INDAVER IRELAND

Mr. Michael Killeen
Chief Planner
Meath County Council
County Hall
Navan
Co. Meath.

07/06/01

Dear Mr. Killeen,

Please find attached Indaver Ireland's response to Meath County Council's request for further information dated 14/03/01 for File Reference Number 01/4014.

The response consists of twenty copies of text (including amended A3 drawings) and six copies of amended A0 drawings. The A0 drawings are submitted as a separate folder.

We trust that this response is to your satisfaction.

Yours Sincerely,

Robert Kelly
Site Development Manager
Indaver Ireland

Indaver Ireland • Registered in Ireland No. E4443 • VAT Reg No. IE 9951105 W
Registered Office: 4 Haddington Terrace, Dun Laoghaire, Co. Dublin, Ireland
tel +353-1-214 5830 • fax +353-1-280 7865 • e-mail info@indaver.ie
Indaver nv • Registered in Belgium No. 254912
Registered Office: Belgiëlei/weg 3-2030 Antwerpen 3, Belgium

Document Lead Sheet

PM Project No: 002666

Document No: 002666-22-RP-006

File No: 002666.22.001

INDAVER IRELAND

WASTE MANAGEMENT FACILITY, CARRANSTOWN

FURTHER INFORMATION

ISSUE	DATE	ORIG	AUTH CHK	REVIEW	APPRVD PM	APPRVD CLIENT	DESCRIPTION
A	28/5/01	MG	KH		MG		For Planning

CONTENTS

1. INTRODUCTION

This document has been prepared to address the request for further information issued by Meath County Council in relation to the planning application and Environmental Impact Statement (EIS) for a Waste Management Facility in Carranstown, Co Meath. The request for further information is contained in Attachment A.

The document is arranged so as to clearly address each of the matters raised in the Further Information Requirements. Each matter is addressed in a separate section and any supporting information is contained in the Attachments to this document.

The information within this document is supplementary to information contained in the EIS, and where relevant, the corresponding section of the EIS is referenced.

2. RESPONSE TO INDIVIDUAL ITEMS

Each of the individual items raised in Meath County Council's request for information are addressed in the following sections.

2.1 Item 1

The Planning Authority notes that the likely significant impacts of traffic generated by the proposed development are assessed in terms of the capacity of the existing road network based on level of service. In particular the likely significant traffic impacts are based on the level of service not being adversely impacted upon yet there are no figures to substantiate this.

You are requested to submit details of the calculations / basis for the assessment of existing level of service of R152 and R150. The Planning Authority also considers that the traffic impacts should also be assessed in terms of Annual Average Daily Traffic counts for the network.

2.1.1 Level of Service

The concept of level of service is defined by the NRA in terms of % time delay, average speed, passing conditions and driving conditions as follows:

Classification	% Time Delay	Average Speed	Passing Conditions	Driving Conditions
LOS C	≤ 60	84 kph	Platoon formation occurs with passing demand exceeding opportunity	Driver delay up to 60% due to slower vehicles
LOS D	≤ 75	80 kph	Passing extremely difficult with very high demand and limited opportunity. Platoon size of 5-10 vehicles.	Driver delay up to 75%. Turning vehicles or roadside distractions cause major shockwaves in the traffic system.

A copy of the Traffic Impact Assessment – Additional Information Report is included in Attachment B.

The design capacity of undivided rural roads at a given level of service is defined in the ERU design guidelines (RT180) as a function of carriageway width and the percentage sight distance greater than 460m along the route.

In the vicinity of the proposed development, the R152 is a single carriageway road with a typical carriageway width of approximately 7.0 metres. As the road is an existing road it is impossible to exactly define the percentage sight distance greater than 460m along the route. Therefore, the design capacity of the R152 is to be in the range 700 to 1,200 p.c.u.'s/hour two-way at Level of Service C (LOS C) and 1,300 to 1,500 p.c.u.'s/hour two-way at Level of Service D.

West of Duleek, the R150 is a single carriageway road with a typical carriageway width of 5.5 metres. Again, as the road is an existing road it is impossible to exactly define the percentage sight distance greater than 460m along the route. Based on the carriageway width, the design capacity of the R150 west of Duleek is in the range 575 to 950 p.c.u.'s/hour two-way at LOS C and 1,025 to 1,200 p.c.u.'s at LOS D. The R150 is the main route through the village of Duleek.

The recorded two-way morning and evening peak hour traffic flows on the R152 adjacent to the proposed development site were 799 p.c.u.'s and 902 p.c.u.'s respectively. The recorded two-way morning and evening peak hour traffic flows on the R150 west of Duleek were 264 p.c.u.'s and 278 p.c.u.'s respectively, as shown below.

The estimated design capacities of the R152, in the vicinity of the proposed development, and the R150, west of Duleek, at LOS C and LOS D are as follows:

	Estimated Design Capacities (p.c.u.'s/hour)		Actual Two-way Morning Peak Hour Flows (p.c.u.'s/hour)	Actual Two-way Evening Peak Hour Flows (p.c.u.'s/hour)
	LOS C	LOS D		
R152	830	1,300	799	902
R150	660	1,030	264	278

Based on the above traffic counts and estimated capacities of the R150 and R152, the R150 is currently operating within capacity at LOS C. Depending on the percentage sight distance greater than 460 metres along the existing route, the R152 may currently be operating in excess of capacity at LOS C at peak hours but within capacity at LOS D.

Tables 2.1.1 and 2.1.2 below indicate the predicted 2004 and 2020 traffic flows with and without the development. The predicted flows without the development are based on growth due to the proposed Marathon Power Plant on the R152 and the proposed AgriPark and Industrial Park at Duleek, the change in traffic flows when the M1 opens and predicted annual growth rates as described in the response to Item 2 in Section 2.2 following.

Table 2.1.1 Predicted 2004 Peak Hour Flows with and without the Development

Route	Predicted 2004 Two-Way Peak Hour Traffic Flows (pcus)	
	Without Development	With Development
R152, immediately north of proposed development	890	952 (+7.0%)
R150, west of Duleek	350	375 (+7.1%)

Table 2.1.2 Predicted 2020 Peak Hour Flows with and without the Development

Route	Predicted 2020 Two-Way Peak Hour Traffic Flows (pcus)	
	Without Development	With Development
R152, immediately north of proposed development	1180	1242 (+5.3%)
R150, west of Duleek	450	475 (+5.6%)

Tables 2.1.3 and 2.1.4 below present the predicted volume/capacity ratios with and without the development for 2004 and 2020 respectively.

Table 2.1.3 Predicted 2004 Predicted Volume/Capacity Ratios with and without the Development

Route	Predicted 2004 Predicted Volume/Capacity Ratios, LOS D	
	Without Development	With Development
R152, immediately north of proposed development	68%	73%
R150, west of Duleek	34%	36%

Table 2.1.4 Predicted 2020 Predicted Volume/Capacity Ratios with and without the Development

Route	Predicted 2020 Predicted Volume/Capacity Ratios, LOS D	
	Without Development	With Development
R152, immediately north of proposed development	91%	96%
R150, west of Duleek	44%	46%

As can be seen from Tables 2.1.3 and 2.1.4 above, the predicted 2004 and 2020 traffic is within LOS D on both the R152 and the R150 both with and without the proposed development.

2.1.2 Annual Average Daily Traffic Volumes

The predicted 2004 and 2020 Annual Average Daily Traffic (AADT) volumes without the proposed development were determined on the basis of the NRA publication RT201 Expansion Factors for Short Period Traffic Counts. The expansion factor to determine the AADT volumes for the hour ending 6.00 p.m. on Thursdays during March for rural inter-town routes is 13.32. The accuracy level identified by RT201 is ±25% at a 68% confidence level.

Table 2.1.5 below shows the estimated AADT volumes, the traffic arising from the proposed development and the percentage increase in traffic due to the development for the years 2004 and 2020.

As described above, the predicted traffic flows without the development are based on growth due to the proposed Marathon Power Plant on the R152 and the proposed AgriPark and Industrial Park at Duleek, the change in traffic flows when the M1 opens and predicted annual growth rates.

Table 2.1.5 Predicted Annual Average Daily Traffic Flows on the Road Network

Route	Development Traffic	Predicted AADT volumes (vehicles) without proposed development		% Increase due to the development	
		2004	2020	2004	2020
R152 (immediately north of proposed development)	262	6,060	8,320	+4.3%	+3.1%
R152 (north)	147	6,060	8,320	+2.4%	+1.8%
R152 (south)	41	5,330	7,060	+0.8%	+0.6%
R150 (east)	102	3,780	5,190	+2.7%	+2.0%
R150 (west)	57	3,060	4,130	+1.9%	+1.4%
N2 (north)	45	13,720	18,580	+0.3%	+0.2%
N2 (south)	41	17,850	23,180	+0.2%	+0.2%
R153 (west)	57	8,260	11,120	+0.7%	+0.5%

2.1.3 Summary

The increase in the predicted two-way peak hour traffic volumes due to the proposed development is no more than 7.1% on any of the roads in the vicinity of the development. The level of service within which these roads operate, will not be affected. The increase in predicted annual average daily traffic flows on the road network will be no more than 4.3%. Therefore the road network will not be adversely affected by the proposed development.

2.2 Item 2

The future traffic projections are up to and including year 2004. The Planning Authority considers that the traffic projects should be expanded to assess the impacts on the road network for specific time intervals over a 20 year life based on the traffic growth percentage increases, effects of future traffic changes due to the M1 Motorway, existing and permitted development in the area, etc.

The predicted 2004 two-way peak hour traffic flows on the R152 were determined by factoring the recorded existing (2000) traffic flows to 2004 levels, reducing this volume by 30% on the basis of the expected completion of the M1 Northern Motorway and increasing this volume to account for the additional traffic flows generated by adjacent proposed and permitted developments in the area. The preliminary design report for the M1 motorway predicts that traffic on the R152 will decrease by 30% when the M1 opens and in preplanning meetings with Meath County Council it was indicated that this is the reasonable expectation.

Meath County Council indicated that a decrease of 15% from existing traffic levels on the R150, between the N2 and R152, is envisaged when the M1 motorway is completed. This reduction in volume was included in the calculation of 2004 traffic flows.

The National Roads Authority (NRA) in their National Road Needs Study envisage that light vehicle traffic will grow on average by 4% per annum from 2000 to 2005 on the overall national network.

Meath County Council have indicated that the predicted reduction in future traffic flows on the N2 identified in the EIS for the M1 Northern Motorway scheme may be offset by the likely provision of the proposed N2 Ashbourne By-pass and the consequent attraction of new trips from further north and west along the N2 corridor. Accordingly, the predicted 2004 traffic flows on the N2 were determined by factoring the recorded 2001 traffic flows to 2004 levels at an assumed annual average growth rate of 5%. This figure is considered conservative relative to that predicted by the NRA.

A similar annual average growth rate was applied to the recorded 2001 traffic flows on the R150 and R153 west of the N2 to determine the predicted 2004 levels.

The predicted 2004 peak hour traffic flows on the R152 and the R150, east of the N2 were determined by applying the assumed annual average growth rate of 5% to 2004, reducing these volumes by 30% and 15% respectively in accordance with the expected impact of the M1 Motorway envisaged by Meath County Council, as detailed above and then increasing these volumes to account for the additional traffic flows generated by adjacent proposed developments, also discussed above.

The predicted AADT traffic flows are shown in Table 2.2.1 below (as Table 2.1.5 in the response to Item 1).

The NRA in their National Road Needs Study for the period up to 2019 envisage that light vehicle traffic will grow by 2% a year from 2005 to 2015 on the overall national network. The Central Statistics Office (CSO) envisage that car ownership will reach saturation by 2016.

Accordingly, in consultation with Meath County Council's Roads and Traffic Department, the year 2020 has been identified as an appropriate target plan year for the assessment of the future local road network with and without the proposed development. The Institution of Highways and Transportation Guidelines on Traffic Impact Assessment recommends that assessments should be undertaken at the year of opening and for a year either 10 or 15 years later. The target plan year 2020 represents a year 16 years after the year of opening in 2004. It is envisaged that traffic volumes on the surrounding local road network both with and without the proposed development will be higher in 2020 than in any intermediate year between 2004 and 2020.

The predicted 2020 two-way peak hour traffic flows on all routes were determined on the basis of the growth assumptions detailed above up to 2004 and an assumed annual average growth rate of 2% thereafter to 2020.

Table 2.2.1 Predicted Annual Average Daily Traffic Flows on the Road Network

Route	Develo-pment Traffic	Predicted AADT volumes (vehicles) without proposed development		% Increase due to the development	
		2004	2020	2004	2020
R152 (immediately north of proposed development)	262	6,060	8,320	+4.3%	+3.1%
R152 (north)	147	6,060	8,320	+2.4%	+1.8%
R152 (south)	41	5,330	7,060	+0.8%	+0.6%
R150 (east)	102	3,780	5,190	+2.7%	+2.0%
R150 (west)	57	3,060	4,130	+1.9%	+1.4%
N2 (north)	45	13,720	18,580	+0.3%	+0.2%
N2 (south)	41	17,850	23,180	+0.2%	+0.2%
R153 (west)	57	8,260	11,120	+0.7%	+0.5%

The increase in AADT flows over predicted flows due to the proposed development are shown in Table 2.2.1 above. As can be seen, the percentage increase due to the development is no more than 4.3% on any road. Therefore the impact of the proposed development on AADT flows is not significant.

