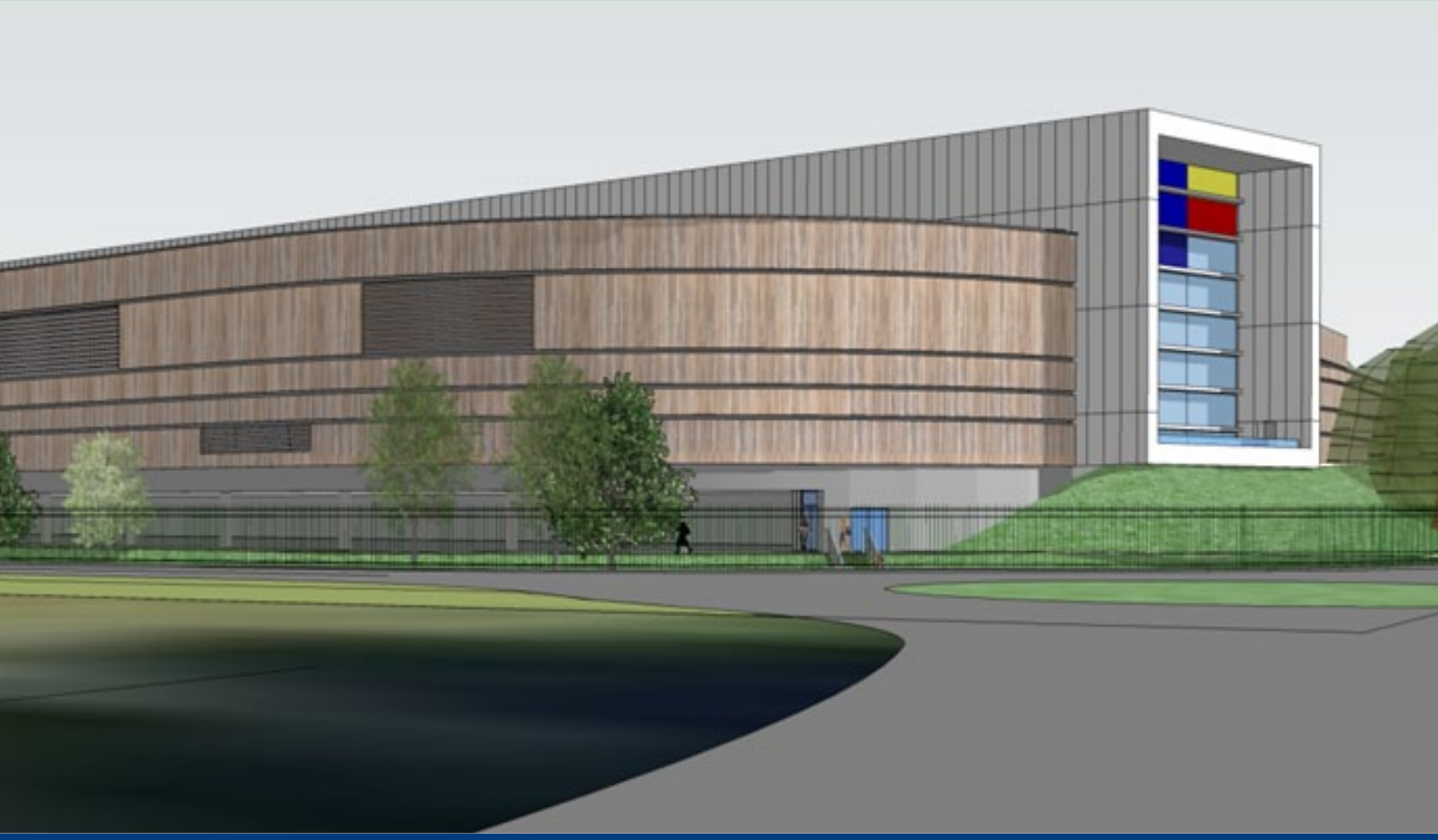

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Courtauld Road MBT Facility

Environmental Statement
Figures and Technical Appendices

Volume 1

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APPENDIX 1.1 – Scoping Request

Proposed Development of a Mechanical and Biological Treatment Facility and Ancillary Development on land at Courtauld Road, Basildon, Essex

Request for Formal Scoping Opinion

January 2012

urbaser

Balfour Beatty

ATKINS

Proposed Planning Application for the Development of a Mechanical and Biological Treatment Facility, and Ancillary Development, on land at Courtauld Road, Basildon, Essex.

EIA Scoping Report

January 2012

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Document History

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Appendices

Glossary of Terms

Term	Meaning / Definition
AOD	Above Ordnance Datum
AQMA	Air Quality Management Area
CIRIA	Construction Industry Research and Information Association
DEFRA	Department for Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
ECC	Essex County Council
ECCHT	Essex County Council Highways Team
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EP	Environmental Permit
EPOA	Essex Planning Officers Association
ES	Environmental Statement
FRA	Flood Risk Assessment
HA	Highways Authority
HGV	Heavy Goods Vehicle
HRA	Habitats Risk Assessment
LDF	Local Development Framework
IEMA	Institute for Environmental Management and Assessment
LPA	Local Planning Authority
MBT	Mechanical Biological Treatment
NPPF	National Policy Planning Framework
PIA	Personal Injury Accident
PM_{10}	Particles less than 10 micrometers (μm) in diameter
PPGs	Planning Policy Guidance Notes
PPS	Planning Policy Statements
RSS	Regional Spatial Strategy
SOM	Solid Organic Matter
SRF	Solid Refuse Derived Fuel
SPA	Special Protection Area
SSBRA	Site Specific Bioaerosol Risk Assessment
SSSI	Site of Special Scientific Interest
SUDS	Sustainable Urban Drainage System
TA	Transport Assessment

TAG	Transport Analysis Guidance
Tpa	tonnes per annum
TS	Transport Statement
VOC	Volatile Organic Compounds
WCA	Waste Collection Authority
WDA	Waste Disposal Authority

1. Introduction

Urbaser and Balfour Beatty hereafter known as (The Consortium) are proposing to develop a Mechanical and Biological Treatment (MBT) Facility at land off Courtauld Road, Basildon. The Facility is proposed will treat residual waste, trade waste, bulky waste, street sweepings and Household Waste Recycling Centre waste from within the administrative areas of Essex and Southend-on-Sea. The facility will be capable of treating 416,955 tonnes of waste per annum.

The majority of waste streams which will be accepted at the Facility are managed by the 12 District and Borough Councils as Waste Collection Authorities (WCAs), Southend-on-Sea Borough Council as a Unitary Authority (Waste Collection and Disposal Authority) and Essex County Council as Waste Disposal Authority (WDA).

This scoping report is submitted as a formal scoping opinion request to Essex County Council to help determine the content of the Environmental Statement which is required to be submitted with the planning application for the development.

The facility will assist Essex County Council and Southend-on-Sea Borough Council in meeting their statutory targets, and given the timescales in which the facility is required the Consortium has taken the decision to progress the planning application assuming that an Environmental Statement will be required.

The proposed waste facility is a Schedule 2 development (11b) in that it is classed as an; Installation for the disposal of waste which has the applicable thresholds of;

(ii) the area of the development exceeds 0.5 hectare; and

(iii) the installation is to be sited within 100 metres of any controlled waters.

The importance of scoping in the EIA process is highlighted in the former Department of the Environment's Good Practice Guide[1] which states that:

> *"Defining its scope is one of the most critical parts of an EIA in that it sets the context for what follows. If the scope is defined too narrowly, some critical area of uncertainty or adverse impact may emerge late in the day. Decisions on the shape of the project may then be too far advanced to allow for any real change. On the other hand, if the scope of the work is too loosely defined, then much time, effort and cost may be spent on pursuing unnecessary detail"*.

So while there is no legal requirement to scope the EIA, the 2011 EIA Regulations allows the applicant to request a formal "scoping opinion" from the local planning authority to help determine what is required of the Environmental Statement. This scoping report is prepared for that purpose; to assist in the formal scoping of the environmental impacts of the proposed development that the EIA will need to address.

The overall purpose of scoping is to facilitate a more concise ES, focusing on the key issues of concern and minimising requests for further information. Importantly, the scoping process is intended to discount, or 'scope out', those issues where significant effects are agreed by all consultees to be unlikely. However, it may be possible to "scope out" various aspects/components of the development from further consideration and this is a matter addressed within Section 5 of this scoping document.

In line with current guidance the EIA scope will be subject to review should any new issues emerge from the results of the environmental surveys, design changes or consultation responses. Achieving

[1] Department of the Environment, 1995. *Preparation of Environmental Statements for Planning Projects that Require Environmental Assessment: A good practice guide.* London: TSO.

stakeholder agreement through the formal Scoping Report consultation process is an important pre-cursor to undertaking the EIA and producing the ES.

Informal discussions have also been held with the LPA and key statutory consultees and the outcome of these discussions have informed the methodology proposed within this Scoping Report

2. The Site and Its Surrounds

2.1 Site Location

The site is located on Courtauld Road off the A132 between the A127 and A13 within a predominantly industrial area north east of Basildon, Essex at Ordnance Survey (OS) grid TQ 7426 9082. A site location plan is presented as Appendix A.1.

The site is situated on the northern edge of Burnt Mills Industrial Estate; other businesses on the industrial estate include waste facilities such as transfer stations and breakers yards with light industrial uses such as vehicle distribution centres, storage facilities and more specialist services such as an underwater photography studio.

The site is framed by the A127 to the north and Courtauld Road to the south. Industrial units and Hovefields Park Caravan Site (a permanent Gypsy and Traveller residential site) are situated immediately to the east of the site. The plot of land immediately to the west of the site is currently vacant but forms part of the existing permission (ESS/04/07/BAS) for waste development. Basildon sewage treatment works is situated beyond the vacant plot of land to the west. To the north of the application site, north of the A127, the land is designated Green Belt.

2.2 Site Description

The application site is approximately 8.5 hectares in area.

The site already benefits from a planning permission for a waste management facility. In 2006 the County Council together with Integra submitted a planning application (ESS/04/07/BAS) to develop an integrated waste management facility on land off Courtauld Road. Planning Permission for the development was granted by the Local Planning Authority in October 2008.

As part of the planning permission it was deemed necessary to provide a compensation area to replace habitat which would be lost on the site including grassland areas and habitat for invertebrates and reptiles. The area of land identified as suitable to provide this mitigation habitat is to the north of the A127. Full ecological translocations and enhancements have now been undertaken.

The existing permission also required compensatory flood alleviation and this again was provided on the land to the north. To further mitigate against the risk of flooding on the application site it was also deemed necessary to raise the ground level of the site. The site has been subject to the import of inert material in order to raise its level to above 11.58m AOD. All of these works have now been completed.

The Nevendon Bushes Brook which previously flowed through the site has been diverted to the western perimeter of the existing application boundary. This realignment will allow the brook to overflow onto the compensatory land.

Vegetation clearance has also taken place with only partial vegetation remaining around some of the site's boundaries.

All of the above mentioned works have been undertaken and the environmental baseline for purposes of the environmental assessments assumes this is the case.

3. Proposed Development

3.1 Mechanical Biological Treatment Facility

The application proposes the development of a Mechanical Biological Treatment Facility (MBT), visitor and education centre and ancillary development on land identified within Appendix A.1. It is anticipated that construction of the facility will begin in early 2013 and will take approximately 16 months. The buildings will be of steel clad portal frame construction.

The following section provides a brief description of the process that will be employed within the MBT facility. A general arrangement plan of the proposed Facility is provided within Figure A.2.

The Facility will have the capacity to treat up to 416,955 tonnes per annum (tpa) of waste. This will include Waste Collection Authority (WCA) residual waste, trade waste, bulky waste, street sweepings and waste from Household Waste Recycling Centres.

The Facility has been designed to provide flexibility in terms of the volumes of waste received as well as the final output product, in order to meet any future changes in waste generation and/or end market variations.

The waste will be treated in three stages;

Pre-processing

Waste is tipped into bunkers in the reception hall; the bags of waste are then split open and pass through a series of conveyor belts. The waste is then hand-sorted to remove bulky and other recyclable materials before it passes through automatic processes which use magnets and air blowers to remove the recyclables. The recyclable materials such as cardboard, metals and plastics will be removed from the site for recycling by reprocessors.

Biostabilisation

The remaining waste is then moved by conveyor to the maturation halls, where it is treated using a compost type process. The waste is deposited in rows to form piles approximately 3.5m high. The 'compost' process takes approximately six weeks and during this time the waste is kept moist, regularly mixed and air is blown through it. This stabilises the material, so it is no longer biodegradable, and also reduces the volume of waste due to moisture loss. This results in there being less waste left at the end of the process than was present at the beginning.

Final screening

The material is then sieved and screened to separate it into different sizes. The facility can produce two output materials depending on the market requirements. These are a Stabilised Output Material (SOM) or Solid Recovered Fuel (SRF) both of which have less weight and volume than the waste which was brought to the site. The SOM is likely to go to landfill as a biodegraded waste while the SRF can be used as a fuel for industrial processes.

The operations at the proposed facility will be fully enclosed. All waste will be delivered and processed within buildings. The buildings will be kept under negative pressure with roller shutter doors used to allow vehicles to get into the buildings. All air will be pre-treated and pass through biofilters to biodegrade odours and Volatile Organic Compounds (VOC).

The proposed hours for the facility are;

The receipt and removal of waste and recyclables shall take place between the following hours:

Monday to Friday	07.00 – 20.00
Saturday	07.00 – 16.30
Sunday and Public Holidays	08.30 – 16:30

The proposed hours of operation are designed to fit in with the waste collection service provided by the District and Borough Councils.

The proposed hours for operation of the facility are not yet confirmed but are anticipated to be as follows:

Monday to Friday	07.00 – 21.00
Saturday	07.00 – 17.30
Sunday and Public Holidays	08.30 – 17:30

Confirmation of these hours will be made through the Planning submission and will reflect work undertaken to inform the design and EIA process.

The Facility will not process waste on Christmas Day, Boxing Day and New Years Day. However some of the operations in the buildings such as the air management/treatment system and biostabilisation processes will be in operation 24 hours a day, 365 days a year.

The maintenance and cleanliness of the plant requires the washdown of parts of the process on a periodic basis and this may need to be outside of the site operational hours above.

The site entrance will be via a new roundabout entrance on Courtauld Road to the south of the proposed developed site and a purpose built spine road which will provide separate access points to the facility for HGV and visitor/staff vehicles. The site will have two weighbridges for vehicles coming onto the site to ensure vehicles are not queuing on the spine road and to speed up the entry to the site. Vehicles bringing waste to the site will travel down the onsite access road on the eastern side of the site to the reception halls.

4. Approach to the EIA

4.1 General EIA Methodology and Processes

The proposed approach to the EIA will be to undertake the level of assessment appropriate given the potential environmental effects and their significance. For all environmental disciplines, current best practice shall be used by applying the method given in guidance documents and technical reports issued by the environmental regulatory agencies, environmental professional bodies and other industry standard sources.

The EIA process will commence with baseline studies comprising the collation and evaluation of available data and site surveys. The environmental impacts will then be predicted using a variety of techniques from qualitative assessments that use available information and professional experience from similar developments, through to quantitative assessments made by the application of site specific models. The preliminary impact assessment will allow the identification of the key environmental aspects.

The impact assessment will consider the temporal scope, i.e. the effects arising during construction and operation of the scheme, in both cases in relation to a baseline scenario (that is the conditions that would prevail were the scheme not built). The temporal scope will also consider whether the effects are short or long term, and whether they are reversible or permanent. The spatial scope for each technical assessment will be determined by the scale of works, the nature of the baseline environment and the likely distribution of effects. The spatial scope will also consider whether the effects are as a direct result of the proposals or an indirect result.

Mitigation will be specified and incorporated into the design to address the significant environmental effects and where practicable to provide environmental enhancements.

In general terms the significance of an effect will be determined by considering the value of the resource and the magnitude of the impact. Specific methodologies for assessing impact significance will be provided for each environmental topic. The overall methodology for determining significance can be summarised generally (although not for every topic) as a three-step process:

- Determination of the value or importance of a feature and the sensitivity of the feature as a receptor;
- Assessment of the magnitude of the effect of the proposals on the receptor, be it adverse or beneficial; and
- Determination of the significance of the effect resulting from an effect (of a certain magnitude) on a feature (of a particular sensitivity).

Having carried out the impact assessment and defined the necessary mitigation, there is a potential for residual environmental effects and these shall be detailed. Furthermore, assessment of the cumulative effects shall be undertaken. The cumulative effects are the impacts that result from incremental changes caused by other, past, present or reasonably foreseeable actions together with the project.

4.2 Design Development and Environmental Mitigation Specification

In order to minimise the potential significant effects, a number of mitigation measures have already been identified and have informed the facilities conceptual design:

- Fugitive emissions to air including odour: the operational activities will all take place within building.
- Noise: the operational activities will all take place within buildings. The perimeter landscape treatment will incorporate perimeter screening mounds.

- Visual impacts of the scheme: The perimeter landscape scheme which will incorporate perimeter screening mounds. Particular consideration – given to boundary with Hovefields Caravan Park.

As the EIA process commences, environmental mitigation will be developed through the progression of the environmental assessments and consultations.

4.3 Consultation

4.3.1 Public Information Exhibitions

Public Information events are to be held during January and February 2012. These events will present the scheme proposals and will allow for any appropriate comments to be fed into the designs which will go forward to the planning stage.

The exhibitions will be held at a number of local venues enabling maximum attendance by all sections of the community. Specific consultation is also planned with residents of the adjacent Caravan Park specific details on the form for this consultation exercise has not yet been finalised.

4.3.2 Consultations with Environmental Organisations

Throughout the EIA process, the statutory environmental organisations shall be consulted on the proposals to ensure that the ongoing approach to the EIA meets with their approval and to agree specific requirements for impact assessment, mitigation etc. These organisations will include, but will not be limited to:

- Essex County Council (various departments including Highways Authority);
- Basildon Borough Council (various departments including Environmental Health);
- Environment Agency;
- Natural England;
- Highways Agency;
- English Heritage.

Through the EIA process consultation with non-statutory bodies will also be undertaken;

This will include but will not be limited to:

- Essex Wildlife Trust;
- Bugslife.

5. Scoping of the Environmental Effects

5.1 Planning Policy Context

5.1.1 Overview

This chapter outlines those national, regional and local planning policies considered to be of direct relevance to the proposed development, and which will inform the preparation of the ES.

For the purposes of the planning application, the site lies wholly within the administrative boundary of Essex County Council.

5.1.2 National Policy

At a national level Planning Policy Guidance Notes (PPGs) and Planning Policy Statements (PPSs), published by the Department of Communities and Local Government and its predecessor departments, contain the overarching policy guidance. In view of the nature of the scheme and the proposed location of development, the ES will have regard to the key national policy documents outlined below. For the purposes of clarity, existing PPGs have continued relevance to decision making until such time as they are replaced by corresponding PPSs:

National Planning Policy Statements (PPSs), in particular:

- PPS1 – Delivering Sustainable Development;
- PPS1 Supplement – Planning and Climate Change;
- PPS9 – Biodiversity and Geological Conservation;
- PPS10 – Planning for Sustainable Waste Management;
- PPS22 – Renewable Energy;
- PPS23 – Planning and Pollution Control;
- PPS25 – Development and Flood Risk.

National Planning Policy Guidance (PPGs), in particular:

- PPG4 – Industrial, Commercial Development and Small Firms;
- PPG 13 – Transport;
- PPG14 – Development on Unstable Land;
- PPG16 – Archaeology and Planning;
- PPG17 – Planning for Open Space, Sport and Recreation;
- PPG24 – Planning and Noise.

The Department for Communities and Local Government (DCLG) published the consultation draft of the National Planning Policy Framework (NPPF) on 25 July 2011. The NPPF is intended to bring together Planning Policy Statements, Planning Policy Guidance Notes and some Circulars into a single consolidated document. The draft NPPF contains a number of references to the presumption in favour of sustainable development, and the need to support economic growth through the planning system.

The draft NPPF provides a clear indication of the Government's 'direction of travel' in planning policy. Therefore, the draft NPPF is capable of being a material consideration, although the weight to be given to it will be a matter for the decision maker's planning judgment in each particular case.

The current Planning Policy Statements, Guidance notes and Circulars remain in place until superseded by the NPPF.

5.1.3 Regional Planning Policy

In spite of the Government's commitment to the revocation of the Regional Spatial Strategy, in the case of the development at Courtauld Road, The Consortium will have regard to the RSS as a material consideration (albeit of a lesser weight) in the assessment of the application. At the point of determination, the decision maker will need to consider the weight which applies to the RSS given the status of it at that time.

It is recognised that the RSS includes policies on a wide range of environmental issues. However, there is also extensive and more detailed policy coverage in respect of these matters within other development plan documents. Consequently, the detailed review of the RSS policies has been restricted to the core issues of waste, climate change and energy.

5.1.4 Local Planning Policy

The Essex and Southend-on-Sea Structure Plan was adopted on the 1st April 2001. The Structure Plan has subsequently been replaced by the East of England Plan (RSS) which was adopted in May 2008. However six policies within the Structure Plan have been saved and will continue to be a material consideration for the purposes of local planning and development control decisions. As none of the saved policies relate to the proposed Facility an appraisal is not required.

The Essex and Southend-on-Sea Waste Local Plan contains policies which need to be taken into consideration while drawing up a planning application for waste development and which the Council should have regard to when deciding such applications. Regard will also be had to the saved policies of the Basildon Borough Local Plan.

Essex County Council and Southend-on-Sea Borough Council are working in partnership to prepare a new Joint Essex and Southend-on-Sea Waste Development Document. The emerging Document is at such an embryonic stage that it cannot be considered a material consideration of any weight at this point. However the emerging Document is supported by an evidence base which includes a Capacity Gap Report to update and combine the waste arisings, capacity and future requirements studies. Any consideration of need for the proposed facility will have due regard to this study.

Basildon Borough Council is currently preparing their LDFagain however; the Basildon LDF is at such an embryonic stage that it cannot be considered a material consideration of any weight at this point.

5.2 Proposed Methodology

The planning policy section of the ES will include a general overview of the planning context relevant to the proposed scheme and a more detailed examination of policies that relate to the site and surrounding areas. Against this background, policies that form the overall context for a decision on the scheme will be described and analysed to demonstrate the relationship between the various objectives. Where policies set compliance standards, or other statutory and non-statutory criteria, these will be identified.

The detailed interpretation of these policies and others that relate to specific impacts will be considered within the planning policy chapter of the ES. In addition, all relevant guidance, policy and legislation relating to each technical aspect will be discussed specifically within each technical chapter of the ES.

The Policy Section of the ES will also demonstrate the need for the proposed facility in terms of European, National, Regional and Local Waste Legislation, Strategies and Policies. It will also consider the alternative technology solutions considered in order to manage the Authorities waste arisings.

5.3 Scope of the environmental impact assessment

This section sets out The Consortium's views as to the main environmental issues that could potentially arise as a result of the proposed development.

The principal environmental issues that are considered potentially significant are:

- Traffic and Transportation;
- Landscape and Visual Impact;
- Water and Flood Risk;
- Noise and Vibration;
- Air Quality; and
- Socio-Economic

This report provides a summary of the EIA methodology and the informal statutory consultation that has been undertaken for each of the above disciplines. This will be reported further within the ES and other documents that will support the planning application.

Further environmental issues that are not considered significant but will be considered to a lesser extent within the ES are:

- Ecology;
- Ground Conditions; and,
- Archaeology and Heritage.

The following sections provide details of the consultation exercise undertaken on the potentially significant environmental issues and the proposed scope of the assessments. They will also provide justification as to why the environmental issues given above are considered less significant and in effect 'scoped out' of the assessment.

5.3.1 Traffic and Transportation

5.3.1.1 Methodology

Given the similar nature of the proposed development with the existing permission it is likely that the numbers of vehicles entering the development during operation and construction will likely be similar to or less than that predicted within the original Planning Permission ESS/04/07/BAS. Therefore The Consortium propose that a full Transport Assessment (TA) is not required and a Transport Statement would provide sufficient information to support the EIA and assess the impacts of the development on the road network. The TS would be based on the findings of a trip comparison exercise between the development which was previously granted consent and the proposed new development.

5.3.1.2 Scope

The following traffic EIA methodology is proposed:

- The existing traffic conditions on the surrounding highway network will be assessed and presented within a baseline conditions section of the EIA chapter. An assessment will be made of both the HGV and total traffic impacts arising from the construction of the scheme;
- The Institute for Environmental Management and Assessment (IEMA) 'Guidelines will be referenced for the Environmental Assessment of Road Traffic' guidelines which suggest a range of topics to be considered when determining the magnitude and significance of the environmental impact of development proposals. The topics include: noise, vibration,

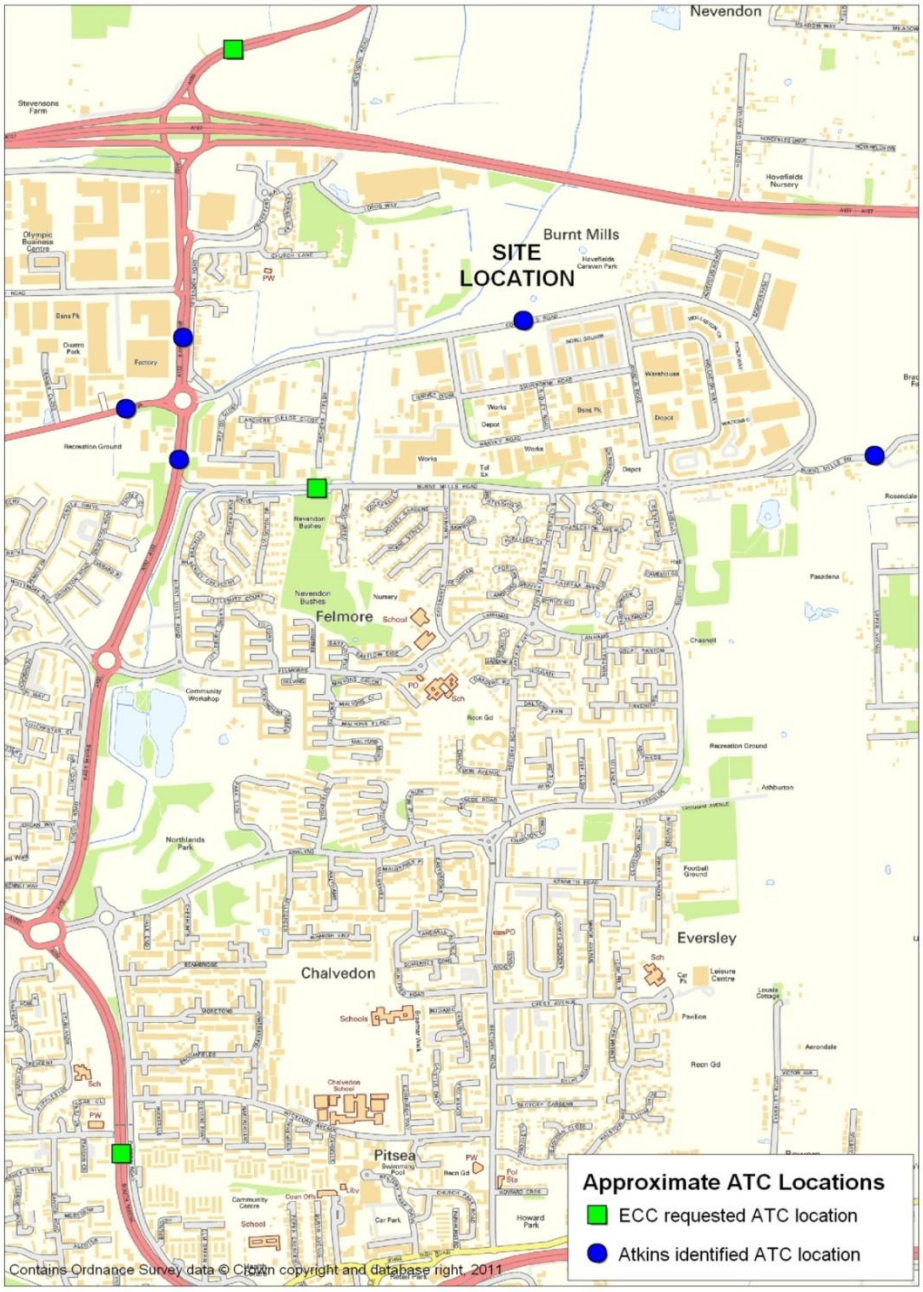
severance, driver and pedestrian delay, fear and intimidation, accidents and safety, hazardous loads, dust and dirt and ecological effects. The EIA chapter on Transport and Access will focus on severance, driver and pedestrian delay, fear and intimidation, accidents and safety and hazardous loads;

- The impact of the predicted increase in HGV traffic will be assessed, which will be used as a proxy for 'fear and intimidation' impacts. The EIA will also consider other related factors such as vehicle speed, proximity to vehicles and footway width;
- The principal routes used within the study area will be identified and thus the junctions on the surrounding highway network that will be affected by the scheme;
- Traffic counts will be obtained where available from ECCHT to establish the existing traffic flows and speeds on these principal routes. Where unavailable, new counts will be commissioned (see Insert 1 overleaf). It should be noted that no junction capacity assessments are proposed although an assessment of the new access roundabout on Courtauld Road will be undertaken as part of a TS for the site;
- Personal Injury Accident (PIA) data for the immediate highway network will be obtained and analysed in order to identify any road safety issues which are likely to be exacerbated by the presence of operational and construction traffic;
- Peak (worst case) construction and operational traffic generation for the scheme will be estimated;
- The impact of the proposed traffic will be established and assessed, with reference to thresholds within the IEMA guidelines (see above);
- In addition to the standard policy documents, the following specific policy documents will also be considered: and
    - The ECC Development Management Policies; and
    - Essex Planning Officers Association (EPOA) Parking Standards.
- Mitigation measures for the effects of increased traffic will be developed as necessary.

This methodology has been informally discussed and agreed with ECCHT.

In order to identify the proposed geographical area of scope for the TS, informal discussions have taken place with Essex County Council's Highway Team (ECCHT). The agreed scope of the traffic surveys is highlighted in Insert 1 below, with the sites in green representing additional traffic count sites as requested by ECCHT. These were deemed necessary to ensure that the existing flows are understood on all roads that may be used by future site traffic, whether it be cars or HGVs.

Traffic counts have been undertaken during July 2010, and whilst this did not necessarily represent a 'neutral' week given that it was close to the end of the school term; it was demonstrated to ECCHT that despite this, as these traffic counts will be forming a baseline assessment for a percentage impact for the ES (in the main) it is likely that these will represent a robust assessment and are considered suitable. No objection to this was provided by ECCHT.



Insert 1 Automatic Traffic Count Locations

Initial consultation with ECCHT has indicated they are in agreement with the proposed methodology outlined above.

The IEMA guidelines state two ‘rules of thumb’ regarding the scope of the links that should be assessed for EIA purposes. The first rule advises on the inclusion of highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%). The second rule advises on the inclusion of any other specifically sensitive areas where traffic flows have increased by 10% or more. It was suggested that HGV impacts will be considered for those links that are impacted on (due to the potential traffic distribution) and are likely to have HGV or total traffic increases greater than 30%. ECCH was asked to advise if they knew of any areas on the network that they considered sensitive to HGV traffic.

ECCHT have advised that even if the HGV increase is less than 30% it would be prudent to consider the impact of the HGV increase on roads in the immediate vicinity of the site e.g. Courtauld Road, East Mayne to A127, East Mayne/South Mayne to A13 and Burnt Mills Road. It was suggested that Pound Lane is particularly sensitive and no additional HGV traffic should use this route to the A127. A contribution towards traffic calming was secured from the previous application to prevent HGVs using this route.

5.3.1.3 Cumulative Impacts

Informal discussions with ECCHT have identified that the TS will need to take account of the new access that is to be provided into the development. As this new access will also provide access for a distribution centre (Phoenix Freight International) on the opposite side of Courtauld Road and potentially to a future waste facility immediately to the west of the site these developments will be treated as committed. The TS would need to take this into account by carrying out a capacity assessment at the proposed junction (to include both proposed and committed development traffic).

ECCHT also confirmed the Rifle and Pistol Club located on land opposite Harvey Road (planning permission no. 05/00928/FULL) should be included as a committed development.

ECCHT confirmed that an assessment of the opening year and 10 years post opening with background traffic growth derived from TEMPRO would be required. ECCHT agreed that traffic distribution and assignment will be as per the previous TA.

5.3.1.4 Consultation

ECC has provided details of S106 agreements that were agreed as part of the previous application, which include cycle and footway improvements. It is likely that these agreements will be applicable for the revised application and will be considered further in the TS.

ECCHT also recommended that the Highways Agency (HA) is re-consulted and this will be undertaken as part of the EIA. ECCHT conceded that although the revised development is likely to have minimal impact on the HA network, the HA are likely to request a revised Travel Plan be submitted as part of the amended panning application for the site.

In addition ECCHT were asked to confirm what (if any) changes to the wider local highway network have occurred since the previous TA was submitted. ECCH confirmed that there have been a number of capacity improvement modifications to East Mayne which have just been completed and less recently improvement to the Fairglen junction (A127/A130) with a segregated left turn slip A130-A127 westbound. There are also improvements to the Saddlers Farm roundabout which are currently being undertaken (although these are further afield).

5.3.2 Landscape and Visual Impact

5.3.2.1 Methodology

An assessment will be made of the effects of the proposed development upon the landscape fabric of the site itself and upon the surrounding landscape character. The visual effects of the proposed development on nearby residential areas, public rights of way and recreational areas will also be considered. This will recognise that the site has already been the subject of a separate exercise to clear the development area and establish a raised construction platform.

Whilst the site does benefit from planning permission for the development of a major waste management facility, it is accepted that the proposal would be a conspicuous new feature in views from nearby sensitive receptors. The A127 boundary defines the northernmost boundary of the Thames Gateway and the southernmost extent of the Green Belt.

A site visit was undertaken in July 2011 to assess any changes to the landscape character since the 2006 EIA where it was noted that;

The presence of mature poplar and evergreen trees to the south of the site will assist in screening views from the east and south east whilst tree and scrub vegetation along the northern boundary of the site and extending east and west on the southern side of the A127 will offer some screening in views from the road and from the north. This will be supplemented by way of a comprehensive landscaping scheme. Whilst the presence of the dual carriageway and large industrial buildings characterise the northern boundary, preserving views into the Green Belt remain important and full regard to this will be made within the landscape and visual assessment.

The Hovefields Caravan Park, located on the south eastern boundary of the development site, is the nearest sensitive receptor, being the closest residential properties from the site. The facility has been designed so as to not have an overbearing effect on the receptor, with the building being offset from the boundary (by comparison with the consented development for the site) along with the provision of bunding and landscaping. Mitigation on this boundary is sensitive, balancing screening with ensuring the mitigation is not overbearing or that planting gives rise to problems of shade or leaf fall for the residents.

The proposal for an earth bund to provide screening of low level clutter and site movements will be explored and assessed to ensure this in itself does not have an adverse visual impact.

The main frontage to the proposed development will be from the boundary onto Courtauld Road. The design of the facility will embrace the opportunity for proving an exemplar public interface, through high quality design, additional planting and the provision of green space for public access.

In general terms, the largely flat topography of the area combined with the generally built up nature of the surroundings will mean that many potential views will be restricted by buildings and / or foreground vegetation and that the overall influence on the wider area will be limited.

As part of the proposed development, a comprehensive landscape scheme will be developed for the site, with enhancements being offered to the northern and eastern boundaries as well as to the frontage of the building from off Courtauld Road.

The landscape and visual assessment will be carried out in accordance with guidance within Guidelines for Landscape and Visual Impact Assessment (The Landscape Institute of Environmental Management and Assessment 1995 and revised 2002).

The assessment process will follow a standard approach, namely:

- The establishment of the baseline conditions i.e. the character and sensitivity of the landscape, and the type and sensitivity of visual receptors;
- The prediction of the magnitude of change that the proposed development will bring, allowing for mitigation measures, upon the landscape and upon visual receptors; and
- An assessment of the significance of effects that would occur, by considering the predicted magnitude of change, together with the sensitivity of visual receptors respectively.

5.3.2.2 Consultation

Information consultation has been undertaken with Mr Peter Spurrier Public Realm Adviser for Essex County Council (ECC) as to the appropriate viewpoints to consider and it was agreed that a total of 16 viewpoints would be used for the assessment with photomontages also being produced from three of these locations. Consideration was given to the appropriateness of the viewpoints used in the assessment of the approved scheme and it was agreed with Mr Spurrier that a number of points could be omitted as they were used to assess the wider site area including the mitigation land to the north of the A127. Additional viewpoints were also agreed to the east of the proposed development and also to provide long range views from the north and north-west of the site. Appendix A.3 presents the agreed viewpoints and photomontage locations.

Views from the southern arc are substantially screened by the landform and existing industrial estate development. It is concluded that the Visual Envelope previously established does not require amendment.

5.3.2.3 Assessment

The assessment will aim to provide:

- A clear understanding of the site and its setting in respect of landscape character and visual amenity;
- An understanding of the proposed development in terms of its relationship with the landscape character and visual amenity;
- An identification of all potential direct and indirect effects of the proposed development upon the landscape;
- An identification of potential effects on visual receptors;
- An identification of potential effects upon the visual amenities of the Green Belt;
- A description of the proposed mitigation measures; and
- A conclusion as to the potential residual effects of the proposed development.

5.3.2.4 Cumulative Effects

There are not expected to be any significant cumulative effects between this site and other committed development in the area with regards to visual impact.

5.3.3 Water and Flood Risk

5.3.3.1 Methodology

The following proposed methodology assumes that:

- The site has been elevated above the level of flood risk (related to Planning permission ESS/04/07/BAS).
- The Nevendon Brook has been diverted around the site as per the previous Flood Risk Assessment (related to Planning permission ESS/04/07/BAS).

The assessment methodology will be based on a source-pathway-receptor methodology. The principles of such an assessment are detailed in the Defra 2000, Guidelines for Environmental Risk Assessment and Management and it utilises the “connection between the source (of the hazard), the pathway, the receptor, and the impact. It is important that connectivity or potential connectivity between these four components can be shown. If any of these components is missing then the risk assessment need go no further.”

In addition to this, the assessment criteria that will be used are based on the methodology for appraising the impact of projects (plan level appraisal) set out in the Department for Transport’s (DfT) Transport Analysis Guidance (TAG) Unit 3.3.6 and the specific guidance for the water environment sub-objective set out in TAG Unit 3.3.11. Although this methodology has been developed for the assessment of road and bridge projects it can be used to assess the impacts of other developments such as this waste scheme.

The methodology takes into account the importance, magnitude and significance of predicted impacts on the water environment.

In applying this methodology, significant effects would be those of slight significance or above. Effects of neutral significance are termed insignificant. If an adverse significant effect is identified, whether it is of slight, moderate, large or very large significance, then mitigation measures will be identified to reduce or mitigate this effect. When beneficial impacts are identified, then opportunities for further environmental enhancement can be considered.

The site is greater than one hectare in size and will generate runoff due to the placement of buildings and impermeable ground cover; as a result a flood risk assessment (FRA) will be prepared in line with PPS25, Environment Agency standing advice and guidance given in CIRIA's Development and Flood Risk Guidance for the Construction Industry.

5.3.3.2 Consultation

Consultation with the Environment Agency (EA) was undertaken in early 2011 (Ref. AE/2011/112123/01-L01) when Mr Neil Dinwiddie (EA Planning Officer) agreed that the projected 1 in 100 year river flow with the inclusion of climate change will be confined within the re-profiled Nevendon Brook. Therefore, as a result of the site's new profile, the site is no longer situated within Flood Zone 3.

This stance was discussed with Mr Roger Webster (EA Development Control Officer, Eastern Area Office, Ipswich) who confirmed that the EA agree with the revised hydraulic modelling of the Nevendon Brook submitted by Brand Leonard. The correspondence from Mr Dinwiddie (Environment Agency Planning Officer) in January 2011 can be taken as their agreement even though the flood maps have not been amended.

Mr Webster has confirmed that it would seem appropriate that the new scheme should use the flood levels provided within the Brand Leonard FRA report (i.e. 11.58m AOD) and should also confirm that the site is now above the 1 in 1000 yr flood level and therefore in Flood Zone 1. Mr Jeremy Bloomfield (EA Hydraulic Modeller, Eastern Area Office, Ipswich) also agreed with this approach.

5.3.3.3 Assessment

A review of the proposed development and site setting has identified potential impacts on the water environment which will require an assessment using the methodologies detailed above. With respect to water contamination it is recognised that the deliberate or accidental discharge of polluting material into controlled waters is an offence under the Environmental Permitting Regulations 2010 (as amended) if undertaken without consent and could lead to major adverse impacts without mitigation. This has been taken into account in the identification of potential impacts from the scheme.

In terms of flood risk the governing guidance (PPS25) requires the developer to prove to the Local Planning Authority and the Environment Agency that any existing flood risk or flood risk associated with the proposed development can be satisfactorily managed.

The FRA will provide a qualitative assessment of the flood risk to and from the site. The report will determine the constraints from other flood risks as required by PPS25 to include surface water disposal, overland flows, groundwater flooding, and infrastructure failure. Following a review of the flood risk the information will be fed into the surface water design taking into consideration the advice presented in "preliminary rainfall runoff management for developments".

No Sites of Special Scientific Interest, Special Protection Areas (SPA), Ramsar, National/Local Nature Reserves, Special Areas of Conservation or Environmentally Sensitive Areas have been identified within 2km of the proposed development site. As such it is expected that there would be no secondary impacts on the surrounding designated sites located more than 2km from the site.

The potential environmental effects in terms of the water environment that will be considered as part of the EIA are:

- a reduction in groundwater quality as a result of spillages or construction activities;
- a reduction in surface water quality from contaminated runoff entering the local water courses (Nevendon Brook);
- a change to the surface water flow regime from a change to the runoff generated in the area due to the placement of impermeable material; and

- a reduction in groundwater recharge due to the placement of low permeability material reducing infiltration.

5.3.3.4 Cumulative Effects

There are not expected to be any significant cumulative effects between this site and other committed development in the area with regards to the water environment. Although the area of land immediately to the west of the site has been allocated for a future waste facility the impacts of both this area of land and the site being developed were considered in the 2006 planning application and mitigation works in the form of flood elevation have been completed.

5.3.4 Noise and Vibration

5.3.4.1 Methodology

The nearest noise-sensitive receivers to the site are Hovefields Park Caravan Site to the eastern site boundary, commercial/ office areas to the south along Courtauld Road and residential areas to the northeast, off Hovefield Avenue.

A baseline noise survey was undertaken in May 2011 in order to determine the background and ambient noise levels at locations representative of the noise-sensitive receivers. The findings of this survey will be used to assess the likely impacts.

A noise modelling exercise using SoundPlan software will be undertaken. All calculations will be in accordance with ISO 9613 'Attenuation of sound during propagation outdoors, Part 2 General method of calculation', dated 1996. This will include modelling of fixed plant inside buildings, any fixed plant outside buildings, general lorry movements on the access road within the site, lorry manoeuvring (idling, reversing etc), any noise breakout from buildings (through building fabric, access gates, or other weaknesses), acoustic absorption within buildings and the preparation of noise maps.

An assessment of likely impacts from plant and activities within the site on the nearest noise-sensitive receivers will be undertaken. The assessment of impacts from fixed installations or other industrial installations will be undertaken in accordance with BS 4142: 1997 'Method for Rating industrial noise affecting mixed residential and industrial areas'. The impacts from lorry manoeuvring will be undertaken with reference to BS 8233: 1999 'Sound insulation and noise reduction for buildings – Code of practice.'

A generic assessment of potential noise and vibration impacts during construction, proportionate with details available at the time regarding construction plant and methods, using BS 5228: 2009 'Code of practice for noise and vibration control on construction and open sites' Parts 1 & 2 will be undertaken.

