



ENVIRONMENTAL IMPACT STATEMENT
FOR THE INTENSIFICATION & DEVELOPMENT OF THE
AES LTD. WASTE MANAGEMENT FACILITY
AT
CAPPANCUR, TULLAMORE, CO. OFFALY

Volume 2 of 3

ORIGINAL

Prepared for:

Advanced Environmental Solutions (Ireland) Ltd
Unit 1 Monread Commercial Park
Monread Road
Naas
Co. Kildare

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September 2008



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Abstract This document comprises part of the EIS for the proposed expansion of the AES waste transfer station at Tullamore, Co. Offaly. The site operates under a Waste Licence from the Environmental Protection Agency (W104-01). This volume forms the main document of the EIS.

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PREAMBLE

Advanced Environmental Solutions (Ireland) Limited (AES) proposes to intensify activities at their existing waste management facility at Cappancur, Tullamore, Co. Offaly by increasing their waste intake to 50,000 tonnes per year.

The development falls under the requirements of the Planning and Development Acts 2000 – 2006. As part of these works an Environmental Impact Statement (EIS) is required to accompany the application in accordance with Part 13 of Schedule 5 of the Planning and Development Regulations 2001 - 2006 where it is stated that;

'any changes or extension of development which would:-

(ii) result in an increase in size greater than 25 per cent, or an amount equal to 50 per cent of the appropriate threshold, whichever is greater'

A review of the existing Waste Licence (Ref 104-01) by the Environmental Protection Agency (EPA) is also required as part of the intensification of the waste acceptance activities.

AES (Ireland) Ltd. has appointed Fehily Timoney and Company (FTC) as its consultant for this project. FTC is responsible for the preparation of the required EIS which accompanies the planning application to Offaly County Council for the proposed development. FTC is also responsible for the preparation of the application for the review of the existing waste licence W104-01.

Bord Na Mona Environmental Ltd was retained to carry out a hydrogeological assessment at the site.

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1. INTRODUCTION

1.1 Project Overview

The AES Ltd. waste management facility is located some 2 kilometres to the east of Tullamore town on the local Daingean Road as indicated on Figure 1.1. The existing development is part of a number of industrial units in the Cappancur Industrial Estate. This environmental impact assessment is being carried out to accompany a planning application and waste licence review application in relation to the following works:

- revision to existing site boundary to facilitate the construction of the N52 Tullamore bypass
- relocation and extension of the existing administration building
- re-location and upgrading of the on-site package wastewater treatment plant and effluent management system
- extension to facility opening hours
- revision of onsite car parking
- acceptance of increased tonnages on existing waste licence limits

The site has been subject to a Compulsory Purchase Order (CPO) from Offaly County Council to facilitate the construction of the new N52 Tullamore bypass. Under this process, Offaly County Council has received permission to:

- purchase approximately 0.12 hectares of the northern portion of the site, altering the existing red line boundary of the facility
- close the existing facility entrance and construct a new site entrance and security gate in the north east corner of the site
- allow the temporary re-location of the administration building to facilitate works

At the time of writing, works on the new bypass have commenced in the vicinity of the AES Ltd. facility, requiring the re-location of the administration building from the northern boundary of the facility adjacent (the lands subject to the CPO order) to a location adjacent to the waste processing building on the western boundary of the facility (Refer to Figure 2.2).

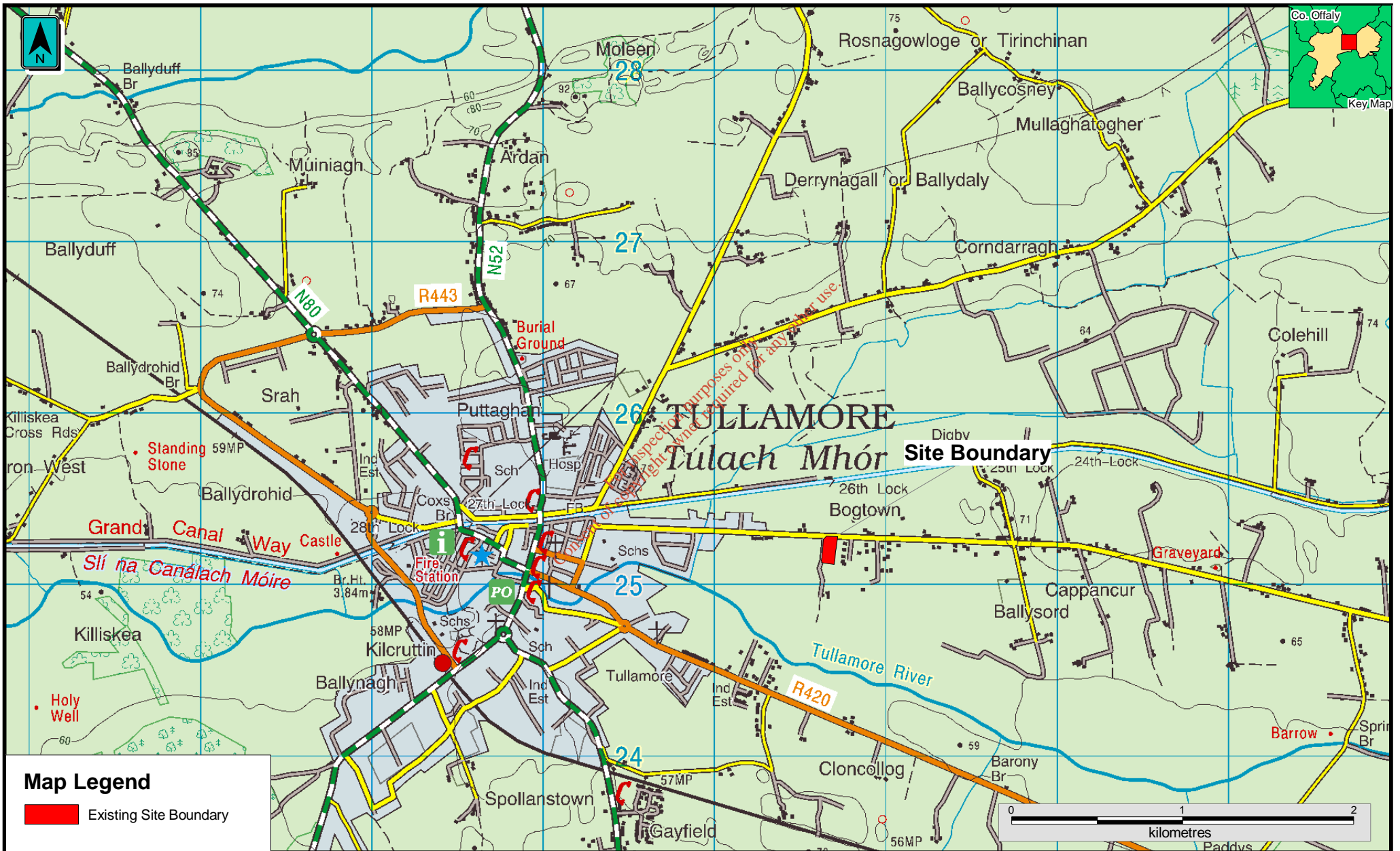
1.2 The Applicant

Advanced Environmental Solutions (Ireland) Ltd (AES) was established in 1996 as Waste Recycling Ireland and commenced trading as AES (Ireland) Ltd in July 2001, through the acquisition of a number of waste facilities and operating companies. An existing waste contracting business, Rentabin Ltd., which was operating from the Cappancur site, was purchased by AES Ltd. in 2002. AES Ltd. continues to operate as a leasee of the Cappancur site. In May 2007, AES Ltd. was acquired by Bord na Mona PLC but continues to operate as an independent company.

AES Ltd. also operates EPA waste licensed facilities in Navan (Waste Licence No. 131-02) and Kyletalesha (Waste Licence No. 194-02) and a Local Authority permitted facility in Nenagh

AES Ltd. services both household and commercial customers throughout the Midlands Region. The policy of the company is to manage waste in a manner which maximises the reuse and recycling of materials while minimising the volume sent to landfill; this is achieved by utilising the most modern technologies, ensuring regulatory compliance and working in partnership with customers and organisations at international, regional and local levels.

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European, National and Regional Policy

Documents which set out specific policy statements in relation to the development of waste management infrastructure at a national and regional level are outlined in this section.

1.2.1 European & National Legislation & Policy

Council Directive 1999/31/EC on the landfilling of waste

The overall objective of this Directive is to tightly define and unify the nature of acceptable landfill usage, by reducing and minimising the potential environmental impacts which may otherwise occur at any point in the life-cycle of a landfill.

As well as technical standards, the Directive also contains binding obligations for an EU-wide reduction of the use of landfill as an option for the disposal of biodegradable municipal waste (BMW). It contains specific reduction targets for biodegradable waste which must be applied nationally. These targets are to be viewed against baseline BMW landfilled in each member state for the year 1995. Ireland applied for derogations for the first two target years due to an over reliance on landfill. The target years in Ireland are shown in Table 1.1.

Table 1.1: Landfill Directive Biodegradable Waste Diversion Targets

Target (of 1995 levels)	Target Years
75 %	2010
50 %	2013
35 %	2016

Council Directive 1994/62/EC on Packaging and Packaging Waste

The aim of the Packaging Directive 94/62 is to harmonise measures on the management of packaging waste across the EU. It covers all packaging, including that from industry, commercial activities and householders.

The Directive requires member states to have “recovered” between 50–65% by weight of packaging by 30th June 2001. Within this general target, between 25–45% of packaging must be “recycled”, with individual minimum limits being set so that the recycling rate is to be no less than 15% for each packaging material. The Directive makes a distinction between ‘recovery’ and ‘recycling’. Recycling excludes combustion and subsequent energy recovery.

The Packaging Directive was significantly amended in 2005 (Directive 2004/12/EC) with new and more onerous recovery and recycling targets being set. These require that, by 31st December 2008, no less than 60% of packaging waste is recovered or incinerated and that between 55% and 80% of packaging waste is recycled. Recycling targets are also set for a range of different types of packaging: glass 60%; paper and board 60%; metals 50%, plastics 22.5%; wood 15%. The distinction between recovery and recycling applies in the respect of these percentages also.

In 2008, further measures were introduced aimed at optimising the recovery and recycling of packaging waste in Ireland, including a reduction from 25 tonnes to 10 tonnes in the de minimis to spread the burden of compliance more equitably across all obligated producers in light of the higher targets that have to be achieved under Directive 2004/12/EC.

Revision of Council Directive 2006/12/EC on waste

A revision of the Waste Framework Directive proposed by the European Commission was adopted and approved by the European Council of Ministers in June 2008.

The revision of this Directive will include setting new recycling targets to be achieved by EU member states by 2020, for example a recycling rate of 50% for household and similar wastes and 70% for construction and demolition waste. It will also put a binding obligation on member states to develop national waste prevention programs and report on prevention and waste prevention objectives.

The revision of the Directive will also clearly define a number of important definitions, such as recycling, recovery and waste in order to resolve existing interpretation problems. It also aims to alter the impression of waste as an unwanted burden to become a valued resource in Europe, for example, incineration will be considered a recovery operation provided it meets certain energy efficient standards. The five stage waste hierarchy has also been more clearly defined and lays down waste operations in prevention, re-use, recycling, recovery and safe disposal in order of preference.

Waste Management: Changing Our Ways

Government policy in relation to waste management is set out in the policy statement entitled *Waste Management: Changing Our Ways* published by the Department of the Environment and Local Government (DoELG) in September 1998. The policy statement incorporates the EU Waste Management hierarchy of waste prevention/minimisation/reuse/recycling/energy recovery/disposal as well as earlier policy statements including Government strategy documents such as *Recycling for Ireland* (July 1994) and *Sustainable Development: A Strategy for Ireland* (April 1997).

It outlines a clear commitment to reduce dependency on landfill as a primary waste disposal route. It encourages the development of a smaller number of well-designed and managed landfills for the receipt of *residual* waste. Residual waste is waste which has undergone some form of treatment to remove recyclable material or to further process the waste in order to achieve a volumetric reduction.

The policy document *Waste Management: Changing Our Ways* outlines ambitious targets for waste management as follows:

- a diversion of 50% of overall household waste away from landfill
- a minimum 65% reduction in biodegradable wastes consigned to landfill
- the development of waste recovery facilities employing environmentally beneficial technologies as an alternative to landfill, including the development of composting and other feasible biological treatment facilities capable of treating up to 300,000 tonnes of biodegradable waste per annum nationally
- recycling of 35% of municipal waste
- recycling at least 50% of construction and demolition (C & D) waste within a five year period, with a progressive increase to at least 85% over fifteen years

- rationalisation of municipal waste landfills, with progressive and sustained reductions in numbers, leading to an integrated network of some 20 state-of-the-art facilities incorporating energy recovery and high standards of environmental protection
- an 80% reduction in methane emissions from landfill, which will make a useful contribution to meeting Ireland's international obligations.

The proposed development at the AES waste management facility at Cappancur will facilitate the collection, sorting and bulking of recyclable materials prior to onward shipment to appropriate recycling facilities. This development will contribute to a reduction in waste consigned to landfill and contribute to an increase in the recycling rates of municipal and industrial wastes within the Midlands Region.

Preventing and Recycling Waste – Delivering Change – a Policy Statement

A second policy statement was issued by the Minister for the Environment and Local Government in 2002. In this policy statement entitled 'Preventing and Recycling Waste - Delivering Change', the Government sets out objectives for developing recycling and recovery facilities.

This policy statement incorporates the EU waste management hierarchy of waste prevention, minimisation, reuse, recycling, recovery and disposal as outlined in 'Waste Management: Changing our Ways' published in September 1998, as well as earlier policy statements, including Government strategy documents such as 'Recycling for Ireland' (July 1994) and 'Sustainable Development: A Strategy for Ireland' (April 1997). This policy document:

- highlights the necessary disciplines that must be imposed within waste management systems to secure real progress on waste prevention, reuse and recovery
- outlines a range of measures that will be undertaken in the interests of minimising waste generation and ensuring a sustained expansion in reuse and recycling performance and
- sets out a number of clear objectives which the Government propose to implement to meet the targets identified in *Changing Our Ways*.

The National Strategy on Biodegradable Waste

The National Strategy on Biodegradable Waste was launched in April 2006 by the DoEHLG, and clearly highlights the urgent need for waste management facilities with infrastructure to deal with biodegradable waste. It focuses on biodegradable waste from municipal sources, such as from domestic dwellings and commerce. Table 1.2 illustrates the requirements under the Landfill Directive, showing that the amount of biodegradable waste being landfilled must drop from approximately one million tonnes to 450,000 tonnes by 2016.

Table 1.2: Ireland's Landfill Targets for Biodegradable Waste¹

Target (% of 1995 levels)	Year	Allowable BMW to Landfill (tonnes)
75 %	2010	967,433
50 %	2013	644,956
35 %	2016	451,469

The Strategy also sets down targets for individual waste streams. Each waste management plan is required to propose arrangements on how these targets are met:

- for paper and cardboard, the recycling targets for 2010 are set at 45% for households and 61% for commerce going up to 55% and 71% in 2013 and to 60% and 73% respectively in 2016. It is acknowledged that these levels will require significant investment in both kerbside collection arrangements, as well as 'bring' facilities and civic waste sites
- a national home composting target of 20% of in urban households and 55% of rural households has been set.

The requisite major reduction in biodegradable municipal waste passing to landfill in turn implies the development of alternative waste management capacity. The AES Cappancur facility accepts and processes source separated waste from the domestic and commercial sector and in doing so, is diverting biodegradable waste such as paper and cardboard from landfill.

National Spatial Strategy

The National Spatial Strategy (NSS) is a planning framework document that is designed to achieve a better balance of social, economic, physical development and population growth between the various regions of the country. The Strategy introduces the concept of particular locations as 'hubs' and 'gateways' which will deliver the services and infrastructure required and drive development in particular regions.

Under the Strategy, Tullamore has been identified as a Gateway town in which key elements of infrastructure such as "*city-scale water and waste management services*" needs to be developed.

A critical mass of labour skills and infrastructure such as waste management facilities is vital to promote enterprise activity and employment creation. The NSS aims to capitalise on the location of the Midlands by improving access through the east-west and north-south connections between the towns of Athlone, Mullingar and Tullamore.

The intensification of waste acceptance activities at the AES Cappancur facility will secure existing employment at the facility with the potential for increasing job creation in the event of the facility operating on a double shift system. The maintaining of waste activities at the site also ensures the continuation of the support for local goods and services provide by the facility.

¹ Source: Strategy Report of the National Strategy on Biodegradable Waste, Table 3.1

1.2.2 Regional Policy

Midlands Waste Management Plan 2005 – 2010

The Waste Management Plan for the Midland Region applies to the administrative areas of five Authorities, which have a combined population of 317,687 as per the 2006 Census. These five authorities are Offaly County Council, Longford County Council, Laois County Council, North Tipperary County Council and Westmeath County Council

The central objectives of the Plan are;

1. Prevention and minimisation
2. Materials recovery (recycling/recovery)
3. Energy recovery
4. Safe disposal including landfill

It also sets a recycling target of 46%, thermal treatment of 37% and landfill disposal of 17% for the region.

The Plan policy (Part 4) sets out specific objectives and targets for the Region for the period 2005 – 2010 in relation to materials recovery facilities and waste transfer facilities (Section 16.6);

- Local authorities shall support the development of additional transfer facilities where they can be shown to be consistent with the overall objectives of the Plan and have regard to good principles of siting
- Local authorities shall ensure MRF's and Waste Transfer Stations are operated in compliance with Waste Permits and the expansion of existing facilities to include pre-treatment technology is supported

It is also stated in Section 16.6 that *'it is anticipated that these facilities will be expanded should the demand arise'*.

Offaly County Development Plan 2003 -2009

The Offaly County Development Plan 2003 - 2009 outlines as Goal 14 of the Plan the securing of *'the objectives of the Waste Management Plan for the Region, insofar as it relates to the County of Offaly'*. This is reiterated in Section 2.3.8 of the specific policies in relation to Environmental Protection and Sanitary Services.

1.2.3 Compliance of Proposed Development with Policy

The proposed development is in compliance with the stated aims of each of the policy documents listed in the previous section. It can be seen that the development satisfies the key goals outlined in the National Spatial Strategy by strengthening key infrastructure in the 'gateway' of Tullamore.

The proposed development will also contribute to increased recycling and recovery rates set out in national waste policy documents as well as contributing toward binding EU targets such as those set out in the Packaging and Waste Framework Directives.

The Midlands Waste Management Plan 2005 – 2010 and, consequently, the Offaly Development Plan 2003 -2009 indicates that the expansion of material recovery facilities and waste transfer stations is anticipated and that such development is supported by the relevant local authorities.

1.3 Need for the Development

The intensification of waste acceptance activities at the Tullamore facility is a key strategic move for AES (Ireland) Ltd.

As part of a rationalisation of company operations, AES Ltd. has recently ceased operations at its Athlone facility which operated under a local authority permit. Waste materials collected in the Athlone region, which had previously been processed in the Athlone facility, will now be processed at the AES Ltd. Cappancur facility.

The plant and equipment installed at the Cappancur facility has ready capacity to process an increased volume of waste material than that currently accepted. As part of the proposed development, consideration will be given to the operation of the Cappancur facility on a double shift basis in order to process the quantity of material for which application is sought.

The facility at Cappancur also boasts excellent infrastructural links especially with the imminent construction of the N52 Tullamore bypass which will provide ease of access to the Cappancur site which is conveniently located off the bypass. The site is also well served by electrical supply given its location within an existing industrial estate.

The intensification of waste acceptance activities at the Cappancur facility has been identified within the Midlands Waste Management Plan 2005 – 2010 as an expected development and this intensification fits in with the AES Ltd. strategy for the development of centres of excellence within the midlands region i.e. a centre dedicated to the treatment of biodegradable waste at Kyletelesha and a centre for the processing of dry recyclables at Tullamore.

The need for this proposed development is driven by the strategic aims of AES (Ireland) Ltd. However, as a major provider of waste management services in the midland region, it can be said that the aims of AES (Ireland) Ltd. are similar and in conjunction those of the midland region, from a waste management viewpoint and as demonstrated previously.

1.4 EIS Requirements

AES is submitting this environmental impact statement in accordance with the Planning and Development Acts 2000 – 2006. This EIS is prepared with regard to the following guidelines:

- 'Guidelines on the information to be contained in Environmental Impact Statements', (EPA, 2002)
- Advice notes on Current Practice (in the preparation of Environmental Impact Statements) (EPA, 2003)
- 'Geology in Environmental Impact Statements – A Guide', (Institute of Geologists of Ireland, 2002)

This document has been structured according to the grouped format structure, and comprises three volumes:

- Volume 1:** Non Technical Summary
- Volume 2:** Main Report
- Volume 3:** Appendices

1.5 Scoping

The Environmental Impact Assessment process is initiated by a scoping process which determines the key environmental aspects relating to a development. There are nine areas that should be addressed in an Environmental Impact Statement: These are:

- Landscape and visual impact
- Noise
- Hydrology
- Air and climate
- Geology/Hydrogeology
- The development & its impacts in context
- Cultural heritage
- Ecology
- Land use
- Material assets
- Traffic

The scoping process for this EIS was based on:

- consultation with Offaly County Council and the Environmental Protection Agency
- examination of environmental impact statements for developments in similar circumstances, which were deemed to be of an acceptable standard by the relevant authorities
- experience of the consultants in preparing environmental impact statements for infrastructural developments

1.5.1 Impact Description

This EIS provides for an assessment of a range of potential impacts from the proposed development. These include:

- Direct impacts
- Indirect impacts
- Secondary impacts
- Cumulative impacts
- Short-term impacts
- Medium-term impacts
- Long-term impacts
- Permanent impacts
- Temporary impacts
- Positive impacts
- Negative impacts

For the purposes of this EIS the following concepts are applied:

- an *imperceptible impact* is one that is capable of measurement but without noticeable consequences
- a *slight impact* is an impact which cause noticeable changes in the character of the environment in a manner that is consistent with existing and emerging trends
- a *moderate impact* alters the character of the environment in a manner that is consistent with existing and emerging trends

- a *significant impact* is one which by character, magnitude, duration or intensity alters a sensitive aspect of the environment
- a *profound impact* obliterates sensitive characteristics.

Descriptions of potential impacts as well as relevant and appropriate mitigation measures are presented within the individual Sections of this document. A summary of impacts, both positive and negative, is presented in Sections 9.

1.5.2 Pre-Submission Consultations

Consultation with Offaly County Council

A pre-application meeting was held with Offaly County Council on the 21st of April 2008. This afforded AES Ltd. the opportunity to outline the proposed development and allowed Offaly County Council to advise on their requirements regarding the EIS and planning application.

Consultation with the Environmental Protection Agency

A meeting was held with the EPA on the 29th April, 2008. Discussions primarily focused on the content of the EIS and issues that needed to be addressed in the waste licence review application.

Other Consultees

In addition to the above consultees, consultation letters were sent to a number of statutory bodies and non governmental organisations on the 28th April 2008. Copies of these letters are included in Appendix 7. The list of consultees is contained in Table 1.3.

Table 1.3: List of Consultees

Contact	Organisation
Mr. Ian Lumley	An Taisce
Mr. Paddy Matthews	The National Heritage Council
Mr Michael McCarthy	Department of Environment, Heritage and Local Government
Sir/Madam	Tullamore Town Council
Ms. Una Nic Ghoille Choille	Department of Communications Energy and Natural Resources
Mr. Conor McDermott	Office of Public Works
Dr. Stephen Newton	BirdWatch Ireland
Ms. Sarah Fields	Irish Wildlife Trust
Dr. Linda Patten	Department of Environment, Heritage and Local Government
Mr. Donal Redington	Department of Arts, Sport and Tourism
Sir/Madam	Health and Safety Authority
Sir/Madam	Health Service Executive
Dr. Ronnie Creighton	Geological Survey of Ireland
Ms. Patricia Kelly	Department of Agriculture and Food

Ms. Ciara Maxwell	Environmental Protection Agency
Area Manager	Electricity Supply Board
Mr. David McInerney	Southern Regional Fisheries Board
Sir/Madam	Bus Eireann
Sir/Madam	Department of Enterprise Trade and Employment

1.5.3 Submissions from Statutory Bodies and Non-Governmental Organisations

A number of submissions were received in relation to the proposed development in response to the consultation letters sent. Copies of these submissions are included in Appendix 2. In summary, the main points of the submissions received are as follows:

1. Department of Enterprise, Trade and Employment

The Department of Enterprise, Trade and Employment responded on the 1st May 2008, to indicate that the matter would be brought to the attention of the Minister.

2. Geological Survey of Ireland (GSI)

A response was received from the GSI on the 6th May 2008. They requested that a copy of all geodata be forwarded to them following completion of the EIA.

3. Department of Arts, Sport & Tourism

The Department of Arts, Sport & Tourism responded on the 12th May 2008, to indicate that the correspondence was forwarded to Failte Ireland.

4. Offaly County Council – Planning Department

The Planning section of Offaly County Council responded on the 16th May 2007, indicating that all requirements as set out in Schedule 6 of the Planning and Development Regulations 2001-2007 must be complied with. From a planning perspective, specific detail on planning policies pertaining to the development and nature and extent of the development is important. From a sanitary services perspective, details of foul sewerage disposal, surface water run-off and water source location should also be detailed within the EIS.

The points highlighted in this letter have been addressed in Sections 2 & 5 of this EIS.

5. Health and Safety Executive (HSE)

The Health and Safety Executive responded on the 19th May 2008, to indicate that they the proposed development should comply with all relevant legislation.

6. The Office of Public Works (OPW)

The OPW replied on the 22nd May 2008 to indicate that they had no observations or concerns regarding the proposed development.

7. Department of Agriculture, Fisheries & Food

A submission from the Department of Agriculture, Fisheries & Food on the 27th May 2008 highlighted areas which should be addressed in the EIS. This included water quality, traffic, vermin attraction, dust, litter, odour and noise. These have been addressed in Sections 2, 3 & 5 of the EIS.

1.6 **Alternatives**

Within this section of the EIS, the main reasons for choosing the Cappancur site for the proposed expansion are set out. It considers alternative sites, layouts and technologies and outlines why the Cappancur site was selected for intensification of waste acceptance activities.

1.6.1 Alternative Sites

AES (Ireland) Ltd. owns and operates a number of waste management facilities including:

- Navan (Waste Licence Register No. 131-02)
- Kyletalesha (Waste Licence Register No. 194-02)
- Local authority permitted facility in Nenagh

Consideration was given to the relocation of the existing Tullamore activities to these facilities.

The local authority permitted facility in Nenagh was ruled out due to the small scale of these facilities and their unsuitability for acceptance of larger volumes of waste material.

The facility at Kyletalesha in Portlaoise is currently still within the planning process. It is also intended that this facility be kept as the AES Ltd. regional centre for the processing of biodegradable materials through a composting and/or anaerobic digestion process while the Tullamore facility is considered the centre for the processing of dry recyclable material.

The fact that the planning status of this facility is not yet defined, as well as the commercial desire to keep this location as a separate centre for the processing of biodegradable material meant that this site was not considered further.

The facility at Navan represented another credible option for relocation of activities. However, the financial implications of a relocation of this nature and the location of Navan outside of the Midland region made this option unattractive.

It is considered that the intensification of waste acceptance activities at the existing Tullamore represents the best option for AES Ltd. due to the existing customer base, the existing routes and the capacity in the existing plant used at the facility.

1.6.2 Alternative Layouts

The relocation of the entrance gate to the facility is required as part of the CPO process and, as such, was imposed upon AES Ltd. Consideration was given however to the re-location of the:

- administration building
- wastewater treatment plant and associated works
- car parking spaces

The impacts of various locations for each of these were examined in relation to the facilitation of process flow within the site as well as any implications on traffic management within the site boundary.

Administration Office

The location of the new administration office adjacent to the weighbridge represents the most practical option. The office will be located close to the existing waste transfer building in front of a disused roller door. This area was previously unused and the relocation of the administration building to this area represents the best use of available space at the facility. The relocation of the administration office is temporarily covered under site works as part of the CPO process.

Wastewater Treatment Plant

At present, a Septech 2000 package wastewater treatment is installed in the northern eastern corner of the facility to treat foul waters from the facility canteen and welfare facilities. This plant was installed as part of the application for the existing facility waste licence, a process that was initiated by the previous site operators.

The CPO of the facility lands requires the relocation of this plant as the revised northern site boundary will impinge on its existing location. A new wastewater treatment plant will be installed within the revised site boundary approximately 10 metres from its current location. This plant will have an increased treatment capacity on the existing plant to cater for increased persons employed at the site and hence an increased load. This location represents the best option from an operational point of view as the existing pipe work is already in place.

Car Parking

The areas identified in Figure 2.2 (Drawing CE08-628-01-100-007) of this EIS that are identified for car parking represent the best use of space available at the facility after the revision of the existing site boundary.

1.6.3 Alternative Design/Technology

When considering the issues resulting from an increase in waste acceptance at the Cappancur facility, alternative site design and technologies were examined.

Weighbridge location

The relocation of the weighbridge was examined when the location of the new entrance was finalised to assess if the existing location was suitable for vehicle access. An alternative location parallel with the northern perimeter of the facility was examined and compared with the existing location.

When both options were examined, it was decided that the existing location of the weighbridge could still be adequately accessed, while preventing queuing of trucks on the Daingean Road.

Alternative technologies

Alternatives to the plant within the waste reception building i.e. picking line, baler, waste conveyor was not examined as this plant is not currently operating at full capacity and will be able to process the increased waste tonnages envisaged.

However, varying dust abatement systems, which are currently not installed at the facility, were considered in the context of Best Available Techniques (BAT). This included a dust suppression mister, active extraction and dust curtains.

1.6.4 Do Nothing Alternative

The primary objective of the proposed development is to increase the recovery and recycling rates for a number of waste streams, thus minimising the volumes of waste disposed to landfill. The Midland Waste Management Region currently depends largely on landfill for waste disposal. Therefore, there is considerable pressure in the Region to establish alternative treatment capacity for residual MSW in order for the region to achieve its targets set out in the regional waste management plan.

In the event that the intensification of the facility does not occur, there will be a deficit in waste management infrastructure servicing the household and commercial sectors of Tullamore and the greater area. This is likely to result in delays in the implementation of national, regional and local waste policy objectives in relation to increasing the recovery of waste materials and minimising the volumes of treated waste disposed to residual landfill.

1.7 Technical Difficulties

There were no technical difficulties encountered during the environmental impact assessment conducted at the AES Ltd. Cappancur waste management facility.

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2. DESCRIPTION OF THE DEVELOPMENT

This section of the EIS describes the proposed development in detail. It will provide information on the design of the facility, acceptance procedures for waste and details of processing carried out on-site.

2.1 Existing Site Infrastructure

The existing AES Ltd. facility is located in the townland of Cappancur and occupies an area of 1.11 hectares and is approximately 2 km east of Tullamore town on the local Daingean Road. The compulsory purchase of site lands will be for an area of land of approximately 0.12 hectares on the northern boundary of the site.

The site is located on the western edge of the existing Cappancur Industrial Estate which comprises of a number of industrial buildings with various industrial activities occurring within these buildings.

The facility was licenced in 2003 (Licence Reg. No 104 -1) by the Environmental Protection Agency (EPA) to accept 24,000 tonnes per annum of household, commercial, industrial, construction and demolition (C&D) wastes as well as small quantities on household hazardous waste. This waste is processed at the facility using a combination of hand sorting, eddy current and magnetic separation and baling. Recyclable materials are further transported to approved reprocessors and non-recyclable material is transported to landfill for disposal.

2.1.1 Existing Site Operations and Infrastructure

The main activities currently undertaken on-site is the delivery of waste by refuse collection vehicles and skips, its reception, sorting, storage and bulking prior to removal off-site. Details of the existing infrastructure are outlined below (refer to Figure 2.1 (Drawing CE08-628-01-100-006)):

Site Access

The site is accessed from the local Daingean Road. Access to the site is through a steel roller gate at the north western corner of the site.