2.3 Item 3

Having regard to items 1 and 2 above you are requested to assess the impacts of traffic generated by the proposed development on the junction capacity of the R152 / R150. Again the assessment should be carried out for the opening year and future years. In this regard you attention is drawn to the fact that the Roads Authority proposes to provide a staggered junction at this location inclusive of traffic calming measures. You are also requested to assess the traffic impacts on a number of other junctions, namely, R152 / N2-Kilmoon, R150/N2-Flemington and R153/R150-Kentstown in terms of junction capacity and having regard to traffic offset from these routes as a result of the M1 Motorway.

The expected future local road network junction arrangements were analysed for the predicted 2004 and 2020 peak hour traffic flows with and without the proposed development in place using the computer software programme PICADY for priority controlled junctions. The capacities of the junctions with and without the proposed development are shown in Tables 2.3.1 and 2.3.2 below. The operation of the junctions is summarised in terms of the Ratio of Flow to Capacity (RFC), the highest average delays for vehicles in seconds and whether there would be significant queuing for turning vehicles (maximum queue lengths in vehicles).

The predicted traffic flows without the development are calculated as described in the response to Item 2 (in Section 2.2 above).

Table 2.3.1 Junction Capacities (2004)

Junction	Without Development			With Development		
	RFC	Delays (s)	Queuing (vehicles)	RFC	Delays (s)	Queuing (vehicles)
R153/R150	0.25	9.0	None	0.26	9.0	None
N2/R150	0.37	12.6	None	0.4	13.2	None
N2/R152	0.4	11.4	None	0.4	11.4	None
R152/R150	0.38	9.6	None	0.39	9.6	None
Entrance	-	-	-	0.09	8.4	None

Table 2.3.2 Junction Capacities (2020)

Junction	Without Development			With Development		
	RFC	Delays (s)	Queuing (vehicles)	RFC	Delays (s)	Queuing (vehicles)
R153/R150	0.36	11.4	None	0.37	11.4	None
N2/R150	0.58	21.6	1.3	0.61	23.4	1.5
N2/R152	0.56	17.4	1.2	0.56	17.4	1.3
R152/R150	0.57	14.4	1.3	0.58	15.0	1.3
Entrance	-	-	-	0.1	9.6	None

As can be seen from Tables 2.3.1 and 2.3.2, the impact of traffic due to the proposed development on the operation of the junctions on the road network in the area is insignificant.

2.4 Item 4

The Planning Authority notes that you have an interest in lands to the south of the proposed entrance, which are required to facilitate the provision of a deceleration lane should the Planning Authority / Roads Authority require. The Planning Authority requires the proposed deceleration lane. It is noted that the lands in question are outside your site boundaries. You are therefore requested to rectify matters in this regard.

The site boundary has been amended to include land to the south of the proposed entrance for the provision of the deceleration lane.

The revised site boundary including the land required for the deceleration lane is shown on Drawing No. 2666-48-DR-001 in Attachment C.

The revised site boundary is also indicated on an OS map in Attachment D and on an aerial photograph, which amends Figure 3.1 of the EIS, which is contained in Attachment E.

A number of drawings are also amended by the revision of the site boundary as follows:

- 2666-48-DR-003 Site Landscape Layout
- 2666-49-DR-002 Proposed Site Paving Layout
- 2666-49-DR-003 Proposed Site Drainage Layout

Likewise a number of Figures in the EIS are also changed by the amendments as follows:

- Figure 2.1 Site Layout
- Figure 2.3 Recycling Bring Bank Park
- Figure 6.4 Site Landscape Layout
- Figure 9.1 Proposed Site Drainage

These amended drawings and figures are included in Attachment C.

The amended site entrance detail drawings:

- 2666-49-DR-004 Site Entrance Details
- 2666-49-DR-005 Site Entrance Details with Power Plant Entrance shown
- 2666-49-DR-006 Sight Line Details

are contained in Attachment F.

2.5 Item 5

You are requested to submit your revised proposals for a junction that excludes the acceleration / climbing lane, whilst maintaining the right turn and deceleration lanes. You may wish to re-evaluate the junction capacity to take account of this revision.

The revised junction layout, excluding the climbing lane and including the right hand turning and deceleration lane is shown in the following drawings in Attachment F:

- 2666-49-DR-004 Site Entrance Details
- 2666-49-DR-005 Site Entrance Details with Power Plant Entrance shown

The capacity of the junction is not significantly altered by this revision and has been evaluated using the PICADY model. The details of this are contained in Tables 2.3.1 and 2.3.2 in the response to Item 3 and in Sections 11 and 12 of the traffic report.

These drawings also incorporate the minimum stopping distance lines for both southbound and northbound traffic on the R152 approaching the proposed junction.

2.6 Item 6

The Minister for Environmental and Local Government's Policy Statement (October 1998) advocates that local authorities working closely with local communities should utilise a proportion of income from waste charges and gate fees to mitigate the impact of waste management facilities on communities through appropriate environmental community projects. Such measures might include:

- **A Community Liaison Committee**
- **Provision of a public education area within the administration block for environmental education needs and**
- **Utilise a portion of income from waste charges for appropriate environmental improvement projects to mitigate the impact of the proposed development on the community.**

Having regard to the nature and extent of the proposed development i.e. regional waste management facility, the Planning Authority considers that similar measures should form part of the subjects proposal. You are therefore requested to submit your revised proposals that take account of the need for the provision of a community liaison committee, environmental education needs and improvement projects.

2.6.1 Community Recycling Park

The proposed facility includes a Community Recycling Park that will be similar to the Recycling Park operated by Meath Co. Co. in Navan. The park will accept a range of recyclable materials and is designed to allow the local community free access to deposit their recyclable household waste items into designated containers. The park will be constantly supervised during opening hours, and assistance will be provided to the public in relation to the correct disposal of materials. This will also enable high standards of housekeeping to be achieved.

The estimated cost of constructing the Community Recycling Park is approx. £600,000.The annual operating costs of the park will amount to approx. £150,000. Indaver Ireland will totally fund the construction and the operation of this park throughout its working life.

The Recycling Park will be open from 8:00 am to 18:30, Monday to Friday and 08:00 to 14:00 on Saturday. The park will be fitted with hand-washing facilities and car vacuum cleaners for use by the public after depositing the materials.

Environmental literature will be available to members of the public from the Recycling Park staff. The literature provides details to members of the public on issues relating to Composting and Household Waste Management. Copies of some of the literature that will be available at the park are included in Attachment G.

The Park will help generate additional environmental awareness throughout the community and will also assist in the diversion of recyclable material from disposal (additional information on the Community Recycling Park is included in section 2.2 of the E.I.S.).

Indaver Ireland intend to make a positive contribution to the local community by supporting the development of community projects and assisting the development of local projects.

2.6.2 Community Liaison Committee

Indaver Ireland believes in a policy of openness and dialogue between the company and the local community. Indaver Ireland has already begun this practice for the proposed facility at Carranstown by undertaking a widespread and ongoing public information campaign. The programme is aimed at addressing all potential issues and concerns that may have arisen from community members from an early stage in the planning process.

This consultation programme included

- Distributing 15,000 information leaflets and information packages widely to households in the vicinity of the proposed site and in Drogheda, and to interested parties throughout Ireland.
- Holding information days for Meath County Council Councillors.
- Holding public information days (from 11am to 7pm each day)
  - Two days in Duleek
  - Two days in Drogheda
  - Two days in Navan.
- Holding public meetings for neighbours of the proposed facility.
- Bringing 50 people (local residents and public representatives) to see Indaver's plant in Flanders, Belgium.
- Issuing over 50 copies of the Environmental Impact Statement and over 200 copies of the Non Technical Summary to the public.

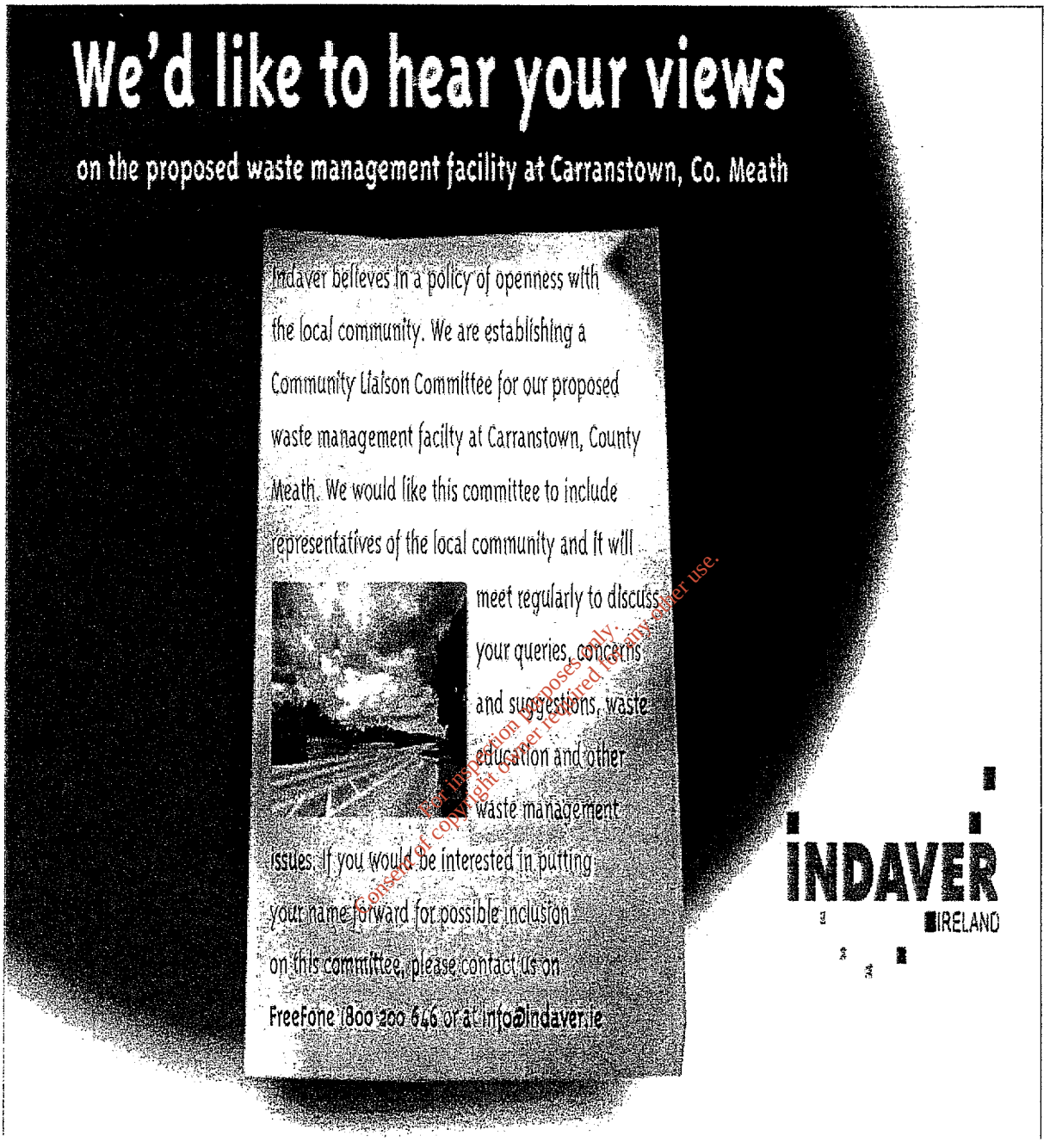
Indaver Ireland also launched a website (www.Indaver.ie) that includes a Non-technical summary of the E.I.S., details of the planning permission application and also includes options to register on the Indaver Ireland Communications database. The full details of Indaver Ireland's Communications programme is attached as Attachment G.

A Communications Register for persons requiring further information regarding the Carranstown facility was also launched at an early stage of the consultation process. The register was formed by Indaver Ireland inviting any interested party to complete and return a post-paid card. To date 198 names are on the register and regular updates on the status of the proposed development are posted to all concerned. Additionally Indaver Ireland operate a database of almost 600 names, this database is used to inform relevant parties of Indaver Ireland's status regarding the proposed development of the facility.

Indaver Ireland will maintain this policy of openness throughout the lifetime of the facility. The most direct way of achieving a high level of communication is through face-to-face contact with all parties concerned. To achieve this Indaver Ireland will establish a Community Liaison Committee.

