0.17
Medway Estuary and Marshes	SPA/Ramsar/SSSI	4,684	2.44
Elmley	NNR	1,212	0.39

1.3.5. There is one non-statutory site within 2km of the proposed development: Milton Creek Local Wildlife Site (LWS), which contains mixed habitats of saltmarsh, larger areas of rougher, unmanaged grassland, some winter wet, with a variety of coarse grasses. The northern area comprises much less disturbed unimproved pasture. The freshwater dykes in this section have a good aquatic and marginal flora.

1.3.6. The potential impact of deposited dust as a result of a fugitive emissions release from the recycling facility will vary depending on the nature and scale of the sensitive receptor. The identified potentially sensitive receptors for the facility are the statutory wildlife sites that potentially could be harmed if significant quantities of dust were transported and remained at that receptor.

1.3.7. The industrial receptors in the vicinity are not usually considered to be sensitive, although they are considered in this report due to their proximity to the proposed construction activity.

1.3.8. The control measures employed detailed below are designed to prevent any harm to sensitive receptors and the risk assessment provides information on the likelihood of that harm happening.

1.4. Fugitive Emissions Risk Assessment

- 1.4.1. In accordance with Environment Agency Guidance, this report assesses the risks posed by fugitive emissions to air. This Plan demonstrates that dust management issues have been considered and appropriately mitigated and are managed on an ongoing basis. This Plan will be used in conjunction with a Construction Management Plan that will implement operational controls during the development of the facility.
- 1.4.2. The table in the following section assesses the construction phase of the proposed development in terms of potential hazards posed, receptors and pathways, along with management and assessment of the identified risks. The probability of exposure is the likelihood of the receptors being exposed to the hazard and is defined as low, medium or high. These terms are quantified as follows:

Table 2: Risk Levels

Risk Level	Quantification
Low	Exposure is unlikely - barriers in place to mitigate against exposure
Medium	Exposure is fairly probable - barriers to exposure less controllable
High	Exposure is probable - direct exposure likely with few barriers

- 1.4.3. Table 3 – Fugitive Emissions Risk Assessment is provided below:

Table 3: Fugitive Emissions Risk Assessment

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk, what do I want to protect?	How can the hazard get to the receptor	What measures will you take to reduce the risk Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			The Site Manager is responsible for implementing all risk management measures described below at the Site. The Site Manager is also responsible for ensuring that if the appropriate mitigation measures cannot be employed due to adverse weather or unexpected conditions site operations will be ceased until they can be carried out with all necessary mitigation measures in place.			
Transfer of IBA from the EfW to the Facility	Statutory wildlife sites within 2.5km of the site. Industrial properties in close proximity to the construction activity.	Air. Wind blown dispersion in atmosphere	The IBA will be delivered to site via a conveyor to a dedicated storage area with a purpose built drop down zone. The drop down zone and storage building is covered to prevent fugitive emissions.	Low Dust if generated has the potential to reach the nearest wildlife sites. Risk management actions will minimise the likelihood of dust being generated.	Low to medium Airborne dust emissions could be perceived as having an adverse impact on nearby industrial properties and potentially the	Low The mitigation measures employed ensure that the opportunity for dust to be generated are reduced to an absolute minimum and the likelihood of any dust being generated is very low.

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk, what do I want to protect?	How can the hazard get to the receptor	What measures will you take to reduce the risk Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
					statutory wildlife sites within the vicinity of the site.	On the basis of little or no dust being generated from the transfer of material to the facility there is a low risk remaining of any adverse impact to the identified sensitive receptors.
Dust from vehicle movements from the Facility for outgoing material.	Statutory wildlife sites within 2.5km of the site. Industrial properties in close proximity to the construction activity.	Air. Wind blown dispersion in atmosphere	The Site will have mobile water sprays to ensure the site surface is dampened down when necessary which minimises the transfer of dust to vehicles and prevents dust from being tracked out of the Site. The Site entrance area and delivery point will be made from hardstanding material. IBA and IBAA are both non-cohesive materials, which do not readily attach to vehicle wheels. Speed limits on site will be restricted to 10mph to minimise the potential for dust rise from the site surface.	Low Dust if generated has the potential to reach the nearest wildlife sites. Risk management actions will minimise the likelihood of dust being generated. The high moisture content of the IBA will minimise the	Low to medium Airborne dust emissions could be perceived as having an adverse impact on the local residential properties, nearby industrial properties and potentially the statutory wildlife sites	Low The mitigation measures employed ensure that the opportunity for dust to be generated are reduced to an absolute minimum and the likelihood of any dust being generated is very low. On the basis of little or no dust being generated from vehicle movements from the

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk, what do I want to protect?	How can the hazard get to the receptor	What measures will you take to reduce the risk Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
				likelihood of dust being generated.	within the vicinity of the site.	facility and mitigation measures in place should any dust be generated from this source there is a low risk remaining of any adverse impact to the identified sensitive receptors.
Transfer of IBA to the Storage Building. Dust from IBA handling. Transfer of material to the process building.	Statutory wildlife sites within 2.5 km of the site. Industrial properties in close proximity to the site.	Air. Wind blown dispersion in atmosphere	The facility has been designed to minimise transportation of material around the Site. IBA will be transferred by conveyor directly into the incoming IBA storage building. The incoming IBA prior to transfer of the material to the process building will be dampened down as required. Suitable road cleaning equipment will be available to ensure that areas are kept clear and tidy and trafficked areas kept routinely dampened to reduce the risk of airborne fugitive emissions. High standards of housekeeping and	Low to medium	Low to medium Airborne dust emissions could be perceived as having an adverse impact on the nearby industrial properties and the statutory wildlife sites within the vicinity of the site.	Low The mitigation measures in place lowers the risk of airborne emissions being generated from handling the material to an absolute minimum.

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk, what do I want to protect?	How can the hazard get to the receptor	What measures will you take to reduce the risk Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>operational procedure include visual inspections and regular checks to ensure storage areas are kept clean and dampened down whenever necessary through the use of mobile water sprays.</p> <p>Speed limits of vehicles handling the material are limited to 10 mph to reduce the risk of emissions being generated during handling of material.</p> <p>The facility and site roads are constructed of concrete to reduce dust generation potential.</p> <p>IBA has self-setting properties which means it creates a cementitious layer to its surface, preventing the generation of dust.</p> <p>Fixed and mobile dust sprays are also deployed at the facility to provide further dust control measures to the storage of IBA and control of any dust emissions on transfer from storage to the process building.</p>			