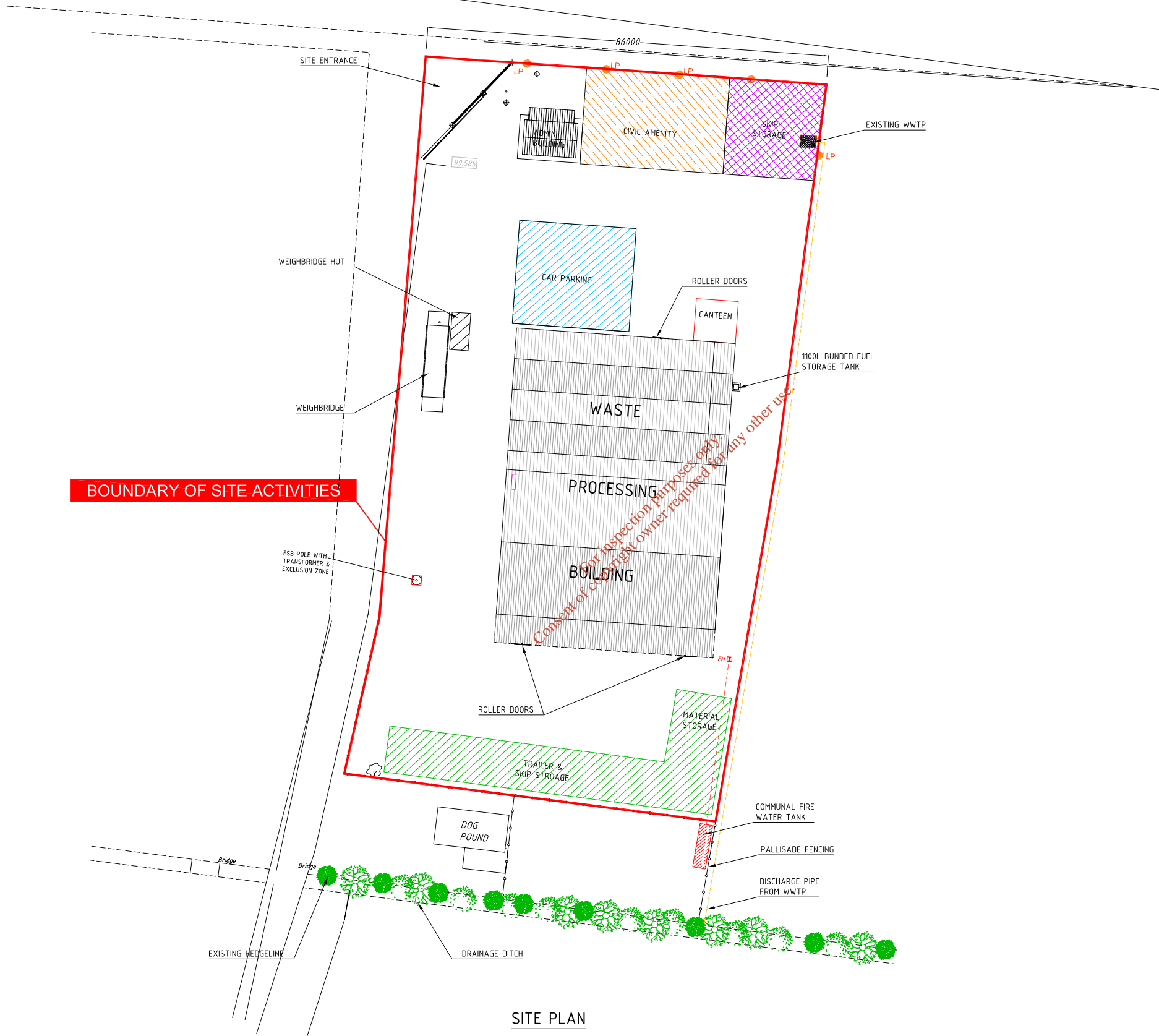
Site Security

The entrance of the site is bound by a combination of a 3 m high concrete wall and palisade fencing which extends along the northern boundary of the site. The eastern and western boundaries of the site are bound by palisade fencing. Access to the site outside of operational hours is restricted by the steel roller gate.

A CCTV system has been installed at the site and this is used to monitor the perimeter and main yard area. Monitoring, logging and supervision of all visitors is carried out. Visitors to the site are required to log in at the site office, which is adjacent to the site entrance.

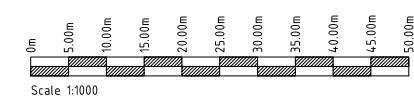
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SITE PLAN
Scale 1:1000

MATERIAL SCALE
0 10 20 30 40 50 60 70 80 90 100m



Rev.	Drawn	Checked	App'd	Rev Orig'n Date	Description
A	JM	ME	DS	Cork 05.09.08	ISSUE FOR WASTE LICENCE

Revision History A

Name of Client
ADVANCED ENVIRONMENTAL SOLUTIONS

Name of Job
AES TULLAMORE

Title of Drawing
EXISTING SITE LAYOUT

Scales Used
1:1000

Dwg. No.
CE08-628-01-100-006

Rev.
A

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Site Accommodation

A portacabin located adjacent to the site entrance is used as the administration building. A second building adjacent to the main processing building houses canteen and welfare facilities (refer to Figure 2.1(Drawing CE08-628-01-100-006)).

Site Roads, Parking and Hardstanding

There are no internal site roads. The entire site is finished as a concrete hardstanding.

Plant

The following items of mobile and stationary plant are used at the facility:

- 1 No. skid steer loader
- 2 No. excavators with grab attachments
- 1 No. fork lift
- 1 No. Bollograf Baler
- 1 No. MRF comprising conveyor, metallic separator, eddy current separator and baler (manufactured by SFL Engineering)

Weighbridge

The weighbridge and weighbridge hut are located some 40 m from the site entrance adjacent to the main process building. The weighbridge has a surface mounted platform consisting of a steel frame with reinforced concrete infill. The weighbridge is linked to a digital weight indicator. The software records information required by the waste licence, such as the gross weight, tare weight, vehicle registration, name of haulier, waste type, waste permit number and waste source. This information is relayed to the central computer system in the main administration office.

Process Building

The waste processing building is approximately 11 m in height, 50 m in length and 45 m in width. The exterior of the building is finished in brown cladding. There are five roller doors to allow trucks to reverse into the building and tip their loads. Of these, three are actively used and two are redundant.

Fuel Storage

One 1,100 litre diesel tank has been installed on the eastern flank of the process building which is used for re-fuelling of on-site machinery. Run-off from this area is directed to the interceptor prior to discharge to the nearby drainage ditch.

Waste Quarantine & Waste Inspection Areas

A dedicated area has been established within the main processing building for waste inspection and quarantine.

Traffic Control

All traffic entering the waste processing building must pass over the weighbridge. Similarly, trucks are weighed when exiting the site. The entrance to the facility is

approximately 10m wide to allow adequate space for vehicles to pass each other. Staff and visitor car parking has been provided adjacent to the administration office.

Surface Water and Foul Water Infrastructure

Foul water generated from welfare facilities on the site is treated on-site by a Septech 2000 wastewater treatment system.

Surface water run-off from the hardstanding areas and buildings is collected within the drainage channels that are located across the site (refer to Section 5.) Surface water is discharged via an interceptor to the drainage ditch at the southern boundary of the site.

Site Services

The site is serviced by electricity from a 38 kV line with a pole mounted transformer located in the south western corner of the site. This transformer is protected from damage by truck movements by a solid bollard type barrier. The site is connected to the telephone network. Water used at the facility is sourced from the Ballinagar Group Water Scheme. Electricity usage at AES Tullamore in 2007 was approximately 238,380 Units (KWh).

Fire Control

In general, fires are prevented by operating best practice including:

- Inspection of loads at the weighbridge
- Control of loads to ensure no burning or smouldering loads enter the facility
- Designation of smoking/non smoking areas

There are fire hydrants located at the entrances of each of the buildings which are connected to the communal fire water tank that services the whole industrial estate. In addition, portable fire extinguishers are located at various positions throughout the facility.

Civic Amenity

An area adjacent to the administration building is set aside as a civic amenity area. Members of the public can enter the facility and are directed to this area where a number of receptacles are provided for collecting household recyclable material.

It is not proposed to continue with the provision of this civic amenity facility due to restrictions within the smaller site boundary as a result of the CPO for the northern portion of the site.

Facility operation

In accordance with the Third and Fourth Schedules of the Waste Management Acts, 1996 to 2003, the site is licenced to carry out the classes of activity outlined in Table 2.1:

Table 2.1: Waste Disposal Activities, in accordance with the Third Schedule of the Waste Management Acts 1996 to 2003

Class 11	<p>Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule. This activity is limited to the mixing of waste prior to bailing/bulking</p>
Class 12	<p>Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule. This activity is limited to the bailing/bulking of waste prior to the transfer for disposal off site</p>
Class 13	<p>Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced. This activity is limited to the storage of waste prior to the bailing/bulking and transfer for disposal off-site</p>

Table 2.2: Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Acts 1996 to 2003

Class 2	<p>Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological processes): This activity is limited to segregation and bailing of plastics, cardboard and paper as well as collection of newsprint, textiles, timber, waste oils, wood, paints prior to recovery off-site</p>
Class 3	<p>Recycling or reclamation of metals and metal compounds: This activity is limited to the segregation of aluminium cans, tin cans, scrap metal, batteries and white goods prior to recovery off-site</p>
Class 4	<p>Recycling or reclamation of other inorganic materials: This activity is limited to the segregation of construction and demolition waste, DIY waste, electronics, glass and tyres prior to recovery off-site</p>
Class 12	<p>Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule: This class of activity allows for waste containing recyclables to be processed at the facility</p>
Class 13	<p>Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced: This activity allows for the storage of waste accepted at the facility prior to recovery off-site</p>

The site is licensed to accept 24,000 tonnes of waste per annum as detailed in Table 2.3. Class 2 of the Fourth Schedule is the principal activity at the site.

Table 2.3: Waste Categories and Quantities

Waste Type	Maximum (tonnes per annum)
Municipal Solid Waste	6,500
Commercial & Industrial waste	14,100
C&D waste	3,300
Household Hazardous waste	100
Total	24,000

In 2007, the site accepted some 42,895 tonnes of waste, details of which are provided in Table 2.4. Of this total, 26,700 tonnes of waste was recycled/recovered.

Table 2.4: Waste Tonnages Accepted & Processed at the site in 2007 (2007 AER for Waste Licence No. 104-01)

EWC	Description	Tonnes	Name and Licence
15 01 01	Cardboard	5387	Failand Paper Services Ltd.
15 01 01	Cardboard	3333	Marwin Environmental Trading Ltd.,
15 01 02	Plastic	1468	Irish Polymers Ltd., WMES 01/01
15 01 02	Plastic	73	Thorndale Environmental Recycling Ltd.
15 01 04	Metallic Packaging	266	MSM Recycling Ltd., WMP005D
15 01 06	Mixed Packaging	5080	Failand Paper Services Ltd.
15 01 07	Glass Packaging	1747	Mulleady's Ltd., W0169-01
15 01 07	Glass Packaging	51	AES Portlaoise, W0194-1
15 01 07	Glass Packaging	31	Glassco Recycling Ltd., WP 160/2004
20 01 01	Newsprint	2072	Smurfitt Kappa Recycling, WPR021/3
20 01 01	Newsprint	5577	Failand Paper Services Ltd.
20 01 01	Newsprint	330	Marwin Environmental Trading Ltd.,
17 02 01	Wood	762	Conroy Recycling Co. Ltd., WP152-206
17 02 01	Wood	230	AES Portlaoise, W0194-1
17 08 02	Plaster Board	43	AES Athlone, WP52/2004
17 09 04	C&D	2669	Derryclure, W0029-2
20 03 01	Municipal	10265	Derryclure, W0029-2
20 03 01	Municipal	22	Greenstar, W0146-1
20 03 01	Municipal	3344	KTK Landfill, W0081-3
20 03 01	Municipal	88	AES Portlaoise, W0194-1
20 03 01	Municipal	63	AES Navan, W0131-2
TOTAL		42895	

Hours of Operation

The current facility is licenced for the following:

- Waste acceptance – 08:00 to 19:00 Monday to Saturday inclusive
- Operation of the facility – 07:00 to 20:00 Monday to Saturday inclusive

Waste Acceptance & Handling

All waste accepted at the facility is subject to waste acceptance measures, which have been approved by the EPA and which are outlined in the facility's environmental management system (EMS). The current waste acceptance procedure involves the use of an integrated waste software system.

Only waste from permitted haulers is accepted at the site. When waste arrives on-site, it is weighed at the weighbridge and the vehicle registration number entered into the software system. A weight docket is printed for each waste load.

After weighing, each waste load is visually inspected on the floor of the waste processing building by the waste segregation manager and a written record maintained.

Waste deemed unacceptable for acceptance at the facility is moved to the waste quarantine area and is loaded into designated compactor bins, prior to its removal off site and transfer to an appropriate facility for disposal or recovery.

Municipal household waste accepted at the site is directed through the facility prior to delivery to a licenced landfill facility for disposal.

Hazardous household waste accepted at the facility is segregated prior to being collected and recovered by a licenced contractor under a Consignment Note.

Pre-sorted dry recyclable material including newspapers, aluminium cans, plastics, magazines, steel cans, cardboard packaging and Tetra-paks are deposited on the floor of the waste processing building and loaded onto a conveyor that feeds a manual picking line. Here the dry recyclables are separated into the individual components and then individually baled. Once baled, these materials are transported off site to appropriate recycling facilities.

Pest Control

Vermin and insects can potentially be a nuisance at waste management facilities. However, at the AES Cappancur facility, all operations are carried out within a dedicated building. As a precautionary measure, AES Ltd. retain a vermin control specialist to implement vermin control measures on site. The facility is regularly inspected and the required measures are taken if evidence of vermin is found on site.

Regular litter patrols of the site perimeter are also undertaken at the site and a road sweeper vehicle visits to the site daily to clean down all hardstanding surfaces.

2.2 Proposed Development

The proposed development at the Tullamore facility will see an increase in the annual throughput tonnage from 24,000 tpa (as per existing waste licence W104-1) to 50,000 tpa. Table 2.5 details the breakdown of the proposed increase.

Table 2.5: Proposed Types and Quantities of Waste

Waste Type		Max Tonnes Per Annum	Proposed EWC Code
Municipal Solid Waste		14,000	15 01 06 – mixed packaging
			20 03 01 – mixed municipal wastes
			20 03 02 – waste from markets
			20 03 03 – street cleaning residues
			20 01 02 - glass
			19 12 12 - other waste (including mixtures of materials) from mechanical treatment of waste other than those mentioned in 19 12 11
Commercial & Industrial Waste		26,000	15 01 01 – paper and cardboard packaging
			15 01 02 – plastic packaging
			15 01 03 – wooden packaging
			15 01 04 – metallic packaging
			15 01 05 – composite packaging
			15 01 07 – glass packaging
			20 01 01 – paper and cardboard
			20 01 02 - glass
C & D waste		9800	20 01 38 – wood other than that mentioned in 20 01 37
			17 01 07 – mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
			17 02 01 – wood
			17 02 02 – glass
			17 02 03 - plastic
			17 04 07 – mixed metals
			17 05 04 – solid and stones other than those mentioned in 17 05 03
			17 06 04 – insulation materials other than those mentioned in 17 06 01 and 17 06 03
			17 09 04 – mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
Household Hazardous waste		200	13 02 04 – mineral-based chlorinated engine, gear and lubricating oils
			13 02 05 – mineral-based non-chlorinated engine, gear and lubricating oils
			13 02 06 – synthetic engine, gear and lubricating oils
			13 02 07 – readily biodegradable engine, gear and lubricating oils
			13 02 08 – other engine, gear and lubricating oils
			16 01 07 – oil filters
			16 02 11 – discarded equipment containing chlorofluorocarbons, HCFC, HFC
			20 01 23 – discarded equipment containing chlorofluorocarbons
			20 01 27 - paint, inks, adhesives and resins containing dangerous substances
			20 01 28 - paint, inks, adhesives and resins other than those mentioned in 20 01 27
			20 01 33 – batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries
			20 01 36 – discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
TOTAL		50,000	

The bulk of the 50,000 tonnes of household, commercial and industrial waste will consist of mixed packaging and dry recyclables from AES commercial and domestic customers.

It is proposed to accept 200 tonnes of household hazardous wastes e.g. waste electrical and electronic equipment (WEEE), paints, batteries etc. to allow for quantities of this material which may be inadvertently accepted in with municipal household waste.

2.2.1 Proposed Site Infrastructure

Relocation of Site Boundary

As a result of the acquisition of an area of the northern portion of the facility under the CPO process for the N52 Tullamore Bypass, the existing red line boundary will be altered to reflect this change. To accommodate the bypass works, a new northern perimeter fence will be constructed along the revised red line boundary.

Revised Site Entrance

Access to the site will be via the proposed site entrance at the eastern corner of the northern boundary fence. The site entrance will be approximately 12 m wide to allow safe movement of vehicles.. The revised entrance will be of similar design to the existing gate i.e. an automatic steel roller gate of approximately 3 m in height than will span the entire opening. The existing site entrance will be closed in. Figure 2.2 illustrates the location of the security fencing and the upgraded site entrance. It must be noted that the design and location of the new site entrance has been determined by Offaly County Council/NRA as part of the CPO process.

Site Accommodation

The administration building will be re-located adjacent to the waste processing building and beside the existing weighbridge. There will be views from the office to the site entrance. The relocation of this building is to facilitate the entry and movement of vehicles at the facility. The administration building will be a single story portacabin.

Car Parking

Car parking will be revised onsite for visitors and for staff such that a similar number of car parking spaces as is presently provided for will be available.

Traffic Management

HGV traffic will continue to pass over the weighbridge when entering and existing the site. Domestic customers will be directed to the administration office via clearly identifiable signs and pedestrian walkways.

Sewerage and Surface Water Drainage

The existing on-site wastewater treatment plant is located in the north eastern corner of the facility directly at the location of the proposed new site entrance. This unit will be relocated to an area inside the revised red line boundary approximately 10 m from its original location. This unit will also be upgraded to cater for any future increase in employees at the site.

The effluent discharge from the wastewater treatment plant will be pumped to an effluent holding tank that will be located as shown on Figure 2.2 (Drawing CE08-628-01-100-007).

It is also proposed that an effluent sump tank be constructed in the waste processing building to cater for any washdown activities in the waste processing building. The contents of this sump tank will be pumped to the effluent holding tank.

The effluent holding tank will be emptied on a regular basis and tankered to a suitable wastewater treatment facility for treatment. It will be fitted with a high level alarm to prevent overflow.

It is not proposed to alter the surface water management system in existence at the facility.

Hours of Operation and Waste Acceptance Hours

It is proposed to extend the operating hours of the facility to:

- Hours of operation of the facility – 06:00 to 00:00 Monday to Saturday inclusive
- Hours of waste acceptance at the facility – 07:00 to 23:00 Monday to Saturday inclusive

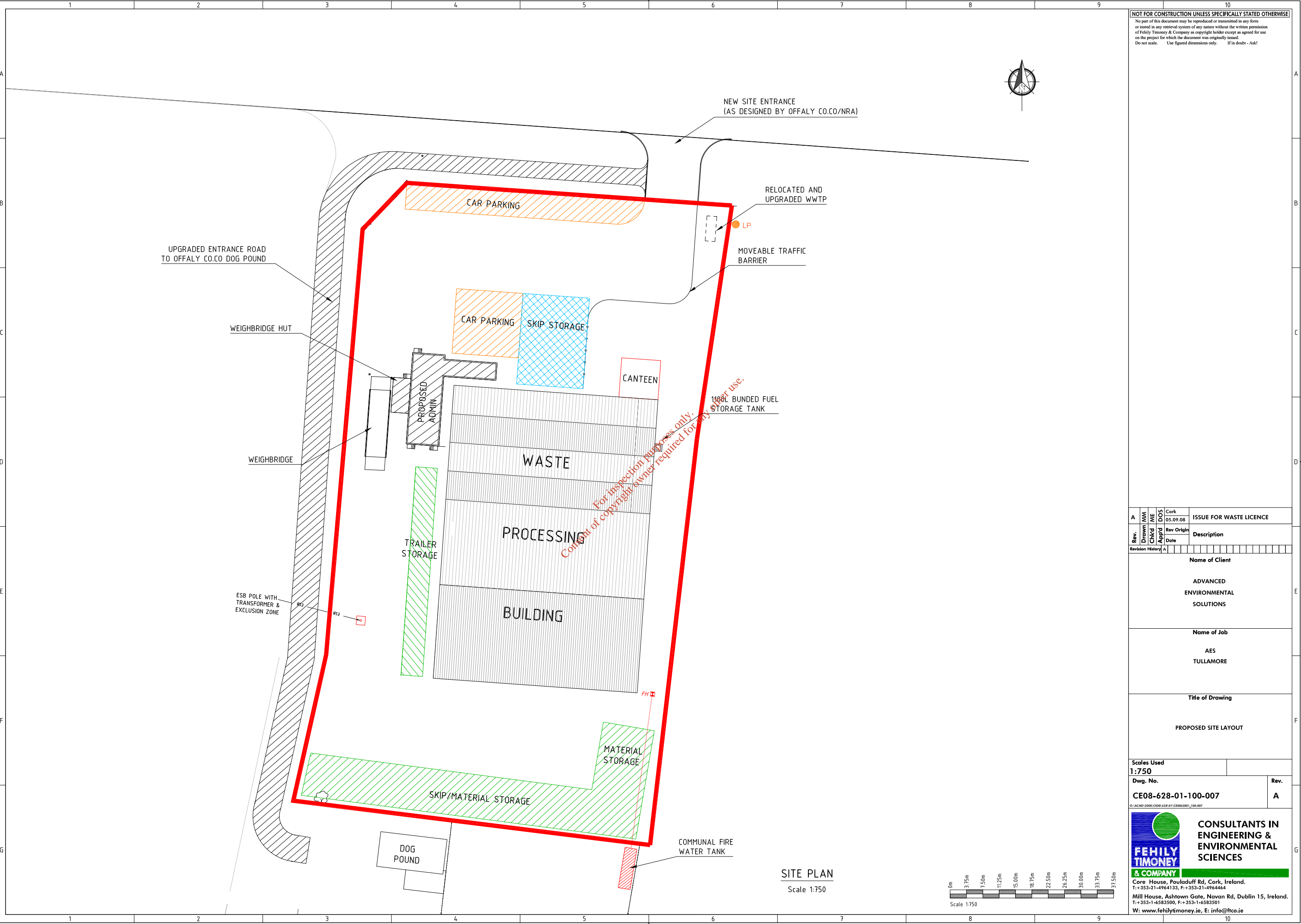
These hours are proposed in order to allow for operation of two shifts if required i.e. 07:00 – 15:00 and 15:00 – 23:00.

2.2.2 Construction Programme

It is expected that construction of the new infrastructure will take approximately two months.

In the unlikely event that surplus material is generated on-site it will be disposed of off-site in accordance with the requirements of the Waste Management Acts, 1996-2007.

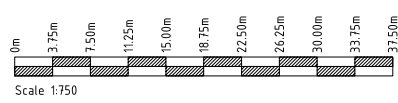
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MATERIAL SCALE
0 10 20 30 40 50 60 70 80 90 100m

SITE PLAN
Scale 1:750



Rev.	Drawn	Checked	App'd	Rev Orig	Date	Description
A	MM	ME	DOS	Cork	05.09.08	ISSUE FOR WASTE LICENCE

Revision History A	
Name of Client	
ADVANCED ENVIRONMENTAL SOLUTIONS	
Name of Job	
AES TULLAMORE	
Title of Drawing	
PROPOSED SITE LAYOUT	

Scale Used	1:750
Dwg. No.	CE08-628-01-100-007
Rev.	A

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2.3 Health and Safety

The existing facility is operated in accordance with the:

- Safety, Health & Welfare at Work (Construction) Regulations 2006
- Safety, Health & Welfare at Work Act 2005
- Safety, Health & Welfare at Work (General Application) Regulations 2007
- Best practice guidelines

A site specific Health and Safety Plan for the construction phase of this project will be prepared in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2006. This will address all safety aspects of the construction project including, but not limited to:

- site access and general induction training
- general site safety
- chains, ropes and lifting gear
- special provisions for hoists
- protective clothing and footwear required
- lockout/tag-out procedures for safe electrical work
- miscellaneous

Operational Health and Safety

Access to the site is restricted to employees, waste trucks and occasional visitors. Members of the public can access the site for payment of their domestic bin charges. Procedures are in place at the existing facility to ensure the health and safety of all persons entering the site, including the signing in/out of all visitors. This procedure will be extended to the intensified site.

All staff working at the site are familiar with the contents of the site specific Health and Safety Plan. Health and safety practices are reviewed on an annual basis to ensure that they are in line with best practice in this sector. Regular safety audits are carried out on-site to ensure the safety of all personnel working there.

Vehicular traffic movements within the site are restricted and monitored and all traffic movements are subject to strict procedures, in full accordance with health and safety requirements. This will also apply to the new site layout and will be revised as necessary.

Other operational health and safety aspects, such as noise and air quality are discussed in other Sections of this EIS. Measures have been taken in the design of the new infrastructure to minimise the potential impact of these aspects on health and safety.

The current licence for the facility requires the following procedures/systems at the facility:

- full training for all employees
- environmental management system (EMS) including setting objectives and targets for environmental control at the site and updating documented procedures for operations and environmental controls at the site
- Emergency response procedures - setting out all procedures that, in the event of an emergency, will be undertaken by personnel at the facility. The

document contains a list of contact names and numbers for emergency personnel

- Corrective action procedures – outlining the process which will be taken in the event of an accident of environmental incident at the site.

These documents will be updated to include the new site layout at the site.

As part of the proposed development, it is proposed to install an air extraction system above the manual picking lines to minimise exposure to dust generation for workers at these lines. This will entail the partial enclosure of the picking lines. Air extracted from above the lines will pass through a bag filter (or similar) prior to venting to the atmosphere.

2.4 Environmental Monitoring

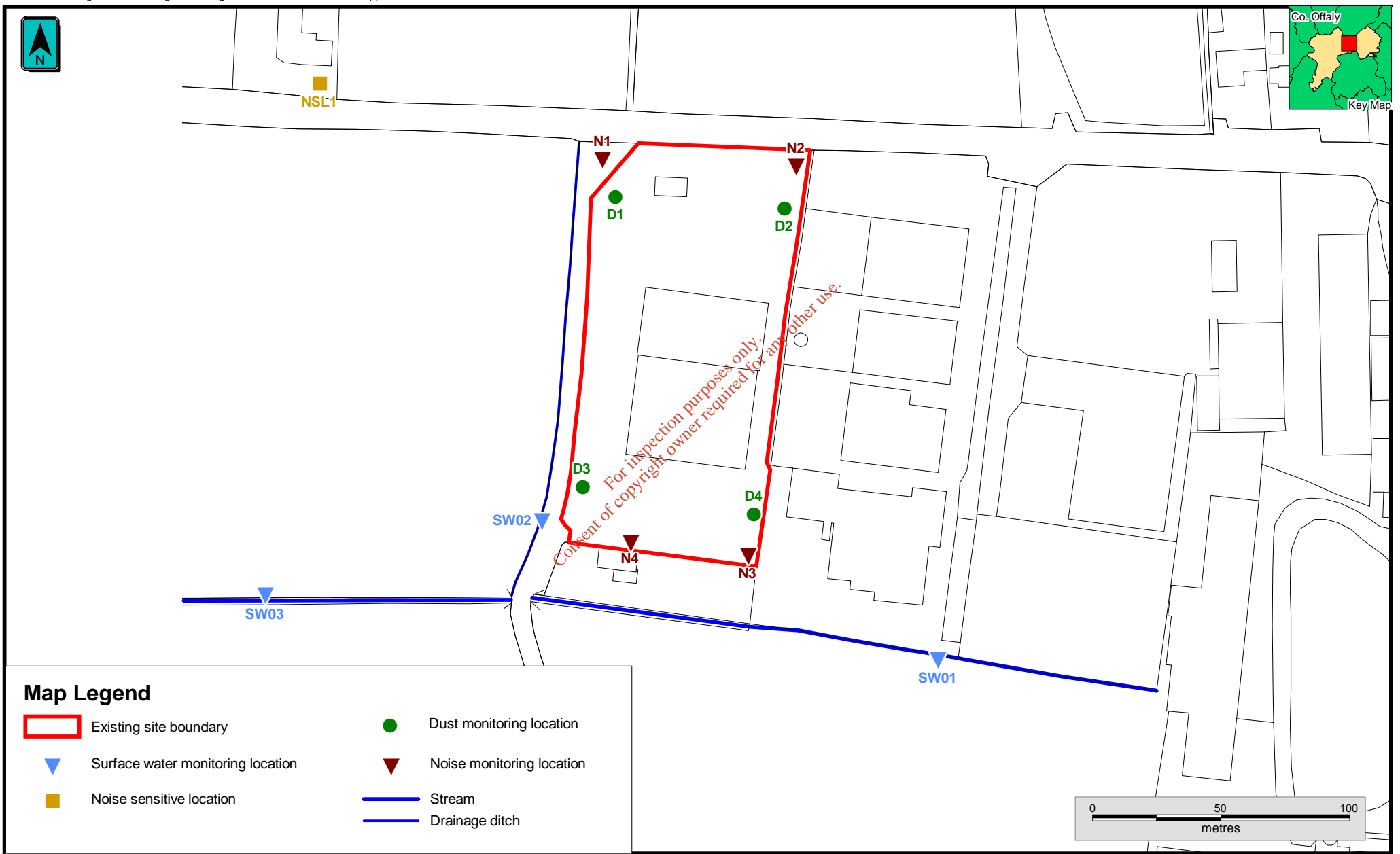
AES Ltd. personnel and/or external consultancies carry out the sampling and monitoring programme in accordance with the existing waste licence W104-01. The Site Manager is responsible for the implementation of the monitoring programme. Samples are collected and transported under chain-of-custody to a laboratory. Locations of existing monitoring points are indicated on Figure 2.3.

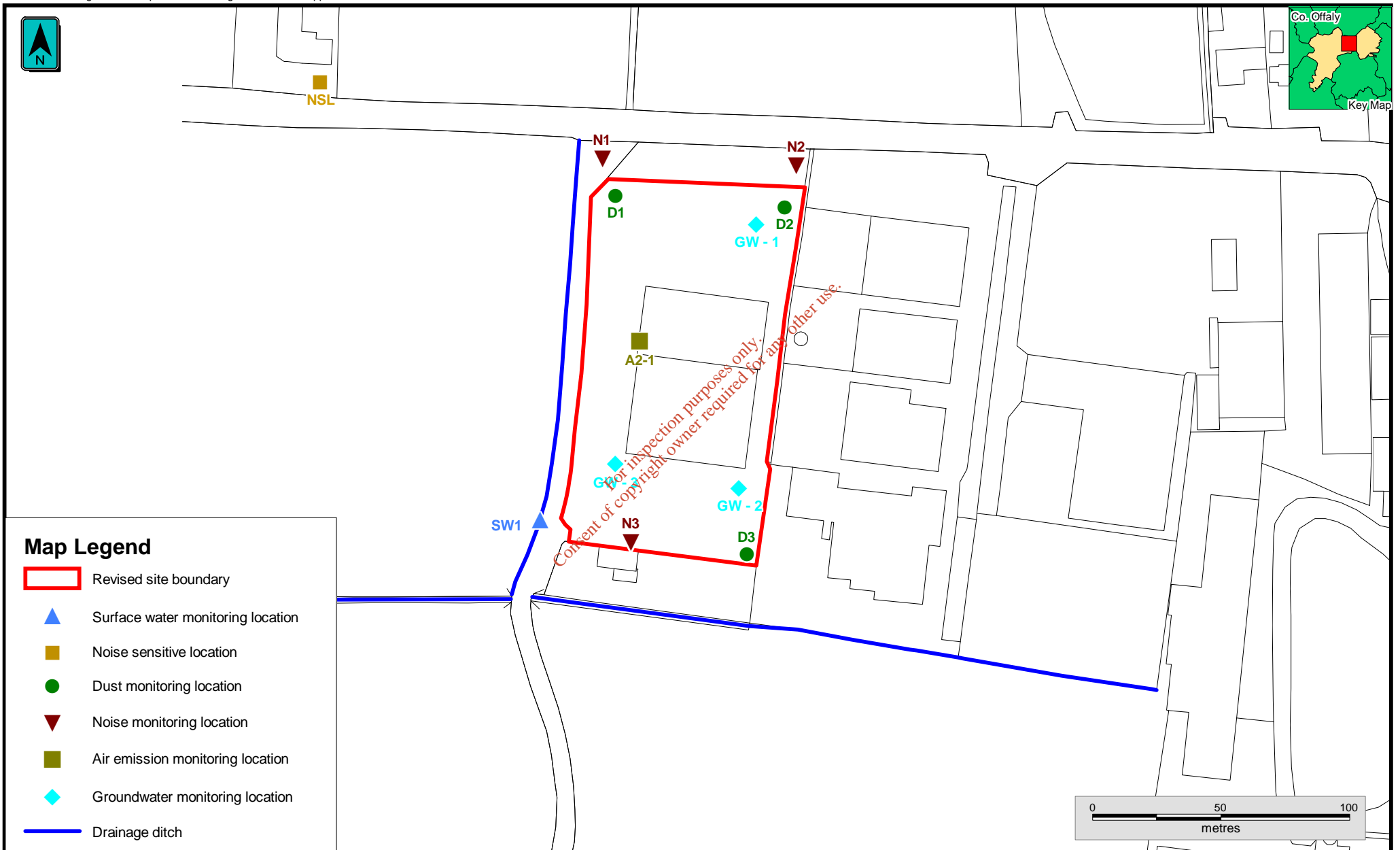
As part of the waste licence review application, it is proposed to no longer monitor two of the three existing surface water monitoring locations as they are unrelated to surface water discharges at the facility, namely SW1 and SW3 and are not representative of background conditions. A proposal in relation to the implementation of an alternative emission limit value for ammoniacal nitrogen will also be made. These issues are dealt with in more detail in Section 5 on hydrology and water quality.

