

Appendix A14.1 Traffic and Transport Assessment



Kerdiffstown Landfill Remediation Project

Kildare County Council

Environmental Impact Assessment Report (EIAR) - Appendix 14.1 - Traffic & Transport Assessment

32EW5604/DOC/0048 | 1.4

15 Aug 2017



Kerdiffstown Landfill Remediation Project

Project No: 32EW5604
Document Title: Environmental Impact Assessment Report (EIAR) - Appendix 14.1 - Traffic & Transport Assessment
Document No.: 32EW5604/DOC/0048
Revision: 1.44
Date: 30 June 2017
Client Name: Kildare County Council
Client No:
Project Manager: Rhianna Rose
Author: David Peterson
File Name: \\ledub1-fil001\j\ Sustainable Solutions\Kerdiffstown Landfill\4 - Documents\4.3 - Draft Documents\32EW5604 E EIA IED Planning\EIA\EIAR Chapters\15-Traffic\A14.1 Traffic and Transport Assessment_AUG 150817.docx

Jacobs Engineering Ireland Limited

Merrion House
Merrion Road
Dublin 4, D04 R2C5
Ireland
T +353 1 269 5666
F +353 1 269 5497
www.jacobs.com

© Copyright 2017 Jacobs Engineering Ireland Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright.

Limitation: This report has been prepared on behalf of, and for the exclusive use of Jacobs' Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

Document history and status

Revision	Date	Description	By	Review	Approved
1.0	21/03/2017	Submission of working document to project team prior to technical review	DP	-	-
1.1	06/04/2017	Submission of final draft to project team following technical review	DP	JC	CW
1.2	26/04/2017	Revisions following CRAV	DP	JC	CW
1.3	08/05/2017	Preliminary Draft for KCC Review	DP	JC	RR
1.4	30/06/2017	Draft Incorporating KCC Review Comments	DP	JC	RR
1.5	15/08/2017	Final	PW	RK	RR

Contents

1. Introduction..... 1

1.1 Background 1

1.2 Outline Methodology..... 1

1.3 Report Structure 1

2. Accessibility Review to Existing Site 2

2.1 Introduction..... 2

2.2 Walking and Cycling 2

2.2.1 Walking 2

2.2.2 Cycling 3

2.3 Public Transport 3

2.3.1 Rail Provision..... 3

2.3.2 Bus Provision..... 3

2.3.3 Existing Road Network 4

3. The Proposed Project 5

3.1 Site Location and Development Context 5

3.2 Site Access Proposals..... 5

3.3 Parking 6

3.3.1 Remediation Phase Parking..... 6

3.3.2 Operational Parking..... 7

4. Policy Context..... 8

4.1 Introduction..... 8

4.1.1 Planning Policy Statement 2015 8

4.1.2 National Development Plan 2007-2013..... 9

4.1.3 National Spatial Strategy 2002-2020..... 9

4.1.4 Urban Design Manual – A Best Practice Guide (May 2009) 10

4.1.5 National Climate Change Strategy 2007-2012..... 10

4.1.6 Smarter Travel – A Sustainable Transport Future – A New Transport Policy for Ireland 2009-2020..... 11

4.1.7 National Cycle Manual 2011 11

4.1.8 Transport Strategy for the Greater Dublin Area 2016-2035 11

4.1.9 Kildare County Development Plan 2017-2023 12

4.1.10 Naas Town Development Plan 2011-2017..... 13

4.2 Assessment of the proposed Project in relation to policy context..... 13

5. Trip Generation and Assignment..... 14

5.1 Remediation Phase Traffic 14

5.1.1 General Assumptions 14

5.2 Operational Phase Traffic..... 14

5.2.1 General Assumptions 14

5.2.2 Operational Traffic Assignment..... 15

6. Traffic Impact Assessment..... 16

6.1 General Approach 16

6.2	Base Traffic Flows	16
6.3	Traffic Growth	18
6.4	Assessment Scenarios	18
6.5	Model Reporting and Key Points	19
6.6	Model Results and Analysis	19
6.6.1	2017 Base Network	19
6.6.2	2018 / 2022 / 2027 / 2037 Projected Network	21
6.6.3	2018 Projected + Remediation Phase Traffic Network	25
6.6.4	2018 Projected + Remediation Phase (Sensitivity Test) Traffic Network	26
6.6.5	2022 Projected + Operational Phase Traffic Network	27
6.6.6	2027 Projected + Operational Phase Traffic Network	28
6.6.7	2037 Projected + Operational Phase Traffic Network	30
7.	Summary and Conclusion	32
7.1	Summary	32
7.2	Conclusions	32

Appendix A. Traffic Flow Diagrams

Appendix B. Modelling Results

1. Introduction

1.1 Background

The proposed Project comprises the remediation of the site to reduce the risks posed by the site in its current condition to public health and safety and the environment (the Remediation Phase), whilst developing the site to provide an amenity to the local community, comprising a public park with multi-use sports pitches (the Operational Phase).

As stated in Chapter 15 Traffic and Transport of the Environmental Impact Statement (EIS) for Kerdiffstown Landfill Remediation Project (the proposed Project) initial assessment of predicted traffic volumes suggested that a standalone Traffic and Transport Assessment (TTA) may not be required. However, in order to ensure a robust assessment of impacts on the road network for both the Remediation Phase and Operational Phase a TTA was undertaken for the proposed Project.

This report considers the traffic and transportation impacts relating to existing, remediation and operational phases of the proposed Project.

1.2 Outline Methodology

Traffic count data has been collected at key locations on the road network, adjacent to the proposed project site in agreement with KCC. This is discussed further in Section 6 including details of locations and dates of surveys. This data along with traffic projections relating to the proposed Project have been used to develop an understanding of the existing traffic conditions and worst case traffic scenario for development.

The development methodology is as follows:

- Review existing conditions on the local road network;
- Establish the traffic baseline considering observed traffic conditions and the effect of consented development proposals;
- Establish trip generation and distribution relating to the proposed development; and
- Assess network operation and identify any mitigation requirements.