An assessment of road traffic noise generated by the development on the wider road network (during operation and construction) will be undertaken. This will use the guidance provided within Calculation of Road Traffic Noise (CRTN) 1988 and 'Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 7, HD 213/11 Noise and Vibration, dated February 2011.

5.3.4.2 Consultation

Informal discussions have taken place with Mr Graham Bannister the Environmental Health Officer (EHO) at Basildon Borough Council, the results of this are detailed below.

From this it was agreed that the above general methodology was deemed appropriate for the assessment of noise impacts in this instance.

Regarding the assessment of construction noise impacts (BS 5228), it was advised that limits should be set based on existing ambient noise levels using methodologies outlined in BS5228 (for example, 'ABC method'). It was also stated that a best practicable means method would be advisable over a more formal Section 61 agreement. It was understood that, although the construction noise should be assessed, it is considered that it is unlikely to cause any major issues.

Mr Bannister also advised that given the proximity of sensitive receptors consideration should be given to restricting the construction operations to the following hours:

Monday to Friday	0700 - 1900 hrs for general works 0800 - 1900 hrs for more extremely noisy works such as concrete breaking, pile driving and angle grinding.
Saturday	0800 – 1700 hrs for all works audible at the site boundary.
Sunday and Bank Holidays	no works that are audible at the site boundary

On assessing noise impacts from normally operating fixed mechanical plant using BS 4142; it is aspired that the noise generated by the operation should not increase the existing background noise climate. It was conceded however this may not be realistic and hence advised that the BS4142 Rating noise level from the operation should not exceed those background noise levels measured (Daytime LA90 = 44dB, Night-time LA90 = 37dB at the nearest noise sensitive receptor).

On assessing noise impacts from fixed mechanical plant operated for short periods of regular testing (say once a week for 30mins during day-time hours on a working-day), it was advised that for daytime periods they would not wish for the noise controls to tackle atypical events of sporadic short duration. Strict controls would be applied for night time periods.

The use of BS 4142 for assessing impacts from lorry manoeuvring within a site is not typically considered appropriate. Therefore it was agreed that the use of BS 8233 (appropriate internal noise levels within bedrooms and living rooms, and appropriate internal maximum noise levels at night) or equivalent WHO criteria are a suitable alternative assessment methodology for activities which are not industrial in nature but nevertheless could result in nuisance (reversing, engine start-up and idling, etc).

5.3.4.3 Assessment

The potential environmental effects in terms of noise environment that will be considered as part of the EIA are:

- The noise and vibration impacts from fixed and mobile plant within the site boundary on sensitive receptors during operation.
- The noise and vibration impacts associated with construction considering the construction plant and methods.
- The noise impacts associated with the road traffic generated by the development.

5.3.4.4 Cumulative Effects

There are not expected to be any significant cumulative effects between this site and other committed development in the area with regards to noise impacts.

5.3.5 Air Quality

5.3.5.1 Methodology

Dust

A qualitative assessment of the potential impact of construction dust and fugitive operational dust on nearby sensitive receptors, taking account of wind direction/speed (using meteorological data from a nearby representative station) and the location of sensitive receptors relative to the site will be undertaken.

The construction assessment will use information on the types of activities, the location of dust raising activities and their likely duration. The operational assessment will focus on the proposed mitigation measures to be incorporated in the design.

Bioaerosols

A site specific bioaerosol risk assessment (SSBRA) will be undertaken in line with the Environment Agency's latest position paper on bioaerosols from composting operations. As the proposed development will not use open windrows, and because the operations will be contained in a building under negative pressure, a qualitative assessment is appropriate. This will consider the potential impact of bioaerosol emissions during the operation of the facility on nearby sensitive receptors, taking account of the distance of sensitive receptors from the site.

Odour

A dispersion modelling study of odour emissions from the biofilter stack has been undertaken. The study used the steady-state Gaussian plume model, AERMOD. The modelling considered emissions from the biofilter stack, building upon the initial work undertaken in March 2011 which determined an appropriate stack height and location.

The methodology is in line with the latest Environment Agency horizontal guidance document (H4, April 2011). The study reports the 98th percentile of hourly odour concentrations for individual years in a three year meteorological data set. We intend to compare the results with a benchmark of 3 odour units per cubic metre (for moderately offensive odours). Contour plots overlaid on a suitable base map will be produced.

Traffic

If additional traffic generated by the development exceeds the criteria of 200 HGV movements per day or 1000 total (HGV plus cars) movements per day (as set out in the Highways Agency's Design Manual for Roads and Bridges (DMRB) and EPUK development control guidance) a quantitative assessment of the potential impact of emissions from construction and operational traffic on nearby sensitive receptors will be required.

Based on the findings of initial analysis it is considered unlikely that these criteria would be exceeded.

5.3.5.2 Consultation

Informal discussions have taken place with Mr Graham Bannister, the EHO at Basildon Borough Council, with regards to the proposed approach to the air quality assessment for the development.

Mr Bannister confirmed that there are currently no air quality management areas (AQMAs) within Basildon Borough. Basildon Borough Council commenced air quality monitoring surveys in their authority area in 2006; these data will be used to inform the EIA for the proposed facility. The Council until recently operated a continuous monitoring station measuring nitrogen dioxide, particulate matter (PM_{10}) and sulphur dioxide at Gloucester Park, approximately 4.5 kilometres south west of the site. The Council has now decommissioned the station as concentrations of air pollutants have been below air quality standards for four consecutive years. In addition, the Council undertakes diffusion tube monitoring of nitrogen dioxide at a number of other locations. This survey has been expanded following the closure of the continuous station and includes properties adjacent to the A127 and on Nevendon Road. Between 2006 and 2009 none of the sites measured any exceedances of air quality standards although the latest data for Nevendon Road site suggest that concentrations are relatively high.

Monitoring at background locations in Basildon is not undertaken therefore a suitable site from the Essex Air Quality Monitoring network or other DEFRA background site/mapped value will be used for the purposes of the assessment.

Baseline monitoring of bioaerosols, dust (other than PM_{10} monitoring) and odour is not currently undertaken in the vicinity of the development site. The sewage treatment works, immediately to the

west, occasionally gives rise to noticeable odours off-site. A complaints record is maintained for the site and operations are reviewed on a regular basis.

Due to the coverage provided by the local authority diffusion tube network, a site-specific baseline nitrogen dioxide monitoring survey is not required. However, Graham Bannister has requested a baseline odour and bioaerosol survey. A site walkover survey of odour will be undertaken to understand existing conditions, although it will not provide any quantitative data for use in the EIA. The odour survey will be carried out with reference to the subjective field odour assessment ("sniff testing") procedure described in the Environment Agency publication entitled "Technical Additional Guidance for H4 Odour Management - How to comply with your environmental permit" (2011). This is a subjective monitoring exercise to assess the intensity of odour during field surveys.

Baseline monitoring of bioaerosols (using a method acceptable to the Environment Agency) will be undertaken to provide baseline information prior to construction of the facility, for use in future comparisons post-opening. Dust monitoring during the construction phase will also be undertaken to ensure that dust deposition rates do not exceed acceptable levels.

5.3.5.3 Assessment

The potential environmental effects in terms of air quality that will be considered as part of the EIA are:

- Dust from the construction and operational phases;
- Odour from the operational phase;
- Bio aerosols from the operational phase; and
- Road traffic emissions during the construction and operational phase.

5.3.5.4 Cumulative impacts

The land to the west of the Facility if developed for waste uses, may have the potential to give rise to emissions of dust, odour and bioaerosols when operational, as well as emissions of local air pollutants from vehicles accessing the site. It is considered appropriate that the cumulative impacts of the operation of both facilities should be considered qualitatively where possible.

In addition the operation of the sewage treatment plant to the west of the proposed site would be included in any cumulative assessment of odour and bioaerosols.

5.3.6 Daylight/Sunlight Assessment

5.3.6.1 Methodology

The assessment will consider the effects of the proposed development on any changes in sunlight and daylight availability with reference to the issue of the proposed scale and height of the development.
A 3D model of the proposed Facility will be produced and this will be used to generate shadow projections from the facility at various time of the year to assess its impact on adjacent areas.

5.3.6.2 Consultation

Discussions will be undertaken with the environmental health department of Basildon Borough Council and the Planning Authority at Essex County Council to agree the appropriate times of year to be modelled.

5.3.6.3 Assessment

The potential effects in terms that will be considered as part of the EIA are:

- Daylight reduction from current conditions on any adjacent properties; and

- Reduction in sunlight to outdoor spaces

5.3.7 Socio-Economic Assessment

5.3.7.1 Methodology

This section will identify the key socio-economic issues associated with the proposed development. No published standards or guidance exist for undertaking a socio-economic impact assessment therefore the assessment will be based on professional experience and judgement.

The assessment will be a desk based assessment which will be undertaken in conjunction with the development of the Economic Statement to accompany the Planning Application.

5.3.7.2 Assessment

The assessment will consider impacts in relation to;

- Employment
- Implications of connectivity with the local area.

Impacts will be quantified where possible otherwise a qualitative assessment of the impacts will be made on professional judgement.

5.3.8 Other Environmental Issues

The following section highlights other environmental issues that have been considered but are not thought to have significant impacts and therefore are proposed to be scoped out from the EIA.

5.3.8.1 Ecology

An ecological walkover survey of the site was undertaken on July 20th 2011 by an Ecologist.

The site was observed to be a level base of recently spread soil and soil spreading was ongoing at the time of the site visit. Very little vegetation is remaining. The remaining vegetation was confined to the outer edge of the site and three retained shallow ditches located within the site itself.

The main issues identified are:

- Residual reptile and great crested newt populations
- Close proximity to an Special Protection Area and the potential need for a Habitat Regulations Assessment

Reptiles and great crested newts

An Environmental Statement was originally produced by Atkins in 2006 prior to the site clearance works. The mitigation proposed for the site clearance included the translocation of reptiles and great crested newts from the clearance site to a habitat creation area to the north of the site. It was acknowledged in this ES that not all reptiles would be removed from site and that the vegetation at the edge of the site should be retained to support these remaining reptiles.

Whilst the majority of the levelled site is considered unsuitable for these protected species, there is a possibility that they could occur in the retained vegetation and along the shallow ditches.

Maintenance is required to keep the site unsuitable for these species until the start of works.

Special Protection Areas

Benfleet and Southend Marshes Special protection Area (SPA) is just over 5km from the site and Thames Estuary and Marshes SPA is approximately 10km from the site. There is negligible potential for any of the qualifying bird species of the nearby SPAs (avocet, dark-bellied brent goose, grey

plover, hen harrier, knot, ringed plover) to use the site in its current state as it is featureless and surrounded by industrial areas.

There is some potential that qualifying bird species would have used the pre-existing habitat and they could now use the habitat compensation site to the north. However due to the industrial nature of the surrounding area and the busy road dividing the site from the compensation area, it is considered that the proposed works would not have an impact on any birds using the compensation area.

There is no reason to consider conducting a Habitat Risk Assessment (HRA) for the site in its current state as it has negligible potential for the qualifying species.

Conclusion

As the majority of the site has already been cleared of vegetation and great crested newt and reptile translocation has already been undertaken there is not considered to be any requirement for ecology to be included as a major chapter within the ES. Measures will be implemented to protect any remnant newt and reptile population within the edge habitats. A summary section will be included within the ES to report on these issues.

As the site is considered to be unsuitable for the SPA qualifying bird species and the proposed works would not affect birds using the compensation area, a HRA will not be necessary.

5.3.8.2 Ground Conditions

As per the existing permission the site has been infilled with inert material to a minimum level of 11.5m AOD. The Consortium therefore do not consider 'Ground Conditions' to be a significant issue worthy of an EIA. This will be recorded in the ES.

The ground conditions will however be investigated as required by the Environmental Permit and will be reported as part of the permit application.

5.3.8.3 Archaeology and Heritage

An archaeology and cultural heritage assessment was undertaken as part of the previous planning application and was reported in the 2006 Environmental Statement.

The following reports were submitted with the previous planning application:

- Desk based assessment of the development site;
- Two phases of archaeological investigation; and
- Brief for archaeological excavation works.

Subsequent to the above, the following activities have been undertaken by the current developers on the land to the north of the A127 (which is within the previous application boundary but not part of the current application site):

- Written scheme of Investigation;
- Archaeological fieldwork in accordance with the above; and
- Preliminary summary report.

The 2006 ES Cultural Heritage assessment chapter concluded that the development would not have significant adverse effects on the built heritage or the historic landscape. This chapter also assessed the current application site area as an area known to have been disturbed and the likelihood of surviving buried archaeological remains in this area was considered to be nil or very unlikely.

Consequently the area has undergone significant enabling works as part of the ESS/04/07/BAS planning permission to bring the site levels up for flood protection reasons.

For these reasons it is proposed to scope out Archaeology and Cultural Heritage from the ES for the current application site (but include a summary as to why), as it is very unlikely that the development will have any significant adverse effects on the built heritage, the historic landscape or archaeological remains. Informal consultation has taken place with Mr Richard Havis (Senior Historic Environmental Officer, at Essex County Council) regarding this approach and he has confirmed his agreement.

6. Conclusion on EIA Scoping

6.1 Potential Significant Environmental Effects

The potential significance effects identified in this scoping report are as follows:

- Air quality – the effects of operational site traffic on local air pollutant concentrations and the potential for odours emissions on local receptor sites. The potential for bioaerosol emissions during the operational phase and nuisance associated with emissions of dust during construction.
- Noise – the effects of noise on nearby sensitive receptors' including Hovefields Caravan Park during construction and operation from both road traffic and industrial noise sources including plant and equipment.
- Landscape – the effects on landscape and visual amenity in both the short and long term, and the impacts on sensitive receptors.
- Socio-Economic – the socio-economic effects in both the short (construction phase) and long term (operational phase) (produced alongside the economic statement within the Planning Statement).

This scoping exercise has identified that the heritage, ecology and ground conditions effects of the development are unlikely to be significant, it is therefore suggested that these matters are 'scoped out' at this stage however a summary section will be included within the ES justifying this approach.

6.2 Proposed Content of the Environmental Statement

The Environmental Statement will comprise three volumes:

- Non-Technical Summary
- Environmental Impact Assessment
- Technical Appendices and Drawings

The proposed content of the Environmental Impact Assessment volume is as follows:

1. Background, introduction and context
2. The site and its setting
3. Description of the development
4. The need for the scheme and alternatives considered
5. Traffic and Transportation
6. Landscape and Visual Impact
7. Water and Flood Risk
8. Noise and Vibration
9. Air Quality

10. Socio-Economic
11. Summary of Effects
12. Conclusions

The proposed content of each environmental technical chapter will broadly be in line with the following sub-headings:

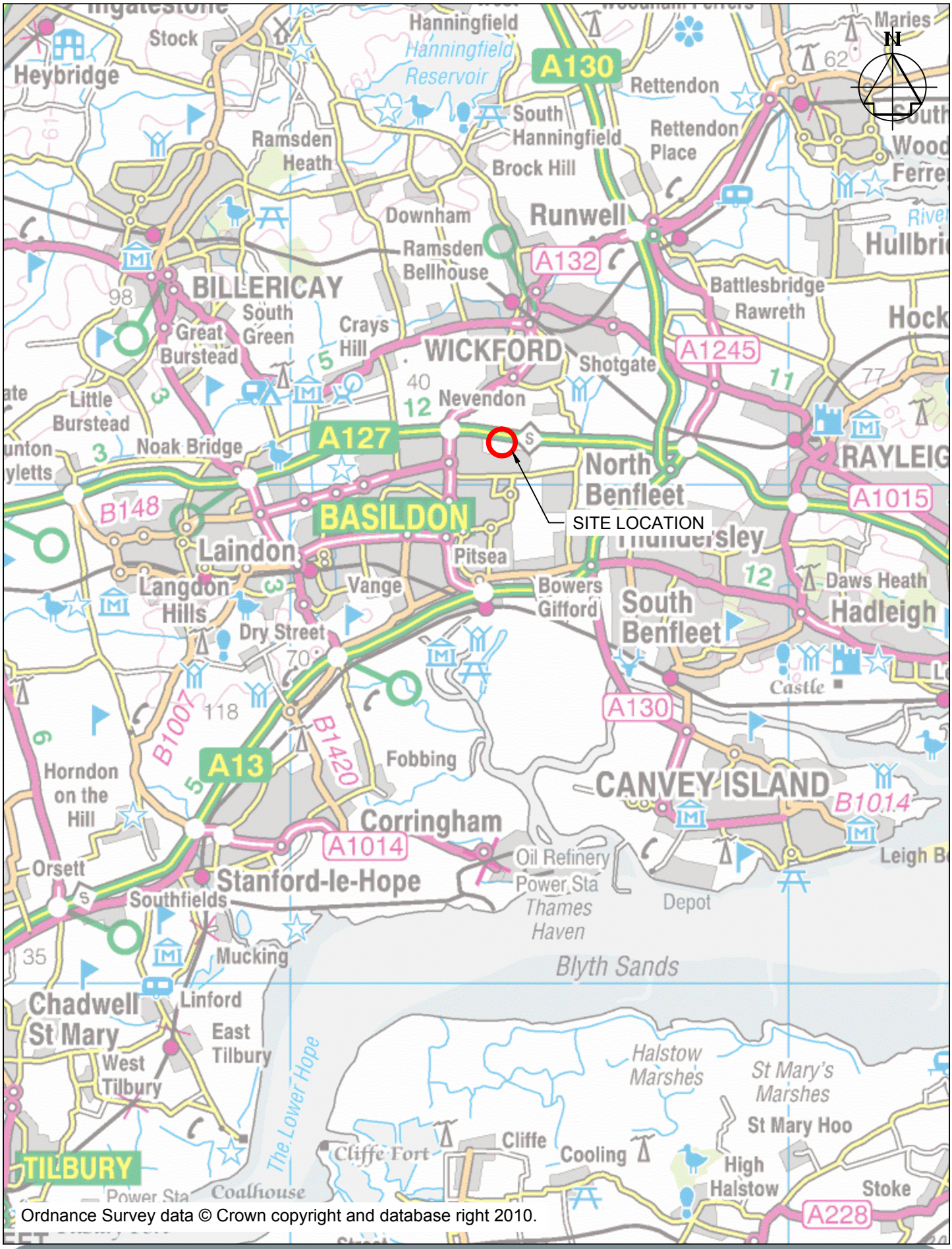
- Introduction
- Planning context
- Assessment methodology
- Baseline conditions
- Key environmental effects
- Environmental Impact Assessment
- Mitigation
- Residual effects
- Cumulative effects
- Areas of uncertainty
- Conclusions

Separate to the Environmental Statement, there will be a number of documents that will support the planning application or that will be prepared for separate purposes. The key documents that will have relevant environmental information include:

- A separate Planning Application Document containing:
  - Planning application forms and certification;
  - Design and Access Statement;
  - Planning Statement (covering need, planning policy context, planning history and planning policy appraisal);
  - Planning Application Drawings.

Appendix A – Figures/Drawings

A.1 Site Location Plan



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Proposed Development of MBT at Courtauld Road, Basildon

Title: SITE LOCATION PLAN
Drawing No: FIGURE A1
Scale: 1:100,000

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A.2 General Arrangement Drawing

NOTES:

1. DRAWING BASED ON 26619/A/CVD/004/A BY ENTEC.
2. NOTE IN RECEPTION BUILDING, UNDERCROFT PARKING LEVEL SHOWN, NOT RAISED DROP OFF AREA.
3. ALL ABOVE GROUND TANKS SHOWN TO BE CONTAINED WITHIN PERIMETER CONCRETE WALLED BUND. THE INTERNAL HEIGHT OF THE BUND IS:

   WASTE WATER TREATMENT STORAGE 1.60m
   TREATMENT REJECT 0.55m
   POTABLE WATER 1.00m

4. ALL WEIGHBRIDGES TO BE FLUSH MOUNTED.

KEY:

- APPLICATION BOUNDARY
- BITUMINOUS PAVEMENT
- REINFORCED CONCRETE PAVEMENT
- GRASSCRETE PAVEMENT
- COBBLED ROAD PAVEMENT
- LANDSCAPE PAVED AREA (INDICATIVE ONLY, REFER TO DRAWING REFERENCE EWP_ISDS_PLA_28 TO EWP_ISDS_PLA_31)
- TIMBER DECK (INDICATIVE ONLY, REFER TO DRAWING REFERENCE EWP_ISDS_PLA_28 TO EWP_ISDS_PLA_31)
- LANDSCAPED AREA (INDICATIVE ONLY, REFER TO DRAWING REFERENCE EWP_ISDS_PLA_28 TO EWP_ISDS_PLA_31)
- LANDSCAPE PLANTING (INDICATIVE ONLY, REFER TO DRAWING REFERENCE EWP_ISDS_PLA_28 TO EWP_ISDS_PLA_31)
- 1m HIGH CLOSE BOARDED FENCE AS ACOUSTIC BARRIER
- 2.1m HIGH WELDMESH PERIMETER SECURITY FENCE
- 2.1m HIGH ARCHITECTURAL PARK STYLE FENCE

PIPE BRIDGE AND TRAFFIC CONTROL GANTRY
WASTE WATER TREATMENT REJECT TANKS
WASTE WATER TREATMENT STORAGE TANKS
WASTE WATER TREATMENT PLANT
WEIGHBRIDGE COMPLEX AND OFFICE (SEE DRAWING EWP_ISDS_CIV_017 AND 018)
BIOFILTER (FINAL DETAIL OF BIOFILTER TO BE CONFIRMED BY URBASER)
PEDESTRIAN CROSSING
STACK
POTABLE WATER STORAGE FOR PROCESS AND FIREFIGHTING
COACH PARKING (2 No.)
DOUBLE LEAF SWING GATE
PEDESTRIAN CROSSING
PEDESTRIAN SWING GATE
LARGE VEHICLE OVER-RUN AREA
SPINE ROAD
LARGE VEHICLE OVER-RUN AREA
PERIMETER BUND
CENTRAL MANNED ACCESS CORRIDOR (SEE DETAIL W2 ON EWP_ISDS_CIV_103)
MATURATION BUILDING (3No. HALLS)
PRODUCT STORAGE
MAINTENANCE ACCESS
VEHICLE MAINTENANCE BAY
REMOTE WEIGHBRIDGE
PERIMETER MANNED ACCESS CORRIDOR (SEE DETAIL W5 ON EWP_ISDS_CIV_103)
DOWN RAMP (1:15)
OPTIONAL OPERATIONAL ONE WAY CIRCULATION ROUTE LIGHTS
ADMINISTRATION AND VISITOR CENTRE
DISABLED PARKING
PEDESTRIAN SWING GATE
DOUBLE LEAF SWING GATE
CRANE REST POSITION
SWITCH ROOM
UNDERCROFT STAFF WELFARE FACILITIES BELOW RAISED WASTE DROP OFF AREA
COACH DROP OFF AND TURNING
RECEPTION HALL
RECEPTION BUNKER
WASTE RECEIVING HOPPER, SERVICED BY OVERHEAD CRANES
ENTRY CONTROL LIGHT
PEDESTRIAN FOOTWAY
LANDSCAPING SCHEME
EMERGENCY ENTRANCE FOR FIRE APPLIANCES
SUDS LAGOON
UP RAMP (1:15)
DOUBLE LEAF SWING GATE
PEDESTRIAN SWING GATE

REV.	BY.	DESCRIPTION	CHK.	DATE

Balfour Beatty
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Proposed Development of MBT at Courtauld Road, Basildon

Title: Proposed General Arrangement

Drawing No: FIGURE A2

Scale: 1:1000

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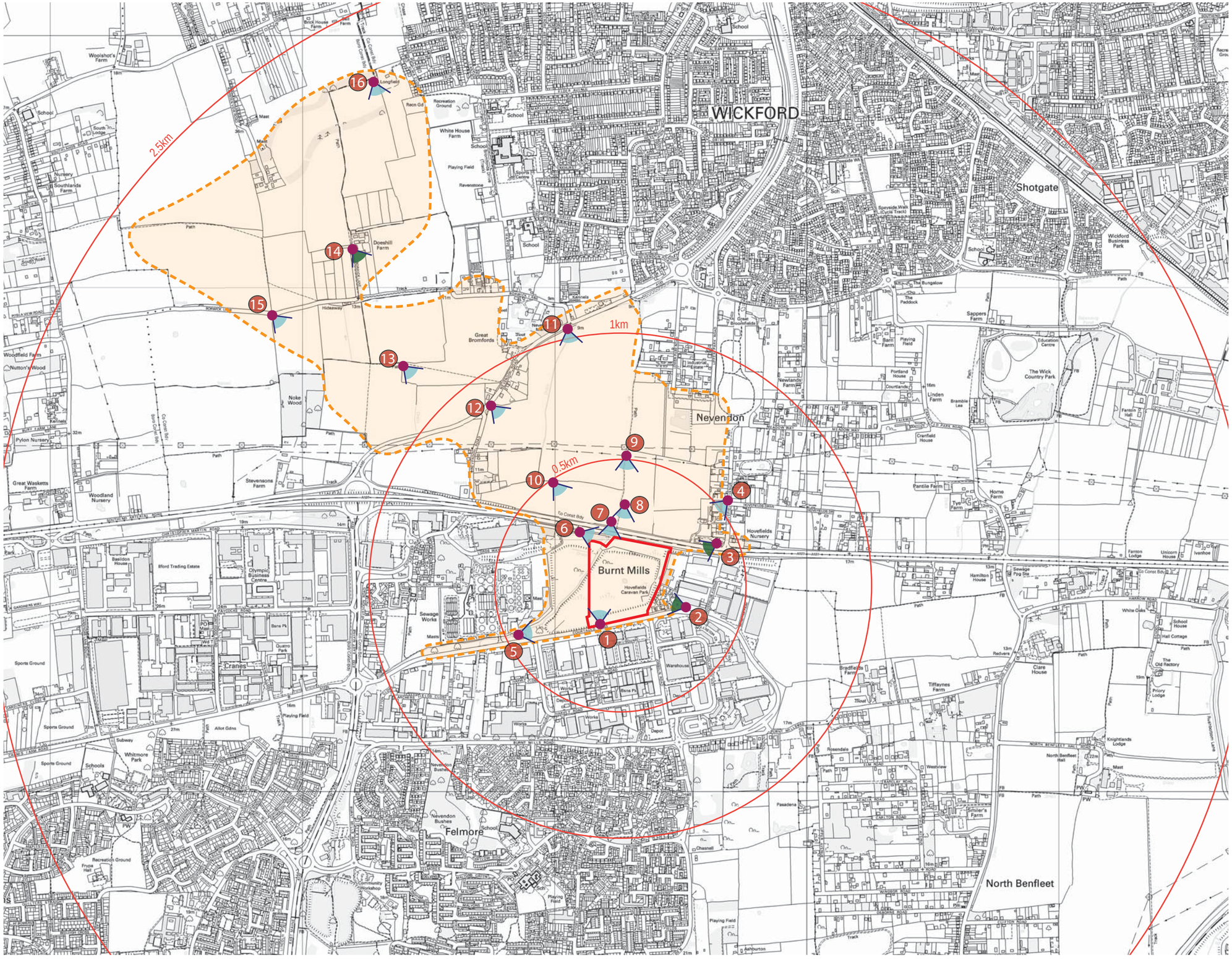
A.3 Proposed Viewpoint Locations



KEY:

- Application site
- Visual envelope
- Viewpoint location
- Viewpoint location with photomontage

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Balfour Beatty / urbaser	**PROPOSED DEVELOPMENT OF MBT FACILITY AT BASILDON**
	Request for Scoping Opinion
TITLE	**Visual Envelope and Visual Amenity Receptors**
DRAWING	**Figure A3**
SCALE	**1:15000 @ A3**

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APPENDIX 1.2 – Scoping Opinion

SCOPING OPINION

Proposal: Development of a Mechanical Biological Treatment facility and ancillary development.
Site: Land at Courtauld Road, Basildon, Essex (OS grid TQ 7426 9082).
Ref: ESS/08/12/BAS/SPO.

Description of Development:

'Development of a Mechanical Biological Treatment facility, visitor and education centre and ancillary development to treat a maximum of 416,955 tpa of residual waste, trade waste, bulky waste, street sweepings and Household Waste Recycling Centre waste.'

The planning application supporting documentation should include a detailed description of the proposal and the detail of the proposal should be considered when undertaking the Environmental Impact Assessment. Any mitigation recommended within the Environmental Statement should be included and described in the proposals within the planning application documentation.

Consultations

I would advise approaching consultees direct in preparing the ES. The following bodies have been consulted as part of the scoping process:

- Essex Fire & Rescue Service.
- National Grid.
- Thames Water.
- Natural England.
- The Environment Agency.
- Highways Agency.
- The Highway Authority (Public Rights of Way).
- Essex County Council Built Environment (Landscape).
- Essex County Council Built Environment (Urban Design).
- Essex County Council Historic Environment (Archaeology).
- Essex County Council Natural Environment (Trees).

The following were consulted but did not provide any comments:

- Basildon Borough Council.
- Civil Aviation Authority.
- London & Southend Airport.
- BAA (Stansted).
- Commission for Architecture and the Built Environment.
- EDF Energy (now UK Power Networks).
- Essex Police.
- Anglian Water.
- East of England Development Agency.
- Essex Wildlife Trust.
- Buglife.
- CPRE.
- State Veterinary Agency.
- NHS South West Essex Primary Care Trust.
- The Highway Authority.
- Essex County Council as Waste Disposal Authority.
- Essex County Council Natural Environment (Ecology).
- Local Member – BASILDON – Pitsea (Cllr David Abrahall).
- Local Member – BASILDON – Pitsea (Cllr Sandra Hillier).
- Local Member – BASILDON – Wickford Crouch (Cllr Donald Morris).
- Local Member – BASILDON – Wickford Crouch (Iris Pummell).

The consultation replies received have been included for your information. Replies received within a reasonable time limit after the issue of the Scoping Opinion will be forwarded to the Agent for their assistance.

Policy Context:

The proposals should be considered and justified against International, National, Regional and Local Policy, in particular:

Essex and Southend Waste Local Plan Adopted 2001

Policies:

W3A (BPEO)
W3C (Need)
W4A (Surface Water Flooding)
W4B (Surface and Groundwater Pollution)
W4C (Access to Waste Management Sites)
W6A (Integrated Waste Management)
W8A (Preferred Locations for Waste Management)
W10A (Planning Conditions and Obligations)
W10B (Application Details)
W10E (Development Control Criteria)
W10F (Hours of Operation)

Basildon District Local Plan Adopted 1998

Policies:

GB1 (Green Belt)
C15 (Hazardous Substances)
E4 (Employment Areas)
E7 (General Industry, Storage and Distribution)
E10 (General Employment)

East of England Plan Adopted May 2008

The Regional Spatial Strategy forms part of the development plan but the Government's proposed abolition of it is a material consideration for all planning applications.

Essex County Council 'Waste Development Document: Preferred Approach'

This document outlines the preferred policy approach for managing waste within the plan area. It identifies site specific proposals for strategic waste management facilities and draws on the sites that have come forward through the 'call for sites'. The document has not got far enough in the plan process for it to be a material consideration; however it is worth noting that the Courtauld Road site has been identified as a safeguarded preferred site for development of an integrated waste management facility based on planning permission ref ESS/04/07/BAS.

Also of note is the identification of Basildon Waste Water Treatment Works (east), located to the west of the application site), as a preferred site for in-vessel composting.

Planning Policy Statement 10: Planning for Sustainable Waste Management

The Planning Policy Statements and Guidance noted in the scoping application will be taken into consideration, however PPS10 is considered to be particularly relevant.

The Localism Act 2011 and the National Planning Policy Framework

The Localism Act seeks to make the planning system more democratic and accessible. Stemming from this will be the National Planning Policy Framework, due to be published at the end of March 2012, which is proposed to include a presumption in favour of sustainable development.

Planning Application Justification

The application documentation needs to be considered against the above policies. Of particular importance are the following issues:

- The proposal site is identified as a preferred location for waste management in the Waste Local Plan. The supporting text of Schedule 1 WM5 should be taken into consideration.

- Planning permission ref ESS/04/07/BAS has been granted and implemented.

- The origins of the waste proposed to be accepted at the site and the proposed end-use of the products should be included.

Checklists:

As the competent authority undertaking the scoping opinion the Minerals and Waste Planning Authority must answer 3 key questions:

- What effects could this project have on the environment?
- Which of these effects are likely to be significant and therefore need particular attention in the environmental studies?
- Which alternatives and mitigating measures ought to be considered in developing the proposals for the project?

The checklist attached attempts to consider these questions:

Checklist adapted from European Commission Guidance on EIA, June 2001

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
1. Will construction, operation or decommissioning (restoration) of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in waterbodies, etc)?				
1.1	Permanent or temporary change in land use, landcover or topography including increases in intensity of land use?	Yes	Permanent change in land use from grazing land to sui generis (waste) use (although a change of use has already occurred through the implementation of permission ref ESS/04/07/BAS). Potential to impact visually on Green Belt land to the north of the A127 and other surrounding land uses.	Yes. A landscape and visual impact assessment should be included in the ES. This should incorporate a replacement viewpoint from the A127 – see ECC Built Environment comments.
1.2	Clearance of existing land, vegetation and buildings?	Yes	The site has been largely cleared of vegetation through permission ref ESS/04/07/BAS; however more vegetation would need to be cleared to facilitate the development.	No. There would be little impact on trees; however a Landscape and Visual Impact Assessment should be included in the ES. See ECC Tree Officer comments.
1.3	Creation of new land uses?	Yes	Change in land use from grazing land to sui generis (waste) use (although a change of use as already occurred through the implementation of permission ref ESS/04/07/BAS). Potential to impact visually on Green Belt land to the north of the A127 and other surrounding land uses.	Yes. A landscape and visual impact assessment should be included in the ES. This should incorporate a replacement viewpoint from the A127 – see ECC Built Environment comments.
1.4	Pre-construction investigations e.g. boreholes, soil testing?	Yes	Hand dug trial holes required by National Grid to prevent impact on existing apparatus.	Yes, unless adequately controlled. See National Grid comments.

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
1.5	Construction (extraction) works?	Yes	Construction of screening bunds and ground preparation, as well as building itself and vehicle access/turning areas and SUDs pond.	No. Archaeological implications of the scheme on land to the north of the A127, approved under ref ESS/04/07/BAS, have been completed. Proposal area has been previously disturbed with likelihood of surviving buried archaeological remains very unlikely. It is unlikely the proposals would have archaeological implications. See ECC Historic Environment comments.
1.6	Demolition works?	No		
1.7	Temporary sites used for construction works or housing of construction workers?	No	No off-site requirements.	
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations?	Yes	Some cut and fill likely to be required for ground preparation. Buildings have potential to impact on Green Belt and surrounding land uses, including overshadowing of Hovefields Caravan site to east.	No. Archaeological implications unlikely – see ECC Built Environment comments. Yes. Landscape and visual impact assessment to be included in ES. Daylight/sunlight assessment to take account of Hovefields site.
1.9	Underground works including mining or tunnelling?	No		
1.10	Reclamation works?	No		
1.11	Dredging?	No		
1.12	Coastal structures e.g. seawalls, piers?	No		
1.13	Offshore structures?	No		

No.	Questions to be considered In Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
1.14	Production and manufacturing processes?	Yes	Production of Stabilised Output Material and/or Solid Recovered Fuel, with potential impact on surrounding landuses.	Yes. Noise escaping from within building and emissions to air from production process should be considered in ES. See Environment Agency comments.
1.15	Facilities for storage of goods or materials?	Yes	Reception hall and maturation halls require a minimum floorspace and height of building.	Yes. Landscape and visual impact assessment to be included in ES, as well as sympathetic consideration of treatment of building elevations.
1.16	Facilities for treatment or disposal of solid wastes or liquid effluents?	Yes	The development is for the treatment of solid wastes. Potential to impact on air quality and surrounding land uses. The development would also require and circulate water, which would be treated on site.	Yes. Justification of stack height to be included in landscape and visual impact assessment. Controls for water circulation and treatment to be considered.
1.17	Facilities for long term housing of operational workers?	No		
1.18	New road, rail or sea traffic during construction or operation?	Yes	The road traffic associated with construction and operation has potential to impact on the highway network for the life of the development. It would generate less traffic than that approved under ESS/04/07/BAS (max 502 HGV movements per day).	Yes. The traffic section of the ES should be carried out by a competent transport consultant and conform to Guidance on Transport Assessment. See Highways Agency response.
1.19	New road, rail, air, waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	Yes	A new spine road accessed via a new roundabout on Courtauld Road would cause a physical change to the local highway network.	Yes. The traffic section of the ES should be carried out by a competent transport consultant and conform to Guidance on Transport Assessment. See Highways Agency response. Consider impact on pedestrians/cyclists along Courtauld Road and address desire lines – see ECC Built Environment comments.
1.20	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No		

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
1.21	New or diverted transmission lines or pipelines?	?	National Grid apparatus including low or medium pressure gas mains could be affected.	Possibly, unless adequately controlled. See National Grid comments.
1.22	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	The Nevendon Bushes Brook previously flowed through the site but has been diverted to the western perimeter of permission ref ESS/04/07/BAS, allowing overflow onto the compensatory land to the north. No further work is required as part of the forthcoming application.	
1.23	Stream crossings?	No		
1.24	Abstraction or transfers of water from ground or surface waters?	No		
1.25	Changes in water bodies or the land surface affecting drainage or run-off?	Yes	Proposed SUDs pond. Construction of impermeable surfaces and roof runoff potentially impacting on Nevendon Brook.	Flood Risk Assessment to take account of SUDs and surface water runoff. See Environment Agency comments.
1.26	Transport of personnel or materials for construction, operation or decommissioning?	Yes	Transport of up to 416,955 tpa of waste material to the site during operation, as well as site workers and construction materials, and removal of soil materials from site during construction.	Transport Statement required to consider operational and construction traffic.
1.27	Long term dismantling or decommissioning or restoration works?	No		
1.28	Ongoing activity during decommissioning (restoration) which could have an impact on the environment?	No		
1.29	Influx of people to an area either temporarily or permanently?	No		
1.30	Introduction of alien species?	No		

No.	Questions to be considered In Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
1.31	Loss of native species or genetic diversity?	No	The site has been largely cleared through permission ref ESS/04/07/BAS, though some clearance of vegetation would be required.	No. Appropriate mitigation and compensation for ecology and habitats has been provided through ESS/04/07/BAS (on land to the north of the A127). See Natural England comments.
1.32	Any other actions?	No		
2. Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?				
2.1	Land especially undeveloped or agricultural land?	No	A change of use has occurred from grazing to sui generis through the implementation of permission ref ESS/04/07/BAS, but no further loss would occur through the current proposals.	
2.2	Water	Yes	Additional water supplies would be required for fire fighting. The MBT process itself requires water.	No. However, the need for 2 additional hydrants within the curtilage of the site should be incorporated into the scheme. See Essex Fire and Rescue comments.
2.3	Minerals?	Yes	Possible need for metals in the construction of the building.	No – relatively insignificant amount of materials required.
2.4	Aggregates?	Yes	Construction materials required for the roundabout construction and site itself.	No – relatively insignificant amount of materials required.
2.5	Forests and timber?	Yes	The building is likely to be partly clad in timber materials.	No – relatively insignificant amount of materials required.
2.6	Energy Including electricity and fuels?	Yes	Required for machinery during construction and operation.	No.
2.7	Any other resources?	Yes	Waste is a resource. The production of Stabilised Output Material and/or Refuse Derived Fuel would reduce the landfill capacity required for its disposal. This could be a positive effect on the environment.	No. However, the impact on void capacity and completion timescales at landfill sites such as Pitsea landfill is a consideration.

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
3. Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?				
3.1	Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, water supplies)?	?	The proposed waste materials imported to the site are not intended to be hazardous or toxic. There should be measures in place to ensure no unauthorised waste is accepted.	
3.2	Will the project result in changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)?	No		
3.3	Will the project affect the welfare of people e.g. by changing living conditions?	Yes	Potential for odour/noise/bioaerosols/building overshadowing/light intrusion to impact on Hovefields caravan site to east, and local population further afield. Perceived risk should be carefully managed.	Yes. The biofilter and stack height/design justification should be included and explained within the ES – see Environment Agency comments. Noise impact from waiting vehicles and from noise whilst building doors are open on the Hovefields Caravan site in particular should be considered, as well as potential for overshadowing or light intrusion – see ECC Built Environment comments.
3.4	Are there especially vulnerable groups of people who could be affected by the project e.g. hospital patients, the elderly?	Yes	Gypsy and Traveller residential site (Hovefields) located adjacent east.	Yes. The impact of noise from construction operations and traffic, as well as sympathetic treatment of the eastern boundary should be included within the ES. Also consideration of factors in 3.3.
3.5	Any other causes?	No		
4. Will the Project produce solid wastes during construction or operation or decommissioning (restoration)?				
4.1	Spoil, overburden or mine wastes?	Yes	Potential to result in material being removed from site during construction.	Yes. Traffic impact from construction to be included within Transport Statement. The planning application should state where the material would be taken to (e.g. landfill/beneficial use).

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
4.2	Municipal waste (household and or commercial wastes)?	Yes	The development is for the treatment of waste. Air quality and surrounding landuses have the potential to be impacted upon.	Yes. Stack height justification to be included within the landscape and visual impact assessment. The traffic impact should be considered through the Transport Statement.
4.3	Hazardous or toxic wastes (including radioactive wastes)?	No		
4.4	Other industrial process wastes?	Yes	Waste water has potential to impact on Nevendon Brook.	Yes. The Flood Risk Assessment should take account of pollution risk. See Environment Agency comments.
4.5	Surplus product?	No		
4.6	Sewage sludge or other sludges from effluent treatment?	?	If the biofilter needs to be replaced there is potential to generate waste.	No. There is unlikely to be a significant amount of waste generated from this.
4.7	Construction or demolition wastes?	Yes	There is potential for the need for material to be removed from site during construction.	Yes. The Transport Statement should consider construction traffic impact.
4.8	Redundant machinery or equipment?	No		
4.9	Contaminated soils or other material?	No		
4.10	Agricultural wastes?	No		
4.11	Any other solid wastes?	No		
5. Will the Project release pollutants or any hazardous, toxic or noxious substances to air?				
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources?	Yes	Vehicle emissions. The development would generate less traffic than that approved under ESS/04/07/BAS (max 502 HGV movements per day). This could impact on surrounding land uses and those along the wider transport routes.	Yes. The Air Quality Assessment should consider construction and operational traffic emissions.

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
5.2	Emissions from production processes?	Yes	Bioaerosols/odour/volatile organic compounds from composting could affect surrounding landuses.	Yes. Air quality should be considered, including stack height justification. See Environment Agency comments.
5.3	Emissions from materials handling including storage or transport?	Yes	Vehicle emissions.	Yes. The Air Quality Assessment should consider air quality arising from traffic impact.
5.4	Emissions from construction activities including plant and equipment?	Yes	Surrounding landuses, particularly Hovefields caravan site.	No. Construction machinery/vehicles are not likely to generate significant emissions.
5.5	Dust or odours from handling of materials including construction materials, sewage and waste?	Yes	Surrounding landuses, particularly Hovefields caravan site.	Yes. Dust from construction and vehicle movements should be adequately controlled. The Air Quality Assessment should state how.
5.6	Emissions from incineration of waste?	No		
5.7	Emissions from burning of waste in open air (e.g. slash material, construction debris)?	No		
5.8	Emissions from any other sources?	No		
6. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?				
6.1	From operation of equipment e.g. engines, ventilation plant, crushers?	Yes	Hovefields caravan site and other surrounding residential areas and businesses.	Yes. Building would provide insulation, however there is potential for noise leakage when doors are open etc.
6.2	From industrial or similar processes?	Yes	Waste deliveries and processing could impact on Hovefields caravan site and other surrounding residential areas and businesses.	Yes. Building would provide insulation, however there is potential for noise leakage when doors are open etc.
6.3	From construction or demolition?	Yes	Hovefields caravan site and other surrounding residential areas and businesses.	Yes. To be assessed in noise assessments as a construction impact.