The forming of the Community Liaison Committee has also recently begun, all individuals who have requested to be on the Indaver Ireland communications register, as well as neighbours of the facility and County Councillors from both Meath and Louth, have been written to and have been invited to put their names forward for inclusion on the committee. In addition, Indaver Ireland has advertised in local newspapers inviting interested parties to join the committee. A copy of the newspaper advertisement is included overleaf.

In addition, an advertisement offering the public copies of the World Health Organisations pamphlet on Incineration was placed in the Drogheda Independent, Meath Chronicle, Drogheda Leader and the Navan Weekender. A copy of this advertisement is also included overleaf.



Advertisement inviting interested parties to join the Community Liaison Committee.

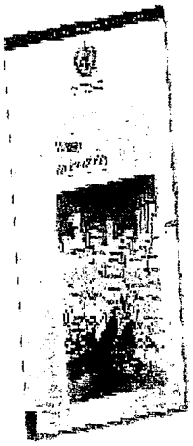
There have been a number of inaccurate and misleading statements made about incineration in the last few months. It concerns us at Indaver that the public may be worried about the impact our proposed facility at Carranstown would have on their health.

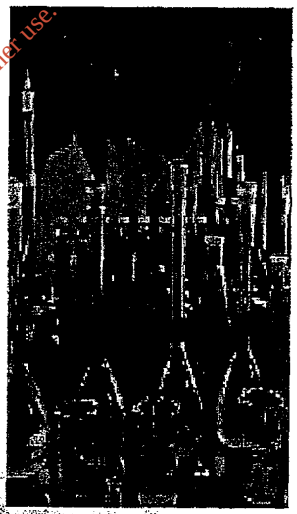
The World Health Organisation has produced a comprehensive pamphlet describing incineration and how it may be utilised to manage waste properly – if you would like a copy of this pamphlet please contact us on FreeFone 1800 200 646 or e-mail us at www.indaver.ie

The World Health Organisation states in this publication that:

'The incineration of waste is an hygienic method of reducing its volume and weight which also reduces its potential to pollute'

'Modern incineration equipment fitted with air pollution control technology can make waste incineration an environmentally acceptable form of waste treatment which minimises the potential for harm. It can therefore be possible to locate plants near to densely populated areas'





INDAVER

Advertisement offering the public copies of the World Health Organisations pamphlet on Incineration

It is Indaver Ireland's intention that this committee will be formed in order to help address issues regarding the facility from an early phase of the development.

Initial issues for discussion will include:

- Status of the Planning Application
- Status of the EPA Operating Licence Application
- The Tendering Programme & Progress
- Construction Programme & Progress
- Safety/ Environmental issues during construction
- Community issues i.e. Construction traffic & noise
- Commissioning Programme

The committee will be scheduled to convene at quarterly intervals throughout the year unless otherwise agreed. If additional meetings are requested by the Committee these will be accommodated by Indaver Ireland.

The format of the scheduled meetings upon the start-up of the facility will differ from that of the initial meetings. A review of the environmental, safety and quality performance for the previous quarter will be undertaken in addition to other committee issues.

The facility will be operated to relevant standards for Environment, Safety and Quality, namely ISO 14001 for Environment, OSHAS 18001 for Safety and ISO 9002 for Quality. These standards will be accredited by an independent body. Results of accreditation audits and inspections will be made available to the Community Liaison Committee for discussion at the following scheduled quarterly meeting. In addition results of site visits, monitoring inspections and audits carried out by the E.P.A. will also be made available and discussed at the quarterly meetings.

Additional information that will be discussed with the Community Liaison Committee will include:

- Types and quantities of materials recovered from the Community Recycling Park and Material Recycling Facility
- New activities planned for the facility for the upcoming quarter/ year
- Any proposed changes in activities
- Any proposed changes in hours of operation etc.

The Community Liaison Committee meetings will be held within the administration building located on site in Carranstown. During the construction phase of the facility the meetings will be held in a convenient location for all parties involved.

Access to information regarding the operation of the facility will not be restricted to members of the above committees. It is standard practice for the Environmental Protection Agency to request licence holders to provide a public information file, this file may be accessed by any member of the public, usually within office hours at the facility. This practice will be encouraged by the company. Information regarding the environmental performance of the company can also be accessed at the E.P.A. offices in Dublin and Wexford and from the Indaver Ireland website.

In addition, an Annual Environmental Report on the environmental and safety performance of the company will be prepared and distributed to the local community and will be available on the website.

It is envisaged that requests by groups (i.e. local neighbours, students etc) for tours of the facility will be made to Indaver Ireland upon operational start-up, it will be practise that Indaver Ireland will accommodate such groups.

2.6.3 Environmental Education

Indaver Ireland is an integrated waste management company advocating the use of various technologies to correctly manage waste. Indaver Ireland is aware that the continued education of members of the public in areas such as waste segregation, recycling and composting is vital in order to achieve the levels of diversion from waste landfill required by Irish Government policy and E.U. legislation.

Public education in waste management can be provided through publications and direct teaching methods. Indaver Ireland has already written several publications that are aimed at making the public more aware of their environmental responsibilities. Brochures on Composting and Household Waste Management have already being produced and distributed (see Attachment G). Additional publications will continue to be written by Indaver (e.g. A Guide to Integrated Waste Management). The brochures are circulated by the company, by large employers, through local authorities and may also be requested from the Indaver Ireland website.

Indaver Ireland currently employs the services of a fulltime dedicated Environmental Education Officer, for the local community and other members of the public throughout the North East area. Initial contact to the EAO can be made via phone 01-2145830. The Environmental Education Officer (qualified to Degree level in Environmental Science) is currently based in the Indaver Ireland Dublin office but will eventually be based at the Carranstown facility and will help promote waste management through lectures, discussion groups and projects within the community. Specific target groups for this education will include local schools and youth groups. Much of the interaction that will be carried out by the officer with the community will take place in a designated public education area within the administration building of the facility, however should it be more convenient for the officer to travel to groups further a field, this will also be accommodated.

2.7 Item 7

Apart from the use of a wheel wash facility and dampening of site roads during dry weather no other mitigating measures have been included for the control of dust arising during the construction phase of the proposed development. In particular you are requested to elaborate on the good house keeping and site management including the proper storage of spoil / loose materials on site and proper containment of loose materials transported on or off site, as referred to in the EIS. Your proposals are considered vague. The Planning Authority considers that it is not the industry norm to cover all loads on or off site and therefore it is extremely unlikely that such a site requirement would be enforced. You are requested to address the Planning Authority's concerns in this regard

The potential for the dust to be generated on site is confined to the preliminary earth works and earth movement phase of the development, which will last for no more than three months. During this phase, if hot dry weather conditions prevailed, excavated soil could dry and become friable and susceptible to being transported off site by wind. It should be noted that only small particles are susceptible to airborne transport.

This potential exists at all construction sites and the mitigation measures and good housekeeping and site management practices necessary to minimise this potential are well known. Such measures which will be applied are described below.

The principal potential source of dust emissions from a construction site is the movement of vehicles on the site (on roads and off roads) and on external roads, as vehicles can carry soil onto the roads where it can dry and the passage of vehicles over these roads creates and raises small particles of dust.

As stated in Section 4.3 of the E.I.S. the potential for dust to be generated in this manner will be mitigated against by watering the site roads to prevent the formation of dry dust particles and by the provision of wheel washing facilities to prevent soil from being transported onto the local road network.

A lesser potential for dust generation is presented by the movement of earth on and off site and within the site. However, as all soil excavated on site will be used for the construction of berms around the site, the only movement of material on and off site will be for the construction of the percolation area. This will only be a limited quantity of material.

While the movement of excavated material on site can lead to airborne dust emissions in exceptionally dry conditions the clayey nature of the soil on the site will effectively eliminate this potential. Furthermore, the berms around the site will be constructed and planted at the earliest possible stage of the development and there will be limited temporary storage of spoil on site. When the berms are constructed and planted there will be no potential for airborne dust emissions.

Where temporary storage is necessary the spoil will be stored in specifically designated areas and these will be damped with water if necessary. During the material transfer within the site minimum drop heights will be specified to prevent the generation of dust. Again, the clayey nature of the soil on site will tend to prevent the formation of dust particles.

In view of the above considerations and mitigation measures, it is concluded that the potential for airborne dust emissions during construction is minor and temporary in nature.

During the operational phase of the proposed development, all vehicles transporting waste to the site will be covered to ensure that there is no litter or odour nuisance in the locality.

2.8 Item 8

Attachment 6 of the EIS refers to wind speed and direction data from Met Eireann, yet this data has not been included in the EIS. You are requested to submit the relevant data in this regard.

The wind speed and direction data is contained in Attachment H.

2.9 Item 9

The Planning Authority considers that the EIS section on noise does not adequately assess the likely significant impacts of the proposed development on noise generated during the construction and operation phases. There are very wide variations in noise levels, particularly at night time noted over the survey period that go unexplained or interpreted. It is considered that a more detailed assessment of existing day and night time background noise levels is required. In particular the use of additional noise monitoring locations is deemed necessary to assess background noise levels and the contribution of existing noise sources in the area. The Planning Authority considers that the cumulative noise effects of the proposed development and the adjacent Platin Cement Works have not been adequately addressed in the EIS. It is also noted that in Section 5.5 of the EIS that information is not available in relation to specific noise sources. You are requested to provide an interpretation of noise survey data, highlighting any known significant noise sources together with an assessment of their contribution(s) to ambient noise levels and any difficulties in compiling information.

2.9.1 Background Noise Levels

Noise Survey from EIS

The noise survey data included in the EIS was collected continuously over a one week period at a location on the site at a similar distance from the road as the nearby houses and is therefore a comprehensive baseline survey of existing noise levels at these houses. The three houses closest to the site are the closest sensitive receptors and the impact of noise emissions from the plant would therefore be greatest at these locations. The assessment of impacts of noise emissions therefore concentrated on potential impacts at these houses.

The noise survey consisted of data collected continuously over a one week period in terms of the L_{Aeq}, L_{A90} and L_{A10} noise levels, as defined below:

- L_{A10} is the dBA level exceeded for 10% of a given time. It is used as a descriptor of intermittent noises such as road traffic.
- L_{A90} is the dBA level exceeded for 90% of a given time. It is used as a descriptor of the background noise.
- L_{Aeq} is the equivalent continuous steady sound within a given time and is basically a measurement of the average noise levels over a period.

As is generally the case noise levels measured during daytime were significantly higher than those measured at night although the daytime and night time periods differed from those usually used for describing noise levels. For noise measurement, daytime is generally considered as 8am to 10pm and night time as 10pm to 8am. However noise levels measured at the site tended to rise from 6am on and fell again after 10pm.

Over the 12 days of measurements (consisting of 1,158 15 minute measurements), the maximum measured L_{Aeq} was 64.9 dBA and the minimum measured L_{Aeq} was 33.2 dBA. During night time (10pm to 6am) the maximum measured noise level was 60.8 dBA L_{Aeq} the average was 54.6 dBA and the minimum was 33.2 dBA L_{Aeq}. During the day the maximum measured level was 64.9 dBA L_{Aeq}, the average measured was 61.3 dBA L_{Aeq} and the minimum measured was 53.1 dBA L_{Aeq}.

The lowest measured value of 33.2 dBA is very untypical of noise levels in the area, which is demonstrated by the fact that the next lowest noise level measured was 44.1 dBA and that all but 28 of the 1,158 (or 97.5%) of the measured noise levels exceeded 50 dBA. All but 195 of the total (or 83.1%) of the readings exceeded 55 dBA.

Although these measurements were not manned, the source of the noise can be inferred from analysing the statistical parameters, L_{A10} and L_{A90}. The L_{A90} and L_{A10} values represent the A weighted sound levels exceeded for a percentage of the instrument measuring time. L_{A10} indicates that for 10% of the monitoring period the sound levels were greater than the quoted value. L_{A10} is a good statistical parameter for expressing event noise such as passing traffic. The L_{A90} represents the sound level exceeded for 90% of the time and is a good indicator of background noise levels.

The night time L_{A90} varies from 31.5 dBA to 57.5 dBA during the day, averaging 47.2 dBA. The daytime L_{A90} varies from 26 dBA to 51 dBA averaging 41.5 dBA. The daytime L_{A10} ranges from 53.5 to 69 dBA and averages 65.4 dBA, while the night time L_{A10} varies form 34.5 dBA to 65.5 dBA averaging 56.2 dBA.

The large difference between the L_{A10} and the L_{A90} is indicative that the primary noise source is intermittent, in this case being traffic.

Noise Survey of Feb 2001

Project Management Ltd carried out a supplementary noise survey to accompany Indaver's application for a Licence from the Environmental Protection Agency (EPA). Noise measurements were taken at two locations, NM2- the nearest Noise Sensitive Location: adjacent to the R152 road; and NM3- Western boundary of site at the mid point of furthest field from the road. NM2 was chosen to represent the noise sensitive residential buildings, and NM3 was chosen to establish baseline levels with as little noise contribution from traffic as possible (as it is the far side of the site from the R152).