In order to ensure a robust assessment of impacts for both the Remediation Phase and Operational Phase an assessment of peak impacts has been undertaken and based on an assumed remediation start of 2018, with intensive Remediation Phase works expected to last approximately 3.5 years.

The operation of the road network and key junction capacity in the vicinity of the proposed Project has been modelled using a VISSIM microsimulation model. The model evaluates the potential impacts on the local road network due to the Remediation Phase and Operational Phase activities associated with the proposed Project.

The Remediation Phase will comprise construction works, with site staff and contractor's personnel parking at site offices. Car parking provision for the Operational Phase was primarily determined according to the number of users of the multi-use sports pitches. An assessment of car parking provision has been undertaken to ensure that the proposed Project has sufficient car parking capacity as detailed herein.

1.3 Report Structure

Section 2 of this report describes the development proposals for the proposed Project. **Section 3** provides an assessment of the proposed Project in relation to current national and local transport planning policies. **Section 4** reviews the accessibility of the existing site, considering non-motorised transport, public transport and the existing road network. **Section 5** provides details on trip generation associated with the development proposals. **Section 6** details the key findings of the traffic impact assessment. Summary and conclusions of the study are presented in **Section 7**.

2. Accessibility Review to Existing Site

2.1 Introduction

A baseline accessibility assessment was undertaken to establish existing transport provision relevant to the development. The assessment considers travel by relevant modes of transport and provides details of available infrastructure and service provision.

The assessment recognises the need for both local and regional travel. It also recognises that walking and cycling are main modes of transport but are also secondary modes of travel for public transport users.

2.2 Walking and Cycling

2.2.1 Walking

The site is located close to Johnstown, Sallins, Kill and Naas. Much of Johnstown is within walking distance of the site. Sallins, Kill and Naas are within an approximate walking time of 20 minutes (1.6km radius). High quality footways exist in Johnstown and along the frontage roads to the N7. A footbridge provides access over the N7 between Johnstown and L2005 Kerdiffstown Road south of the proposed Project. The existing L2005 Kerdiffstown Road to the north of the pedestrian bridge currently has no dedicated pedestrian facilities, with pedestrians sharing the existing narrow carriageway with vehicular traffic. The walking catchment is shown below as Figure 2.A.

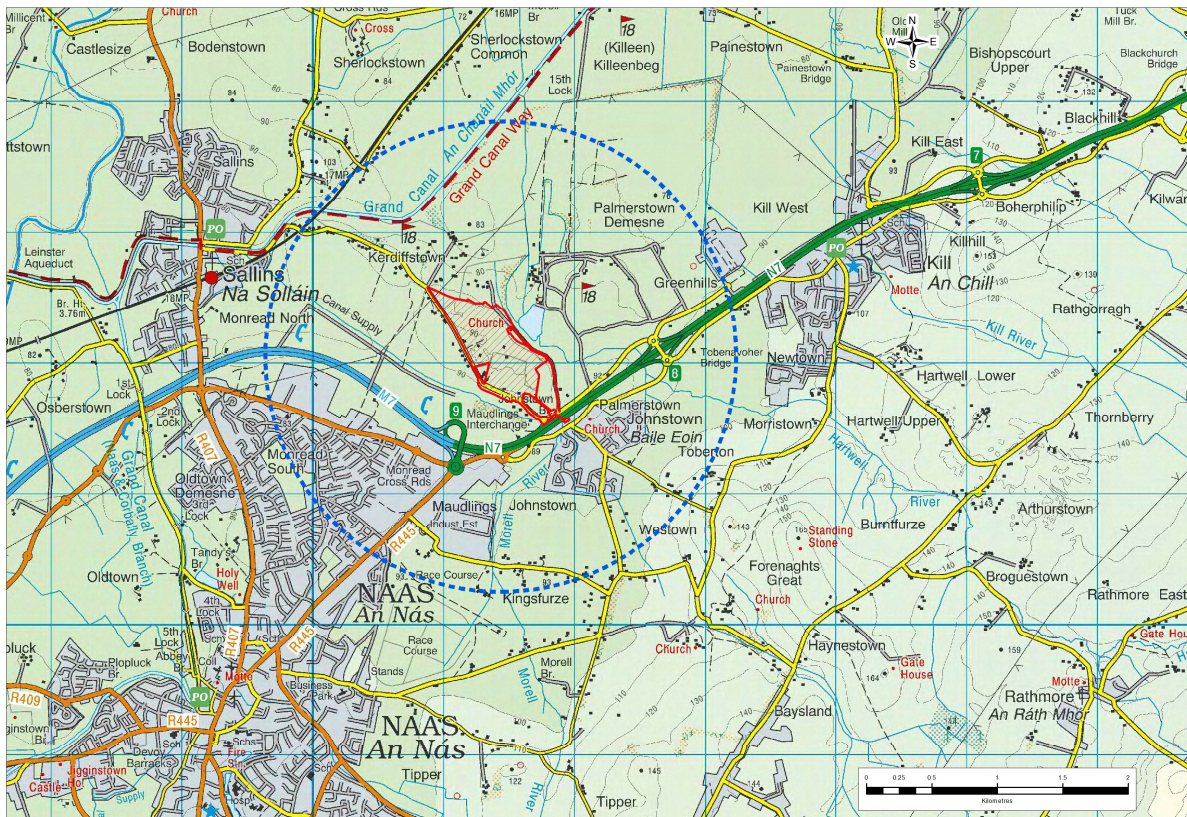


Figure 2.A: 20 minute walking catchment from proposed site entrance

2.2.2 Cycling

Figure 2.B shows that nearby residential areas such as Johnstown, Sallins, Kill and Naas are within a reasonable distance to cycle to the site. Segregated shared use paths exist both north and south of the N7 directly south of the site and eastward. A pedestrian bridge provides access over the N7 to Johnstown. Due to the parapet height which appears applicable to pedestrians only cyclists must walk bicycles across the bridge. Many roads in the vicinity do not have segregated facilities or marked cycle lanes; cyclists share the carriageways with vehicular traffic.