No.	Questions to be considered In Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
6.4	From blasting or piling?	Yes?	Piling could impact on Hovefields caravan site and other surrounding residential areas and businesses during construction.	Yes. To be assessed in noise assessments as a construction impact.
6.5	From construction or operational traffic?	Yes	Hovefields caravan site and other surrounding residential areas and businesses could be impacted upon, as well as those on surrounding transport routes.	Yes. Transport Statement/noise assessment to take account of construction and operational traffic noise.
6.6	From lighting or cooling systems?	Yes	Potential impact of lighting/security lighting on neighbouring residents and the A127.	No. Lighting impact should be controlled though the development design and operational requirements. The potential impact on Hovefields caravan site should be considered.
6.7	From sources of electromagnetic radiation (consider effects on nearby sensitive equipment as well as people)?	No		
6.8	From any other sources?	No		
7. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into sewers, surface waters, groundwater, coastal waters or the sea?				
7.1	From handling, storage, use or spillage of hazardous or toxic materials?	Yes	Potential to impact on surface and ground waters if day to day operations are not adequately controlled during construction and operation.	The site has been raised above the 1 in 1000 year flood level, however the FRA should consider potential for water contamination. The developer should address possible risks to controlled waters from contamination at the site, following the requirements of PPS23 and the Environment Agency 'Guiding Principles for Land Contamination'. See Environment Agency comments.

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
7.2	From discharge of sewage or other effluents (whether treated or untreated) to water or the land?	Yes	Potential for the visitor centre and staff facilities to impact on sewerage infrastructure, as well as leachate from the MBT process itself.	The site has been raised above the 1 in 1000 year flood level, however the FRA should consider potential for water contamination. The developer should address possible risks to controlled waters from contamination at the site, following the requirements of PPS23 and the Environment Agency 'Guiding Principles for Land Contamination'. See Environment Agency comments.
7.3	By deposition of pollutants emitted to air, onto the land or into water?	Yes	Bioaerosols and leachate should be controlled.	The stack height justification should be included in the ES. The risk to surface water should also be addressed. See Environment Agency comments.
7.4	From any other sources?	No		
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No		
8. Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?				
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous or toxic substances?	?	Possible risk but controlled by health and safety rules.	No. Controlled by regimes outside of Planning.
8.2	From events beyond the limits of normal environmental protection e.g. failure of pollution control systems?	?	Possible risk but controlled by health and safety rules.	No. Controlled by regimes outside of Planning.
8.3	From any other causes?	No		
8.4	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslip, etc)?	?	The risk of flooding has been minimised. The project would be at risk of other environmental disasters in the same way that any other development is.	No.
9. Will the Project result in social changes, for example, in demography, traditional lifestyles, employment?				
9.1	Changes in population size, age, structure, social groups etc?	No		

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
9.2	By resettlement of people or demolition of homes or communities or community facilities e.g. schools, hospitals, social facilities?	No		
9.3	Through in-migration of new residents or creation of new communities?	No		
9.4	By placing increased demands on local facilities or services e.g. housing, education, health?	No		
9.5	By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy?	No		
9.6	Any other causes?	Yes	Potential for impact on the adjacent Gypsy and Traveller community e.g. treatment of eastern boundary.	No, providing that the eastern boundary is treated sympathetically in design and landscaping.
10. Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality?				
10.1	Will the project lead to pressure for consequential development which could have significant impact on the environment e.g. more housing, new roads, new supporting industries or utilities, etc?	No	It is noted that the land adjacent has planning permission for waste use (ESS/04/07/BAS) and has been identified as a safeguarded preferred site for waste management.	
10.2	Will the project lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: • supporting infrastructure (roads, power supply, waste or waste water treatment, etc) • housing development • extractive industries • supply industries • other?	No		
10.3	Will the project lead to after-use of the site which could have an impact on the environment?	No		

No.	Questions to be considered In Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
10.4	Will the project set a precedent for later developments?	No	Land already allocated for proposed use (waste) in Essex and Southend Waste Local Plan.	
10.5	Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects?	No		

CHARACTERISTICS OF THE PROJECT ENVIRONMENT

Are there features of the local environment **on or** around the Project **location which could be affected by the Project?**

The land to the north of the A127 Southend Arterial Road (to the north of the application area) is designated as Green Belt.

Footpath 227 Nevendon runs in a southerly direction from the A127 to Hovefields Avenue to the east of the site.

Footpaths 86, 87, 88 and 89 Nevendon are located directly to the north of the A127.

Is the Project in a location where it is likely to be highly visible to **many people?**

The development would be visible from Courtauld Road itself, which is characterised by buildings of industrial/business use nature.

There would be a stack located on the northern boundary of the development which would project above any boundary screening. This, and the building itself, has the potential to be visible from the land to the south and from a further distance from the north. The views from the immediate north on the A127 should be softened by boundary planting.

Is the Project located In a previously undeveloped **area** where there **will be loss of greenfield land?**

Enabling works have been carried out on the area under permission ref ESS/04/07/BAS, in the sense that it has been cleared of vegetation, the ground level has been raised, and the flood channel has been relocated. The site is therefore not greenfield.

Are there existing land uses on or around the Project location **which could be affected by the Project? For example:**

- **Homes, gardens, other private property**: The Gypsy and Traveller site to the adjacent east. Also businesses on the surrounding estate and the sewage works to the west. The site itself is currently vacant. The nearest residential properties aside from the Gypsy and Traveller site are located beyond the industrial estate and beyond the A127.

- **Recreation and Agriculture**: None. The grazing land has been lost through permission ref ESS/04/07/BAS.

Are there any plans for future land uses on or around the location which could be affected by the Project?

Yes:

- A distribution centre on the southern side of Courtauld Road to be accessed via the proposed roundabout.
- The gun club on land opposite Harvey Road (permission ref 05/00928/FULL) has planning permission.
- The land to the west of the proposal site, covered by the original MBT permission ref ESS/04/07/BAS, may potentially be put forward as a site to treat food and garden waste, as announced by Essex County Council's Waste Strategy department in May 2011.

Are there any areas on or around the location which are densely populated or built-up, which could be affected by the Project?

Yes, the surrounding Burnt Mills Industrial Estate and residential properties beyond, as well as the adjacent Gypsy and Traveller site.

Are there any areas on or around the location which contain important, high quality or scarce resources which could be affected by the Project?

- None.

Are there any areas on or around the location of the Project which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?

- None known.

Is the Project likely to affect the physical condition of any environmental media?

- **Water - e.g. quantities, flows or levels of rivers, lakes, groundwater:** Yes – Nevendon Brook and groundwater flow. A SUDs pond would be included in the scheme.
- **Soils - e.g. quantities, depths, humidity, stability or erodibility of soils?:** Screening bund stability should be considered.
- **Geological and ground conditions?:** No – see ECC Historic Environment comments.

Are releases from the Project likely to have effects on the quality of any environmental media?

- **Local air quality?** Yes – traffic, dust during construction, odour and bioaerosol emissions.
- **Water quality – rivers, lakes, groundwater?** Yes – runoff from buildings and impermeable surfaces and impact on Nevendon Brook. A SUDs pond would be included in the scheme and water/leachate would be required/produced by the MBT process.
- **Soils?** No.
- **Noise?** Yes. Potential for vehicle noise (waiting and travelling), noise from processes (although enclosed in a building), and noise from biofilter, particularly for Hovefields caravan site.
- **Productivity of natural or agricultural systems?** No.

Is the Project likely to affect the availability or scarcity of any resources either locally or globally?

- **Water?** No, although supplies are required for fire fighting – see Essex Fire & Rescue comments. Water also required for the MBT process.
- **Infrastructure capacity in the locality - water, sewerage, power generation and transmission, telecommunications, waste disposal, roads, rail?** The development would impact on landfill resources, possibly in a positive way by reducing the amount of waste sent to landfill. It may impact on the landfill capacity and restoration timescales at sites in Essex, such as Pitsea landfill, depending on the current source of waste compared to the proposed, and depending on the contracts used. Sewerage is not a significant issue. It is noted that the Sewage Treatment Works to the west of the site has recently gained planning permission to expand its treatment capacity.
  - **Minerals?** No.
  - **Soils?** Unlikely, although a there is potential for material to be exported from site in order to achieve desired bund heights.

Is the Project likely to affect human or community health or welfare?
• **Individuals' sense of personal security?** No, providing the eastern boundary is treated appropriately for the Gypsy and Traveller site. • Housing **conditions?** No, providing the eastern boundary is treated appropriately for the Gypsy and Traveller site.

It is therefore considered that the following issues are of such significance that they should be addressed within the Environmental Statement:

1. Traffic and Transport

Explanation

The proposed development would generate less vehicle movements than that approved under permission ref ESS/04/07/BAS. (Although no restriction was imposed by condition, it was stated that the development had the potential to generate a maximum of 502 HGV movements per day).

It is noted that page 11 of the scoping application refers to the Essex Planning Officers Association Parking Standards. For clarity, the relevant document which should be adhered to is the Parking Standards: Design and Good Practice Adopted September 2009.

Action

A Transport Statement should be carried out by a competent transport consultant and conform to Guidance on Transport Assessment laid out by the department for Transport in June 2007.

The traffic section of the ES should include assessment of construction and operational traffic, including vehicles associated with export of material from site if applicable. The ES should include consideration of the impact of the proposed roundabout on pedestrians/cyclists along Courtauld Road and potential desire lines.

See Highways Agency and ECC Built Environment comments.

2. Landscape and Visual Impact

Explanation

The land to the north of the A127 is designated as Green Belt. The impact on that designation will be an important material consideration for the forthcoming planning application.

The application site is set in an 'industrial' context; however there are businesses in the immediate vicinity and the Hovefields Gypsy and Traveller caravan site to the adjacent east.

Longer views of the facility, including the stack (the height of which is not stated within the Scoping Application), are likely to be possible.

Lighting from the development is not considered to be a significant impact, however information should be provided to say why this is the case.

Action

A Landscape and Visual Impact Assessment (LVIA) should be included within the ES, taking account of screening methods for all boundaries of the site, and giving particular consideration to the residents of Hovefields caravan site to the east and the treatment of the eastern boundary.

The impact on the Green Belt should be considered in line with Planning Policy Guidance 2.

The treatment of the building elevations and a daylight/sunlight assessment of the impact on the Hovefields caravan site should be included.

A viewpoint from the A127 should be included in the LVIA, with a photomontage, as a replacement to the proposed viewpoint 7.

Information regarding lighting impact on amenity and traffic using the A127 should be included.

See ECC Built Environment comments.

3. Water and Flood Risk

Explanation

The site has been raised to achieve levels required to minimise flood risk. Also as part of permission ref ESS/04/07/BAS, the Nevendon Brook has been diverted from its original path across the middle of the application site. However, the site is over 1 hectare in size and would create impermeable surfaces not previously in place. Therefore a Flood Risk Assessment would be required to be included in the EIA.

Action

A Flood Risk Assessment should be included within the EIA, as required by paragraph 9 of Planning Policy Statement 25.

Consideration of the proposed SUDs pond, surface water runoff into the Nevendon Brook and the potential for water pollution should also be included.

(It is noted that that there is a need for 2 additional hydrants within the curtilage of the site. These should be incorporated into the scheme. See Essex Fire and Rescue comments).

4. Noise and Vibration

Explanation

The development has the potential to create noise and vibration during construction and operation.

Traffic associated with the construction and operation has potential to impact on surrounding residents and businesses and on those situated along transport routes to the site.

The processes themselves, although enclosed within a building, have potential to create noise which may escape. The biofilter noise generation should be considered.

Action

A chapter on noise and vibration should be included in the ES to include assessment of impact on the surrounding residents and businesses from construction and operation, including traffic noise. The impact of queuing traffic and noise from inside the building escaping when the doors are open should be included.

Of particular note is the adjacent Hovefields caravan site, which should be considered in accordance with the usual residential standards.

See Environment Agency comments.

5. Air Quality

The MBT process has potential to create emissions and odour to air.

The stack would assist in dispersing emissions and the height should be justified according to environmental standards.

Vehicle movements could create dust and emissions during construction unless adequate controls are employed, and the construction process could also generate dust.

Action

A dust assessment, including measures to control construction and operational dust, should be included in the ES.

Emissions (including bioaerosols) and odour to air from the MBT process should be considered, as well as emissions from vehicles.

See Environment Agency comments.

The following issues are considered to be of low significance and as such it is considered that they will not be required within the Environmental Statement:

1. Ecology

Explanation

The site has been previously cleared of the main vegetation, aside from that remaining on the boundaries. Reptiles and Great Crested Newts were translocated to the Old Nevendon Road land to the north of the A127 as required by permission ref ESS/04/07/BAS.

Natural England has confirmed that there is unlikely to be significant impact on the Benfleet and Southend Marshes SPA (5km away) and Thames Estuary and Marshes SPA (10km away), and therefore an Appropriate Assessment under the Habitats Regulations would be unnecessary.

There are also a number of Local Wildlife Sites which are close to the site including Nevendon Bushes (650 metres away), The Wick Country Park (1.3 km away), and Noke Wood (1.2 km away).

Action

Pre- and post- construction monitoring would be required for species and habitats, taking into account the requirements of Planning Policy Statement 9.

See Natural England and Environment Agency comments.

2. Ground Conditions

Explanation

Inert material has been imported to the site under permission ref ESS/04/07/BAS in order to achieve levels required to minimise flood risk.

It is noted that there may be National Grid apparatus in the vicinity, including low or medium pressure gas mains.

Action

A consideration for the planning application is the requirement from National Grid for hand dug trial holes to prevent impact on existing apparatus.

Sufficient information should be provided as part of the EIA to satisfy the requirement of PPS23 for dealing with land contamination, in the form of a Preliminary Risk Assessment (including a desk study, conceptual model and initial assessment of risk), and to provide assurance that the risk to controlled waters is fully understood and can be addressed through appropriate measures.

See National Grid and Environment Agency comments.

3. Archaeology and Heritage

Explanation

The land has been previously raised to achieve levels required to minimise flood risk. The land to the north was subject to archaeological investigations required by permission ref ESS/04/07/BAS and it is therefore unlikely that the development would have any significant effect on archaeology.

See ECC Historic Environment comments.

4. Use of Resources

Explanation

The use of resources such as water and construction materials is not considered to be of a scale large enough to warrant a significant effect. However, the use of landfill void is considered to be a resource. The restoration of landfill sites in Essex may be impacted upon as a result of the development, particularly those in the local area,e.g. Pitsea Landfill, depending on the current source of waste compared to that proposed, and depending on the contracts used.

Action

The impact from the end use of the product created, particularly on Pitsea landfill restoration, should be considered in the planning application.

5. Socio-Economic

Explanation

Based on the previous planning permission ref ESS/04/07/BAS the socio-economic factor associated with the proposed development are not considered to be significant (200 full-time jobs would have been created).

However, the current Scoping Application has not included proposed employment levels.

Action

The ES should include proposed socio-economic factors including employment and the implications of connectivity with the local area, as suggested by the Scoping Application.

The Scoping Application notes that a summary section would be included within the EIA to set out the justification for not classifying the above topic areas as 'significant'. This approach would be welcomed.

Non-Technical Summary

A Non-Technical Summary is required to accompany an EIA and should summarise the EIA, setting out the positive and negative impacts and the mitigation measures, monitoring and management of the development. It is advised that the non-technical summary should include plans of working and preferably should be free.

Alternatives to the proposed scheme should also be presented.

For your information, the proposed development will require an Environmental Permit from the Environment Agency under the Environmental Permitting Regulations 2010.

A Site Waste Management Plan will also be required to accompany the planning application under the Site Waste Management Regulations 2008.

27/2/2012

27/2/2012

From:	Dinwiddie, Neil R
To:	Shelley Bailey Senior Planner
Subject:	ESS/08/12/BAS/SPO - Land at Courtauld Road, Basildon
Date:	27 February 2012 10:31:28
Attachments:	image003.png
Importance:	High

Ms Shelley Bailey
County Hall
Chelmsford
Essex
CM1 1QH

Our ref: AE/2012/114086/01-L01
Your ref: ESS/08/12/BAS/SPO

Date: 27 February 2012

Dear Shelley

SCOPING OPINION REQUEST FOR DEVELOPMENT OF A MECHANICAL BIOLOGICAL TREATMENT FACILITY AND ANCILLARY DEVELOPMENT. LAND AT COURTAULD WAY, BASILDON.

Thank you for consulting the Environment Agency regarding the Environmental Impact Assessment (EIA) – Scoping Opinion – for the proposed waste facility at Courtauld Road, Basildon.

We refer to the EIA Scoping Report, dated January 2012, prepared by Atkins. We have reviewed the report and comment as follows:

Environmental Permitting Regulations 2010

This development will require an Environmental Permit under the Environmental Permitting Regulations 2010 from the Environment Agency.

Air Quality & Noise

We agree with the Scoping Report in identifying air quality (including bioaerosol emissions, dust and odour) and noise as potentially significant issues to be included within the EIA. These will be the main off-site impacts to be considered from a permitting perspective and, if a permit is issued, in relation to our day to day regulatory control.

The permit application will need to be supported by detailed risk assessments (including odour and noise) and some of the information provided in support of the EIA will be relevant for this purpose.

Flood Risk

Given the size of the application site (8.5 hectares) the EIA should include a full Flood Risk Assessment (FRA). The proposed scale of development may present risks of flooding on-site and/or off-site if surface water run-off is not effectively managed. Paragraph E9 of PPS25 requires applicants for planning permission to submit a FRA when development on this scale is proposed in such locations.

We agree with the scope of issues identified in section 5.3.3 ‘Water and Flood Risk’. The FRA needs to comply with the requirements of PPS 25: Development and Flood Risk.

Pollution

We agree with the list detailed in section 5.3.3.3 of the Scoping Report in that the EIA should include details on how any risk of pollution to surface and ground water is to be managed.

Contamination

We consider that the controlled waters at this site are of low environmental sensitivity. That said, the developer should address possible risks to controlled waters from contamination at the site, following the requirements of PPS23 and the Environment Agency 'Guiding Principles for Land Contamination'.

In that regard, sufficient information should be provided as part of the EIA to satisfy the requirement of PPS23 for dealing with land contamination, in the form of a Preliminary Risk Assessment (including a desk study, conceptual model and initial assessment of risk), and to provide assurance that the risk to controlled waters is fully understood and can be addressed through appropriate measures.

It is noted in the EIA Scoping Report that, although ‘Ground Conditions’ are not considered to be a significant issue worthy of an EIA, the ground conditions will be investigated and reported as part of the Environmental Permit application.

Ecology

The Scoping Report has identified the presence of the Benfleet and Southend Marshes Special Protection Area (5 km away) and Thames Estuary and Marshes SPA (10 km away). It is also necessary to highlight the presence of a number of Local Wildlife Sites which are close to the site including Nevendon Bushes (650 metres away), The Wick Country Park (1.3 km away), and Noke Wood (1.2 km away).

We agree that ecology should be included as part of the planning application. We do however recognise that significant works have already taken place on site (in the form of soil spreading) including translocation of reptiles and great crested newts from the clearance site to a habitat creation area to the north of the site. It is however important that the principles of PPS 9 are met. An update within the EIA would be welcomed together with any further survey work as required.

In terms of whether there is likely to be any impacts to the identified designated areas, Natural England should provide a view on this aspect, and whether they deem a Habitats Regulations Assessment to be required.

Essex Wildlife Trust may have comments in respect of the Local Wildlife Sites identified.

Waste Minimisation

We can see no mention of how waste will be managed during the construction phase of the facility. We would expect to see how construction, demolition and excavation waste will be minimised and managed in accordance with the Waste Hierarchy, with an emphasis on prevention and zero waste to landfill.

In the construction phase, the facility should be designed in such a way so as to prevent waste generation, for the re-use of materials on site, and for minimal waste at its end of life.

A Site Waste Management Plan will be required under the Site Waste Management Regulations 2008, and we would wish to see a template copy of this as part of any planning application (not necessarily as part of the Environmental Statement) and details about how this will be maintained on site during construction. There should be an overarching waste strategy for the construction of the site ahead of the start of development. This can later be used to monitor progress with the SWMP. Any waste strategy should include targets for waste minimisation waste reduction etc, which ideally should be exceeded. The strategy should show that all possible measures will be taken to reduce construction and demolition waste produced during the course of the construction, and how this will be achieved, such as preventing the over-ordering of materials, reducing damage to materials before use by careful handling and segregating waste on site into separate skips. It should also include how recycled and secondary aggregates will be incorporated into the construction materials.

We recommend the use of the BRE's SMARTWaste Plan http://www.smartwaste.co.uk/, and that the applicant signs up to WRAP's Halving Waste to Landfill.

Other Considerations

Whilst we have commented on the scope of the EIA as far as our remit allows it is also necessary to raise the other regulatory requirements which will need to be complied with.

Environmental Permitting Regulations 2010
This development will require an Environmental Permit under the Environmental Permitting Regulations 2010 from the Environment Agency. The applicant is advised to contact Gail Harvey on 01473 706 380 to discuss the issues likely to be raised.

Waste Licence
If any waste is to be used on site, such as in the proposed bunds, the applicant will be required to obtain the appropriate exemption or authorisation from us. We are unable to specify what exactly would be required if anything, due to the limited amount of information provided.

Flood Defence Consent

Under the terms of the Water Resources Act 1991, the prior written consent of the Environment Agency is required for any proposed works or structures, in, under, over or within 9 metres of the top of the bank of the Nevendon Bushes Brook, designated a 'main river'.

If you have any questions then please contact me on the details below.

Yours sincerely

Mr Neil Dinwiddie
Planning Liaison Officer

Direct dial 01473 706819
Direct fax 01473 724205
Direct e-mail neil.dinwiddie@environment-agency.gov.uk

-

20th February 2012

Our ref: 45076

Your ref: ESS/08/12/BAS/SPO

ENGLAND

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire CW1 6GJ

T 0300 060 3900

Shelley Bailey
Essex County Council
Minerals & Waste Planning
County Hall, Chelmsford
Essex, CM1 1QH
mineralsandwasteDM@essex.gov.uk

BY EMAIL ONLY

Dear Shelley

Planning consultation: Scoping Opinion request for the development of a Mechanical Biological Treatment Facility and ancillary development
Location: Land at Courtauld Road, Basildon, Essex

Natural England is satisfied with the scope of the forthcoming ES (pertaining to our remit). We consider that the approach to ecology detailed in the scoping report, in respect of identification of potential effects and proposed assessment methodology, is appropriate and compliant with current best practice (i.e. in line with the Institute of Ecology and Environmental Management's (IEEEM) Guidelines for Ecological Impact Assessment in the UK).

Since planning permission has already been secured for a treatment facility on site (reference ESS/04/07/BAS) we agree that the ecology section of the forthcoming ES does not need to be comprehensive. Between 2006 - 2009 many steps were taken to secure the provision of appropriate mitigation and compensation with regards to the Local Wildlife Site, European protected species, and in particular, invertebrates, which ensures that the majority of our concerns have been covered. However the ES should still include a section summarising ecological works to date and outlining all mitigation provision for European protected species and invertebrates, including pre and post construction monitoring for species and habitats.

The applicant has correctly surmised that significant effects to European designated sites, namely Benfleet and Southend Marshes SPA and Thames Estuary and Marshes SPA, are unlikely given the proposed development's distance from the sites. As noted in the scoping opinion, an appropriate assessment will therefore not be necessary.

We have no further comments to make with respect to the ES and look forward to receiving the formal planning application in due course. Please contact us if you require any additional information or advice.

Yours sincerely

Francesca Shapland
Land Use Operations

Tel: 0300 060 1232, Fax: 0300 060 2115
francesca.shapland@naturalengland.org.uk

Environment Sustainability and Highways
BUILT ENVIRONMENT BRANCH

TO: Shelley Bailey DEVELOPMENT CONTROL	**FROM:** Crispin Downs, Peter Spurrier & Paul Sallin BUILT ENVIRONMENT
	Ref:
	Ext: 51656
Your Ref:	**Date:** 21.02.2012

Proposed Development of a Mechanical and Biological Treatment Facility and Ancillary Development on land at Courtauld Road, Basildon - Request for Formal Scoping Opinion

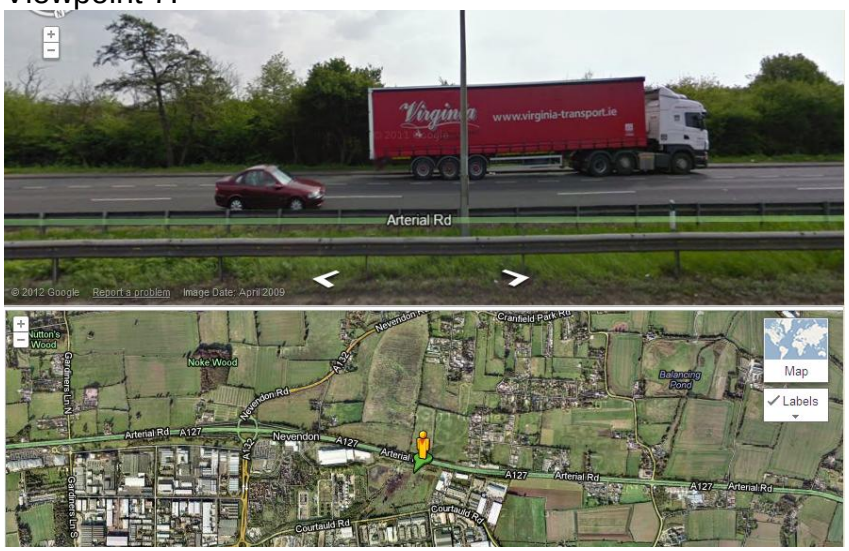
Please find our comments on the Request for Formal Scoping Opinion, January 2012

5.3.1 Traffic and Transportation
5.3.1.2 Scope

This should refer to the specific need to consider the impact of the new site entrance roundabout on foot/cycle access and safety along Courtauld Road, and whether proposed footpaths and crossings in this area adequately address pedestrian desire-lines.

5.3.2 Landscape and Visual Impact
5.3.2.1 Methodology

In the recent meeting we asked for the following view point with photomontage which might replace rather than be in addition to the identified Viewpoint 7:



5.3.4 Noise and Vibration
5.3.4.1 Methodology

This should refer to the specific need to consider potential noise impact on Hoverfields Caravan Park from vehicles driving up the in-building ramp whilst the door to the ramp is open.

Regards

Crispin Downs
Peter Spurrier
Paul Sallin

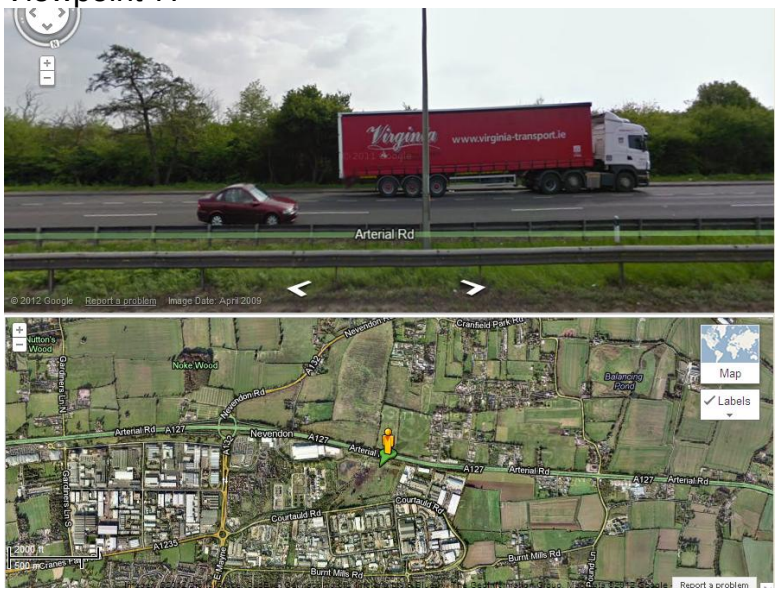
Built Environment

5.3.1 Traffic and Transportation
5.3.1.2 Scope

The impact of the new site entrance roundabout on foot/cycle access and safety along Courtauld Road might be assessed, and whether proposed footpaths and crossings in this area adequately address pedestrian desire-lines.

5.3.2 Landscape and Visual Impact
5.3.2.1 Methodology

In the recent meeting we asked for the following view point with photomontage which might replace rather than be in addition to the identified Viewpoint 7:



5.3.4 Noise and Vibration
5.3.4.1 Methodology

This might refer to the need to consider potential noise impact on Hoverfields Caravan Park from vehicles driving up the in-building ramp whilst the door to the ramp is open.

HIGHWAYS AGENCY

Our ref: Q742908
Your ref: ESS/08/12/BAS/SPO

Head of Environmental Planning
Essex County Council
Minerals and Waste Planning
Environmental Planning
County Hall
Chelmsford
Essex
CM1 1QH

Woodlands
Manton Lane
Bedford
MK41 7LW

Direct Line: 01234 796244

7 February 2012

For the attention of Shelley Bailey

Dear Madam

TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)
APPLICATION NO: ESS/08/12/BAS/SPO
LAND AT COURTAULD ROAD, BASILDON, ESSEX
SCOPING OPINION REQUEST FOR A DEVELOPMENT OF MECHANICAL BIOLOGICAL TREATMENT FACILITY AND ANCILLARY DEVELOPMENT

Thank you for your correspondence received on 6 February, requesting comments on the scoping opinion above.

The traffic section of the report should be carried out by a competent transport consultant and conform to Guidance on Transport Assessment laid out by the Department for Transport in June 2007. The appointed consultant should contact the Highways Agency once they have been appointed.

Yours faithfully

Mark Norman
Asset Development Team, Area 6
Email: mark.norman@highways.gsi.gov.uk

SB

EssexWorks.
For a better quality of life

ESSEX COUNTY COUNCIL
Environment Sustainability and Highways

TO: Head of Environmental Planning	**FROM**: HISTORIC ENVIRONMENT Richard Havis (Historic Environment Management)
For Attention Shelley Bailey	**Our ref**: **Ext**: 51632
YOUR REF: ESS/08/12/BAS/SPO	**Date**: 20-2-12

Specialist Historic Environment Advice

Dear Shelley

RE: Land at Courtauld Road, Basildon,

Thank you for consulting the Historic Environment Management Team of Essex County Council on the above scoping opinion

The description of the Historic Environment implications within this document is appropriate. The archaeological implications to the north A127 of the site were completed several years ago and the draft report has been submitted. It is unlikely that there will be any implications from the work of the main treatment facility as the land has already been raised.

Yours Sincerely

R.J. Havis

Richard Havis
Senior Historic Environment Officer.

Essex County Council

Danielle Stevens Business Services Officer - ESH

From: Richard Greaves Minerals & Waste Planning Manager
Sent: 08 February 2012 13:29
To: Danielle Stevens Business Services Officer - ESH
Subject: RE: [Potentially Offensive] FW: National Grid Plant Enquiry Response - Ref: NL_TE_Z6_F_09655 (Your Ref: ess/08/12/bas/spo nc083)

Danielle

Print just the e-mail as a reply to ess/08/12/bas (not sure who the officer is)

Richard

Richard Greaves
Minerals and Waste Planning Manager,
Sustainable Environment & Enterprise,
Environment, Sustainability & Highways

Essex County Council | telephone: 01245 437508| extension: 51508| email: richard.greaves@essex.gov.uk
Please take a moment to fill out our Customer Satisfaction Survey and let us know how you rate the service you have received

EssexWorks.
For a better quality of life

Please consider the environment before printing this e-mail

From: Danielle Stevens Business Services Officer - ESH
Sent: 08 February 2012 12:36
To: Richard Greaves Minerals & Waste Planning Manager
Subject: FW: [Potentially Offensive] FW: National Grid Plant Enquiry Response - Ref: NL_TE_Z6_F_09655 (Your Ref: ess/08/12/bas/spo nc083)

Hi Richard

Would I need to print this off?

Thank

Danielle Stevens
Business Services Officer
ESH Business Services
Essex County Council
Telephone: 01245 437247| Ext: 51247
Email:Danielle.Stevens@essex.gov.uk
www.essex.gov.uk

EssexWorks
For a better quality of life

From: .box.PPRSTeam [mailto:PPRSTeam@uk.ngrid.com]
Sent: 08 February 2012 12:28

To: Minerals and Waste DM
Subject: [Potentially Offensive] FW: National Grid Plant Enquiry Response - Ref: NL_TE_Z6_F_09655 (Your Ref: ess/08/12/bas/spo nc083)

Do not reply directly to this e-mail account as it is not monitored

E-mail: plantprotection@uk.ngrid.com

Please find National Grid's response to your enquiry

Regards

Plant Protection Team

Tel: 0800 688 588

National Grid Plant Protection
National Grid, Block 1 Floor 2
Brick Kiln Street
Hinckley
LE10 0NA

One Number One Address (Distribution & Transmission)

For National Grid Transmission Assets Search Free at www.linesearch.org

---

From: GL Plant Enquiries Trial System [mailto:noreply@glplantenquiries.com]
Sent: Wednesday, February 08, 2012 12:28 PM
To: .box.PPRSTeam
Subject: National Grid Plant Enquiry Response - Ref: NL_TE_Z6_F_09655 (Your Ref: ess/08/12/bas/spo nc083)

Formal Consultation / Statutory Order - Ref: NL_TE_Z6_F_09655 (Your Ref: ess/08/12/bas/spo nc083)

National Grid acknowledges receipt of your enquiry received on 02/02/2012.

A standard assessment has been carried out with respect to our operational gas and electricity apparatus.

The works proposed are likely, unless controlled, to adversely impact the safety and integrity of National Grid apparatus.

If you decide to proceed with these works, please contact us again so that we may arrange for technical advice and guidance to be provided.

Please note this assessment is purely related to the potential for the proposed physical works to adversely impact National Grid's assets. It does not imply in any way the acceptability of the proposed development from a planning perspective.

See the assessment below for full details.

Apparatus owned by other operators may be present in this area. It is your responsibility to make contact with these operators.

Assessment

There is National Grid apparatus directly crossing your Area of Enquiry. Before carrying out any excavation, trial holes must be dug to find the exact position of gas pipes, using recognised and agreed safe hand digging techniques.

Reference should be made to the HSE Guidance Note HSG47 - 'Avoiding Danger from Underground Services'.

Please read the rest of this message and its attachments carefully for additional information and guidance.

Due to the nature of the planning application and the presence of National Grid apparatus within the above mentioned site, the contractor should contact National Grid before any physical works are carried out to ensure our apparatus is not affected by any of your works.

Medium or Low Pressure Gas Distribution Apparatus

There is Low or Medium pressure gas apparatus in the vicinity of your enquiry which may be affected by your proposed activities.

It is essential that **NO** mechanical excavations take place above or within 0.5 m of Low and Medium pressure systems.

You should where required **CONFIRM THE POSITION** of mains using **HAND DUG TRIAL HOLES.**

Guidance

See attached for DigSafe Guidance 'Credit Card'

See attached for National Grid 'Useful Addresses' Flyer

See attached for National Grid 'DigSafe' Leaflet

Safe digging practices, in accordance with Health and Safety Executive document HSG47, must be used to verify and establish the actual position of mains, pipes, cables, services and other apparatus on site before any mechanical plant is used.

It is your responsibility to ensure that all relevant information is provided to all persons (either direct labour or contractors) working for you on or near National Grid apparatus.

It must be stressed that both direct and consequential damage to gas or electricity apparatus can be dangerous both for your employees and the general public.

Repairs to any such damage will incur a charge. Your works should be carried out in such a manner that we are able to gain access to our apparatus throughout the duration of your operations.

Work carried out without proper consultation is done so at your own risk.

Please note that apparatus owned by other operators may be present in this area. Information with regard to such apparatus should be obtained from the owners.

Should the location, date or nature of your activities change, you must submit another enquiry which reflects the updated details.

If you require further assistance please contact the National Grid Plant Protection team:

Plant Protection

National Grid

Block 1; Floor 2

Brick Kiln Street

Hinckley

LE10 0NA

Tel: 0800 688 588

Email: plantprotection@uk.ngrid.com

Reporting a Gas Emergency

If you smell gas or are worried about gas safety in Britain, you can call **0800 111 999** at any time, day or night. Your call will not cost you anything. Calls are recorded and may be monitored.

Received Date
02/02/2012

On behalf of Third Party
Organisation Name: Essex County Council
Contact Name: Shelley Bailey
Email address: mineralsandwastedm@essex.gov.uk
Telephone: 01245 437577
Address: 1 Endeavour Drive, Festival Business Park, Basildon, Essex , SS14 3WF

Your Reference
ess/08/12/bas/spo nc083

Location

Grid Reference: 574209, 190816
X Extent: 400
Y Extent: 400
Location Description: ss13 land at courtauld road basildon essex

Recipients
PPRSTeam@uk.ngrid.com

Notice Type
Formal Planning Application

Work Types

Map Options
Paper Size: A4
Orientation: Portrait
Requested Scale: 1:2500
Actual Scale: 1:2500 (GAS)
Real World Extents: 505m x 545m (GAS)

Description of Works
scoping opinion (PA)(P)

Essex County
Fire & Rescue Service

Mr David Johnson LL.B(Hons), BSc, MA, MSc, FCMI
Chief Fire Officer & Chief Executive

Essex County Council
Minerals & Waste Planning
Environmental Planning
County Hall
Chelmsford
CM1 1QH
FTAO Shelley Bailey

SB

PLANNING SERVICE GROUP
21 FEB 2012
ESSEX COUNTY COUNCIL

Service Headquarters
Kelvedon Park
Rivenhall
Witham
Essex CM8 3HB
Tel: 01376 576000
Fax: 01376 572192
Web: www.essex-fire.gov.uk

Our ref : H26/8435
Your ref : ESS/08/12/BAS/SPO
Date: 20TH February 2012

Enquiries to: **Tony Pizzala**
Ext: **6342**
DDI : **01376 576342**

Dear Ms Bailey

Re: Town & Country Planning Act 1990
Mechanical Biological Treatment Facility
Courtauld Road, Basildon

Further to my colleague' s letter dated 10th February 2012 in connection with the above, I write to confirm the following with regards to water supplies for fire fighting.

Two additional hydrants are considered necessary within the curtilage of the site at the positions indicated on the accompanying copy drawing. The mains must be of a suitable size to afford a total volume of 1500 litres a minute at the furthest hydrant.

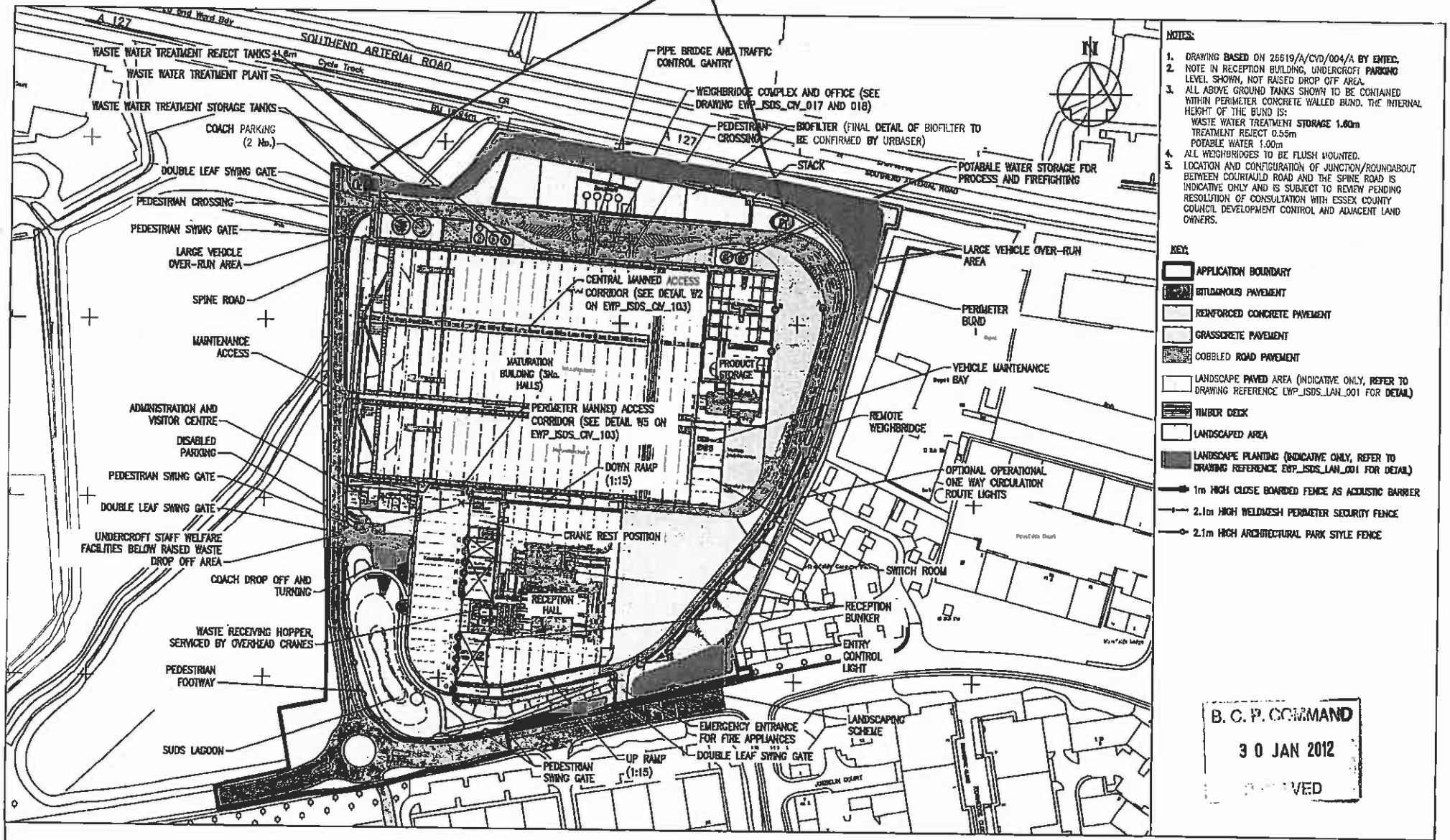
I would therefore be grateful if, before building works commence, the appropriate person consults with me to discuss the matter further.

Yours sincerely

Tony Pizzala
Water Technical Officer

cc: Sun/O Tim Russell, West Area Command, Rayleigh Weir Fire Station.

Recommended Positions for additional hydrants.



NOTES:

1. DRAWING BASED ON 26619/A/CVD/004/A BY ENTEC.
2. NOTE IN RECEPTION BUILDING, UNDERCROFT PARKING LEVEL SHOWN, NOT RAISED DROP OFF AREA.
3. ALL ABOVE GROUND TANKS SHOWN TO BE CONTAINED WITHIN PERIMETER CONCRETE WALLED BUND. THE INTERNAL HEIGHT OF THE BUND IS:
   WASTE WATER TREATMENT STORAGE 1.60m
   TREATMENT REJECT 0.55m
   POTABLE WATER 1.00m
4. ALL WEIGHBRIDGES TO BE FLUSH MOUNTED.
5. LOCATION AND CONFIGURATION OF JUNCTION/ROUNDABOUT BETWEEN COURTAULD ROAD AND THE SPINE ROAD IS INDICATIVE ONLY AND IS SUBJECT TO REVIEW PENDING RESOLUTION OF CONSULTATION WITH ESSEX COUNTY COUNCIL DEVELOPMENT CONTROL AND ADJACENT LAND OWNERS.