It is proposed to establish a single air emission point from the waste acceptance building. Emissions at this point will be related to the proposed installation of a dust extraction system above the picking line as discussed in Section 2.3 above. This is dealt with further in Section 3.4.

A reduction in the number of noise and dust monitoring points is also proposed with the reasons identified in Sections 3.2.4 and 3.4.6 respectively.

Likewise, three groundwater monitoring wells have been recently installed at the Cappancur facility. It is proposed that these well be used for the future monitoring of groundwater. Section 4 describes the geological and hydrogeological aspects at the facility in more detail.





3. HUMAN ENVIRONMENT

This section describes the existing human environment in the area of the proposed development. It examines the potential effects of the proposed development on that environment and outlines the measures proposed to mitigate any potential impacts. The main areas examined with respect to the potential effects of the proposed development on human environment are:

- Socio-economic factors
- Noise
- Traffic
- Health and Safety
- Air quality
- Visual impacts

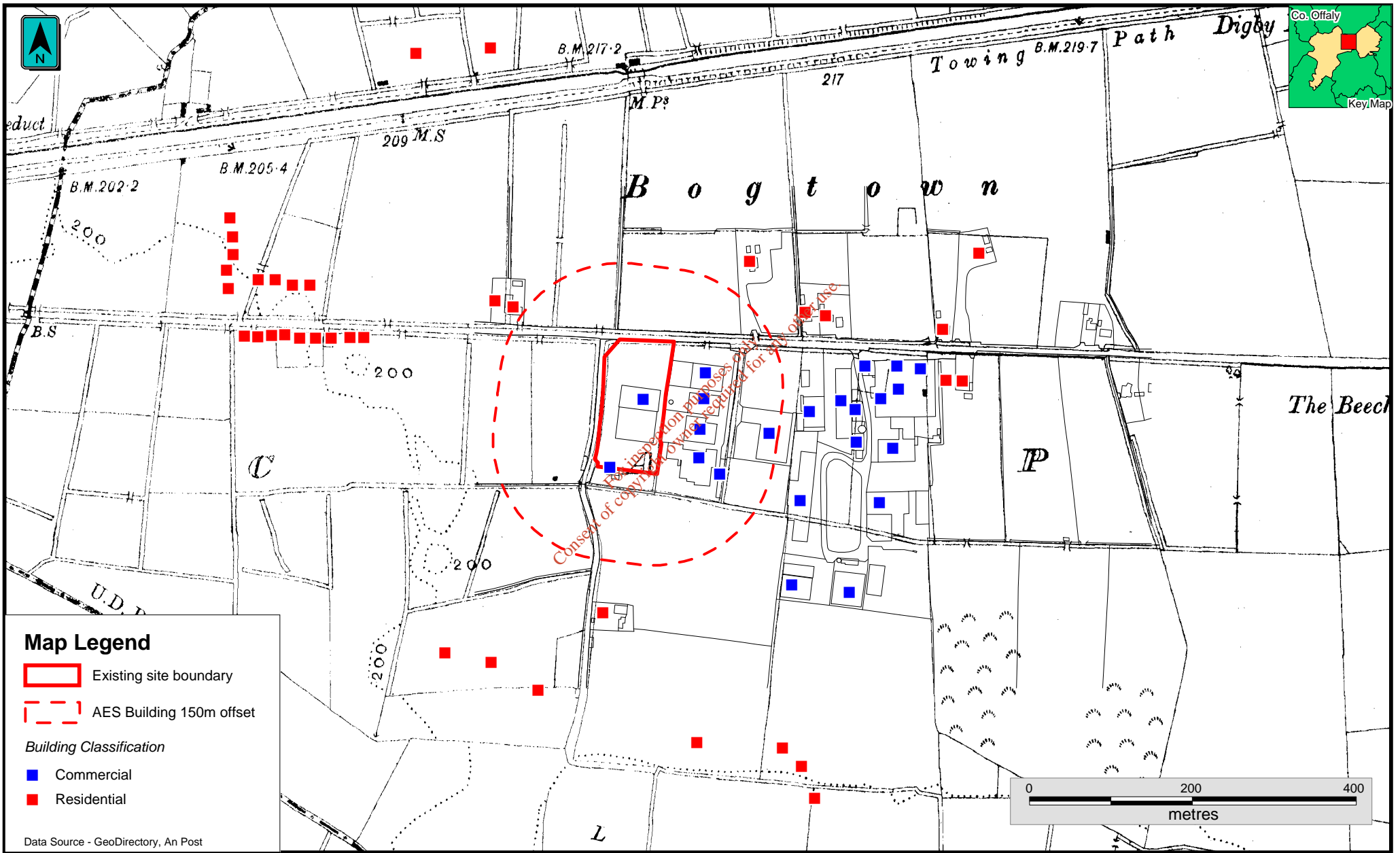
Socio-economic factors, noise, traffic and air are discussed in this chapter. Health and safety issues have been addressed in Section 2 and visual impacts are discussed in Section 8.

3.1 Socio Economic Factors

3.1.1 Existing Socio Economic Environment

Settlements

The site is located in Cappancur Industrial Estate. Agricultural land borders the facility to the north and to the south. There are seven buildings of industrial use within 150 m radius of the facility. The nearest residential dwelling is approximately 200 m north of the facility as indicated in Figure 3.1.



Local Employment and Economic Activity

Due to the central location of Tullamore (both within the county and within Ireland) and its close proximity to road and rail infrastructure, there has been an increase in employment in the town, especially in the services and industrial sectors. There are a number of industrial estates in the Tullamore area such as Cappancur Industrial Estate, Cloncollig Industrial Estate and Srah Business Park. There is also 36 hectares at Clonminch zoned for an industrial and business park.

Tullamore is an administrative centre for the county and it has been identified in the Offaly County Development plan as a '*development district*' hence trends of increasing employment in Tullamore are likely to continue.

Businesses located within the Cappancur Industrial Estate include Hasopor Ireland Ltd, KMK Metals Recycling Ltd, and Palace Kitchens etc.

The AES Ltd. facility currently employs approximately 40 staff thereby significantly contributing to employment in the locality and the overall economy of Tullamore. The maintaining of waste activities at the site will also ensure the continuation of support for local goods and services provide by the facility.

The AES Ltd. facility accepts household and commercial recyclable waste material from Tullamore town and the wider Tullamore region. This benefits the economy of Tullamore as it reduces the financial cost involved with disposal of waste. It also benefits the community socially and environmentally, prompting sustainable development, reducing the need for landfills, preventing pollution, saving energy and reducing greenhouse gas emissions.

Transport Network

The site is approximately 2 km east of Tullamore town on the local Daingean Road. Tullamore is located approximately 10 km south of the N6 main Dublin to Galway route. Two national primary routes run through Tullamore town - the N52 Belfast to Limerick route and the N80 Sligo to Waterford route.

There are also two regional routes connecting Tullamore town. The R443 regional route, acts a relief road to the west of Tullamore town, connecting the southern N52 national route to the northern N52 and N80. The R420 exits the south east of Tullamore town and continues on to Daingean.

An eastern by-pass of the town is currently under construction and is due to be completed by 2010. The main route of the by-pass will run directly along the western flank of the AES facility.

Currently, the main access to the facility is predominantly through Tullamore town centre from the N52 and N80 regional routes. When the proposed N52 by-pass is opened, a roundabout at the north western corner of the facility will junction the Daingean Road and the new by-pass. The facility can then be accessed from the roundabout to the west and the Daingean Road to the east. Vehicles entering the site will therefore generally avoid Tullamore town itself.

Utilities

At present Cappancur Industrial Estate and the AES facility are serviced by a 38 kV electricity supply. This electricity supply stems from the 110 kV sub station located at Ballydaly approximately 2km north of the facility.

Tullamore town is serviced by a natural gas pipeline; however, this currently does not extend to the Cappancur Industrial Estate. Water is supplied to the estate by the Ballinagar Group Water Scheme

Surface water runoff from the facility is currently discharged via a Class 1 full retention interceptor preceded by a silt trap to a drainage ditch at the southern perimeter of the facility. This drainage ditch eventually drains to the Tullamore River approximately 750 m to the south of the facility.

Amenity/Tourism

Tullamore town is a designated Heritage town and the town's distilling and canal heritage attracts a significant number of tourists each year. The Tullamore and Environs Development Plan aims to enhance and protect the tourist attractions in the town to benefit the economy and the environment of the town.

The Grand Canal runs through the town of Tullamore and passes 500 m north of the AES facility. The Grand Canal Corridor which is classed as an area of high sensitivity in the Offaly County Development Plan 2003 – 2009 and is designated a Natural Heritage Area (NHA). This is discussed in more detail in Chapter 8.

The *Waterways Corridor Study 2002* examined the quality and potential of the Grand Canal with the aim of recognising and identifying ways to manage waterways in order to maximise its potential. An area approximately 500 m north of the AES Ltd. facility, between Lock 24 and Tullamore town, is described as being *below average condition*. The quality of the canal increases as you move eastwards towards Daingean. The study recommends the reconstruction of the western portion of the canal by defining the urban edge and improving the agricultural land.

The 131 km of the Grand Canal is navigable and coarse and pike fishing is possible. The Canal Way is a 130km walk along the Grand Canal from Ringsend in Dublin to Shannon Harbour. The way is divided into nine sections each representing a half days walking. This walk way is approximately 500 m north of the AES Ltd. facility.

Land Use

The Cappancur Industrial Estate lies in a lowland area identified in the Offaly County Development Plan 2003 - 2009 as an area of *low sensitivity* which is generally rural and agricultural in nature.

The Offaly County Council dog pound is located directly south of the facility and is accessed via a roadway that runs outside the western perimeter fence of the existing facility.

The lands immediately to the north, south and west of the facility are agricultural fields. The fields to the north-west, west and south-west have been acquired under a compulsory acquisition order for the construction of the N52 Tullamore bypass.

Land use in the vicinity of the Cappancur facility is identified in Figure 3.2.

3.1.2 Impacts on the Socio-Economic Environment

Nearby Residential Houses and Settlements

Potential impacts on residential amenity in the immediate environs of the facility arise principally from a combination of noise, traffic and air emissions, which are addressed in detail later in this chapter.

Road Infrastructure

The proposed intensification of waste acceptance at the AES Ltd. facility will increase in traffic to the facility by approximately 7% on existing traffic levels. The likely increase in traffic and the impact of such traffic on the capacity and operation of the receiving roads network will not be significant.

Upon completion of the N52 bypass, traffic will access the facility from the bypass from the west and the Daingean Road from the east, thereby reducing traffic levels through Tullamore town. Section 3.3 assesses the impacts of traffic in more detail and has recommended a number of mitigation measures.

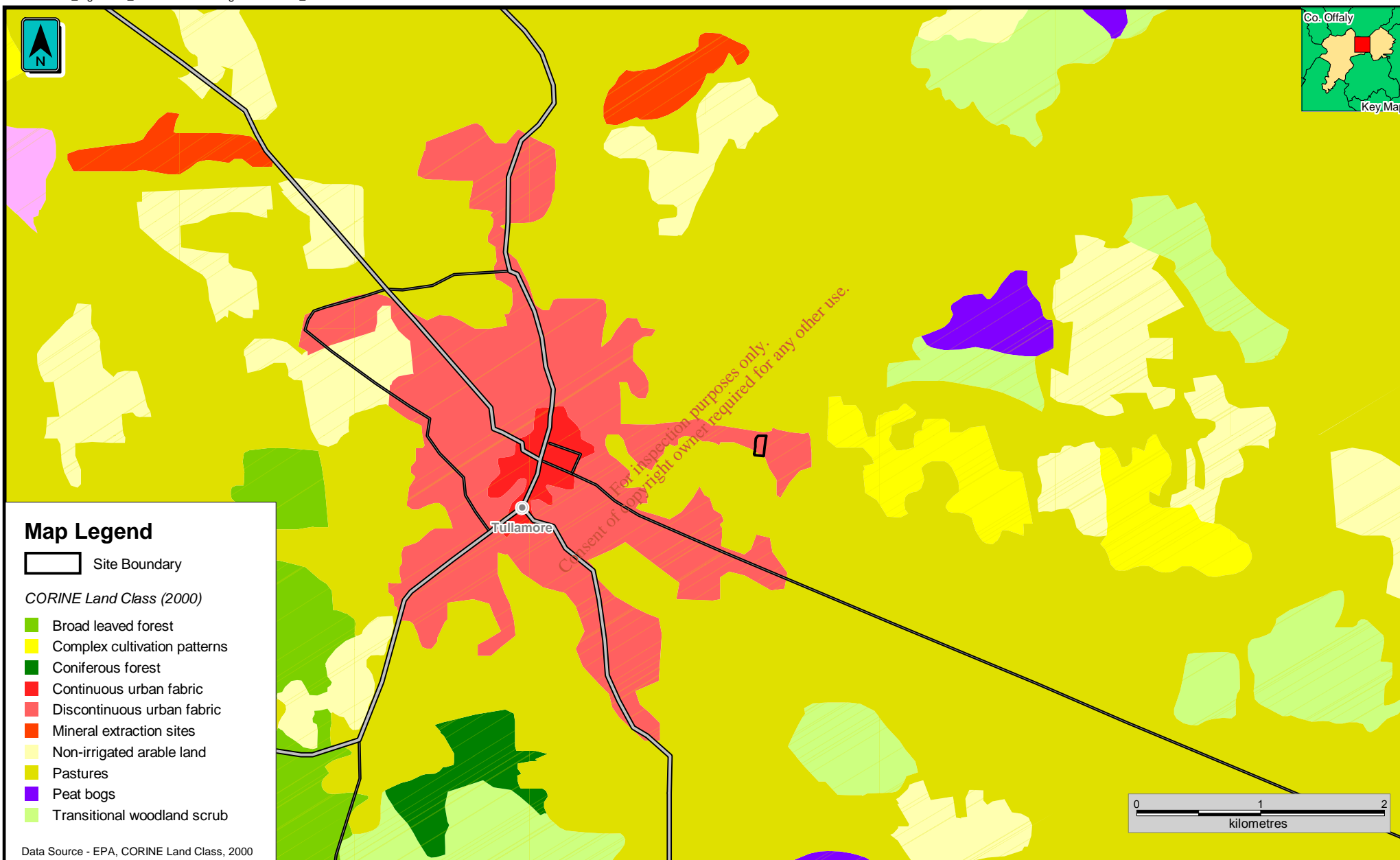
Utilities

Existing utility supplies to the facility will not require upgrading due to the proposed development at the site.

Local Employment and Economic Benefit

The proposed development at the facility will secure the long term employment of the current workers at the facility which will benefit the economy of the area both directly and indirectly.

The continued operation of the facility will also supply the commercial and industrial sector with a continued outlet for the disposal of their waste thus encouraging industry to the area.



Amenity/Tourism

Due to its location, the development of the facility will not impact on the tourism and amenity of Tullamore town. The proposed intensification of the AES site will not require any additional footprint or necessitate the construction of additional buildings within the site and will therefore not impact on the tourism and amenity of the Grand Canal. A more detailed visual assessment is detailed in Section 8 of this EIS.

Land Use

The proposed development will not impact on the land use in the surrounding area as no additional land will be required as part of the proposed development.

3.1.3 Mitigation Measures on Socio-Economic Issues

This facility has been in operation for in excess of ten years and has not impacted negatively on the amenity and land use of the surrounding area, in particular on sensitive areas such as the Grand Canal Corridor.

Having regard to the potential impacts outlined above, no further mitigation measures are required for the proposed development at the facility, over and above those presented within applicable sections of this EIS. Individual assessments of predicted noise, air and traffic emissions have been conducted and are outlined as follows in this Section. All assessments have indicated that following the implementation of a number of mitigation measures, impacts from the proposed development will not be significant.

3.2 Noise

This section describes the noise impact assessment for the proposed intensification of waste acceptance activities and extension of working hours at the facility. The site currently operates as an active waste facility with licenced operating hours of 07.00 hrs to 20.00hrs, Monday to Saturday. It is proposed to extend facility operating hours to 06:00 to 00:00, Monday to Saturday. This assessment includes measurement of baseline noise levels at a noise sensitive location to determine the existing noise levels and an assessment of the impact of the increased working hours.

To assist in the understanding of the terms, measurement methods, and assessment criteria used in this report, the following is a brief introduction to the fundamental terms of noise.

Noise is defined as unwanted sound. The impacts of noise are subjective and can vary from person to person. Noise factors such as the frequency, tonal aspects, patterns, existing background noise levels and the activities being carried out when the person experiences the noise all contribute to the impacts of the noise levels experienced by people.

The unit of sound pressure level is the decibel (dB). This is calculated as a logarithm of sound. A change of 10 dB corresponds approximately to halving or doubling the loudness of sound. The use of decibels (A-weighted), dB (A), as the basic unit for general environmental and traffic noise is widely accepted. Decibels measured on a sound level meter incorporating this frequency weighting differentiates between sounds of different frequencies in a manner similar to the human ear.

That is, measurements in dB (A) broadly agree with human beings assessment of loudness. It has been demonstrated that noise levels in dB (A) from a wide range of sources adequately represent loudness.

Sound pressure levels are not directly added to one another, that is, if a sound level of 30 dB is added to another sound level of 30 dB the combined sound level is not a doubling to 60 dB. Rather, as a result of the logarithmic scale, the combined sound level would be 33 dB. Thus every increase of 3 dB represents a doubling of sound energy levels. Related to this, is the fact that the smallest noise change detectable by the human ear is three decibels.

Another property of the sound decibel scale is that if a sound is greater than 10 dB less than another sound, then the total noise level is simply the louder of the two noises. For example, the combined noise level from a source at 30 dB added to another source at 40 dB is 40 dB. As a result, noise assessments are limited to the loudest sources on a site, which determine the sound levels experienced at the noise sensitive locations.

To assist in the understanding of the noise measurement scales, Table 3.1 is presented below. This gives the decibel scale, dB(A), and some common place activities which would typically give rise to Environmental Noise at these decibel levels.

Table 3.1: Approximate Representative Noise Levels

Situation / Noise Source	Approximate Noise Level	Sound Pressure	Subjective Description
	dB(A)	μ Pa	
30 metres from a military jet aircraft take-off	140	200,000,000	Painful, intolerable
Rock/ Pop concert	105	3,500,000	
Nightclub	100	2,000,000	
Pop/ Concert at mixer desk	98	1,600,000	
Passing Heavy Goods Vehicle at 7 m	90	630,000	Very noisy
Ringling Alarm Clock at 1 m	80	200,000	
Domestic Vacuum cleaner at 3 m	70	63,000	Noisy
Busy Office	60	20,000	
Normal Conversation at 1 m	55	11,000	
Reading room of the British National Museum	35	1,100	
Bedroom in a quiet area with the windows shut	30	360	Very quiet
Remote location without any identifiable sound	20	200	
Theoretical threshold of hearing	0	20	Uncanny Silence

Noise level and frequency varies constantly with time. It cannot be described with a single number. As a result, statistical metrics are commonly used to describe the noise levels.

In order to understand the terms used below, some definitions of the terms used are outlined as follows:

- L_{AF10}** Refers to those noise levels in the top 10 percentile of the sampling period; it is the level which is exceeded for 10% of the measurement period. It is used to determine the intermittent high noise level features of locally generated noise and usually gives an indicator of the level of traffic.
- L_{AF90}** Refers to those noise levels in the lower 90th percentile of the sampling interval; it is the level which is exceeded for 90% of the measurement period. It will therefore exclude the intermittent features of traffic and is used to estimate a background level.
- L_{Aeq}** The average level recorded over the sampling period. The closer the L_{Aeq} value is to either the L_{AF10} or L_{AF90} value indicates the relative impact of the intermittent sources and their contribution. The relative spread between the values determines the impact of intermittent sources such as traffic on the background.

Ambient noise: totally encompassing sound in a given situation at a given time usually composed of sound for many sources near and far.

Background noise level: the A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels.

Impulsive noise: a noise of short duration (typically less than one second), the sound pressure level of which is significantly higher than the background.

Rating level: the specific noise level plus any adjustment for the characteristic features of the noise.

Residual noise: the ambient noise remaining at a given position in a given situation, in a given situation, when the specific noise source is suppressed to a degree such that it does not contribute to the ambient noise. Residual noise level is measured in terms of L_{Aeq,T} over a time period (T).

Specific noise: the noise source under investigation for assessing the likelihood of complaints.

Tonal noise: A noise source that is concentrated in a narrow band of the frequency spectrum.

3.2.1 Existing Noise Environment

Annual noise monitoring is conducted at the site in accordance with Schedule D of the licence, the results of which are presented in Tables 3.2 and 3.3. The location of each of these monitoring points is indicated on Figure 2.3. it is proposed to alter the

location of the existing noise monitoring points which is addressed in more detail in Section 3.2.4.

Table 3.2: Noise Monitoring Results from 02/02/2006

Location	Measurement Period (mins)	L _{Aeq} dB (A)	L _{AF10} dB (A)	L _{AF90} dB (A)	L _{AFMAX} dB (A)
N1	15	63	66	56	79
N2	15	65	69	56	79
N3	15	64	66	59	80
N4	15	56	57	53	72
N5	30	69	73	50	85

Table 3.3 Noise Monitoring Results from 21/11/2007

Location	Measurement Period (mins)	L _{Aeq} dB (A)	L _{AF10} dB (A)	L _{AF90} dB (A)	L _{AFMAX} dB (A)
N1	30	64	68	52	84
N2	30	66	71	51	85
N3	30	59	60	57	70
N4	30	55	57	50	74
N5	30	69	74	53	91

The results of this monitoring presented in Tables 3.2 and 3.3 indicate that the L_{Aeq} levels are greater than the 55 dB limit for day-time noise levels at all locations. The background noise levels, represented by L_{AF90}, are greater than the 55 dB limit for day-time noise levels at N1, N2 and N3 in 2006 and at N3 in 2007. The L_{Aeq} levels in both 2006 and 2007 are closer to the L_{AF10} results, indicating the influence local traffic movements have on the monitoring undertaken by Bord na Móna.

Additional Monitoring

Additional noise monitoring was carried out by FTC personnel on the 9 June 2008 between the hours of 15:00 and 22.00 for 30 minute intervals to record residual noise in the area and again on the 22nd of August at 06:00. The surveys were undertaken at a single identified Noise Sensitive Location, (NSL) which was located approximately 150 metres west of the site, immediately adjacent to a filing station. The monitoring was to ascertain the baseline noise conditions at the NSL during and outside the site operating hours. The location of this monitoring point is given on Figure 2.3..

All measurements were taken in accordance with ISO 1996 (Description and Measurement of Environmental Noise) and the Environmental Protection Agency, (EPA) Environmental Noise Survey Guidance Document. The survey was carried out using a Brüel and Kjær 2260 Type 1 Sound Level Meter (SLM) with an outdoor microphone unit Type 4198.

The instrument was calibrated prior to commencing the survey using the recommended calibration procedure and a known pure tone noise source.

The unit was again calibrated on completion of the survey to record drift during the course of the day. Drift is normally associated with battery fade and temperature. The unit had not drifted.

Good measurements require calm conditions to avoid spurious effects on the microphone, particularly at low frequencies. An average wind speed of less than 5 m/s is the preferred limit when noise measurements are being taken, with 7 m/s an upper limit. Weather conditions during the monitoring periods were dry and calm and wind speed was observed to be less than 5 m/s for all monitoring periods. Weather conditions were calm and dry during all measurement periods.

The measurement location was chosen outside buildings that represented background noise levels, at the NSL. To minimise any influence of reflection measurements were taken at a point 3.5m away from reflective sources, other than the ground. A wind shield was used to minimise the effect of turbulence at the microphone. The facility is in a direct line of sight from this location.

Table 3.4 outlines the results of the monitoring event. The $L_{Aeq, (30 \text{ min})}$ during both monitoring periods was over the daytime limit of 55 dB, however the dominant noise source at this location was from traffic movements on the Daingean Road as well as vehicle movements to the petrol station. 164 traffic movements were recorded during the monitoring period. From this location the site is faintly audible, during periods when traffic movements cease.

Table 3.4: Noise Sensitive Location, (NSL) Monitoring Results (dB A) (09 June 2008)

Location	Start time	Run-time	L_{Aeq} (30 min)	L_{AF10} (30 min)	L_{AF90} (30 min)	Traffic Movements
NSL Specific noise ¹	15:35:20	00:30:00	63	67	49	164
NSL Residual noise ¹	21:31:12	00:30:00	60	62	43	65
NSL Residual noise ²	06:25:57	00:30:00	62	64	41	52

¹ 9 June 2008 during day-time hours for 30 minute intervals

² 22 August 2008 during night-time hours for a 30 minute interval

3.2.2 Assessment of Potential Noise Impacts

Most noise generating activities at the existing facility occur within the waste transfer building, such as: waste acceptance, picking line operation, baling and vehicle loading. Activities occurring outside the main processing building are vehicle related activities i.e. turning, collecting trailers etc. There is some waste storage activity occurring to the rear of the waste processing building involving stacking and placement of baled materials. Skips are also stored at various locations around the site.

Specific Noise

While recording the specific noise the dominant sound at the NSL was road traffic passing on the Daingan Road and some vehicles entering the filling station. A total of 164 traffic movements were recorded during the monitoring period. This represented the typical vehicular movements on the road noted during the day.

Background noise consisted of birdsong and voices from the filling station. Intermittent engine sounds came from a digger engaged in road works near the filling

station. Some occasional sounds could also be heard from the site during the noise monitoring period.

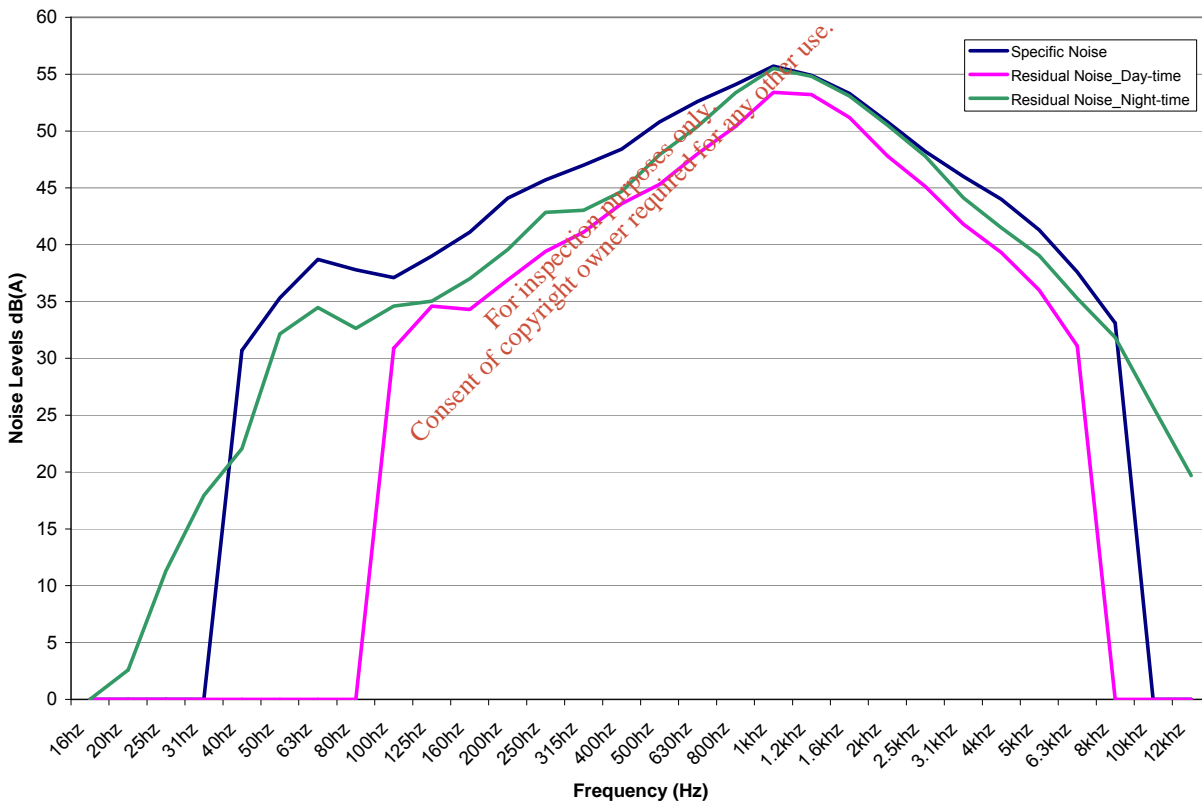
Residual Noise

While monitoring the residual noise (outside of facility operating hours) the dominant sound was also traffic movements on the Daingan Road and vehicles entering the filling station. The number of traffic movements decreased to a total of 65 movements during this monitoring period.

Background noise consisted of intermittent birdsong and the sound of voices from the filling station. No sounds were audible from the site while recording the residual noise.

No tonal components were audible during either the specific or residual monitoring periods. All measurements at the NSL were subject to a one-third octave band analysis to identify potential tonal components within the noise measured. The results of this analysis are presented in Figure 3.3.

Figure 3.3: NSL results: 1/3 Octave Band Analysis



3.2.3 Potential Noise Impacts

The EPA Guidance Note for Noise in Relation to Scheduled Activities sets out the general guidance limits for licensed facilities, and these are generally accepted as suitable criteria for establishing noise impacts from industrial facilities. Table 3.5 shows these limits.

Table 3.5: Noise Emission Limits (Measured at any noise sensitive location)

Daytime (08:00 – 22:00)	Night-time (22:00 – 08:00)
$L_{Aeq,T}$	$L_{Aeq,T}$
55 dB(A)	45 dB(A)

Noise monitoring was undertaken in three events to record the specific and the residual noise in the area. These monitoring periods were heavily influenced by traffic noise from the Daingean Road. The noise source from site was continuous during the hours of operations but could only be faintly heard at the NSL. The background noise level is represented by the $L_{AF90 (30-min)}$ results.

Table 3.6: Analysis of monitoring results

	Measured level (specific noise in operation)	Residual level Day-time (specific noise not in operation)	Residual level Night-time (specific noise not in operation)
Traffic movements during reporting period	164	65	52
$L_{Aeq (30-min)}$	63 dB	60 dB	62 dB
$L_{AF10 (30 min)}$ (traffic noise)	67 dB	62 dB	64 dB
$L_{AF90 (30 min)}$ (Background)	49 dB	43 dB	41 db

From analysis of the results presented in Table 3.6, it can be seen that the measured and residual noise $L_{Aeq (30-min)}$ figures are similar and are both relatively high due to traffic on the public road running adjacent to the NSL. The $L_{AF90 (30 min)}$ and the $L_{AF10 (30 min)}$ results have reduced from the measured to the specific noise monitoring events, by virtue of the decrease in the traffic movements. As the $L_{Aeq (30-min)}$ is closer to the $L_{AF90 (30 min)}$ than the $L_{AF10 (30 min)}$ it is shown that the $L_{Aeq (30-min)}$ measurement is influenced by traffic movements during all monitoring periods.

During all monitoring periods the background noise level, represented by $L_{AF90 (30 min)}$ was under the daytime noise limit of 55 dB at the NSL.

It is concluded that there was no measurable influence from the facility on the measured noise level at the NSL during the monitoring periods. Traffic noise from the public road is the main factor influencing noise at the noise sensitive location. As the traffic levels on public roads generally decrease during later hours, this may result in the noise emissions from the facility having a greater influence on the noise at the NSL.

In addition the EPA Licence criterion for noise is lower for night-time which is defined as starting after 10 pm. Considering this, there is a potential for the noise impacts from the facility if operated after 10pm.

However, the impact of traffic movement from the N52 Tullamore bypass, currently under construction, must be considered. This is considered further in Section 3.4 of this EIS. Table 3.10 indicates that in the vicinity of the noise sensitive location, the annual average daily traffic flow (AADT), as observed in 2001, is expected to

increase by 37% by 2010 after completion of the bypass along the existing Daingean Road. In addition, a new carriageway, adjacent to the NSL and travelling in a north-south direction will increase traffic movements in the vicinity of the NSL.

In this event, it is expected that the increase in traffic levels, associated with the bypass, will impact on the NSL more so than development at the AES Ltd. facility and that the increase in traffic flow will counteract any possible impact from activities at the AES Ltd. facility, particularly in night-time hours.

3.2.4 Noise Mitigation Measures

The noise sensitive location, (NSL) is a filling station located on the Daingean Road, Tullamore, County Offaly. The noise sources from the existing operations represent discontinuous intermittent noise, related to the waste activities. The filling station is located a distance of approximately 150 meters from the site. As such, the location is heavily influenced by traffic, on the Daingean Road and to the filling station itself.