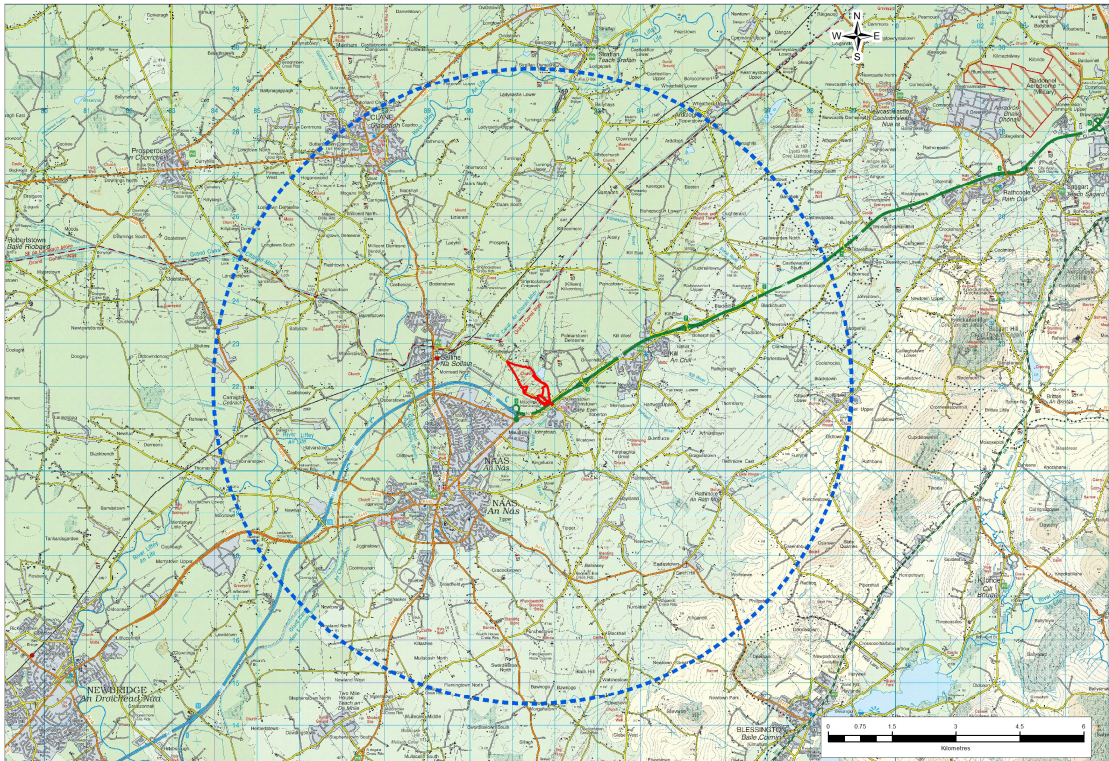


Figure 2.B: 30 minute cycle catchment from site entrance

Figure 2.B illustrates a 30 minute cycling catchment (7.5km radius at 15km/h), which is assumed as a reasonable cycle journey time and distance.

2.3 Public Transport

2.3.1 Rail Provision

There is no rail station in walking proximity to the proposed Project. However, the main railway station for Naas/Sallins lies approximately 3.2km west of the site. This station has frequent services toward Dublin and to points west and south (e.g. Limerick, Galway, Portlaoise, Kildare and Waterford).

2.3.2 Bus Provision

There is currently no bus provision adjacent to the proposed Project along L2005 Kerdiffstown Road. The nearest bus stops are in Johnstown to the south of the pedestrian bridge over the N7, within a 20 minute walk of the proposed site entrance. These stops currently include services 126 and 130 (see Table 2.1), with regular services between Dublin and Kildare.

Table 2.1: Bus Services serving Johnstown in the vicinity of the proposed Project

Service	Route	Service Frequencies				Journey Time	Operator
		Weekday AM	Weekday PM	Sat	Sun		
126	Johnstown > Dublin Connelly LUAS Stop	15 mins	45 mins	50 mins	70 mins	~45 mins	Bus Eireann
	Dublin Connelly LUAS Stop > Johnstown	50 mins	30 mins	75 mins	50 mins	~45 mins	
130	Johnstown > Dublin Busaras	2 buses (0822, 1007)	n/a	2 buses (0827, 1007)	n/a	~45 mins	Bus Eireann
	Dublin Busaras > Johnstown	n/a	1 bus (1840)	n/a	1 bus (1840)	~45 mins	

2.3.3 Existing Road Network

Kerdiffstown Road is a local road immediately adjacent to the proposed project site. It connects the N7 Junction 8 to Sallins and provides the only road access to the site. The road includes many private access locations along its length, as well as access to the Naas Golf Club just to the north of the proposed project site. The speed limit for Kerdiffstown Road is 60 kph.

The N7 separates the project site vicinity from the village of Johnstown. Junction 8 is the nearest access to the proposed site, approximately 0.75 km east of Johnstown. Junction 8 consists of two roundabouts north and south of the N7 and access on and off ramps to the motorway.

A private road to Kerdiffstown House runs along the eastern boundary of the proposed project area, following the River Morell. There is a controlled access gate to the south of the site where this private road meets Kerdiffstown Road.

Frontage roads lie north and south of the N7 between the proposed project area, Junction 8 and Kill. These are generally single carriageway routes with shared use cycle/pedestrian paths adjacent to the carriageway separated by a grassy verge and wooden bollards.

3. The Proposed Project

3.1 Site Location and Development Context

The site of the proposed Project, is located in County Kildare, approximately 3km north-east of central Naas to the south-west of Dublin, approximately 400m north-west of Johnstown village and in close proximity to the strategically important M7/N7 corridor as shown on Figure 3.1 of the EIS. An extract of the site location showing existing access is shown below as Figure 3.A. The land uses in the immediate vicinity of the proposed Project are parkland associated with Kerdiffstown House to the north-east, golf courses to the north and north-east, and a mixture of land uses including residential, agricultural and worked out quarries to the south-east, south-west and west.