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk, what do I want to protect?	How can the hazard get to the receptor	What measures will you take to reduce the risk Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Dust/particulates from the processing of material	Statutory wildlife sites within 2.5km of the site.	Air, wind blown, dispersion in atmosphere	<p>The IBA recycling processing is housed within a dedicated process building to minimise the release of fugitive emissions.</p> <p>The processing building is enclosed with all doors and shutters closed except for access requirements and a single opening located on the southern façade away from the direction of the nearest sensitive receptors.</p>	<p>Medium</p> <p>If the processing was undertaken externally there would be a risk of particulates being released to atmosphere.</p> <p>This risk is mitigated by undertaking operations within a dedicated enclosed building.</p>	<p>Low to medium</p> <p>Airborne dust emissions could be perceived as having an adverse impact on the nearby industrial properties and the statutory wildlife sites within the vicinity of the site.</p>	<p>Low</p> <p>Housing the processing significantly reduces the likelihood of any fugitive emissions reaching a sensitive receptor as the operations are enclosed preventing fugitive releases.</p>
Dust from IBA and IBAA Stockpiles	Statutory wildlife sites within 2.5km of the site.	Air, wind blown, dispersion in atmosphere	IBA is stored in a dedicated storage building that will benefit from dust suppression as needed. IBAA is stored in a dedicated storage area with a dust water suppression system. All Stored material is sprayed with water to minimise and dust emissions as required.	<p>Low to medium</p> <p>The risk of particulates being released to atmosphere is minimised through the storage of</p>	<p>Low to medium</p> <p>Airborne dust emissions could be perceived as having an adverse impact on the nearby</p>	<p>Low</p> <p>The quantity of material passing the 63µm particle size threshold is 2.5% of the 10mm product and 1% of the 20mm product produced at the</p>

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk, what do I want to protect?	How can the hazard get to the receptor	What measures will you take to reduce the risk Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
				incoming material in a dedicated storage building and the dampening down of all material as required.	industrial properties and the statutory wildlife sites within the vicinity of the site.	<p>Facility. This represents a very small amount of material processed at the Facility.</p> <p>The Environment Agency guidance states that particles greater than 30-50μm are deposited quickly.¹</p> <p>Therefore the percentage of material that is capable of becoming airborne and reaching the local receptors is relatively minimal and unlikely to have any adverse impact on the local residential properties.</p>

¹ Environment Agency. (2003) "Monitoring of Particulate Matter in Ambient Air around Waste Facilities: Technical Guidance Document (Monitoring) M17", Environment Agency, London.)

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk, what do I want to protect?	How can the hazard get to the receptor	What measures will you take to reduce the risk Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
						<p>In addition the material stored on site irrespective of its particle size is routinely and continuously wetted to prevent any potential generation of dust emissions.</p> <p>On the basis of little or no dust being generated from handling material or storing material there is a low risk remaining of any adverse impact to the identified sensitive receptors.</p>

2. FUGITIVE EMISSIONS MANAGEMENT PLAN

2.1. Introduction

- 2.1.1. H&C Consultancy Ltd has prepared this Fugitive Emissions Management Plan for the proposed development. The Plan describes the dust and fugitive emissions management operations that will be in place at the Site for on-going operations and to conform to the requirements of the Construction Management Plan. This Emissions Management Plan has been written using the Environment Agency (EA) guidance documents including; 'Getting the basics right', 'Horizontal Guidance H6 – Environmental Management Systems', Sector Guidance Note S5.06 'Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste', 'H1 Environmental Risk Assessment' and the 'Environment Management Tool Kit'. It also takes account of EA guidance 'Monitoring of Particulate Matter in Ambient Air around Waste Facilities: Technical Guidance Document (Monitoring) M17'.
- 2.1.2. This Plan specifically relates to the operations at the WTI Site. Details of the site and its surroundings are provided at section 1.2 above.

2.2. Description of the Development

- 2.2.1. The proposals are for the development of an IBA Recycling Facility. It will accept IBA from a dedicated source to provide essential recycling support to the adjacent Sustainable Energy Plant (SEP). The SEP takes municipal/household and industrial waste and manages it as a resource, recovering the energy value of the material. A product of the combustion process is the Incinerator Bottom Ash (IBA). The provision of an IBA Recycling Facility will ensure that the IBA itself is also managed as a resource, that material is recovered and recycled and that landfilling is avoided. It contributes to maximising the recovery and recycling of municipal/household and industrial waste.
- 2.2.2. The proposals include all that is necessary to receive, store and process Incinerator Bottom Ash (IBA), producing recyclable metals and creating secondary aggregates known as Incinerator Bottom Ash Aggregate (IBAA). These secondary aggregates are used in the construction industry, especially for sub-base. Their use in this way reduces the need for primary won aggregates. The recycling process also maximises the removal of ferrous and non-ferrous metals from within the IBA; these metals are also recycled. IBA processing therefore moves the management of more waste up the waste hierarchy, contributes to sustainable waste management and contributes to sustainable aggregates production.
- 2.2.3. Following the grant of planning permission the second phase of the proposed development will be undertaken to include the detailed design of the buildings and other aspects of the developments' implementation and to prepare and submit an application to the Environment Agency for an Environmental Permit to operate.

2.3. Potential Impact of Dust and Fugitive Air Emissions

- 2.3.1. The risk of emissions of dust causing adverse environmental impact and/or being harmful to human health is considered low. The IBA material is non-hazardous. The risks of the IBA generating dust have been assessed in a formal risk assessment, which is included at Table 3 below.
- 2.3.2. The key sensitive receptors close to the Facility are identified and considered in the risk assessment at section 1.3 above.

2.4. Sources of Dust and Fugitive Air Emissions

2.4.1. The potential sources of dust arising from operations on site include:

- On site vehicle movements;
- IBA handling;
- Material processing; and
- IBA and IBAA stockpiles.

Further details are provided in the risk assessment at Table 3 below.

2.4.2. Site operations, dust control and monitoring procedures are designed to prevent emissions of dust. This ensures that construction operations at the Site will not constitute a nuisance to local sensitive receptors.

2.5. Abatement of Dust and Fugitive Air Emissions – General Control Measures

2.5.1. Site operations, dust control and monitoring procedures are designed to prevent emissions of dust. This ensures that construction operations at the Site will not constitute a nuisance to local sensitive receptors.

2.5.2. Control measures for preventing potential dust emissions will include the following:

- Material will be transferred to the facility from the adjacent EfW by conveyor to a dedicated IBA Storage Building;
- All processing operations will be carried out within a dedicated processing building;
- Processed material will leave the processing building by conveyor to intermediate storage areas, where the material will not be allowed to free fall for more than 2000mm and will be contained in dedicated storage bays;
- The site surface will be fully concreted to minimise potential fugitive emissions being generated;
- A speed limit will be implemented to minimise dust generation on internal haul routes; and
- An adequate water supply for dust suppression will be maintained at the site.

2.5.3. A dust suppression system will be installed and operated as necessary to control potential dust emissions from material handling and storage and from on-site traffic movements. This will include the dampening of incoming material and of stockpiles and the site surface.

2.5.4. The control measures employed will ensure site operations are undertaken without adverse impact and do not result in fugitive emission releases.

2.5.5. The equipment used for dust prevention is inspected weekly and any maintenance requirements are implemented and recorded.

2.5.6. An excellent standard of housekeeping measures is employed by site staff.

2.6. Abatement of Dust and Fugitive Air Emissions – Operational Techniques

2.6.1. Potential aerial emissions will be managed to ensure that they are kept within the site boundary. On detection or notification of visible aerial emissions that have or are likely to be transported beyond

the site boundary, immediate action shall be taken to stop the material handling operations giving rise to the airborne emission(s).