KEY:

- APPLICATION BOUNDARY
- BITUMINOUS PAVEMENT
- REINFORCED CONCRETE PAVEMENT
- GRASSCRETE PAVEMENT
- COBBLED ROAD PAVEMENT
- LANDSCAPE PAVED AREA (INDICATIVE ONLY, REFER TO DRAWING REFERENCE EWP_ISDS_LAN_001 FOR DETAIL)
- TIMBER DECK
- LANDSCAPED AREA
- LANDSCAPE PLANTING (INDICATIVE ONLY, REFER TO DRAWING REFERENCE EWP_ISDS_LAN_001 FOR DETAIL)
- 1m HIGH CLOSE BOARDED FENCE AS ACOUSTIC BARRIER
- 2.1m HIGH WELDMESH PERIMETER SECURITY FENCE
- 2.1m HIGH ARCHITECTURAL PARK STYLE FENCE

Essex County Council | Southend-on-Sea | Balfour Beatty | urbaser

Essex Waste Partnership Residual Waste Treatment Contract

Title: Proposed General Arrangement
Number: FIGURE A2
Scale: 1:2000

Essex County
Fire & Rescue Service

Mr David Johnson LL.B(Hons), BSc, MA, MSc, FCMI
Chief Fire Officer & Chief Executive

Ms Shelley Bailey
Essex County Council
Mineral and Waste Planning
Environmental Planning
County Hall Chelmsford
Essex
CM1 1QH

Essex County Fire and Rescue Service
West Area Command
Rayleigh Weir Community Fire Station
500 Rayleigh Road
Benfleet
Essex
SS7 3TR
☎ 01376 576500
✉ bc.command@essex-fire.gov.uk

Date: 10th February 2012
Our Ref: FP/TR/52/7726
Your Ref: ESS/08/12/BAS/SPO
Enquiries to: Sub Officer T Russell

Dear Ms Bailey

Re: Town & Country Planning Act 1990

Planning Application N°: ESS/08/12/BAS/SPO

Description: Mechanical Biological Treatment Facility

Location: Courtauld Road, Basildon

Thank you for your letter dated 25-02-12 enclosing EIA Scoping Report showing details of the above proposal.

My Officer has considered the application and his comments are as follows:

Access

Access for Fire Service purposes has been considered in accordance with the Essex Act 1987 - Section 13 and appears to be satisfactory.

More detailed observations on access and facilities for the Fire Service will be considered at Building Regulation consultation stage.

Building Regulations

It is the responsibility of anyone carrying out building work to comply with the relevant requirements of the Building Regulations. Applicants can decide whether to apply to the Local Authority for Building Control or to appoint an Approved Inspector.

Local Authority Building Control will consult with the Fire Authority in accordance with "Building Regulations and Fire Safety - Procedural Guidance".

Approved Inspectors will consult with the Fire Authority in accordance with Section 13 of the Building (Approved Inspectors etc.) Regulations 2010 (as amended).

Water Supplies

The architect or applicant is reminded that additional water supplies for fire fighting may be necessary for this development. The architect or applicant is urged to contact the Water Technical Officer at Service Headquarters, telephone 01376-576342.

Yours faithfully

Tim Russell
Fire Safety Officer

cc
Water Technical Officer
Essex County Fire and Rescue Service
Kelvedon Park
London Road
Rivenhall
Essex
CM8 3HB

SB

Sophia Mair Business Services Officer

From: planningliaison@anglianwater.co.uk
Sent: 19 March 2012 16:27
To: Minerals and Waste DM
Subject: 0401/E4(001G) Essex County Council, Land North of Courtauld Road, Burnt Mills, BASILDON
Attachments: 00058781_Courtauld Road Lt.pdf

Dear Ms Bailey

Land North of Courtauld Road, Burnt Mills, BASILDON

Attached is a copy of our report as requested.

If you have any queries please contact me on 01733 414607.

Regards

Denise Harding

Planning & Equivalence Team

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Registered in England No 2366656

Please consider the environment before printing this email.

Anglian Water Services Limited
Planning & Equivalence Team
Thorpe Wood House
PETERBOROUGH
PE3 6WT

Tel 01733 414690
Fax 01223 201001
Email: planningliaison@anglianwater.co.uk

Our ref 0401/E4(001G)

Your ref ESS/08/12/BAS/SPO

Ms S Bailey
Essex County Council
County Hall
Market Road
Chelmsford
CM1 1QH

16 March 2012

Dear Ms Bailey

Site: Land at Courtauld Road, BASILDON

Thank you for your correspondence dated 06 February 2012 seeking our comments on the above proposed development.

It is noted that the proposed development lies within the 400 metre encroachment advisory zone of Basildon Sewage Treatment Works (STW), which Anglian Water consider will pose a risk of odour nuisance to the development from the normal operation of the STW plant. However, in this instance, Anglian Water would regard the proposed development as being broadly compatible with the operation of Basildon STW and as such would consider the risk of nuisance to be low.

This view is based on the assumption that the mechanical biological treatment of waste is similarly, inherently odorous and has a potential to generate noise and disruption from the operation of mechanical plant and traffic movements. It is also assumed that the development will not significantly increase the number of members of the general public brought into the close proximity to the STW.

I would also advise that as critical pipelines lie within the proposed development, the appropriate distance (as set out in Sewers for Adoption) will need to be kept with regard to the building line and adjacent sewers and that suitable access is maintained to existing chambers and outfalls.

The developer should ensure that surface water is considered in accordance with PPS25 and the SuDs and the hierarchy. Approval for discharge of foul flows to the public sewer should be sought from Anglian Water under Section 106 of the Water Industry Act 1991.

Should the developer be looking to discharge any Trade Effluent to our public sewer they will need to liaise with the Catchment Quality Scientist for the area at their earliest convenience. In this instance the Catchment Quality Scientist is Samson Abioye and he can be contacted on 07885 135 187.

Continued

If any further information or assistance is required concerning this matter please contact me on 01733 414607.

Yours sincerely

Denise Harding
Planning & Equivalence Team

Registered Office
Anglian House,
Ambury Road,
Huntingdon,
Cambridgeshire. PE29
3NZ
Registered in England
No. 2366656

an AWG Company

APPENDIX 1.3 – Informal Scoping Opinion

Essex Waste Partnership
Residual Waste Treatment Contract

Proposed Planning Application for the Development of a Mechanical and Biological Treatment Facility, and Ancillary Development, on land at Courtauld Road, Basildon, Essex.

Informal Scoping Consultation

Confidential

August 2011

urbaser

Balfour Beatty

Essex County Council

southend onsea BOROUGH COUNCIL

Contents

Plans

1.0 Introduction and background

1.1.1 This report has been prepared by Atkins to document an informal scoping consultation exercise that has been undertaken to inform the scope of the Environmental Impact Assessment (EIA) required for the planning application for the development of a Mechanical Biological Treatment (MBT) plant at land off Courtauld Road, Basildon, Essex.

1.1.2 This report has been prepared on behalf of Urbaser and Balfour Beatty (The Consortium), and supplements the scoping document dated February 2011 which was prepared on behalf of The Consortium to support their tender submission for the Essex and Southend Waste PFI at the Invitation to Submit Detailed Solution (ISDS) stage. This report builds on the February 2011 scoping document providing the details of informal consultation with various statutory bodies and sets out the agreed methodologies.

1.1.3 Due to the position of confidentiality it will not be possible to formally scope the EIA prior to the announcement of Preferred Bidder, programmed to be January 2012. It is therefore proposed to replace formal scoping with the February 2011 Scoping Document and this report. This will enable environmental assessments to be progressed early and will assist with scheme design in association with the mitigation of potential environmental effects.

2.0 The site setting

2.1 The Site

2.1.1 The site considered in this Scoping Report comprises approximately 8.5 hectares and is situated on Courtauld Road off the A132 between the A127 and A13 within a predominantly industrial area on the north eastern edge of Basildon conurbation. A site location plan is presented as Figure 1.

2.1.2 The site is bounded by the A127 to the north and Courtauld Road to the south. Industrial units and a Travellers Caravan Park are situated immediately to the east of the site. The plot of land immediately to the west of the site is currently vacant (but allocated for future waste development).

2.1.3 Basildon sewage treatment works is situated beyond the vacant plot of land to the west. To the north of the A127 is an area of flood compensation and habitat enhancement.

2.2 Baseline setting

2.2.1 The site and a wider area benefits from full planning permission for an integrated waste management facility. Planning permission ESS/04/07/BAS was secured at the site in July 2008 by Essex County Council and Integra. An Environmental Statement was submitted in 2006 with the planning application. This informal scoping exercise has taken account of the previous environmental assessments.

2.2.2 For the purposes of this consultation exercise and for the future environmental assessments the baseline site conditions are taken to be a part developed site benefiting from full planning permission (ESS/04/07/BAS) for an integrated waste management facility. From herein the site area benefiting from planning permission (ESS/04/07/BAS) will be referred to as the previous planning site. The previous planning site area covered the current application site, the area of land immediately to the west of the site and an area of land to the north. Figure 2 shows the boundary of the previous application area and the application boundary for the current site.

2.2.3 The planning permission (ESS/04/07/BAS) included compensatory flood alleviation and habitat creation works as the site was previously being used as flood storage and provided ecological habitat for protected species, invertebrates and reptiles. These resources were compensated on part of the previous application site to the north of Old Nevendon Road (mitigation site).

2.2.4 In addition, the Nevendon Bushes Brook was required to be re-aligned along the western boundary of the previous application site, which during heavy rainfall, will allow the brook to overflow onto replacement flood compensatory works within the mitigation site. These works have been undertaken. Additionally, the current application site was required to be partially infilled to a specific level to reduce flood risk.

2.2.5 All of the above mentioned works have been undertaken and the environmental baseline for purposes of the environmental assessments assumes this is the case.

3.0 The proposed development

3.1 Introduction

3.1.1 A Mechanical and Biological Treatment (MBT) Facility is proposed that will treat residual waste, Trade Waste, Street Sweepings and Household Waste Recycling Centre waste from within the administrative areas of Essex and Southend. The facility will be capable of treating 416,955 tonnes per annum.

3.1.2 The proposed development comprises:

- Reception / pre-processing hall and undercroft carpark;
- Biostabilisation halls;
- Visitor centre (Essex Sustainability Centre);
- Associated ancillary infrastructure including surface water management, access roads etc;
- Earthworks and landscaping associated with assisting the integration of the buildings into the site and surrounding area.

3.1.3 Each of the above elements is described in further detail in the February 2011 report and summarised below. An indicative layout of the proposed development is provided in Drawing No EWP_ISFT_CIV_003. The current programme anticipates construction to start in May 2013. The earliest operational date for the facility would be March 2015.

3.2 Summary of proposed development

3.2.1 The proposed facility will be fully enclosed. All waste will be delivered and processed within buildings. The buildings will be kept under negative pressure. All air will be pre-treated and emitted through biofilters to biodegrade odours and VOC compounds.

3.2.2 The MBT process will include three elements:

- Mechanical pre-processing – shredding and removal of recyclable material.
- Biostabilisation – aerobic decomposition of waste in biostabilisation halls.
- Refining – screening of the output into suitable fractions for recovery.

3.2.3 Contract waste will be accepted at the facility during the normal opening hours of Monday to Friday 0700 – 16.30 and on Saturdays 08.00 to 14.00. In addition, and following advanced notification, the Authority may deliver during the following additional times:

Monday to Friday	16.30 – 22.00
Saturday	14.00 – 16.30
Saturdays (following bank holidays)	07.00 – 16.30
Sundays	08.30 – 16.30
Bank Holidays	08.30 – 16.30

3.2.4 Access to the site will be taken from Courtauld Road, discussions are on-going with the Authority regarding access improvements. The design of the access and the

central spine road are now the responsibility of The Consortium (this is a change since the February 2011 scoping document) and will be considered in the EIA. It is a requirement of the Authority that the site access road is designed to provide access to the adjacent future waste site to the west.

4.0 Scope of the environmental impact assessment

4.1 Introduction

4.1.1 This section sets out The Consortium's views as to the main environmental issues that could potentially arise as a result of the proposed development.

4.1.2 The principal environmental issues that are considered potentially significant are:

- Traffic and Transportation;
- Landscape and Visual Impact;
- Surface Waters and Flood Risk;
- Noise and Vibration; and,
- Air Quality.

4.1.3 This report provides a summary of the EIA methodology and the informal statutory consultation that has been undertaken for each of the above disciplines. This will be reported further within the ES and other documents that will support the planning application.

4.1.4 Further environmental issues that are not considered significant but will be considered to a lesser extent within the ES are:

- Ecology;
- Ground Conditions; and,
- Archaeology and Heritage.

4.1.5 The following sections provide details of the consultation exercise undertaken on the potentially significant environmental issues and the proposed scope of the assessments.

4.2 Traffic and Transportation

4.2.1 Consultation was undertaken with Hilary Gore of Essex County Council Highways (ECCH) and a site visit was undertaken on 19th July 2011 in order to review the local highway network prior to the school holidays (when traffic conditions change). A summary of the consultation and the agreed scope for a Transport Statement (TS) and a traffic environmental impact assessment is given below.

Transport Statement Consultation and Scope

4.2.2 On the basis that the number of vehicles entering the development during operation and construction will likely be similar to or less than that predicted within the original Planning Permission ESS/04/07/BAS, it was agreed with ECCH that there would be no requirement for a full Transport Assessment (TA). It was agreed that a TS based on the findings of a trip comparison exercise between the development which was previously granted consent and the new development should be undertaken. ECC stated that if the trip comparison exercise demonstrates that the vehicular impact is the same or less than that of the original application then a TS would suffice for inclusion as part of the planning application.

4.2.3 ECCH stated that the TS will need to take account of the new access that is to be provided into the development. As this new access will also provide access for a proposed distribution centre (Phoenix Freight International) on the opposite side of Courtauld Road and a future waste facility immediately to the west of the site these developments will be treated as committed. The TS would need to take this into account by carrying out a capacity assessment at the proposed junction (to include both proposed and committed development traffic).

4.2.4 ECCH also confirmed the Rifle and Pistol Club located on land opposite Harvey Road (planning permission no. 05/00928/FULL) should be included as a committed development.

4.2.5 .ECCH confirmed that an assessment of the opening year and 10 years post opening with background traffic growth derived from TEMPRO would be required. ECCH agreed that traffic distribution and assignment will be as per the previous TA.

4.2.6 In addition to the standard policy documents, ECCH have asked The Consortium to consider the following specific policy documents:

- The ECC Development Management Policies; and
- Essex Planning Officers Association (EPOA) parking standards.

4.2.7 In addition ECCH were asked to confirm what (if any) changes to the wider local highway network have occurred since the previous TA was submitted. ECCH confirmed that there have been a number of capacity improvement modifications to East Mayne which have just been completed and less recently improvement to the Fairglen junction (A127/A130) with a segregated left turn slip A130- A127 westbound. There are also improvements to the Saddlers Farm roundabout which are currently being undertaken (although these are further afield).

4.2.8 ECC have provided details of S106 agreements that were agreed as part of the previous application, which include cycle and footway improvements. It is likely that these agreements will be applicable for the revised application and will be considered further in the TS.

4.2.9 It was recommended by ECCH that the Highways Agency (HA) is re-consulted (not yet undertaken). ECCH conceded that although the revised development will have minimal impact on the HA network, the HA are likely to request a revised Travel Plan be submitted as part of the amended panning application for the site.

Transport Environmental Impact Assessment Consultation and Scope

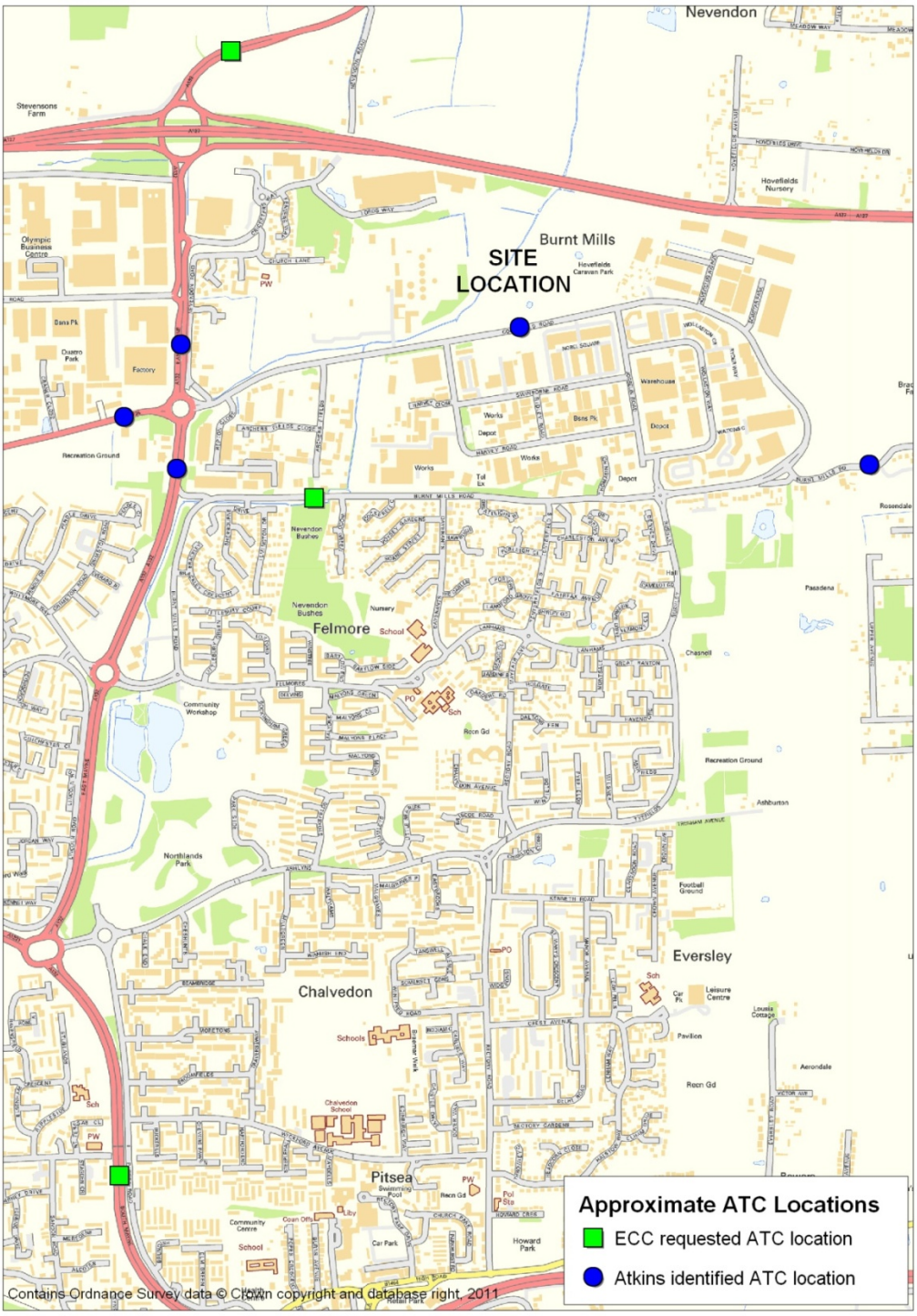
4.2.10 ECCH was contacted (by email) with regard to the EIA scope. Specifically ECCH were asked to provide insight into the geographical scope they felt would be appropriate to consider in the assessment of environmental impact associated with the proposals. The scope of the traffic surveys is highlighted in Insert 1 below, with the sites in green representing the additional traffic count sites as requested by ECCH. These were requested to ensure that the existing flows are understood on all roads that may be used by future site traffic, whether it be cars or HGVs.

4.2.11 It was agreed with ECCH that, due to time constraints, there was a need to carry out traffic counts in the weeks beginning the 11th and 18th of July and that this will not necessarily represent a ‘neutral’ week given that it is nearing the end of the school term and in fact some private schools have already finished their term. It was demonstrated to ECCH that despite this, as these traffic counts will be forming a

baseline assessment for a percentage impact for the ES (in the main) it is likely that these will represent a robust assessment and are considered suitable. No objection to this was provided by ECCH in the response to the scoping and therefore this has been assumed to be acceptable.

The following traffic EIA methodology was presented to ECCH:

- The existing traffic conditions on the surrounding highway network will be assessed and presented within a baseline conditions section of the EIA chapter. An assessment will be made of both the HGV and total traffic impacts arising from the construction of the scheme;
- The Institute for Environmental Management and Assessment (IEMA) 'Guidelines will be referenced for the Environmental Assessment of Road Traffic' guidelines which suggest a range of topics to be considered when determining the magnitude and significance of the environmental impact of development proposals. The topics include: noise, vibration, severance, driver and pedestrian delay, fear and intimidation, accidents and safety, hazardous loads, dust and dirt and ecological effects. The EIA chapter on Transport and Access will focus on severance, driver and pedestrian delay, fear and intimidation, accidents and safety and hazardous loads.
- The impact of the predicted increase in HGV traffic will be assessed, which will be used as a proxy for 'fear and intimidation' impacts. The EIA will also consider other related factors such as vehicle speed, proximity to vehicles and footway width;
- The principal routes used within the study area will be identified and thus the junctions on the surrounding highway network that will be affected by the scheme;
- Traffic counts will be obtained where available from ECCH to establish the existing traffic flows and speeds on these principal routes. Where unavailable, new counts will be commissioned (see Insert 1 overleaf). It should be noted that no junction capacity assessments are proposed although an assessment of the new access roundabout on Courtauld Road will be undertaken as part of a TS for the site;
- Personal Injury Accident (PIA) data for the immediate highway network will be obtained and analysed in order to identify any road safety issues which are likely to be exacerbated by the presence of operational and construction traffic;
- Peak (worst case) construction and operational traffic generation for the scheme will be estimated;
- The impact of the proposed traffic will be established and assessed, with reference to thresholds within the IEMA guidelines (see above); and,
- Mitigation measures for the effects of increased traffic will be developed as necessary.



Insert 1 Automatic Traffic Count Locations

4.2.12 The response from ECCH indicated they were in agreement with the proposed methodology outlined above.

4.2.13 the IEMA guidelines state two 'rules of thumb' regarding the scope of the links that should be assessed for EIA purposes. The first rule advises on the inclusion of highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%). The second rule advises on the inclusion of any other specifically sensitive areas where traffic flows have increased by 10% or more. It was suggested that whilst no traffic data has been collected at this stage, HGV impacts will be considered for those links that are impacted on (due to the potential traffic distribution) and are likely to have HGV or total traffic increases greater than 30%. ECCH was asked to advise if they knew of any areas on the network that they considered to be sensitive to HGV traffic.

4.2.14 ECCH suggested that the HGV issue is sensitive with locals and with Borough Council Members. Therefore even if the HGV increase is less than 30% it would be advisable to consider the impact of the HGV increase on roads in the immediate vicinity of the site e.g. Courtauld Road, East Mayne to A127, East Mayne/South Mayne to A13 and Burnt Mills Road. It was suggested that Pound Lane is particularly sensitive and no additional HGV traffic should use this route to the A127. A contribution towards traffic calming was secured from the previous application to prevent HGVs using this route.

4.3 Landscape and Visual Impact

Methodology

4.3.1 A site visit was undertaken on 15th July 2011 to assess any changes to the landscape character since the 2006 EIA. Based on this it is proposed to follow a similar format but taking account of the reduction in scheme extent.

4.3.2 An assessment will be made of the effects of the proposed development upon the landscape fabric of the site itself and upon the surrounding landscape character. The visual effects of the proposed development on nearby residential areas, public rights of way and recreational areas will also be considered. This will recognise that the site has already been the subject of a separate exercise to clear the development area and establish a raised construction platform.

4.3.3 Whilst the site does benefit from planning permission for the development of a major waste management facility, it is accepted that the proposal would be a conspicuous new feature in views from nearby sensitive receptors. The A127 boundary defines the northernmost boundary of the Thames Gateway and the southernmost extent of the Green Belt.

4.3.4 The presence of mature poplar and evergreen trees to the south of the site will assist in screening views from the east and south east whilst tree and scrub vegetation along the northern boundary of the site and extending east and west on the southern side of the A127 will offer some screening in views from the road and from the north.. This will be supplemented by way of a comprehensive landscaping scheme. Whilst the presence of the dual carriageway and large industrial buildings characterise the northern boundary, preserving views into the Green Belt remain important and full regard to this will be made within the landscape and visual assessment.

4.3.5 The Hovefields Caravan Park, located on the south eastern boundary of the development site, is the nearest sensitive receptor, being the closest residential properties from the site. The facility has been designed so as to not have an overbearing effect on the receptor, with the building being offset from the boundary

(by comparison with the consented development for the site) along with the provision of bunding and landscaping. Mitigation on this boundary is sensitive, balancing screening with ensuring the mitigation is not overbearing or that planting gives rise to problems of shade or leaf fall for the residents.

4.3.6 The proposal for an earth bund to provide screening of low level clutter and site movements will be explored and assessed to ensure this in itself does not have an adverse visual impact.

4.3.7 The main frontage to the proposed development will be from the boundary onto Courtauld Road. The design of the facility will embrace the opportunity for proving an exemplar public interface, through high quality design, additional planting and the provision of green space for public access.

4.3.8 In general terms, the largely flat topography of the area combined with the generally built up nature of the surroundings will mean that many potential views will be restricted by buildings and / or foreground vegetation and that the overall influence on the wider area will be limited.

4.3.9 As part of the proposed development, a comprehensive landscape scheme will be developed for the site, with enhancements being offered to the northern and eastern boundaries as well as to the frontage of the building from off Courtauld Road.

4.3.10 The landscape and visual assessment will be carried out in accordance with guidance within Guidelines for Landscape and Visual Impact Assessment (The Landscape Institute of Environmental Management and Assessment 1995 and revised 2002).

4.3.11 The assessment process will follow a standard approach, namely:

- The establishment of the baseline conditions i.e. the character and sensitivity of the landscape, and the type and sensitivity of visual receptors;
- The prediction of the magnitude of change that the proposed development will bring, allowing for mitigation measures, upon the landscape and upon visual receptors; and
- An assessment of the significance of effects that would occur, by considering the predicted magnitude of change, together with the sensitivity of visual receptors respectively.

Consultation

4.3.12 Consultation was undertaken with Peter Spurrier Public Realm Adviser for ECC. The viewpoints previously agreed with Essex County Council for the consented scheme were reviewed and amended as follows (these are annotated on Figure 3):

- Omit viewpoints 4, 7, 8, 9 and 11 as these relate to the northern extension of the previous application and the wider extent of the main site development.
- Omit view point 2 as this does not add to the assessment of the site context and is now adversely affected by the site hoardings erected to screen the current site levelling operations.
- Add the following viewpoints:
- (A) to capture the view from properties on Nevendon Road
- (B) to show view of the site with the Hovefields caravan park in context

- (C) to show the view from the east representative of views from the adjacent commercial and residential receptors and from the A127.

4.3.13 Peter proposed three other viewpoints which will be included within the assessments and asked for previous viewpoints similar to 8 and 11.

4.3.14 Other viewpoints from Nevendon were considered but there were no clear views towards the site from publically accessible areas due to intervening vegetation and landform. It is noted that the majority of residential properties in this area are bungalows.

4.3.15 Views from the southern arc are substantially screened by the landform and existing industrial estate development. It is concluded that the Visual Envelope previously established does not require amendment. Figure 4 presents the agreed viewpoints.

Assessment

4.3.16 The assessment will aim to provide:

- A clear understanding of the site and its setting in respect of landscape character and visual amenity;
- An understanding of the proposed development in terms of its relationship with the landscape character and visual amenity;
- An identification of all potential direct and indirect effects of the proposed development upon the landscape;
- An identification of potential effects on visual receptors;
- An identification of potential effects upon the visual amenities of the Green Belt;
- A description of the proposed mitigation measures; and
- A conclusion as to the potential residual effects of the proposed development.

Cumulative Effects

4.3.17 There are not expected to be any significant cumulative effects between this site and other committed development in the area with regards to visual impact.

4.4 Hydrology, Hydrogeology and Flood Risk

Methodology

4.4.1 The following proposed methodology assumes that:

- the site has been elevated above the level of flood risk as per planning condition 27 (related to Planning permission ESS/04/07/BAS).
- The Nevendon Brook has been diverted around the site as per the previous Flood Risk Assessment (related to Planning permission ESS/04/07/BAS).

4.4.2 The assessment methodology will be based on a source-pathway-receptor methodology. The principles of such an assessment are detailed in the Defra 2000, Guidelines for Environmental Risk Assessment and Management and it utilises the “connection between the source (of the hazard), the pathway, the receptor, and the impact. It is important that connectivity or potential connectivity between these four

components can be shown. If any of these components is missing then the risk assessment need go no further."

4.4.3 In addition to this, the assessment criteria that will be used are based on the methodology for appraising the impact of projects (plan level appraisal) set out in the Department for Transport's (DfT) Transport Analysis Guidance (TAG) Unit 3.3.6 and the specific guidance for the water environment sub-objective set out in TAG Unit 3.3.11 . Although this methodology has been developed for the assessment of road and bridge projects it can be used to assess the impacts of other developments such as this waste scheme.

4.4.4 The methodology takes into account the importance, magnitude and significance of predicted impacts on the water environment.

4.4.5 In applying this methodology, significant effects would be those of slight significance or above. Effects of neutral significance are termed insignificant. If an adverse significant effect is identified, whether it is of slight, moderate, large or very large significance, then mitigation measures will be identified to reduce or mitigate this effect. When beneficial impacts are identified, then opportunities for further environmental enhancement can be considered.

4.4.6 The site is greater than one hectare in size and will generate runoff due to the placement of buildings and impermeable ground cover; as a result a flood risk assessment (FRA) will be prepared in line with PPS25 , Environment Agency standing advice and guidance given in CIRIA's Development and Flood Risk Guidance for the Construction Industry.

Consultation

4.4.7 Consultation with the Environment Agency (EA) dated 27th January 2011 (Ref. AE/2011/112123/01-L01) from Mr Neil Dinwiddie (EA Planning Officer) agreed that the projected 1 in 100 year river flow with the inclusion of climate change will be confined within the re-profiled Nevendon Brook. Therefore, as a result of the site's new profile, it is no longer situated within Flood Zone. However should the landform be reconfigured or lowered a review would be required of the level of flood risk to and from the site.

4.4.8 Consultation with Roger Webster (EA Development Control Officer, Eastern Area Office, Ipswich) confirmed that the EA agree with the revised hydraulic modelling of the Nevendon Brook submitted by Brand Leonard. The correspondence from Mr Neil Dinwiddie (Environment Agency Planning Officer) on the 27th January 2011 can be taken as their agreement even though the flood maps have not been amended.

4.4.9 Roger confirmed that it would seem appropriate that the new scheme should use the flood levels provided within the Brand Leonard FRA report (i.e. 11.58m AOD) and should also confirm that the site is now above the 1 in 1000 yr flood level and therefore in Flood Zone 1. Jeremy Bloomfield (EA Hydraulic Modeller, Eastern Area Office, Ipswich) also agreed with this approach.

Assessment

4.4.10 A review of the proposed development and site setting has identified potential impacts on the water environment which will require an assessment using the methodologies detailed above. With respect to water contamination it is recognised that the deliberate or accidental discharge of polluting material into controlled waters

is an offence under the Environmental Permitting Regulations 2010 (as amended) if undertaken without consent and could lead to major adverse impacts without mitigation. This has been taken into account in the identification of potential impacts from the scheme.

4.4.11 In terms of flood risk the governing guidance (PPS25) requires the developer to prove to the Local Planning Authority and the Environment Agency that any existing flood risk or flood risk associated with the proposed development can be satisfactorily managed.

4.4.12 The FRA will provide a qualitative assessment of the flood risk to and from the site. The report will determine the constraints from other flood risks as required by PPS25 to include surface water disposal, overland flows, groundwater flooding, and infrastructure failure. Following a review of the flood risk the information will be fed into the surface water design taking into consideration the advice presented in "preliminary rainfall runoff management for developments".

4.4.13 No Sites of Special Scientific Interest, Special Protection Areas (SPA), Ramsar, National/Local Nature Reserves, Special Areas of Conservation or Environmentally Sensitive Areas have been identified within 2km of the proposed development site. As such it is expected that there would be no secondary impacts on the surrounding designated sites located more than 2km from the site.

4.4.14 The potential environmental effects in terms of the water environment that will be considered as part of the EIA are:

- a reduction in groundwater quality as a result of spillages or construction activities;
- a reduction in surface water quality from contaminated runoff entering the local water courses (Nevendon Brook);
- a change to the surface water flow regime from a change to the runoff generated in the area due to the placement of impermeable material; and
- a reduction in groundwater recharge due to the placement of low permeability material reducing infiltration.

Cumulative Effects

4.4.15 There are not expected to be any significant cumulative effects between this site and other committed development in the area with regards to the water environment. Although the area of land immediately to the west of the site has been allocated for a future waste facility the impacts of both this area of land and the site being developed were considered in the 2006 planning application and mitigation works in the form of flood elevation have been completed.

4.5 Noise and Vibration

Methodology

4.5.1 The nearest noise-sensitive receivers to the site are Hovefilelds Park Caravan Site to the eastern site boundary, commercial/ office areas to the south along Courtauld Road and residential areas to the northeast, off Hovefield Avenue.

A baseline noise survey was undertaken by Entec on 17/18 May 2011, on behalf of Essex County Council, in relation to this site, in order to determine the background

and ambient noise levels at locations representative of the noise-sensitive receivers. The findings of this survey will be used to assess the likely impacts.

4.5.2 A noise modelling exercise using SoundPlan software will be undertaken. All calculations will be in accordance with ISO 9613 'Attenuation of sound during propagation outdoors, Part 2 General method of calculation', dated 1996. This will include modelling of fixed plant inside buildings, any fixed plant outside buildings, general lorry movements on the access road within the site, lorry manoeuvring (idling, reversing etc), any noise breakout from buildings (through building fabric, access gates, or other weaknesses), acoustic absorption within buildings and the preparation of noise maps.

4.5.3 An assessment of likely impacts from plant and activities within the site on the nearest noise-sensitive receivers will be undertaken. The assessment of impacts from fixed installations or other industrial installations will be undertaken in accordance with BS 4142: 1997 'Method for Rating industrial noise affecting mixed residential and industrial areas'. The impacts from lorry manoeuvring will be undertaken with reference to BS 8233: 1999 'Sound insulation and noise reduction for buildings – Code of practice.'

4.5.4 A generic assessment of potential noise and vibration impacts during construction, proportionate with details available at the time regarding construction plant and methods, using BS 5228: 2009 'Code of practice for noise and vibration control on construction and open sites' Parts 1 & 2 will be undertaken.

4.5.5 An assessment of road traffic noise generated by the development on the wider road network (during operation and construction) will be undertaken. This will use the guidance provided within Calculation of Road Traffic Noise (CRTN) 1988 and 'Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7, HD 213/11 Noise and Vibration, dated February 2011.

Consultation

4.5.6 Consultation was undertaken with Graham Bannister the Environmental Health Officer (EHO) at Basildon District Council, the results of this are detailed below:

- The above general methodology was deemed appropriate for the assessment of noise impacts in this instance.
- Regarding the assessment of construction noise impacts (BS 5228), it was advised that limits should be set based on existing ambient noise levels using methodologies outlined in BS5228 (for example, 'ABC method'). It was also stated that a best practicable means method would be advisable over a more formal Section 61 agreement. It was understood that, although the construction noise should be assessed, it is considered that it is unlikely to cause any major issues.
- It was also advised that the construction operations should be restricted to the following hours:

  Monday – Friday inc.

  0700 -1900 hrs for general works

  0800 –1900 hrs for more extremely noisy works such as concrete breaking, pile driving and angle grinding.

  Saturday

0800 – 1700 hrs for all works audible at the site boundary.

Sunday and Bank Holidays

No works that are audible at the site boundary.

- On assessing noise impacts from normally operating fixed mechanical plant using BS 4142, it is aspired that the noise generated by the operation should not increase the existing background noise climate. It was conceded however this may not be realistic and hence advised that the BS4142 Rating noise level from the operation should not exceed those background noise levels measured (Daytime LA90 = 44dB, Night-time LA90 = 37dB at the nearest noise sensitive receptor).
- On assessing noise impacts from fixed mechanical plant operated for short periods of regular testing (say once a week for 30mins during day-time hours on a working-day), it was advised that for daytime periods they would not wish for the noise controls to tackle atypical events of sporadic short duration. Strict controls would be applied for night time periods.
- The use of BS 4142 for assessing impacts from lorry manoeuvring within a site is not typically considered appropriate. Therefore it was agreed that the use of BS 8233 (appropriate internal noise levels within bedrooms and living rooms, and appropriate internal maximum noise levels at night) or equivalent WHO criteria are a suitable alternative assessment methodology for activities which are not industrial in nature but nevertheless could result in nuisance (reversing, engine start-up and idling, etc).

Assessment

4.5.7 The potential environmental effects in terms of noise environment that will be considered as part of the EIA are:

- The noise and vibration impacts from fixed and mobile plant within the site boundary on sensitive receptors during operation.
- The noise and vibration impacts associated with construction considering the construction plant and methods.
- The noise impacts associated with the road traffic generated by the development.

Cumulative Effects

4.5.8 There are not expected to be any significant cumulative effects between this site and other committed development in the area with regards to noise impacts.

4.6 Air Quality

Methodology

Dust

4.6.1 A qualitative assessment of the potential impact of construction dust and fugitive operational dust on nearby sensitive receptors, taking account of wind direction/speed (using meteorological data from a nearby representative station) and the location of sensitive receptors relative to the site will be undertaken.

4.6.2 The construction assessment will use information on the types of activities, the location of dust raising activities and their likely duration. The operational assessment will focus on the proposed mitigation measures to be incorporated in the design.

Bioaerosols

4.6.3 A site specific bioaerosol risk assessment (SSBRA) will be undertaken in line with the Environment Agency's latest position paper on bioaerosols from composting operations. As the proposed development will not use open windrows, and because the operations will be contained in a building under negative pressure, a qualitative assessment is appropriate. This will consider the potential impact of bioaerosol emissions during the operation of the facility on nearby sensitive receptors, taking account of the distance of sensitive receptors from the site.

Odour

4.6.4 A dispersion modelling study of odour emissions from the biofilter stack will be undertaken. The study will be undertaken using the steady-state Gaussian plume model, AERMOD. The modelling will consider emissions from the biofilter stack, building upon the initial work undertaken in March 2011 which determined an appropriate stack height and location.

4.6.5 The methodology will be in line with the latest Environment Agency horizontal guidance document (H4, April 2011). The study will report the 98th percentile of hourly odour concentrations for individual years in a three year meteorological data set. The results will be compared with a benchmark of 3 odour units per cubic metre (for moderately offensive odours). Contour plots overlaid on a suitable basemap will be produced.

Traffic

4.6.6 A quantitative assessment of the potential impact of emissions from construction and operational traffic on nearby sensitive receptors will be undertaken if the additional traffic generated by the development exceed the criteria of 200 HGV movements per day or 1000 total (HGV plus cars) movements per day (as set out in the Highways Agency's Design Manual for Roads and Bridges and EPUK development control guidance).

4.6.7 Based on the findings of our initial analysis it is considered unlikely that these criteria would be exceeded.

Consultation

4.6.8 Graham Bannister, the EHO at Basildon District Council, was consulted with regards to the proposed approach to the air quality assessment for the development.

4.6.9 There are currently no air quality management areas (AQMAs) within Basildon District. Basildon District Council commenced air quality monitoring surveys in their authority area in 2006; these data will be used to inform the EIA for the proposed facility. The Council until recently operated a continuous monitoring station measuring nitrogen dioxide, particulate matter (PM10) and sulphur dioxide at Gloucester Park, approximately 4.5 kilometres south west of the site. The Council has now decommissioned the station as concentrations of air pollutants have been below air quality standards for four consecutive years. In addition, the Council

undertakes diffusion tube monitoring of nitrogen dioxide at a number of other locations. This survey has been expanded following the closure of the continuous station and includes properties adjacent to the A127 and on Nevendon Road. Between 2006 and 2009 none of the sites measured any exceedances of air quality standards although the latest data for Nevendon Road site suggest that concentrations are relatively high.

4.6.10 Monitoring at background locations in Basildon is not undertaken therefore a suitable site from the Essex Air Quality Monitoring network or other DEFRA background site/mapped value will be used for the purposes of the assessment.

4.6.11 Baseline monitoring of bioaerosols, dust (other than PM10 monitoring) and odour is not currently undertaken in the vicinity of the development site. The sewage treatment works, immediately to the west, occasionally gives rise to noticeable odours off-site. A complaints record is maintained for the site and operations are reviewed on a regular basis.

4.6.12 Due to the coverage provided by the local authority diffusion tube network, a site-specific baseline nitrogen dioxide monitoring survey is not required. However, Graham Bannister has requested a baseline odour and bioaerosol survey. A site walkover survey of odour will be undertaken to understand existing conditions, although it will not provide any quantitative data for use in the EIA. The odour survey will be carried out with reference to the subjective field odour assessment ("sniff testing") procedure described in the Environment Agency publication entitled "Technical Additional Guidance for H4 Odour Management - How to comply with your environmental permit" (2011). This is a subjective monitoring exercise to assess the intensity of odour during field surveys.

4.6.13 Baseline monitoring of bioaerosols (using a method acceptable to the Environment Agency) will be undertaken to provide baseline information prior to construction of the facility, for use in future comparisons post-opening. Dust monitoring during the construction phase will also be undertaken to ensure that dust deposition rates do not exceed acceptable levels.

Assessment

4.6.14 The potential environmental effects in terms of air quality that will be considered as part of the EIA are:

- Dust from the construction and operational phases;
- Odour from the operational phase; and
- Bio aerosols from the operational phase;
- Road traffic emissions during the construction and operational phase.

Cumulative impacts

4.6.15 A waste facility is proposed adjacent to the development site to the west. This facility may include a composting element and may have the potential to give rise to emissions of dust, odour and bioaerosols when operational, as well as emissions of local air pollutants from vehicles accessing the site.

4.6.16 The cumulative impacts of the operation of both facilities will be considered qualitatively where possible. In addition the operation of the sewage treatment plant

to the west of the proposed site would be included in any cumulative assessment of odour and bioaerosols.

4.7 Other Environmental Issues

Ecology

4.7.1 An ecological walkover survey of the site was undertaken on July 20th 2011by an Ecologist.

4.7.2 The site was observed to be a level base of recently spread soil and soil spreading was ongoing at the time of the site visit. Very little vegetation is remaining. The remaining vegetation was confined to the outer edge of the site and three retained shallow ditches located within the site itself.

4.7.3 The main issues identified are:

- Residual reptile and great crested newt populations
- Close proximity to an Special Protection Area and the potential need for a Habitat Regulations Assessment

Reptiles and great crested newts

4.7.4 An Environmental Statement was originally produced by Atkins in 2006 prior to the site clearance works. The mitigation proposed for the site clearance included the translocation of reptiles and great crested newts from the clearance site to a habitat creation area to the north of the site. It was acknowledged in this ES that not all reptiles would be removed from site and that the vegetation at the edge of the site should be retained to support these remaining reptiles.

4.7.5 Whilst the majority of the levelled site is considered unsuitable for these protected species, there is a possibility that they could occur in the retained vegetation and along the shallow ditches.

4.7.6 Maintenance is required to keep the site unsuitable for these species until the start of works.

4.7.7 The shallow ditches and vegetation along the eastern edge of the site will be removed as part of the construction works. The ecological translocation reports and the newt licence will be reviewed to consider how to take this matter forward.

Special Protection Areas

4.7.8 Benfleet and Southend Marshes Special protection Area (SPA) is just over 5km from the site and Thames Estuary and Marshes SPA is approximately 10km from the site. There is negligible potential for any of the qualifying bird species of the nearby SPAs (avocet, dark-bellied brent goose, grey plover, hen harrier, knot, ringed plover) to use the site in its current state as it is featureless and surrounded by industrial areas.

4.7.9 There is some potential that qualifying bird species would have used the pre-existing habitat and they could now use the habitat compensation site to the north. However due to the industrial nature of the surrounding area and the busy road dividing the site from the compensation area, it is considered that the proposed works would not have an impact on any birds using the compensation area.

4.7.10 There is no reason to consider conducting a Habitat Risk Assessment for the site in its current state as it has negligible potential for the qualifying species.

Conclusion

4.7.11 As the majority of the site has already been cleared of vegetation and great crested newt and reptile translocation has already been undertaken there is not considered to be any requirement for ecology to be included as a major chapter within the ES. However, as discussed above the ecological translocation reports and the newt licence will be reviewed to ensure that appropriate measures are implemented to protect any remnant newt and reptile population within the edge habitats.