Daytime and night-time measurements are shown in Table 2.9.1 and 2.9.2 respectively.

Table 2.9.1: Daytime Noise Results

Monitoring Point	Date	Time	L_{Aeq} (dBA)	L_{A90} (dBA)	L_{A10} (dBA)	Comments
NM2	08/02/01	16.20-16.50	62	51	66	Traffic on R152.
NM3	08/02/01	15.30-16.00	47	44	49	Crows overhead.
NM2	13/02/01	12.10-12.40	62	49	66	Frequent traffic on R152.
NM3	13/02/01	12.53-13.23	48	43	51	Intermittent birdsong

Table 2.9.2: Night-time Noise Results

Monitoring Point	Date	Time	L_{Aeq} (dBA)	L_{A90} (dBA)	L_{A10} (dBA)	Comments
NM2	13/02/01	23.50-00.05	57	38	62	Traffic on R152.
NM2	14/02/01	00.55-01.10	54	39	57	Light traffic.
NM3	14/02/01	00.25-00.40	43	37	46	Distant activity in quarry.

As can be seen from Tables 2.9.1 and 2.9.2, both daytime and night time noise levels recorded at NM2, and to a lesser extent daytime noise levels at NM3, were heavily influenced by traffic on the R152. Traffic noise was found to be the dominant source of noise on both monitoring occasions. This is more obvious when the L_{A10} and L_{A90} values are examined.

At NM2 both daytime L_{Aeq} measurements were in excess of 60dBA, whereas the corresponding L_{A10} and L_{A90} values were around 66dBA and 50dBA respectively. This pattern is typical of an intermittent noise source such as road traffic. Night-time L_{Aeq} values were around 55dBA.

Noise levels at NM3 both during the day and at night remained relatively constant. Traffic was barely audible and was a minor noise contributor at this monitoring point, and this is confirmed by the relative similarity of the L_{Aeq}, LA_{10} and LA_{90} measurements. The main noise contributor at NM3 was industrial activity from the Platin Quarry.

In summary, the noise levels at NM2 are affected by traffic and possibly to a lesser degree industrial activity in the vicinity of the site. The measured noise levels at NM3 are typical of a rural environment, with some industrial noise from the quarry. The background noise level without traffic is therefore represented by NM3, i.e. 48 dBA daytime and 43 dBA night time. The average total levels at the nearest noise sensitive location are 62 dBA daytime and 56 dBA for night time.

Noise Survey in Platin IPC Application (1995) and Platin Power EIS (1999)

A noise survey was carried out over 11 days in April 1995 for the Platin Cement IPC Application. A summary of the noise levels is presented in Tables 2.9.3 and 2.9.4 below. The survey was carried out at two houses in the area: Curran's 300m to the west of Platin Cement (approximately 1 km to the north of the proposed facility) and Synott's 400m to the east (approximately 1 km to the north west of the proposed facility). The daytime noise levels measured in the survey are similar to those measured at NM3 while the night time levels are slightly higher. As these locations are at a similar distance from the road as NM3 this would indicate that at locations distant from the road and close to Platin Cement noise from Platin Cement gives rise to slightly elevated noise levels.

Table 2.9.3: Summary of daytime noise levels (mean) measured in the vicinity of Platin Cement Factory.

Monitoring Point	L_{Aeq} dBA	L_{A90} dBA	L_{A10} dBA
Currans - 300m west of Platin Cement Factory	56.6	48.9	59.8
Synotts – 400m east of Platin Cement Factory	55.4	47.0	57.0

Table 2.9.4: Summary of night-time noise levels (mean) measured in the vicinity of Platin Cement Factory.

Monitoring Point	L_{Aeq} dBA	L_{A90} dBA	L_{A10} dBA
Currans - 300m west of Platin Cement Factory	51.1	48.1	52.7
Synotts – 400m east of Platin Cement Factory	50.3	45.3	52.0

The EIS for the proposed Platin Power Project also contains data on background noise levels in the area. The noise levels were monitored at four points on the power plant site, which lies to the east of the proposed site. Two of the monitoring points were adjacent to the road and two were some 400m from the road. The noise levels as reported in the EIS are summarised in Tables 2.9.5 and 2.9.6 below.

Table 2.9.5: Daytime noise levels reported in the Platin Power Project EIS

Monitoring Point	L_{Aeq} dBA	L_{A90} dBA	L_{A10} dBA
N1 – North corner (adjacent to road)	63.2	46.0	67.6
N2 – East boundary (350 m from road)	50.5	44.8	52.0
N3 – South boundary (400m from road)	47.4	43.2	49.8
N4 – NW corner (50m from road)	58.0	47.2	61.2

Table 2.9.6: Night-time noise levels reported in the Platin Power Project EIS

Monitoring Point	L_{Aeq} dBA	L_{A90} dBA	L_{A10} dBA
N1 – North corner (adjacent to road)	58.1	40.0	62.2
N2 – East boundary (350 m from road)	41.8	28.8	40.8
N3 – South boundary (400m from road)	31.2	22.4	33.6
N4 – NW corner (50m from road)	59.1	28.4	60.8

The noise survey and the reported noise data for the area indicate that noise levels close to the R152 are relatively high, at 55 dBA L_{Aeq} at night and 60 dBA L_{Aeq} during daytime. The noise levels measured by Platin Cement are at locations removed from the road and are consequently lower, but are still relatively high at 50 dBA L_{Aeq} (night) and 55 dBA L_{Aeq} (day).

The noise measurements in the Platin Power Project EIS range from 59.1 dBA L_{Aeq} to 31.2 dBA L_{Aeq} at night and from 63.2 to 47.4 dBA L_{Aeq} during the day. Those measurements taken close to the road were at the higher range and those at a distance from the road were lower.

Summary

The predominant noise source in the area is from traffic on the road, which causes relatively high noise levels in the areas close to the road. At greater distances from the road the noise levels are lower and are more typical of those to be expected in a rural area. However, noise emissions from the Platin Cement Factory cause slightly elevated noise levels at locations close to the factory, but at a distance from the road.

The results from the Platin Cement IPC application and the Platin Power EIS are in accord with those of both recent noise surveys, and similar conclusions are drawn.

As the noise levels measured in the noise survey for the EIS were primarily attributable to traffic on the R152, variations in these levels are correspondingly attributable to variations in traffic levels on the road.

Table 2.9.7 shows the breakdown of noise contribution at locations near the road. Although the background noise levels cannot taken near the road (as it is impractical to stop traffic entirely), the measurements at NM3 are assumed to be representative of noise levels in the absence of traffic. The measurements are based on the PM noise survey of February 2001 (the results of which are in accordance with data in the Platin Power EIS).

Table 2.9.7 Breakdown of Noise Contribution

	Background (without traffic)			Background + R152 Traffic			Total		
	min	max	avg	Min	max	avg	min	max	avg
Day time	47	51	49	62	63	62	62	63	62
Night time	42(1)	47	46	55	61	56	55	61	56

Notes: (1) The measurement at N3 of 31 dBA was not included as it is the far side of the houses from the Platin Cement Factory and Quarry. It should be noted, however that the total would still be 55 dBA if this measurement was used instead of 43 dBA.

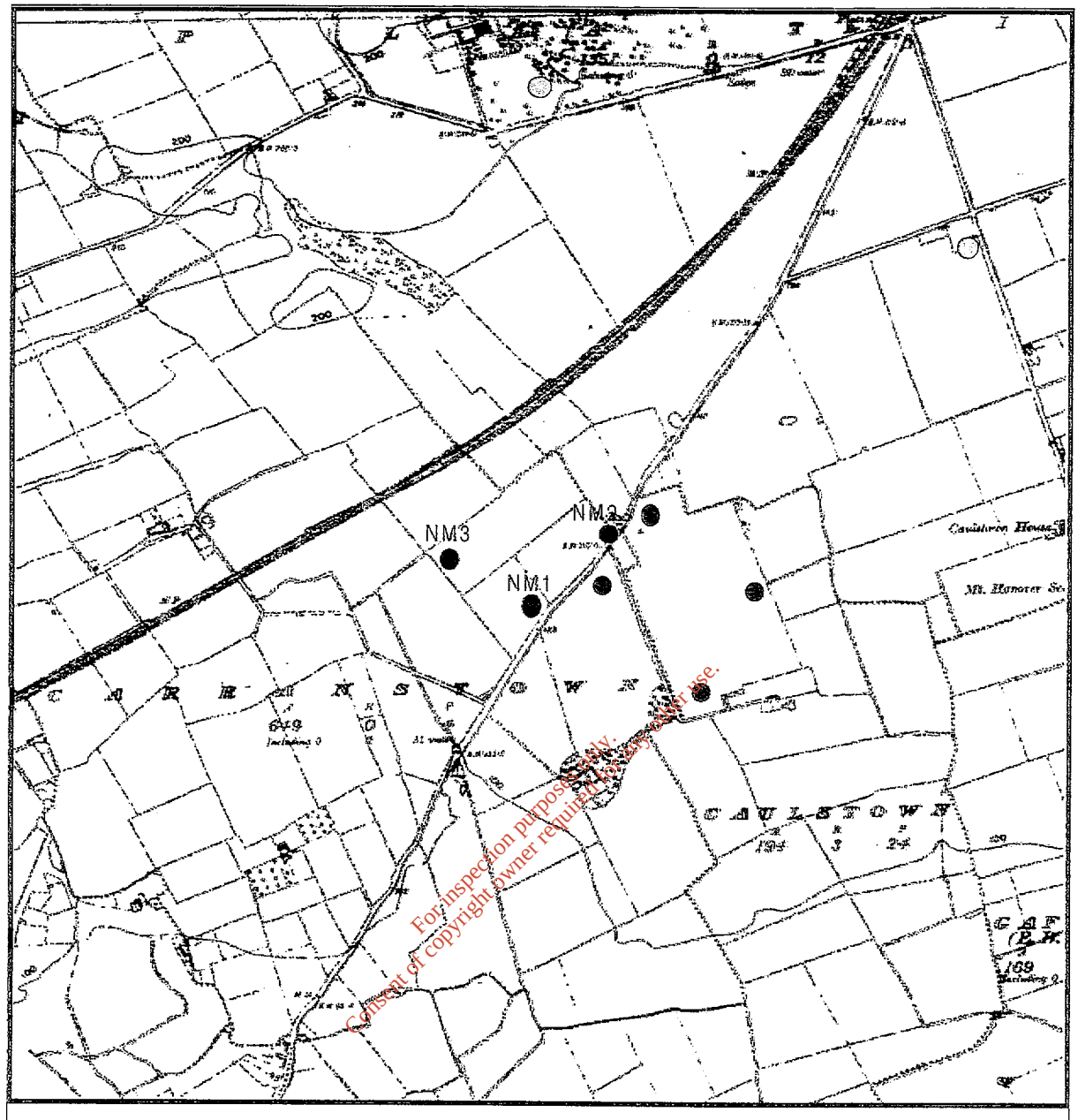


Figure 2.9.1 Noise Monitoring Locations

2.9.2 Construction Noise Impacts

The construction of the facility will take place over a period of two years. The potential sources of noise are as follows:-

- Site traffic;
- Piling;
- Earth moving;
- Steel erection.

Pile driving is the potentially noisiest activity and will only occur for a limited period early on in the construction phase. Pile driving activities will be strictly confined to the daytime.

In general, the requirement to provide mitigation of noise and vibration where required and to the best standard practical will be fundamental to the contractors' duties. The contractor will also be required to ensure compliance with Statutory Instrument No. 320 of 1988, European Communities (Construction Plant and Equipment) (Permissible Noise Level) Regulations 1988 as amended and requirements and standards set out in BS 5228, Noise and Vibration Control on Construction Sites.

SI No. 320 of 1988, European Communities (Construction Plant and Equipment) (Permissible Noise Level) Regulations 1988 as amended

These regulations implement various EU Directives relating to permissible noise levels (sound power levels) of construction plant and equipment, including compressors, cranes, generators, excavators, dozers and loaders. The regulations provide for an approved body to examine and issue examination certificates for construction plant.

EU Directive 95/27/EC, which is implemented by these regulations, limits the sound power level of construction equipment to between 93 and 114 dBA.

BS 5228; 'Noise Control on Construction and Open Sites

For temporary works (e.g., construction work) BS 5228: Part 1: 1997 provides guidance on criteria for setting noise control standards. BS 5228 does not give detailed guidance for determining whether or not noise from a site will constitute a problem in a particular location but rather refers to a number of factors that are likely to affect considerations of construction site noise. These are:

- existing ambient levels;
- noise characteristics;
- duration of site work;
- hours of work;
- attitude to site operator.

The standard states that complaints due to industrial noise increase as the difference between generated noise level and the background increases. It considers that a similar effect could occur for construction activities but suggests the tolerance may differ when it is known that the timing of the activity is of a short duration.