- 2.6.2. The frequency of inspection of the Site for aerial emissions and potential sources of aerial emissions will be based upon the decision of the Site Manager or other competent person on site. The number of inspections carried out will be recorded in the site diary, along with an explanation of the reason(s) for any increased frequency of inspections. This will allow the operations to be audited and for operational techniques to be reviewed and improved where necessary.
- 2.6.3. Site staff will visually monitor the operations for aerial emissions. The frequency of this monitoring will be risk based. Monitoring will be increased in response to adverse weather conditions, the materials processed and the activities undertaken on site. Inspections will be increased when the following situations are encountered, this list is for guidance only and is not exhaustive:
- Increases in wind speed;
 - Intensity of wind increases;
 - Changes in wind direction towards sensitive receptors;
 - Periods of hot, dry weather; and
 - Any unscheduled activity (e.g. dealing with an emergency).
- 2.6.4. All incidents and any remedial action taken will be recorded within the site diary. The site diary will record the following factors encountered at the time of the incident (and any other detail deemed to be required at the time) to enable a robust Action Plan to be put into operation:
- Wind strength and direction;
 - Activities being undertaken on site at the time of the emission release (to include types of material processed and equipment used);
 - The nature of the aerial emission (fine dust, dust, grit, etc.);
 - The extent of the emission (distance travelled, density of dust, etc.); and
 - The impact on nearby receptors (e.g. statutory and non statutory wildlife sites, industrial properties, etc.).
- 2.6.5. Monitoring locations and frequencies are set individually for this Site, the weather and condition of the site will be visually assessed throughout the day across the Facility to identify the rate of dust suppression required. The rate of dust suppression is adjusted to suit the conditions observed, ensuring the site water coverage is sufficient to prevent fugitive emissions to air. In circumstances where there is evidence of significant amounts of dust, all production activities will stop until the affected area has been doused with sufficient water preventing emissions to air.
- 2.6.6. If dust emissions are being generated from the site road, dust suppression will be employed to further dampen down the site surface and, if deemed necessary, a road sweeper will be employed and a record will be made within the site diary. The dust suppression equipment will be fully inspected to ensure that the system is operational and a report made in the site diary of any repairs required and/or made.
- 2.6.7. Any mitigation measures undertaken (ceased operations, increased water suppression to site surface or stockpiles etc.) will also be recorded in the site diary.

- 2.6.8. If aerial emissions are the result of equipment failure, the faulty items of plant will be identified and nature of the repair required and carried out will be recorded.
- 2.6.9. Operations that are halted as a result of adverse wind conditions will only resume when the wind conditions are deemed suitable.
- 2.6.10. If the dust suppression equipment is out of operation, due to adverse weather or during routine maintenance, provision will be made to ensure that dust emissions are controlled. If the dust suppression equipment is not operational and an alternative suppression method cannot be employed during its outage no operations in the area without suitable dust suppression equipment in place will take place until effective repairs have been made or an alternative system is put in place.
- 2.6.11. If unacceptable aerial emissions have been observed, appropriate remediation measures will be put in place with immediate effect. The frequency of inspections will only be reduced once the issue has been fully resolved.
- 2.6.12. In addition to dust prevention monitoring, the site boundary will be checked daily to ensure material is not causing a nuisance. If a complaint is received it will be recorded and any corrective and preventative actions will also be recorded and the complainant advised of the corrective action.

2.7. Records

- 2.7.1. The recording frequency for aerial emissions will be daily and recorded in the Site Diary. Any issues identified will be reported to the Management Team to be reviewed periodically. Meanwhile, urgent matters will be responded to appropriately and in advance of a management review. The report submitted to the Management Team will contain the following information:
 - Site boundary checks;
 - Dust control and prevention;
 - Operational techniques; and
 - Remediation measures.
- 2.7.2. This information will help to inform the operations at the Site over the life of the operations and the construction period.

2.8. Staff Training

- 2.8.1. The Site Manager will be responsible for ensuring staff receive proper and adequate training in respect of fugitive emissions management.
- 2.8.2. Site staff will undergo a training programme to ensure that they understand how their actions and the site operations can affect aerial emissions. The staff will be trained to not operate at times of strong winds or when the wind is blowing towards sensitive receptors and is consider likely to have a detrimental effect. The staff will be trained to ensure that materials are sprayed periodically and at any other time considered necessary to avoid fugitive emissions. The staff will be trained to visually inspect the Site for aerial emissions. Staff will be instructed to report aerial emissions to the Site Manager with immediate effect.
- 2.8.3. Staff training records will be kept up to date and stored within the site office.

2.9. Contact with the Environment Agency, Local Authority and Complainants

- 2.9.1. WTI will encourage any complainant to liaise directly with them, but acknowledges that the complainant may wish to pursue a complaint through the Environment Agency or the Local Authority.
- 2.9.2. WTI will provide a direct dial number to any complainant and to the Environment Agency and Local Authority. This will ensure that the authorised person will be contacted as soon as any fugitive emission is perceived as a problem by the complainant. The complainant will be asked to record the time, date, weather conditions, and severity and duration of the emission. This will enable site operations to be thoroughly investigated. WTI will monitor all fugitive emissions and complaints.



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APPENDIX 7: ECOLOGICAL MITIGATION REPORT



KEMSLEY SUSTAINABLE ENERGY PLANT, KENT

ECOLOGICAL MITIGATION REPORT

April 2016

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1 INTRODUCTION

- 1.1 RPS Ecology was commissioned by Wheelabrator Technologies Inc. (WTI) to carry out a reptile translocation exercise on land adjacent to the present DS Smith Paper Mill, Kemsley, Kent following the grant of planning permission for a new Sustainable Energy Plant (SEP) was in March 2012 (planning application number SW/10/444). The planning permission is subject to a Section 106 agreement that required the developer to, *inter alia*, implement a Relocation Scheme as set out in the Ecological Mitigation and Management Plan (EMMP) prepared by RPS in 2011. A previous survey for reptiles undertaken by RPS in 2009 and 2010 to inform the SEP planning application and the accompanying Environmental Statement (ES) had found 'low' populations of Slow-worm *Anguis fragilis*, Common lizard *Zootoca vivipara* and Grass snake *Natrix natrix* present (RPS 2011).
- 1.2 The EMMP was produced in consideration of the ecological issues identified on site during surveys to inform the ES for the SEP, including the translocation of the reptile population and its long term survival through a considered habitat management plan covering the next 5 years. This includes a plan covering both the development site area and the adjacent previous landfill area (Figure 1.1).
- 1.3 The EMMP highlighted the site's ability to retain the current reptile population on site within the SEP redline boundary and land adjacent to it. To this end, a dedicated, newly-created receptor area was defined within the redline boundary. Additional reptile habitat would be available in land adjacent to the receptor site (including the landfill area) which would be enhanced to make it more suitable.
- 1.4 Habitat creation was to include planting of scrub habitat, hibernacula creation, grassland creation and bare ground areas.
- 1.5 In addition to the reptiles present, a population of annual beard-grass *Polypogon monspeliensis*, a species listed on the citation for the nearby Swale Ramsar site and considered to be Nationally Scarce was also found on site. This was to be translocated to within suitable areas within the receptor site.
- 1.6 To facilitate access to the SEP site, an additional planning application was submitted in 2012 to create a new access road and an expansion of the existing DS Smith trailer park. Planning permission (planning application number SW/12/1001) was granted in November 2012. This application required a large area of scrub clearance and smaller areas of grassland. The grassland had been surveyed for reptiles as part of the application and only very low numbers of animals were found to be present.
- 1.7 The s106 agreement requires written confirmation to be obtained from Kent County Council that the Relocation Scheme has been 'satisfactorily implemented'. This report provides details of the work undertaken in accordance with the EMMP to confirm that the Relocation Scheme has been satisfactorily implemented, and to ensure that the reptile population and annual beard-grass were moved in a sensitive manner and in accordance with best practice. It also provides details of the final site preparation works undertaken on site with respect to both the SEP and access road.