4.7.12 As the site is considered to be unsuitable for the SPA qualifying bird species and the proposed works would not affect birds using the compensation area, a Habitat Risk Assessment will not be necessary.

Ground Conditions

4.7.13 The site is subject to planning condition 27 of Planning Permission ESS/04/07/BAS relating to the infilling of the site to 11.5m AOD. The discharge of this condition should confirm that the ground conditions are suitable for use for a waste facility. The Consortium therefore do not consider 'Ground Conditions' to be a significant issue worthy of an EIA. This will be recorded in the ES.

4.7.14 The ground conditions will however be investigated as required by the Environmental Permit and will be reported as part of the permit application.

Archaeology and Heritage

4.7.15 An archaeology and cultural heritage assessment was undertaken as part of the previous planning application and was reported in the 2006 Environmental Statement.

4.7.16 The following reports were submitted with the previous planning application:

- Desk based assessment of the development site;
- Two phases of archaeological investigation; and
- Brief for archaeological excavation works.

4.7.17 Subsequent to the above, the following activities have been undertaken by the current developers on the land to the north of the A127 (which is within the previous application boundary but not part of the current application site):

- Written scheme of Investigation;
- Archaeological fieldwork in accordance with the above; and
- Preliminary summary report.

4.7.18 The current application site was previously washland. The 2006 ES Cultural Heritage assessment chapter concluded that the development would not have significant adverse effects on the built heritage or the historic landscape. This chapter also assessed the current application site area as an area known to have been disturbed and the likelihood of surviving buried archaeological remains in this area was considered to be nil or very unlikely.

4.7.19 Consequently this current application area has undergone significant enabling works as part of the ESS/04/07/BAS planning permission to bring the site levels up for flood protection reasons.

4.7.20 For these reasons it is proposed to scope out Archaeology and Cultural Heritage from the ES for the current application site (but include a summary as to why), as it is very unlikely that the development will have any significant adverse effects on the built heritage, the historic landscape or archaeological remains. Richard Havis (Senior Historic Environmental Officer, at Essex County Council) was consulted on this approach and confirmed his agreement.

5 Summary of findings

5.1.1 This document has further defined the scope and methodology of the proposed EIA. This consultation exercise has highlighted the following areas which will now be included within the planning submission.

- As The Consortium is now responsible for the design of the access junction a capacity assessment is required for this junction.
- A Travel Plan will be included as part of the planning submission.
- Further automatic traffic counts will be included.
- Further viewpoints have been requested for the landscape and visual assessment.
- An odour and boaerosol baseline survey has been requested.
- A review of the ecological reports detailing the results of the ecological translocation exercise and the newt licence will be reported in the ES.

Figures and drawings

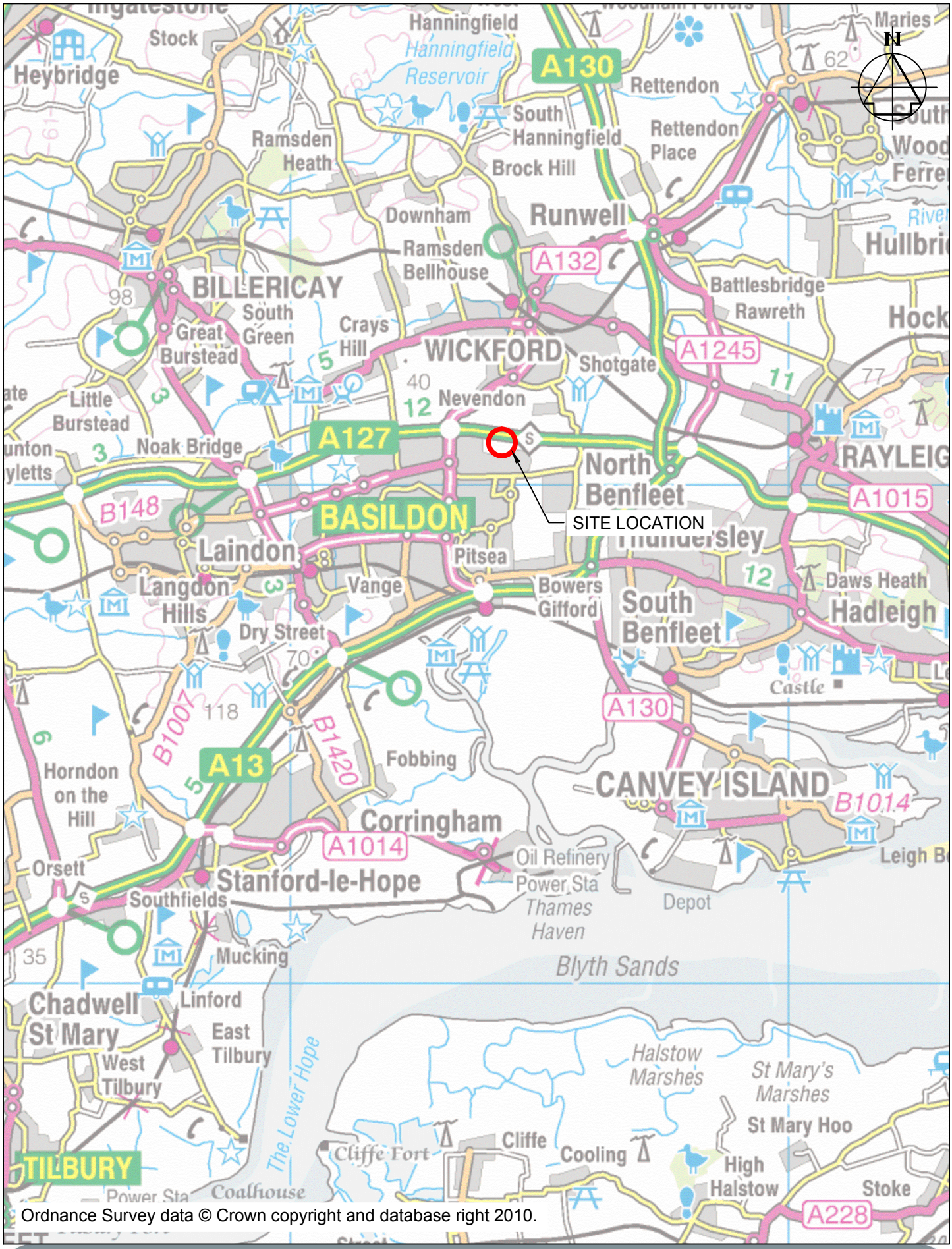
Figure 1 – Site Location Plan

Figure 2 – Planning Boundaries

Drawing No.EWP_ISFT_CIV_003 – Proposed General Arrangement

Figure 3 - Visual Envelope and Visual Amenity Receptors

Figure 4 – Proposed Viewpoints



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Essex Waste Partnership
Residual Waste Treatment Contract

Title: SITE LOCATION PLAN
Drawing No: FIGURE 1
Scale: 1:100,000

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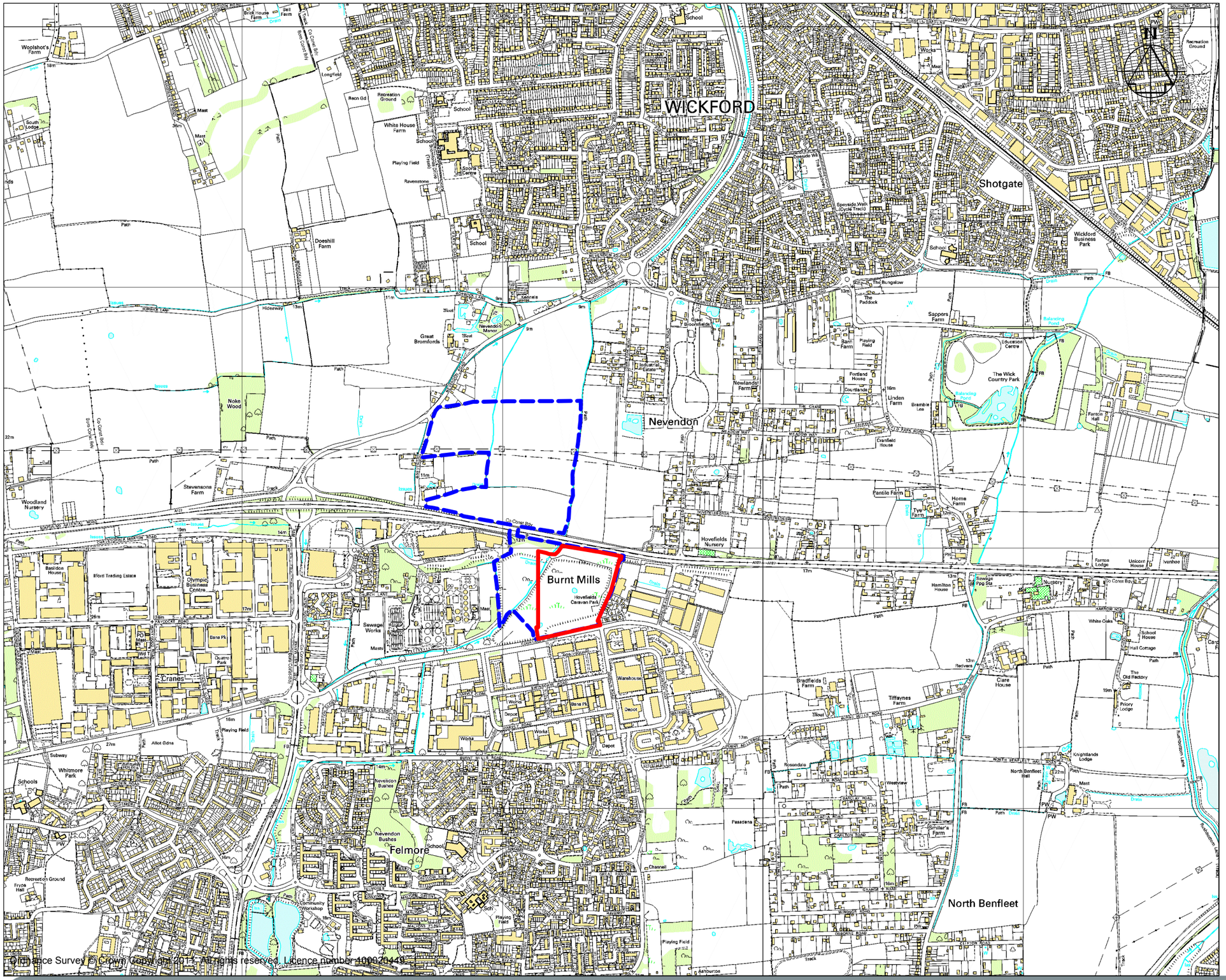

Key:

Previous Application site

Application site

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Essex Waste Partnership Residual Waste Treatment Contract

Informal Scoping Consultation

Title: Application Areas.

Drawing No: Figure 2

Scale: 1:15000

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NOTES:

1. DRAWING BASED ON 266619/A/CVD/004/A BY ENTEC.
2. NOTE IN RECEPTION BUILDING, UNDERCROFT PARKING LEVEL SHOWN, NOT RAISED DROP OFF AREA.
3. ALL ABOVE GROUND TANKS SHOWN TO BE CONTAINED WITHIN PERIMETER CONCRETE WALLED BUND. THE INTERNAL HEIGHT OF THE BUND IS:

   WASTE WATER TREATMENT STORAGE 1.60m
   TREATMENT REJECT 0.55m
   POTABLE WATER 1.00m

4. ALL WEIGHBRIDGES TO BE FLUSH MOUNTED.

KEY:

- ESSEX COUNTY COUNCIL WHOLE SITE BOUNDARY
- PFI LAND BOUNDARY
- BITUMINOUS PAVEMENT
- REINFORCED CONCRETE PAVEMENT
- GRASSCRETE PAVEMENT
- COBBLED ROAD PAVEMENT
- LANDSCAPE PAVED AREA (INDICATIVE ONLY, REFER TO DRAWING REFERENCE EWP_ISDS_LAN_001 FOR DETAIL)
- LANDSCAPED AREA
- LANDSCAPE PLANTING (INDICATIVE ONLY, REFER TO DRAWING REFERENCE EWP_ISDS_LAN_001 FOR DETAIL)
- 1m HIGH CLOSE BOARDED FENCE AS ACOUSTIC BARRIER
- 2.1m HIGH WELDMESH PERIMETER SECURITY FENCE
- 2.1m HIGH ARCHITECTURAL PARK STYLE FENCE
- 4m WIDE ROLLER SHUTTER DOOR
- 8m WIDE ROLLER SHUTTER DOOR
- 4m WIDE ACOUSTIC ROLLER SHUTTER DOOR
- SIDE MOUNTED ROLLER SHUTTER DOOR

REV.	BY.	DESCRIPTION	CHK.	DATE

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Balfour Beatty

urbaser

Essex Waste Partnership
Residual Waste Treatment Contract

Title: Proposed General Arrangement

Drawing No: EWP_ISFT_CIV_003

Scale: 1:1000

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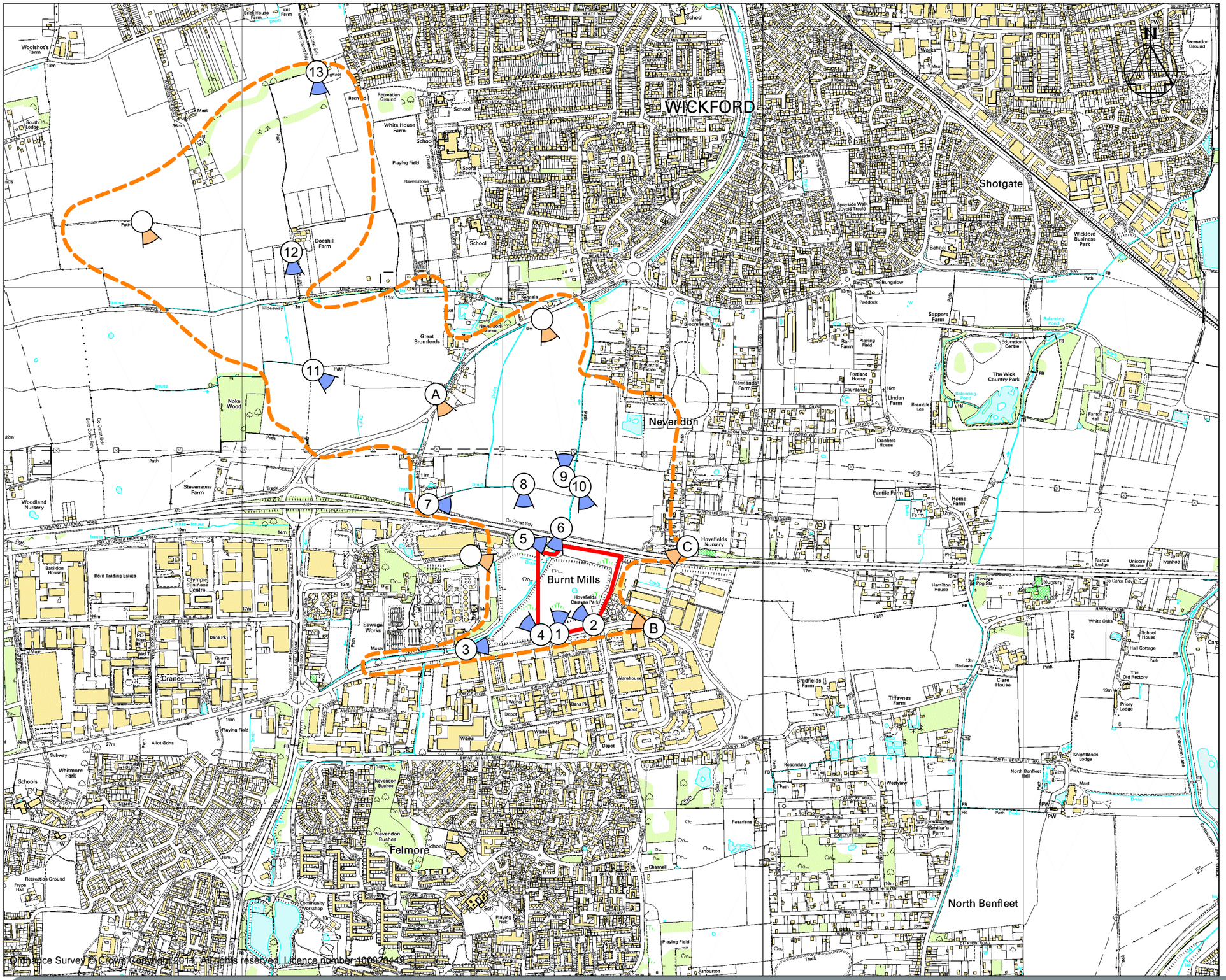

Key:

- Application site
- Viewpoint location from previous application
- Additional viewpoint
- Visual envelope

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Essex Waste Partnership Residual Waste Treatment Contract

Informal Scoping Consultation

Title: Visual envelope and visual amenity receptors
Drawing No: Figure 3
Scale: 1:15000

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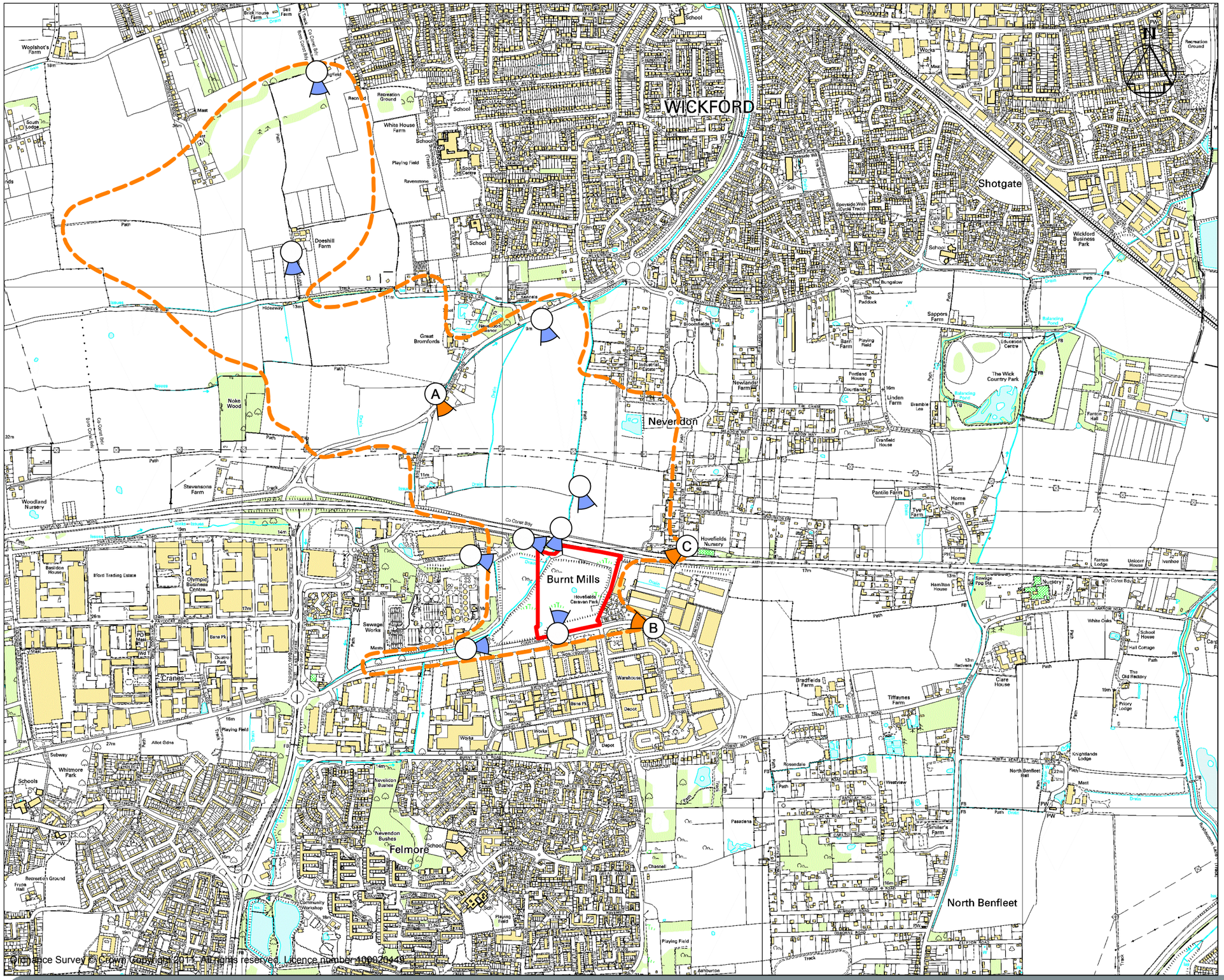

Key:

- Application site
- Viewpoint location
- Viewpoint location with photomontage
- Visual envelope

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Informal Scoping Consultation

Title: Proposed viewpoints
Drawing No: Figure 4
Scale: 1:15000

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APPENDIX 1.4 – Sunlight Assessment

21 March – 7am

21 March – 9am

21 March – 12pm

21 March – 3pm

21 March – 5pm

APPENDIX 1.5 – Existing Application Site – Ecology Reports

DEVELOPMENT OF MBT FACILITY AT COURTAULD ROAD, BASILDON, ESSEX

REVIEW OF ECOLOGICAL MITIGATION WORKS

For: Axis PED Ltd

FEBRUARY 2012

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38 Nursery Road
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Contents

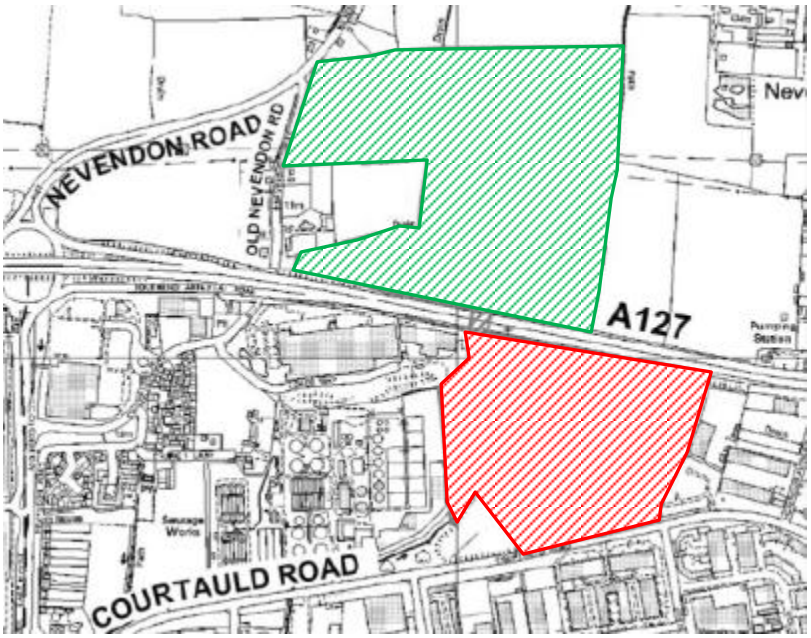
Background

A new Mechanical and Biological Treatment (MBT) facility, visitor and education centre is planned for construction at Courtauld Road, Basildon. It is anticipated that construction will begin in early 2013 and will take approximately 16 months.

Axis PED Ltd has requested a review of the ecological work undertaken at the site to date and a formal opinion on the working practices and monitoring requirements needed for the current proposal, to supplement the Environmental Statement required for the planning application.

Site description

The site for the construction of the MBT facility lies to the south of the A127 (shown in Figure 1) and now contains predominantly bare level soil with patchy vegetation cover of ruderal species. The site is bordered by: dead hedging and scrub bordering the A127 verge (north), a vegetated embankment of bramble with some debris (east), the Nevendon Brook with vegetated banks of grass and ruderal species (west), patchy bare soil/ruderal vegetation (south). A narrow ditch with partially vegetated banks of ruderal plant species, runs across the site and joins the stream flowing under the A127.



The former washland at Burnt Mills Industrial Estate, Courtauld Road, now to be developed for the new MBT facility

The receptor site, including new flood relief area on former farmland, now 'Nevendon Washland Nature Reserve' managed by Herpetologic Ltd

Figure 1: Site location map

Requirements for previous ecological works

The site was formerly an area used as a washland within Burnt Mills Industrial Estate to alleviate flooding of the Nevendon Brook. From 2005-2010 it was subject to a previous planning application and ecological mitigation works, as the washland was infilled and replaced by a new flood relief area on former farmland to the north on the A127. The Nevendon Brook was also realigned to the edge of the site and the site cleared.

An ecological assessment was undertaken in 2005 by Collingridge Ecological Consultants. The site was found to contain established grassland with a high ecological value. Amphibian and reptile surveys found great crested newts, smooth newts, vivaparous lizards, adder, grass snake and slow-worm. There were two badger setts found and the site was used by a variety of summer and winter birds.

The site was later designated by Basildon District Council as a Local Wildlife Site (LWS). A condition of planning approval was to carry out mitigation measures which included translocation of the vegetation, amphibians and reptiles and creating a new washland in farmland north of the A127 (shown in Figure 1) as a new Nature Conservation Area under a Section 106 agreement.

	Key ecological activities/works
2005	Initial ecological survey by Collingridge Ecological Consultants
2006 - 2008	New ponds created in northern receptor site to replace habitat to be lost
2008	Repeat surveys required to support mitigation license
August 2009	Mitigation license granted
2009 - 2010	Great crested newts and reptiles translocated to receptor site
2010	Grassland habitat moved to the new washland
June 2010	Site cleared of Great crested newts and reptiles
Winter 2010	Wintering bird surveys undertaken
May 2011	Management contract awarded to Herpetologic Ltd
2011	First year of monitoring surveys for amphibians, reptiles, birds, invertebrates and vegetation
October 2011	Creation of 50 new ponds with Pond Conservation

The planning application had included the construction of a waste management facility on the infilled land, however, the mitigation license for the ecological works expired in August 2011 and the construction has yet to be started.

DETAILS OF ECOLOGICAL WORKS UNDERTAKEN

VEGETATION

The floor of the new flood relief area was excavated from a former clay soil arable field. A range of habitats were transferred during 2010 from the Courtauld Road site to establish habitat as rapidly as possible in the new flood relief area by using the plants and soil recovered from the donor site.

The more important vegetation was lifted as turfs from the old floodplain using a large excavator and transported by lorry to the receptor site. The initial turfs contained the highest floristic diversity and were carefully placed onto the new floodplain. The less floristicly diverse turf was distributed across the floor of the new floodplain and were tracked in to create uneven rough vegetation and wet areas during flooding events.

The translocated grassland was watered by artificially flooding the washland using the inflow and outflow sluices. Young trees were also moved to the receptor site to provide some nesting habitat for birds.

June 2010 - during turf translocation

November 2010 - transplanted vegetation already becoming established

Figure 2: Translocation of vegetation to Old Nevendon Road receptor site

AMPHIBIANS AND REPTILES

Four new ponds were created in the receptor site between 2006-2008 in compensation for the two great crested newt breeding ponds which were infilled at the Courtauld Road site. A further two ponds were created in 2009-2010 as further compensation.

The amphibian population of great crested newts along with smooth newts, common frog and common toad were translocated to the newly created ponds and terrestrial habitat under a Natural England mitigation license. Using drift fences and pitfall traps amphibians were collected during suitable weather in the mornings and evenings (by torchlight). The trapping period was undertaken over 101 days: 35 days at the end of 2009 before the main hibernation period and then a further 66 days in 2010 from March until June. The majority of the animals were captured by the end of March 2010, and trapping continued until there were 5 consecutive days of null captures, in accordance with Natural England's published guidance.

Populations of the slow-worm, viviparous lizard, grass snake and adder were also translocated from the Courtauld Road site to the receptor site in 2009-2010. Existing and artificial refugia were used and animals collected by hand and relocated to terrestrial habitat on the receptor site. 100 days of capture were undertaken until there were 5 consecutive days of null captures, again in accordance with Natural England's published guidance. Destructive searches by hand and machinery were then undertaken and any residual animals moved to the receptor site.

The final captures for 2009/10 for the Courtauld Road site were:

Great Crested Newts	2,159
Smooth Newts	2,535
Common Frog	4
Common Toad	6
Slow-worm	1,832
Viviparous Lizard	201
Grass Snake	34
Adder	20

Terrestrial habitat was created at the receptor site for amphibians, reptiles and invertebrates. Dead wood and other debris was transported from the Courtauld Road site, and covered with soil and turf to create areas for shelter and hibernation and to increase the topography of the site. Stag beetle larvae were found within rotten logs and these were relocated. Extra debris such as logs and brash was also deposited on the receptor site.

Compost bins were constructed from old pallet wood to collect arisings from grassland and bramble management which is undertaken during the winter months. They also provide hibernation and egg laying sites for slow-worms and grass snakes.

Figure 3: Pond 2 at Old Nevendon Road receptor site, August 2011

Figure 4: Pond 1 and terrestrial habitat (in background), February 2011

DETAILS OF NEW HABITATS AND RECEPTOR SITE

The Old Nevendon Road receptor site now comprises early successional habitats that will continue to change rapidly over the next five years until the grassland and wetland communities become established. Eight hectares of the site is taken up by the new flood relief washland, with 2.5 hectares of tall herb mounds and ponds, and the remainder including established meadow communities, early-successional tall herb, and sparsely vegetated open ground. The receptor site is bordered by: a tree line with scrub and rank grassland bordering the A127 (south), the Nevendon Brook, trees and scrub (east), hedgerows and trees also border properties and Old Nevendon Road (west). Some boundaries have associated ditches, which are seasonally wet, and which also have some scrub and bramble. Figure 5 shows the results of the Phase 1 habitat survey undertaken in July 2011.

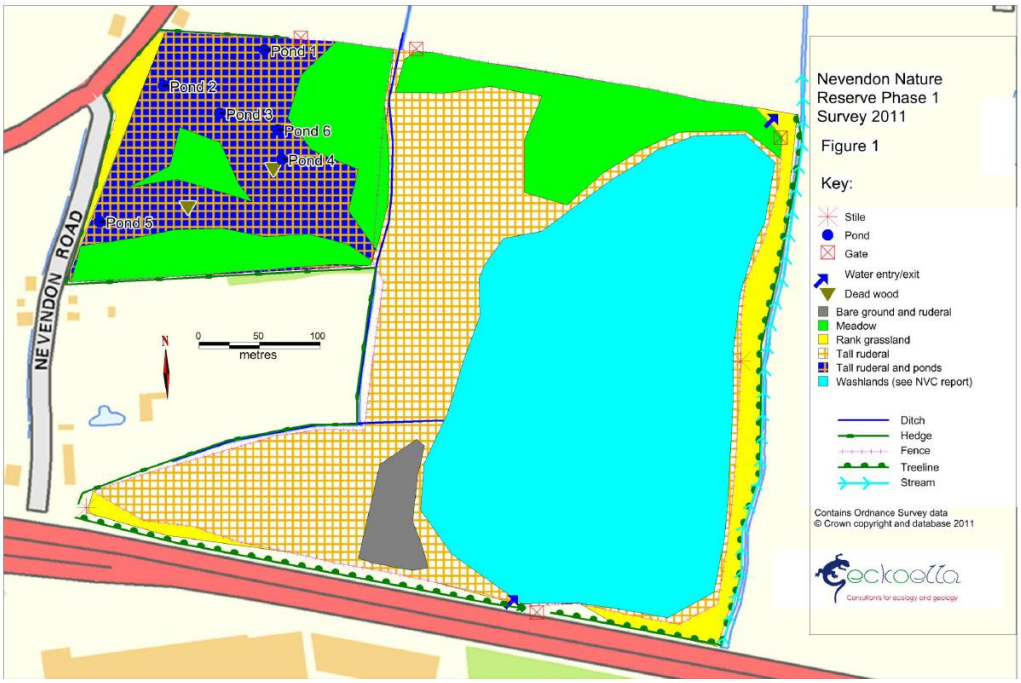


Figure 5: Phase 1 habitat survey, July 2011

HABITAT MANAGEMENT

A programme of ongoing habitat management is carried out at the Old Nevendon Road receptor site to maintain and further improve the habitat for nature conservation as agreed under the Section 106 agreement. This includes:

- **Hedgerow creation and management –** including scalloping the under storey to provide warm microclimates for invertebrates and reptiles, and laying hedges to providing nesting habitat for birds and mammals.

- **Ditch management –** to manage the realigned Nevendon Brook and maintain the function of the washland

- **Grazing and hand cutting -** grazing has been undertaken on the washland at the agreed stocking density of 0.6LSU per hectare in order to maintain the grassland habitat, to create the conditions which were found on the original washland and to control invasive weeds. Hand cutting is also used to create suitable egg laying habitat for grass snakes and the arisings are placed in compost bins or piled in open heaps.

- **Pond creation and maintenance –** a programme is planned to create a network of new ponds of various depths and sizes to provide a mosaic of habitats. Grazing is also used around pond edges to grade off steep sides and maintain the marginal vegetation.

SUCCESS OF ECOLOGICAL WORKS

The new flood relief area and surrounding habitat (referred to as Nevendon Washland Nature Reserve) is now being managed for nature conservation by Herpetologic Ltd. The contract is to monitor and manage its future ecological value over the next 20 years. As agreed in the management contract, the vegetation, invertebrates, amphibians, reptiles and birds will be surveyed in detail over the next 5 years. The first management report summarises the success of the ecological works to date (Herpetologic Ltd, 2011 - report supplied in Appendix 1):

VEGETATION

There is now near continuous vegetation cover over the whole of the floor of the flood relief area and it no longer needs regular watering. There is a predominance of perennial grassland and marshland species and most features of the donor vegetation are included, although it is far more 'mixed up' and there are also more species characteristic of disturbed habitats (although this is to be expected in the initial year following the translocation). There is an absence of short vegetation species, which is being addressed through a programme of grazing (see Habitat Management section).

AMPHIBIANS

The great crested newt population appears to the stable and there is evidence of breeding success with egg laying and newt larvae observed in all ponds. The population has also colonised the new ponds that were created after the 2010 translocation. The information for smooth newts is not as clear, as they have been detected in lower numbers than might have been anticipated. Further spring surveys in 2012 will monitor whether smooth newts are simply being under-recorded by the survey methods used.

In order to protect the population from the spread of Chytrid fungus, it is recommended that there is no further capacity for additional translocation of amphibians from beyond 1km of the receptor site

Figure 7: Great crested egg folds, February 2011 & newt larva, July 2011

REPTILES

Translocated slow-worm, viviparous lizard, grass snake and adder populations were all detected in 2011 in the receptor site, with population estimates broadly in line with the numbers translocated. As the most numerous and least able to disperse, the slow-worm was found in high numbers within the areas where they were initially released. Other species were released in lower numbers and are capable of moving around the site over larger distances, so their distribution was more widespread.

There is further capacity for reptile translocations, particularly with an agreed programme of further habitat creation, habitat management and monitoring. The 2011 monitoring reports recommends additional habitat management, in order to allow the site to be made available for the relocation of local reptiles from other development sites.

INVERTEBRATES

The majority of aquatic invertebrate fauna encountered during the 2011 survey were widespread, common species, but the site is already fairly diverse, containing representatives of at least 25 invertebrate families. Terrestrial invertebrates will be surveyed in detail during 2012.

Figure 6: Emperor dragonfly laying eggs in Pond 2, July 2011

SUMMER AND WINTERING BIRDS

A list of birds seen on the site during summer 2011 has been compiled, including those identified as nesting. Skylarks have been seen (a species not previously identified at Courtauld Road, despite suitable looking habitat). It may be that the low lying areas of the former washland flooded too frequently for skylarks to be established as a breeding species. The largest count of skylarks was 6 which is an important result for this priority BAP species.

Over the winter months of 2011 and 2012 an increase in the number of birds using the washland and surrounding habitats was recorded. Flocks of redwing/fieldfares numbering 100+ were seen using the boundary hedgerows and scrub. The washland areas produced over 110 common snipe, 2 jack snipe, 7 green sandpipers, 10 lapwings, 60 teal, 30 wigeon, and 10 mallard.

The cold weather and snow may have pushed higher numbers of birds into the Nevendon Nature Reserve but it is encouraging that numbers of the majority of the birds previously recorded are at the same level or higher than at Courtauld Road.

MAMMALS

A number of mammal species have been recorded using the new receptor site: foxes, badgers, stoats and a variety of other small mammals have been seen using the site. Small mammals are valuable prey species for adder, birds of prey and other important species on the site.

PROGRAMME FOR FUTURE MONITORING

Under the terms of the management contract, the vegetation, invertebrates and the protected and key species will be surveyed annually for the first 5 years and then at 5, 10 and 15 year intervals.

Surveys to be undertaken in 2012 – 2016 will include:

- Repeated reptile and amphibian surveys
- Invertebrate surveys, particularly terrestrial invertebrates
- Vegetation surveys – NVC survey and an extended Phase 1 habitat survey
- Specific surveys for notable species:
  Green winged orchid (this particular species was recorded as a single plant in 2011)
  Shrill carder bee, brown carder bee (these were the species named in the citation of Burnt Mills, Courtauld Road as a Local Wildlife Site)
- Use of site by wintering birds

ASSESSMENT AS A LOCAL WILDLIFE SITE

One of the ambitions of the habitat management contract (and suggested by various nature conservation organisations during the planning process) is to ensure that the new receptor site and washland is designated as a LWS in its own right. Ideally the new LWS would be at least of equal value of the site which has been lost at Courtauld Road.

The species of amphibian and reptile which have been brought to the Old Nevendon Road site would mean that the site has the potential to meet the criteria after it can be shown that these animals are self sustaining populations. A minimum of 5 years monitoring would be required to determine the status of the relocated amphibians and reptiles.

The invertebrate recording over the next 4 seasons will be targeting the significant species which have been previously identified in 2007 which lead to the site being designated as a LWS. Particularly attention will be made to try to attract the two carder bee species to the site.

REMAINING ECOLOGICAL POTENTIAL ON COURTAULD ROAD DEVELOPMENT SITE

The Courtauld Road site was declared clear of amphibians and reptiles in June 2010. Although 18 months have passed, the central area of the site remains largely unsuitable for amphibians and reptiles and of low ecological value. However, under the previous mitigation works, the hedgerow along the site boundary to the north was not removed. This means that it is possible that some residual reptile and great crested newt populations are still located in the hedgerow. As the development will require some clearance of the existing hedgerow to the northern boundary, it will be prudent to carry out a terrestrial survey to establish if there are amphibians present before the hedgerow is removed and development work can commence. A similar survey would be required for the presence / likely absence of reptiles prior to the removal of the hedgerow.

To carry out the development, reasonable measures must be taken to ensure that there is no killing or injury to individual reptiles and amphibians (an offence under the Wildlife and Countryside Act 1981). In addition, any movement of great crested newts would require a mitigation licence from Natural England. The development has been previously licensed for this purpose, but the licence has now expired (in August 2011).

In the scenario where great crested newts, and potentially other reptile and amphibian species are also found, immediate advice would be sought from natural England on whether it is possible to extend the licence and transfer it to a new licensee, or whether a new licence application be required. It will be necessary to survey, apply for a licence and carry out mitigation works during 2012, in order for the development to start in early 2013

POSSIBLE OUTCOMES:

1) No amphibians and reptiles are found

If the terrestrial survey confirms that no amphibians or reptiles are found, then development work can proceed without the legal requirement for any further mitigation measures.

2) No great crested newts are found, but other amphibians/reptiles are present

As long as no great crested newts are found, the development will not require further licensing from Natural England. However, if reptiles are found then these will need to be excluded from any works areas using habitat manipulation or translocated to the existing receptor site to the north (with prior agreement with Herpetologic Ltd and Natural England).

3) Great crested newts (and others) are found

In the scenario where great crested newts, and potentially other reptile and amphibian species are also found, immediate advice should be sought from Natural England on whether it is possible to extend the license and transfer it to a new licensee, or whether a new license application be required. It will be necessary to survey, apply for a license and carry out any mitigation works during 2012, in order for development to start in early 2013.

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Appendices

Appendix 1: Herpetologic Ltd, 2011 Washland and Nature Habitat Management Works at Nevendon Washland Nature Reserve, Old Nevendon Road, Basildon - Annual Monitoring Report 2011

WASHLAND AND NATURE HABITAT MANAGEMENT WORKS AT NEVENDON WASHLAND NATURE RESERVE, OLD NEVENDON ROAD, BASILDON

Annual Monitoring Report 2011

Version	Date	
0.1	12/09/2011	Initial draft
0.2	14/11/2011	Sub contractor reports added
0.3	22/11/2011	Issued for review

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Contents

1. Background

Nevendon Washland Nature Reserve at Old Nevendon Road, Basildon was created in order to mitigate for the loss of a wetland reserve and former County Wildlife Site at Burnt Mills Industrial Estate, and to create new habitat for protected amphibians and reptiles that were translocated from the site. The nature reserve and flood plain works and ongoing management are carried out under a Section 106 agreement between the developer and Essex County Council.

In June 2011, Herpetologic Ltd was awarded the contract for the ongoing monitoring and habitat management of the washland.

2. Aims

The approved Management Scheme sets out the following aims:

(i) monitoring the Old Nevendon Road site using specific indicators of the vegetation the invertebrates and the protected and key species surveyed annually for the first 5 years from completion of the turf and soils placement and then at 5, 10 and 15 year intervals;

(ii) controlling excessive weed growth by topping;

(iii) light grazing by horses or cattle, with mechanical cutting if necessary;

(iv) monitoring the botanical composition of the vegetation in accordance with the National Vegetation Classification survey techniques;

(v) monitoring the embankments of the realigned Nevendon Bushes Brook using specific indicators of the vegetation and invertebrates surveyed at 1, 5, 10 and 15 year intervals from the **first occupation** of the waste treatment plant;

(vi) management of mitigation as determined by monitoring results from specific indicators with regular reviews of the management of wildlife habitats and adjustment to address unexpected variations from predicted losses.

The purpose of this annual monitoring report is to report progress on the ecological aspects of the site. It will include the results of each specific survey: amphibians, reptiles, summer birds, vegetation and invertebrates. Where surveys have been carried out by a sub contractor a summary of their results has been included and their separate reports supplied as an annexe to this report.

A review of wintering birds will be completed (as an amendment to this report) by April 2012.

3. Survey methods

Vegetation

Using appropriate methods the vegetation of the Old Nevendon Road site was monitored in the summer months using NVC/Phase 1 and fixed point photography.

Two surveys were undertaken in July 2011 to determine the extent of vegetation/plant species: by Richard Collingridge (Collingridge Ecological Consultants) using quadrat sampling (the same methodology used prior & during the relocation of turf in 2009/2010) and by Kate Jeffreys (Geckoella Ltd) who carried out a Phase 1 habitat survey, using a broad habitat classification (Joint Nature Conservation Committee, 2010), extended to take particular account of features and habitats of high value for biodiversity.

Some plant sampling has been carried out within the ponds during invertebrate surveys, and initial results are reported here, however further analysis of aquatic vegetation will be carried out during the next survey period.

Invertebrate

In 2011, efforts have been focused on surveying the newly created aquatic habitats in the six ponds, the washland and the Nevendon brook. The invertebrate survey was undertaken by Andy King (Geckoella Ltd) assisted by Jon Cranfield (Herpetologic Ltd) on 27 and 28 July 2011.

Sampling techniques used were:

- Pond netting, using a standard sweeping technique with bank-sorting, which was undertaken at 10 points around the waterbodies.
- Kick sampling, which was used at Nevendon stream, but not suitable for use in slow-flowing sample points and the ponds.
- Binoculars, used to aid identification of Odonata flying over the waterbodies and perching on distant vegetation.

Based on the faunal lists recorded through sampling, BMWP and ASPT scores were calculated for each water body.

BMWP scores - Biological Monitoring Water Party (BMWP) score is a well established method for measuring water quality using species of macroinvertebrates as biological indicators. The method is based on the principle that different aquatic invertebrates have different tolerances to pollutants: the number and type of invertebrate species is a good indication of whether it is impacted by pollution – and better water quality is assumed to result in higher invertebrate diversity.