With this in mind the code of practice recognises that good public relations are important and that the local residents should be kept fully informed of likely noisy activities and the anticipated duration of such activities.

Summary

EU Directive 95/27/EC, which is implemented by SI 320 of 1988 as amended, limits the sound power level of construction equipment to between 93 and 114 dBA. Thus, if five items of construction plant were in operation simultaneously, the contribution to noise levels at the closest houses would be in the order of 60-62 dBA. (Assuming two items of plant emit noise levels of 114 dBA and three emit the average allowable level of 104 dBA, and that plant is located towards the centre of the site). This would lead to a slight increase over existing noise levels and could produce a minor but temporary impact.

The noise levels at the house to the west of the site would be about 53-54 dBA in this case. This would be a moderate increase over existing noise levels and would lead to a moderate but temporary impact.

The daytime construction noise levels will therefore lead to a slight increase over existing daytime noise levels at the closest sensitive receptors. However, as recognised in BS5228, the perceived impact is related to existing noise levels (which are relatively high) and the duration of the impact (which is relatively short term). Therefore, through implementation of best available control measures and through ongoing consultation with local residents it is predicted that the impact of construction noise will be minor.

As described in the response to Item 10 (see 2.10) construction activities will almost invariably be limited to daytime. On the limited occasions when night time working is necessary, these activities will take place within the buildings.

In the event of an unplanned situation arising during the construction phase that requires immediate remedial work, a potential exists that this work may be undertaken during night-time hours. However this option would be viewed as the least preferable alternative. Owing to the unpredictability of such situations it is extremely difficult to quantify a time span, if any, for this work. It is envisaged that through high levels of work practice the requirement for such activities will not arise.

The impact of construction noise at night time is therefore not significant.

2.9.3 Operational Noise Impacts

Noise Emissions

The significant noise sources at the waste management facility, as identified in Section 5.4 of the EIS are as follows:

- Stack (external)
- Air cooled condenser (external)
- Boiler feedwater pumps (internal)
- Induced Draught Fans (internal)
- Primary and secondary air fans (internal)
- Shredder (internal)
- Waste sorting plant (internal)
- Traffic (external)
- Emptying of skips at the Community Recycling Park (external)

Of these the stack and the air cooled condenser are the most significant continuous sources as they are located externally. The feedwater pumps, induced draught fans, shredder and primary and secondary air fans will be provided with individual acoustic insulation and located within the main building to minimise their contribution to noise levels outside the building.

The waste sorting plant is also located within a building which will minimise noise levels outside the building.

The potential source of noise emissions from plant located within the buildings is therefore via the louvres located at the side of the buildings.

The traffic and emptying of skips will be occasional daytime sources.

As stated in the EIS it is impossible to exactly define the noise emissions from different sources of plant at this stage as these can only be defined after detailed design of the plant, when information on individual items of plant can be obtained from potential suppliers. However, it is possible to limit the noise emissions from the noisiest items of plant, and to guarantee that the facility's contribution to noise levels at any sensitive receptor will not exceed 55 dBA during the day (from 8am to 10pm) or 45 dBA at night (from 10pm to 8am). Indeed, specific noise at 1 m distance from any equipment will not exceed 82 dB(A).

Impact of Operational Noise Emissions

A noise modelling analysis was carried out based on the anticipated noise emissions from the main noise sources on the site. The noise modelling report is contained in Attachment I.

The stack and the air cooled condenser will be the main noise sources as these are located externally and during the equipment specification and procurement phases of the project, Indaver Ireland will specify maximum noise emissions from these sources.

Other significant noise sources included in the model are:

- Turbine cooler
- Louvres on the buildings containing noisy equipment

The noise emissions from these sources are included in the model on the basis of measurements taken at a similar Indaver facility in Belgium.

The predicted sound power levels at the nearby houses due to noise emissions from these sources are summarised in Table 2.9.7 below.

Table 2.9.7 Indicative predicted noise levels at the closest sensitive receptors

Receiver Point	Predicted Noise Level (dBA)
House to north east at site boundary	41
Houses to south east across the road	42
House to west across railway embankment	28

As can be seen from the table above the predicted noise levels at the nearest sensitive receptors are significantly below the limit of 45 dBA. During detailed design and specification of the plant Indaver Ireland will carry out a fully comprehensive noise modelling analysis to ensure that the limit of 45 dBA will be complied with.

During the daytime noise from traffic on site and from collection and emptying of skips at the community recycling park and waste sorting facility will increase noise levels from the facility. Waste will only be delivered to the site during daytime hours. The sound power levels emitted from heavy commercial vehicles (hcvs) when starting up is generally in the range of 90 dBA to 100 dBA. Five trucks on the site simultaneously producing a sound power level of 100 dBA would contribute approximately 50 dBA at the closest houses at the site boundary. The movement of traffic on site would therefore lead to higher noise emissions during the day, but these emissions will not contribute more than 55 dBA at the closest houses at the site boundary.

The existing noise levels at the site vary according to distance from the road. The closest sensitive receptors (ie the three houses closest to the proposed facility) are all adjacent to the road and the existing noise levels at these locations is therefore relatively high, averaging about 62 dBA during the day and about 56 dBA during the night. The addition of the noise emissions from the proposed facility, with a contribution of 55 dBA during the day and 45 dBA at night will not significantly add to these levels. The average existing noise levels at the closest receptors, the contribution of the proposed facility to total noise levels and the cumulative noise levels are summarised in Table 2.9.8 below.

Table 2.9.8 Existing and Predicted Noise Levels at the Closest Sensitive Receptors

	Existing Noise Levels		Contribution from Facility	Predicted Total Noise Levels	
	Avg	Min	Maximum	Avg	Min
Daytime	62	53.5	55	62.8	57.3
Night time	56	33.2	45	56	45.2

As can be seen from the table above the plant will not lead to a perceptible increase in average noise levels at the nearby houses. At certain times when background noise levels are exceptionally low (due to lower levels of traffic on the R152), the facility will contribute to noise levels. However, the total noise levels will be below the average noise levels existing at these locations and the impact is therefore not considered significant.

At locations removed from the road the existing noise levels are lower. Based on the background noise monitoring carried out at the site, and the previous monitoring carried out at the Marathon site it is concluded that noise levels at locations removed from the road have lower existing noise levels being about 42 dBA during the night and 47 to 50 dBA during the day. The lower existing noise levels at locations further from the road mean that noise emissions from the plant could have a greater impact at these locations. However the closest house to the rear of the site is over 400m from the site boundary (at the opposite side of the railway embankment.

The noise modelling study indicated that the contribution to noise levels at this house will be about 28 dBA. The existing noise levels, contribution from the facility and total noise levels are summarised in Table 2.9.9 following.

Table 2.9.9 Existing and Predicted Noise Levels at Sensitive Receptors at a Distance from the Road

	Existing Noise Levels	Contribution from Facility	Total Noise Levels
Daytime	48	40	49
Night time	43	30	43

As can be seen from the table above, due to its distance from the proposed facility, the impact of noise emissions from the facility at the closest house to the rear of the site will be insignificant.

Cumulative Impact of Noise Emission from the Proposed Facility and Platin Cement Factory

The noise levels reported in the Platin Cement Application were higher than those measured in the survey at about 50 dBA during the night and 55 dBA during the day. As these locations are at a distance from the road, but proximate to the cement factory they would indicate that at locations close to the factory but at a distance from the road the noise levels are slightly higher due to noise emissions from the cement factory.

However, background noise levels measured in the area for all the surveys detailed above included noise levels due to emissions from Platin Cement. In this regard, as the baseline noise surveys include noise from the already operational Platin Cement Factory, the potential for cumulative effects has been addressed in the assessment of impacts.

Furthermore, due to the distance of the proposed site from Platin Cement (250m from the quarry at the nearest point and 400m from the main plant at the nearest point) and the rapid attenuation of noise levels with distance from the source, it is concluded that the noise levels due to Platin Cement at and near the site are negligible compared to the levels due to other sources (most notably traffic). The potential for cumulative effects due to emissions from the proposed facility and the existing Platin Cement Factory is therefore insignificant.

2.10 Item 10

The EIS states that Section 2.6.2 that during certain stages of the construction programme, some night and weekend working will be required but this will be kept to a minimum and will be carried out in consultation with local residents if any inconvenience to residents is envisaged. This is unacceptable. You are requested to quantify the likely element of necessary night time or unsociable hours working to include an indication of likely noise levels / impacts at nearest noise sensitive receptors having regard to Item 9 of this Further Information request. Your proposal for mitigating measures to abate / reduce any likely significant impacts should also be included. Reference to consultation with residents is not acceptable.

The proposed core working hours during the construction phase are as follows:

- Monday to Friday, 7am to 7pm
- Saturday, 8am to 2pm

However, there may be some personnel on site from 6am to 10pm. Work undertaken during these hours will be of a non-construction nature, i.e. management and administration.

The use of heavy plant or machinery will be restricted further, to operating only between 8am and 6pm.

It is planned that during the entire construction phase no more than five nights will be required to be worked. This represents 0.9% of the total construction time (i.e. $5^1/_2$ days/ week * 50 weeks/ year * 2 years). This work involves the polishing of concrete floors which is not considered to be a noisy activity. This work will be undertaken at a stage in construction when the main structure of the building will have been erected and outer cladding on the building will be in place. As the noise levels for this work are not considered high the potential for inconvenience to the local residents is considered insignificant.

In the event of an unplanned situation arising during the construction phase that requires immediate remedial work, a potential exists that this work may be undertaken during night-time hours. However, this option would be viewed as the least preferable alternative. Owing to the unpredictability of such situations it is extremely difficult to quantify a time span, if any, for this work. It is envisaged that through high levels of work practice the requirement for such activities will not arise.

From experience gained by Indaver during the construction phase of a similar facility in Belgium it is expected that the total amount of extended weekend work (i.e. Saturday afternoon and Sunday) required amounts to approximately 5% of the total construction time.

The extended weekend work will be required primarily during the final phase of construction. During this period, the work being carried out will involve commissioning of items of plant within the buildings, and therefore any potential noise production will be attenuated by the building and it's contents.

The commissioning of the Waste to Energy plant begins approx. 12 weeks prior to start up, this activity involves work crews checking the various components of the plant. This work is carried out in day-time hours only. The duration of this activity is approximately eight weeks.

For the final eight weeks of commissioning the Indaver Ireland operating team will join the commissioning crew and from this point continual shift work begins (24 hrs/day – 7 days/week). The highest potential noise source during this phase will be emitted during the cleaning of the steam system, however again the impact of this source will be reduced by the fitting of a silencer onto the system and by carrying out the activity during day-time hours.

2.11 Item 11

In the event of a fire there is potential for contamination of surface and ground water as a result of firewater run-off. The Planning Authority notes that this has been addressed in Section 9.4.2 of the EIS. The waste bunker in the reception hall is below ground level and designed for capacity of 12,000 m³ and as a water retaining structure. The volume of the bunker outlined in this section is at variance with the figure of 6,000m³ in Section 2.4.2. Please clarify.

The capacity of the bunker was correctly stated in Section 9.4.2 and will be 12,000 m^3.

2.12 Item 12

If any submission resulting from the above requests, alters your original proposal in relation to site boundaries, site layout or development location or description, etc, you must submit revised newspaper and site notices which include reference to these alterations.

As a result of the above requests the site layout is altered to include land to the west of the original site to accommodate the deceleration lane. The site layout drawing has been amended accordingly and is contained in Attachment C and a map showing the revised boundary is contained in Attachment D.

The junction layout has been altered to remove the climbing lane to the east of the site as requested in Item 5. The revised junction layout is shown in Attachment F as follows:

- 2666-49-DR-004 Site Entrance Details
- 2666-49-DR-005 Site Entrance Details with Power Plant Entrance shown

Revised newspaper and site notices including reference to these alterations are contained in Attachment J.

2.13 Unsolicited Additional Information

Currently there is a 110 kV power line running through the site that will be diverted for the purposes of the proposed development. Indaver Ireland has met and discussed this issue with ESB, who are considering a number of options, which are as follows:

Option 1

Diversion of the overhead line to the site towards the railway line maintaining the line as overhead type construction

Option 2

Replacing the overhead line with an underground cable and running around or through the site back to Platin 110kV substation

Copies of letters from ESB regarding the diversion of power lines around the site are included in Attachment K.

ATTACHMENT A

REQUEST FOR ADDITIONAL INFORMATION

MEATH COUNTY COUNCIL

Planning Section
County Hall
Navan, Co. Meath
046 – 21581

File Reference Number: 01/4014
Managers Order Number: S99/01

Date: 16th March 2001

Indaver Ireland,
C/o Project Management Ltd.,
Killakee House,
Tallaght,
Dublin 24.