2 METHODS AND RESULTS

Habitat creation

- 2.1 Recommendations were made in the EMMP for enhancement of habitats on site as a whole including the receptor site and the adjacent former landfill site before the translocation of reptiles could be started.
- 2.2 Habitat creation recommendations included establishment of grassed and scrub areas, and construction of open/bare ground, and reptile hibernacula. The purpose of these recommendations was to recreate existing habitat which will be lost during development of the SEP plant and provide both reptiles and birds with suitable foraging and nesting habitat.
- 2.3 Each habitat as per the EMMP was set out as an individual management objective including its creation and long-term management to be implemented by the SEP consortium and is to be reviewed in five years from commencement of construction on site.
- 2.4 All habitat creation was undertaken a season in advance of the translocation works commencing to enable the new habitat to establish successfully.

Grassed areas

- 2.5 During September 2011 (i.e. outside of the breeding bird season), selected areas of scrub and tall ruderal vegetation within the receptor area were removed by hand with a brushcutter under supervision of an Ecological Clerk of Works (ECoW).
- 2.6 At the same time strips of species-poor grassland on the former landfill area were cleared using trimmers in a two stage process as described in the EMMP.
- 2.7 These open areas were then treated with a herbicide to eliminate unwanted regrowth and later (October 2011) reseeded with a tussock-forming species-rich grassland mix.
- 2.8 The aim of this habitat creation was to create a mosaic type habitat more diverse in structure than the grassland previously present on the landfill to encourage reptile foraging. It is also beneficial to invertebrates on site.
- 2.9 These grassland habitats have since been managed as per the requirements in the EMMP.

Open/bare ground

- 2.10 Also in September 2011, areas of open/bareground were created to the east of the site both within the receptor area and the areas connecting this to the former landfill area. Bare open areas were created by hand-stripping into existing vegetation to ground level under supervision as described above.
- 2.11 Bare open areas are important for reptiles to utilise as basking areas during the day and also important to particular invertebrates and birds.
- 2.12 Approximately 0.5 ha of bare ground were created in these areas as per the EMMP. These areas have subsequently been re-cleared of vegetation as grassland etc. regrows.

Scrub

- 2.13 In December 2011, along the track to the north and east of the landfill area, additional scrub planting was completed to increase existing scrub density and to compensate for the loss of large areas of scrub on the development site.
- 2.14 Species comprised hawthorn, blackthorn, and dog rose. This has begun to establish since and will, in time, provide additional refuge for reptiles as well as nesting birds.

Reptile hibernacula

- 2.15 In September 2011 a total of five reptile hibernacula were created along the track to the north of the landfill area, to the east of the site, and within the receptor area itself.
- 2.16 During translocation, a further two hibernacula were constructed to the east of the development site as numbers of animals captured increased to ensure that sufficient hibernation/shelter habitat was available.
- 2.17 These were constructed as per the EMMP using surplus rubble from the development area and were built under supervision of an ECoW.

Mitigation

Reptile translocation

Receptor site establishment

- 2.18 The receptor site was established in 2011, as described above, under supervision of an ECoW. At the same time, approximately 2 km of reptile-proof fencing (herpetosure) was installed around the SEP site, including the receptor site, in order to isolate the area. The fencing was installed to the specification prescribed in the EMMP and under supervision of an ECoW. See Figure 2.1 for the layout of the fencing. To aid capture, the site was divided with drift fencing into six compartments (Areas A-F).
- 2.19 An area larger than the redline boundary for the SEP was cleared of reptiles (as shown on Figure 2.1) as the landforms on the site pre-clearance (areas of temporary rubble storage created by DS Smith as part of on-going works on the wider paper mill site) meant that it was impossible to install an effective reptile fence line through the rubble piles. This additional land is also to be used during the construction of the SEP for laydown/site compounds, etc. under permitted development rights and as such, will be restored to grassland habitat, as per the grassland establishment on the landfill (i.e. re-seeded with a tussock-forming mix), post construction. However, subject to planning permission being granted for an Incinerator Bottom Ash Aggregate facility, this area would potentially be developed. If this is the case, a suitable permanent mitigation plan will be established with respect to the reptiles present.
- 2.20 Any debris/rubbish was hand picked as much as possible inside and along the edges of the receptor site. In addition, outside and inside boundary fence lines were hand strimmed of tall vegetation to prevent reptiles climbing back out the receptor site and onto the development site.

Site establishment

- 2.21 Artificial refugia comprising 0.5 m² roofing felts were placed in suitable habitat around the development site (excluding within the receptor site) on the 20th April 2012 at a spacing of approximately 2-5 m. Suitable reptile habitat on site totalled approximately 6.3 ha. A total of 645 sheets were placed in these areas creating a refugia density of greater than 102/ha.

Translocation

- 2.22 After allowing a period for the refugia to “bed in”, the translocation exercise was started on the 30th April 2012 with the aim of trapping for a minimum of 60 suitable days.
- 2.23 Because reptile activity is heavily weather-dependent, trapping only occurred during suitable conditions when they were likely to be active and basking, i.e. temperature between 10 and 20°C, little or no wind and little or no rain. Hot, dry days were avoided (reptiles have no need to bask under such weather) as were those too cold/wet for animals to be active.
- 2.24 Any animals caught were sexed and recorded and placed into a reptile bag (pillow case) held within a bucket to ensure animals were kept in a dark, secure environment prior to release at the receptor site.
- 2.25 Animals were released at the receptor site on the same day of capture. They were released into and adjacent to hibernacula and under artificial refugia placed specifically for this purpose within the receptor site.
- 2.26 Once the newly-created grassland habitat on the landfill site had begun to establish suitably, the fencing running along the south of the receptor area (adjacent to the former landfill) was opened up during May 2012. This was to increase the amount of suitable habitat for translocated reptiles to disperse into, i.e. allowed them to move out of the receptor site into the newly-created habitat on the landfill.
- 2.27 Trapping was continuous (except a few days unsuitable for weather) and continued throughout the summer until the capture data indicated that the rate of capture had started to decrease. This took 125 trapping days to occur in all areas.
- 2.28 However, after the initial 60 trapping days, once numbers began to decrease in each section, selective clearance of habitat on site was undertaken under ECoW supervision. Areas B and C yielded the fewest number of animals. They comprised mostly long grass and tall ruderal vegetation. In July 2012 these areas were selectively cleared by use of hand strimming vegetation to 20 cm and then, after 24 hours to give time for any animals present to move away, to ground level with any arisings removed. Clearance was undertaken from the centre of the site outwards to force any remaining animals towards the retained habitat along the fence lines and islands created in these sections. Refugia were then relocated into this retained habitat so that targeted trapping efforts could be focused on a smaller area.
- 2.29 These two areas were deemed clear on 6th and 14th August 2012, respectfully, following five suitable days with no captures and all remaining reptile habitat was removed under ECoW supervision.
- 2.30 Sections A, D, E and F comprised a mosaic of long grass habitat and scrub as well as numerous spoil piles of discarded rubble and old construction debris. Once numbers had begun to

decrease here, in August 2012, islands of habitat were created via strimming, as per for Areas B and C to concentrate capture efforts with trapping continuing.