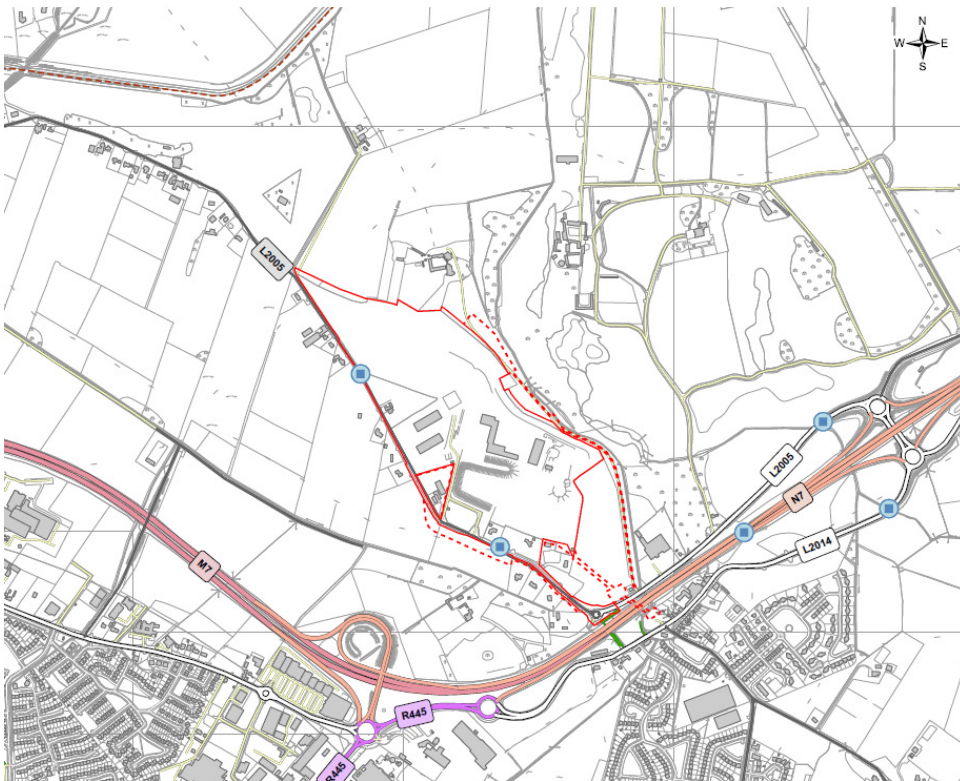


Figure 3.A: Location Plan of Proposed Project

Vehicular access to the existing site is via a priority junction on L2005 Kerdiffstown Road, which links Johnstown at N7 Junction 8 in the south-east, to the settlement of Sallins (via Church Ave) to the north-west. A pedestrian footbridge connects L2005 Kerdiffstown Road with the local road network in Johnstown.

3.2 Site Access Proposals

As part of the proposed Project preliminary design phase an assessment of the existing access arrangements for the site was undertaken. This confirmed that the existing access would not be fit for purpose in terms of accommodating HGV traffic associated with the Remediation Phase of the proposed Project, given poor levels of visibility on egress from the site. Assessment of alternatives was therefore undertaken, embracing the following activities:

- A high level desk study of potential site access options;

- A comprehensive site visit to assess the strength and weaknesses of all potential site access options, consideration of additional options not identified from the desk study activity. The site visit eliminated non feasible access options and identified options to be taken forward to feasibility design stage;
- Preparation of feasibility design drawings of potential access options determined from the site visit; and
- Design of the preferred access option.

The assessment identified that a new site access would comprise a roundabout, in close proximity to the existing site access. The location and make-up of the proposed access represents the most appropriate to enable safe access to the site for both the Remediation Phase and Operational Phase. The roundabout has been designed in accordance with the National Road Authority Design Manual for Roads and Bridges (NRA DMRB) (DN-GEO-TD16 Geometric Design of Roundabouts) (refer to Appendix A4.1 of the EIS). To accommodate the revised site access realignment and widening of the L2005 Kerdiffstown Road is required. This comprises works to the immediate west of the existing site access and to the east, adjoining to an existing roundabout on the L2005 Kerdiffstown Road located to the south-east of the site. The geometric design parameters for all other roads are set out in the Design Manual for Urban Roads and Streets (DMURS) (Section 4.4.6 Alignment and Curvature).

Furthermore, while providing a safe access arrangement for all road users during the Remediation and Operational Phases the proposed access design includes provision of pedestrian and cycle infrastructure. This will be of particular benefit during the Operational Phase. This provision of a new shared use pathway alongside the L2005 Kerdiffstown Road comprises:

- linkage of the site via the existing footbridge to Johnstown to the south (and onward to Naas);
- linkage of the site via the N7 Junction 8 to the east, towards Kill;
- several uncontrolled crossings;
- a section of shared use pathway linking to L2005 Kerdiffstown Road to the north-west of the new site access; and
- a ramp providing cyclists access to the shared use trail south of the proposed site access roundabout.

Details of the new access, road realignment and pedestrian/ cycleway provision are shown on Figures 4.12 to 4.14 of the EIS.

The design has been subject to a Stage 1 Road Safety Audit (RSA). Feedback on the RSA was provided by the design team and approved by Kildare County Council project team, and the design revised accordingly. This is provided in the Traffic and Transport chapter of the EIAR.

The new site access and realignment of L2005 Kerdiffstown Road are proposed to be undertaken as part of the first phase of remediation works.

3.3 Parking

3.3.1 Remediation Phase Parking

It is proposed that throughout the Remediation Phase, project site staff and construction personnel will park on-site using the existing informal staff parking spaces accessed via the new proposed site access off the L2005 Kerdiffstown Road. During the busiest phase of remediation, it is predicted that approximately 40 staff will be required on site. On the basis of a robust estimate of single occupancy car trips for all staff, these 40 vehicles can be comfortably accommodated within the existing staff car park and adjacent hardstanding areas. Additional overflow parking areas will be made available elsewhere within the site should the need arise.

Furthermore, given the entire site will be subject to construction activities at some time during the Remediation Phase staff parking will require to be moved to other locations within the bounds of the site.