ASPT scores – a weakness of the BMWP system is the effect of sampling effort; a prolonged sampling period can produce a higher final score. To overcome this, the Average Score Per Taxon

(ASPT) is also calculated. This method does not depend on family richness (i.e. it is independent of sample size) and is likely to be less influenced by season than the BMWP methodology.

Terrestrial species have not been specifically surveyed in 2011: as the contract was agreed late in the season, the decision was taken to only focus on aquatic invertebrates. The budget for survey of terrestrial invertebrates in 2011 will be rolled forward to 2012. A report will be prepared this winter to set out the framework for terrestrial sampling during 2012-2015, to focus on key indicator species and species previously listed on the SINC/CWS citation for the Burnt Mills County Wildlife Site which has now been destroyed.

Amphibian

A series of amphibian surveys were undertaken from February to May 2011. Amphibian surveys were undertaken by Jon Cranfield (Herpetologic Ltd), Ray Cranfield (consultant herpetologist) and Kevin Morgan (consultant herpetologist).

Standard survey methods (Natural England, 2001) were used during the breeding season for newts (February - late May or early June):

- Each pond was surveyed overnight using torch counting and assessed using the Habitat Suitability Index for great crested newts (ARG UK, 2010).
- Egg searches were undertaken during February and follow up larvae surveys were carried out during the invertebrate surveys in July.

The peak counts of each species were recorded from each survey area and the total number of each species were recorded for each survey date.

The translocation capture data from 2010 was sent to Dr David Sewell of Durrell Institute of Conservation and Ecology (DICE) for analysis using a newly developed depletion model to estimate initial population size. The peak survey count will be used to compare the initial population size to the current estimated population size and this method will be repeated over subsequent years.

Sampling was also carried out in the Nevendon ponds as part of a wider project run by the Zoological Society of London to monitor the presence of chytrid fungus in amphibian populations.

Animals were captured by hand, net and by bottle trap. Each adult amphibian was swabbed using a cotton swab which was then sealed and sent to ZSL. The swabs are then tested in the laboratory for the presence of DNA from the fungus *Batrachochytrium dendrobatidis* the causative agent of the disease of amphibians Chytridiomycosis also known as 'Chytrid' or or shortened to 'Bd'.

Reptile

Reptiles were monitored using standard survey techniques outlined in the Reptile Habitat Management Handbook (Edgar et al 2010) and the Reptile Mitigation Guidelines (Foster, 2011):

- direct observation of reptiles basking in the open and on prominent features
- artificial cover objects (tin and felt) placed into suitable environs where reptiles can take shelter or bask near to cover

The reptile surveys were undertaken by Jon Cranfield (Herpetologic Ltd) and Ray Cranfield (consultant herpetologist). 7 survey areas were determined within the site and transects were followed between artificial cover objects (along and amongst suitable reptile environs/habitats.) The cover objects were made from pieces of felt, corrugated felt, corrugated tin, pieces of wood, carpet and other debris which warms in sunlight.

The number of animals seen and their location were recorded in order to help determine the relative distribution of the four different species found on the site.

The peak counts of each species were recorded from each survey area and the total number of each species were recorded for each survey date.

As the for amphibian data, the reptile translocation data from 2010 was sent to Dr David Sewell of Durrell Institute of Conservation and Ecology (DICE) for analysis using a depletion model to estimate initial population size. The peak survey count will be used to compare the initial population size to the current estimated population size and this method will be repeated over subsequent years.

Other (wintering & summer breeding birds)

Summer breeding birds were recorded during survey visits over April to September. Bird lists and relative abundance were recorded on an ad hoc basis. Birds were reported by Jon Cranfield, Ray Cranfield and Kevin Morgan.

2 to 3 visits during the winter months will be carried out and an update to this report supplied when the data is available.

4. Habitat Management

Control of excessive weed growth

The control of weeds was undertaken using hand tools wherever possible. Due to problems with unofficial horse grazing and the eviction of the Dale Farm Traveller site (located close by) it has been necessary to restrict vehicular access to the site by means of concrete bollards and fencing. Machinery was therefore not used this year and the management approach to weeds will need revisiting in 2012, specifically in relation to control of ragwort, which is reported to be causing some distress to the owners of neighbouring properties. A ragwort control plan will be written this winter - efforts will focus on controlling ragwort within a specific distance of the boundary, but detailed advice from DEFRA will be sought.

Grazing

Due to unofficial grazing on the site and problems with the current grazier it has only been possible to establish grazing on the developing washland habitat. Once the illegally placed horses were removed from the site in September 2011, 14 horses were placed onto the washland to provide suitable habitat management for this autumn and early winter. Later in the winter the horses will be kept on the top fields (which are not covered by this management contract) as the washland will be too wet for grazing. Mechanical cutting of hedgerows and grassland within the site will be carried out over the winter and spring months to create new habitats/environs for reptiles, invertebrates and mammals.

Pond creation

As part of the ongoing management of the site's biodiversity a series of ponds will be developed in the former farmed fields between the artificial wash land and the main newt release area. The first set of ponds have been created using hand tools as part of an event called 'The 50 Pond Challenge'. Organised with Essex Amphibian & Reptile Group, Pond Conservation and Amphibian & Reptile Conservation, volunteers were tasked with digging small shallow ponds using hand tools over the weekend of 22 & 23 October 2011.

5. Results

Vegetation - NVC Survey

This section gives a summary of the report 'Grassland NVC survey: Old Nevendon Road, Basildon' (Richard Collingridge, Collingridge Ecological Consultants, July 2011) which is given in Annex 1.

The floor of the new flood-relief area was excavated from a former clay soil arable field, and then covered in turf removed from the former area (a well-established grassland with a high botanical diversity) during 2010. In order to help the transplanted turf establish, the area was watered when necessary by flooding.

There is now nearly continuous vegetation cover over the whole of the floor of the flood relief area, with a predominance of perennial grassland and marshland species. The vegetation includes most features of the donor vegetation, but with several significant differences:

- The new vegetation is far more mixed up. For example, there are areas of predominantly rush-dominated vegetation, but these communities are generally mixed with elements from the species-rich tall grassland.
- All communities of the new vegetation include many more species characteristic of disturbed habitats, both weedy dry-ground habitats and muddy wet ones.
- There are newly recorded plants characteristic of wet habitats (water plantain *Alisma plantago-aquatica*, wild celery *Apium graveolens*, spear-leaved orache *Atriplex prostrata*, nodding bur-marigold *Bidens cernua*, water parsnip *Berula erecta*, common spike-rush *Eleocharis palustris*, spotted knotweed *Persicaria maculosa*, water pepper *Persicaria hydropiper*, false fox sedge *Carex otrubae*, celery-leaved buttercup *Ranunculus sceleratus* and creeping yellow-cress *Rorippa sylvestris*). The donor site included few or no areas which would have favoured the growth of these species, so these may have established from seeds present in the soil or from a small number of plants hidden amongst other vegetation.
- Short vegetation is currently largely absent – no areas were dominated by species characteristic of such vegetation, and some recorded previously (often in significant amounts) were not recorded at all – these include red fescue *Festuca rubra*, daisy *Bellis perennis*, oval sedge *Carex ovalis*, carnation sedge *Carex panicea* and devil's bit scabious *Succisa pratensis*.

The Match vegetation analysis programme was used to analyse the data from the quadrat sampling to match the communities to the defined NVC types. Most of the vegetation communities present either did not closely match those described by the NVC, or they form intermediates and mixtures between recognised NVC types. A vegetation community map of the flood relief area has been prepared (Figure 1).

79 species of vegetation were found in the flood relief area at Nevendon Washland in 2011. This compares to 52 species recorded in the 2010 NVC survey carried out at Burnt Mills, prior to the turf being moved. Table 1 gives the species presence data from the surveys.

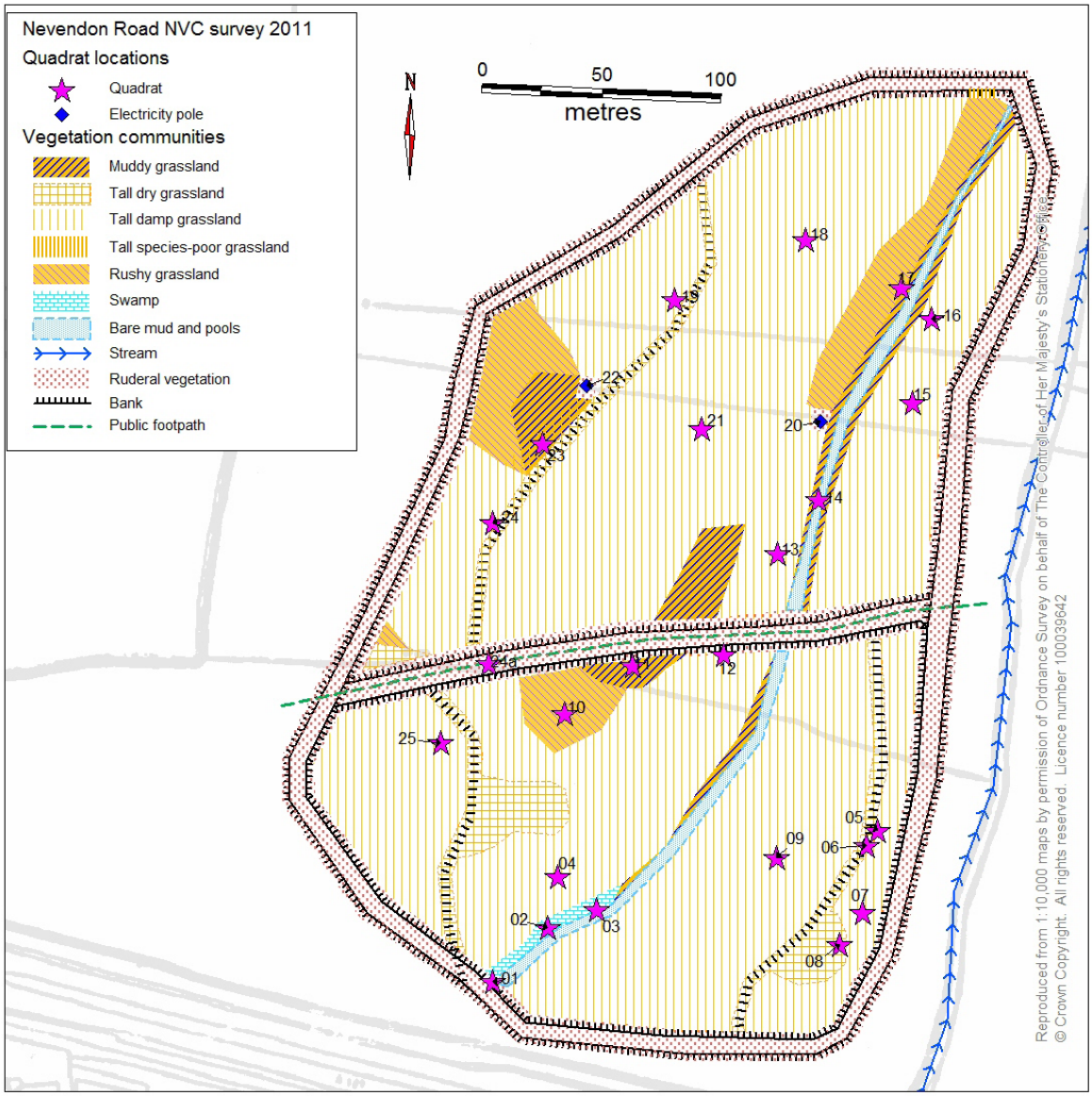


Figure 1: NVC survey 2011 – vegetation communities map

	Only 2010	Only 2011	Both	Total
Achillea millefolium		✓		
Agrostis capillaries			✓	
Agrostis stolonifera			✓	
Alisma plantago-aquatica		✓		
Alopecurus geniculatus			✓	
Alopecurus pratensis			✓	
Apium graveolens		✓		
Arrhenatherum elatius			✓	
Atriplex prostrate		✓		
Avena fatua		✓		
Bellis perennis	✓			
Berula erecta		✓		
Bidens cernua		✓		
Cardamine pratensis	✓			
Carex divulsa		✓		
Carex flacca			✓	
Carex hirta		✓		
Carex otrubae		✓		
Carex ovalis	✓			
Carex panacea	✓			
Centaurea nigra		✓		
Cerastium fontanum	✓			
Cirsium vulgare		✓		
Conium maculatum		✓		
Convolvulus arvensis		✓		
Daucus carota		✓		
Deschampsia caespitosa			✓	
Diosacus fullonum		✓		
Eleocharis palustris		✓		
Elytrigia repens			✓	
Epilobium hirsutum		✓		
Epilobium parviflorum		✓		
Festuca arundinacea			✓	
Festuca rubra	✓			
Galega officinalis			✓	
Geranium dissectum			✓	
Glyceria fluitans			✓	
Holcus lanatus			✓	
Juncus acutiflorus			✓	
Juncus bufonis			✓	
Juncus conglomeratus			✓	
Juncus effuses			✓	
Juncus inflexus			✓	
Lactuca serriola		✓		
Lathyrus pratensis			✓	
Leontodon saxatilis			✓	
Lolium perenne	✓			
Lotus corniculatus	✓			
Lotus glaber			✓	
Lotus uliginosus		✓		
Lycopus europaeus			✓	
Matricaria discoidea		✓		
Mentha aquatica			✓	
Oenanthe aquatica		✓		
Persicaria hydropiper		✓		
Persicaria maculosa		✓		
Phalaris arundinacea		✓		
Phleum bertolonii		✓		
Phleum pratensis		✓		
Picris echioides		✓		
Plantago lanceolata			✓	
Plantago major			✓	
Poa annua	✓			
Poa pratensis			✓	
Poa trivialis			✓	
Potentilla reptans			✓	
Prunella vulgaris			✓	
Pulicaria dysenterica		✓		
Ranunculus acris			✓	
Ranunculus bulbosus			✓	
Ranunculus peltatus	✓			
Ranunculus repens			✓	
Ranunculus sceleratus		✓		
Rorippa sylvestris		✓		
Rubus fruticosus		✓		
Rumex crispus			✓	
Rumex obtusifolius		✓		
Rumex sanguineus		✓		
Scirpus maritimus		✓		
Senecio erucifolium			✓	
Silaum silaus	✓			
Solanum dulcamara	✓			
Spergularia maritima		✓		
Succisa pratensis	✓			
Taraxicum officinalis			✓	
Trifolium hybridum		✓		
Trifolium pratensis			✓	
Trifolium repens			✓	
Tripleurospermum inodorum		✓		
Typha latifolia		✓		
Veronica anagallis-aquatica		✓		
Vicia sepium	✓			
Vicia cracca			✓	
Totals	14	41	38	93

Table 1: Presence of vegetation species 2010/2011 comparison

Vegetation - Extended Phase 1 habitat survey

This section gives a summary of the report 'Phase 1 Habitat Survey, Nevendon Nature Reserve, Basildon, Essex' (Kate Jeffreys, Geckoella Ltd, October 2011) which is given in Annex 2.

In addition to the NVC survey of the transplanted vegetation in the floor of the newly created flood-relief area, an extended Phase 1 habitat survey was carried out of the wider habitat of the Nevendon Washland Nature Reserve.

The Nature Reserve comprises early successional habitats that are likely to change rapidly over the next five years until the grassland and wetland communities become established. Eight hectares of the site is taken up by the new flood-relief 'washlands', with 2.5 ha of tall herb mounds and ponds, and the remainder including established meadow communities, early-successional tall herb, and sparsely vegetated open-ground. A treeline with scrub and rank grassland borders the A127 to the south of the site, and Nevendon Brook to the east also has trees and scrub. Hedgerows and trees also border properties and a minor road to the west. Some boundaries have associated ditches, which are likely to be seasonally wet, and which also have some scrub and bramble.

The habitat and point features were mapped using GPS to create the habitat map illustrated in Figure 2.

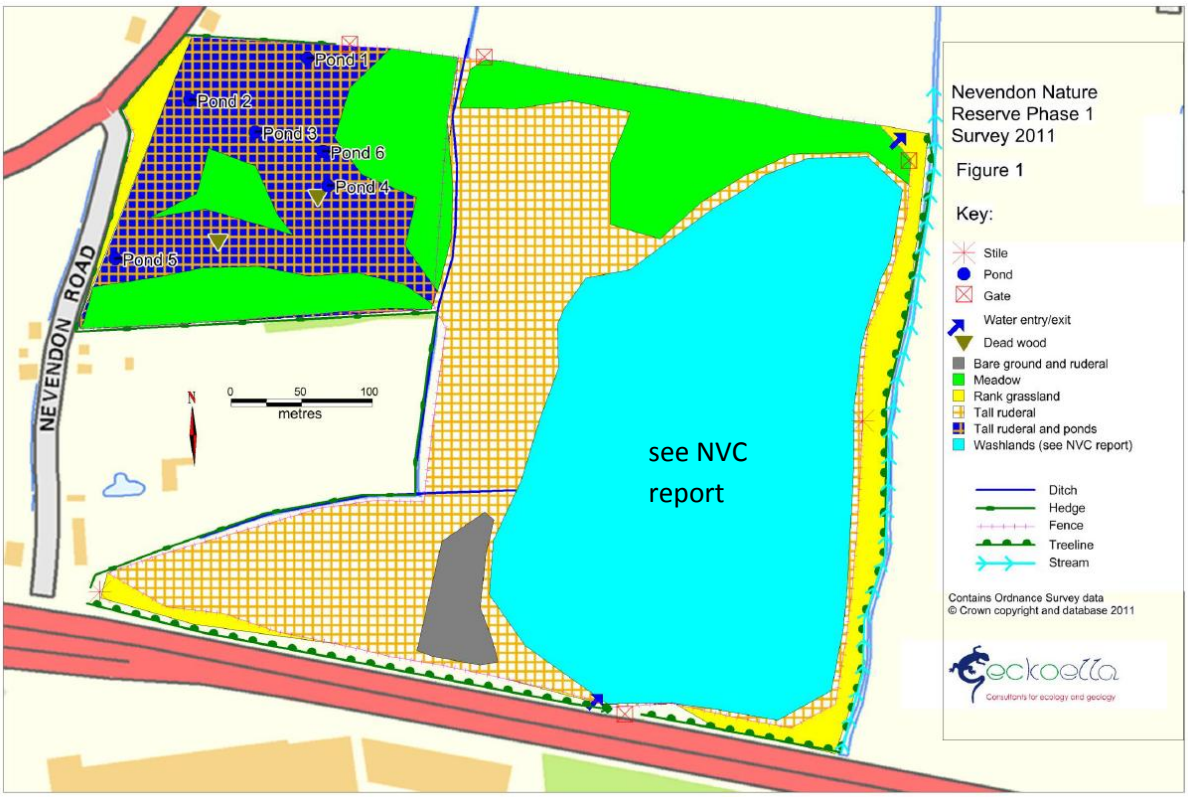


Figure 2: Phase 1 habitat survey 2011 map

Invertebrate

This section gives a summary of the report 'Nevendon Ponds and Washlands, Basildon, Essex - Invertebrate Survey 2011 – 2015, Report 1. Baseline Survey of Aquatic Invertebrates' (Andy King, Geckoella Ltd, October 2011) which is given in Annex 3.

A second report (due to be produced by Geckoella Ltd by the end of December 2011), will set out the 2012-2015 proposed sampling framework and monitoring programme for terrestrial invertebrates at Nevendon Ponds and Washlands.

A complete list of the aquatic invertebrate fauna can be found in the full report in Annex 3. A summary of species diversity in each water body sampled is given in Figure 3. The majority of aquatic invertebrate fauna encountered during the 2011 survey were widespread, common species, but the site is already fairly diverse, containing representatives of at least 25 invertebrate families. On the basis of the 2011 survey data, the aquatic invertebrate fauna is dominated by bugs (Hemiptera) and beetles (Coleoptera) which account for approximately 60% of the species encountered. In addition, two Nationally Scarce (NB) species of aquatic beetle were encountered during the 2011 survey:

- A water scavenging beetle, *Berosus (Berosus) affinis* found in Pond 5 (locality P5).
- A diving beetle, *Rhantus (Rhantus) suturalis* found in Pond 3 (locality P3) and in the washland sampling point 1 (locality W1).

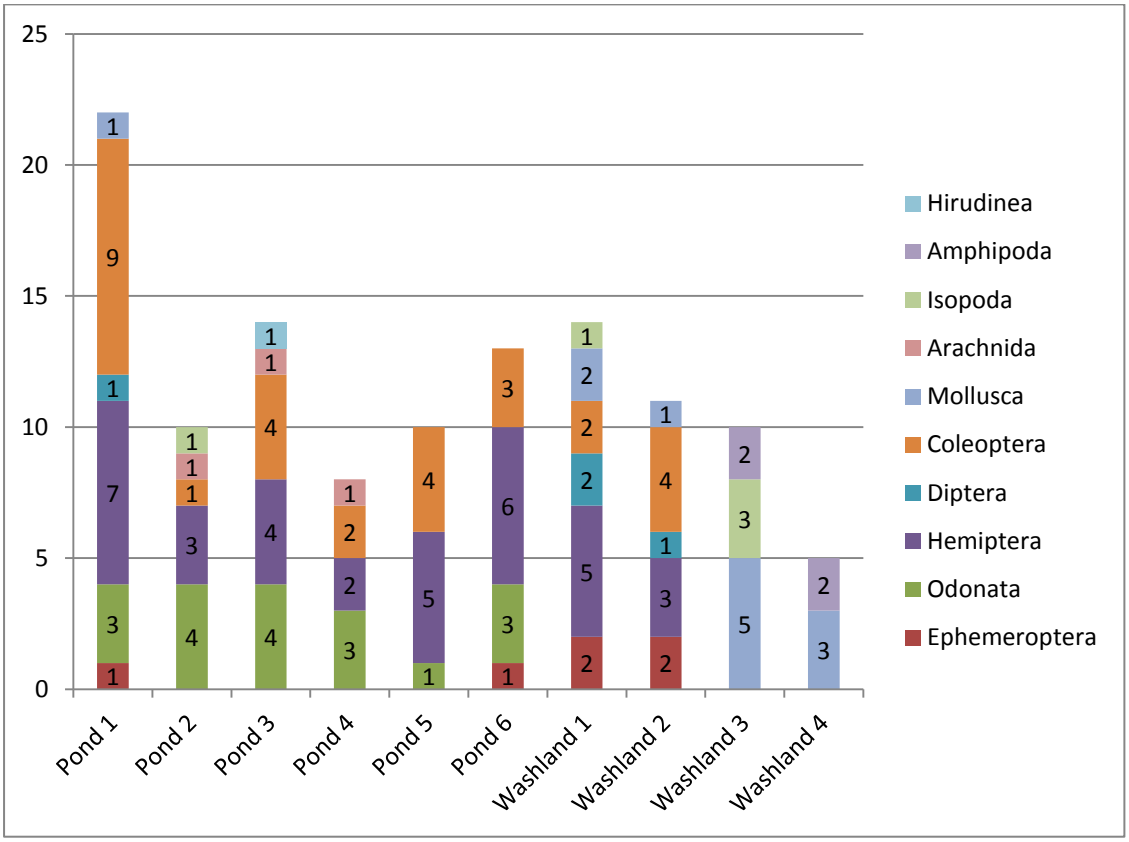


Figure 3: Aquatic invertebrate species 2011 survey

BMWP and ASPT scores were calculated from each water body and the grading of biological and water quality according to BMWP and ASPT scores is given in Table 2.

Waterbody	**Biological quality based on BMWP scores**	**Quality based on ASPT scores**
P1	Poor (nearly Fair)	Fair to Good
P2	Poor	Poor to Fair
P3	Poor	Fair to Good
P4	Poor	Fair to Good
P5	Poor	Good to Very good
P6	Poor	Fair to Good
W1	Poor	Poor
W2	Poor	Fair
W3	Poor	Very poor
W4	Very poor	Very poor to Poor

Table 2: Initial assessment of biological quality based on 2011 BMWP and ASPT scores.

This initial assessment of biological quality of the Nevendon waterbodies may seem very low, especially on the basis of the BMWP scores. However, it is important to consider:

- the assessment is only based on 2 days worth of survey data
- the ponds and waterbodies are relatively immature, with insufficient time for diverse aquatic invertebrate faunas to become established.
- The ASPT scores are more encouraging and are believed to represent an underlying trend indicating that ponds P1-P6 have the potential of achieving a Good to Very good quality rating.
- The Poor or Very poor quality rating for the Nevendon stream samples (W3 and W4) may be as a result of polluting surface run-off from the adjacent A127 road.

Amphibian

This section is supplemented by the report 'Nevendon Road Torch Counts' (Kevin Morgan, August 2011) which is given in Annex 4.

Populations of great crested newts and smooth newts were translocated from Courtauld Road to the Nevendon Nature Reserve in 2009-2010. Animals were released into four new ponds which were created between 2006 and 2009 in order to replace the lost habitat. An additional two ponds were created in 2009-2010, outside the release area i.e. no animals were released directly into these ponds.

7 amphibian surveys have been carried out in 2011 in order to review the success of the translocation and the current status of the amphibian populations in all of the ponds on the site. These surveys employed a variety of survey methods: egg searches, visual surveys and torch counts as outlined in Table 3. Ponds were also checked during other maintenance visits to the site.

Date	Surveyor	Survey methods used
02/02/2011	Ray Cranfield	Egg search
05/04/2011	Kevin Morgan	Torch count
13/04/2011	Kevin Morgan	Torch count
23/04/2011	Kevin Morgan	Torch count
26/04/2011	Jon Cranfield/Kevin Morgan/Jeremy Biggs/ Ray Cranfield	Visual survey
29/05/2011	Ray Cranfield/Jon Cranfield	Torch count
27/07/2011	Jon Cranfield/Andy King	Visual survey

Table 3: Amphibian survey dates and methods during 2011

Egg searches

Egg searches were undertaken by checking vegetation for the presence of newt eggs. Eggs were spotted within the receptor site ponds from 12 February 2011. The first eggs were laid a few days prior to the photo shown in Figure 4, showing great crested newt egg folds on water mint leaves. Egg laying progressed throughout the breeding season through to May and June.

Figure 4: Great crested newt egg folds, Pond 3, February 2011

Visual surveys to assess breeding success

All the ponds were found to have newt larvae, shown in photograph in Figure 5. The majority of great crested newt larvae were found in Ponds 1 to 4, where animals were directly released, however, it is encouraging to find that newts have also colonised the two other ponds and are successfully breeding within a year of translocation.

Figure 5: Great crested newt larvae, July 2011

Torch counts

4 torch counts were undertaken during April and May 2011 and the number, species and sex of amphibians seen was recorded. The results of these counts are shown in Figure 6.

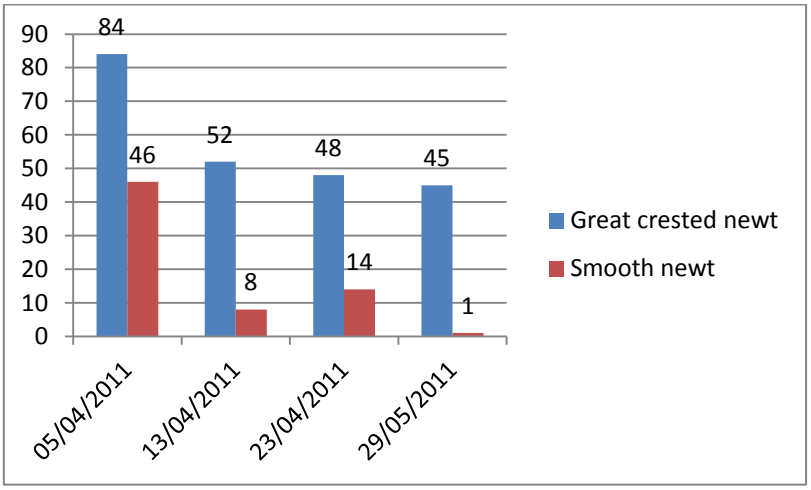


Figure 6: Amphibian torch counts in 2011

The peak count of adult great crested newts was 84 and based on the assumption that 5-10% of the population is seen during the peak count, the estimated population is calculated to be 840 to 1680 adult great crested newts.

The depletion model results supplied by Dr David Sewell (Table 4) indicates that the translocated population size was 1324 adult great crested newts. These two population estimates are broadly in agreement and suggest that the translocated population is stable in the receptor site.

Great crested newts:	
No. observed (captured):	1324
Estimated population:	1324
95% confidence interval:	1324 - 1324.12
Smooth newts:	
No. observed (captured):	2068
Estimated population:	2068
95% confidence interval:	2068-2068

Table 4: Depletion model population estimates (supplied by Dr David Sewell)

The peak count of adult smooth newts was 46, and if detectability was assumed to be 5-10%, an estimated population would be 460 to 920 adult smooth newts. This is significantly lower than the population size calculated by David Sewell using the depletion model. This may suggest that the smooth newts have declined, however, other factors may be the result of this observed reduction in numbers:

Surveyor bias	that the survey focus is too heavily on great crested newts (as the protected species) and smooth newts are under recorded
Size	great crested newts are larger and more easily seen during torch counting
Dispersal	smooth newts may have dispersed naturally from the ponds
Mortality	smooth newts may have a higher mortality over winter compared to great crested newts
Detectability	as aquatic plants increase over the growing season, the detectability of newts is reduced

Habitat Suitability Index

The suitability of the 6 ponds created for the great crested newt are assessed to be Excellent or Good using the Habitat Suitability Index (HSI) score (Table 5).

Waterbody	Habitat Suitability Index Score	Assessment
P1	0.84	Excellent
P2	0.81	Excellent
P3	0.77	Good
P4	0.77	Good
P5	0.76	Good
P6	0.82	Excellent
W1	0.59	Below Average
W2	0.59	Below Average
W3	0.25	Poor
W4	0.25	Poor

Table 5: Habitat Suitability Index for each waterbody 2011

The washland sampling points have been used as a comparison and are considered to be Below Average to Poor for great crested newts based on the ten factors which are recorded to calculate the HSI score (ARG UK 2010). Figure 7 illustrates the location of these HSI scores.

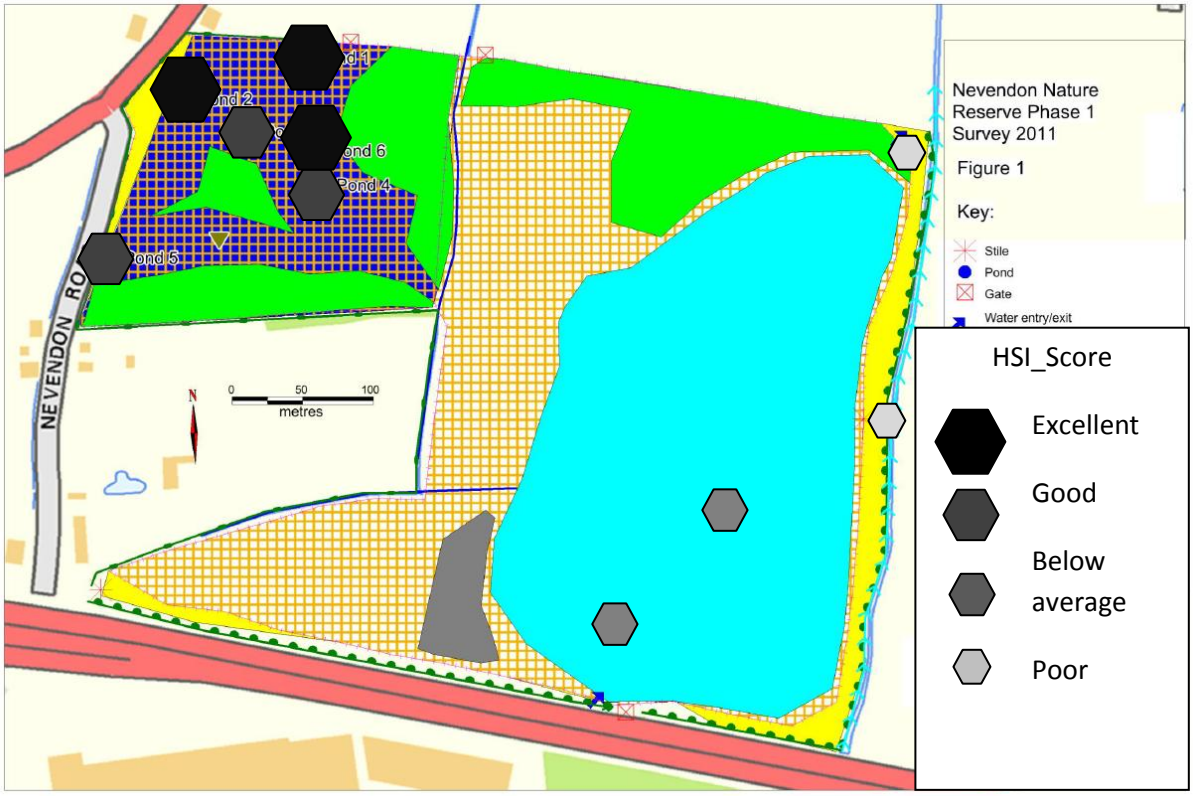


Figure 7: Location of HSI (Habitat Suitability Index) scores

Figure 8 gives total numbers of newts seen by sampling location. This illustrates the weaknesses of torch counting as a method of accurately assessing population size: Pond 2 and Pond 6 are both deemed to have Excellent habitat conditions for newts but relatively low numbers were seen - possibly due to the presence of blanket weed reducing detectability.

The highest count was from Pond 4 which may reflect the detectability of the animals found in the pond rather than its population. It is recommended that a measure of detectability needs to be recorded on future survey visits.

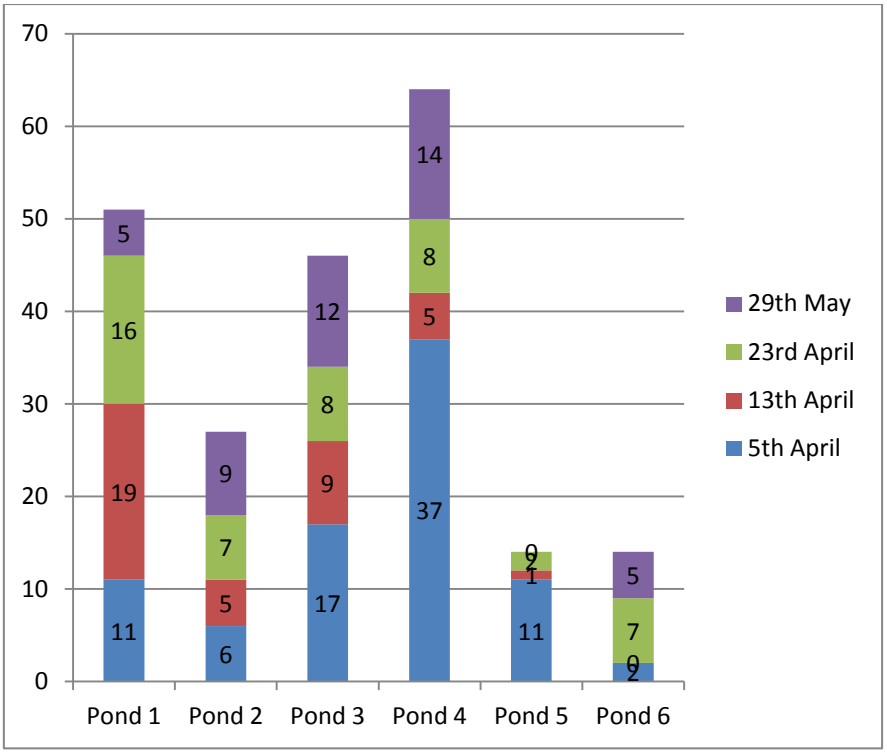


Figure 8: Number of great crested newts seen on each survey by pond

Pond water levels

The ponds fill up over the winter to a very high level and then gradually draw down exposing the bare mud which is an important habitat for invertebrates and plants (Figure 9).

All the ponds held water into October. It is expected that the newt larvae have managed to metamorphose into young newts and are now amongst the habitat around the ponds and within the surrounding hedgerows.

Figure 9: The change in water levels demonstrated in Pond 5 (a) winter level and (b) summer level

Chytrid Sampling (smooth newts only)

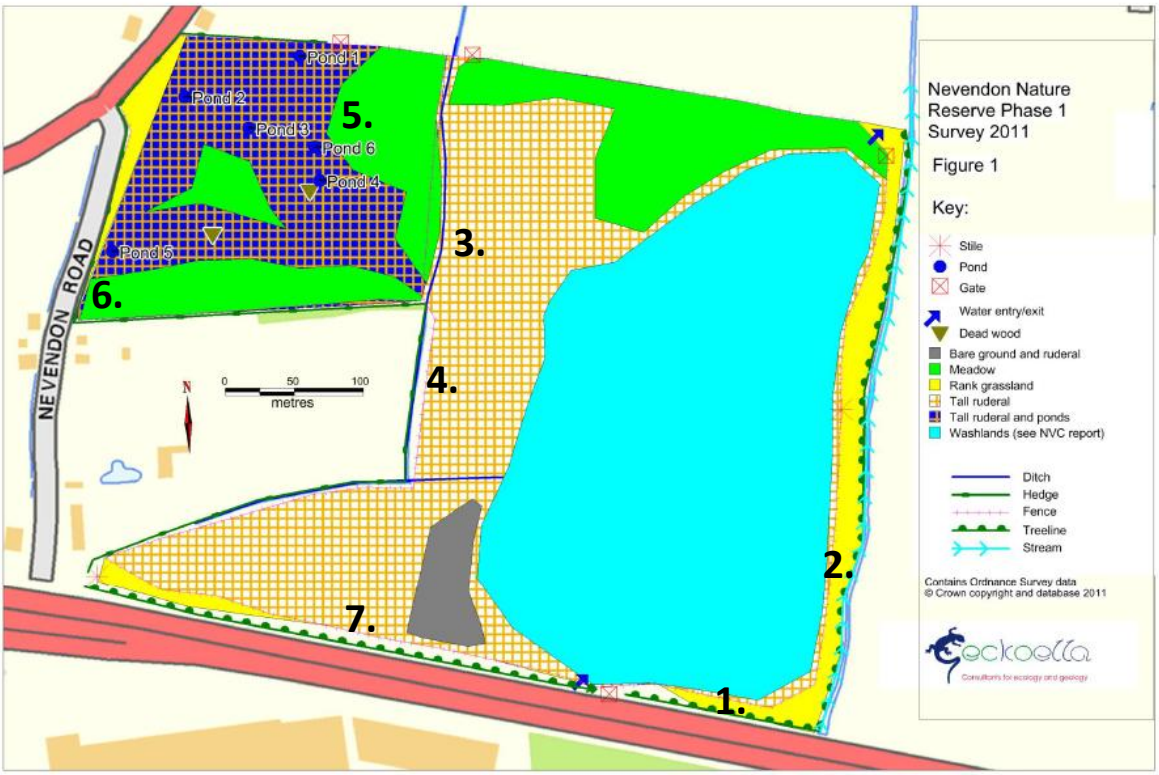
Male (% total)			Female (% total)			Male and Female (% total)		
total	**positive**	borderline	total	**positive**	borderline	total	**positive**	borderline
8	**0 (0.0)**	3 (37.5)	11	**0 (0.0)**	2 (18.2)	19	**0 (0.0)**	5 (26.3)

19 smooth newts were tested for chytrid (Bd) and the results showed that 5 animals were borderline as being positive for the fungus. It is likely that the disease organism is present at very low levels or is not present. Research has shown that great crested newts have a protective effect when it comes to Chytrid infection. It was important to assess the population currently as in the future, further testing may indicate whether the incidence of this disease in the population is increasing, stable or decreasing.

Reptile

Populations of the slow-worm, viviparous lizard, grass snake and adder were translocated from Courtauld Road to the Nevendon Nature Reserve in 2009-2010. Most of the reptiles were released into the fenced off amphibian release area, where suitable terrestrial habitat was created. The adders (and a few slow worms and lizards) were released at the far easterly end of the site, furthest from neighbouring residential areas .

Reptile surveys were conducted in 2011 throughout the active season for reptiles, to assess the success of the translocation and the current status of reptile populations. The number of animals of each species and their location were recorded, by area number - illustrated in the map in Figure 10.



Area	Description	Comments
1	Edge rank grassland along A127	Very low reptile records
2	Rank grassland - enhanced with habitat piles for adder release	3rd highest number of reptiles (totals) found in this area
3	Ruderal grassland associated with hedgerow/ditch	Main area for lizards found on the site few other reptile records
4	Ruderal grassland associated with hedgerow/bramble/ditch with compost bins and other habitat enhancements	The highest reptile total of all the survey areas. Adder recorded here despite no release plus second highest number of lizards
5	Main pond area extensive habitat piles associated with ponds dug for newts	Second highest number of reptiles and the main area for the grass snake
6	Meadow grassland/hedgerow/bramble edge habitat	All four species recorded in this area a suspected hibernation site is located here
7	Ruderal grassland/bare ground alongside A127	Very few reptiles found in this area

Figure 10: Reptile survey areas at Nevendon Nature Reserve

6 reptile surveys have been undertaken in 2011:

17 May 2011 – Ray Cranfield
19 May 2011 – Ray Cranfield
15 June 2011 – Ray Cranfield
27 July 2011 – Jon Cranfield
08 August 2011 – Jon Cranfield
15 August 2011 – Jon Cranfield

The slow-worm was the most frequently recorded species: a peak count of 94 was recorded in the visit in June. The other species are recorded in much lower numbers with peak counts as follows: 3 adder, 4 grass snakes and 4 viviparous lizards (Figure 11).

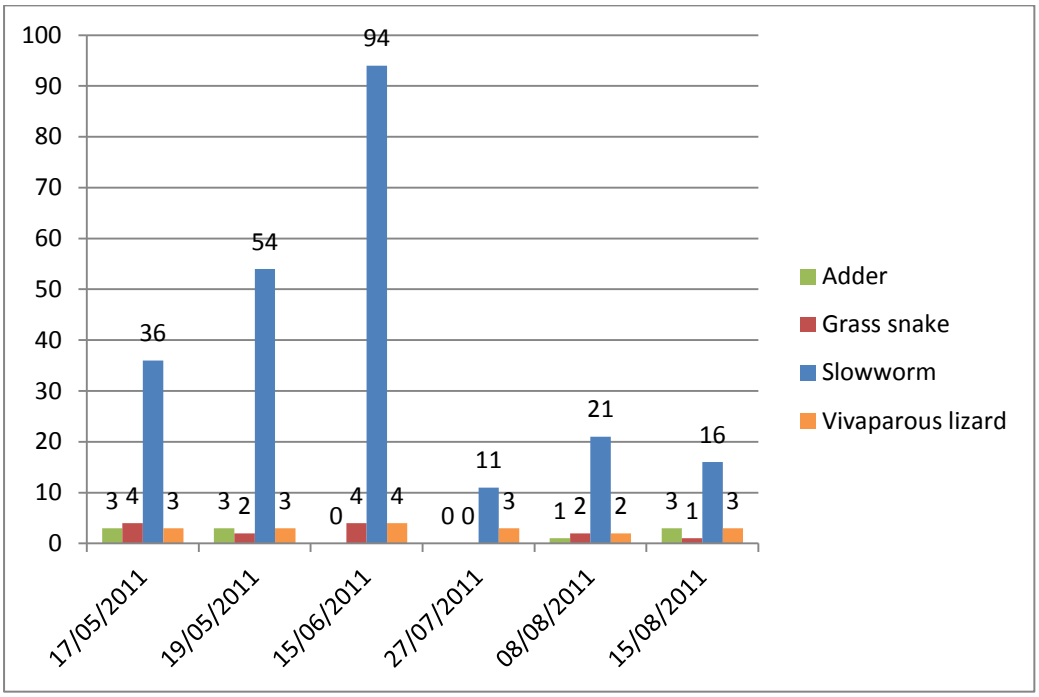


Figure 11: The peak counts of each reptile species in 2011

The total number of reptiles seen at each survey area is shown in Figure 12 and corresponds with the main release sites, particularly for the slow-worm which has a lower capacity to disperse compared to the lizard and snake species.