- 2.31 Once capture rates had begun to decrease further additional habitat areas were cleared in September 2012.
- 2.32 Once five days with no captures had been achieved in Area E (on the 4th October 2012), areas of rubble etc. were destructively searched via mechanical methods under supervision of an ECoW. This focused on areas where reptiles could be sheltering such as existing rubble/rubbish piles/areas of soil (rabbit burrows etc). Rubble was carefully removed from sections where possible or spread about within the sections to destroy sheltering opportunities for reptiles. Any animals were removed into the receptor areas. Refugia trapping continued alongside in the compartments where five days clear had not been achieved.
- 2.33 The remaining three trapping compartments (A, D and F) continued to yield animals throughout the 2012 season. Therefore, on the basis that it would not be possible to distinguish a genuine depletion of the population from animals going into hibernation, trapping for 2012 ceased on 30th October.
- 2.34 Trapping re-commenced in 2013 as soon as weather conditions allowed. Given the very cold spring of 2013, this wasn't until the 22nd April. Five suitable days with no captures under refugia were rapidly achieved in Area F with no captures from the start of trapping on the 22nd until the 27th April when a destructive search of the habitats (undertaken as for Area E) was started to clear the few remaining animals.
- 2.35 Areas A and D continued to yield animals (albeit at a much reduced rate) until five days clear were achieved on the 5th May and 6th June, respectively, when a destructive search of both was undertaken as for Area E.
- 2.36 In total, across the whole site trapping/destructive search occurred during 178 suitable days in 2012/13 before the site was declared clear of reptiles.
- 2.37 In total, 2,784 animals were moved during the translocation. Table 2.1 provides a breakdown of the capture data.

Table 2.1. Summary reptile capture data

	Adults	Juveniles	Total
Number of Slow-worms	702	873	1,575
Number of Common lizard	663	527	1,190
Grass Snakes	3	16	19

Post translocation works

- 2.38 Once the development site was declared clear of reptiles, the herpetasure reptile fence surrounding the development was maintained and monitored by DS Smith on at least a monthly basis to ensure continued integrity.

- 2.39 The vegetation within 1 m of both the exterior and interior of the reptile fence was strimmed and sprayed with a suitable herbicide under ECoW supervision once the DS Smith monitoring noted it becoming more than 30 cm tall (i.e. a similar size to the fence line). This was to prevent animals from attempting to recolonise the site.
- 2.40 To discourage any animals from moving back in, should a breach have occurred in the fence, and maintain an ecologically-sterile development site pre construction, in January of 2014, 2015 and 2016 (i.e. pre breeding bird season), any plant re-growth was removed from within the area of the site cleared of reptiles via a tracked dozer to remove the top 2 cm of soil.

Annual beard-grass translocation

- 2.41 Annual beard-grass was found to be present on the development site during initial surveys undertaken to inform the Environmental Statement of the SEP. Due to its rarity, the EMMP provided a method for it to be translocated in order to ensure its continued occurrence in the area.
- 2.42 A re-survey of the site was undertaken by an experienced botanist on the 2nd August 2012 to map the location of this species. Two small patches were identified (see Figure 2.2). These areas were marked out with spray paint so that the plants could be identified later once they had set seed.
- 2.43 Seed was collected from the plants on the 28th August 2012 and stored in a suitable container and kept refrigerated until spread on the receptor site on the 23rd October 2012.

Final habitat clearance works

- 2.44 In early 2016 (from mid-February until early-April), prior to main works starting on site (anticipated late May 2016), the final areas of remaining scrub/grassland habitat were cleared from both within the main development site and along the access road corridor (see Figure 2.3). This included a narrow strip of scrub/grassland along the southern site boundary adjacent to the former landfill, scrub along the ditch to the west of the site and dense scrub along the proposed access road.
- 2.45 All scrub was cleared by hand using chainsaws under ECoW supervision to check for bird nests/reptiles as appropriate. No reptiles or active bird nests were found.
- 2.46 Areas of grassland were strimmed in two stages in suitable weather conditions when reptiles were known to be active. The first stage was a cut to 15 cm high and then, 24 hours later, to ground level to enable any reptiles present to move into retained surrounding habitats. Strimming was directional towards retained habitat (i.e. the receptor site/landfill or surrounding retained grassland). Subsequently, any areas of rubble etc., revealed by the scrub clearance, were destructively searched under ECoW supervision. This yielded four adult common lizards in total.
- 2.47 Areas of reptile exclusion fence that had surrounded the site were also realigned to enable the final development to begin with any fence extraction occurring under ECoW supervision. This included between the main development site and the access road to the north and along the southern site boundary. A new length of reptile fence was installed along the access road, once scrub clearance had occurred to prevent reptiles within the grassland external to the site from entering during the development works.

- 2.48 As the majority of the landfill (those areas outwith the new habitat creation) is maintained as short-mown grassland (as per the terms of the Environment Agency's licence) and is therefore considered to be unsuitable reptile habitat. As such, during this re-alignment, reptile fencing was only installed to ensure animals within the habitat creation could not re-enter the development site (Figure 2.3).

Ditch clearance

- 2.49 The ditches adjacent to the site access road and to the eastern site boundary were cleared of vegetation to facilitate development works (although both will be restored and significantly enhanced as per the approved ditch buffer zone management plan RPS 2013). Prior to works, a final check of accessible habitat for the presence of water vole *Arvicola amphibious* was made by the ECoW. No evidence of water vole or other burrowing mammals was found and therefore vegetation clearance (mainly scrub) progressed as described above.

Marsh harrier protection

- 2.50 Included within the EMMP were details with respect to the protection of marsh harrier *Circus aeruginosus* using a large reedbed to the north of the development site. This included the provision of a closed-board wooden panel fence along the northern main development boundary to provide a visual screen to ensure harriers were not disturbed by large numbers of humans moving on site. Such a fence was erected in March 2016. It was extended along the eastern boundary of the site access road, albeit using demolition netting rather than wood to provide the screen which still provides a suitable barrier but is not as durable since this section of fence will only be required for the first six months of construction while the access road and associated works are constructed.
- 2.51 The fencing along the northern development boundary will remain *in situ* for the duration of construction. The fencing along the access road will be removed once it is no longer required.
- 2.52 There will be no direct entry of the Kemsley reedbed by people or machinery as a result the proposed SEP. The need to mitigate any indirect affects arising from disturbance from activities during both construction and operation of the proposed SEP will be dependent upon whether Marsh Harrier nest in the reedbed, the stage of breeding that the Marsh Harrier has reached (nest building, sitting on eggs or feeding chicks) and the nature of the activity. The following activities will not occur within the distances listed of the nest site in the event that Marsh Harrier is found breeding in the Kemsley reedbed during construction:
- 2.53 Activities that only involve the movement of vehicles will take place more than:
1. Nest building 100 m
 2. Eggs 100 m
 3. Chicks 50 m
- 2.54 Activities that involve people outside of vehicles and construction activities such as excavation, concrete pouring and assembly:
1. Nest building 200 m

2. Eggs 200 m

3. Chicks 100 m

2.55 Given that the harrier fencing will screen such activities within the main development site, this is aimed at preventing the any development activities occurring between the development redline boundary and the edge of the reedbed.