Development: For a Waste Management Facility. The facility will consist of a Main Process Building of 13,480 sq.m. incorporating a Waste Reception Hall, Waste Sorting Plant, Bunker, Operations/Turbine Building, Boiler, Grate Furnace, Ash Bunker, Demineralisation Unit, Boiler Feed Pumps, Flue Gas Treatment Building Solidification Unit, AC Unit, Turbine Cooler and 40m High Stack. Ancillary structures will consist of a Pumphouse Building of 200 sq.m. Waterstorage Tank, Warehouse Building of 890 sq.m. incorporating Security and Drivers Rest Area, Administration Building of 770 sq.m., Transformer Compound, Laydown Area, Carparks and on Site Puraflo Effluent Treatment System. The facility will also include a Community Recycling Park incorporating a Security Building, container storage area and canopied area. Road access will be via a new entrance from the R152, approximately 3 km from Duleek and 4 km from Drogheda. This application is accompanied by an Environmental Impact Statement. This application relates to an activity which is subject to an IPC Licence under Part IV of the Environmental Protection Act 1992 and a waste licence under Part V of the Waste Management Act 1996.

Location: Carranstown, Duleek, Co. Meath.

01/4014

Dear Sir/Madam,

In considering this application, it has been found necessary to request further information. This information is essential for a full and proper evaluation of the application and is set out on the attached form.

Meanwhile consideration of the application has been suspended pending submission of this information. The Planning Authority wish to point out that if the information requested is not submitted within three months of the date of this letter, the application may be determined in its absence.

Yours faithfully,

C. Reilly

Staff Officer.

01/4014

Further Information Requirements

The Planning Authority considers that the Environmental Impact Statement (EIS) submitted does not adequately assess the likely significant impacts of the proposed development on aspects of the environment and in particular the following:

- Traffic.
- Material Assets
- Air, Climate and Noise.

You are requested to submit a revised EIS which, addresses the following matters:

1. The Planning Authority notes that the likely significant impacts of traffic generated by the proposed development are assessed in terms of the capacity of the existing road network based on level of service. In particular the likely significant traffic impacts are based on the level of service not being adversely impacted upon yet there are no figures to substantiate this.

   You are requested to submit details of the calculations/basis for the assessment of existing level of service of R152 and R150. The Planning Authority also considers that the traffic impacts should also be assessed in terms of Annual Average Daily Traffic counts for the network.

2. The future traffic projections are up to and including year 2004. The Planning Authority considers that the traffic projections should be expanded to assess the impacts on the road network for specific time intervals over a 20 year life based on traffic growth percentage increases, effects of future traffic changes due to the M1 Motorway, existing and permitted development in the area, etc.

3. Having regard to items 1 and 2 above you are requested to assess the impacts of traffic generated by the proposed development on the junction capacity of the R152/R150. Again the assessment should be carried out for the opening year and future years. In this regard your attention is drawn to the fact that the Roads Authority proposes to provide a staggered junction at this location inclusive of traffic calming measures. You are also requested to assess the traffic impacts on a number of other junctions, namely, R152/N2-Kilmoon, R150/N2-Flemington and R153/R150-Kentstown in terms of junction capacity and having regard to traffic offset from these routes as a result of the M1 Motorway.

4. The Planning Authority notes that you have an interest in lands to the south of the proposed entrance, which are required to facilitate the provision of a deceleration lane should the Planning Authority/Roads Authority require. The Planning Authority requires the proposed deceleration lane. It is noted that the lands in question are outside your site boundaries. You are therefore requested to rectify matters in this regard.

5. You are requested to submit your revised proposals for a junction that excludes the acceleration/climbing lane, whilst maintaining the right turn and deceleration lanes. You may also wish to re-evaluate the junction capacity to take account of this revision.

6. The Minister for Environment and Local Government's Policy Statement (October 1998) advocates that local authorities working closely with local communities should utilise a proportion of income from waste charges and gate fees to mitigate the impact of waste management facilities on communities through appropriate environmental community projects. Such measures might include:

- A Community Liaison Committee,
- Provision of a public education area within the administration block for environmental education needs and,
- Utilise a portion of income from waste charges for appropriate environmental improvement projects to mitigate the impact of the proposed development on the community.

Having regard to the nature and extent of the proposed development i.e. regional waste management facility, the Planning Authority considers that similar measures should form part of the subject proposal. You are therefore requested to submit your revised proposals that take account of the need for the provision of a community liaison committee, environmental education needs and improvement projects.

7. Apart from the use of a wheelwash facility and dampening of site roads during dry weather no other mitigating measures have been included for the control of dust arising during the construction phase of the proposed development. In particular you are requested to elaborate on the good house keeping and site management including the proper storage of spoil/loose materials on site and proper containment of loose materials transported on or off site, as referred to in the EIS. Your proposals are considered vague. The Planning Authority considers that it is not the industry norm to cover all loads on or off site and therefore it is extremely unlikely that such a site requirement would be enforced. You are requested to address the Planning Authority's concerns in this regard.

8. Attachment 6 of the EIS refers to wind speed and direction data from Met Eireann, yet this data has not been included in the EIS. You are requested to submit the relevant data in this regard.

9. The Planning Authority considers that the EIS section on noise does not adequately assess the likely significant impacts of the proposed development on noise generated during the construction and operation phases. There are very wide variations in noise levels, particularly at nighttime noted over the survey period that go unexplained or interpreted. It is considered that a more detailed assessment of existing day and nighttime background noise levels is required. In particular the use of additional noise monitoring locations is deemed necessary to assess background noise levels and the contribution of existing noise sources in the area. The Planning Authority considers that the cumulative noise effects of the proposed development and the adjacent Platin Cement Works have not been adequately addressed in the EIS. It is also noted that in section 5.5 of the EIS that information is not available in relation to specific noise sources. You are requested to provide an interpretation of noise survey data, highlighting any known significant noise sources together with an assessment of their contribution(s) to ambient noise levels and any difficulties in compiling information.

10. The EIS states in section 2.6.2 that during certain stages of the construction programme, some night and weekend working will be required but this will be kept to a minimum and will be carried out in consultation with local residents if any inconvenience to residents is envisaged. This is unacceptable. You are requested to quantify the likely element of necessary nighttime or unsociable hours working to include an indication of likely noise levels/impacts at nearest noise sensitive receptors having regard to item 9 of this Further Information request. Your proposals for mitigating measures to abate/reduce any likely significant impacts should also be included. Reference to consultation with residents is not acceptable.

11. In the event of a fire there is potential for contamination of surface and groundwater as a result of firewater run-off. The Planning Authority notes that this has been addressed in section 9.4.2 of the EIS. The waste bunker in the reception hall is below ground level and designed for capacity of 12,000m3 and as a water retaining structure. The volume of the bunker outlined in this section is at variance with the figure of 6,000m3 in section 2.4.2. Please clarify.

12. If any submission resulting from the above request, alters your original proposal in relation to site boundaries, site layout or development location or description, etc., you must submit revised newspaper and site notices which include reference to these alterations.

13. You are invited to discuss the above application with the Planning Officer, Michael Killeen at a convenient appointment, tel. 046-21581.

ATTACHMENT B

TRAFFIC IMPACT ASSESSMENT ADDITIONAL INFORMATION

PROPOSED DEVELOPMENT AT CARRANSTOWN, CO. MEATH

TRAFFIC IMPACT ASSESSMENT - ADDITIONAL INFORMATION

RESPONSE TO REQUEST FOR FURTHER INFORMATION FROM MEATH COUNTY COUNCIL DATED 14TH MARCH 2001

0	Information	S. Quigley	S. Quigley	M. Jennings	M.Jennings	01.06.01	RK1776RP02
Rev	Purpose Description	Originated	Checked	Reviewed	Authorised	Date	Filename
		ATKINS McCARTHY					

Atkins McCarthy
Engineering Consultants
Villa Franca,
Douglas Road,
Cork.
Tel: 021-4290300
Fax: 021-4293527
e-mail: cork@mccarthy.iol.ie

Project Management Limited,
Killakee House,
Belgard Square,
Tallaght,
Dublin 24.

CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 On the 11th May 2000 Project Management Limited, Engineers and Project Managers, appointed Atkins McCarthy to carry out a Traffic Impact Assessment for the proposed development of a greenfield site at Carranstown, County Meath on behalf of Indaver Ireland. The site for the proposed development is located at Carranstown, County Meath, approximately 3kms north east of Duleek, as shown on Figure 1.

1.2 On 15th January 2001, Project Management Limited submitted a planning application for the proposed development to Meath County Council. The Traffic Impact Assessment is part of the Environmental Impact Statement (EIS) prepared by Project Management for the proposed development. On the 14th March 2001 Meath County Council issued a Request for Further Information.

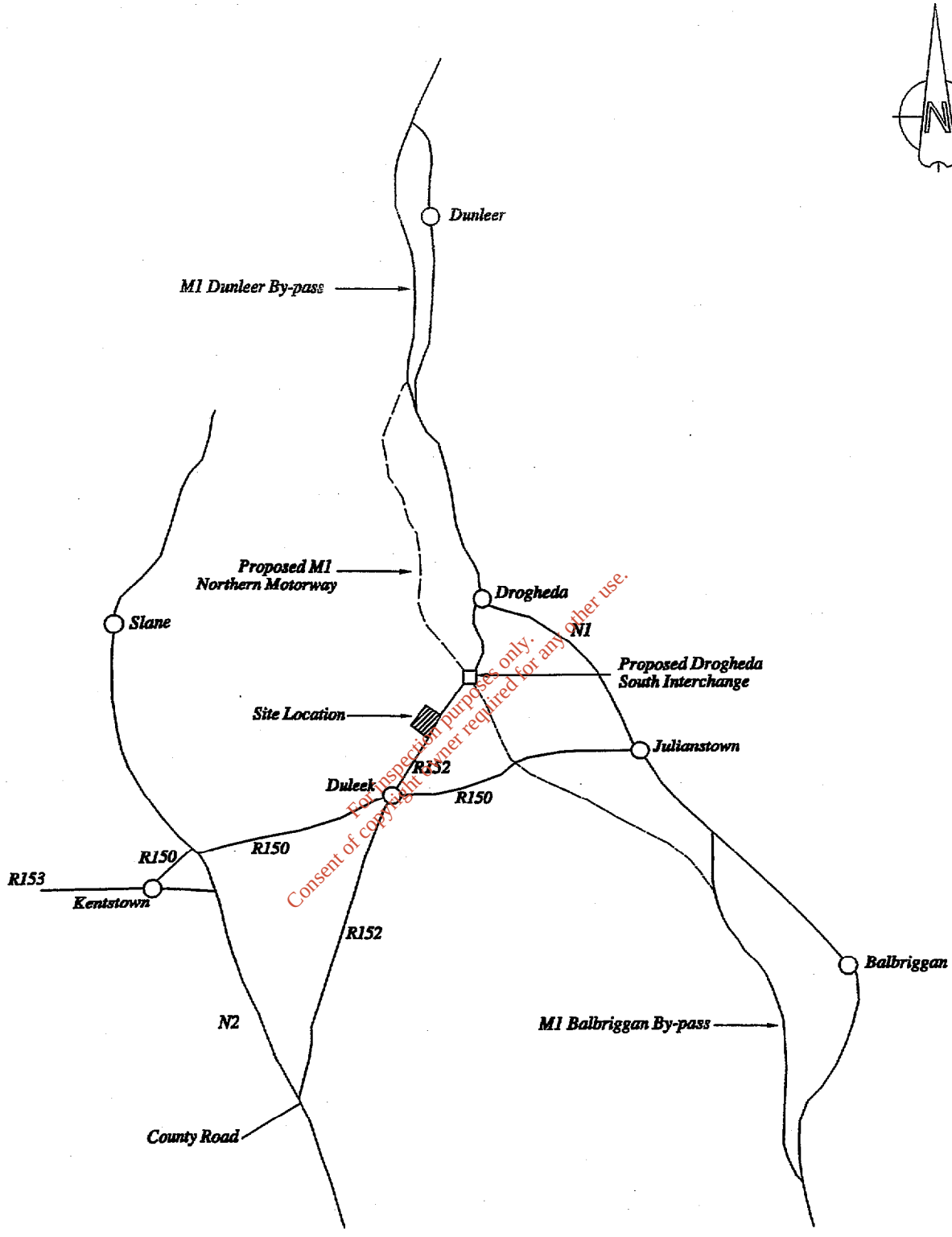
1.3 This Traffic Impact Assessment - Additional Information is a response to items 1, 2, 3 and 5 of the Request for Further Information. The items are as follows:

Item 1: "The Planning Authority notes that the likely significant impacts of traffic generated by the proposed development are assessed in terms of the capacity of the existing road network based on level of service. In particular the likely significant traffic impacts are based on the level of service not being adversely impacted upon yet there are no figures to substantiate this.

You are requested to submit details of the calculations/basis for the assessment of existing level of service of R152 and R150. The Planning Authority also considers that the traffic impacts should also be assessed in terms of Annual Average Daily Traffic counts for the network."