In addition to cars a number of HGVs associated with the Remediation Phase may be parked on site during the project. An estimated 140 two-way HGV movements are anticipated daily during peak periods of the remediation works which equates to an average of 14 per hour over the course of a 10-hour workday. Assuming that each hourly movement is a separate vehicle, it is conservatively assumed that 14 HGVs may be parked on site at any one time. In addition to HGVs, other construction equipment, plant and vehicles will likely be needed on site to enact the remediation activities. Sufficient areas are available on site to accommodate parking of site plant and vehicles.

The proposals for such will be detailed in the contractor's Construction Traffic Management Plan supporting the Construction Environmental Management Plan.

3.3.2 Operational Parking

The Kildare County Development Plan 2017-2023 references maximum car and cycle parking standards for various land use developments. The parking provision on the basis of the three multi-use sports pitches to be developed for the proposed Project as calculated from the relevant parking standards are shown below in Table 2.1 below.

Table 3.1: Car and Cycle Parking Standards and Provision (Kildare County Development Plan 2017-2023, Table 17.9 and 17.10)

Land Use	Cars		Cycle	
	Maximum Parking Standard	Provision for the proposed Project	Parking Standard	Provision for the proposed Project
Playing fields	15 spaces per pitch	45 spaces	20 spaces per pitch	60 spaces
Public Park	Not specified	Not specified	Not specified	Not specified
Playground	Not specified	Not specified	Not specified	Not specified

For three multi-use pitches a total of 45 car parking spaces would be the maximum permitted under the guidance of the Kildare County Development Plan (2017-2023). However, as the pitches will be primarily utilised for training purposes there is a need to provide adequate space for frequent changeover between training sessions. This could be estimated to comprise a need for a total of 90 car parking spaces, facilitating a short turnover.

Car parking provision is also necessary for use of the site as a public park and playground. There are no car parking standards directly associated with this land use. The car parking provision will have capacity for a further 110 car parking spaces or use by coach/mini-bus parking.. However, as per the Development Management Standards in the County Development Plan 5% of the parking provision should be set aside for disabled parking bays. Up to 10% of spaces shall include electric charging facilities in order to meet the targets of the Government's Electric Transport Programme and in response to 'Climate Change the Government's National Policy Position on Climate Action and Low Carbon Development'. Overall the car parking provision is considered sufficient in capacity for the needs of the proposed Project.

For the multi-use pitches a total of 60 cycle parking spaces would be the standard provision under the guidance of the Kildare County Development Plan (2017-2023). Cycle parking provision is also to be available for use at the site of the public park and playground, However there are no cycle parking standards directly associated with these land uses.

As such, the identified parking provision is considered appropriate for the Operational Phase of the proposed Project, and is robust given assumption that most travel by single occupancy car, whereas it is expected that users may arrive by walking, cycling or car sharing.

4. Policy Context

4.1 Introduction

In order to demonstrate that the development of the site complies with current national and local transport planning policies, a review was undertaken of the following documents:

- Planning Policy Statement 2015;
- National Development Plan 2007-2013;
- National Spatial Strategy 2002-2020;
- Urban Design Manual, A Best Practice Guide (May 2009);
- National Climate Change Strategy 2007-2012;
- National Cycle Manual 2011;
- Smarter Travel – A sustainable transport future – A new transport policy for Ireland 2009-2020;
- Transport Strategy for the Greater Dublin Area 2016-2035;
- Kildare County Development Plan 2017-2023;
- Naas Town Development Plan 2011-2017; and
- Naas Neighbourhood Greenways.

In undertaking this traffic and transport assessment, the following guidance documents have been taken into account:

- Traffic and Transport Assessment Guidelines (Transport Infrastructure Ireland, 2014) (NRA Guidelines);
- Design Manual for Urban Roads and Streets (DMURS), Department of Environment, Community and Local Government, 2013;
- Guidelines for Traffic Impact Assessment, The Institution of Highways and Transportation, September 1994; and
- Design Manual for Roads and Bridges, Traffic Infrastructure Ireland.

4.1.1 Planning Policy Statement 2015

The purpose of Ireland's planning policy is to assist with decisions on competing development options in the future and aims to deliver a planning process that will:

“ensure the right development takes place in the right locations and at the right time in providing the social, economic and physical infrastructure necessary to meet the needs of our people in a way that protects the many qualities of our natural and built environment”

National, regional and local officials aim to implement the ten principles the Planning Policy Statement is built upon (as listed below):

1. Planning must be plan-led and evidence based;
2. Planning must proactively drive and support sustainable development;
3. Planning is about creating communities and further developing existing communities in a sustainable manner;
4. Planning must support the transition to a low carbon future and adapt to a changing climate;
5. Planning must ensure that development facilitates and encourages greater use of public transport as well as making walking and cycling more attractive for people;

6. Planning will encourage the most efficient and effective use of previously developed (brownfield) land;
7. Planning will enhance sense of place;
8. Planning will conserve and enhance the rich qualities of natural and cultural heritage;
9. Planning will support the protection and enhancement of environmental quality; and
10. Planning will be conducted in a manner that affords a high level of confidence.

The proposed Project complies with the criteria set out in the Planning Policy Statement 2015, according to the key principles of the overall development:

- by creating high quality cycle and pedestrian access to the site to aid in the transition to a low carbon future;
- efficiently using a brownfield site;
- enhancing the sense of place related to Naas and surrounding towns; and
- supporting environmental quality and protection.

4.1.2 National Development Plan 2007-2013

The National Development Plan 2007 – 2013 is characterised by its focus on ‘a better quality of life for all’ and sets out the following goals in order to achieve this:

- A strong, competitive economy, delivering quality, sustainable employment in a more regionally balanced manner;
- Affordable, quality housing, complemented by efficient access to facilities and services for work, education, healthcare, childcare, sports, recreation and culture;
- A sustainable, high quality environment; and
- A greater level of participation in society by all.

The proposed development complies with the criteria set out in the National Development Plan 2007-2013 as it creates a new community-serving recreational facility that may be accessed efficiently and sustainably. It also encourages greater social participation, and the planning underway for the site would produce a sustainable and environmentally sensitive development to remediate a former brownfield site.