The measured level recorded on the 9 June 2008 (specific noise from the facility, in operation) and the residual noise (specific noise from the facility when not in operation) are very similar in level. The L_{AF10} (30 min) and the L_{Aeq} (30-min) figures indicate that traffic is the dominant noise evident at the NSL, while operational noise from the facility could only faintly be heard during periods when there were no traffic movements.

Following the assessment of noise conditions at the NSL, and considering the development of the N52 bypass, it is determined that there will be no measurable influence at the facility on the measured noise level at the NSL as a result of increased waste acceptance at the facility and an extension of operating hours.

Consequently no mitigation measures are proposed.

It is also proposed to reduce the number of noise monitoring locations from 5 locations to 4 locations as part of the existing waste licence review application as it is felt that the size of the facility does not warrant four site boundary noise monitoring locations. The proposed noise monitoring locations are identified in Figure 2.4.

3.2.5 Conclusions on Noise

The dominant source of noise at the noise sensitive location results from traffic movements along the Daingean Road.

The increase in facility operating hours is not expected to result in any significant increase in noise levels at the NSL, particularly when considered in conjunction with the development of the N52 Tullamore bypass.

3.3 Traffic

This section assesses the existing conditions associated with the roads environment in the vicinity of the facility at Cappancur. Existing and forecast traffic levels for the facility are estimated and the potential impact of the development is assessed with regard to likely impacts or influences on the operation of the receiving roads network. Where necessary, mitigation measures are proposed to address identified negative impacts or to improve shortcomings identified in the existing roads environment.

One of the most significant elements of the proposed development from a traffic perspective is the relocation of the entrance from the northwest corner of the site to the northeast corner of the site. This new layout ensures that the maximum distance possible is provided between the entrance and the new roundabout which is currently being constructed to the west of the waste management facility as part of the N52 Tullamore Bypass.

3.3.1 Traffic in the Existing Environment

The facility is located in the Cappancur Industrial Estate along the local Daingean Road. The Daingean Road is a single carriageway local county road which is subject to a posted speed limit of 80 kph, the carriageway width is approximately 6 m and hard strips of 0.3 m width are present on both sides. The Daingean Road runs in an easterly direction from Harbour St. in Tullamore town through to the R402 in the village of Ballinagar.

The site has direct vehicular access to the Daingean road via a single entrance located on the northwestern corner of the site.

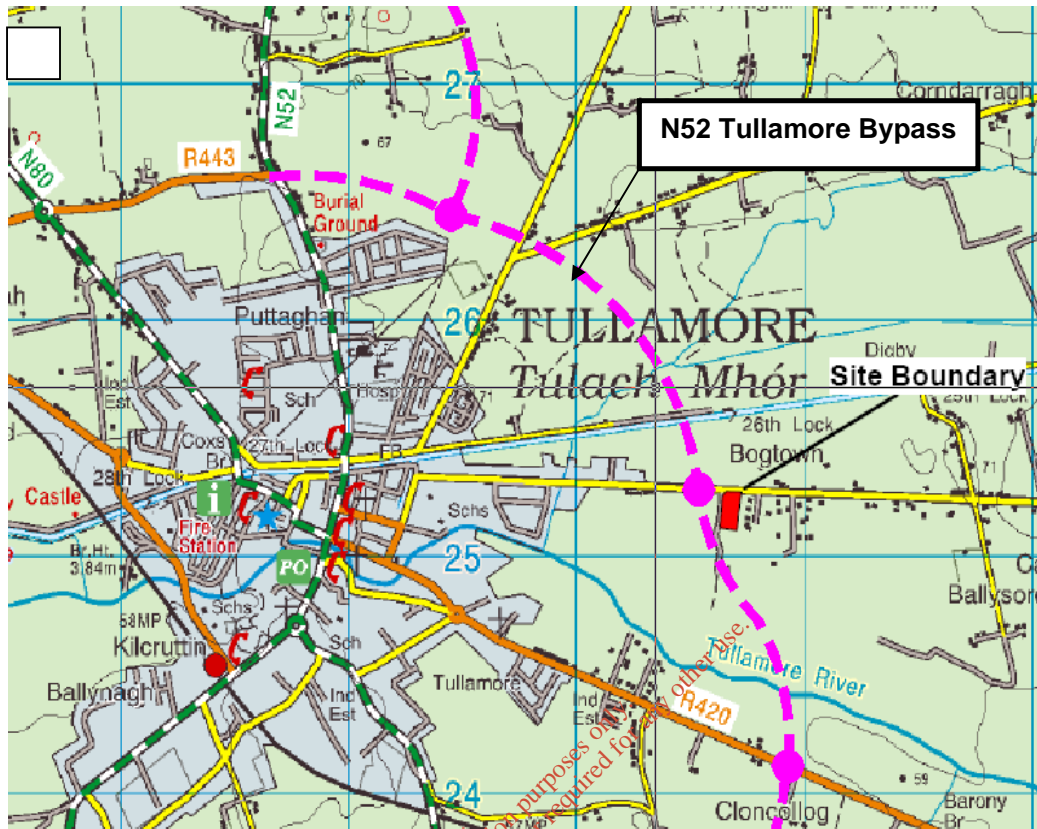
The development of the N52 Tullamore bypass (which is ongoing at time of writing) will see the construction of a roundabout, to be known as the 'Bogtown' roundabout, directly at the existing entrance to the facility.

To the immediate east of the site are the other industrial buildings and enterprises of the industrial estate which are accessed through a communal entrance.

Following the completion of the N52 Tullamore Bypass the facility will have excellent access to the National Roads network and as such will not generate any additional traffic within Tullamore town centre.

Offaly County Council dog pound is located behind the site and it is proposed that the new entrance to the waste management facility will incorporate a revised access road to serve the dog pound.

Figure 3.4: Tullamore By-Pass Route



Future Road Improvements in the vicinity of Tullamore

N52 Tullamore By-Pass - Construction began in February 2008 on the N52 Tullamore Bypass which involves the construction of approximately 11.5 km of standard single carriageway and 2.4km of wide single carriageway. The proposed bypass will depart from the existing line of the N52 in the townland of Heath, approximately 6 km southwest of Tullamore town, and will rejoin the existing N52 in the townland of Gormagh, approximately 3 km north of Tullamore town. It also involves the construction of 6 underbridges and 1 overbridge. When construction is completed in 2010 the N52 Tullamore Bypass will provide access from the facility to the National Roads network without entering Tullamore town centre.

N52 National Secondary Road - The N52 road is a National Secondary road. This 218km long route links the N7 National Primary Route from just south of Nenagh, County Tipperary to the N1 National Primary Route north of Dundalk in County Louth.

The N52 between Kilbeggan and Tullamore has been identified as being in need of improvement in order to provide for future traffic growth. A route selection has being completed for this section of the N52 route and a preliminary design is currently being developed by the NRA and Offaly County Council.

N6 National Primary Route - The N6 road is the National Primary Route connecting Dublin to Galway (by connecting to the M4 motorway at Kinnegad) across the midlands of Ireland. The route starts at Junction 11 on the M4 at Kinnegad. From there the road bypasses Rochfortbridge, and Tyrrellspass, and passes through Kilbeggan and Moate. The route follows a bypass around the town of Athlone, crossing the River Shannon, before passing through Ballinasloe and Loughrea. A section of dual carriageway brings the route into Galway, providing a link also for the N18 road from Limerick, which joins it near Oranmore. The route is currently being upgraded to (HQDC) High Quality Dual Carriageway/ Motorway standard.

3.3.2 Quantification of Current Traffic Flows

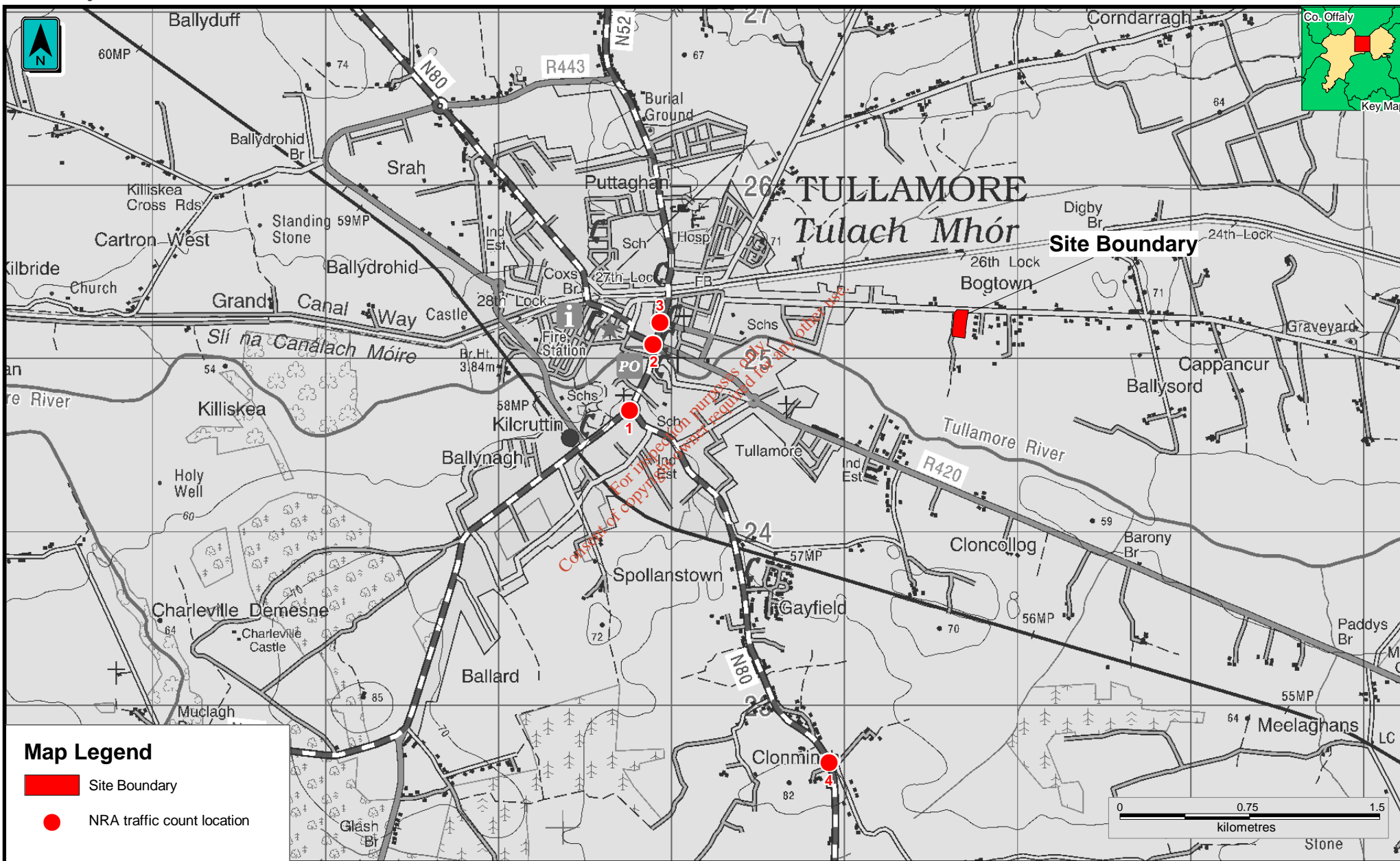
Data Collection – Available NRA Count Data

National Roads and Traffic Survey Reports have been used as a source of traffic data on the N80 for the period 2003 and 2004. The Annual Average Daily Traffic (AADT) estimates for 2003 and 2004 are based on Local Authority short term traffic counts. The closest traffic counter on the N52 in the vicinity of the facility is at the T-junction with the R420 just south of the Grand Canal in Tullamore town centre. Two other traffic counts in the vicinity of the facility are located at the cross roads with the N80/ R420 to Clara and at the roundabout with N80 to Mountmellick. The closest traffic count on the N80 in the vicinity of the proposed development is 1.5km south of Tullamore. Table 3.7 below shows the AADT estimate and the percentage of HGVs recorded at each of these sites for 2003 and 2004.

Table 3.7: N52 and N80 - 2003 and 2004 AADT estimate and the % of HGVs

Location	2003		2004	
	AADT	%HGV	AADT	%HGV
N52 at roundabout with N80	10830	7.0	11421	5.3
N52 at cross roads with N80/ R420	12009	5.3	10552	17.1
N52 at T-junction south of canal with R420	11786	8.3	12446	8.3
N80, 1.5km south of Tullamore	10719	7.5	11,308	7.5

The locations of these traffic counts in relation to the Cappancur facility are indicated in Figure 3.5.



In August 2003 the National Roads Authority published a document entitled 'Future Traffic Forecasts 2002-2040'. This document provides growth indices for National Primary, National Secondary and Non-National roads.

The growth index for factoring 2004 recorded flows to 2008 forecast levels on National Secondary Roads is given as $1.11 \times (2004 \text{ Flow})$; the current estimated flows on the N52 and N80 are shown in Table 3.8.

Table 3.8: N52 and N80 – 2008 estimated AADT

Location	Fig. 3.5 key	2008 (estimated AADT)
N52 at roundabout with N80	1	12,677
N52 at cross roads with N80/ R420	2	11,712
N52 at T-junction south of canal with R420	3	13,815
N80, 1.5km south of Tullamore	4	12,551

Data Collection – Tullamore Bypass – Peak-Hour Flows

The peak-hour flows and turning counts for the Bogtown Roundabout, estimated in 2001, were provided by Offaly County Council. These flows are shown in Table 3.9.

Table 3.9: 2001 peak-hour flows at the Bogtown Roundabout (No. of vehicles)

Road	Nearside Flow	Offside Flow	Two-Way Flow
Daingean Road (West of the Bogtown Roundabout)	77 (eastbound)	96 (westbound)	173
Daingean Road (East of the Bogtown Roundabout)	126 (eastbound)	160 (westbound)	286
N52 Road (North of the Bogtown Roundabout)	295 (northbound)	317 (southbound)	612
N52 Road (South of the Bogtown Roundabout)	252 (northbound)	327 (southbound)	579

A factor of 12.78 from RT201 – *Expansion Factors for Short Period Traffic Counts* can be used to convert the 2001 peak-hour flows into 2001 AADT flows. The scheduled opening year for the Tullamore Bypass is 2010, and a growth factor of 1.373 (based on NRA Future Traffic Forecasts 2002-2040) can be used to convert 2001 AADT to 2010 AADT flows. These 2010 AADT flows at the Bogtown roundabout are shown in Table 3.10.

Table 3.10: 2010 AADT flows at the Bogtown Roundabout (No. of vehicles)

Road	2001 peak-hour Two-Way Flow	2001 AADT	2010 AADT
Daingean Road (West of the Bogtown Roundabout)	173	2,211	3,036
Daingean Road (East of the Bogtown Roundabout)	286	3,655	5,019
N52 Road (North of the Bogtown Roundabout)	612	7,821	10,738
N52 Road (South of the Bogtown Roundabout)	579	7,400	10,160

Traffic Generation from the Existing Development

The estimation of current levels of daily traffic generation at the site is based on weighbridge data provided by AES Ltd from operations at the Cappancur facility. The weighbridge data is included in Appendix 3 and provides information relating to quantities of waste for each vehicle logged entering the site. The following information has been used to estimate current daily traffic generation at the existing waste transfer facility:

- The Applicant has generated a report from the weighbridge database system at the site. The base data includes all vehicles crossing the weighbridge for the period 1st March 2008 to 15th March 2008. The applicant's existing licence allows for a 6 day working week, however the weighbridge data provides for a 5.5 day working week as the data only shows a half day on Saturday. The data provided by the applicant allows for a 5.5 day working week
- Current hours of waste acceptance for the waste facility are 08:00 to 19:00hrs Monday to Saturday. As such the facility operates on a 6 day working week. Accounting for public holidays this equates to the facility operating for a total of 300 days annually.
- Approximately 30 car parking spaces are provided at present. It is estimated that there are approximately 120 movements per day associated with these car parking spaces, i.e. two trips per parking space per day. A trip incorporates two separate vehicle movements (in and out of the site). It is also estimated that on average six representatives (sales reps, visitors, postman etc.) visit the site each day, which equates to 12 No. additional car movements or six car trips per day.

There is currently a civic amenity provided for at the site. This generates approximately 10 movements per day. This facility will not be retained as part of the proposed development at the site.

Table 3.11 below, outlines the waste processed at the site during the specified period, the total tonnage, average weight per load and the number of loads per day. This information has been used to estimate current traffic generation associated with the transport of waste at the facility.

Table 3.11: Existing Daily Traffic Generation – Waste Handling

Day	Total Tonnage for 2 Week Period		Average Payload (tonnes)		(No. Veh Trips /Day)	
	Week 1	Week 2	Week 1	Week 2	Week 1	Week 2
Mon	131.48	137.86	4.53	3.94	29	35
Tue	96.40	133.26	4.38	4.60	22	29
Wed	140.48	138.37	4.26	4.94	33	28
Thurs	120.19	114.18	3.88	4.57	31	25
Fri	110.28	140.64	4.41	6.11	25	23
Sat	43.14	44.58	6.16	4.05	7	11
Total	641.97	708.89			147	151

On the busiest day during for the period 1st March 2008 to 15th March 2008 approximately 140 tonnes of waste was delivered to the facility and the corresponding number of trips generated was 23 trips. Over the same period the maximum number of trips generated in any one day was 35, the corresponding amount of waste delivered was approximately 138 tonnes. The average daily number of trips generated by the facility over the two week period was 25. The existing waste licence for the site permits 24,000 tonnes of waste to be processed each year – however, 42,895 tonnes was accepted in 2007. The facility operates approximately 300 days per year, therefore the average amount of waste that is being processed per day is approximately 143 tonnes. Considering this, the weighbridge data as summarised in Tables 3.12 can be seen to accurately represent the number of daily vehicle trips generated by the facility throughout the year.

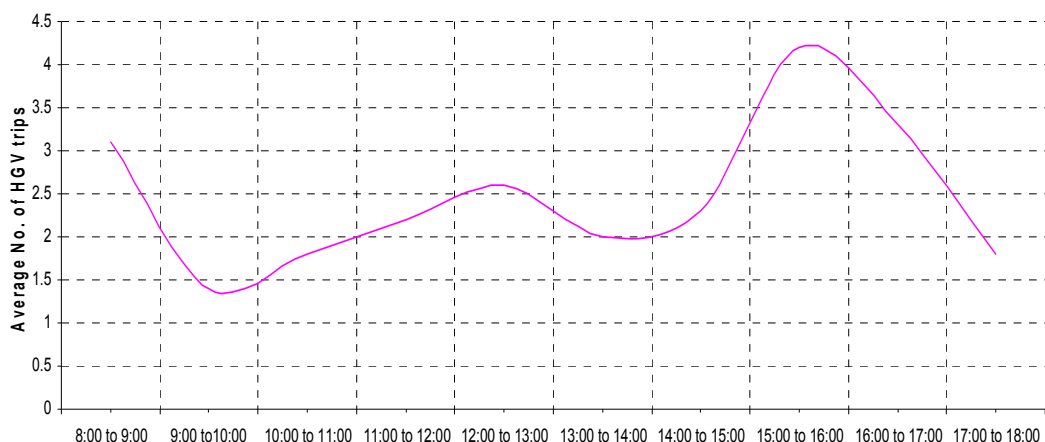
Table 3.12 below categorises the total maximum daily traffic generation of the existing facility into HGVs and private vehicles and includes trips from staff and representatives.

Table 3.12: Estimated Existing Daily Traffic Generation

Vehicle Type	Existing Trips
HGVs	35
Cars/Private vehicles	60
Total	95

The peak periods of HGV traffic generation arising from the existing facility and the normal daily profile of traffic to and from the site is shown in Figure 3.6 below. This figure shows graphically the average HGV movements over the weighbridge during a typical weekday (Monday to Friday) for the two-week period of recorded weighbridge data. The data received for Saturday is for a half day only, therefore Saturday has not been included in the assessment for Figure 3.6. This is therefore considered a conservative assessment.

Figure 3.6: Traffic Patterns from Weighbridge Data



From Figure 3.6, it can be seen that HGV trips at the facility typically peak in the morning and are then fairly constant with about 2 -3 trips per hour through to mid-day. After mid-day there is a drop in HGV trips, most likely corresponding to lunchtime, after which movements increase to a maximum of 5 trips during the period 16:00 to 18:00hrs.

Traffic Distribution

The weighbridge data information details the origin of all trips to the facility over the two week period from the 1st March to the 16th March, 2008. This information has been summarised in Table 3.13 below.

Table 3.13: Origin of Trips to the Tullamore Site

County	Town	Percentage Breakdown	Road used to Access Site
Westmeath	Athlone	5%	N52 North
Westmeath		8%	
Dublin		1%	
Galway		1%	
Mayo		0%	
Meath		2%	
Meath	Navan	3%	
Roscommon		1%	
Kildare		2%	N80 South
Kildare	Naas	2%	
Laois	Kyletelesha Landfill	5%	
Tipperary	Nenagh	4%	N52 South
Offaly		66%	Varies

From Table 3.13, it can be seen that:

- the majority of trips originate within County Offaly which accounted for 66% of trips generated by the facility.
- From the remaining trips generated by the facility
 - 21% mostly used the N52 North of Tullamore
 - 9% mostly used the N80 South of Tullamore
 - 4% mostly used the N52 South of Tullamore.

With regard to the 66% of trips generated within Offaly it is reasonable to assume that the majority of these originate within Tullamore town. Considering the above and the layout of the road network in the vicinity of Tullamore it is apparent that the vast majority of traffic from the site will travel towards Tullamore town and will use the new N52 Tullamore Bypass to access the National Roads network.

3.3.3 Potential Traffic Impacts

Traffic Generation from the Proposed Development

The following provides an estimate of the number of vehicles which could potentially be generated by the AES Ltd. facility as a result of the proposed development.. The methodology used to achieve this takes into account the average incoming and outgoing payload data as determined from the weighbridge data. In the estimates these weighbridge derived figures are applied to the proposed quantity of waste to be accepted i.e. 50,000 tonnes.

Adopting the above methodology, it is possible to estimate likely traffic generation and patterns at the proposed development over the course of a typical working day. Derivation of traffic generation by this methodology is endorsed in the Institution of Highways and Transportation 'Guidelines for Traffic Impact Assessment (September, 1994).

In order to estimate the number of trips associated with the proposed volumes of waste, the highest number of trips recorded during the two week period will be multiplied by a factor of 1.17 ($50,000 \div 42,875$). The maximum number of daily HGV trips determined from the weighbridge data is 35 trips, multiplying this by the factor of 1.2 provides the estimated HGV trips for the proposed facility of 42 trips.

It is intended to provide the same number of car parking spaces as is currently provided at the facility i.e. 30 as part of the proposed redevelopment as this is deemed adequate for the needs of staff and visitors. Car parking provisions will be re-examined if there is a significant number of extra staff employed at the facility.

It is estimated that there are approximately 120 movements per day associated with these parking spaces i.e. two trips per space per day. A trip incorporates two separate vehicle movements i.e. in and out of the site. It is also estimated that on average six representatives (sales reps, visitors, postman etc.) visit the site each day, which equates to 12 No. additional car movements or six car trips per day.

Table 3.14 below categorises the total daily traffic generation of the proposed facility into HGVs and private vehicles and includes trips from staff and representatives.

Table 3.14: Estimated Proposed Daily Traffic Generation

Vehicle Type	Total Trips		% Increase
	Existing	Proposed	
HGVs	35	42	20%
Cars/Private vehicles	66	66	0%
Total	101	108	7%

From the above, it is estimated that the upgraded facility will have the potential to generate approximately 108 vehicle trips or 216 vehicular movements per day. Considering that the existing facility generates approximately 101 vehicle trips or 202 vehicular movements per day, it follows that it is likely that the proposed redevelopment would represent an increase in traffic of approximately 7 HGV trips per day with the number of light vehicle movements remaining the same. In the context of the greater roads network this forecast increase is considered very modest.

On the basis of a very conservative peak hour factor of 20%, the upgraded facility could reasonably be expected to generate typical peak hour volumes of about 22 No. vehicle trips, consisting of 9 No. HGV trips and 13 No. light vehicle trips.

Threshold for Traffic and Transport Assessment

In Ireland, a Traffic and Transport Statement (TTS) must accompany all planning applications for developments that could potentially act as traffic generators. A TTS is a brief outline of the transport requirements for the development and is used as a first step to identifying the likely impact of any development.

The TTS is also used to determine if further, more detailed traffic analysis is required. An in depth analysis of the impact of a development in terms of traffic is carried out through a Traffic and Transport Assessment (TTA). The NRA Traffic and Transport Assessment Guidelines recommend the following thresholds for undertaking a TTA:

*“Applications that exceed **any** of the following thresholds will be required to produce full TTAs, in addition to completing a TTS. The TTS should summarise the findings of the TTA and briefly outline the mitigating measures proposed by the developer or agent:*

- *Industry GFA in excess of 5,000 sq.m*
- *Distribution and Warehousing GFA in excess of 10,000 sq.m*
- *100 trips (in/out combined) in the peak hour*
- *Development traffic exceeds 10% of two-way traffic flow on adjoining road*
- *Development traffic exceeds 5% of two-way traffic flow on adjoining road if congestive or sensitive*
- *100 on-site parking spaces”*

(Reference-NRA Traffic and Transport Assessment Guidelines: Table 2.2; page 4)

The thresholds considered as most pertinent in relation to whether the proposed development requires a Traffic and Transport Assessment are;

- industry GFA in excess of 5,000 square metres
- developments generating 100 trips in/out combined in the peak hour
- development traffic exceeds 10 percent of two-way flow on adjoining road

As there is no increase in the dimensions of the waste processing building, it follows that in this instance a TTA is not warranted.

Another of the TTA thresholds relating to the development is the additional volume of trips generated in the peak hour. From the preceding calculations the proposed development is estimated to generate a maximum trip rate of approximately 22 No. trips in the peak hour. If the existing traffic generated by the facility is taken into consideration, the forecast 'incremental' impact of the proposed development would be less than two trips. Therefore the development proposal falls short of this specific threshold.

The final relevant threshold for the preparation of a TTA requires the development traffic to exceed 10 percent of the two way traffic flow on the adjoining road. It has been estimated that the AADT for the Daingean local country road in 2010 is 3036 vehicles. It has been calculated that an additional 7 trips or 14 vehicle movements per day are likely to be generated by the upgraded facility. By reference to the predicted AADT of 3036 vehicles, it is estimated that the 14 vehicular movements associated with the new development represent approximately 0.5% of traffic on the road in 2010.

Considering the above, as none of the stated thresholds are attained a TAA in accordance with the NRA requirements is not warranted in this case.

Safety Issues

The proposed entrance will be relocated to the northeastern area of the site. This ensures that the maximum possible distance is provided between the proposed roundabout on the Tullamore Bypass and the entrance. It is estimated that a distance of approximately 100m is provided between the roundabout and proposed entrance location. The entrance has been designed by Offaly County Council/NRA as part of the N52 Tullamore bypass and the compulsory acquisition of the facility lands and planning permission for the entrance is covered under the CPO process.

In the NRA Standard for Direct Access onto National Road (NRA TD41-95) the visibility distance required from an access road depends on the design speed of the public road it is connecting to. The required (SSD) Stopping Sight Distances (the distance a vehicle needs to stop once a hazard has been seen by the driver) for each design speed is stated in the standard and the minimum visibility distance that must be provided from an access onto a public road is equal to the SSD required for the design speed of that particular road, the visibility distances required by TD41-95 are outlined in Table 3.15.

Table 3.15: Visibility Distances required by TD41-95

Design Speed	50kph	60kph	70kph	85kph
Visibility Distance Required (m)	70	90	120	160

From Table 3.15 it can be seen that the visibility distance being provided to the proposed Tullamore Bypass roundabout is equivalent to that required for a design speed of 60kph.

The existing speed limit in the vicinity of the facility is 60 kph. Following the construction of the Tullamore Bypass, it is assumed that a speed limit of 50 kph will be relocated to the western side of the roundabout with the section of road in the vicinity of the waste management facility remaining at 60kph. Given the above and considering that vehicles intending to exit from the roundabout onto the Daingean Road will be travelling well below 60kph in order to safely negotiate the roundabout geometry it is considered that sufficient visibility to the left from the proposed entrance is provided.

As the Daingean Road is straight in the vicinity of the proposed entrance it is apparent that good visibility to the right will also be provided from the proposed entrance. The road is marked as a non-overtaking section of road with a continuous white line centreline and edge lines on either sides. The pavement quality is reasonably good although some ravelling and rutting of the pavement surface is visible at the proposed entrance.

Picture 1: Visibility to the west from the proposed entrance



Picture 2: Visibility to the west from the existing entrance



Picture 3 Visibility to the east from the proposed entrance



3.3.4 Mitigation measures

The following measures are proposed to enhance safety at the redeveloped facility and on the adjacent roads.

- all HGV traffic will be instructed to use the Tullamore Bypass whenever possible
- designated pedestrian routes throughout the site will be established

With respect to the construction of the Tullamore bypass, Offaly County Council's design will incorporate the following:

- the geometric design of the new access road is designed to NRA standards to ensure the safety of vehicles to/from the AES site as well as those travelling along the Daingean Road

- traffic lane widths in accordance with NRA standards will be provided for both inbound and outbound traffic movements on the new access road
- advance signing for the new entrance on all major approach roads to the facility to avoid traffic inadvertently entering Tullamore will be provided. The location and detail of same will be agreed with the local authority prior to installation

3.3.5 Conclusions of Traffic Assessment

This section has assessed existing and future traffic conditions on the local roads network in the vicinity of the proposed upgraded waste transfer station. The traffic generation figures used in the assessment of the development are considered robust. The results of the analyses carried out show that the likely increase in traffic and the likely impact of such traffic on the capacity and operation of the receiving roads network would not be significant.

The main points with regard to the traffic assessment are as follows:

- increase in traffic is estimated to be 7 HGV trips per day with the number of light vehicle trips remaining the same
- additional traffic flows will be generated on the Daingean road following the redevelopment; however the vast majority of this traffic will use the Bogtown roundabout of the N52 Tullamore Bypass which is currently being constructed.
- the visibility distance provided from the proposed new entrance to the roundabout is considered acceptable.

3.4 Air & Climate

This section presents details on air quality and climate within the existing environment in the vicinity of the waste management facility. Potential impacts of the proposed intensification of waste acceptance at the facility and mitigation measures are also described in this section.

3.4.1 Climate in the Existing Environment

Data for localised conditions, or microclimate, are derived from meteorological measurements at Birr synoptic weather station which is located approximately 36 km to the south-southwest of the proposed site. The national grid co-ordinates for Birr synoptic station are 52° 05' 25" N, 7°53'25" W.

Birr Synoptic Station was chosen as it is located 73 metres above mean sea level which corresponds with the mean sea level of the proposed site at approximately 60 metres. The station is situated in the low-lying plains of the midlands and the meandering Camcor River is within 1 kilometre of the station. This station should closely represent climatic conditions at the facility, as it is also situated in the low-lying midlands, with the Tullamore River within 1 kilometre of the facility.

The long term weather patterns at the site reflect regional conditions in the low-lying mid-land areas, with high summer temperatures and low winter temperatures. The average monthly weather data recorded at Birr synoptic station over the period 1961 to 1990 is set out in Table 3-16.