Item 2: "The future traffic projections are up to and including year 2004. The Planning Authority considers that the traffic projections should be expanded to assess the impacts on the road network for specific time intervals over a 20 year life based on traffic growth percentage increases, effects of future traffic changes due to the M1 Motorway, existing and permitted development in the area etc."

Item 3: "Having regard to items 1 and 2 above you are requested to assess the impacts of traffic generated by the proposed development on the junction capacity of the R152/R150. Again the assessment should be carried out for the opening year and future years. In this regard your attention is drawn to the fact that the Roads Authority proposes to provide a staggered junction at this location inclusive of traffic calming measures. You are also requested to assess the traffic impacts on a number of other junctions, namely R152/N2-Kilmoon, R150/N2-Flemingtown and R153/R150-Kentstown in terms of junction capacity and having regard to traffic offset from these routes as a result of the M1 Motorway."



SITE LOCATION FIGURE 1

Item 5:" You are requested to submit your revised proposals for a junction that excludes the acceleration/climbing lane, whilst maintaining the right turn and deceleration lanes. You may also wish to re-evaluate the junction capacity to take account of this revision."

1.4 This assessment has also been prepared in accordance with the clarifications and methodologies agreed in consultation with Meath County Council at meetings with their Roads and Traffic Department on the 27th March 2001, the 8th May 2001 and 24th May 2001.

2.0 LEVEL OF SERVICE (LOS)

2.1 The Environmental Research Unit (E.R.U.) design guidelines RT180 have been used to define the limiting capacity of the local road network in terms of a particular level of service. Level of Service (LOS) represents an objective average journey speed, under ideal conditions, combined with satisfactory conditions for overtaking and driver operation.

2.2 The U.S. Highway Capacity Manual defines six levels of service ranging from Level of Service A, representing free flow conditions, to Level of Service F, representing breakdown flow. The National Roads Authority (N.R.A.) in their National Road Needs Study for the period 2000 to 2019 confirm that studies of international practice indicate that many countries design new primary road facilities with an objective Level of Service C (LOS C). Generally, Level of Service D (LOS D) equivalent to an average inter-urban journey speed of 80 kph, is regarded as a minimum acceptable standard.

2.3 The N.R.A. define Level of Service C and D as follows for two-lane roads:

Classification	*% Time Delay*	*Average Speed*	*Passing Conditions*	*Driving Conditions*
LOS C	≤ 60	84 kph	Platoon formation occurs with passing demand exceeding opportunity	Driver delay up to 60% due to slower vehicles
LOS D	≤ 75	80 kph	Passing extremely difficult with very high demand & limited opportunity. Platoon sizes of 5-10 vehicles	Driver delay up to 75%. Turning vehicles or roadside distractions cause major shockwaves in the traffic system.

2.4 The design capacities for undivided rural roads defined in RT180 for both LOS C and LOS D are a function of carriageway width, the percentage sight distance greater than 460 metres along the route and the effect of roadside development.

2.5 The design capacity of the R152 is in the range 700 to 1,200 p.c.u.'s/hour two-way at Level of Service C (LOS C) and 1,300 to 1,500 p.c.u.'s/hour two-way at Level of Service D (LOS D) based on the design capacities for undivided rural roads set down in the E.R.U. design guidelines RT180. The design capacity of the R150 west of Duleek is in the range 575 to 950 p.c.u.'s/hour two-way at LOS C and 1,025 to 1,200 p.c.u.'s at LOS D.

2.6 On the basis of a visual inspection of the existing R152 route, in the vicinity of the proposed development from its junction with the R150 to the proposed Drogheda South Interchange on the proposed M1 Northern Motorway, sight distance greater than 460 metres is available along approximately 20% of the route. From a similar inspection of the existing R150 route from its junction with the N2 to Duleek, sight distance greater than 460 metres is also available along approximately 20% of the route. An inventory was also carried out of the number of road junctions, major developments, minor developments and field gates along both routes to determine the percentage reduction in design capacity due to the effect of roadside development based on the formula provided in RT180.

2.7 On this basis, the estimated design capacities of the R152, in the vicinity of the proposed development and the R150, west of Duleek, at LOS C and LOS D are as follows:

	Estimated Design Capacities (p.c.u.'s/hour)	
	LOS C	**LOS D**
R152	830	1,300
R150	660	1,030

2.8 The NRA in their National Road Needs Study predict that the N2 in the vicinity of the proposed development will operate at LOS D at 2019 with no upgrading required on the existing local route.

2.9 The predicted volume/capacity ratios on the R152 and R150 at LOS C and LOS D with and without the proposed development are detailed in section 9.0.

2.10 The National Roads Authority's Design Manual for Roads and Bridges (NRA DMRB) to be used for the design of national roads and the National Roads Authority's Road Geometry Handbook, which also contains a section on non-national roads prepared by the Department of the Environment and Local Government, have recently been published. The E.R.U. design guidelines RT180 were in place prior to these publications at the time of the preparation of the EIS and have been retained for consistency, for determining Level of Service (LOS), in this Response to the Request for Further Information, in consultation with Meath County Council. The new NRA guidelines have been used in the revised design of the proposed development entrance junction prepared by Project Management Limited in their response to the Request for Further Information.

3.0 RECORDED 2001 TRAFFIC FLOWS

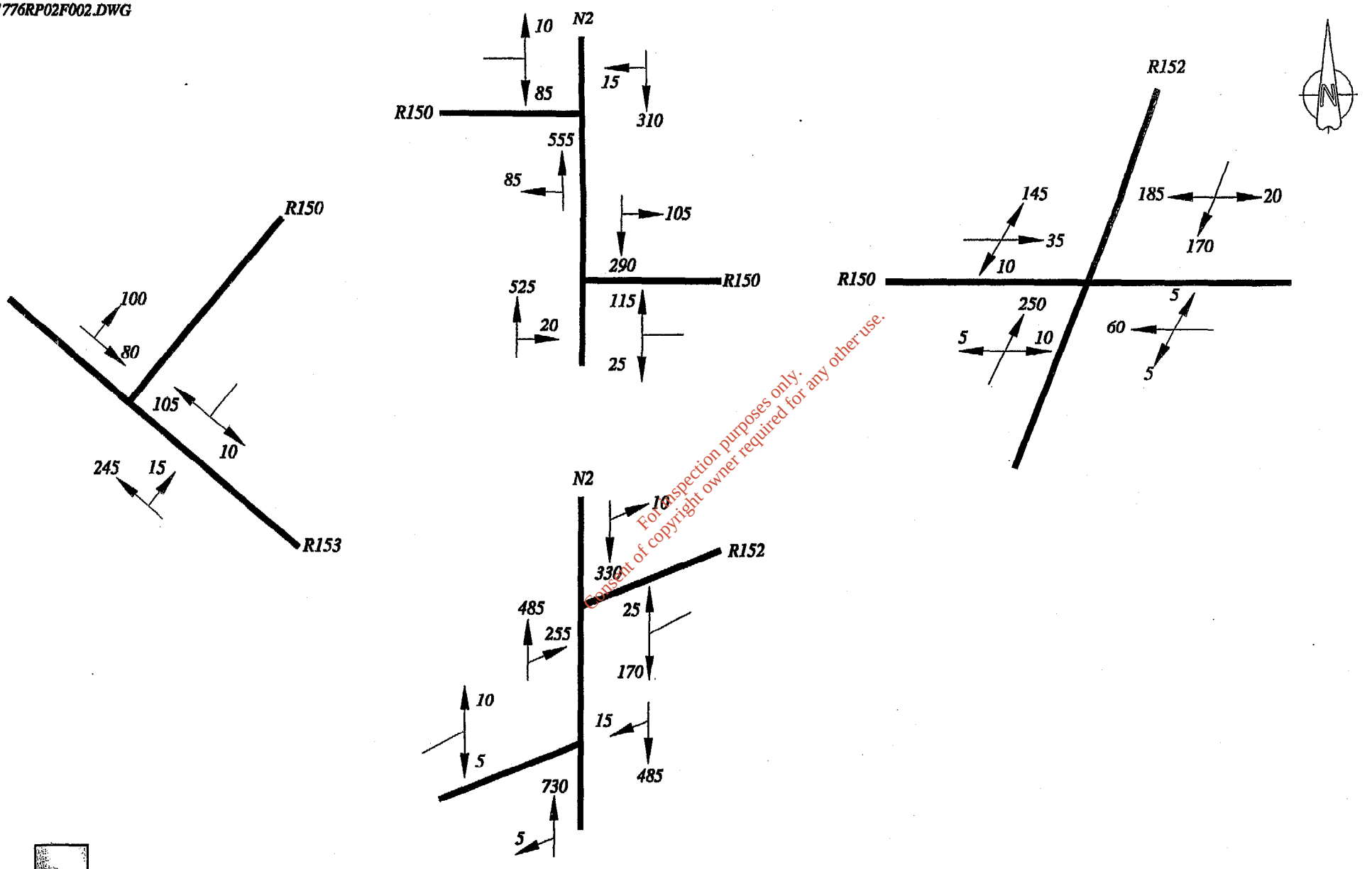
3.1 Peak period traffic counts were carried out by Atkins McCarthy on Thursday 29th March 2001 at the following junction locations:

- R152/R150 Junction;
- R150/N2 Junction;
- R152/N2 Junction; and
- R150/R153 Junction.

3.2 The overall daily peak hour occurred during the evening between 5.00 and 6.00 p.m. This coincides with the overall daily peak hour recorded during May 2000 on the R152 at the proposed development site and the R150 west of Duleek detailed in the EIS. The recorded 2001 peak hour traffic flows are shown on Figure 2.

3.3 In addition, 7-hour traffic counts were carried out by Atkins McCarthy on Thursday 10th May 2001 from 9.00 a.m. to 1.00 p.m. and from 2.00 p.m. to 5.00 p.m. on the R152, south of the proposed development and on the R150, west of Duleek. Details of these counts are contained in Appendix A.

3.4 During the 7-hour counts, the total recorded two-way traffic volumes on the R152 and R150 were 3,513 vehicles and 1,804 vehicles respectively. The expansion factor provided by the NRA in their publication RT201 Expansion Factors for short period traffic counts for a 7-hour count from 9.00 a.m. to 1.00 p.m. and from 2.00 p.m. to 5.00 p.m. on Thursdays during May for rural inter-town routes is 2.13. The accuracy level identified by RT201 is ±13% at a 68% confidence level. On this basis the estimated 2001 Annual Average Daily Traffic (AADT) volumes on the R152 and R150 at the count locations are 7,480 vehicles and 3,840 vehicles respectively.



RECORDED 2001 PEAK HOUR TRAFFIC VOLUMES (VEHICLES) FIGURE 2

4.0 PREDICTED 2004 TRAFFIC FLOWS WITHOUT THE PROPOSED DEVELOPMENT

4.1 It is envisaged that the M1 Northern Motorway (Gormanstown-Monasterboice) will be completed during 2004.

4.2 The Preliminary Design Report prepared by Meath County Council for Phase 2: Carranstown to Tullyallen of the M1 Northern Motorway Scheme indicated that a proportion of existing traffic on the R152 Carranstown Road uses the R152 and N2 roads as an alternative route to the existing N1 and expected that this traffic will transfer to the proposed M1 motorway when completed. The Preliminary Design Report envisaged a decrease of 30% from existing traffic levels on the R152 Carranstown Road, west of the proposed M1 motorway. Meath County Council indicated that a decrease of 15% from existing traffic levels on the R150, between the N2 and R152, is envisaged when the M1 motorway is completed.

4.3 Pre-planning submission liaison with Meath County Council and a review of the planning file indicated that total additional peak hour two-way traffic flows on the R152 generated by adjacent proposed developments during the evening peak hour could be of the order of up to 120 p.c.u.'s. The equivalent additional two-way traffic flow on the R150 west of Duleek could be of the order of up to 96 p.c.u.'s. Meath County Council indicated that these developments include a proposed power station at Carranstown, a proposed Agri Park at Duleek and a proposed Industrial/Warehouse Technology Park at Duleek.