4.1.3 National Spatial Strategy 2002-2020

The National Spatial Strategy (NSS) offers a ‘broad, long-term, comprehensive twenty-year view for achieving more balanced patterns of development’ in Ireland. The NSS identifies Naas as a *Primary Development Centre*, designated as the main focus areas for growth in the Greater Dublin Area hinterland. This suggests that Naas and its environs should be considered centres of continued development in the future for a variety of land uses, particularly in a way that energises its own catchment.

This overall vision of the NSS is to be achieved by strategically influencing Ireland’s spatial structure to develop ‘gateways’ and ‘hubs’ to:

‘...achieve more balanced regional development in order to reduce the disparities between and within the two Regions (Border, Midlands and West and South and East) and to develop the potential of both to contribute to the greatest possible extent to the continuing prosperity of the country. Policies to secure such development must be advanced in parallel with policies to ensure that this development is sustainable with full regard to quality of life, social cohesion, and conservation of the environment and the natural and cultural heritage’.

The Kerdiffstown Landfill site contributes to the aims of the National Spatial Strategy by providing community-serving recreational facilities in close proximity to a designated Primary Development Centre (Naas). In addition,

transportation considerations for the site will be implemented with sustainable transport in mind, contributing to the sustainable development goals of the strategy.

4.1.4 Urban Design Manual – A Best Practice Guide (May 2009)

The *Urban Design Manual – A Best Practice Guide* focuses on creating well-designed, sustainable neighbourhoods that will stand the test of time'. It is primarily concerned with issues related to housing development, but also promotes sustainable development more broadly. As such, it provides a strong foundation for the design of development sites in relation to their accessibility, particularly walking and cycling. The manual follows a set of 12 criteria and sub-indicators of which the following are linked to this Transport Assessment:

- Connections: How well connected is the new neighbourhood?
 - There are attractive routes in and out for pedestrians and cyclists.
 - The development's layout makes it easy for a bus to serve the scheme.
 - The layout links to existing movement routes and the places people will want to get to.
- Inclusivity: How easily can people use and access the development?
 - Design and layout enables easy access by all.
 - Areas defined as public open space that have either been taken in charge or privately managed will be clearly defined, accessible and open to all.
- Layout: How does the proposal create people friendly streets and spaces?
 - Layout aligns routes with desire lines to create a permeable interconnected series of routes that are easy and logical to navigate around.
 - The streets designed as places instead of roads for cars, helping to create a hierarchy of space with less busy routes having surfaces shared by pedestrians, cyclists and drivers.
 - Traffic speeds are controlled by design and layout rather than by speed humps.
- Public Realm: How safe, secure and enjoyable are the public areas?
 - Roads and parking areas are considered as an integral landscaped element in the design of the public realm.
- Parking: How will the parking be secure and attractive?
 - Parking is provided communally to maximise efficiency and accommodate visitors without the need to provide additional dedicated spaces.
 - Adequate secure facilities are provided for bicycle storage.

This TTA was prepared in accordance with the *Urban Design Manual, A Best Practice Guide*. In particular, the guidance on walking and cycling and accessibility was followed during the preparation of this TTA.

4.1.5 National Climate Change Strategy 2007-2012

The *National Climate Strategy 2007-2012* outlines Ireland's commitment to reducing emissions to no more than 13% above 1990 levels over the five year period from 2007-2012. Chapter 4 of the Strategy is dedicated to Transport and highlights the need for applying measures to reduce transport emissions, particularly modal shift. The proposed Action Plan aims to employ:

- In-depth modelling of emissions for future transport developments;
- Intelligent Transport Systems (ITS) to manage and optimise the transport network to increase efficiency;
- Fiscal measures, such as road pricing, congestion charges and car parking fees to reduce private car usage.

The proposed Kerdiffstown Landfill project seeks to satisfy a portion of its travel demand through zero-carbon travel, including walking and cycling. The management plan for the operational site has not yet been developed, however car parking fees would be an option available to KCC to discourage private car use. ITS does not apply in the context of this area.

4.1.6 Smarter Travel – A Sustainable Transport Future – A New Transport Policy for Ireland 2009-2020

Smarter Travel – A Sustainable Transport Future is ‘designed to show how Ireland can reverse current unsustainable transport and travel patterns and reduce the health and environmental impacts of current trends and improve our quality of life’. The plan outlines the current transport trends and statistics in Ireland and focusses on policies which aim to increase transport sustainability by 2020:

Key Goals:

- Improve quality of life and accessibility to transport for all and, in particular, for people with reduced mobility and those who may experience isolation due to lack of transport;
- Minimise the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions;
- Reduce overall travel demand and commuting distances travelled by the private car; and
- Improve security of energy supply by reducing dependency on imported fossil fuels.

The proposed development complies with the criteria set out in *Smarter Travel* as it will create high quality non-motorised and fully accessible linkage to the site, thereby reducing the potential need for use of fossil fuels and resultant green gas emissions / other localised air pollutants.

4.1.7 National Cycle Manual 2011

The National Transport Authority (NTA) published the *National Cycle Manual* in 2011 to provide guidance on integrating cycling into the design of urban areas. It offers basic strategy, network planning and design guidelines for cycle facilities and other details. The *National Cycle Manual* is the primary design guidance document for cycling in Ireland.

The overall aim of the manual is to contribute to improvements that encourage more people to cycle, including those who are risk-averse, and ultimately to upgrade the cycling offer in urban areas to provide a safe and stress free cycling environment.

4.1.8 Transport Strategy for the Greater Dublin Area 2016-2035

The Transport Strategy for the Greater Dublin Area is a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (an area that includes the region around Naas and the proposed project area). It provides transport planning policy around which other agencies involved in land use planning, environmental protection, and delivery of other infrastructure can align their investment priorities.

The Strategy has an overarching purpose to:

“contribute to the economic, social and cultural progress of the Greater Dublin Area by providing for the efficient, effective and sustainable movement of people and goods.”