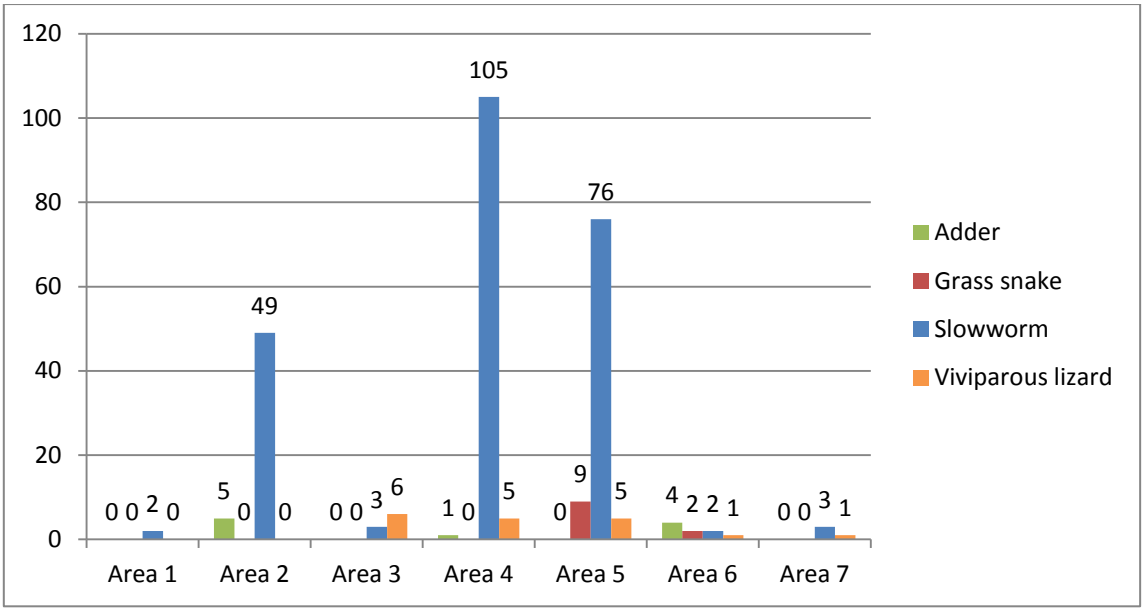


Figure 12: The total number of each species for each of the 7 survey areas

Population estimates

From the peak counts of each species an estimated population number can be derived for each reptile species. Assuming that between 5 to 10% of the population is seen during a survey peak count a range of the population can be calculated (shown in Table 6). The depletion model data from the 2010 translocation data was unable to give an accurate population estimate for all species, as the model is still under development.

	Peak count	**Population estimate**	**Depletion model population estimate**
Slowworm	94	940 to 1880	TBC
Grass snake	4	40 to 80	51 (between 34-82)
viviparous lizard	4	40 to 80	TBC
Adder	3	30 to 60	23 (between 20-31)

Table 6: Peak count and depletion model population estimates (supplied by Dr David Sewell)

Further survey data in subsequent years is needed to assess the success of the translocation. However, the numbers of animals seen is as would be expected within the year following translocation. Baby lizards, slow-worms and adders have all been seen in 2011 which is very encouraging. The data from 2011 will provide a baseline for comparison over the coming years of monitoring planned for the site.

There are areas of low population density (particularly Area 1, Area 3 and Area 7), and with continued habitat management to enhance the suitability of these areas, there are opportunities to bring more reptiles into the site from other local sites in the Basildon area.

Other (wintering & summer breeding birds)

A list of birds seen on the site during summer 2011 has been compiled, including those identified as nesting (Table 7).

Native	Migrant	Seen on Site 2011	Nesting on Site
Blackbird		X	
	Blackcap	X	
Crow-Carrion		X	
Crow-Jackdaw		X	
Crow – Jay		X	
Crow – Magpie		X	X
	Cuckoo	X	
Duck – Mallard		X	X
Dunnock		X	X
Egret – Little		X	
Finch – Chaffinch		X	X
Finch – Green		X	X
Finch – Gold		X	X
Finch – Linnet		X	
Gull – Black Headed		X	
Gull – Common		X	
	Gull – Common Tern	X	
Gull – Great Black-backed		X	
Gull – Herring		X	
Gull – Lesser Black-backed		X	
Heron – Grey		X	
Kestrel		X	X
Moorhen		X	
Partridge – Grey(Common)		X	
Pheasant		X	X
Pigeon – Collared Dove		X	X
Pigeon- Stock Dove		X	
Pigeon – Wood		X	X
Robin		X	
	Sandpiper – Green	X	
Skylark		X	X
Meadow Pipet		X	X
Sparrow – House		X	
Starling		X	
	Swallow	X	
	House Martin	X	
Tit – Blue		X	
Tit – Great		X	
Wagtail – Pied		X	
	Whitethroat	X	X
Woodpecker – Green		X	
Wren		X	
Yellowhammer		X	

Table 7: A bird list of the Nevendon Nature Reserve in 2011

The results of a wintering bird survey will be added to this report in Spring 2012.

6. Recommendations

It is recommended that the programme of surveys which have been agreed in the management contract continue as intended.

The species identified as of particular interested have been surveyed this year and have been found to be in reasonable numbers, although continued survey effort in subsequent years is required to determine the long-term success of the translocation.

Amphibians (great crested newts) and reptiles are afforded protected status, and will therefore be the most obvious animals to monitor and the ongoing management would hopefully keep the status of these animals stable. Managing habitat correctly for amphibians and reptiles will also have a positive effort of the general biodiversity of the site - as monitored through ongoing vegetation and invertebrate surveys. Survey transects have been established for the reptiles and the ponds should be revisited in the main breeding season. Monitoring of water levels, breeding success and species distribution around the site will be undertaken using the same methods in 2011.

Monitoring of the site has been secured for the next 5 years and steps are being taken to provide further monitoring of invertebrates by local volunteers so that the more specialised animals can be focussed on in 2012. Making the site available for the relocation of local reptiles from other development sites will help fund the management of the reserve as agreed under the management plan. No further amphibian introductions will be considered in order to protect the existing population from Chytrid fungus.

To internally evaluate Nevendon Nature Reserve against Local Wildlife Site criteria.

Habitat Management

The management of the washland and the receptor site area can be managed by mechanical means if horse grazing becomes an issue. The control of ragwort will follow an agreed management plan draw up using DEFRA guidelines to be written this winter. Periodic cutting can be used around the neighbouring properties. Pulling of ragwort will be undertaken after rain to make the ground soft to enable plants to be uprooted (a labour intensive but more effective means of eliminating regrowth).

Vegetation

The new vegetation is now established enough that it no longer needs regular watering in dry weather. However, it may still become droughted in extended dry periods in summer, and if this occurs over the next year it can be watered again by artificial flooding.

The absence of vegetation characteristic of short-grazed turf is a concern, and grazing should be established at a density in summer of up to about one Livestock Unit (LU) per hectare. If insufficient stock are available to graze the whole restoration site, it may be necessary to confine them to the washland part of the site using temporary or permanent fencing. Winter grazing should be at a lower

density. (One LU is equivalent to one adult beef animal, and a pony is about 0.6 LUs.) This has been achieved this Autumn using 14 horses supplied by the grazier on the washland. The horses have now been moved off the washland until next year.

Over 2012 as a result of the invertebrate, amphibian, reptile and bird surveys any changes to the vegetation will be noted and used in an update.NVC communities will be assessed using digital photography and sent to Richard Collingridge to confer whether management has been correctly applied on the washland.

The NVC vegetation and Phase 1 Survey may be repeated in detail in 2013 and a Habitat Balance Sheet approach may be used to measure changes in nature conservation value.

Invertebrates

The invertebrates are a large group of species which need to be monitored. An agreement with local colleges and local natural history societies is being sought to monitor the more readily identifiable species such as butterflies, bumblebees, damselfly and dragonflies through established transects through the site. Students and volunteers will be reimbursed with expenses and will be fully instructed on how to undertake the surveys on the site.

Further surveys will be undertaken for terrestrial invertebrates alongside a repeat of the aquatic invertebrates by Andy King and Kate Jeffreys (Geckoella Ltd) who will be taking samples for identification. Future monitoring of the aquatic invertebrates should be undertaken ideally at earlier and later times (late Spring and high Summer/early Autumn) in order to obtain more representative survey samples across the seasons. This will be more important for emergent forms such as Odonata (dragonflies and damselflies), and also potentially for Ephemeroptera (mayflies) where particular taxa have specific flight times. It is anticipated that invertebrate diversity will increase in these ponds over time, and consequently the BMWP score and the biological quality will improve.

Particular attention will be made for the relocated population of stag beetles and the two bee species which were found on the original Courtauld Road site in 2007 (Shrill Carder Bee and Brown Carder Bee).

This monitoring schedule will be covered further in the Nevendon Invertebrate Report 2 which is due from Geckoella Ltd by end December 2011.

Amphibians

The great crested newt population appears to the stable and there is evidence of breeding success. The population has also colonised the new ponds that were created after the 2010 translocation. The information for smooth newts is not as clear, as they have been detected in lower numbers than might have been anticipated. Further spring surveys in 2012 are recommended using torch counting and bottle trapping as required.

Further habitat creation and improvements can be made, that will benefit both great crested and smooth newts:

- Create new larger sized ponds within areas identified in the Phase 1 survey as bare ground or ruderal grassland
- Carry out further habitat management around the ponds
- Enable horses to graze the edges of the ponds to help grade off the steep sides in the winter
- Create further log piles and dead hedges along Old Nevendon Road
- Lay the hedge along the A127 to secure the site further from trespassers.

The newt population should be protected from the introduction of Chytrid fungus and to this end no further amphibian introductions from elsewhere will be considered for this population.

Reptiles

The reptile numbers recorded in 2011 were broadly as expected. The slow-worm being the most numerous and least able to disperse from their release areas are in high numbers within the areas where they were initially released. The other species were released in lower numbers and are capable of moving around the site over larger distances.

The recommendation for the reptiles is to repeat the survey in 2012 and to carry on with habitat management which has been undertaken this winter:

- Creation of scalloped edges within bramble and hedgerows
- Creation of egg laying sites in open compost and closed compost areas
- Leaving standing dead wood and log piles
- Creating disturbed ruderal weed areas alongside tall grass areas
- Creating further water bodies by hand and by machinery to provide suitable habitat for prey species

As there is sufficient capacity and the opportunity for more habitat creation, further funding can be secured by making the site available for the relocation of local reptiles from other development sites to help fund the management of the reserve as agreed under the management plan.

7. References

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8. List of Annexes

Annex 1: Grassland NVC survey: Old Nevendon Road, Basildon (Richard Collingridge, Collingridge Ecological Consultants, July 2011)

Annex 2: Phase 1 Habitat Survey, Nevendon Nature Reserve,Basildon, Essex (Kate Jeffreys, Geckoella Ltd, October 2011)

Annex 3: Nevendon Ponds and Washlands, Basildon, Essex - Invertebrate Survey 2011 – 2015, Report 1. Baseline Survey of Aquatic Invertebrates (Andy King, Geckoella Ltd, October 2011)

Annex 4: Nevendon Road Torch Counts (Kevin Morgan, August 2011)

Grassland NVC survey: Old Nevendon Road, Basildon

July 2011

Client: Integra Developments Ltd

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Contents

1 Summary

1.1 This report describes an area of vegetation recently established on a low-lying, level flood-relief area. The vegetation is derived from material stripped from a similar well-established site nearby.

1.2 The vegetation was surveyed and the resulting data analysed and compared with the National Vegetation Classification (NVC). Most of the vegetation communities present either do not closely match those described by the NVC, or they form intermediates and mixtures between recognised NVC types.

1.3 The vegetation is more uniform than that of the donor site, probably due to mixing during the transportation process. Disturbance due to this process has also encouraged a range of plants characteristic of dry ruderal (weedy) habitats, and others characteristic of wet, muddy habitats.

1.4 Most characteristic features of the donor vegetation are already present in some form in the new site, with the exception of features of short-grazed turf, which are sparse or absent. This is likely to be due to the absence of grazing so far.

1.5 Overall the new vegetation has already established itself very well indeed over a very short period (a little over a year). There is nearly continuous vegetation cover over the whole of the floor of the flood relief area, and it has a predominance of perennial grassland and marshland species.

1.6 Further management is recommended, including introduction of grazing as soon as possible, and watering if necessary.

2 Personnel

2.1 This report was prepared by Richard Collingridge of Collingridge Ecological Consultants, on behalf of Integra Developments Ltd.

2.2 I have a Bachelor of Science Honours degree in Environmental Biology from the University of Wales, Aberystwyth. I am a full Member of the Institute for Ecology and Environmental Management (MIEEM).

2.3 I am a professional ecologist with many years' experience of Phase 1 and NVC habitat survey and habitat management.

3 Background

3.1 The site covered by this survey is the floor of a new flood-relief area, excavated out of clay over a former arable field, then covered in turf during 2010, removed from a nearby well-established grassland on the floor of an earlier flood relief area. Some material was laid as turves, while more roughly scraped material was spread out thinly. The turf was watered when necessary by flooding. The floor of the area is nearly level, with some dips which lie waterlogged after rain or flooding; there is no soil over the clay. The donor vegetation had high botanical diversity. The area has not been grazed.

3.2 A condition of the planning permission for destruction of the former flood-relief area is that the vegetation of the new area should be surveyed as it develops to gauge success of its establishment and to inform habitat management decisions.

3.3 Vegetation outside the flood relief area is not covered by this report, and that on the banks surrounding and within the area are covered only briefly.

3.4 The vegetation of the donor site is described in an earlier report: *Grassland NVC survey: Courtauld Road, Basildon*, Collingridge Ecological Consultants, April 2010.

4 Description of site

4.1 The site occupies some 8 ha of a former arable field. It is bordered by a bund several metres high, and its bed has been excavated some one to two metres below the original land surface to form a level floor to the flood relief area. A public footpath crosses the site, and this has been left at the original land level, forming a ridge dividing the site into two. Several much lower ridges about 30 cm high divide the bed of the site further, impeding drainage of its flat floor and thus forming damp areas. Two double electricity poles lie within the northern part of the site, and a small area around each of these has also been left at the original land level, forming two rectangular platforms about one metre high.

4.2 Flood water is derived from a small stream running adjacent to the site. Normal flow remains in the stream and does not pass through the site, but during flood events water enters the site through two large grilled openings at its south-western edge (having passed by syphons under the dual carriageway road to the south). It then drains gradually back

to the stream through a single small pipe in the north-eastern corner. Joining these two points is a shallow drainage channel, which is the lowest part of the site and is covered in shallow water after rain or flooding. A series of large pipes takes this channel beneath the footpath ridge.

4.3 The turf was spread over the whole of the flat floor of the site, except for the shallow drainage channel. Turf was not placed on the sides of the boundary banks, nor on the footpath ridge. Some rushy turf was deliberately laid roughly, producing uneven clods.

5 Survey methods

5.1 The site was surveyed by Richard Collingridge on 28 July 2011.

5.2 The vegetation of each community was recorded by quadrat sampling (see map in section 9 for locations):

5.2.1 Quadrats were located in areas of fairly uniform habitat. Survey was limited to the floor of the flood-relief area and the banks surrounding and dividing it. Quadrats were approximately 1 metre in diameter.

5.2.2 At least one quadrat was taken in each community.

5.2.3 A digital photograph was taken of each quadrat, from a standing position. Photographs of short vegetation were taken nearly vertically, and of taller vegetation obliquely from further away.

5.2.4 The location of each quadrat was recorded by GPS (to within about 5 metres), and the uniform areas of habitat communities were drawn on a map.

5.2.5 The vascular plant species within the quadrat were listed and each given a score using the conventional Domin scale, which ranges from a score of 1 for a single plant covering less than ten percent of the quadrat, to a score of 10 for 100% cover of the quadrat. Note that because plants may overlap, percentages done in this way can add up to well over 100.

5.2.6 Vegetation height was between 20 and 50 cm, except in swamp areas, where it was usually somewhat taller. Vegetation height was not recorded for individual quadrats.

5.3 The analysis of the results was done by Richard Collingridge.

5.4 The quadrat records were entered onto a spreadsheet, and data from this used as input for the Match vegetation analysis programme, analysing each quadrat individually. The Match programme compares the quadrat data with the National Vegetation Classification (NVC), which was originally made using similar quadrat data from many different habitats.

5.5 The Match results were used to inform analysis of the NVC vegetation of each quadrat, and thence the overall vegetation of the mapped land.

5.6 Match analysis on its own can produce inaccurate or anomalous results, particularly when there is a shortage of diagnostic species, where the vegetation is intermediate between communities or is a mixture of communities, or where the vegetation is outside the range of types originally used to generate the NVC. For this reason the published NVC descriptions were used together with experience of other vegetation communities to attempt meaningful NVC analysis.

5.7 The Match results were used together with the site survey and GPS recording to map the extent of the communities.

5.8 Species names throughout this report follow those used in *New Flora of the British Isles* (second edition), Clive Stace, (Cambridge University Press 1997). Some of the published NVC community names use earlier species names.

6 Summary of Match results

Quadrat	NVC communities from Match	Quality of fit
Q01	S12 *Typha latifolia* swamp, *Typha latifolia* subcommunity	Poor
Q02	S21b *Scirpus maritimus* swamp, *Atriplex prostrata* subcommunity	Poor
Q03	S12 *Typha latifolia* swamp; S14 *Sparganium erectum* swamp; S17 *Carex pseudocyperus* swamp; S18 *Carex otrubae* swamp	Very poor
Q04	MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland; S18 *Carex otrubae* swamp; OV28 *Agrostis stolonifera-Ranunculus repens* muddy grassland	Very poor
Q05	MG9 *Holcus lanatus-Deschampsia cespitosa* grassland; OV19d *Poa annua-Tripleurospemum inodorum* weedy vegetation, *Matricaria discoidea-Plantago major* subcommunity	Poor
Q06	MC11 *Festuca rubra-Daucus carota* maritime cliff vegetation	Poor
Q07	OV23d *Lolium perrenne-Dactylis glomerata* weedy grassland, *Arrhenatherum elatior-Medicago lupulina* subcommunity; MG9 *Holcus lanatus-Deschampsia cespitosus* grassland	Very poor
Q08	MG12 *Festuca arundinacea* grassland; MC11 *Festuca rubra-Daucus carota* maritime cliff vegetation	Poor
Q09	MG12 *Festuca arundinacea* grassland; MG10 *Holcus lanatus-Juncus effusus* rush pasture; MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland	Very poor

Quadrat	NVC communities from Match	Quality of fit
Q10	OV29 *Alopecurus geniculatus-Rorippa* muddy grassland	Very poor
Q11	OV28 *Agrostis stolonifera-Ranunculus repens* muddy grassland; OV32 *Myosotis-Ranunculus sceleratus* mud pioneer vegetation	Poor
Q12	OV23c *Lolium perrenne-Dactylis glomerata* weedy grassland, *Plantago major-Trifolium repens* subcommunity; MG7E *Lolium perennis* verges & lawns *Lolium perennis-Plantago lanatus* subcommunity; MG10 *Holcus lanatus-Juncus effusus* rush pasture	Very poor
Q13	MG10b *Holcus lanatus-Juncus effusus* rush pasture, *Juncus inflexus* subcommunity; MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland	Poor
Q14	MG10 *Holcus lanatus-Juncus effusus* rush pasture; MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland; OV28 *Agrostis stolonifera-Ranunculus repens* muddy grassland	Very poor
Q15	MG12a *Festuca arundinacea* grassland, *Lolium perenne-Holcus lanatus* subcommunity; MG10 *Holcus lanatus-Juncus effusus* rush pasture	Poor
Q16	S18b *Carex otrubae* swamp, *Atriplex prostrata* subcommunity; S21c *Scirpus maritimus* swamp, *Agrostis stolonifera* subcommunity; OV28 *Agrostis stolonifera-Ranunculus repens* muddy grassland	Poor
Q17	OV28a *Agrostis stolonifera-Ranunculus repens* muddy grassland, *Persicaria hydropiper-Rorippa sylvestris* subcommunity; MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland	Poor
Q18	MG10b *Holcus lanatus-Juncus effusus* rush pasture, *Juncus inflexus* subcommunity	Fair
Q19	MG10b *Holcus lanatus-Juncus effusus* rush pasture, *Juncus inflexus* subcommunity; MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland; OV23c *Lolium perenne-Dactylis glomeratus* weedy grassland, *Plantago major-Trifolium repens* subcommunity	Poor
Q20	(No sample: location of electricity pole on raised platform)	
Q21	MG10b *Holcus lanatus-Juncus effusus* rush pasture, *Juncus inflexus* subcommunity; MG12a *Festuca arundinacea* grassland, *Lolium perenne-Holcus lanatus* subcommunity	Fair

Quadrat	NVC communities from Match	Quality of fit
Q22	(No sample: location of electricity pole on raised platform)	
Q23	MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland; S18 *Carex otrubae* swamp; S19 *Eleocharis palustris* swamp	Poor
Q24	MG10 *Holcus lanatus-Juncus effusus* rush pasture; MG9 *Holcus lanatus-Deschampsia cespitosa* grassland	Poor
Q24a	OV25 *Urtica-Cirsium arvensis* tall herb vegetation; MG1 *Arrhenatherum elatius* grassland	Very poor
Q25	MG10 *Holcus lanatus-Juncus effusus* rush pasture; MG9 *Holcus lanatus-Deschampsia cespitosa* grassland; MG12 *Festuca arundinacea* grassland	Poor

7 Discussion of Match analysis

7.1 Most of the quadrats showed very low matching scores (highest scores for most quadrats were around 20 to 30), and had similar scores for several disparate communities. Only a few of the scores reached "fair" levels of fit (around 35), but even these showed roughly equal fits to more than one community.

7.2 The poor quality of fit is probably due to three main reasons:

7.2.1 The communities from which the vegetation was originally derived do not closely resemble any of those covered by the NVC: they have different mixes of species, and include several species which are limited in distribution, such as goat's rue *Galega officinalis* and smooth bird's-foot trefoil *Lotus glaber* (see report of previous survey). The NVC data is most unlikely to have included many comparable examples of such vegetation, and the Match programme can only assess samples against those originally included in the NVC data.

7.2.2 The process of cutting or scraping the turf and re-laying it has created many small bare areas, encouraging the establishment of species associated with disturbance. These are characteristic of different NVC communities to the grassland of the donor site.

7.2.3 Vegetation from different areas has become mixed during re-laying, and so quadrats are likely to contain vegetation originally from different communities. For example, it was noticeable that rushy vegetation and shorter grassy vegetation were fairly well mixed over the whole site, whereas on the original site these were mostly segregated into separate areas.

8 Descriptions of communities

8.1 Please see map in section 9 for location and extent of habitats. Please note that the communities blend into each other, and so the boundaries shown on the map are only indicative. Each community is dealt with in turn, with a list of the sample quadrats, a list of the NVC types closest to it and a brief discussion. Quality of habitat is not assessed, because all communities are still very immature.

8.2 Tall dry grassland.

8.2.1 Quadrats 6, 8.

8.2.2 NVC types: very indistinct; includes elements of (amongst others):

MC11 *Festuca rubra-Daucus carota* maritime cliff vegetation

MG12 *Festuca arundinacea* grassland

Figure 2

Quadrat 6

8.2.3 Discussion: This vegetation does not fit well with the NVC, producing several weak matches. It occurs mainly on the low dividing ridges, and on a few areas of similar slightly raised land. It is dominated by scentless mayweed *Tripleurospermum inodorum*, with abundant goat's rue *Galega officinalis* and a range of other plants including broad-leaved dock *Rumex obtusifolius*, tall fescue *Festuca arundinacea*, common bent *Agrostis capillaris*, wild carrot *Daucus carota* and bristly oxtongue *Picris echioides*. This vegetation includes many ruderal species, and in this respect resembles the ruderal vegetation of the untreated banks surrounding the site. However, it does also have some grassland species.

8.3 Tall damp grassland.

8.3.1 Quadrats 4, 5, 7, 9, 12, 13, 14, 15, 18, 19, 21, 24, 25.

8.3.2 NVC types: mixtures of:

MG9 *Holcus lanatus-Deschampsia cespitosa* grassland

MG10 *Holcus lanatus-Juncus effusus* rush pasture

MG12 *Festuca arundinacea* grassland

Figure 3

Quadrat 14

MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland

S18 *Carex otrubae* swamp

OV28 *Agrostis stolonifera-Ranunculus repens* muddy grassland

8.3.3 Discussion: This vegetation occupies most of the lower parts of the flood relief area, where water lies after rain or flooding. It consists of a tall, rough sward of rushes, sedges and large grasses, including soft rush *Juncus effusus*, hard rush *Juncus inflexus*, false fox sedge *Carex otrubae*, tufted hair grass *Deschampsia cespitosa* and tall fescue *Festuca arundinacea*. Other plants include smaller grasses such as Yorkshire fog *Holcus lanatus*, creeping bent *Agrostis stolonifera* and marsh fox-tail *Alopecurus geniculatus*, and a range of small plants, many characteristic of damp habitats, including marsh dock *Rumex sanguineus*, creeping cinquefoil *Potentilla reptans*, gypsywort *Lycopus europaeus*, grey sedge *Carex divulsa*, nodding bur-marigold *Bidens cernua* sharp-flowered rush *Juncus acutiflorus*, slender bird's-foot trefoil *Lotus glaber*, and occasional marsh bird's-foot trefoil *Lotus uliginosus*, alsike clover *Trifolium hybridum* and lesser hairy willow-herb *Epilobium parviflorum*. Mixed with these species are many associated with disturbed habitats, including broad-leaved dock *Rumex obtusifolius*, bristly oxtongue *Picris echioides*, scentless mayweed *Tripleurospermum inodorum*, goat's rue *Galega officinalis* and wild carrot *Daucus carota*.

8.4 Muddy grassland and bare mud communities

8.4.1 Quadrats: 10, 11, 16, 17, 23

8.4.2 NVC types:

S18 *Carex otrubae* swamp

S19 *Eleocharis palustris* swamp

MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland

Figure 4

Quadrat 23

OV28 *Agrostis stolonifera-Ranunculus repens* muddy grassland

OV29 *Alopecurus geniculatus-Rorippa* muddy grassland

OV32 *Myosotis-Ranunculus sceleratus* mud pioneer vegetation

8.4.3 Discussion: This vegetation occurs in the wetter parts of the site, either as wet grassy vegetation with bare mud within it, or as scattered plants on bare mud along the main drainage channel. It consists of a range of marshland plants including water mint *Mentha aquatica*,, spotted knotweed *Persicaria maculosa*, water pepper *Persicaria hydropiper*, marsh dock *Rumex sanguineus*, spear-leaved orache *Atriplex prostrata*,

creeping yellow-cress *Rorippa sylvestris*, celery-leaved buttercup *Ranunculus sceleratus*, great hairy willow-herb *Epilobium hirsutum*, gypsywort *Lycopus europaeus*, nodding bur-marigold *Bidens cernua*, common spike-rush *Eleocharis palustris* and greater sea spurrey Spergularia media. The more grassy examples also include creeping bent *Agrostis stolonifera*, marsh fox-tail *Alopecurus geniculatus*, creeping buttercup *Ranunculus repens* and false fox sedge *Carex otrubae*, and elements from the other grassland habitats on the site.

8.5 Swamp

8.5.1 Quadrats: 1, 2, 3

8.5.2 NVC types:

S12 *Typha latifolia* swamp

S18 *Carex otrubae* swamp

S21b *Scirpus maritimus* swamp, *Atriplex prostrata* subcommunity

Figure 5
Quadrat 3

8.5.3 Discussion: This vegetation occurs in the wettest part of the site, adjacent to the inlet grills, and occasionally along the edges of the main drainage channel. It consists of tall marshland plants, dominated by mixtures of reedmace *Typha latifolia*, sea club-rush *Scirpus maritimus* and false fox sedge *Carex otrubae*, with a variety of smaller marshland plants including water mint *Mentha aquatica*, gipsywort *Lycopus europaeus*, water-plantain *Alisma plantago-aquatica*, water speedwell *Veronica anagallis-aquatica* and a few plants of wild celery *Apium graveolens*. Unusually this vegetation is not dominated by single-species stands of large marshland plants, but by mixtures of them.

8.6 Ruderal vegetation (includes tall species-poor grassland).

8.6.1 Quadrat: 24a

8.6.2 NVC types:

OV25 *Urtica-Cirsium arvensis* tall herb vegetation

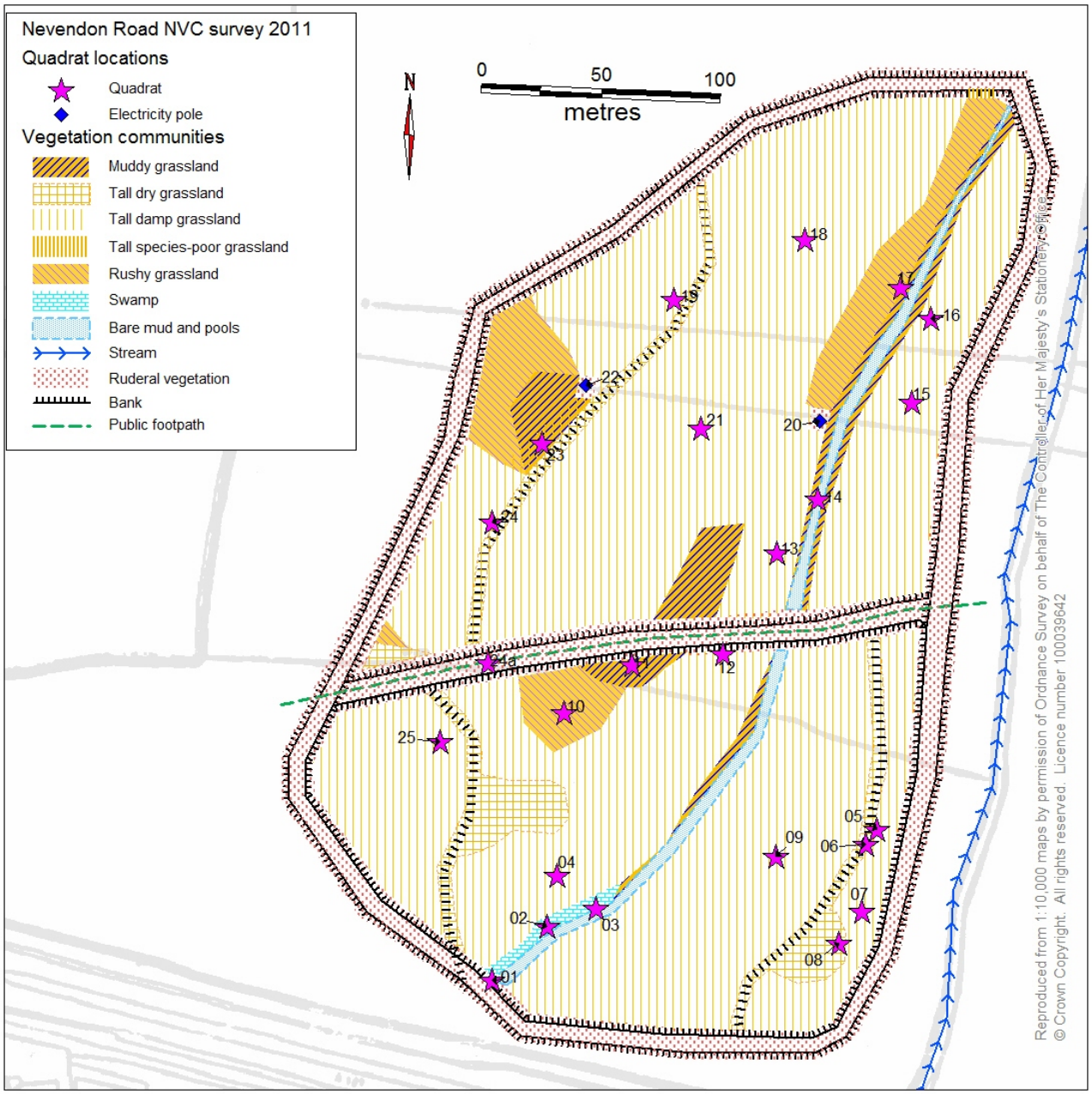
MG1 *Arrhenatherum elatius* grassland

Figure 6
Ruderal vegetation on embankment

8.6.3 Discussion: This vegetation occurs along the banks surrounding and dividing the flood-relief area, and on the raised platforms around the electricity poles. It consists of a mixture of a wide range of annual and perennial ruderal (weedy)

plants, including bristly oxtongue *Picris echioides* (often dominant), scentless mayweed *Tripleurospermum inodorum*, creeping thistle *Cirsium arvense*, ribwort plantain *Plantago lanceolata*, Yorkshire fog *Holcus lanatus*, teasel *Dipsacus fullonum*, common couch *Elytrigia repens*, and occasional wild oat *Avena fatua*. One small rectangular area in the north-eastern corner of the site has similar vegetation, with the addition of false oat-grass *Arrhenatherum elatius*.

9 Community map



10 Comparison with donor vegetation

10.1 The donor vegetation included the following broad vegetation types (see earlier report):

- Species-rich tall grassland
- Species-rich short-grazed turf
- Species-poor tall grassland
- Rush communities
- Reedmace swamp
- Sea club-rush swamp

10.2 The vegetation of the new flood relief area includes most features of the donor vegetation, but with several significant differences:

10.2.1 The new vegetation is far more mixed up. For example, there are areas of predominantly rush-dominated vegetation, but these communities are generally mixed with elements from the species-rich tall grassland. Some species restricted to parts of the former site occur over all or most of the new one – these include for example goat's rue *Galega officinalis* and slender bird's-foot trefoil *Lotus glaber*. Similarly, the former vegetation included stands of reedmace *Typha latifolia* swamp strongly dominated by this species, and a single very small area of sea club-rush *Scirpus maritimus* swamp. Swamp within the new vegetation was not strongly dominated by any species, and both reedmace and sea club-rush occurred mixed with other vegetation.

10.2.2 All communities of the new vegetation include many more species characteristic of disturbed habitats, both weedy dry-ground habitats and muddy wet ones. Essentially the vegetation is an intimate mixture of disturbed habitats with elements of the donor habitat, as might be expected from the activities required to move the turf. A number of these species were not recorded in the earlier vegetation:

10.2.2.1 Dry-ground weedy examples of these include bristly oxtongue *Picris echioides*, prickly lettuce *Lactuca serriola*, creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, hemlock *Conium maculatum*, wild carrot *Daucus carota*, teasel *Dipsacus fullonum*, broad-leaved dock *Rumex obtusifolius*, scentless

Figure 8
Alsike clover *Trifolium hybridum*

mayweed *Tripleurospermum inodorum* and alsike clover *Trifolium hybridum*.

10.2.2.2 Newly recorded plants characteristic of wet habitats include water plantain *Alisma plantago-aquatica*, wild celery *Apium graveolens*, spear-leaved orache *Atriplex prostrata*, nodding bur-marigold *Bidens cernua*, water parsnip *Berula erecta*, common spike-rush *Eleocharis palustris*, spotted knotweed *Persicaria maculosa*, water pepper *Persicaria hydropiper*, false fox sedge *Carex otrubae*, celery-leaved buttercup *Ranunculus sceleratus* and creeping yellow-cress *Rorippa sylvestris*.

Figure 9
Creeping yellow-cress *Rorippa sylvestris*

10.2.2.3 The vegetation of the donor site included few or no areas which would have favoured the growth of these species, bit it is likely that they did all occur there, either in small amounts amongst other vegetation, or as seeds in the soil.

10.2.2.4 A few other plants which are more characteristic of the former habitats were also found in the current survey but not recorded previously. These include grey sedge *Carex divulsa*, black knapweed *Centaurea nigra*, marsh bird's-foot trefoil *Lotus uliginosus* and common fleabane *Pulicaria dysenterica*. They were probably missed previously because of the time of year of survey, or because they occurred in small amounts.

10.2.3 Short vegetation is largely absent – no areas were dominated by species characteristic of such vegetation, and some recorded previously (often in significant amounts) were not recorded at all – these include red fescue *Festuca rubra*, daisy *Bellis perennis*, oval sedge *Carex ovalis*, carnation sedge *Carex panicea* and devil's bit scabious *Succisa pratensis*. The lack of records of these species does not of course mean that they are wholly absent, but it does show that they are not yet predominant in the new vegetation.

11 Progress of vegetation development

11.1 The more even distribution of species in the new vegetation must be due to the mixing effects of the transportation process. It is likely that this will reduce as local conditions favour different species – for example reedmace *Typha latifolia* is likely to become more dominant in wet areas, and if so, these will have developed into reedmace swamp.

11.2 The transportation process also inevitably involved a great deal of disturbance, and the widespread occurrence of species characteristic of disturbance is therefore to be expected. It is likely that in future years these species will decline as perennial plants become more firmly established and the sward closes.

11.3 The absence of short-grazed vegetation is also unsurprising, as the new vegetation has not yet been grazed. However, it is a little disappointing that more elements of this vegetation are not apparent in the new site.

11.4 Overall the new vegetation has already established itself very well indeed over a very short period (a little over a year). There is nearly continuous vegetation cover over the whole of the floor of the flood relief area, and it includes most characteristic elements of the vegetation of the donor site, with a predominance of perennial grassland and marshland species.

12 Management recommendations

12.1 The new vegetation is probably now established well enough that it no longer needs regular watering in dry weather. However, it may still become droughted in extended dry periods in summer, and if this occurs over the next year or so it should be watered again.

12.2 The absence of vegetation characteristic of short-grazed turf is a concern, and grazing should be established as soon as possible. Grazing should be by ponies or cattle or both, at a density in summer of up to about one Livestock Unit (LU) per hectare, and ideally not less than half of this – if insufficient stock are available to graze the whole restoration site, it may be necessary to confine them to this part of the site using temporary or permanent fencing. Winter grazing should be at a lower density. (One LU is equivalent to one adult beef animal, and a pony is about 0.6 LUs.)

Consultants for ecology and geology

Phase 1 Habitat Survey
Nevendon Nature Reserve,
Basildon, Essex

Report date: 10 October 2011
Survey dates: 27 – 28 July 2011

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Version: Slim

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Summary

Nevendon Nature Reserve comprises approximately 21ha of semi-natural grassland, wetland and field boundary habitat that provides biodiversity and flood management benefits for the local area. It is a receptor site for translocated wetland habitat and for protected species including Great crested newt *Triturus cristatus* and Grass snake *Natrix natrix*. This report maps broad habitat types and described key features present in 2011 to help form a baseline against which future changes in biodiversity value can be measured. Overall, the site is dominated by early successional habitats. Key features for biodiversity on the site include the washlands (botanical richness considered in detail in Collingridge, 2011), hedgerows and treelines, and new and maturing ponds. Recommendations for management to promote biodiversity include grazing and hydrological management, and the further provision of deadwood and other structural point features within the site. Recommendations for survey and approach to data management should use a combination of approaches to both evaluate the success of the mitigation project, and to guide future management.

Nevendon Nature Reserve Phase 1 Report

Contents

Tables

Figures

1 Introduction and Terms of Reference

1.1 Nevendon Nature Reserve is located at Nevendon, Wickford, Essex (OS: TQ741912). It comprises approximately 21 ha. The majority of the site comprises grassland, with an additional 9ha comprising wetlands, including washlands for flood relief, and new ponds.

1.2 This report describes the broad habitats found across the site, picking out particular features of nature conservation value identified during an Extended Phase 1 survey. A National Vegetation Community (NVC) report describes in more detail the vegetation communities developing from turves translocated from the donor site to the washlands area in 2010 (Collingridge, 2011); data relating to invertebrates and herptiles are also presented elsewhere.

1.3 Nevendon Nature Reserve comprises mitigation for the loss of a wetland reserve at Burnt Mills Industrial Estate (OS: TQ742908), and new habitat for protected herptiles that were translocated from the site. The nature reserve and flood plain works and surveys are carried out under a Section 106 agreement between the developer and Essex County Council (Application Ref: ESS/04/07/BAS).

2 Methodology

2.1 An extended Phase 1 survey was carried out on 26th and 27th July 2011. This technique uses a broad habitat classification (Joint Nature Conservation Committee, 2010), extended to take particular account of features and habitats of high value for biodiversity.

2.2 Habitats and point features were mapped on site with GPS used to aid accuracy, and aerial photography (maps.google.com) used to help set the site in local context. Some plant specimens were collected for off-site confirmation, but most were identified to species level during the survey.

2.3 The weather was fine and warm, and there were no significant constraints to survey.

2.4 The survey was carried out by Mrs Kate Jeffreys MIEEM CEnv, an ecologist with 13 years of experience, and botanical survey skills certified to NVC survey standard (BSBI FISC Level 4[1], 2009)

[1] Botanical Society of the British Isles Field Identification Skills Certificate - www.bsbi.org.uk/field_skills.html

3 Results

3.1 Nevendon Nature Reserve comprises approximately 21 ha of land that was previously grassland and scrub[2], and probably arable before that. Eight hectares of the site is taken up by new flood-relief 'washlands', with 2.5 ha of tall herb mounds and ponds, and the remainder including established meadow communities, early-successional tall herb, and sparsely vegetated open-ground. A treeline with scrub and rank grassland borders the A127 trunk road to the south of the site, and Nevendon Brook to the east also has trees and scrub. Hedgerows and trees also border properties and a minor road to the west. Some boundaries have associated ditches, which are likely to be seasonally wet, and which also have scrub and bramble associated with them. Table 1 lists the habitats and features present and describes their conservation importance. These habitats and point features of interest are also shown in Figure 1.

Table 1 Habitats and Features of Nature Conservation Importance

Habitat / Feature	Importance
Ponds (6 ponds – variable sizes)	Habitat of local conservation importance, increasing structural and botanical diversity and offering habitat for a wide range of invertebrates, reptiles and amphibians, as well as mammals using the site. Plant species include: Fine-leaved water-dropwort *Oenanthe aquatic,* Broad-leaved pondweed *Potamogeton natans*, Curled pondweed *Potamogeton crispus,* Water-plantain *Alisma plantago-aquatica*, Marsh foxtail *Alopecurus geniculatus*, Gypsywort *Lycopus europaeus*, Water mint *Mentha aquatic* and Hard rush *Juncus inflexus*. The ponds are likely to rapidly change with time.
Dead wood	At least two large trunks were present on site. Some deadwood was associated with treelines and hedgerows. Large dead wood trunks offer habitat for specialist invertebrates, and, as rot holes develop, for herptiles as well.
Tall ruderal and ponds (2.5 ha)	The tussocky profile of the mounds associated with the ponds adds structural diversity, in particular offering sunny basking spots, as well as holes within the mounds for deep winter hibernation. Cold blooded fauna, including invertebrates and herptiles will benefit from this complex landscape profile. Plant species include: Scentless-mayweed *Tripleurospermum indorum*, Goat's-rue *Galega officinalis*, Black knapweed *Centaurea nigra*, Field thistle *Cirsium arvensis*, Wild carrot *Daucus* carota and Stone parsley *Sison amomum*.
Meadow (3.2 ha)	Dry grassland meadow communities. Broadly species-poor, but with the potential to develop into a more interesting sward with time. Comprises the most productive grassland on the site, and therefore important from a graziers perspective. Plant species include: Perennial rye-grass *Lolium perenne,* Common ragwort *Senecio jacobaea*, Smooth sow-thistle *Sonchus asper*. In longer established grassland areas Smooth tare *Vicia tetrasperma*, Yorkshire-fog *Holcus lanatus*, Bush vetch *Vicia sepium*, Agrimony *Agrimonia eupatoria* and Black medick *Medicago lupulina* were present.
Rank grassland (1.2 ha)	Tall grassland sward bordering Bramble *Rubus fruticosus agg.*, trees and hedgerows with species typical of unmanaged grassland such as False oat-grass *Arrhenatherum elatius,* Cock's-foot *Dactylis glomerata* and Common couch *Elitrigia*

[2] maps.google.com, accessed October 2011

Habitat / Feature	Importance
	repens.
Tall ruderal (5.1 ha)	Early-successional sward dominated by Bristly ox-tongue *Picris echiodes*, with Scentless mayweed *Tripleurospermum indorum,* Field thistle *Cirsium arvense,* Redshank *Persicaria maculosa,* Greater plantain *Plantago major* and occasional Cyress spurge *Euphorbia cyparissias*.
Washlands (8.0 ha)	Botanically the most important area of the site. Considered in detail in Collingridge 2011.
Ditch	Likely seasonally-wet ditches, including patches of Common reed *Phragmites australis* and Great willowherb *Epilobium hirsutum*. However, overall the ditches are dominated by scrub including Hawthorn *Cretaegus monogyna*, with Red current *Ribes sylvestre* and Hop *Humulus lupus* also present.
Bare ground and ruderal (0.4 ha)	Area with sparse vegetation cover, with early colonisers such as Bristly oxtongue *Picris echioides* and Field thistle *Cirsium arvense*.
Hedge	Species-rich hedgerow bordering the road and gardens, including specimen trees and a mix of native and garden species. Good structural diversity and offering good nectar and fruit sources for birds and invertebrates. Species include Common whitebeam *Sorbus aria* agg., Hawthorn *Cretaegus monogyna*, Blackthorn *Prunus spinosa*, Cherry plum *Prunus cerasifera*, with a rank bramble and grassy base including Black hoarhound *Ballota nigra*.
Treeline	Includes large mature specimens of Sycamore *Acer pseudoplatanus* and Pendunculate oak *Quercus robur*, and offers a good buffer for noise and air pollution from the adjoining trunk road. The treeline is not continuous, and is associated with a scrubby, grassy bank with Bramble.
Stream	Nevendon Brook. Wetland habitat, although water quality likely to be low. Shaded with trees and scrub.