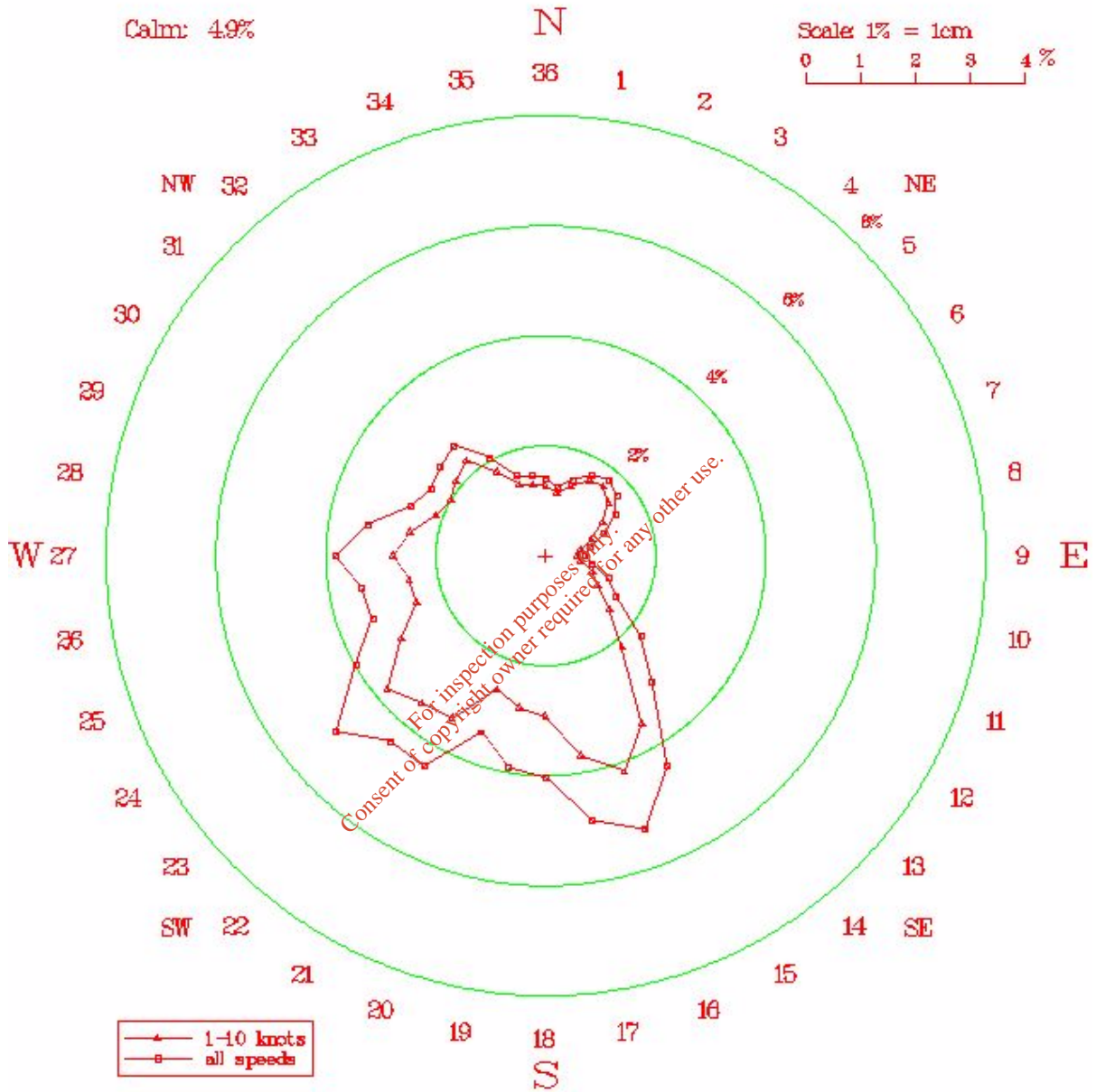
BIRR

1976-2005

Percentage Frequency of Occurrence of Wind Directions

Calm: 4.9%

Scale 1% = 1cm



—△— 1-10 knots
—□— all speeds

Percentage Frequency of Occurrence of Wind Speeds + less than 0.1

0	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	over 48 knots	%
4.9	21.8	25.6	27.3	17.3	2.5	0.4	+	+	0.0	0.0	

mean wind speed: 6.8 knots standard deviation: 4.6 knots
 anemometer height: 12m

Met Eireann, Glasnevin Hill, Dublin 9.

Windrose for AES Tullamore
(Birr Synoptic Station)

Table 3.16: Summary of Monthly and Annual Weather Data at Birr Synoptic Station 1961-1990.

TEMPERATURE (o C)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
mean daily max.	7.5	7.9	9.8	12.2	14.9	17.7	19.2	18.8	16.6	13.6	9.7	8.2	13
mean daily min.	1.8	1.8	2.5	3.5	5.9	8.7	10.7	10.3	8.5	6.7	3.1	2.5	5.5
mean	4.6	4.8	6.1	7.9	10.4	13.2	14.9	14.6	12.6	10.1	6.4	5.4	9.3
RELATIVE HUMIDITY (%)													
mean at 0900UTC	90	89	87	82	77	78	80	84	86	89	90	90	85
mean at 1500UTC	83	76	71	65	64	66	67	68	71	76	80	84	73
SUNSHINE (hours)													
mean daily duration	1.6	2.31	3.18	4.64	5.32	4.8	4.24	4.16	3.58	2.67	2.03	1.41	3.33
greatest daily duration	7.2	9.2	11.7	13.6	15.2	15.6	15.2	13.8	11.3	9.7	8.1	6.7	15.6
mean no. of days with no sun	11	7	5	3	2	2	3	2	4	6	9	12	66
RAINFALL (mm)													
mean monthly total	75.9	54	61.3	52.5	61.7	55.2	59.1	77.6	70.6	83.5	74.1	78.6	804.2
greatest daily total	28.6	35.3	25.9	30.9	26.3	27.5	39.5	42.2	25.6	40.3	25.9	47.1	47.1
WIND (knots)													
mean monthly speed	8	8.1	8.1	7	6.7	6.1	5.8	6	6.6	7.2	7.1	7.9	7
max. gust	85	77	62	58	55	49	49	58	81	65	60	69	85

The total monthly and annual rainfall data for 2007 (in millimetres) recorded at the Birr synoptic station is set out in Table 3.17.

Table 3.17: Annual Rainfall recorded at Birr Station for 2007

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall (mm)	95.6	60.3	57.7	21.8	53.1	91.2	99.5	145.2	44.9	34.6	49.6	109.4	862.9

Data on average wind speed and wind direction as measured by the meteorological station at Birr is summarised in Figure 3.7 showing the 30 year (1976 - 2005) windrose. The prevailing wind direction recorded at Birr is from the southwest and the mean annual wind-speed recorded at this meteorological station is 6.8 knots (3.5 m/s).

3.4.2 Potential Impacts on Climate

The proposed development at the waste management facility at Cappancur will not result in the generation of any significant emissions that could impact on local or global climate.

This will increase energy usage at the facility and increase the use of heavy fuel oil is currently being used to drive any mobile plant and equipment.

AES Ltd. will strive to reduce the energy requirements of the facility. An energy audit will be conducted to identify all opportunities for energy use reduction and efficiency at the facility and the recommendations of the audit will be integrated into the management of the facility.

3.4.3 Mitigation Measures for Climate

As there will be no potential impacts on climate, no mitigation measures are proposed.

3.4.4 Air in the Existing Environment

Dust

Total dust deposition is measured at the site using Bergerhoff gauges specified in the German Engineering Institute VDI 2119, entitled '*Measurement of Dustfall Using the Bergerhoff Instrument (Standard Method)*'. Table 3-18 summarises the results recorded at the site by Bord Na Mona Environmental Limited in 2007 and 2008 and compares these to the existing waste licence limit of 350 mg/m²/day.

Table 3.18: Result of Total Dust Deposition Monitoring

Monitoring Location	July 2007 Deposition rate (mg/m ² /day)	August 2007 Deposition rate (mg/m ² /day)	January 2008 Deposition rate (mg/m ² /day)
D1	542	250	87
D2	189	372	58
D3	668	75	145
D4	689	546	459

Exceedences of the licence limit have been recorded at all locations. These are attributed to the location of the monitoring points adjacent to the main activities on-site as well as a number of external sources. D1 and D2 are located adjacent to a busy local road; D3 is located beside the dog pound and gravel lane leading to a farm house, while D4 is adjacent to a joinery shop which borders the eastern boundary of the site.

Odour

Given the nature of the waste that is accepted at the site and all waste acceptance and processing activities occur with the main building, odour has not been an issue at the facility. There were no odour complaints received in 2006 and 2007.

3.4.5 Potential Impacts on Air

The potential sources of air emissions from the proposed intensification of the site include:

- dust emissions from the construction and operation of the facility and movement of vehicles to and from the site
- odour from the main processing building
- traffic generated emissions

Dust

Dust emissions arise when an operation causes particulate matter to become airborne. This airborne dust is then available to be carried downwind from the source. The amount of dust generated and emitted from a working site and the potential impact on surrounding areas varies according to the following:

- the type and quantity of material and working method
- climate/local meteorology and topography

The intensification of the site and the re-location of the administration building will require some construction activities including the laying of new services, the re-location of the wastewater treatment plant etc. These activities have the potential to generate dust emissions.

During the operation of the site, it is proposed to accept some 6,600 tonnes of construction and demolition waste at the site which will generally be delivered in skips. The unloading and sorting of this material along with the emptying of general waste loads within the main building has the potential to give rise to dust emissions.

Dust emissions can also rise from the movement of vehicles within the site boundary.

Odour

Intensification of waste acceptance activities at the facility has the potential to give rise to odour issues. Odours from waste recycling operations arise mainly from the volatilisation of odourous gases from the surface of exposed odourous materials as well as the uncontrolled anaerobic decay of accepted organic materials.

Traffic Generated Emissions

Traffic generated emissions are primarily NO_x, particulates and hydrocarbons.

Access to the proposed facility will be via the Daingean Road which had an Annual Average Daily Traffic (AADT) rate of 286 in 2001. The AES Ltd. facility accepted 42,895 tonnes of waste material in 2007. The intensification of the site will see this increase to 50,000 tpa which equates to an additional 7 HGV movements per day (refer to Section 3.3.3). The completion of the Tullamore bypass will see a change to the configuration of the roads in the vicinity of the facility. The newly constructed Tullamore bypass will have an AADT of approximately 10,700 with the AADT along the Daingean Road increasing to over 3,000. In this context, the overall increase in traffic generated emissions will not be significant.

3.4.6 Monitoring of Air Quality

Under the existing waste licence W104-01, dust generation is monitored at four locations as identified in Figure 2.3 (see Section 2.4).

It is proposed that three locations be monitored for dust generation in future as the scale of the site does not warrant four locations.

The requirement for two dust monitoring locations at the northern boundary of the site within approximately 50 metres of each other can be considered excessive and it is proposed to retain one of these northern locations only. Revised dust monitoring locations are indicated in Figure 2.4.

As previously mentioned in Section 2.4, a dust extraction system above the manual picking lines is proposed for occupational health and safety reasons. Prior to venting to atmosphere, this airstream will pass through a filtration system to remove dust particles (e.g. bag filters). It is proposed to locate an air emission monitoring point post filtration for the measurement of particulates at the location indicated in Figure 2.4.

3.4.7 Mitigation Measures for Air

The following best practices are currently implemented at the site:

- regular inspection and monitoring of waste handling areas for cleaning purposes
- all loading and unloading of wastes occur within the main processing building
- the entire site consists of a concrete hardstanding which is swept on a regular basis
- a 20km/h speed limit on all internal movements
- vehicles delivering materials to site with the potential to cause dust emissions are covered or enclosed
- internal site roads are sprayed during periods of dry weather in order to suppress dust generation

As part of the proposed development, it is proposed to install a number of air abatement control systems (in accordance with Best Available Techniques (BAT)) to minimise and prevent fugitive and point emissions. These include:

- a misting system within the main processing building which will have a dual function of controlling dust and odour emissions arising from the loading and sorting/processing of waste loads
- dust curtains on the three main entrances (one on the north of the building and the two to the south)
- an active extraction system over the picking lines (to be enclosed) and exhausting through a bag filter prior to discharge to the atmosphere.

3.4.8 Conclusions on Climate & Air

There will be no impact on the climate of the region as a result of the proposed development. Negligible impacts resulting on air from operations at the facility will be mitigated in accordance with BAT.

3.5 **Conclusions on the Human Environment**

The existing facility has been in operation for over 10 years in the locality. As the proposed development is within the existing site boundary there will be no significant impacts on the surrounding land use or tourism in the area.

The proposed development will increase traffic on the local Daingean Road by 0.5 % following completion of the N52 Tullamore bypass.

The likely increase in traffic and the impact of such traffic on the capacity and operation of the receiving roads network will not be significant. A positive impact is that once the by-pass is complete, traffic to the AES Ltd. facility can then access the facility from this road.

The proposed development will continue in providing employment at the facility and may provide employment for additional staff if it is decided to operate a double shift at the facility. This will further benefit the economy of the area and also contribute to the indirect economy of the area.

The impact on noise levels at the noise sensitive location is not expected to be significant as traffic movements along the Daingean Road and at the filling station represents the dominant source of noise here. It is considered that the increase in traffic movements as a result of the N52 bypass will have a greater impact at the NSL and will counteract any potential for noise impact from the AES Ltd. facility, particularly in night-time hours.

Air quality and climate at the existing facility will not be impacted as a result of the proposed development. It is proposed to adjust management system within the main processing building to mitigate against the potential for increased dust generation at the facility.

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4. GEOLOGY & HYDROGEOLOGY

This section of the EIS addresses geology and hydrogeology in the existing environment, identifies potential impacts of the proposed development and outlines measures to avoid, reduce and mitigate potential impacts.

4.1 Methodology

This section was prepared having regard to 'Geology in Environmental Impact Statements – A Guide', Institute of Geologists of Ireland, September 2002. It was also prepared using available published literature for the site area. The literature reviewed included:

1. Groundwater Protection Scheme for County Offaly (from www.gsi.ie)
2. Geology of Galway - Offaly - Sheet 15 (GSI)
3. General Soil Map of Ireland - Second Edition 1980.

4.2 Existing Soils and Geology

The existing geology is described in terms of the bedrock geology, overburden geology and hydrogeology.

4.2.1 Surface Soils

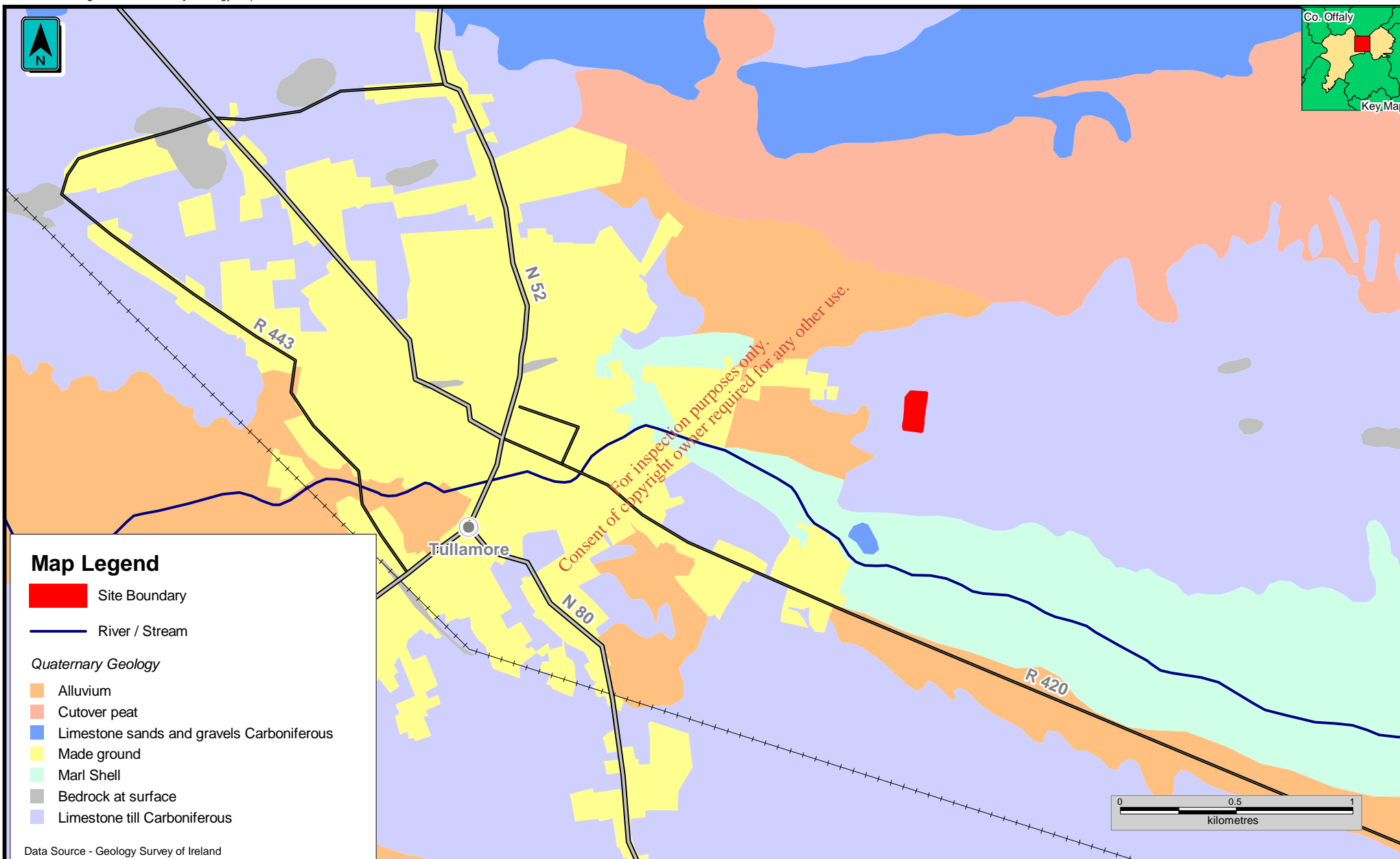
The General Soil Map of Ireland, 1:575,000 scale shows that the soils to the east of Tullamore belong to the "Flat to Undulating Lowlands" broad physiographic division characterised by mainly dry mineral soils.

The site area includes principally Minimal Grey Brown Podzolics with associated Gleys, Brown Earths and Basin Peats, derived from the underlying limestone glacial till material.

4.2.2 Quaternary Geology

Figure 4.1 shows a summary of the Quaternary Geology for the site and surrounds. The site lies within an area of Glacial Till ("Boulder Clay") derived from the underlying limestone bedrock.

Glacial Till in this area are formed from movement of glaciers and meltwaters over the underlying bedrock and which typically result in the deposition of low permeability silty clays containing a wide range of clast sizes from sand and gravel to cobbles and boulders. The thickness of these deposits is also highly variable ranging from a few metres up to tens of metres.



Bedrock Geology

Figure 4.2 presents a summary of the bedrock geology of the site and surrounding area. The GSI 1:100,000 scale bedrock geology map (Sheet 15, Galway - Offaly) "*Bedrock Geological Map of the Carboniferous of Central Ireland*" (Geological Survey of Ireland, 1992) is the reference source for the description of the bedrock geology of the region.

The map shows that the entire site is underlain by Carboniferous Basinal Limestones (undifferentiated Visean Limestone). These rocks are predominantly dark laminated, argillaceous calcisiltites and calcareous shales, some limestone turbidites which are locally sandy.

Due to their argillaceous 'impure' nature, karst features are not commonly associated with the limestone; however, the GSI website shows some karst features do exist within limestones in the Tullamore area including springs and swallow holes although none are shown within 1 km of the AES Cappancur facility.

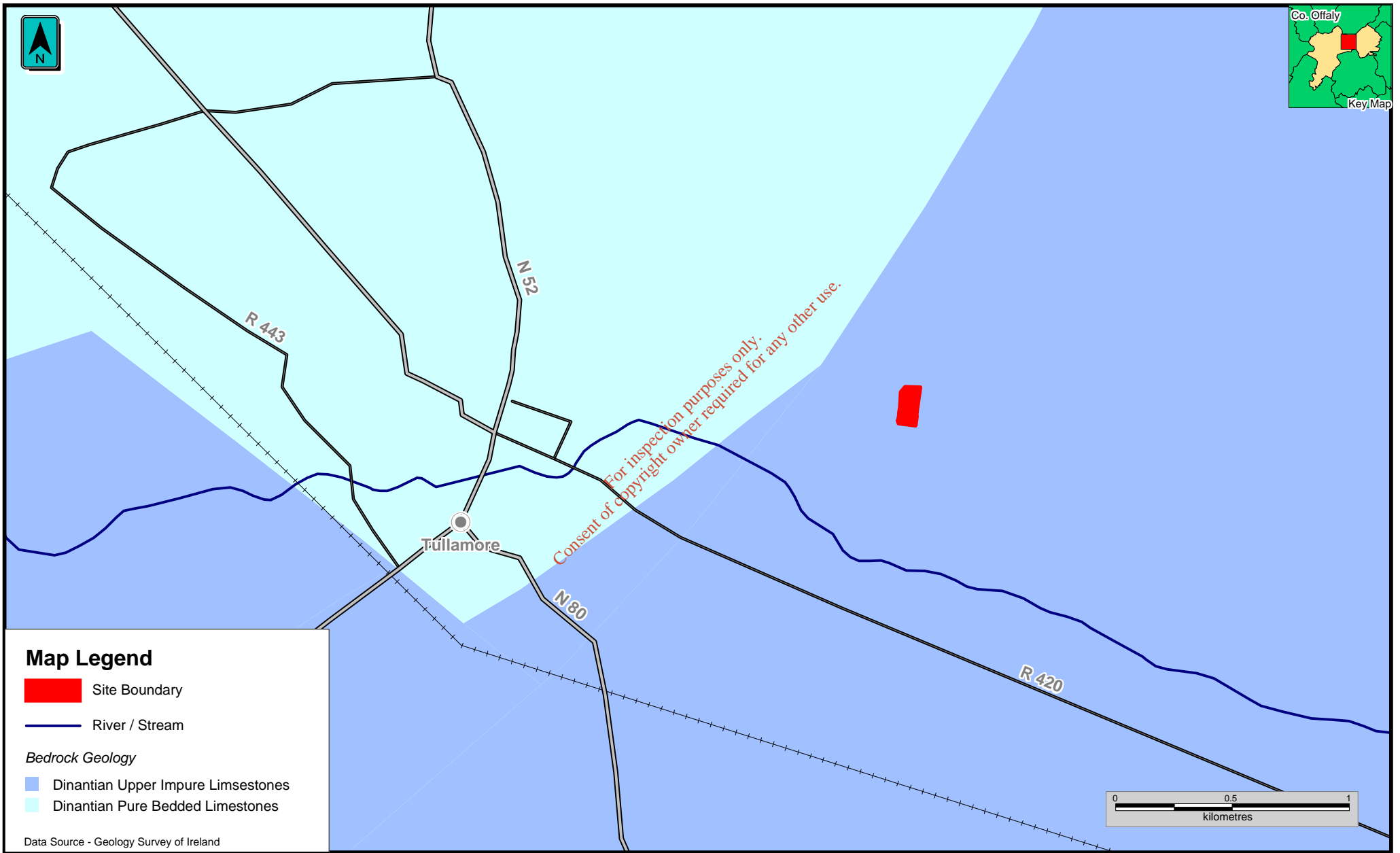
4.2.3 Structural Geology and Topography

The topography of the area is one of rolling hills and wide river valleys. The hills have been formed as a result of the Variscan Orogeny which took place towards the end of the Carboniferous. The deformation in this area formed a number of northeast-southwest trending anticlines and synclines.

Structurally, apart from the folding of the strata, the area is cut by several faults which either follow the stratigraphic boundaries or more commonly run perpendicular to the boundaries in a northwest-southeast direction. None of the faults cross the site although a northeast-southwest trending boundary (the Knockshigowna Fault) lies approximately 500 m west of the site and separates the impure limestones to the south deposited within the Tullamore Trough from the pure limestones in the north deposited on the Borriskane-Birr Shelf.

4.2.4 Borehole Data

Three boreholes were undertaken on the site during August 2008 on behalf of AES. The boreholes encountered predominantly glacial till material to a depth of between 7 m and 9 m which comprised mainly silty clay with some minor sand and gravel. The site is also covered by up to 1 m of made ground (concrete and hardcore) while one borehole also encountered up to 2 m of alluvial peat or black silt overlying the glacial clay and silt. Bedrock was not proven during the investigation. The boreholes were fitted with groundwater wells for monitoring and sampling purposes (see 4.3.1).



4.3 Hydrogeology

The hydrogeological characteristics of the region are strongly influenced by the Variscan fold system along approximate northeast-southwest trends. The principal aquifers (“Regionally Important Aquifers”) of the region are the pure shallow marine Lower Carboniferous (Lower Dinantian) limestones which occupy the synclinal valleys of the region. The permeability of the aquifers depends almost entirely on their fracturing. Within the limestones, the permeability has been further enhanced by enlargement of the fractures by karstification and dolomitisation.

The site area however is underlain by a “Locally Important Aquifer (LI)” which is “moderately productive in local zones only”. A “Regionally Important Aquifer” is located some 500 m west of the site within the pure limestones of the Lower Dinantian. Figure 4.3 indicates aquifer classification in the vicinity of the AES Ltd, facility.

Water in limestone aquifers is always hard (usually over 250 mg/l CaCO₃ and often over 300 mg/l CaCO₃)

Most well yields within the Lower Dinantian limestones are low (less than 100 m³/day) and occasional failed wells are probable. Specific capacities are often low. High yields (more than 400 m³/day) are possible, but these are associated with fault zones. According to the GSI website, there are approximately 10 groundwater wells located within 1 km of the site, of which five wells are located within Cappancur, approximately 1 km east of the site and presumably within the same aquifer system as the site. These wells were drilled or dug for both domestic and public water supplies to depths of between 2.7m and 25m. Three of the wells were drilled to depths of 2.7 to 5.2m without meeting rock. Two of the wells met rock at depths of 3.4m and 13.0m. The yield of the public supplies is not known while the domestic wells have poor yields of between 9.8 and 28 m³/day.

4.3.1 Groundwater Levels and Geochemistry

Groundwater samples were collected from the three drilled groundwater wells for analysis by Bord Na Mona Environmental during August 2008. The standing groundwater levels within the boreholes was between 0.56 m and 1.11 m below ground level. A summary of the geochemical test results is presented in Table 4.1.

Table 4.1: Groundwater Geotechnical Test Results (Sampled 24/07/08)

Well Name	Parameter	Results	Units
GW1 (up gradient NE of waste processing building)	Conductivity @ 25°C	554	µS/cm
	pH	7.9	pH units
	DRO	<10	µg/l
	Mineral oil	<10	µg/l
	Ammonia	<0.02	mg/l

Well Name	Parameter	Results	Units
GW2 (down gradient SE of waste processing building)	Conductivity @ 25°C	586	µS/cm
	pH	7.6	pH units
	DRO	<10	µg/l
	Mineral oil	<10	µg/l
	Ammonia	0.07	mg/l
GW3 (down gradient SW of waste processing building)	Conductivity @ 25°C	575	µS/cm
	pH	7.9	pH units
	DRO	<10	µg/l
	Mineral oil	<10	µg/l
	Ammonia	0.07	mg/l

The results show that there may be an increase of ammonia within the groundwater as a result of site activities. At present, the maximum ammonia levels recorded are below the Interim Guideline Value for the core parameters in Table 3.1 in the EPA publication "Towards Setting Target Values for the Protection of Groundwater in Ireland Interim Report." The other parameters suggest that the site does not have any major impact on the groundwater for the parameters tested provided that these parameters do not change significantly.

4.3.2 Groundwater Vulnerability

Groundwater vulnerability, as defined by the GSI, is the term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities. The factors used in assessing groundwater vulnerability include subsoil type and thickness, and recharge type. The GSI procedure whereby groundwater protection is assessed is outlined in the EPA-GSI publication 'Groundwater Protection Schemes' (1999). The procedure also proposes a matrix, which relates vulnerability, source and resource such that a particular site is given a Response ("R") to specific activities.

The GSI online Groundwater Vulnerability Mapping for the area rates the majority of the site area as "Moderate Vulnerability". The aquifer vulnerability of the site and surrounding area are shown in Figure 4.4.

The deposits of glacial till within the southwest parts of the site have a generally low permeability and act as confining aquitards to the underlying aquifer within the bedrock. It is likely that the groundwater encountered during the site investigation represents a perched aquifer within the upper parts of the glacial till and alluvial deposits and may not be in hydraulic connectivity with the underlying limestone bedrock.

Table 4.2 details the aquifer vulnerability of the site as assessed from the soils encountered during drilling of the groundwater wells which is in agreement with the GSI's assessment of the site vulnerability.

Table 4.2: GSI Guidelines - Aquifer Vulnerability Mapping

Vulnerability rating	Hydrogeological Conditions		
	<i>Subsoil Permeability (Type) and Thickness</i>		
	High Permeability (Sand/gravel)	Moderate Permeability (e.g. Sandy soil)	Low Permeability (e.g. Clayey subsoil, clay, peat)
Extreme (E)	0 - 3.0 m	0 - 3.0 m	0 - 3.0 m
High (H)	>3.0 m	3.0 -10.0 m	3.0 - 5.0 m
Moderate (M)	N/A	>10.0 m	5.0 - 10.0 m
Low (L)	N/A	N/A	>10 m

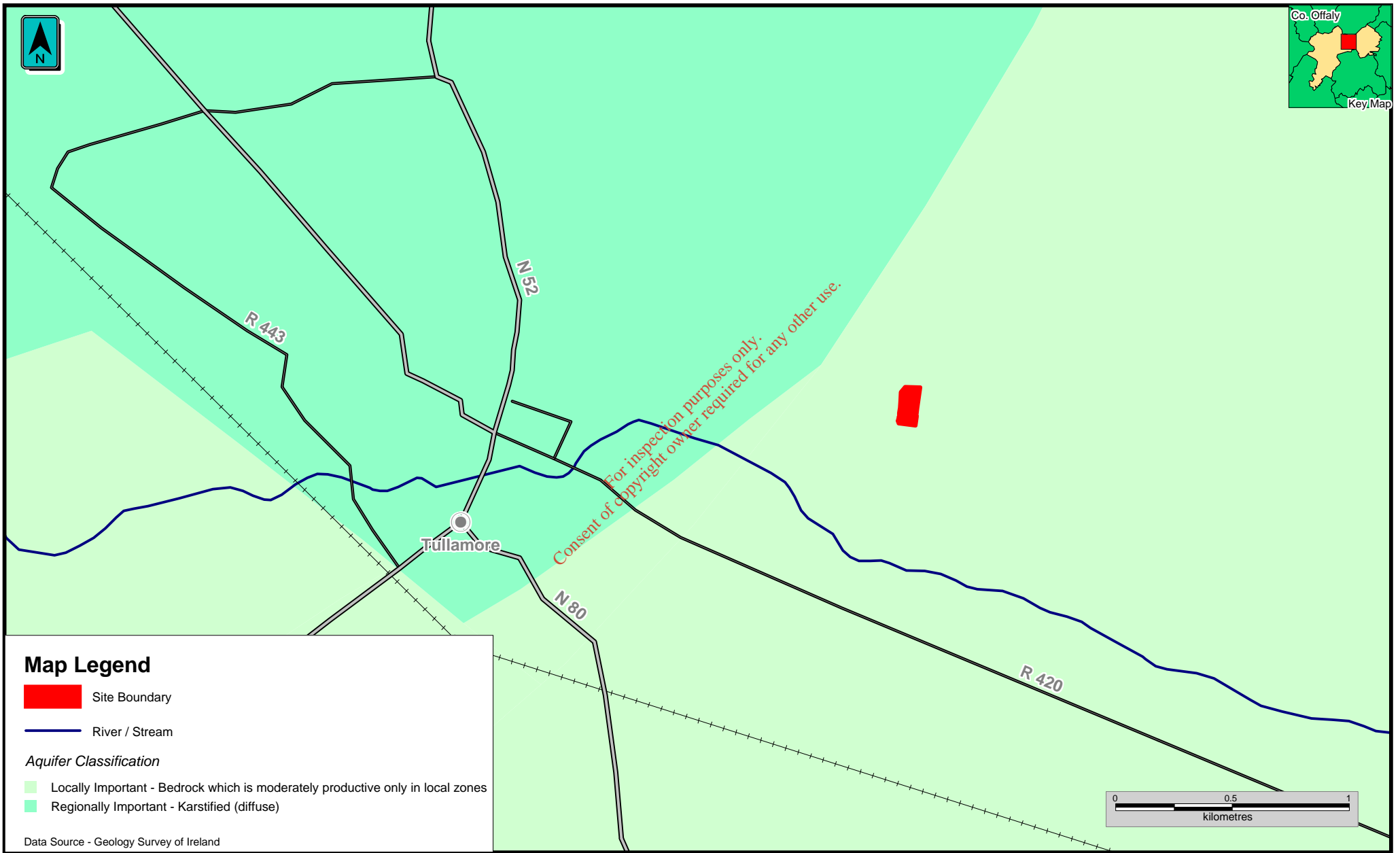
Notes:

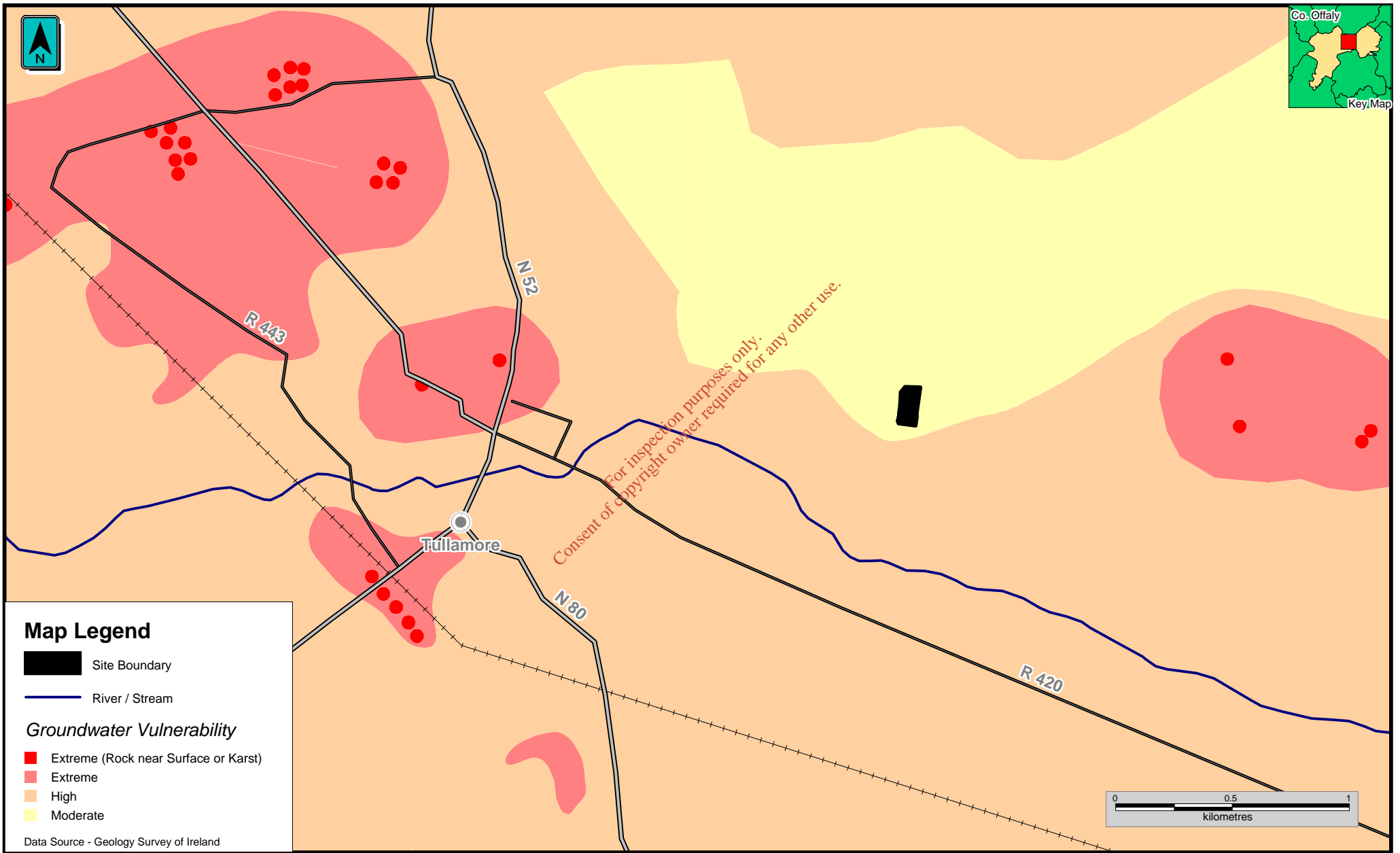
N/A = Not Applicable

Precise permeability values cannot be given at present.