The document includes the following key messages:

- Transport must be a key consideration in land use planning;
- In the short term, funding for large-scale transport projects will be limited;
- Addressing urban congestion is a priority;
- The capacity of the strategic road network must be protected;

- A significant reduction in the share of trips undertaken by car is required, particularly in relation to short trips and commuter trips;
- An associated increase in walking, cycling and public transport is also required;
- A safe cycle network, with extensive coverage in metropolitan Dublin and in other towns, is needed to cater for the increased use of cycling that is already occurring and to reduce the dominance of the private car in meeting travel needs.
- The enhancement of the pedestrian environment, including measures to overcome severance and to increase permeability, is a priority; and
- All-day travel demand from all groups in society must be taken into account – the strategy cannot merely take a peak-hour approach to transport issues.

The proposed development is within the radial planning corridor D (Newbridge-Naas-Clondalkin-North Tallaght-to Dublin City Centre). It fits well within the parameters of the Greater Dublin Area Transport Strategy as it will seek to enhance/improve cycle and pedestrian links to the site from Johnstown/Naas, thereby negating the need for short car trips. In addition, the access road to the site will be designed to accommodate large vehicles such as buses, though no public transport buses currently serve the area.

4.1.9 Kildare County Development Plan 2017-2023

Kildare County Development Plan 2017 – 2023 currently has modal shift and sustainable travel featuring prominently throughout the chapter. Key policies relating to the proposed Project include:

“MT1: Promote the sustainable development of the county through the creation of an appropriately phased integrated transport network that services the needs of communities and businesses.”

“MT11: Focus on improvements to the local road and street network that better utilise existing road space and encourage a transition toward more sustainable modes of transport, while ensuring sufficient road capacity exists for trips which will continue to be taken by private vehicle.”

“WC1: Prioritise sustainable modes of travel by the development of high quality walking and cycling facilities within a safe street environment.”

“WC3: Ensure that connectivity for pedestrians and cyclists is maximised in new communities and improved within the existing areas in order to maximise access to town centres, local shops, schools, public transport services and other amenities.”

“LR1: Ensure that the safety and capacity of the local road network is maintained and improved where funding allows and to ensure that local streets and roads within the county are designed to a suitable standard to accommodate the future needs of the county. The design of these roads and streets should balance the needs of place and movement with providing a safe street environment for all road users.”

These policies focus largely on sustainability within the community and encouraging sustainable travel choices to be made. Sustainable travel will be integrated into both the Remediation and Operational Phases of the proposed Project.

The Development Plan also includes Development Standards for the provision of parking and cycle parking.

Furthermore, use of the remediated site as a multi-use public park would encourage active travel choices to be made, given the improved footpath and cycleway provision. This includes the village settlements of Johnstown and Kill. These factors would have a positive influence on the local community and its businesses, through the economic benefits of developing the site and infrastructure; social and health benefits of a new recreational space which encourages active lifestyles (e.g. walking and cycling); and the environmental benefit of

remediating the former landfill site and developing it into a multi-use public park which would ideally be accessed through means of active travel.

4.1.10 Naas Town Development Plan 2011-2017

Chapter 7 of the Naas Town Development Plan – ‘Movement and Transport’ - sets out a strategy to:

“improve the safety, capacity and efficiency of an integrated transportation infrastructure in Naas in accordance with national, regional, county and local policy. It also involves recognition of the shifts towards public transportation, walking and cycling, and of the land use responses needed to ensure efficiency, economic returns on investment, minimal environmental impact and strengthening the quality of life in the town.”

The proposed Project strongly aligns with the Naas Town Development Plan on the basis that it reduces the environmental impact of the former landfill site and encourages active travel. Firstly, the remediation of the site will reduce the environmental impact the landfill site currently has on the surrounding environment. Remediation Phase related traffic in the form of Heavy Goods Vehicles (HGVs) and general traffic would have a temporary impact on the local road network and environment, however the longer term benefits would outweigh this temporary impact. Proposals for the remediation outline design have reduced the volume of material required for importation to the site, reducing the impacts on the local road network and community. Secondly, the site would encourage and facilitate active travel with bicycle and pedestrian access implemented; and the ‘active’ nature of the park which has dedicated footways, pathways and areas for exercise. Active travel has a positive environmental impact and can increase the quality of life of users and participants.

4.2 Assessment of the proposed Project in relation to policy context

The assessment demonstrates that the site conforms to the key land use and transport planning objectives. The various policies identify the criteria against which planning applications should be assessed; the site can comply with these criteria as demonstrated below:

- Direct improvement to cycling and walking infrastructure linking the proposed site with existing resources;
- Reduction in car-related adverse effects of increased trips to/from the site such as carbon and other pollutant emissions;
- Creation of a community-serving recreational site within close proximity to a designated Primary Development Centre (Naas).

The TTA was prepared in accordance with the Urban Design Manual, A Best Practice Guide (May 2009). In particular, the guidance on walking and cycling journey times was followed during the preparation of this TTA.

The proposals comply with the National Development Plan 2007-2013, Urban Design Manual – A Best Practice Guide (2009), National Climate Change Strategy 2007-2012, Smarter Travel – A Sustainable Transport Future – A New Transport Policy for Ireland 2009-2020, Greater Dublin Area Transport Strategy 2016-2035, and the South Dublin County Council Development Plan 2010-2016.

5. Trip Generation and Assignment

5.1 Remediation Phase Traffic

5.1.1 General Assumptions

For traffic associated with the Remediation Phase accessing to and from the site, it is proposed that all HGV traffic will route via Junction 8 of the N7. Given that the origin of remediation traffic is unknown at this stage, in order to ensure that a robust assessment is undertaken, the assessment considers 100% of HGV related remediation traffic travelling to / from the N7 east and N7 west.

During the busiest phase of remediation, the site is expected to generate an average of 90 arrivals (180 two way trips) per day. Of the 90 arrivals to the site, 70 are HGVs. On the busiest days of remediation (during the peak phase), the number of trips may be higher and in order to account for this and ensure that this assessment undertakes a robust assessment of remediation impacts, it has been assumed that on the busiest day of remediation, 180 vehicles will arrive from the site (including 140 HGVs) and 180 vehicles will depart from the site.