3 CONCLUSIONS

- 3.1 Planning permission for the development of a Sustainable Energy Plant on a site adjacent to Kemsley Paper Mill required the implementation of an ecological mitigation and management plan.
- 3.2 Following habitat creation works in the various receptor sites, the reptile component of this strategy was implemented between April 2012 and June 2013 with a total of 2,784 animals (1,368 adults) moved into the receptor area and the adjacent former landfill site over the course of 178 suitable trapping days. Final habitat clearance was undertaken during February to March 2016.
- 3.3 Clearance of habitat along the ditch to the west of the development site and to the east of the access road was undertaken during February to March 2016 under ECoW supervision. No evidence of water vole was found prior to clearance works.
- 3.4 The site is now considered clear of ecology constraints and ready for development to take place; all works were undertaken according as per the EMMP and, as such, conform to the requirements of the S106 agreement.
- 3.5 All fence lines currently in place should be maintained throughout development to ensure no additional ecology issues develop during the development process.
- 3.6 Post development, significant new areas of habitat will be created to complement those created as part of the mitigation process. This includes grassland, scrub and wetland habitats to provide substantial new foraging/nesting etc. for birds, reptiles and invertebrates.

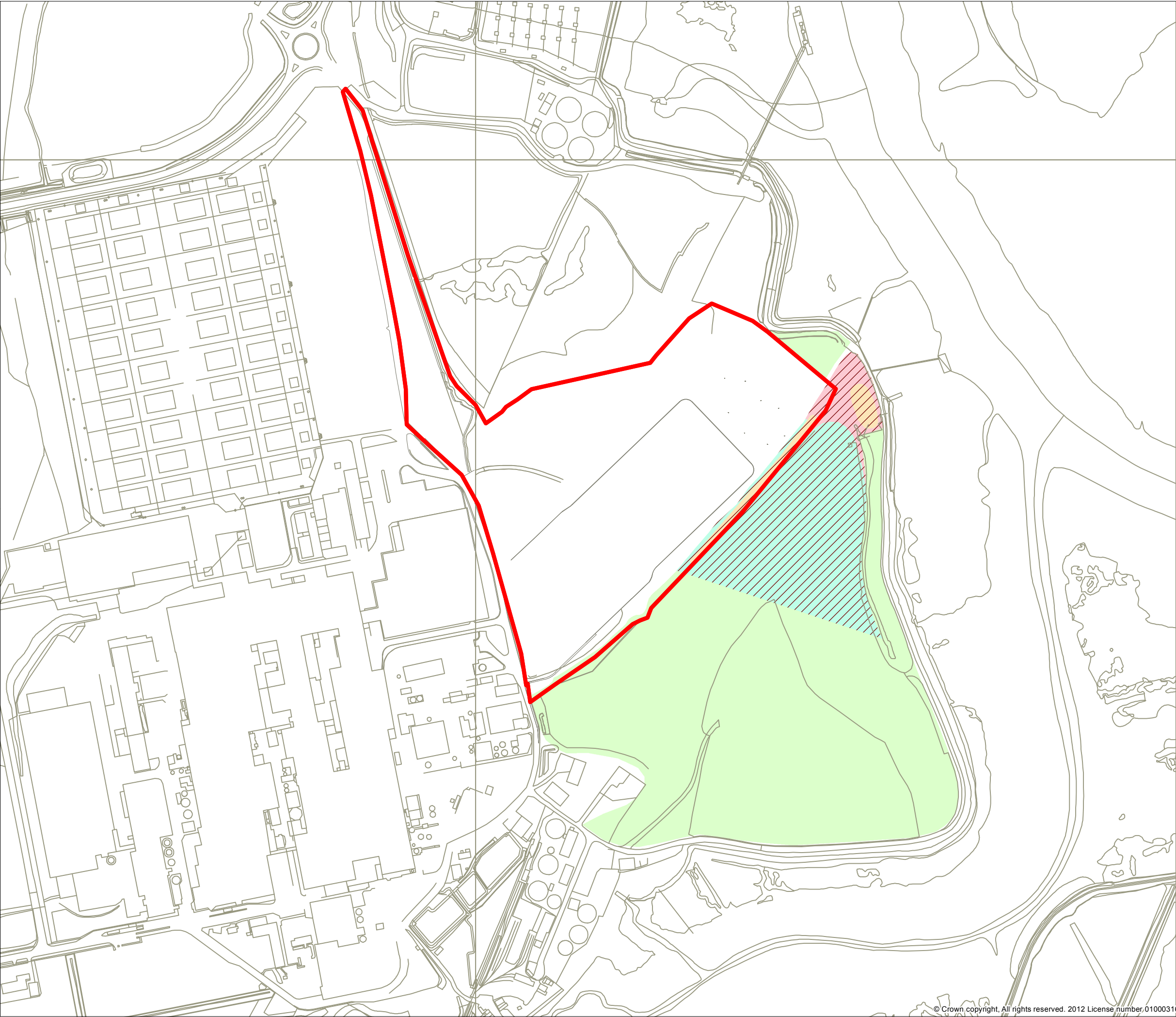
4 REFERENCES

RPS (2011) *Kemsley SEP, Kemsley Paper Mill: Ecology Mitigation and Management Plan*. RPS unpublished report.

RPS (2013) *Kemsley SEP, Kemsley Paper Mill: Ditch Buffer Zone Management Plan*. RPS unpublished report.

FIGURE 1.1

Areas of habitat creation

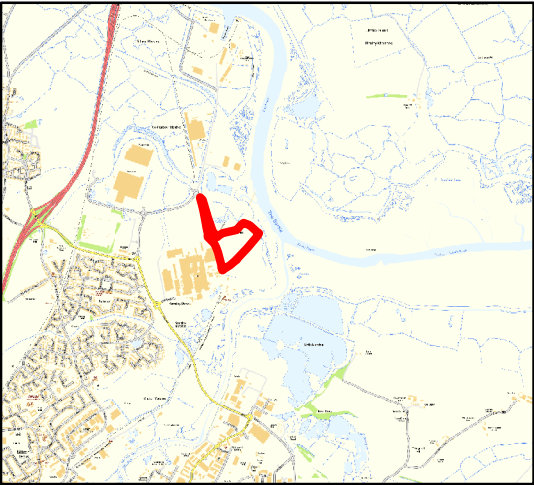


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- Legend**
- Development boundary
 - Reptile receptor site
 - Areas of habitat creation (2012)
 - Bare ground
 - Grassland
 - Scrub