Release point of contaminants is assumed to be 1-2m below ground surface.

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Potential Impacts on Geology and Hydrogeology

This facility has already been constructed and is operational. The proposed development is predominantly in relation to waste acceptance at the facility. There will therefore, be no additional impacts on the site geology or hydrogeology.

4.4 Mitigation Measures for Geology and Hydrogeology

As the additional impacts on the geology and hydrogeology are expected to be insignificant, no mitigation measures are deemed necessary for the development. However, it is recommended that groundwater is monitored at regular intervals after waste intensification in order to assess the actual impact on the hydrogeological regime and geochemistry of the area. The location of the three recently (August 2008) drilled groundwater wells which can be used for future groundwater monitoring is identified in Figure 2.4 (subject to Agency approval).

4.5 Conclusions

It is not expected that there will be any impact on the existing geology and hydrogeology at the Cappancur site as a result of the proposed development. Groundwater monitoring will be carried out at the three groundwater wells.

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5. HYDROLOGY & WATER QUALITY

This section addresses hydrology and surface water runoff in the existing environment, identifies potential impacts of the proposed development and outlines measures to avoid, reduce and mitigate potential impacts. Residual impacts that can not be avoided are also identified and discussed.

5.1 Methodology

This section was prepared using available published literature and following a walkover survey of the site and a windscreen survey of the surrounding area. The literature reviewed included:

- Bord na Móna (2008) - Environmental Assessment of the Quality of Surface Waters at the AES (Ireland) Ltd. site at Cappancur, Tullamore
- EPA (2006) – The Biological Surface of River Quality – Results of the 2005 Investigations, www.epa.ie
- Michael MacCarthaigh (2002) - Parameters of Low Flow and Data on Low Flow in Selected Irish Rivers; Paper presented in the National Hydrology Seminar 2002, Tullamore, Ireland.
- Shannon International River Basin District (SIRBD) Management Project, <http://www.shannonrbd.com>
- National Flood hazard mapping; www.floodmaps.ie

Hydrological features at the facility and in the surrounding area were assessed from the Discovery map, topographic map of the area and the information available in the above sources.

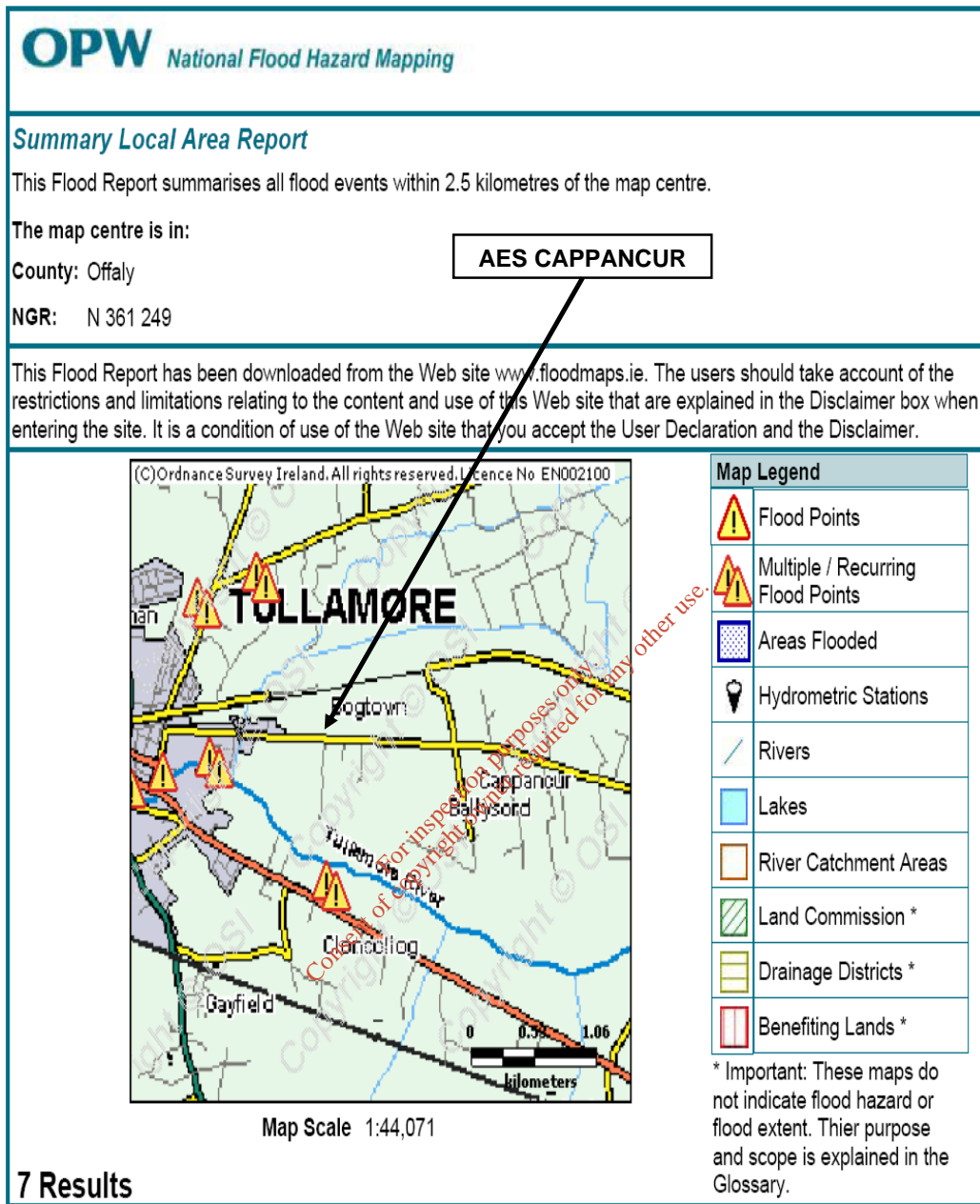
5.2 Existing Hydrology and Drainage of the Area

5.2.1 General Hydrology and Drainage of the area

The AES Cappancur facility is located in the Hydrometric Area No. 25 of the Irish River Network, in the Shannon International River Basin District (ShIRBD). The ShIRBD is the largest river basin district in Ireland, comprising a land area of approximately 18,000 km² of central Ireland. The River Shannon is the main surface water feature of the ShIRBD, together with rivers Suck, Inny, Brosna, Fergus, Maigue, Deel and Mulkear as the principle tributaries of the Shannon River. The drainage ditch at to the southern boundary of the facility drains to the Tullamore River, located approximately 750 metres south and the facility. The Tullamore River is one of the tributaries of the River Brosna.

According to the national flood hazard mapping website (www.floodmaps.ie), the Tullamore River has a history of recurring flooding along its reach (see Figure 5.1). Recurring flooding incidents have been reported in the Tullamore River at Cloncollog on the south side of the river and at eastern and northern location in Tullamore town. However, it can be seen that the location of the AES Cappancur facility does not have a history of flooding.

Figure 5.1: History of flooding near AES site at Tullamore



Source; (www.floodmaps.ie)

The existing facility at Cappancur consists of approximately 1.11 ha, which is fully developed. At present, wastewater from toilets and canteen are treated in the on-site wastewater treatment system.

All surface water run-off generated on-site passes via a dedicated interceptor and is discharged to the drainage ditch at the southern perimeter of the site.

5.2.2 Low Flow Hydrology of the nearby river/streams

There are a number of hydrometric gauging stations on the Tullamore River, with two of them at or near to Tullamore town; namely, Station No. 25149 which is now obsolete and Station No. 25331 at Tullamore weir. However, no hydrometric data are available on the OPW website (www.opw.ie/hydro) for the Tullamore River.

The EPA website (www.epa.ie) shows dry weather flow (DWF) in the Tullamore River at Station No. 25149 (obsolete), with a catchment area of 111.3 km², as 0.1 m³/s (i.e. 100 l/s). As the 95-percentile flow (q95) values in most Irish rivers are approximately twice the DWF values, the q95 value in the Tullamore River at Station 25149 can be considered as approximately 200 l/s. From this, the specific q95 value in the Tullamore River catchment can be considered as being approximately 1.8 l/s per km² of the catchment area.

The catchment area of the drainage ditch located to the south of the facility appears from mapping to be less than 1 km². Therefore, the 95-percentile flow in this ditch can be expected to be approximately 1 l/s. This ditch drains to the Tullamore River approximately 750 m from the facility and the catchment area of this river at this location is approximately 90 km². Considering the specific 95-percentile flow as 1.8 l/s per km² of the catchment area, the 95-percentile flow in the Tullamore River at this location can be estimated as approximately 162 l/s.

5.2.3 Existing Water Quality

The EPA monitors water quality on the Tullamore River at the following three stations (See Fig 5.2):

- The first at Geashill Stream (Station 0030, catchment area = 10 km²) located approximately 9 km upstream of the facility
- The second at Springfield Bridge (Station No. 0100, catchment area = 72 km²) located approximately 3 km upstream of the facility
- The third near Ballycowan Bridge (Station 0400, catchment area = 132 km²) located approximately 7 km downstream of the facility

The biological index (Q-value) monitored by EPA at the three monitoring stations on the Tullamore River are summarised in Table 5.1.

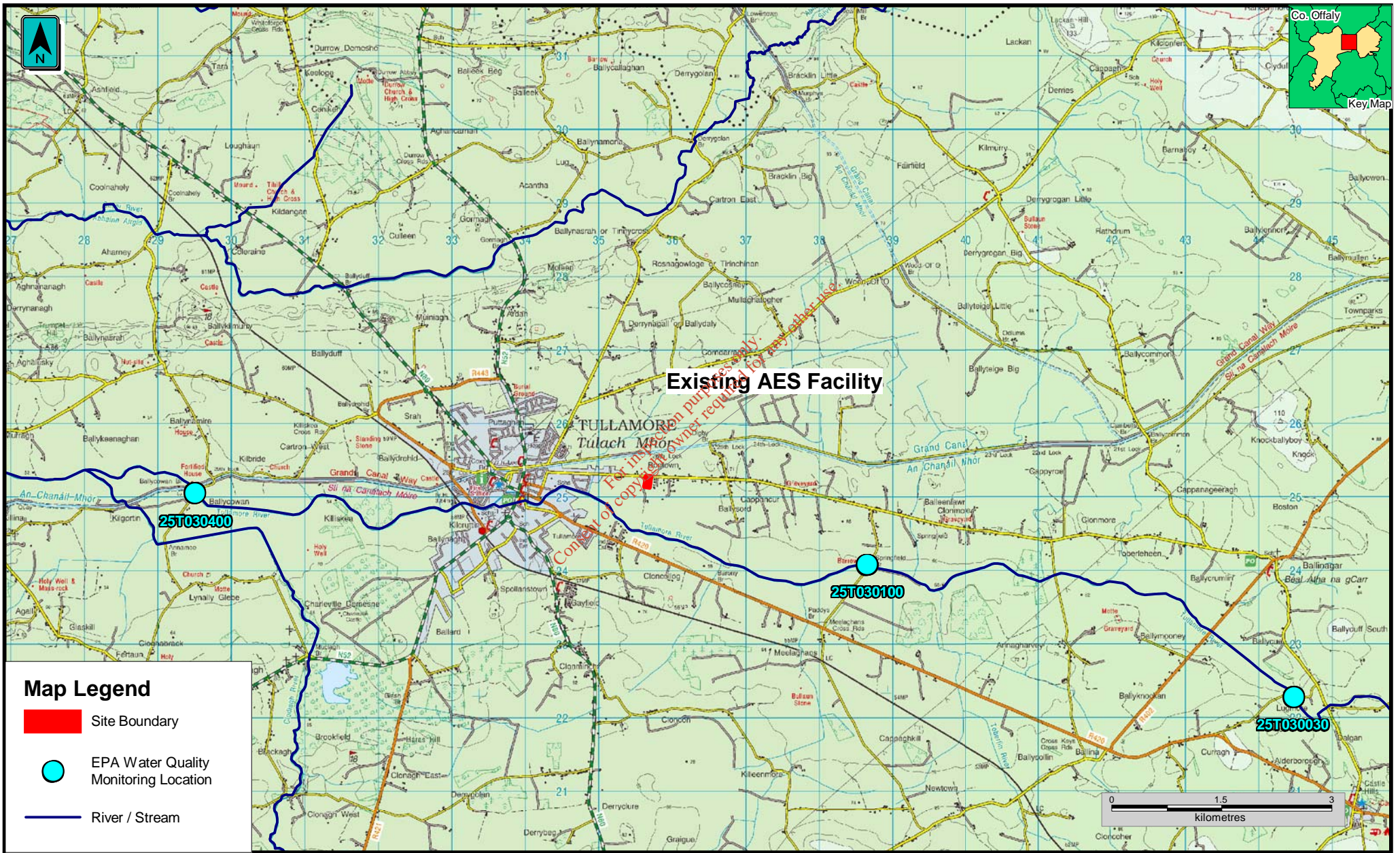


Table 5.1: Summary of Surface Water Quality Data of the Tullamore River

Sampling Stations		Q-Value										
No.	Location	1971	1975	1977	1981	1986	1987	1993	1996	1999	2002	2005
0030	Br d/s Geashill Stream	-	-	-	-	-	-	3	3	3	3	3
0100	Springfield Bridge	4	3-4	3-4	4	4	3	4-5	3	3	3	3-4
0400	Br near Ballycowan Br	1-2	2	1-2	2	2	2	2-3	2-3	2	2	2

(Source: www.epa.ie)

Table 5.1 shows that the water quality of the Tullamore River is seriously polluted downstream of Tullamore Town and moderate to slightly polluted upstream of the town i.e. upstream of the existing AES Cappancur facility.

According to the EPA Water Quality Monitoring Report (2005), sewage from Geashill and Tullamore is suspected as the most likely cause of the unsatisfactory condition of the Tullamore River in 2005. The upper reaches (0030) were very heavily silted and lacked sensitive macroinvertebrate species and although some sensitive species were observed downstream. At Springfield Bridge (0100) the abnormally luxuriant crops of water weed and algae plus heavy siltation indicated significant eutrophication at that location: dissolved oxygen (DO) was reduced to just 59% at that time. Downstream of the Tullamore town, the river was again seriously polluted at Ballycowan (0400) where DO was reduced to just 35% of saturation.

At present, the surface water runoff from the existing operation at the site is being discharged to a ditch located on the southern perimeter of the site, which in turn, discharges to the Tullamore River approximately 750 metres south of the facility. It must be noted that the drainage ditch of the AES facility also drains the wider Cappancur Industrial Estate and agricultural lands located directly behind the AES facility and the industrial estate.

AES Ltd. retains Bord na Mona to carry out surface water monitoring in accordance with the waste licence for the facility at the three monitoring points – SW01, SW02 and SW03 as shown in Figure 2.4.

Sampling point SW01 is located upstream of the existing facility, sampling point SW02 is located at the discharge point from the facility interceptor and sampling point SW03 is located approximately 100 m downstream of the discharge locations.

A summary of the monitoring for 2007 at SW-2 is presented in Table 5.2 to indicate the monitoring results over a period of one year. Results are presented for SW-2 only as this is the only discharge point to the drainage ditch from the facility and surface water discharge limits apply only to discharge point(s) from the facility as per Schedule C of existing waste licence W104-01.

Table 5.2: Results of Chemical Analysis of Surface Water Samples for 2007

Parameter	SW-2 Q1 2007	SW-2 Q2 2007	SW-2 Q3 2007	SW-2 Q4 2007	Waste Licence W104-01 Discharge Limit
Ph (pH units)	7.7	7.7	7.9	7.7	6 – 9
Conductivity (μS/cm) @ 25^oC	721	944	665	694	1000
On-Site Visual Inspection	.Clear, low flow	Clear, few s.s	Clear, few s.s	Clear, few s.s	
Odour	none	None	none	none	
BOD (mg/l)	<2	<2	3	<2	5
COD (mg/l)	19	<10	18	22	40
Suspended Solids (mg/l)	11	6	13	28	25
Oils, Fats and Greases	12	<1	<1	13	---
Ammonia as N (mg/l)	0.63	0.60	0.45	0.40	0.02
Chloride	27	27	24	23	250
DRO (μg/l)	<10	<10	<10	<10	
Mineral Oil (μg/l)	<10	<10	<10	<10	5000

Table 5.2 indicates that a number of exceedences over and above the waste licence discharge limits were observed in 2007 at SW-2 in relation to suspended solids and ammoniacal nitrogen. Apart from these exceedences, water quality parameters are generally observed to be within the discharge limits.

It is proposed as part of the waste licence review application for the proposed development that alternative emission limit values (ELVs) be applied at the facility in relation to suspended solids and ammoniacal nitrogen.

Table 5.2 presents ammoniacal nitrogen in a range from 0.40 – 0.63 mg/l N in comparison to an ELV of 0.02 mg/l N. An ELV of 0.02 mg/l N is specified in SI 293/1988 (Quality of Salmonid Waters) Regulations.

Given the nature of the receiving surface water body i.e. a drainage ditch with limited or very low flow which is susceptible to surface water drainage from agricultural fields and other industrial sites, the application of water quality parameters applicable to salmonid waters can be considered restrictive.

Likewise, the ELV for suspended solids of 25 mg/l SS also relates to SI 293/1988 although only one exceedence of this ELV was observed in 2007.

It is suggested that the application of the ELVs for both ammoniacal nitrogen and suspended solids that are specified in SI 294/1989 (Quality of Surface Water intended for the abstraction of drinking water) Regulations be applied at the AES Cappancur facility.

These are, specifically, 50 mg/l suspended solids and 1 mg/l NH₄ as N. The Quality of Surface Water intended for the abstraction of drinking water Regulations are referenced in the *BAT Guidance note for the Waste Sector; Transfer Activities* published by the EPA.

It is also proposed that SW-2 be the single monitoring point in relation to surface water discharge at the facility for the following reasons:

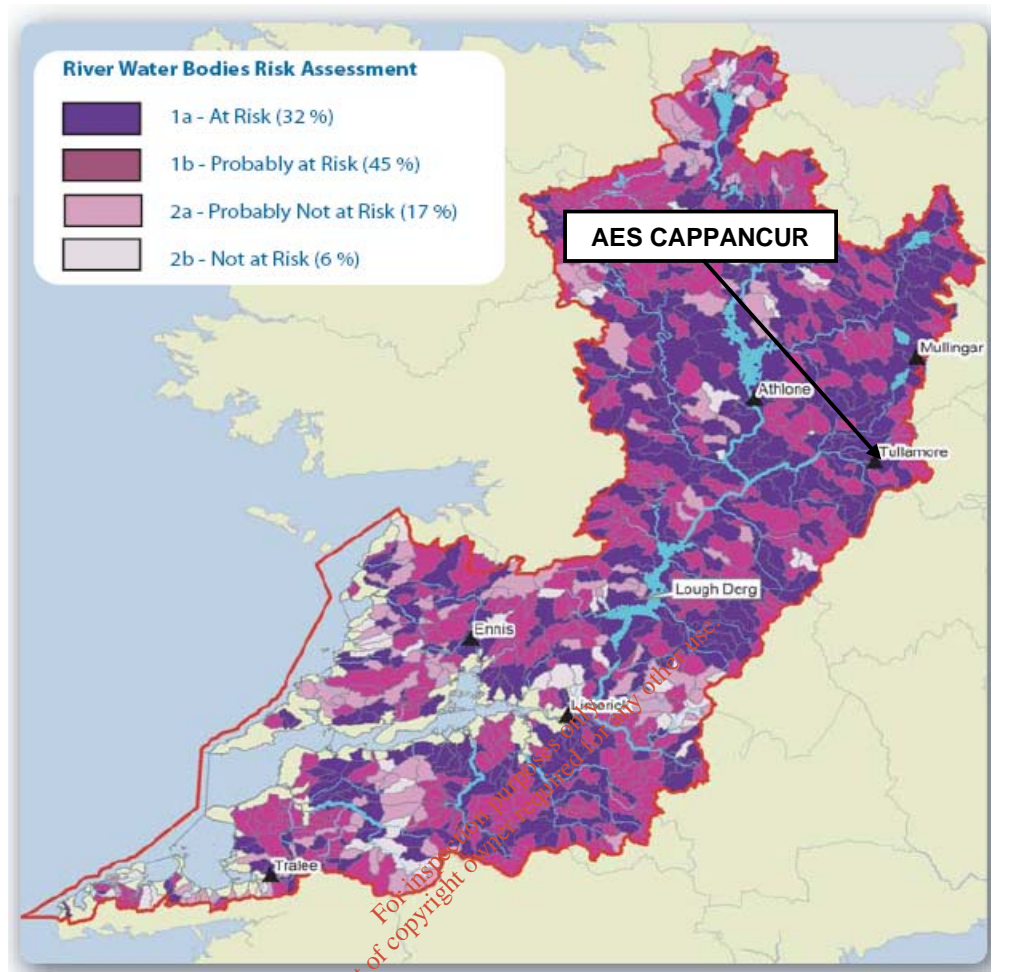
- the nature of the receiving drainage ditch is such that there is very little to no active flow in the surface water body. While SW-1 and SW-3 are described as 'upstream' and 'downstream' respectively, the lack of flow means that the measurement of the quality of the receiving body at these locations is not indicative of the effect of the surface water discharge at 'upstream' and 'downstream' locations
- SW-1 is located approximately 150 m east of SW-2 and directly south of a number of other industrial units in the Cappancur Industrial Estate. Surface water runoff from other units in the industrial estate may enter the drainage ditch at this point, as may run off from the adjoining agricultural field, presenting a water quality reading that is unrelated to any activities at the AES facility
- the future viability of SW-3 is unsure due to the construction of the N52 Tullamore bypass. It is likely that the road construction will impact on the drainage ditch at this location through the culverting of the ditch at this point. It is also likely that run off from the bypass will be diverted to this drainage ditch which may affect the quality of the water body in a way that is unrelated to operations at the AES facility

5.2.4 Shannon International River Basin District (ShIRBD)

The Shannon International River Basin District (RBD) Management Project is a project that "*seeks to maintain and improve the quality*" of the surface and groundwater's of the Shannon River Basin District, in accordance with the terms of the EU Water Framework Directive (WFD). The main objective of the WFD is to obtain good status in all waters by 2015.

The ShIRBD is the largest river basin district in Ireland, comprising a land area of approximately 18,000 km² and includes an extensive area of central Ireland, and drains significant portions of counties Cavan, Clare, Galway, Kerry, Leitrim, Limerick, Longford, Offaly, Roscommon, Tipperary and Westmeath and lesser areas of counties Cork, Laois, Mayo, Meath and Sligo. A small portion of the RBD is in Northern Ireland and so the Shannon is formally designated as an International RBD. The Rivers Suck, Inny, Brosna, Fergus, Maigue, Deel and Mulkear are among the principle tributaries of the Shannon River. The AES facility is located close to the Tullamore River, which is one of the major tributaries of the River Brosna, which itself is a tributary of the River Shannon.

Figure 5.3: SHIRBD - River Water Bodies Risk Assessment Result



(Source: www.shannonrbd.com)

Four types of pressures, created by human activities, were identified which can cause deterioration of water quality if not managed properly. These are:

- sewage and other effluents discharged to waters from point sources, e.g. outfall from treatment plant
- discharges arising from diffuse or dispersed activities on land
- abstractions from waters
- structural alterations to water bodies

Risk assessment procedures were developed to analyse the impact of these pressures on water bodies in the district. Four categories of risk were created to assess how sensitive the water bodies are from the pressures above.

- *Not at Risk*: Sufficient information is available to determine that the impact of the pressures on the water body is such that the water body is likely to achieve good status. In some cases monitoring data is available to confirm the good quality status of the water body. Measures must be considered here to ensure deterioration from good status does not occur. Approximately 6% of the catchment area of the SHIRBD falls under this category (See Figure 5.3).

- *Probably Not at Risk*: Sufficient information is not available at present to determine whether the water body is at risk of failing to meet good status. However, based on existing available data, it is probable that the water body will be found to be not at risk when further information becomes available. Approximately 17% of the catchment area of the ShIRBD falls under this category (See Figure 5.3)
- *Probably at Risk*: Sufficient information is not available at present to determine whether the water body is at risk of failing to meet good status. However, based on existing available data it is probable that the water body will be found to be at risk when further information becomes available. Approximately 45% of the catchment area of the ShIRBD falls under this category (See Figure 5.3)
- *At Risk*: Sufficient information is available to determine that the impact of pressures on the water body is such that the water body is unlikely to achieve good quality status unless measures are taken to reduce the impact, thereby improving the water quality. Approximately 32% of the catchment area of the ShIRBD falls under this category (See Figure 5.3).

The results of this assessment indicate that the Tullamore River, downstream of the AES Ltd. facility is either 'at risk' or 'probably at risk'.. It is important to note that the designation "at risk" is not necessarily an indication of the present quality of the water. The water quality may be good but the magnitude of the pressures which exist within the catchment, if not properly managed, poses a risk that the water body may not achieve good status in accordance with the WFD, or that the water quality is in danger of deterioration.

5.3 Potential Impact on Surface Water and Mitigation Measures

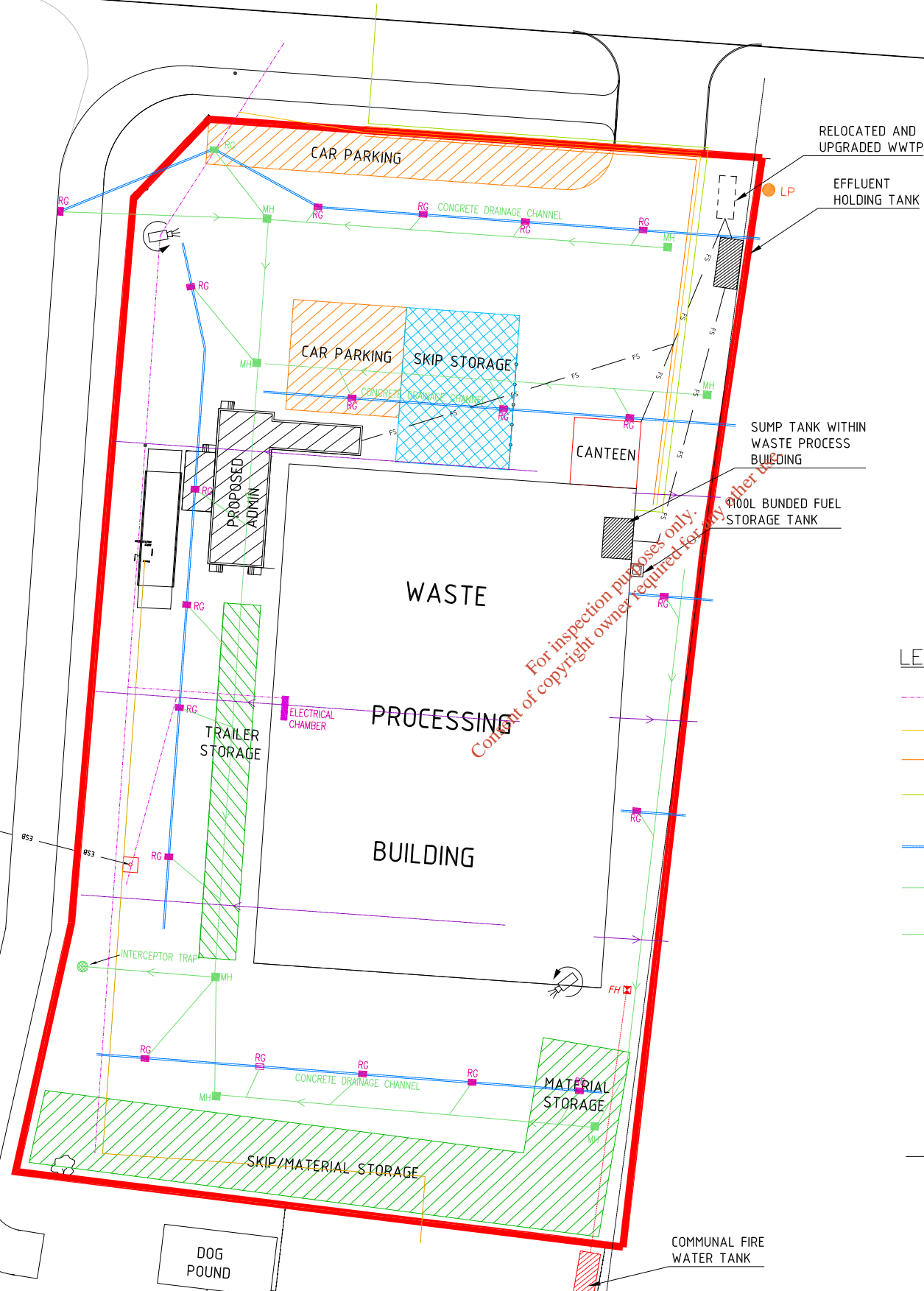
5.3.1 Potential Impact on Surface Water

A detailed description of the proposed development is provided in Section 2. The activities and processes to be conducted or likely to occur at the site that could potentially impact upon surface water are as follows:

- storm water run-off from exposed soils with subsequent sediment loading of the site stream resulting from construction activities - this presents a relatively short-term impact
- a reduction in hardstanding area within the facility as a result of the CPO process which will reduce the volume of surface water run-off discharging from the site, albeit not considerably
- installation of an upgraded wastewater treatment plant, effluent storage tank and effluent sump tank in the waste processing building to ensure that effluent generated from the WWTP and any washdown activities in the waste processing building are collected for treatment off-site

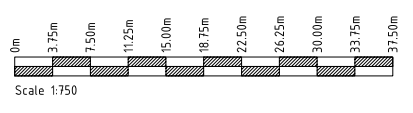
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- LEGEND:**
- 125mm E.S.B. DUCTING
 - 50mm E.S.B. DUCTING
 - 100mm E.S.B. DUCTING
 - 1/2" WATERMAIN (FROM BALLINAGAR GROUP WATER SCHEME)
 - RG SURFACE WATER DRAINAGE CHANNEL
 - MH 150mm SURFACE WATER SEWER TO INTERCEPTOR
 - FH 225mm SURFACE WATER SEWER
 - CAST IRON ROAD GULLEYS
 - MANHOLE
 - FIRE HYDRANT
 - WATER STORAGE TANKS & FIRE MAIN
 - FS PROPOSED FOUL SEWER
 - ⦿ SECURITY CAMERAS

SITE PLAN
Scale 1:750



Rev.	Drawn	Checked	App'd	Rev. Origin	Date	Description
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Name of Client
 ADVANCED ENVIRONMENTAL SOLUTIONS

Name of Job
 AES TULLAMORE

Title of Drawing
 SITE SERVICES ON PROPOSED LAYOUT

Scales Used
 1:750
Dwg. No.
 2008-628-01-100-009
Rev.
 A

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Mitigation Measures

The measures proposed include measures for avoidance, reduction and mitigation of potential impacts as a result of the proposed development:

- control measures to minimise discharges to surface waters will be implemented at the site during construction
- hydrocarbons will continue to be stored in bunded areas as discussed in Section 2
- the surface water management system currently in place at the facility will continue to be used – regular cleaning and servicing of gullies, pipework, silt trap and interceptor will be carried out to ensure this system is operating at its optimum
- the existing WWTP will be removed and a new package treatment plant will be installed at the site for effluent arising from on-site toilets and canteen facilities, the location of which is indicated in Figure 5-4 (Drawing No. CE08-628-01-100-009). The new WWTP will have a p.e. of between 20 and 30. In addition, the treated effluent will be collected in an effluent holding tank and transported off-site for treatment
- an effluent sump tank will also be installed within the waste processing building to which washdown water will be directed – washdown of the internal waste processing building is not normally carried out at the facility but the sump tank will be installed in the event of this being necessary. Effluent collected in the sump tank will be pumped to the effluent holding tank
- surface water quality will be monitored in accordance with any conditions of the waste licence required for the site's activities.