As such, the following worst case remediation phase assessment scenarios have been considered within the assessment:

- 30% of the maximum 360 remediation trips (108) will travel to/from site within the AM (07:00 – 10:00) and PM (16:00 -19:00) peak hours. This will result in 54 vehicles (42 HGVs / 12 Cars) cars travelling to site within the 07:00-10:00 morning peak and from the site in the evening peak of 16:00-19:00; and
- 100% of remediation related traffic (180 arrival and 180 departures) arrives and departs during the AM and PM peak periods, respectively.

While this report assesses the worst case impacts of the remediation phase of the proposed development, in order to cater for every eventuality and ensure that a robust assessment has been undertaken, it is extremely unlikely that either of the scenarios outlined above will occur in reality given that the appointed remediation contractors will be bound by a Construction Traffic Management Plan (CTMP). The CTMP will include details of the routes that HGV remediation traffic must take when travelling to the site, along with details of delivery windows confirming when HGV traffic may arrive on-site, which is most likely to be outside of the AM and PM peak periods. The CTMP, which will be completed post-planning and in conjunction with KCC, will be binding to the contractors. Notwithstanding this, a worst case assessment of potential remediation impacts has been undertaken.

While the remediation phase traffic includes for up to 40 additional non-HGV movements which could route to the site via Sallins and may occur during peak periods the Operational Phase assessment has shown that this increase can be accommodated within the local road network with no detrimental impacts observed.

The remediation trip distribution for the proposed development is contained within Figure 5.1, while the AM and PM trip generation for all remediation scenarios is contained within Figures 5.2 to 5.5 in Appendix A. TRICS data is provided as an appendix to Chapter 15 of the EIAR.

5.2 Operational Phase Traffic

5.2.1 General Assumptions

In order to determine trip generations associated with the proposed Project operational phase, reference has been made to the Trics 2016 database, in which hourly vehicle trip rates were established. Trip rates for the following leisure land use have been considered:

- Country Park

Given that the Country Park land use in Trics can include facilities such as a nine hole golf course, café and visitor centre, it is assumed that the trip rates provided are robust in relation to the proposed end-use of the proposed Project. Furthermore for robustness, the trip rates have assumed that the public park will comprise a larger area (30 hectares) than is proposed.

Table 5.1 illustrates trip rates and subsequent vehicle trip generations for the proposed development operational phase.

Table 5.1: Proposed Development Operational Phase Trip Generation

	Morning Peak 0700 – 1000 (Trip rate per hectare)		Evening Peak 1600 – 1900 (Trip rate per hectare)	
	IN	OUT	IN	OUT
Trip Rate	0.356	0.182	0.368	0.815
Trip Generation	11	5	11	24

Table 5.1 therefore illustrates a robust trip generation of:

- **16** two-way vehicles during the AM peak; and
- **35** two-way vehicles during the PM peak.

It is predicted that the two way flows denoted above can be adequately accommodated within the existing local road network and at the proposed new access junction. The junction analysis in Section 6 provides further detail. It is further observed that the above assessment will be positively mitigated by the proposed opening hours of the facilities, to include the park and multi-use sports pitches which are subject to other restrictions such as daylight hours, health and safety considerations and Industrial Emissions Licence compliance (regulated by the EPA).

5.2.2 Operational Traffic Assignment

The operational traffic has been assigned based on existing turning movements, with AM and PM peak trip distributions detailed in Figures 5.6 to 5.7 in Appendix A. While the proposed Project will represent a destination for additional traffic which may occur during peak periods the robust Remediation Phase assessment scenarios have shown that significant increases in traffic movements can be accommodated within the local road network with no detrimental impacts observed.

The proposed Sallins Bypass is anticipated to open by 2020, which will re-distribute traffic on the local road network around Sallins, with traffic routing to the N7 most likely to route via the Bypass than via Kerdiffstown Road. As such, in order to ensure that a robust assessment is undertaken, traffic associated with the projected base scenarios has not been re-routed via the bypass and continues to route via Kerdiffstown Road, which ensures that a worst case assessment of the impacts on Kerdiffstown Road have been undertaken.

The proposed operational phase trip generation is contained within Figures 5.8 to 5.9 in Appendix A.

6. Traffic Impact Assessment

6.1 General Approach

This section describes the methodology employed to assess the impact of the traffic generated by the proposed Project during the Remediation Phase and Operational Phase on the local road network. The results of the analysis are also discussed.

A microsimulation model was developed by Jacobs in February 2017 using VISSIM, with the approach, methodology and extents of the assessment agreed with the KCC Roads Department following the submission of a scoping report. The model was developed to assess the impacts of the proposed development remediation and operational phases in support of the development proposals. The model extends from Junction 8 of the N7, to the southeast of the site, to the R407 / Church Avenue junction in Sallins, to the north-west of the site. The extents of the model network are shown in the Traffic Flow Diagrams in Appendix A.

The baseline models, which represent two 3 hour periods; 7am to 10am (AM Peak) and 4pm to 7pm (PM Peak), were developed using 2017 traffic survey data and is calibrated and validated in accordance with TII PAG guidance. As such, the model is deemed appropriate for use in assessing the impacts that may result from the proposed Project during the Remediation Phase and Operational Phase. Further detailed calibration and validation results are presented in Appendix B.

6.2 Base Traffic Flows

Classified junction traffic count and queue length surveys were undertaken by Nationwide Data Collection on 26th January 2017 between 0700 and 1900 at the following junctions:

1. R407 / Church Avenue, Sallins;
2. R407 / Church Avenue (E), Sallins;
3. Church Avenue (W) / Church Avenue (S), Sallins;
4. L2005 Kerdiffstown Road Roundabout;
5. N7 Junction 8 North Roundabout; and
6. N7 Junction 8 South Roundabout.

Automatic Traffic Counters (ATCs) were installed at the following locations on the local road network:

7. Church Avenue Railway Bridge, Sallins (January 2017);
8. L2005 Kerdiffstown Road, North of Existing Landfill Access (September 2016); and
9. L2005 Kerdiffstown Road, South of Existing Landfill Access (September 2016).

Location of surveys and ATCs are shown on Figures 6.A and 6.B below.