4 Discussion and Analysis of Results

4.1 Nevendon Nature Reserve comprises early successional habitats likely to change rapidly over the next five years until grassland and wetland communities become established in response to grazing, cutting, hydrological and other management.

4.2 The management objectives for Nevendon Nature Reserve include specific biodiversity and flood management outcomes as required by the S106 agreement relating to the development of a site at Burnt Mills Industrial Estate. With time, Nevendon Nature Reserve should have at least equal biodiversity value to the site that was developed, as well as providing flood protection for nearby built property.

4.3 Biodiversity value and the success of mitigation projects in particular, can be measured in a number of different ways. One way is to compare translocated communities with the original, and look for 'like-for-like or better' species richness and composition for the translocated features. This test of success is exemplified by the NVC surveys being carried out in the washland area (Collingridge, 2011). The size, health and rate of growth of populations of translocated species, including Great crested newts, are other potential measures of success for the mitigation project.

4.4 Another way to evaluate the success of mitigation projects is to compare the conservation importance of the mitigation site (Nevendon Nature Reserve) with the development site (Bushmills Industrial Estate) over time. This approach can take into account a wider range of species, communities and features, including those which were not translocated. The original value of the mitigation site needs to be taken into account, in order to ensure that the effects of enhancement and on-going management can be accurately measured. A habitat balance sheet comprises a useful approach that can summarise changes in overall wildlife value over time. The features present on the original site are of particular note when looking for equivalent or increased value. However, biodiversity features which were not present on the original site, but which contribute significantly to the conservation value of the new site, and which owe their enhancement to the management regime in place, can also feature within the overall evaluation.

4.5 The Phase 1 survey highlights some features of conservation importance within Nevendon Nature Reserve, in particular the Washlands botanical communities, the boundary treelines and hedgerows, and the ponds. However, large areas of the site comprise botanical communities of low conservation importance. All these communities should increase in nature conservation value with favourable management.

4.6 A final technique for evaluating the success of mitigation projects is to set benchmarks for success. The original site was a designated Local Wildlife Site called Burnt Mills, designated as of District Level importance for wetland plants, amphibians and invertebrates, with a character comprising elements of floodplain grassland and of post-industrial sites. A benchmark for the mitigation project could be to achieve similar status, with designation as a Local Wildlife Site, ideally for matching criteria for the original site, but also for other criteria relevant to nature conservation at the District scale.

5 Recommendations

5.1 A combination of techniques is recommended in order to evaluate the success of the mitigation scheme for biodiversity. These comprise:

- Comparing translocated species and habitats with original populations and communities;
- Comparing mitigation and original site for key groups such as invertebrates in terms of species richness and composition;
- More detailed surveys for botanical 'hotspots' within the site, in particular the washlands and ponds;
- Using a Habitat Balance Sheet approach to measure changes in nature conservation value at Nevendon Nature Reserve with time;
- To internally evaluate Nevendon Nature Reserve against Local Wildlife Site criteria.

5.2 Conservation management will be essential in order to achieve the success of the project for biodiversity. This will include grazing and cutting, and hydrological management that will maintain constantly damp conditions within the Washlands area. Although the washlands have a floodplain function, there may be a potential trade-off against biodiversity objectives, since prolonged flooding may adversely affect vegetation and invertebrate communities. Also, the response of the vegetation to grazing will be dependent on local stock and conditions, including seasonal weather. Adaptive management is recommended, with triggers set for changing management in the event of 'drift' away from high-value communities and structure. Trade-offs between the management requirements for different groups will need to be carefully evaluated as part of this process.

5.3 Annual monitoring of the biodiversity of the site is recommended to:

- Evaluate the success of the mitigation in terms of comparison with the original site;
- Inform management, in particular grazing levels and hydrological management;
- Inform on-going management of the site in terms of maximising nature conservation value;
- Provide case-study data that could inform similar schemes elsewhere;
- Provide a local resource for biodiversity and flood management training and research.

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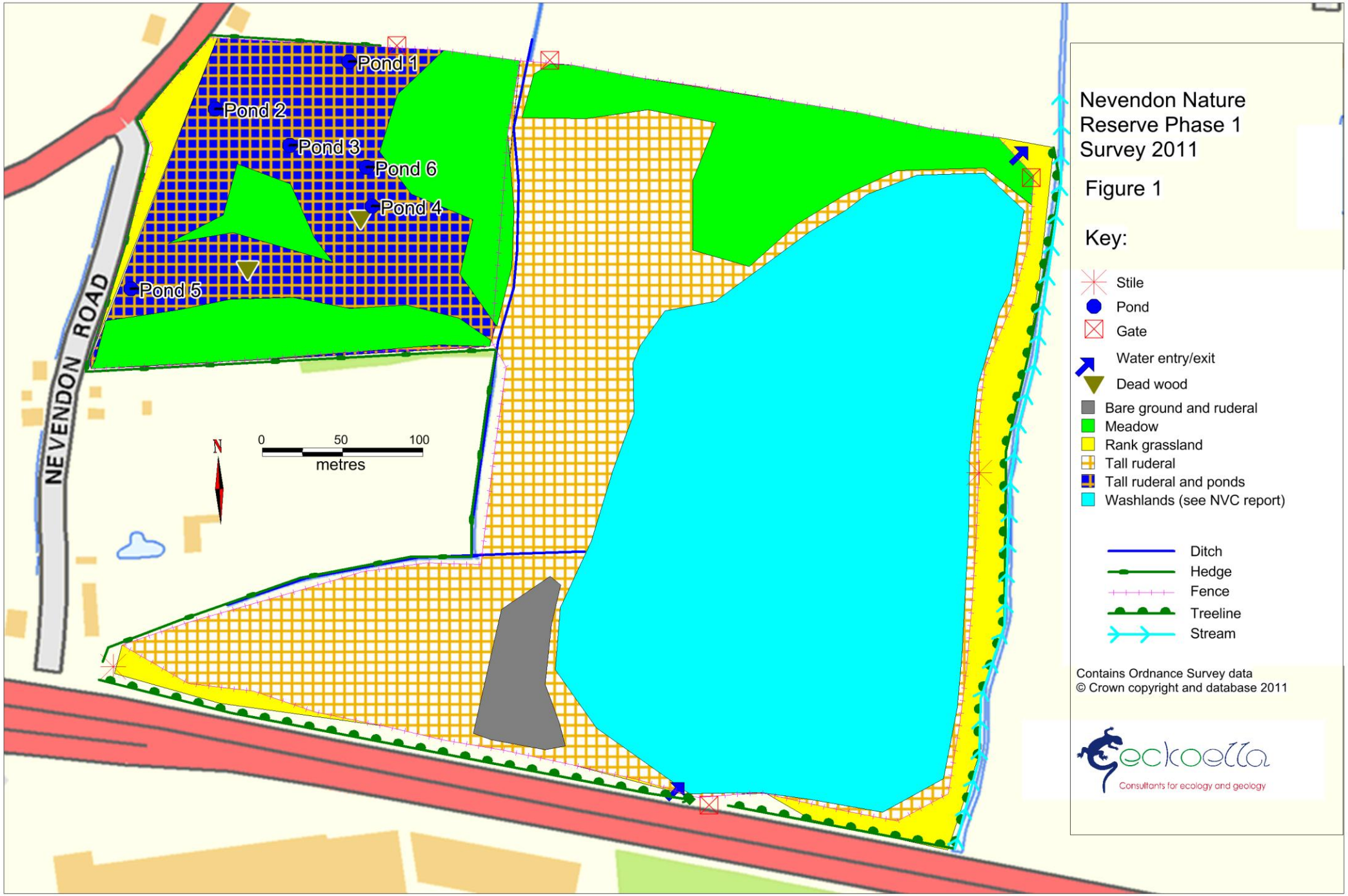
Nevendon Nature Reserve Phase 1 Survey 2011
Figure 1
Key:
Stile
Pond
Gate
Water entry/exit
Dead wood
Bare ground and ruderal
Meadow
Rank grassland
Tall ruderal
Tall ruderal and ponds
Washlands (see NVC report)
Ditch
Hedge
Fence
Treeline
Stream
Contains Ordnance Survey data
© Crown copyright and database 2011
Geckoella
Consultants for ecology and geology
Pond 1
Pond 2
Pond 3
Pond 6
Pond 4
Pond 5
NEVENDON ROAD
N
0
50
100
metres

NEVENDON PONDS AND WASHLANDS, BASILDON, ESSEX

INVERTEBRATE SURVEY 2011 – 2015

REPORT 1. BASELINE SURVEY OF AQUATIC INVERTEBRATES

Commissioned by: Jon Cranfield, HERPETOLOGIC LTD

10 October 2011

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CONTENTS

NEVENDON PONDS AND WASHLANDS, BASILDON, ESSEX: INVERTEBRATE SURVEY 2011 – 2015: REPORT 1. BASELINE SURVEY OF AQUATIC INVERTEBRATES

1 INTRODUCTION

1.1 Site description and background

1.1.1 Nevendon Ponds and Washlands ('Nevendon Nature Reserve') site covers an area of approximately 27 ha and is located north of Basildon, near Wickford, Essex (central grid reference TQ 739 913). The site is bounded to the south by the Southend Arterial Road, to the north by the main A132, and to the east and west by Nevendon Road and Nevendon stream respectively (Figure 1).

1.1.2 Nevendon Ponds and Washlands is a receptor site for translocated wetland habitat from an adjoining development (Courtauld Road), and incorporates habitat areas for protected species including Great crested newt *Triturus cristatus* and Grass snake *Natrix natrix*. The site is currently dominated by early successional habitats, and includes a series of newly dug ponds (1-2 years old) and washlands. Further information about the background to the site, its habitats and botanical features (including Phase 1 study) can be found in Jeffreys (2011), Collingridge (2011) and references therein.

1.2 Aims and scope of this study

1.2.1 Geckoella Ltd has been commissioned by Jon Cranfield (Herpetologic Ltd) to undertake a 5 year (2011-2015) survey and monitoring programme of the aquatic and terrestrial invertebrate fauna at the Nevendon Ponds and Washlands site, with particular emphasis on:

- Describing and providing a baseline assessment of the aquatic invertebrate faunas at each of the waterbodies sampled,
- Providing a future monitoring framework for the aquatic invertebrate faunas,
- Providing an assessment of the current nature conservation quality and status (based on aquatic invertebrates) of each of the waterbodies,
- Monitoring particular changes to the aquatic invertebrate faunas in response to increasing pond maturity and/or changes in water quality,
- Identifying any nationally scarce or rare invertebrate species present, and assessing their specific monitoring and management requirement s,
- Providing a quantifiable assessment (based on aquatic invertebrate faunas) whether the habitat translocation from the Courtauld Road development site to the Nevendon receptor site has been successful.

1.2.2 This report describes the preliminary findings of an aquatic invertebrate survey undertaken at Nevendon Ponds and Washlands during 27-28 July 2011, and is the first in an ongoing series of reports covering the invertebrate fauna at the site. A second report (due to be produced by Geckoella Ltd by the end of December 2011), will set out the 2012-2015 proposed sampling framework and monitoring programme for terrestrial invertebrates at Nevendon Ponds and Washlands.

2 METHODOLOGY

2.1 Desk study and historical records

Desk-based investigations relating to the invertebrate faunas at Nevendon, and adjoining sites, are still ongoing. A 2007 report on invertebrates within the area is also currently being traced. Consequently, historical data is not included here, but is planned to be collated and incorporated into future survey reports.

2.2 Field survey

2.2.1 Sampling techniques

Invertebrate sampling techniques used in this survey followed standard methodologies and approaches set out by JNCC and Natural England (eg. Kirby, 2001; Hill *et al*, 2005; Drake *et al*, 2007):

a) Aquatic sampling - netting
Pond netting, using a fine/1mm or less mesh pond net and a standard sweeping technique with bank-sorting, was employed to enable some quantification of data to be undertaken (Drake, 2005). This method is particularly suitable for shallow, still-water faunas as encountered at Nevendon Ponds and Washlands. Sampling was undertaken at 10 points around the waterbodies (see section 2.2.2).

b) Aquatic sampling - kick sampling
This technique is of limited use at Nevendon as flow rates within the waterbodies is very slow (absent within the ponds), with the exception of Nevendon stream (sample point W3). Here, sampling by kick-netting followed a standard '1 minute, repeated 3 times' procedure (Drake *et al*, 2007), thereby having the same duration as the standard Environment Agency sampling technique (Murray-Bligh, 1999).

c) Binoculars
The use of binoculars (Minox, 10x42 magnification, with close-focussing facility) was extremely useful to aid identification of Odonata flying over the waterbodies and perching on distant vegetation.

2.2.2 Sample points

Ten sampling points were identified and used for the aquatic invertebrate study in July 2011 (Table 1 overleaf). These points were selected to represent each of the ponds on site (sample points P1 – P6) and the waterbody habitats associated with the Nevendon washlands (sample points W1-W4).

2.2.3 Timing of survey and weather conditions

The survey was undertaken during 27-28 July 2011. The weather during this period was dry, slightly overcast, with average daytime temperatures of 16-17° C; there were occasional

warmer sunny periods (especially during the morning of 28 July) when flying Odonata became more active. However, it was felt that the timing of this visit, combined with the previously generally cool, wet summer conditions, did not warrant time being spent on sampling terrestrial invertebrates (these will be included within the 2012 surveys onwards). Instead the 2011 survey focussed on obtaining baseline data relating to the aquatic invertebrate fauna at the site (and fell within the optimum survey period for these groups).

Sample Point	Waterbody and general location	Grid reference
P1	Pond 1, northwest corner of Nevendon site	TQ 73859 91544
P2	Pond 2, northwest corner of Nevendon site	TQ 73775 91518
P3	Pond 3, northwest corner of Nevendon site	TQ 73821 91497
P4	Pond 4, northwest corner of Nevendon site	TQ 73770 91482
P5	Pond 5, western perimeter of Nevendon site	TQ 73772 91402
P6	Pond 6, northwest corner of Nevendon site	TQ 73869 91478
W1	Nevendon washlands, immediately south of four culverts	TQ 74207 91266
W2	Nevendon washlands, southern central washlands area, including area towards 'eel gates'	TQ 74088 91170 to 74088 91126
W3	Nevendon stream (also referred to on some maps as Nevendon brook)	TQ 74268 91263
W4	Intersection of Nevendon stream with Nevendon Flood Park outlet	TQ 74284 91493

Table 1. Location of aquatic invertebrate sampling points (see section 2.2.2 and Figure 1)

2.2.4 Site access

The site was accessed directly from Nevendon Road and not (for security reasons) via the locked gates adjacent to the Southend Arterial Road, on the southern boundary of the site

2.2.5 Health and safety

The site has no particular health and safety issues on the site other than being aware of some rough, uneven ground conditions (especially in areas of high vegetation growth where visibility may be obscured) and relatively large number of bees and wasps. The majority of ponds surveyed have gently inclined banks, but in places these are extremely soft and muddy – consequently lone working around these ponds is not advisable. Surveying Although the survey was undertaken too late in the year for terrestrial invertebrates (outside the optimum . The majority of ponds surveyed have gently inclined but extremely soft, muddy banks, and care was exercised whilst sampling There were no survey constraints.

2.2.6 Survey constraints

Apart from the points noted above, there were no other survey constraints. A detailed description of the ponds surveyed, including their vegetation, will be included within the 2012 aquatic invertebrate survey report.

2.3 Post-survey analysis and assessment

2.3.1 Taxonomic identification

Whenever practical, invertebrates were identified in the field, but where any doubt over identification existed, one or more specimens were collected for further detailed study. All specimens were collected in accordance with the JNCC 'Code of Collecting Insects and other Invertebrates' (BENHS, 2009), and a series of voucher specimens from the site have been retained for reference.

Taxonomic identification was undertaken using a Mecopta binocular microscope (with x10 to x60 magnification) and the authors personal library of invertebrate reference papers and books.

2.3.2 BMWP and ASPT scores

<u>BMWP scores</u>

The use of Biological Monitoring Water Party (BMWP) scores is a well established, widely used system for measuring water quality using species of macroinvertebrates as biological indicators. The method is based on the principle that freshwater macroinvertebrates require various amounts of dissolved oxygen in stream water in order to live, and organic or chemical pollution will reduce the oxygen level in the water. Different aquatic invertebrates have different tolerances to pollutants, and the number and type of invertebrate species in waterbodies is a good indication of whether it is impacted by organic or chemical pollution – and better water quality is assumed to result in higher invertebrate diversity. For example, the presence of pollution-sensitive taxa such as mayflies or stoneflies indicate the cleanest waterways (and certain taxa within these groups are assigned a tolerance score of 10), whereas pollution-tolerant invertebrate taxa (such as some families of leeches score only 3).

The BMWP score equals the sum of the tolerance scores of all macroinvertebrate families in the sample. Originally, BMWP scores were expressed as whole numbers and based on expert opinion regarding the perceived sensitivity of aquatic invertebrate families to organic pollutions. More recently the original BMWP scores have been reappraised using data from the 1990 River Quality Survey of England and Wales (based on 17000 biological samples and covering 85 invertebrate families). This scoring system is now widely accepted to better reflect the differential sensitivities to the combined effects of organic and other major forms of pollution (Walley & Hawkes, 1996). A detailed discussion discussion of the use of BMWP procedures, and scoring refinements, are given in Hawkes (1997).

<u>ASPT scores</u>

A weakness of the BMWP scoring system is the effect of sampling effort; for example, a prolonged sampling period can be expected, under most circumstances, to produce a higher final score than a sample taken quickly. To overcome this, it has become common practice to also calculate the Average Score Per Taxon (ASPT) which equals the average of the tolerance scores of all of the macroinvertebrate families in the sample. The main difference between the BMWP and ASPT schemes is that the latter does not depend on family richness

(ie. it is independent of sample size) and is likely to be less influenced by season than the BMWP methodology.

Use of BMWP and ASPT scores on Nevendon data

For comparative purposes, this report on Nevendon aquatic invertebrates, calculates BMWP and ASPT scores using both the original and the revised BMWP figures (Annex A). The grading of biological and water quality according to BMWP and ASPT scores employed in this report is given below in Table 2 (these ranges are based on the Theo-Pike rating system, eg. as used by the Sussex Ouse Conservation Society and others; SOCS 2011).

BMWP score	**Quality**		**ASPT score**	**Quality**
>150	A. Very good biological quality		>5.4	Very good
101-150	B. Good biological quality		4.81-5.4	Good
51-100	C. Fair biological quality		4.21-4.8	Fair
16-50	D. Poor biological quality		3.61-4.2	Poor
0-15	E. Very poor biological quality		<3.61	Very poor

Table 2. Grading of BMWP and ASPT scores

The BMWP and ASPT scoring procedures are normally applied to flowing water systems, and employ the use of kick sampling as the main sampling technique. Therefore the limitations in applying these procedure to the aquatic invertebrate samples at Nevendon (where current flows through many waterbodies are extremely low) needs to be recognised.

Another factor to consider at the Nevendon site is that the waterbodies are relatively new and immature; consequently low levels invertebrate diversity is perhaps more likely to be more related to this factor than pollution effects. Nevertheless, it is believed here that the use of BMWP and ASPT scores at Nevendon does provide an initial quantitative method of assessing the aquatic invertebrate faunas and water quality – further faunal diversity analysis can be adopted as the ponds mature.

3 RESULTS – THE AQUATIC INVERTEBRATE FAUNA

3.1 Faunal list

The complete list of the aquatic invertebrate fauna encountered at the Nevendon site during 27-28 July 2011 is given in the spreadsheet at Annex B.

A comprehensive description of the fauna will be undertaken following the 2012 survey season which will incorporate sampling stretching across the seasons (from Spring to late Summer/early Autumn) and enable a more representative assessment to be made.

3.2 Nationally Scarce (Notable - category NB) species

Two Nationally Scarce (NB) species of aquatic beetle were encountered during the 2011 survey (the 'NB' notation indicates that these taxa are believed to occur in between 31 and 100 10km squares of the National Grid). Both species are typically associated with silty pond habitats:

- A water scavenging beetle, *Berosus* (*Berosus*) *affinis* Brullé, 1835
  One of four species of *Berosus* recorded from the UK, and distinguished by its dark pronotal colouration and weak mesosternal keel. The species is a strong swimmer and can also stridulate. It occurs in silty ponds and drains, and in some areas (eg. Surrey) has become more frequent in recent decades. At Nebendon it was found in Pond 5 (locality P5).

- A diving beetle, *Rhantus* (*Rhantus*) *suturalis* (Macleay, 1825)
  This species of *Rhantus* is associated with silt and detritus ponds. It is a strong flier and is not infrequently attracted to light, especially when teneral. It is distinguished from other species of *Rhantus* by the central black mark on the pronotum (but without a posterior black band) and lack of yellow lines on the elytra. At Nebendon it was found in Pond 3 (locality P3) and in the Washlands in shallow, silty water adjacent to the four culverts (locality W1).

4 RESULTS AND ANALYSIS – BMWP AND ASPT SCORES

4.1 BMWP and ASPT scores for each sample point

The BMWP and ASPT scores for each sample point are provided in Table 5 below:

Waterbody sample point	BMWP score		ASPT score	
	BMWP score (original)	BMWP score (reappraised)	ASPT score (original)	ASPT score (reappraised)
P1	50	44.5	5.0	4.4
P2	23	20.7	4.6	4.1
P3	41	35.9	5.1	4.5
P4	15	13.2	5.0	4.4
P5	33	28.2	5.5	4.7
P6	43	36.2	5.4	4.5
W1	27	27.3	3.9	3.9
W2	22	22.4	4.4	4.5
W3	18	16.4	3.6	3.3
W4	12	10.4	4.0	3.5

Table 3. BMWP and ASPT scores for each sample point

4.2 Initial assessment of BMWP and ASPT scores, and biological quality of waterbodies

The initial assessment of the biological quality of the Nevendon waterbodies based on the 2011 aquatic invertebrate survey data is given in Table 6 below:

Waterbody	Biological quality based on BMWP scores	Quality based on ASPT scores
P1	Poor (nearly Fair)	Fair to Good
P2	Poor	Poor to Fair
P3	Poor	Fair to Good
P4	Poor	Fair to Good
P5	Poor	Good to Very good
P6	Poor	Fair to Good
W1	Poor	Poor
W2	Poor	Fair
W3	Poor	Very poor
W4	Very poor	Very poor to Poor

Table 4. Initial assessment of biological quality based on 2011 BMWP and ASPT scores.

This initial assessment of biological quality of the Nevendon waterbodies may seem very low, especially on the basis of the BMWP scores cited above. However, it is important to bear in mind the following factors:

i) the assessment is only based on 2 days worth of survey, with samples taken during 26-27 July 2011,

ii) All the ponds and waterbodies are relatively new (only 1-2 years old) and immature, with insufficient time for diverse aquatic invertebrate faunas to become established.

It is anticipated that invertebrate diversity will increase in these ponds over time, and consequently the BMWP score and the biological quality will improve,

iii) The ASPT scores are more encouraging and, even at this early stage of the survey, are believed to represent an underlying trend indicating that ponds P1-P6 have the potential of achieving a Good to Very good quality rating. This contrasts with the Poor or Very poor quality rating attributed to the Nevendon stream samples (W3 and W4) which may be affected by polluting surface run-off from the adjacent Southend Arterial Road.

5 SUMMARY POINTS AND RECOMMENDATIONS

- The 2011 aquatic invertebrate survey of the Nevendon Ponds and Washlands site has provided baseline data on which future survey and monitoring efforts can be based. A monitoring framework initially using 10 sample points across the range of waterbodies and aquatic habitats present is established, and this may be expanded in the future depending on changing (maturing) site conditions, increased number of ponds dug etc.

- Although the ponds and washlands are relatively new and immature (only 1-2 years old), the aquatic invertebrate fauna is already fairly diverse and contains representatives of at least 25 invertebrate families. On the basis of the 2011 survey data, the aquatic invertebrate fauna is dominated by bugs (name) and beetles (Coleoptera) which together account for nearly 50% of the families (and approximately 60% of the species) encountered.

- The majority of aquatic invertebrate taxa encountered during the 2011 survey were widespread, common species. However, the fauna includes 2 Nationally Notable (Nb) species: a water scavenger beetle *Berosus* (*Berosus*) *affinis* and a diving beetle *Rhantus* (*Rhantus*) *suturalis*.

- BMWP and ASPT analysis of the aquatic invertebrate fauna is at a very preliminary stage and overall presents a low assessment of the ponds and washlands thus far. However, underlying trends (indicated by ASPT scores) are more encouraging and indicate the potential for the waterbodies not linked to the Nevendon stream to achieve higher diversity levels and Good/Very good quality ratings.

- Future monitoring of the aquatic invertebrates should be undertaken ideally at early (late Spring) and later (high Summer/early Autumn) times in order to obtain more representative survey samples across the seasons. This will be more important for emergent forms such as Odonata (dragonflies and damselflies), and also potentially for Ephemeroptera (mayflies) where particular taxa have specific flight times. (This monitoring schedule will be covered further in the Nevendon Invertebrate Report 2 which is due from Geckoella Ltd by end December 2011).

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FIGURE 1. APPROXIMATE LOCATION OF PONDS, NEVENDON WASHLANDS AND NEVENDON STREAM AQUATIC INVERTEBRATE SAMPLING POINTS, NEVENDON, BASILDON, ESSEX

2.1 Female Emperor dragonfly *Anax imperator*, ovipositing on *Potamogeton* stem., Pond 2

2.2 Male Ruddy Darter *Sympetrum sanguineum*, resting on old wood, Pond 2

FIGURE 2. SELECTED IMAGES OF INVERTEBRATES (ODONATA)

NEVENDON ROAD TORCH COUNTS 2011 BY Kevin Morgan

1. 5th April 2011 (K. Morgan)

The survey took place from 21.15 to 22.30 and the total count for all 6 ponds was 84 Great Crested Newts (61 male, 21 female, 2 unsexed) and 46 Smooth Newts.

The combined count for all six ponds for 84 - 4 more than the highest ever count for the two water bodies at Courtauld Road. The count for ponds 1 and 2 was not as high as hoped, and counts for females were low, despite evidence of extensive egg laying. It is hoped a future combined count for the site could be over 100.

Weather:

Overcast and mild (c18^{o}C at first) with light breeze. Had been some very light rain during the day when it had been cooler. The last few weeks have been very sunny and mild during the day, but clear at night, and this has been one of the first milder overcast nights. Water 13°C.

The Survey:

- Pond 1: 9 males and 2 females for 11 Great Crested Newts and 5 Smooth Newts.

Although the water was clear over most of this larger pond in the NW corner of the holding area, some areas were difficult to survey due to the algal bloom that needs to be monitored in the future (plant native submergent/floating aquatics?). Also some margins had turbid water since two Mallards had been swimming around the margins before I disturbed them. But water in other areas was clear. Also abundant egg laying on Water Forget-me-not, but not much evidence of egg laying or female activity in this pond tonight.

- Pond 2: 4 males and 2 females for 6 Great Crested Newts and 12 Smooth Newts.

The most 'mature' of the ponds in the holding area with a lot of vegetation and deep centre turbid. However, most of water was clear and many margins could be surveyed by torch with a keen eye. Great Crested Newt activity appears to be down in this pond and it was the one pond where the Smooth Newt count was higher. Evidence of egg laying.

- Pond 3: 10 males and 7 females for 17 Great Crested Newts and 7 Smooth Newts.

Good count for the smallest pond in the holding area that was clear and easy to survey. Egg laying present but not so obvious – probably because there were fewer 'ideal' egg laying plants to check (but still plenty of good marginal vegetation).

- Pond 4: 30 males, 5 females, 2 unsexed for 37 Great Crested Newts and c17 Smooth Newts.

Superb count for this clear and relatively small pond - with some incredible activity of male newts. One marginal is more overgrown and the count may have been even higher! Egg laying obvious. With activity of Great Crested Newts could not really concentrate on the Smooth Newt count.

- Pond 5: 8 males and 3 females for 11 Great Crested Newts and 4 Smooth Newts.

This large clear pond was clear and easy to survey and as the newest of the ponds it has the least vegetation. Outside the holding area, the presence of Great Crested Newts suggests some have got under/through the fence from the nearby holding area. Some egg laying.

- Pond 6 – 0 males and 2 females for 2 Great Crested Newts and 1 Smooth Newt.

This large clear pond, close to the old Nevendon Road, was easy to survey. Outside the holding area, it is the furthest from the other ponds. Interesting that two females were seen, but no males.

2. 13th April 2011 (K. Morgan)

Survey took place from 21.05 to 22.10 and total count for 6 ponds was 40 Great Crested Newts (24 male, 15 female, 1 unsexed) and 8 Smooth Newts. This down from 84 for the count on 5th April. Count was higher in pond 1, the same in pond 2, but down in the other ponds. Also obvious that the main drop was in the activity of male newts. Smooth Newt activity was also much less.

Weather:

Overcast and cooler (c14^{o}C then down to c11^{o}C) compared to the long mild spell we had, but average for this time of year? Also a light breeze – but anticipated rain did not occur. Water 14.5^{o}C.

The Survey:

- Pond 1: 12 males and 7 females for 19 Great Crested Newts and 2 Smooth Newts.

Overall, GCN activity appears to be up on last time with more females seen, Some of the algal bloom has been cleared back that also assisted the count. However, Smooth Newt activity was down. Water clear, but algal bloom still covering much of pond.

- Pond 2: 3 males, 2 females and 1 unsexed for 6 Great Crested Newts and 1 Smooth Newt.

Similar 'low' count to last time, but Smooth Newt count much lower.

- Pond 3: 4 males and 5 females for 9 Great Crested Newts and 3 Smooth Newts.

Count lower than previous survey for this pond that is relatively clear and easy to survey.

- Pond 4: 4 males, 1 female and 2 Smooth Newts.

Count right down compared to superb count for this clear pond in the previous survey.

- Pond 5: 1 male for 1 Great Crested Newts and no Smooth Newts.

Only 1 male seen, count down on previous survey in a large clear pond that is easy to survey.

- Pond 6 – No activity of Great Crested Newts or Smooth Newts.

No newt activity in this large clear pond.

3. 23rd April 2011 (K. Morgan)

Survey took place from 22.05 to 23.10 and the activity in different ponds was mixed. Count was 48 Great Crested Newts (31 male, 17 female) and 14 Smooth Newts.

The combined count for all six ponds was similar to second visit but down on count of 84 for count on 5th April.

Weather:

Clear but relatively mild. Had been some thunderstorms and torrential rain around London this afternoon, but appears it did not really affect this area of Essex. Mislaid thermometer so unable to measure temperatures.

The Survey:

- Pond 1: 10 males and 6 females for 16 Great Crested Newts and 5 Smooth Newts.

Algal bloom increasing again. Overall, GCN activity appears to be up on last time with more females seen, Some of the algal bloom has been cleared back that also assisted the count. However, Smooth Newt activity was down. Water clear, but algal bloom still covering much of pond.

- Pond 2: 4 males, 3 females for 7 Great Crested Newts and 3 Smooth Newt.

Slightly better count, but still relatively low (a good pond to bottle trap?).

- Pond 3: 5 males and 3 females for 8 Great Crested Newts and 2 Smooth Newts.

'Low' count similar to previous survey.

- Pond 4: 6 males, 2 females for 8 GCN and 4 Smooth Newts.

Count still down compared to first survey of this pond.

- Pond 5: 1 male and 1 female for 2 Great Crested Newts and no Smooth Newts.
- Pond 6 – 5 male and 2 female for 7 Great Crested Newts and no Smooth Newts.

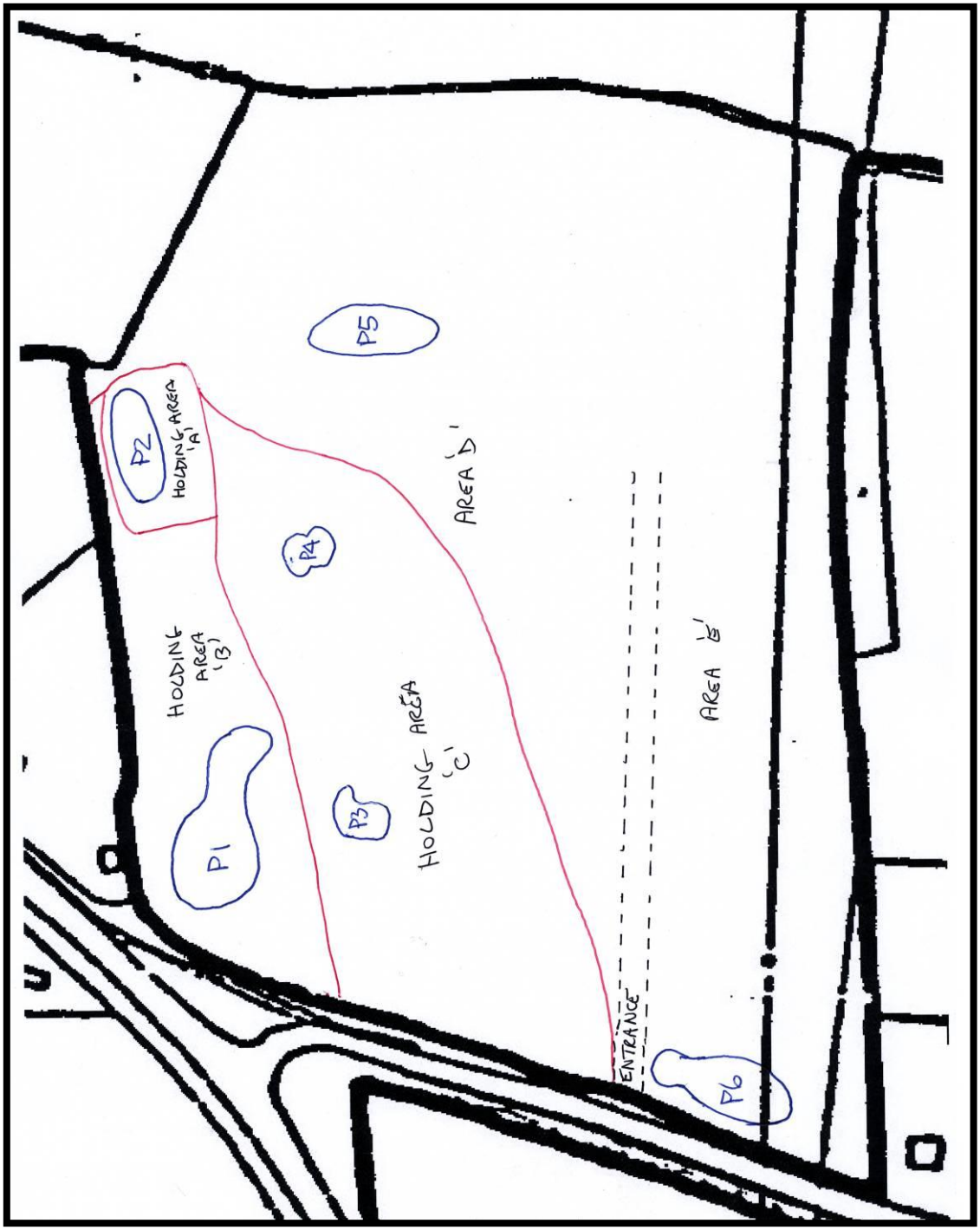
Count up for this pond that is closer to Nevendon Road

GREAT CRESTED NEWT COUNTS

(In brackets – males, females, or sex unidentified)

DATE	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6	Total	Smooth Newts
5/4/11	11 (9,2)	6 (4,2)	17 (10,7)	37 (30,5,2)	11 (8,3)	2 (0,2)	84 (61,22,2)	46
13/4/11	19 (12,7)	6 (3,2,1)	9 (4,5)	5 (4,1)	1 (1,0)	0	40 (24, 15,1)	8
23/4/11	16 (10,6)	7 (4,3)	8 (5,3)	8 (6,2)	2 (1,1)	7 (5,2)	48 (36,17)	14

Pond locations:



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APPENDIX 1.6 – Ecology Desktop Study

APPENDIX 1.6 – Ecology desk study

1.1. Introduction

The ecological assessment includes:

- Data-gathering of existing information on the site from appropriate sources;
- Walkover survey of the site to identify if any ecological constraints to the proposed development remain. Atkins was informed that the site has been cleared of vegetation (email from Luke Bristow, Countryside and Ecology Officer, Essex County Council dated 20th July 2011). It is also understood that the on-site stream has been diverted; a habitat compensation area has been created to the north of the A127 and the great crested newt and reptile translocation undertaken.

1.2. Desk Study

Desk study information for within 2km of the site was also obtained from Essex Field Club Records. Records supplied mainly relate to notable invertebrate species in the local area (some of which were recorded at the application site prior to clearance). The remaining records relate to notable plant species which were located outside the Application site.

A search of the MAGIC (Multi Agency Geographical Information for the Countryside) website (www.magic.go.uk) identified that no Sites of Special Scientific Interest, Special Protection Areas (SPAs), Wetlands of International Importance (Ramsar sites), National Nature Reserves or Local Nature Reserves are present within 2km of the site.

Benfleet and Southend Marshes Special Protection Area (SPA) is located just over 5km from the site and Thames Estuary and Marshes SPA is approximately 10km from the site.

The proposed application site was designated as Burnt Mills Local Wildlife Site on the basis that the site:

- Contained diverse flood plain grassland with associated grassland habitats
- Supported a significant breeding population of great crested newts *Triturus cristatus*
- Supported significant populations of invertebrates
- A review of the previous Environmental Statement for the site (Atkins, 2006) identified that the proposed developed would lead to this Local Wildlife Site being destroyed. Therefore the following mitigation was proposed:
- A new washland to the north of the Courtaulds Road site would be created to compensate for the lost washland habitat. The washland would be designed to encourage the development of nutrient poor, species-rich grassland habitats, similar to those destroyed. Turf from the Courtaulds Road site would be translocated to the habitat compensation site.
- New great crested newt habitat would be created to the north of the A127 and the entire great crested newt population would be translocated. Creation of reptile habitat and translocation of reptiles was also recommended.

- No specific action was recommended to protect invertebrates. It was anticipated that transport of plant material to the new habitats would also take significant numbers of invertebrates which would then rapidly colonise the new habitats.
- Other mitigation measures recommended related to undertaking clearance of dense vegetation outside the bird breeding season, enhancements to the diverted stream channel, management of land during development and long term management.

1.3. Existing Conditions

An ecological walkover survey of the site was undertaken on July 20th 2011 by Atkins Ecologists. Photos of the site are included in the Inserts section at the end of this appendix. The site was observed to be a level base of recently spread soil and soil spreading was also ongoing at the time of the site visit (insert 1). Very little vegetation remains on the site. The remaining vegetation is confined to the outer edge of the site and three retained shallow ditches located within the site itself (inserts 3, 4 and 5).

A follow up site visit was undertaken in January 2012 to assess the amount of vegetation regrowth. The centre of the site was predominately bare level soil with patchy vegetation cover (approximately 50%) of ruderal species, such as bristly ox-tongue and Crucifer species. Due to rainfall there were shallow patches of water on the ground within the centre of the site where birds such as gulls were recorded.

A stream which previously flowed through the centre of the site has been diverted to the west of the site and a channel also flows just outside the northern boundary of the site (insert 2). Rough grassland/ruderal habitat has established along the stream banks. A strip of trees and scrub habitat has been retained along the northern boundary of the site (insert 3).

Whilst the majority of the site has been cleared of vegetation and has negligible potential to support protected species, there is a possibility that populations of reptiles and great crested newts could occur in the retained edge vegetation and along the shallow ditches.

The habitat compensation site to the north of the A127 was also inspected and it was confirmed that damp grassland habitat and ponds were present. The part of the habitat compensation site use as the great crested newt receptor site is located approximately 500m to the north of the application site and separated from the application site by the A127.

There is negligible potential for any of the qualifying bird species of the Benfleet and Southend Marshes SPA and Thames Estuary and Marshes SPA (avocet, dark-bellied brent goose, grey plover, hen harrier, knot, ringed plover) to use the site in its current state as it is featureless and surrounded by industrial areas.

There is a possibility that qualifying bird species for the SPA could have used the pre-existing habitat and they could now use the habitat compensation site to the north. However, due to the industrial nature of the surrounding area and the busy A127 dividing the site from the compensation area, it is considered that the proposed works would not have an impact on any birds using the compensation area.

Scrub and trees along the northern boundary of the application site and the marginal vegetation along the brook have potential for nesting birds. The bare ground with patches of ruderal vegetation has some limited potential for ground nesting birds.

Potential impacts stemming from airborne pollutants are considered in Chapter 9 of the ES - Air Quality. The proposed development does not have a combustion element so there are no stack emissions of NOx that would carry over such a large distance. The air quality chapter considered impacts on designated sites within 2km of this site as it is within this distance that vehicle movements would change. The traffic data shows only Courtauld Rd and the the A132 East Mayne (north of Cranes Farm Road) would exceed Design Manual for Roads and Bridges criteria for assessment and the SPAs are a significant distance from these affected roads (ref. DMRB 11.3.1). It can therfore be concluded there will be no signicant impact on these SPAs.

1.4. Conclusion

The majority of the site has already been cleared of vegetation and great crested newt and reptile translocation has already been undertaken. There remains the potential for a remnant population of great newts and reptiles to be present in the edge habitats. This issue is discussed with in more detail in Appendix 1.5.

Vegetation clearance should be undertaken outside the bird breeding season. If vegetation removal cannot be undertaken outside the bird nesting season then a suitably experienced ecologist must be present to survey for nesting birds not more than 24 hours prior to any works.

Opportunities for habitat enhancements will be considered in the detailed design. This will include ecological input into any Sustainable Drainage Systems (SuDS), particularly where areas of open water will be created.

2.0 Inserts

Insert 1: looking eastwards across site, July 2011

Insert 2: New stream channel. To north west of site. Looking east, July 2011

Insert 3: Retained scrub along northern boundary, July 2011

Insert 4: Vegetation along the eastern boundary of the site, July 2011

Insert 5: Southern boundary of the site, July 2011

Insert 6: Habitat compensation site (great crested newt receptor site), July 2011