5.4 Conclusions

The facility at Cappancur is located approximately 750 m north of the Tullamore River. According to the OPW website (www.floodmaps.ie), there are a number of locations along the Tullamore River which have a history of flooding. The facility at Cappancur is not identified as an area of flood risk.

Water quality monitoring of the Tullamore River carried out at a number of sampling stations by the EPA has indicated that the quality of the Tullamore River upstream of Tullamore town is between slightly and moderately polluted while the quality downstream is described as seriously polluted.

Surface water quality monitoring carried out at the facility under the requirements of W104-01 has shown regular exceedences of the emission limit values (ELVs) for suspended solids and ammoniacal nitrogen, in particular. Alternative emission limit values are proposed.

The proposed development will include the installation of a new wastewater treatment plant, with treated effluent being tankered off-site for appropriate disposal. This will result in an improvement of water quality in the drainage ditch to the south of the site.

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6. ARCHITECTURE, CULTURAL HERITAGE & ARCHAEOLOGY

6.1 Introduction

This section assesses the impacts, if any, of the proposed development at the facility on the archaeological, historical and cultural environment in the vicinity of the site. This section will also propose mitigation measures to safeguard any monuments, features or finds of antiquity if required.

The objectives of this section are to:

- identify all known features of archaeological and cultural heritage importance in the vicinity of the proposed development
- determine any potential impacts of the proposed development on archaeology and cultural heritage
- identify measures to mitigate any potential impacts of the development on archaeology and cultural heritage

6.2 Cultural Heritage in the Existing Environment

A desk based assessment of archaeological features within 1 km of the facility was undertaken. The following information sources were consulted:

- Department of the Environment, Heritage and Local Government, Heritage Service records
 - Sites and Monuments Record (SMR)
- Offaly County Development Plan 2003-2009
 - Record of Protected Structures (RPS)
- Tullamore and Environs Development Plan 2003-2009
 - Record of Protected Structures (RPS)
- Ordnance Survey Maps
 - Ordnance Survey Offaly/Westmeath 1:50,000 Discovery Series 48

6.2.1 Sites and Monuments Record

The Department of the Environment, Heritage and Local Government, Heritage Service records identify:

- all known upstanding monuments
- the original site location of monuments (i.e. destroyed monuments)

An area of interest is noted around each archaeological site. The area of interest is a zone of archaeological potential around the known remains in which archaeological features could potentially occur.

There are no archaeological sites or upstanding monuments within 1 km of the site boundary. The nearest site /monument to the facility is a possible habitation site (OF00914) some 1.2 km to the south west of the facility. There is also a possible Ringfort/Rath (OF00915) located approximately 1.5 km southeast of the facility and a Possible Castle (OF00941) approximately 2 km west of the facility in Tullamore town.

The sites within 2 km are identified in Table 6.1 below.

Table 6.1: Sites and Monuments within 2 km of the Boundary of the AES Facility (Heritage Council Record)

Monument Entity ID	Easting	Northing	Class
OF00915	235985	223618	Ringfort - Rath
OF00914	234636	224716	Habitation Site – Hop Hill
OF00941	233740	225290	Castle – St. Kyrans St.

6.2.2 Record of Protected Structures

It is an objective of Offaly County Council to protect all structures with special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest as identified in Section 1.8 of the Offaly County Development Plan 2003 - 2009 (Volume 4).

There are no protected structures within 1 km of the facility. The nearest protected structures listed in the Offaly County Development Plan 2003 – 2009 are Durrow Abbey and Durrow Catholic Church approximately 6 km north-west of the facility.

Tullamore is designated a heritage town with substantial 18th and 19th century buildings. 163 properties are included in the Record of Protected Structures in the Tullamore and Environs Development Plan.

6.2.3 Toponymy

A townland, street or river name may preserve information relating to its archaeology, history, folklore, ownership, topography or land use. Most place names were anglicised by the time the Ordnance Survey begun in the 1830s. Despite some inaccuracies in translation, the Gaelic, Viking, Anglo-Norman and English origins of place names are generally recognisable. The place names mentioned in this EIS in the vicinity of the facility are interpreted as meaning the following:

Tullamore (Tulach Mhor)	<i>The large hill</i>
Cappancur (Ceapach an Curraigh)	<i>Tillage Plot in the marsh land</i>
Bogtown (Doire na Buaille)	<i>Oakwood milking place</i>
Daingean (An Daingean)	<i>The Fortress</i>

6.3 **Potential Impacts of the Proposed Development on Architecture, Archaeology & Cultural Heritage**

Possible impacts on features of cultural heritage may be physical or visual.

No such features are known to be located within the site boundary or in the immediate vicinity of the facility.

The nearest site or monument to the facility is just outside the 1 km boundary on the outskirts of Tullamore town (refer to Figure 6.1). The proposed development will have no physical impact on such features outside the site boundaries.

The proposed development relates primarily to the intensification of waste acceptance at the facility and the revision of the existing site boundary. This activity will have no impact on the cultural heritage of the surrounding area. The development will also require the re-location of the administration building within the existing site boundary. This building will be in the form of a portacabin sitting on the existing concrete yard and therefore no excavations will be required. Therefore, there will be no impact on archaeology.

6.4 Mitigation Measures

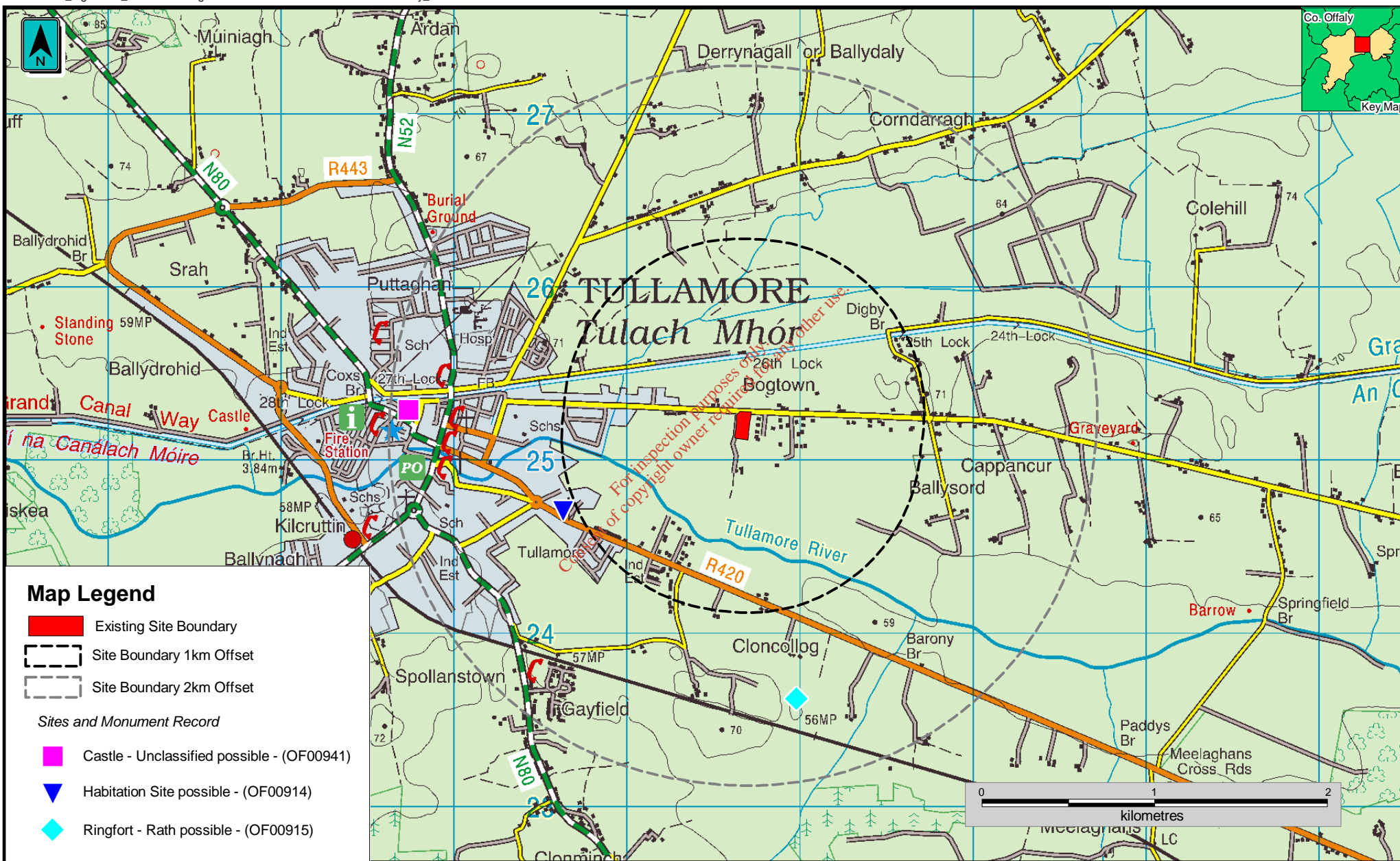
Avoidance of known archaeology, architectural and cultural heritage features is the favoured option where possible. There are no known archaeological features within the site boundary, therefore no mitigation measure area required.

As features of cultural heritage outside of the site boundary are located greater than 1 km from the facility, no mitigation measures are required for these features.

6.5 Conclusions

Given the absence of identifiable archaeological monuments on the site there are no direct mitigation measures that need to be put into place.

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7. ECOLOGY

This chapter of the EIS includes an assessment of the existing ecological environment at the facility and its surrounds, assesses the potential impact of the proposed development on the ecology of the area and where necessary, proposes suitable mitigation measures to minimise any potential impact.

The ecological assessment conducted included the existing site boundary and some of the adjoining areas that are adjacent to the site boundary.. Ecological surveys were carried out on the 12 and 13th of June 2008, using standard ecological survey techniques². The purpose of this study was to:

- undertake a desktop study of available ecological data for the site and area including a review of designated sites within 10 kilometres of the site
- undertake ecological field surveys of the site, in order to identify the flora and fauna present
- evaluate the ecological significance of the site
- assess the potential impact(s) of the proposed development on the ecology of the site and surrounding areas
- recommend mitigation measures to reduce any potential negative impact(s) of the proposed development on the ecology of the site and surrounding area.

7.1 Methodology for Ecological Investigation

7.1.1 Designated Sites

A desktop study was carried out to identify designated sites within 10 km of the proposed development site, such as Natural Heritage Areas (NHAs), Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). An archive of GIS data that includes the location and extent of designated conservation areas was reviewed and these were plotted on OSI background map using MapInfo Professional (v 8.5) GIS application. Designated sites identified by this aspect of the study are presented in Figure 7-1.

² Bang, P. & Dahlstrom, P. 2004. *Animal Tracks and Signs*. Oxford University Press, Oxford;
Bibby, C. J., Burgess, N. D., Hill, D. A. & Mustoe, S. H. 2000. *Bird census techniques* (second edition). Academic Press, London;
Clark, M. 1988. *Badgers*. Whittet Books, London;
Institute of Environmental Assessment. 1995. *Guidelines for Baseline Ecological Ireland*. Macmillan Publishers Ltd;
JNCC 2004. *Common Standards Monitoring Guidance for Mammals*. JNCC, ISSN 1743-8160 (online);
Lawrence, M.J. & Brown, R.W. 1973. *Mammals of Britain: Their tracks, trails and signs*. Blandford Press, Dorset.
The Heritage Council. 2005. *Habitat survey guidelines. A standard methodology for habitat survey and mapping in Ireland*. Draft No. 2. The Heritage Council, Kilkenny.
Sargent, G. & Morris, P. 2003. *How to find and identify mammals*. The Mammal Society, London.
Smal. C. 1995. *The Badger and Habitat Survey of Ireland*. Government Publications Office, Dublin.
Sutherland W.J (Ed.). 2006 (2nd Edition). *Ecological census techniques, a handbook*. Cambridge University Press, UK.

7.1.2 Habitats & Botanical Survey

Dominant habitats identified during a walkover of site, were classified according to Fossitt (2000)³. The botanical survey was conducted in parallel with the habitats survey, with plant species identified and recorded in each habitat type. The main habitats and botanical species found are outlined in Section 7.2.2.

7.1.3 Fauna Survey

Mammal Survey

The site of the proposed works was walked during the ecological survey to ascertain the presence of mammals. Mammal signs, such as dwellings, feeding traces, tracks or droppings indicate their presence on site, with occasional direct observations also made.

A major constraint of mammal surveys that are carried out in summer is excessive vegetation growth. Dense vegetation can cover often obscure badger setts and make many areas inaccessible to surveyors. However, the small size of the site enabled surveyors to thoroughly search all areas.

Sightings or signs of all mammal species encountered during the survey were recorded, with any observations of note recorded using GPS. The results of the mammal survey work are provided in Section 7.2.3.

Bat Survey

The purpose of the bat survey was to:

- identify bat species feeding and/or roosting on the AES site
- quantify the relative abundance of the species encountered
- make digital recordings for species identification
- assess the structures and vegetation on-site for evidence of roost emergence

The site was visited by two fieldworkers on the night of the 13th June 2008. The weather was mostly dry, calm and mild. A site walkover was undertaken with the aim of sampling all habitats on the site. The survey was carried out between the hours of 01:00 and 02:00.

Bats emit rapid ultrasonic pulses and process information in the echoes (or returned signals) to orientate themselves and to detect prey in their environment. Ultrasound is effective in prey detection as the wavelengths of lower frequencies are longer than the body length of most insects. Bats have distinct activity patterns – usually showing a peak at dusk and another just prior to dawn. The most commonly used method of bat monitoring involves the use of a bat detector.

Bat detectors transform the ultrasound emitted by bats into audible sound. In this survey a heterodyne and a time expansion bat detector (Pettersson D-240X) were used. Survey areas within the site followed, where possible, the methodology of Brown & Shepherd (1993).

³ Fossitt J.A. 2000. *A Guide to Habitats in Ireland*. Heritage Council, Kilkenny.

Many bats have distinctive echolocation calls (when heard on a heterodyne bat detector) that are recognisable to experienced bat workers, even without sonogram analysis. When the bats are visible in the field other characteristics are also useful as identification aids: these include flight height, size, speed, habitat preference and general appearance of the wing.

However, post-survey analysis of field recordings can be a very useful tool for identification of bats to species level. The process of making recordings and producing clear sonograms is complex and requires a basic understanding of sound theory. The subject is explained in detail in Tupinier (1997)⁴. BatScan ((v.3.31, Pettersson Elektronik AB), a specially developed PC application, was used to analysis data recorded during this field survey. The results of the bat survey work are provided in Section 7.2.3.

Bird Survey

All birds observed during the site visit on the 12th of June 2008 were recorded. Due to the small size of the site, a site walkover was deemed preferable over separate bird transects. The weather during the survey was good: calm with occasional rain. The conditions were within the acceptable range for conducting an avian survey (Bibby *et al.*, 2000). Observations were recorded using field notes. All birds observed on the site or flying over, or near, the site were recorded. Binoculars were used to aid species identification.

The conservation status of the species found on the site was also assessed. BirdWatch Ireland and the RSPB (Northern Ireland) have agreed a list of priority bird species for conservation action in the whole of Ireland (Lynas *et al.*, 2007, Newton *et al.*, 1999)⁵. This *Birds of Conservation Concern in Ireland* is published in a list known as the BoCCI List (BirdWatch Ireland www.birdwatchireland.ie). In this BoCCI List, birds are classified into three separate lists (*Red*, *Amber* and *Green*), based on the conservation status of the bird and hence conservation priority. These conservation designations take into account the dangers faced by bird species that occur in Ireland. The most recent BoCCI list published in 2007 by Lynas *et al.* was used to assess the conservation status of species identified on site.

Red-listed species are of highest conservation concern and *Amber-listed* species are of medium conservation concern; 25 species are currently *Red-listed*, while a further 85 are considered *Amber-listed*. *Green-listed* species are considered of no particular conservation concern and currently contain 89 species (Lynas *et al.* 2007).

Other Fauna

The presence of any other species, e.g. macroinvertebrates or amphibians, encountered during the taxa-specific surveys was recorded. Special note was taken of the habitats in which these species were observed. These fauna are outlined in Section 7.2.3.

⁴ Tupinier, Y. 1997. *European Bats: Their World of Sound*. Editions Sittelle, Mens

⁵ Newton, S., Donaghy A., Allen, D. & Gibbons, D. 1999. Birds of Conservation Concern in Ireland. *Irish Birds*, 6: 333-342

7.2 Ecology in the Existing Environment

7.2.1 Designated Sites within 5 kilometres of the facility

The site is not part of any designated conservation site. However, there are a number of designated areas located within 10 km of the facility. The Grand Canal, a proposed National Heritage Areas (pNHAs) (Code 002104, NPWS database) is the only site found in close proximity to the site, approximately 500m to the north of the site boundary (Figure 7.1). The full list of the designated sites is presented in Table 7.1. Current site synopsis for designated sites is given in Appendix 4. Given the distance of these sites from the area of the Cappancur facility, and the nature of the proposed development, it highly unlikely that any designated site will be negatively impacted by the works.

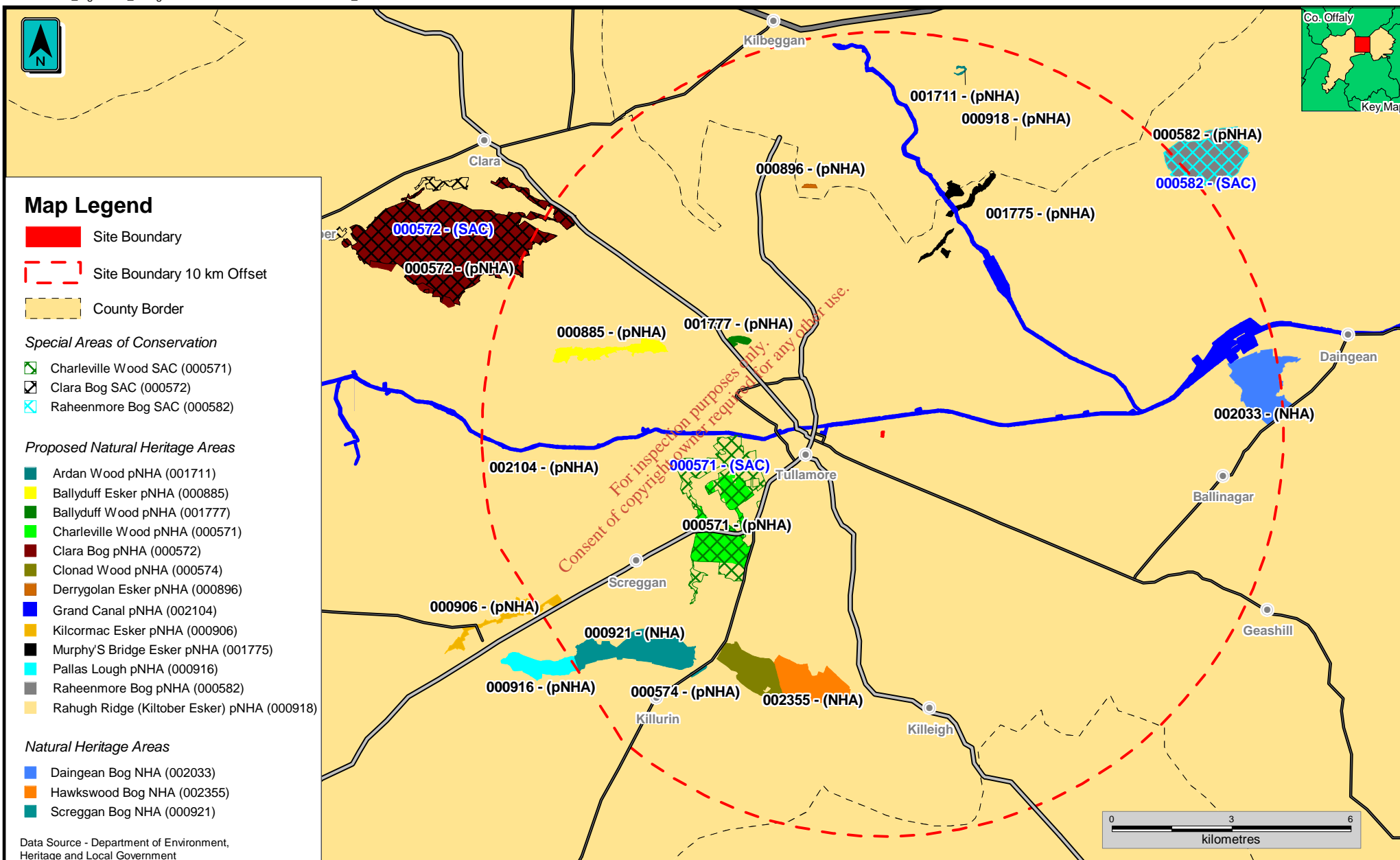
Historical records show that a few protected flora and fauna species have been recorded within 10 km of the proposed development site (www.NPWS.ie/MapsData). These included two mammals, the Fallow deer (*Dama dama*), the Otter (*Lutra lutra*) and the plant species Opposite-Leaved Pondweed (*Groenlandia densa*).

Table 7.1: Summary of Designated Sites located within 10 km

Site Name	Designation	Site Code	Reason for Designation	Minimum Distance from Site (approx.)
Grand Canal	pNHA	pNHA: 002104	This site is designated for the diversity of species it supports along its linear habitats. It also provides a refuge for species within the predominately agricultural dominated countryside (NPWS. Site synopsis).	1 km
Charleville Wood	SAC, pNHA	cSAC: 000571 pNHA: 000571	The site is of importance because it is one of the few ancient woodlands remaining in Ireland, with some parts undisturbed for at least 200 years. Old oak woodland is listed on Annex I of the E.U. Habitats Directive, & is home to rare insects' species & a variety of birds.	4 km
Daingean Bog	NHA	002033	Daingean Bog NHA is a site of considerable conservation importance, as it is comprised of raised bog, a rare habitat in the E.U. & Ireland	9km
Hawkwood Bog	NHA	002355	This site supports a good diversity of raised bog microhabitats, including hummocks, lawns and pools..	6 km
Pallas Lough	pNHA	000916	The lake is a 'marl lake' and is of botanical interest due to the diversity and species richness of plants and habitats. There are two small wet birch woods, and an area of limestone grassland which yields such species as Field gentian (<i>Gentianella campestris</i>) and Centaury (<i>Centaureum erythraea</i>). Significant numbers of wildfowl and waders use the lake.	15 km
Screggan Bog	NHA	000921	The site is a raised bog that includes areas of high and cutover bog.	13 km
Murphy's Bridge Esker	pNHA	001775	This elongated gravel ridge is a feature of glaciations. . It supports various habitats including Dry Calcareous Grassland and woodlands. It also supports the rare and legally protected Hemp Nettle	6 km

Site Name	Designation	Site Code	Reason for Designation	Minimum Distance from Site (approx.)
Rahugh Ridge (Kiltober Esker)	pNHA	000918	This Esker is approximately 2.5 km in length and is covered almost entirely in woodland. It also supports the rare and legally protected Hemp Nettle.	9 km
Ardan Wood	pNHA	001711	This Woodland consists of large oaks and varied understory. This woodland forms an important part of a series of woodlands in the east.	11 km
Derrygolan Esker	pNHA	000896	This site is chosen in particular for the presence of a nationally important population of the rare Green Winged Orchid (<i>Orchis morio</i>). It is also of importance because it is one of the few remaining examples of an unexploited esker, increasingly rare due to extractions of glacial sands and gravel	7 km
Ballyduff Esker	pNHA	000885	This site has been designated as it is one of the best known, remaining eskers, which still supports an open and relatively natural flora. Mature scrub of Blackthorn (<i>Prunus spinosa</i>), Hawthorn (<i>Crateagus monogyna</i>), Hazel (<i>Corylus avellana</i>) and Willows (<i>Salix</i> spp.) is still frequent on this site.	6 km
Ballyduff Wood	pNHA	001777	This woodland is situated on an Esker and although original planted it is now taking on a more natural composition. The abundance of spindle (<i>Evorymus europaec</i>) is of particular note. The site is further enhanced by areas of herb rich grassland.	4 km

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7.2.2 Habitats & Botanical Species in the Existing Environment

There were seven habitat types identified (according to Fossit, 2000) during the site walkover. Two dominant habitats; Refuse and Waste (ED5) and Buildings and Artificial Surfaces (BL3) were associated directly with the site. The site also contains small areas that have been invaded by herbaceous plants, classed as Recolonising Bare Ground (ED3), according to Fossit (2000). These areas of ED3 are predominately located along the boundaries of the site, or in areas of the site that are not in regular use.

A hedgerow (WL1) is located to the south of the facility directly outside the site boundary. This hedgerow is generally unmanaged, overgrown and fragmented in places. However, a mature Crack Willow (*Salix fragilis*) is present in this hedgerow, and the remaining species of Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*) Hazel (*Corylus avellana*), Crab Apple (*Malus sylvestris*), Ivy (*Hedera helix*), and Bramble, (*Rubus fruticosus* agg.) provide good coverage for small birds and mammals. This hedgerow is considered the most ecological significant habitat occurring in the vicinity of the site; however, generally the trees here are not mature and are not of high ecological value.

To the north, the boundary is composed of a small area of Ornamental/Non-Native Shrubs (WS3) and fencing. Species composition is limited, but includes plants such as, Copper Beech (*Fagus purpurea*) and Laurel (*Sassafras* spp.). The site is accessed here, by a public road running parallel to the property boundary.

There are no streams or rivers within the site boundary; however a small drainage ditch (FW4) has been excavated close to the western and southern boundaries of the site. The Grand Canal (pNHA, NPWS) is also situated approximately 500 metres to the north of the site boundary. The land immediately to the south and east of the site is composed predominately of agricultural land (GA1) and Buildings and Artificial Surfaces (BL3), mainly in relation to other commercial properties.

A total of 43 botanical species were recorded on or around the site boundary, these are outlined, together with their scientific names and associated habitat in Table 7.3. Most of the botanical species recorded were associated with ED3 habitat identified on site. The species assemblage was dominated by ruderal weed species such as. Mare's-tail (*Hippuris vulgaris*), Rough Hawkbit (*Leontodon hispidus*), Pineapple weed (*Matricaria discoidea*) and Thistle species, *Cirsium* spp. Grasses such as, Cocksfoot, (*Dactylis glomerata*) and Meadow species (*Poa* spp) were also present.

All the species found during this botanical survey are widely distributed in the general area (Blamey *et al.*, 2003)⁶, with no species protected under the Irish Flora (Protection) Order, 1999 identified. In addition, no endangered or Red Listed species of high conservation concern were recorded (Curtis & McGough, 1988)⁷.

⁶ Blamey M, Fitter R. & Fitter A. 2003. *Wild Flowers of Britain & Ireland*. A & C Black, UK.

⁷ Curtis T.G.F. & McGough H.N. 1988. *The Irish Red Data Book 1 Vascular Plants*. The Digest, UK.

Table 7.2: Summary of Botanical Species Recorded

Common Name	Scientific Name	Habitat
Bramble	<i>Rubus fruticosus</i> agg.	WL1
Bush Vetch	<i>Vicia sepium</i>	ED3
Cleaver	<i>Galium aparine</i>	ED3
Common Knapwood	<i>Centaurea nigra</i> agg.	ED3
Common Ragwort	<i>Senecio jacobaea</i>	ED3
Common Vetch	<i>Vicia sativa</i>	ED3
Dandelion	<i>Taraxacum officinale</i>	ED3
False Oxslip	<i>Primula x polyantha</i>	ED3
Field Forget-me-not	<i>Myosotis arvensis</i>	ED3
Hedge Bindweed	<i>Calystegia sepium</i>	WL1
Herb Robert	<i>Geranium robertianum</i>	ED3
Hogweed	<i>Heracleum sphondylium</i>	ED3
Hop Trefoil	<i>Trifolium campestre</i>	ED3
Ivy	<i>Hedera helix</i>	WL1
Common Knapwood	<i>Centaurea nigra</i> agg.	ED3
Lesser Hawkbit	<i>Leontodon saxatilis</i>	ED3
Lesser Trefoil	<i>Trifolium dubium</i>	ED3
Mare's-tail	<i>Hippuris vulgaris</i>	ED3
Meadowsweet	<i>Filipendula ulmaria</i>	FW4
Meadow Buttercup	<i>Ranunculus acris</i>	ED3
Meadow Vetchling	<i>Lathyrus pratensis</i>	ED3
Ox-eye daisy	<i>Leucanthemum vulgare</i>	ED3
Pineapple weed	<i>Matricaria discoidea</i>	ED3
Purple Loosestrife	<i>Lythrum salicaria</i>	ED3
Red Clover	<i>Trifolium pratense</i>	ED3
Rosebay	<i>Chamerion angustifolium</i>	ED3
Rape	<i>Brassica napus</i>	ED3
Ribwort Plantain	<i>Plantago lanceolata</i>	ED3/GA1
Rough Hawkbit	<i>Leontodon hispidus</i>	ED3
Silverweed	<i>Potentilla anserina</i>	ED3
White Clover	<i>Trifolium repens</i>	ED3
Grasses		
Cocksfoot	<i>Dactylis glomerata</i>	WL1
Perennial Rye Grass	<i>Lolium perenne</i>	GA1, WL1
Yorkshire fog	<i>Holcus lanatus</i>	ED3
Meadow grasses	<i>Poa spp</i>	FW4/GA1
Tree Species		
Blackthorn	<i>Prunus spinosa</i>	WL1
Common Hazel	<i>Corylus avellana</i>	WL1
Common Hawthorn	<i>Crataegus monogyna</i>	WL1
Copper Beech	<i>Fagus purpurea</i>	BC4
Crack Willow	<i>Salix fragilis</i>	WL1
Laurel spp.	<i>Sassafras spp.</i>	BC4
Noble Poplar	<i>Populus x generosa</i>	BC4
Wild Crab Apple	<i>Malus sylvestris</i>	WL1

7.2.3 Fauna in Existing Environment

Mammal Species

The unfavourable status of the habitats identified, the lack of cover and the industrial nature of the location, suggests that mammals are unlikely to occur on the site. In addition, no evidence of breeding (with the possible exception of Rats) was found at the site.

Bat Species

There was no bat activity recorded, and no evidence of any roosting activity at the site. This result would suggest that the site is of low value to Bats.

It is possible that certain species occur on site periodically. For instance, the Common Pipistrelle, (*Pipistrellus pipistrellus*) is widespread in Ireland, and may occur on the site from time to time. However no records of this species were made during this survey.

Birds

Table 7.4 shows the bird species recorded on or near the site. A total of thirteen species were recorded, the majority of which are locally and nationally common. Bird activity was generally low on the site, as would be expected given that the site is dominated by buildings and other artificial surfaces, with no habitats of particular value for birds present.

Eleven species were recorded outside the site boundary; these included species such as, the Chaffinch, (*Fringilla coelebs*), Skylark (*Alauda arvensis*) and Willow Warbler (*Phylloscopus trochilus*). Only seven species were recorded on the site, all of which were present in small numbers. Results from the bird survey are given in Table 7.4.

No species of high conservation concern were recorded. However, the Swallow (*Hirundo rustica*), Skylark (*Alauda arvensis*) and Starling (*Sturnus vulgaris*) are all *Amber-listed* species, of medium conservation concern in Ireland (Lynas *et al.* 2007, Newton *et al.*, 1999). All other bird species recorded during the survey are widely distributed in the area.