Rev	Description	Date	Initial	Checked



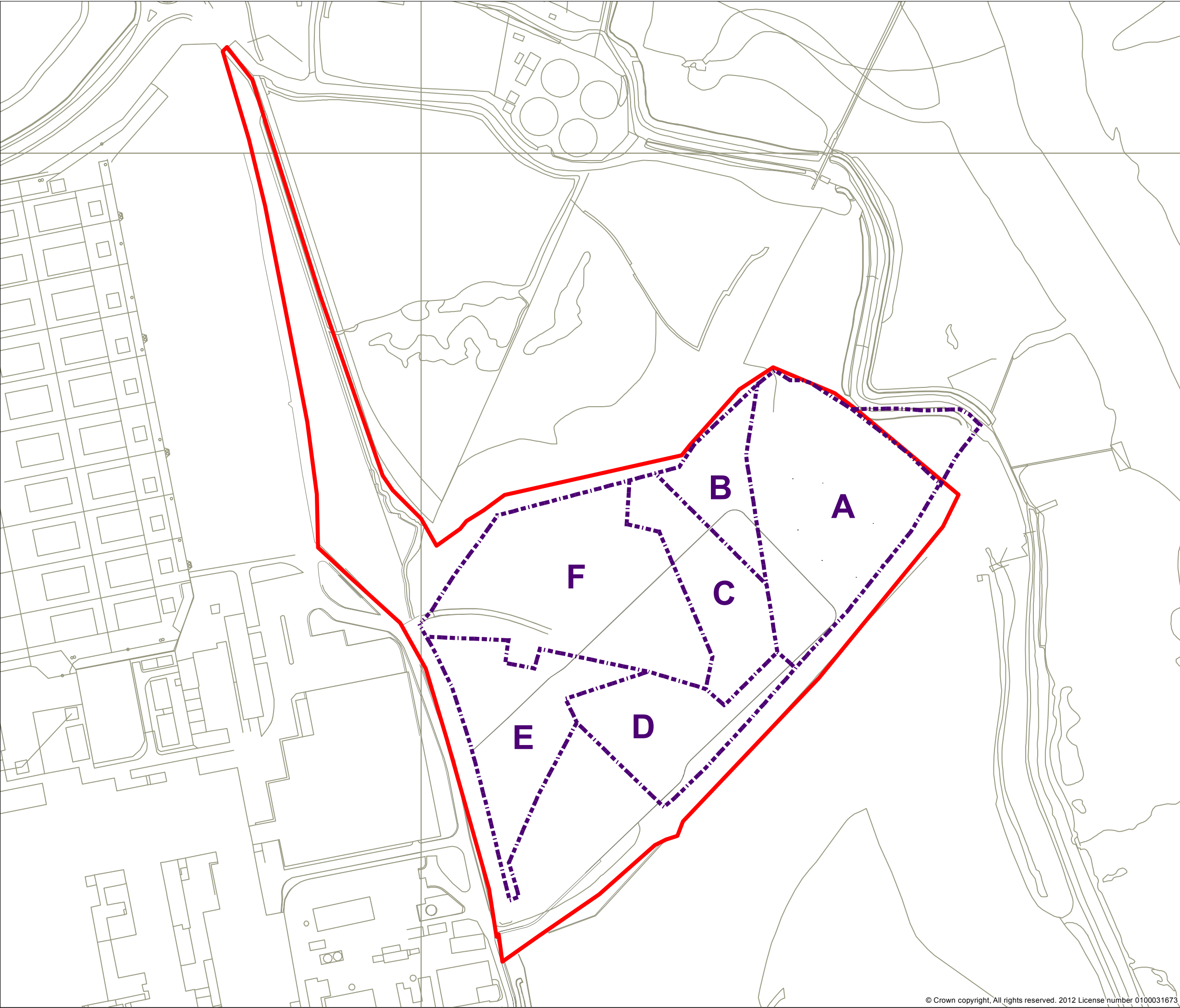
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Client Wheelabrator Technologies Inc
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Title Areas of Habitat Creation

Status For Information	Drawn By HK	PM/Checked By NB
Job Ref JSL2110	Scale @ A3 1:4,000	Date Created APRIL '16
Figure Number 1.1		Rev -

FIGURE 2.1

Location of reptile fencing

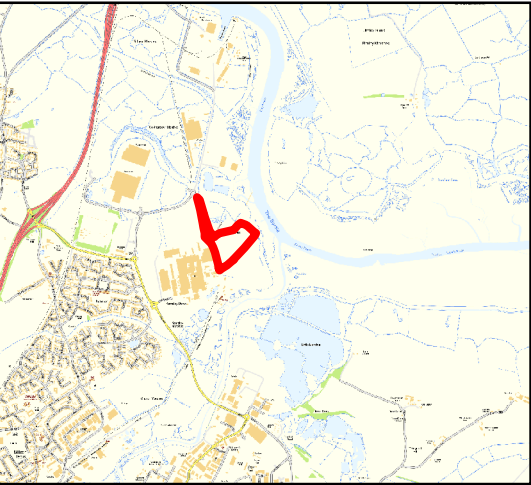


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Legend

— Development boundary

- - - Location of reptile fencing 2012

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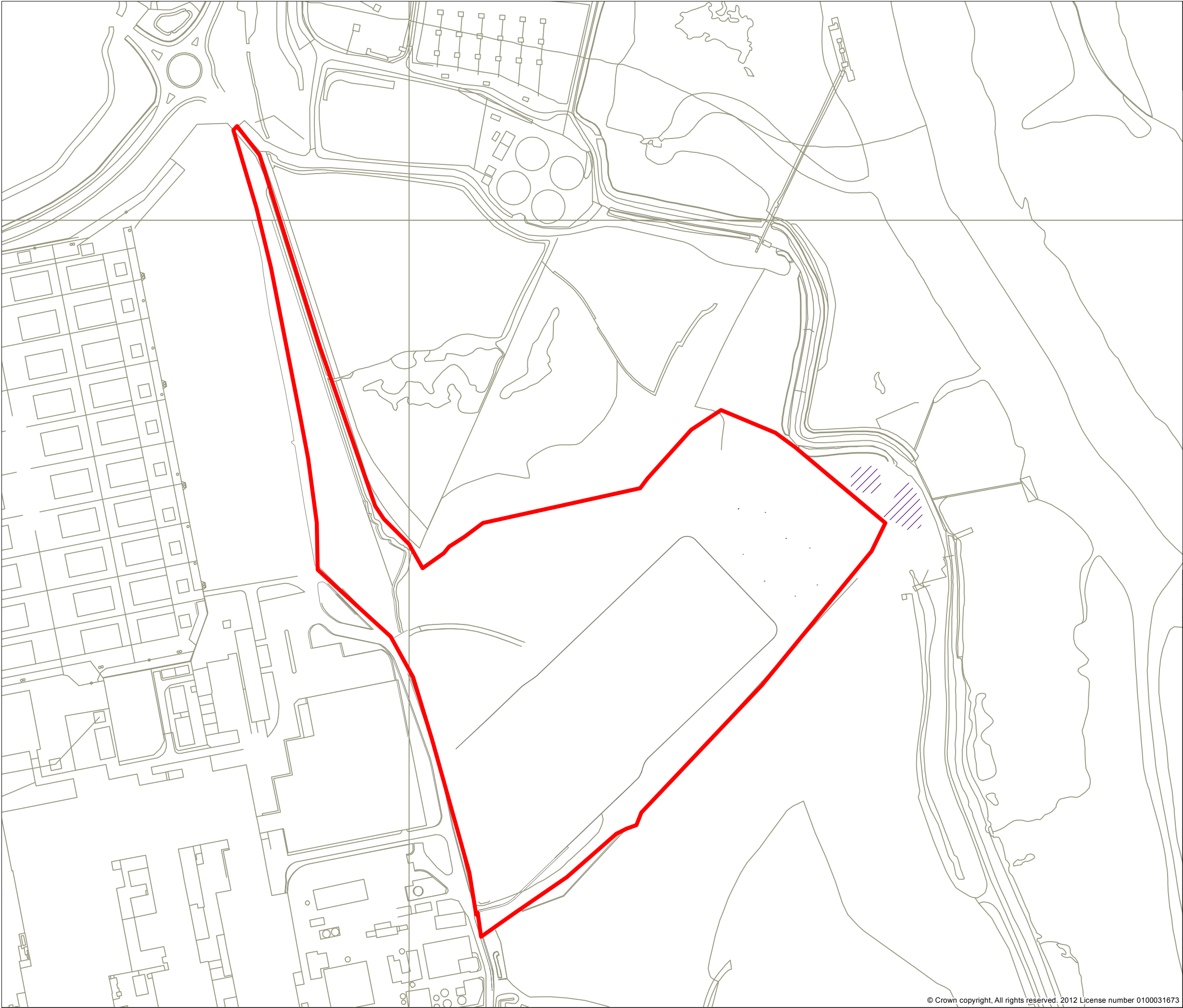
Project Kemsley Sustainable Energy Plant, Kent