Table 7.3: Bird Species Recorded on or near the Proposed Development Site

Common Name	Scientific Name	On site	Off site	Conservation Status (Lynas <i>et al</i> 2007)
Chaffinch	<i>Fringilla coelebs</i>		3	GREEN
Feral Pigeon	<i>Columba livia</i>	1		GREEN
Greenfinch	<i>Carduelis chloris</i>		2	GREEN
Hooded Crow	<i>Corvus corone cornix</i>		1	GREEN
Jackdaw	<i>Corvus monedula</i>	4	6	GREEN
Magpie	<i>Pica pica</i>	1		GREEN
Pied Wagtail	<i>Motacilla alba</i>	2	1	GREEN
Rook	<i>Corvus frugilegus</i>	2	3	GREEN
Skylark	<i>Alauda arvensis</i>		1	AMBER
Starling	<i>Sturnus vulgaris</i>	1	4	AMBER
Swallow	<i>Hirundo rustica</i>	6	6	AMBER
Willow Warbler	<i>Phylloscopus trochilus</i>		2	GREEN
Wren	<i>Troglodytes troglodytes</i>		3	GREEN
Total		12	32	

Other Fauna

The presence of several flowering plant species (see Table 7.2) are likely to attract a number of common Butterfly and other nectar-feeding insects, from time to time. The bumblebee *Bombus lucorum* was recorded on shrubs along the WS3 habitat. The absence of any suitable habitats within the site boundary (*i.e.* streams or wet habitats) on the site would indicate that the Common Frog, *Rana temporaria*, is unlikely to occur here. It is possible that the Common Lizard, *Lacerta vivipara*, Pygmy Shrew, *Sorex minutus* and Wood Mouse, *Apodemus sylvaticus* occur on the site occasionally. The Brown Rat, *Rattus norvegicus* is probably on the site.

7.3 Potential Impacts on Ecology

7.3.1 Potential Impacts on Designated Areas

While there are a number of Designated Areas located within a 10 km radius of the site (Table 7.1, Figure: 7.1) given the localised nature of the works, it is unlikely that any of these sites will be negatively impacted by the proposed works.

7.3.2 Potential Impacts on Habitats and Flora

The dominant habitats identified on site include Buildings and Artificial surfaces (BL3) and areas of Refuse and Waste (ED5). The site also contains areas of Recolonising Bare Ground (ED3), which have been invaded by herbaceous plants (Fossit, 2000). These habitats may be altered by the proposed development (*i.e.* construction of the new administration office etc) however; they are not of high ecological value, containing only a few species, which are common and widespread in Ireland. The hedgerow to the south of the site is the only habitat that has some potential ecological value. However, as this hedgerow is not located in the area of proposed works and is outside the operational site boundary, it is unlikely to be negatively impacted.

7.3.3 Potential Impacts on Fauna

Mammals

There was little mammal activity evident on the site, and no species of conservation concern in Ireland were recorded. The Brown Rat (*Rattus norvegicus*) is likely to be present on the site but numbers are controlled by pest management. As most of the site contains buildings and other artificial surfaces it is unlikely that other mammals are present. Therefore, it is unlikely that the proposed works will have a negative impact on local mammalian fauna. The retention of the hedgerow adjacent to the site would ensure that suitable cover remains in the area for small mammals, should any exist.

Bats

There was no Bat activity recorded on or adjacent to the site, suggesting the site is of low value to Bats. Therefore, the proposed development will not have a significant impact on any local Bat populations.

Birds

The avian community present on site is entirely typical of the habitats identified. Species richness and diversity was low, as would be expected in such a small site, in an urban setting. The species assemblage consisted of common resident species such as, Rook, Jackdaw, and Magpie. No species of high conservation concern were recorded, although the swallows nesting in the buildings on site are Amber-listed, and of medium conservation concern (Lynas *et al.* 2007). However, the building in which they have nested will not be affected by the development works. The Starling is another Amber-listed species that uses the site on a regular basis. While there may be some potential disturbance to the Starlings during construction, it is likely this species will continue to use the site, once building works are completed. In summary, with the application of suitable mitigation measures the proposed development will not have an adverse impact on the local bird populations.

7.4 Mitigation Measures for Ecology

As the current site is dominated by areas of Refuse and Waste (ED5), or Buildings/Artificial Surfaces (BL3), the negative impacts on the ecological components of this site are considered minimum. The application of good planning and working practices during construction will prevent any potential impacts on flora and fauna in the general and/or wider area.

- 2 no. Amber-listed species, the Swallow and Starling occur on site. Swallows are nesting in the main building, where it is unlikely they will be disturbed during site works. Starlings may be breeding on site, but the location of the nests was not identified. The destruction or removal of any potential or identified nests, of these, or other bird species, will be conducted outside of the avian breeding season (March-August), as required by the Wildlife Act 1976, (Amendment) 2000.

- moving of the northern boundary as part of the CPO process will result in the permanent loss of the Ornamental/Non-Native Shrub (WS3) border. The removal of this border will provide the opportunity for replanting elsewhere on site. In the case of replanting, only native, locally sourced trees should be used, including species such as the Sessile Oak, Alder, Hazel and Grey Willow. Shrubs that are beneficial to nectar-feeding insects (i.e. Butterflies/Bees), such as, Buddleia sp. or Heathers, should also be included, as these species will provide an opportunity to improve the ecological components of the site. However, as this is being undertaken by Offaly County Council/NRA as part of the CPO process, the responsibility for replanting does not lie with AES (Ireland) Ltd.
- in general, mammal activity on the site is probably very low, as would be expected in an isolated site of such small size. The site also lacks cover and connectivity to the rural landscape. However, the hedgerow along the southern boundary is to be retained, which will be sufficient to mitigate against any possible disturbance to small mammals in the general area.

7.5 Conclusions for Ecology

This ecological report details the local flora and fauna community of the AES facility at Tullamore. No habitats of high ecological importance were found at the site, and no designated sites will be impacted by the proposed development. Mammal and bird activity at the site was very low, as would be expected in an industrial site of such small size. No flora or fauna of conservation concern were found at the site, with those species recorded being generally common and widely distributed in Ireland.

With the application of outlined mitigation measures, it is believed that there will be no significant impacts on local ecology, caused as a result of the proposed development at this facility.

8. LANDSCAPE

8.1 Introduction

This section describes the existing landscape, the visual character of the existing facility and the potential visual impact of the proposed construction of a maintenance shed and relocation of administration buildings within the existing site footprint.

The term 'landscape' refers primarily to the visual appearance of the area, including its shape, form and colour, and the interaction of these elements to create specific patterns that are distinctive to particular localities. However, the landscape is not purely a visual phenomenon. Its character relies closely on the local physical geography and environmental history. Besides any scenic and/or visual dimension, there are also a whole range of other constituents of significance. These include:

- topography
- ecology
- landscape history
- land use
- buildings and settlement
- architecture.

This section deals with these factors only in so far as they impinge on the landscape and visual characteristics of the locality setting out how the proposed site redevelopment interacts with them and specifying any significant environmental effects.

8.2 Existing Landscape

8.2.1 Description of Existing Landscape

The existing facility is visible from the west when travelling from Tullamore town. The western flank of the facility is visible from approximately 500 m away when approaching from the west along the local Daingean Road. The facility waste processing building, of approximately 12 m in height, can be clearly seen from this point.

When travelling from the east on the Daingean Road the view of the facility is obscured by the existing industrial buildings of the other enterprises of the Cappancur Industrial Estate which are of similar height to the AES buildings.

From the north, the reception and processing buildings can be seen as part of the Cappancur Industrial Estate. A 3 m high wall of concrete block and palisade fence construction along the northern perimeter provides screening of administration building and vehicle movements within the site boundary.

8.2.2 Landscape Character

Offaly County Council carried out a Landscape Character Assessment of the county, as part of the Offaly County Development Plan 2003 – 2009, to establish three landscape classifications;

- Class 1 – Low Sensitivity
- Class 2 – Moderate Sensitivity
- Class 3 – High Sensitivity

The existing facility is located in an area of low sensitivity which is classed as rural and agricultural. As identified in Table No. 35 of the County Development Plan 2003 - 2009 *'these areas can absorb quite effectively appropriately designed and located development in all categories...'*

The Grand Canal forms the Grand Canal Corridor which is classed as an area of high sensitivity. It is also identified as a proposed National Heritage Area (pNHA) and is identified as having the potential to increase tourism in the area and to add to the aesthetic value and recreational appeal of the landscape.

8.2.3 Areas of Scenic Amenity, Views and Prospects

The Offaly County Development Plan 2003 – 2009 identifies 22 views and prospects of special amenity value or special interest. Of these, the closest to the facility runs along the N80, looking south west towards the Slieve Bloom mountains and begins approximately 8 km south of the facility (refer to Figure 8.1).

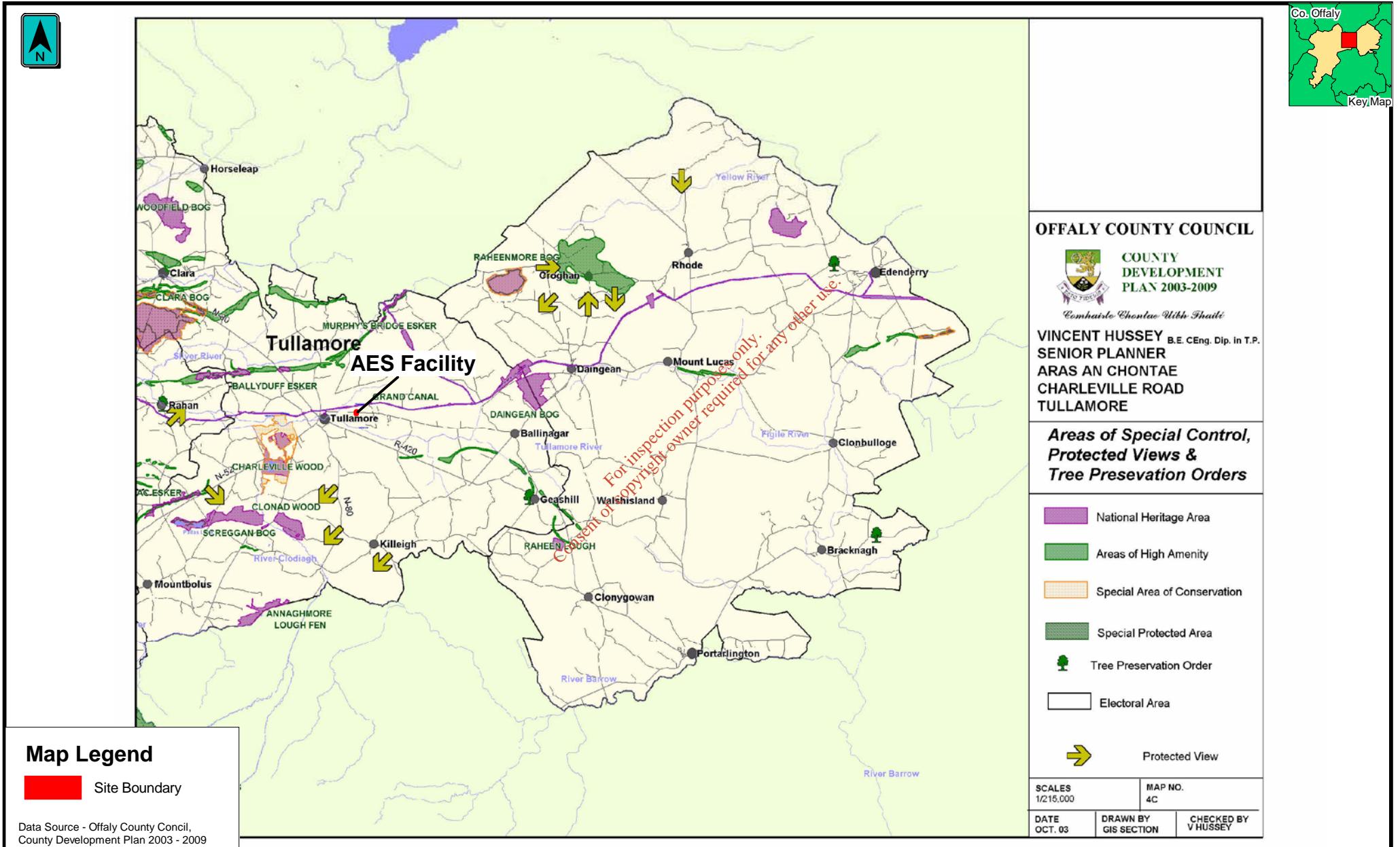
Table 8.1: Scenic Views & Prospects within 10km of the AES Site

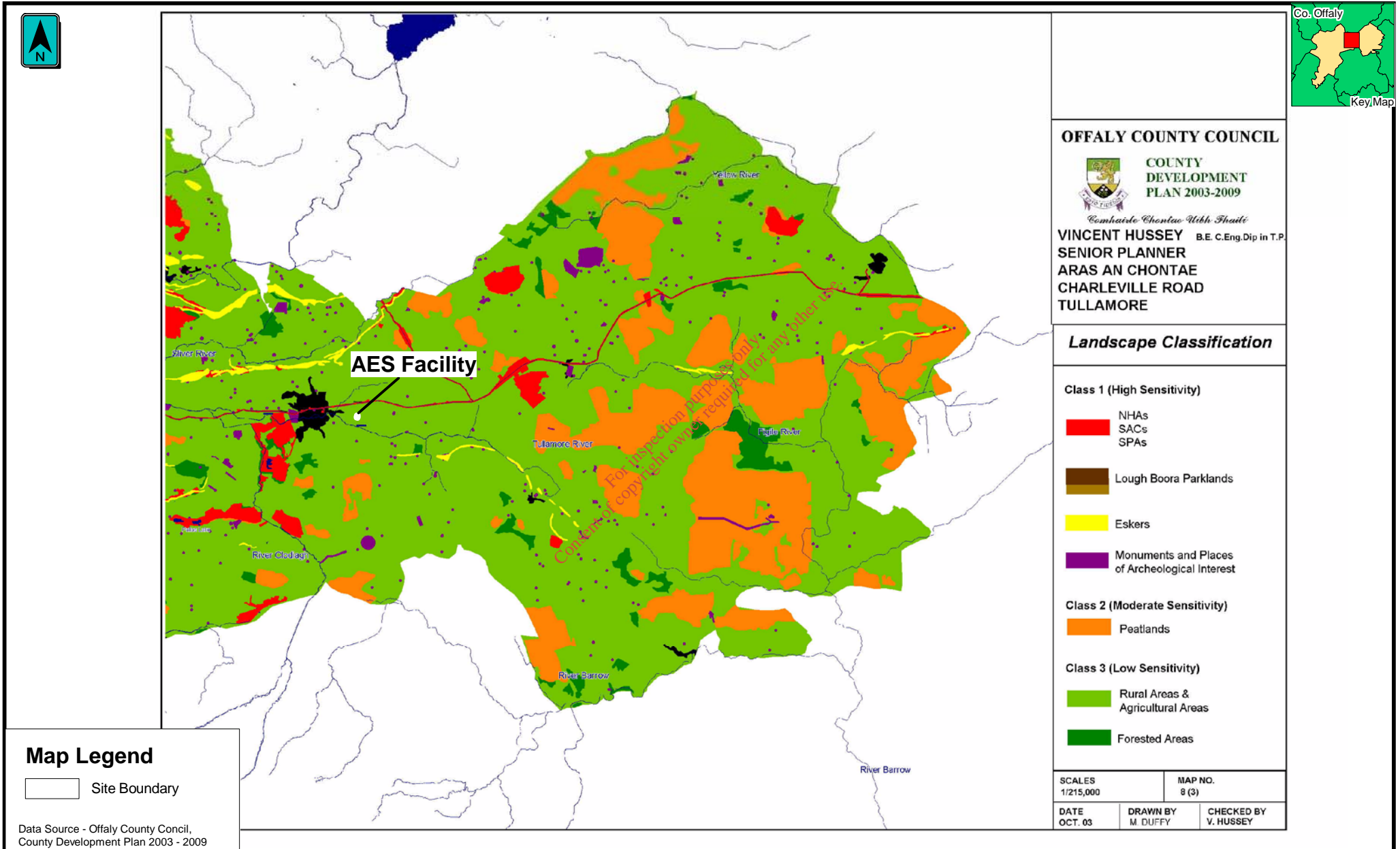
Map Reference	View From	To
V1	N80 in the townland of Ballynasragh, Pigeonhouse, Killeigh, Derryclure, Derrybeg and Cloncon	South West Slieve Bloom Mountains and Killeigh village

8.2.4 Visual Envelope

The visual envelope is the extent of potential visibility of the site to or from a specific area or feature. The visual envelope for the existing facility is defined by the approach to the site from Tullamore town to the west of the facility and from the agricultural lands to the south, to a lesser degree.

The visual envelope is reduced to the east by the existing buildings of the Cappancur Industrial Estate and to the north by the existing perimeter wall of the facility.





8.3 Potential Visual and Landscape Characteristics

8.3.1 Proposed Development

The proposed development is as a result of two factors;

- the intensification of waste acceptance activities onsite
- the change to site layout as a result of the compulsory purchase of land for the N52 Tullamore bypass

It must be noted that the change to the site layout as part of the CPO process, as well as the further development of the N52 bypass adjacent to the facility, will have a major impact on the nature of the landscape in the vicinity of the facility. However, the development of the bypass (and the compulsory acquisition of the northern portion of the facility lands) is a separate process over which AES Ltd. has no influence and which has gained full statutory consent.

For an assessment of impacts on the landscape character, the impacts resulting from the proposed development only are relevant to this environmental impact statement. However, as the magnitude of the N52 bypass development is such that it will permanently alter certain aspects of the landscape, it must be considered when assessing the impact of the landscape characteristics.

To this end, reference is made to the impacts from the proposed AES development alone and in combination with the N52 bypass development when assessing landscape viewpoints.

8.3.2 Scope of Impacts

The potential impacts from the proposed development will result from the relocation of the north perimeter wall.

The movement of the administration building within the site boundary will not impact on the visual characteristics of the development as this building will be shielded by the larger existing reception and processing shed.

8.3.3 Visual Impact Assessment

Visual impact may occur by means of intrusion and/or obstruction where these terms are defined as follows:

- Visual Intrusion:** Impact on view without blocking, and
Visual Obstruction: Impact on view involving blocking thereof.

Visual impacts by means of intrusion or obstruction on a particular view may be viewed as positive, neutral or negative and can be rated as follows:

- *Little/None* arises where the proposal is adequately screened by existing landform, vegetation or built environment
- *Low* arises where views affected by the proposal form only a small element in the overall panorama
- *Moderate* arises where an appreciable segment of the panorama is affected or where there is an intrusion into the foreground

- *High* arises where the view is significantly affected, obstructed or so dominated by the proposal as to form the focus of attention

8.3.4 Assessment of Landscape viewpoints

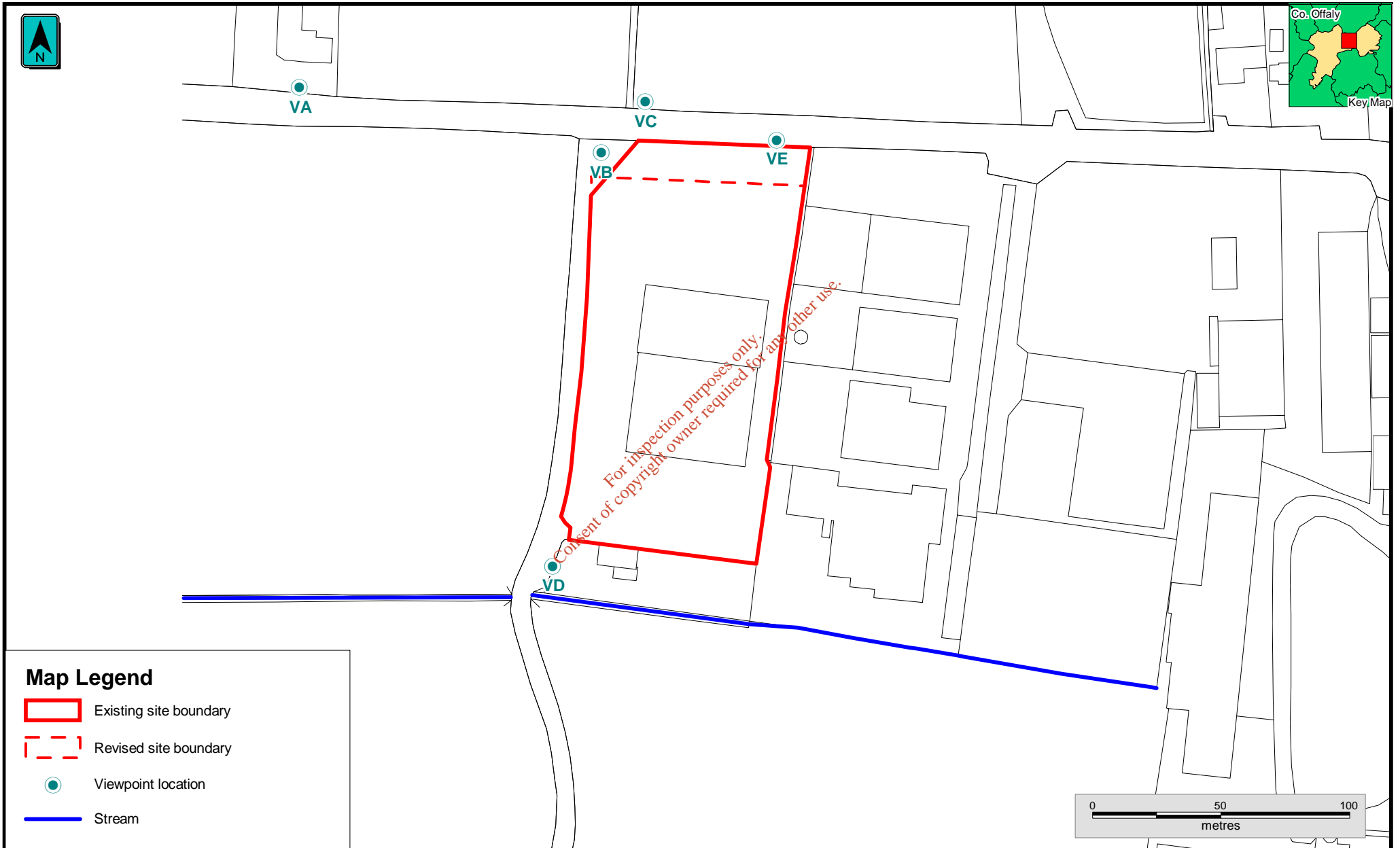
In an attempt to determine the visual extent of the proposed development, a number of photographs were taken from locations in the surrounding area. These selected views illustrate the location and visibility of the existing development. The selected locations for photographic illustrations are shown on Figure 8.3 and are outlined below.

- A** From the nearest sensitive receptor (petrol station) looking directly towards the facility in a south-easterly direction
- B** From the existing entrance to the facility at the north-west corner of the site looking east along the Daingean Road
- C** From the existing entrance to the facility at the north-west corner of the site looking south
- D** From the entrance to the existing Council Dog Pound at the south-west corner of the facility looking north
- E** From the north-east corner of the site looking east along the Daingean Road

These views are predominantly focussed on locations to the west and north of the AES facility. This is in keeping with the visual envelope described previously as the facility is on the whole shielded from the east by other industrial buildings in the adjoining industrial estate and from the south by a mature tree line running on the southern perimeter of the facility and adjoining industrial estate.

It should again be noted that the development of the N52 Tullamore bypass directly adjacent to the facility will have a major visual impact in respect of intrusion and obstruction on the views at the locations identified. This impact is likely to be much greater than that of the proposed AES development at all locations identified.

The potential visual impacts of the proposed development at the facility on each of the viewpoints were assessed in terms of changes to the existing view.



Westerly Viewpoint:

- A** *From the nearest sensitive receptor (petrol station) looking directly towards the facility in a south easterly direction*

The photograph shown in Figure 8.4 is taken from the forecourt of the petrol station cum residence that is identified as the nearest sensitive receptor to activities at the facility. This location is approximately 150 metres to the north west of the site and the view is dominated by the entire AES facility. This is indicative of the view seen when travelling east along the Daingean Road from a distance of approximately 500 metres from the facility.

The foreground portion of the view is currently of the existing Daingean Road and the agricultural fields directly west of the site. The left middle ground of the photograph shows the existing entrance and northern perimeter fence of the AES facility.

The proposed development will see the moving of the northern fenceline and the closing of the existing entrance so that the northern perimeter will be visible in the centre middle ground of the view post development.

Figure 8.4: Westerly Viewpoint A



The administration building will be relocated so that it will be placed at the north western corner of the waste processing building. However, it will be largely screened by the existing weighbridge cabin and dominated by the larger waster processing building.

The development of the N52 Tullamore bypass will have a major impact at this location in terms of visual intrusion and obstruction. The front and middle portion of the view will be dominated by the works associated with the bypass – construction works in the short to medium term and the presence of the new road (incorporating a roundabout) in the long term.

Potential Visual Impact

The overall impact of the proposed AES development will be very low at this point when considering the impact of the bypass development as well as the context of the existing AES site.

B *From the existing entrance to the facility at the north west corner of the site looking east along the Daingean Road*

The view indicated in Figure 8.5 is taken from directly outside the existing facility entrance looking east along the Daingean Road. The view shows the Daingean Road in the left hand portion of the photograph and the existing entrance and northern perimeter fence in the right hand portion of the photograph. An electricity supply pole is located in the centre of the photograph.

Figure 8.5: Westerly Viewpoint B



The proposed AES development will see the moving of the northern perimeter fence in a southerly direction of approximately 10 – 15 m (from left to right in Figure 8-5). The electricity supply pole will be removed and the Daingean Road will be upgraded. All of these works will be carried out as part of the N52 bypass construction. The impact of the N52 Tullamore bypass will have a major impact at this location in terms of visual intrusion and obstruction. The view will change in its entirety with the upgrading of the road and associated works.

Potential Visual Impact

At this location the works associated with the AES development i.e. relocation of the perimeter fence will have a low to moderate visual impact when considered in isolation. However, when considered as part of the cumulative impacts resulting from the bypass works, the impact from the AES development alone at this point will be considered low.

Northerly Viewpoint:

- C** *From the existing entrance to the facility at the north west corner of the site looking south*

This viewpoint is located approximately 100 m north of the existing facility entrance looking in a southerly direction. The front to middle foreground is dominated by agricultural lands which will be utilised for construction of the N52 bypass. The existing waste reception buildings are visible in the middle ground of the photograph as are the northern and eastern perimeter fences. The Daingean Road traverses the middle ground of the photograph.

The proposed development will see the moving of the northern perimeter fence in a southerly direction and the relocation of the administration building to a position adjacent to the waste processing building. To this end, the visual impact of proposed AES development can be considered minimal.

The impact of the N52 Tullamore bypass will have a major impact at this location in terms of visual intrusion and obstruction. The view will change in its entirety with the development of the bypass and associated works.

Potential Visual Impact

At this location the works associated with the AES development i.e. relocation of the perimeter fence and administration building will have minimal visual impact when considered in isolation. When considered as part of the cumulative impacts resulting from the bypass works, there will be no impact from the AES development alone at this point.

Figure 8.6: Northerly Viewpoint C



Southerly Viewpoint:

D From the entrance to the existing Council Dog Pound at the south west corner of the facility looking north

This viewpoint is located directly adjacent to the Offaly County Council Dog Pound directly south west of the AES facility, looking in a northerly direction. The view comprises the existing waste processing building in the right side of the picture, the access road running left to right and existing agricultural fields in the left hand side of the picture.

From this location, the proposed development will not be seen and hence no visual impact will be observed.

The impact of the N52 Tullamore bypass will have a major impact at this location in terms of visual intrusion and obstruction. The view will change in the left hand portion of the photograph with the development of the bypass and associated works in these agricultural fields and it is understood that the existing access road to the Council Dog Pound will be upgraded.

Potential Visual Impact

At this location the works associated with the AES development i.e. relocation of the perimeter fence and administration building will have no visual impact when considered in isolation.

Figure 8.7: Southerly Viewpoint D



Easterly Viewpoint:

E From the north east corner of the site looking east along the Daingean Road

The photograph presented in Figure 8.8 shows the view from the north western corner of the facility looking directly west along the Daingean Road. The viewpoint is dominated by the Daingean Road in the middleground and foreground of the photograph.

Figure 8.8: Easterly Viewpoint E



The impact of the proposed development from this viewpoint will be minimal. The relocation of the administration building will not impact on the view while the relocation of the northern perimeter fence will be minor.

However, the impact of the N52 bypass will impact heavily on this view in terms of visual intrusion and obstruction. It is understood that the existing Daingean Road will be upgraded at this location to access a roundabout which will be located in the left middle ground of this photograph.

Potential Visual Impact

At this location the works associated with the AES development i.e. relocation of the perimeter fence and administration building will have minimal visual impact when considered in isolation.

8.3.5 Discussion of Potential Visual Impacts

This facility has been in operation for over ten years under a number of different ownerships. Redevelopment of the facility occurred in 2003 with the extension of the waste reception building and administration building. This building extension has been in place for approximately five years and has established the visual character of the facility since 2003.

As described, the potential impacts on the visual character from the AES development alone will be minimal. There will be no increase or decrease in the scale of the large waste reception building which dominates the views of this facility from all directions.

Relocation of the administration building will have minimal impact as the building will be shielded by the larger existing reception and processing shed. The relocation of the northern perimeter fence will have a low impact on the visual character of the facility from certain locations.

However, the proposed development at the AES facility must also be considered in the wider context of the imminent construction of the N52 Tullamore bypass. The construction of the bypass will have a major impact on the visual character of the wider area in which the AES facility is located. The predominant nature of land use adjacent to the facility, which is primarily agricultural, will become infrastructural in nature, which will have defining impact on the landscape of the area.

When considered as part of the wider bypass development, the impacts on the visual character of the landscape from the proposed AES development alone can be considered negligible.

8.4 Mitigation Measures

Mitigation measures proposed to minimise any potential impacts are as follows;

- relocated northern perimeter fence will be reconstructed in colours similar to the existing taking into account the surrounding environment and the local landscape context

- relocated administration building will be of a colour that will ensure integration with the character of the waste reception building
- screening planting will be put in place along the western boundary of the site, where practicable

8.5 Conclusions on Landscape

Six viewpoints were selected to assess the existing visual impact of the site on the surrounding areas. An assessment of the viewpoints has indicated that there will be some minor impacts on the visual landscape from certain views as a result of the proposed development only. However, the entire visual character of the existing landscape will be changed as a result of the N52 bypass development. Therefore, when considered in conjunction with the visual impacts from the N52 bypass development, the impacts from the road development far outweigh those from the AES Ltd. development alone and as such, the impacts from the AES Ltd. development can be considered negligible.

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9. THE DEVELOPMENT & ITS IMPACTS IN CONTEXT

9.1 Cumulative Effects

The proposed redevelopment at the existing AES Ltd. Cappancur waste management facility has the potential to cause both positive and negative impacts on the receiving environment. However, the scale of impacts will be minor in nature and the overall cumulative impacts can be considered negligible.

Potential Negative Effects

- increase in noise levels during construction (short-term) and operation
- potential for a decrease in local air quality, due to dust emissions
- visual impact of new administration office
- slight increase in traffic levels.

Potential Positive Effects

- secure long-term employment for workers at the facility
- promotion of economic development in the Tullamore area through the provision of waste management facilities in accordance with the regional waste management objectives
- the upgrading of environmental controls to minimise emissions from the existing site and proposed site.

Although a separate and unrelated development to this EIS, the construction of the N52 Tullamore bypass directly adjacent to the AES Ltd. facility has the potential to impact on the environment within the area on a much greater scale than the AES Ltd. development in terms of impact on landscape, traffic, noise, ecology etc. However, this development is outside the scope of this EIS and is not considered in any detail.

9.2 Interaction of the Effects

There is potential for interactions between different environmental aspects and impacts. Impacts can be positive, negative, slight or imperceptible. Table 9.1 outlines the interactions between the possible effects of the development.

Table 9.1: Summary of Interaction of Environmental Effects

Impact	Effect								
	Socio-economic	Archaeology	Air Quality	Climate	Geology	Landscape	Ecology	Water Quality	Traffic
Noise	I	-	-	-	-	-	-	-	-
Air Emissions	I	-	I	-	-	-	-	-	-
Traffic	I	-	I	-	-	-	-	-	-
Water Quality	-	-	-	-	-	-	-	I	-
Soil/Groundwater	-	-	-	-	-	-	-	-	-
Operation of Site	P	-	I	-	-	-	-	-	I

- P = Positive Impact
- = No Impact
- I = Imperceptible Impact
- M = Moderate Impact
- N = Negative Impact
- S = Slight Impact

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From Table 9.1, it is evident that the proposed development at the AES Cappancur facility will only have an imperceptible impact on the receiving environment in the vicinity of the site.

In general, the continued operation of this existing facility will have a positive impact on the socio-economic situation in the area as it will ensure continued employment and provision of waste management services for the Tullamore and wider Midlands region.

9.3 Conclusion on the Interaction of the Foregoing

The proposed development at the existing AES Ltd. Cappancur waste management facility will reinforce the provision of waste management services in the Midland region.

The previous sections of this EIS have dealt with any potential impacts from the proposed development – where potential negative impacts are expected, mitigation measures have been proposed to minimise or eliminate these impacts.

It is not expected that there will be any negative impacts from this proposed development in the short, medium or long term.

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