Title Location of Reptile Fencing 2012

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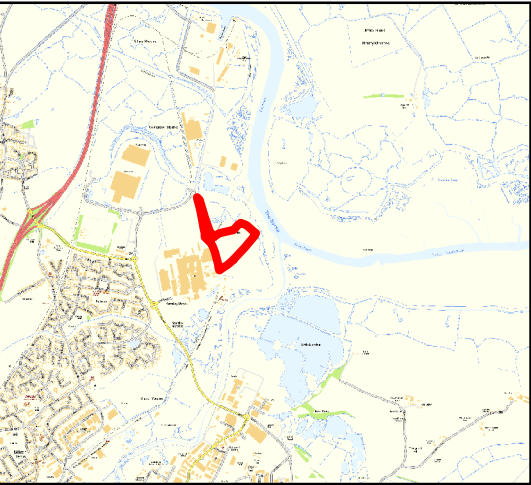
FIGURE 2.2

Location of annual beard-grass translocation



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Legend

— Development boundary

/// Location of Annual beard-grass

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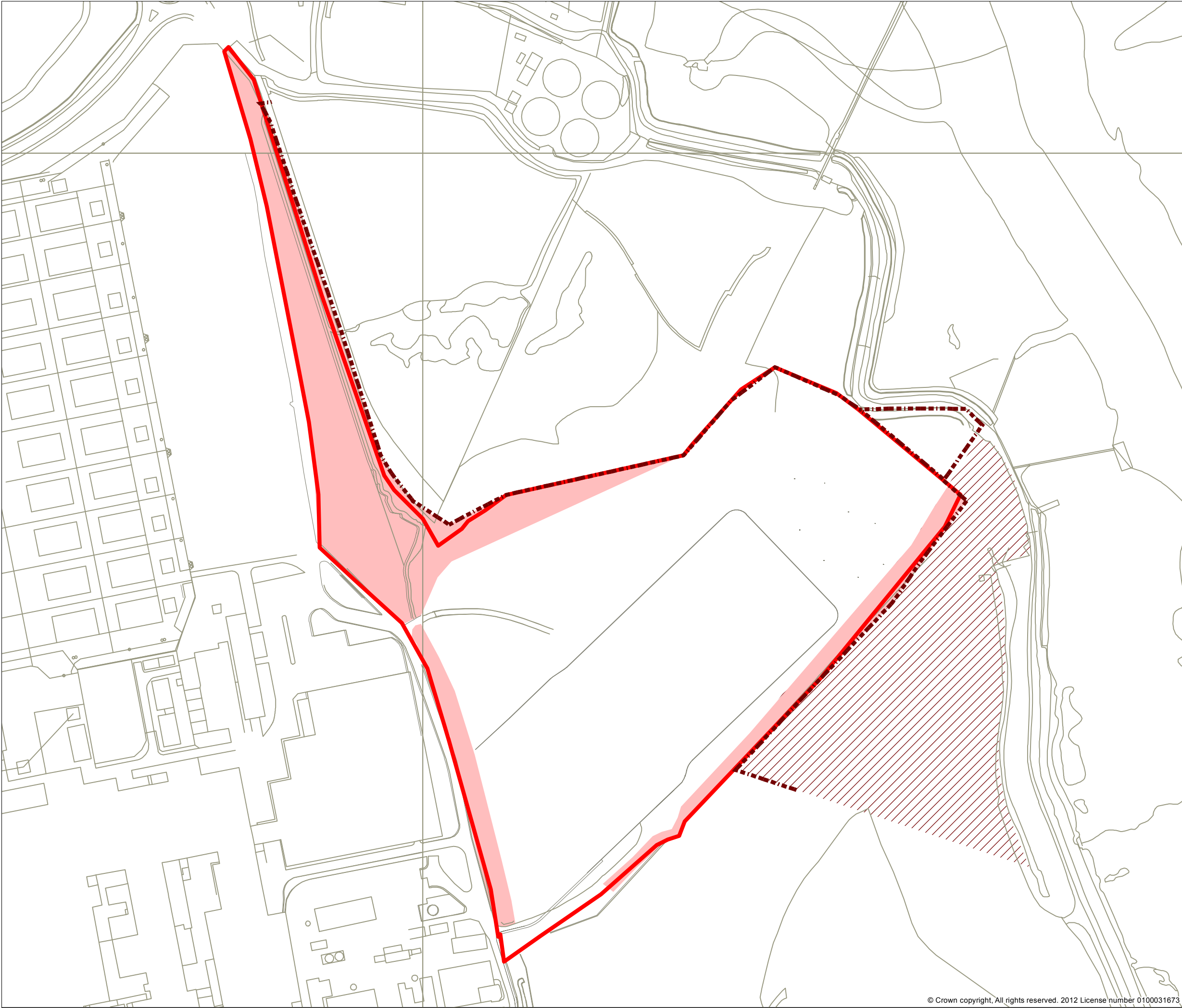
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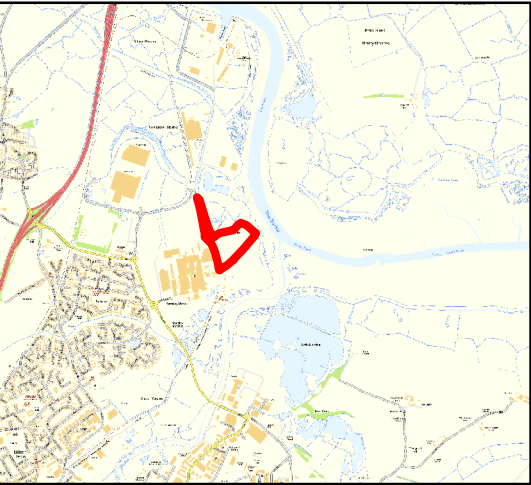
FIGURE 2.3

Final habitat clearance 2016



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- Legend**
- Reptile fence re-alignment 2016
 - Development boundary
 - Areas cleared in 2016
 - Areas of habitat creation (2012)

Rev	Description	Date	Initial	Checked



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