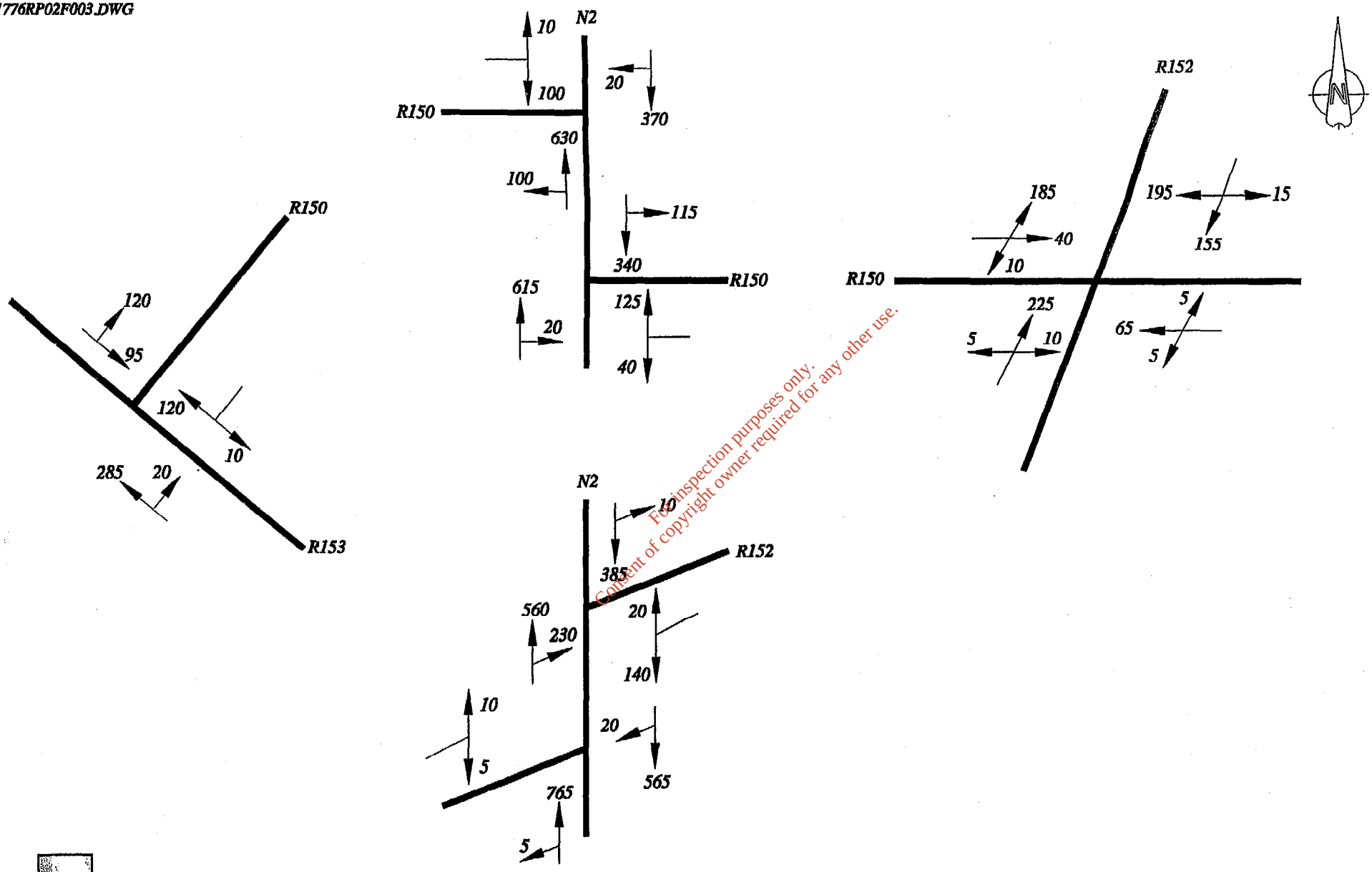
4.4 The National Roads Authority (NRA) in their National Road Needs Study envisage that light vehicle traffic will grow on average by 4% per annum from 2000 to 2005 on the overall national network. On National Primary Routes, the NRA envisage an annual average growth rate of 3.7% in passenger car traffic flows and 2.8% per annum in heavy vehicles during the period 2000 to 2010.

4.5 Meath County Council have indicated that the predicted reduction in future traffic flows on the N2 identified in the EIS for the M1 Northern Motorway scheme may be offset by the likely provision of the proposed N2 Ashbourne By-pass and the consequent attraction of new trips from further north and west along the N2 corridor. Accordingly, the predicted 2004 traffic flows on the N2 were determined by factoring the recorded 2001 traffic flows to 2004 levels at an assumed annual average growth rate of 5%. This figure is considered conservative relative to that predicted by the NRA.

4.6 A similar annual average growth rate was applied to the recorded 2001 traffic flows on the R150 and R153 west of the N2 to determine the predicted 2004 levels.

4.7 The predicted 2004 peak hour traffic flows on the R152 and the R150, east of the N2 were determined by applying the assumed annual average growth rate of 5% to 2004, reducing these volumes by 30% and 15% respectively in accordance with the expected impact of the M1 Motorway envisaged by Meath County Council, as detailed in section 4.2 and then increasing these volumes to account for the additional traffic flows generated by adjacent proposed developments, as detailed in section 4.3.

4.8 The predicted 2004 traffic flows without the proposed development in place were determined on the basis of the assumptions detailed above and are shown on Figure 3.



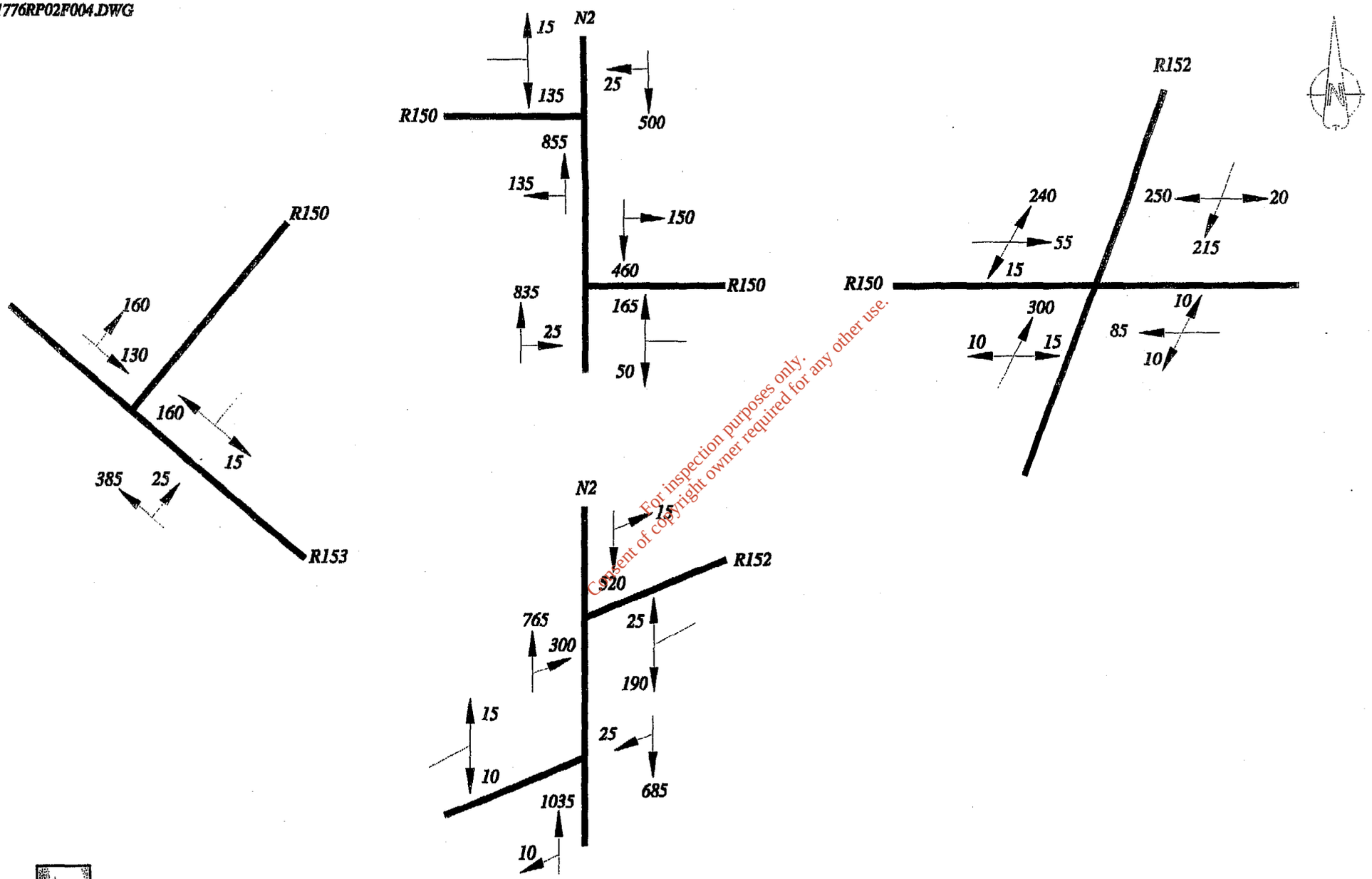
PREDICTED 2004 PEAK HOUR TRAFFIC VOLUMES (VEHICLES) WITHOUT THE DEVELOPMENT **FIGURE 3**

5.0 PREDICTED 2020 TRAFFIC FLOWS WITHOUT THE PROPOSED DEVELOPMENT

5.1 The NRA in their National Road Needs Study for the period up to 2019 envisage that light vehicle traffic will grow by 2% a year from 2005 to 2015 on the overall national network. On National Primary Routes the NRA envisage an annual average growth rate of 1.4% in passenger car traffic and 1.1% per annum in heavy vehicles during the period 2010 to 2020. The growth rates envisaged by the NRA up to 2010 are detailed in section 4.4. The Central Statistics Office (CSO) envisage that car ownership will reach saturation by 2016.

5.2 Accordingly, in consultation with Meath County Council's Roads and Traffic Department, the year 2020 has been identified as an appropriate target plan year for the assessment of the future local road network with and without the proposed development. The Institution of Highways and Transportation Guidelines on Traffic Impact Assessment recommends that assessments should be undertaken at the year of opening and for a year either 10 or 15 years later. The target plan year 2020 represents a year 16 years after the year of opening in 2004. It is envisaged that traffic volumes on the surrounding local road network both with and without the proposed development will be higher in 2020 than in any intermediate year between 2004 and 2020.

5.3 The predicted 2020 traffic flows were determined on the basis of the growth assumptions detailed in sections 4.5, 4.6 and 4.7 for the period up to 2004 and an assumed annual average growth rate of 2.0% thereafter to 2020, and are shown on Figure 4. This assumed growth rate for the period 2004 to 2020 is considered conservative relative to the growths predicted by the NRA detailed in Section 5.1 above.



PREDICTED 2020 PEAK HOUR TRAFFIC VOLUMES (VEHICLES) WITHOUT THE DEVELOPMENT **FIGURE 4**

6.0 PREDICTED 2004 AND 2020 ANNUAL AVERAGE DAILY TRAFFIC (AADT) VOLUMES WITHOUT THE PROPOSED DEVELOPMENT

6.1 The predicted 2004 and 2020 Annual Average Daily Traffic (AADT) volumes without the proposed development were determined on the basis of the NRA publication RT201 Expansion Factors for Short Period Traffic Counts and are as follows:

Route	*Predicted AADT volumes (vehicles) without proposed development*	
	2004	**2020**
R152 (north) (1)	6,060	8,320
R152 (south) (2)	5,330	7,060
R150 (east) (3)	3,780	5,190
R150 (west) (4)	3,060	4,130
N2 (north) (5)	13,720	18,580
N2 (south) (6)	17,850	23,180
R153 (west) (7)	8,260	11,120

NOTES:

(1) North of R150 junction
(2) At N2 junction
(3) Immediately west of Duleek
(4) West of N2 junction
(5) North of R150 junction
(6) South of R152 junction
(7) West of R150 junction.

6.2 The predicted 2004 and 2020 AADT volumes on the R152 (north) and the R150 (east) have been determined by applying the assumed annual average growth rates of 5% to 2004 and 2.0% thereafter to 2020 to the existing 2001 AADT volumes at these locations, and then reducing these volumes by 30% and 15% respectively in accordance with the expected impact of the M1 Motorway envisaged by Meath County Council, as detailed in section 4.2. The existing AADT volumes were estimated on the basis of recorded 7-hour counts, as detailed in section 3.4. The predicted 2004 and 2020 AADT volumes elsewhere were determined from the predicted 2004 and 2020 peak hour traffic volumes using the expansion factor provided by the NRA in RT201 to determine the AADT volumes using short period traffic counts for the hour ending 6.00 p.m. on Thursdays during March for rural inter-town routes of 13.32. The accuracy level for this factor identified by RT201 is ±25% at a 68% confidence level.

6.3 The predicted AADT volumes on the N2 significantly exceed those predicted in the M1 Northern Motorway EIS, detailed in the EIS for the proposed development.

7.0 PREDICTED AADT VOLUMES GENERATED BY THE PROPOSED DEVELOPMENT

7.1 The total predicted AADT volumes generated by the proposed development when fully operational is 409 vehicles. It is conservatively assumed in the EIS that all traffic generated by the proposed development is new traffic to the surrounding local road network. All vehicle volumes generated by waste to energy and industrial waste sorting activity are in fact, existing traffic on the north east regional road network that would become centralised with the provision of the proposed development.

7.2 The distribution of the predicted AADT volumes generated by the proposed development when fully operational is in accordance with the distribution of urban centres within the north east region in counties Meath, Louth, Cavan and Monaghan detailed in the EIS.

7.3 The distribution of AADT volumes generated by the proposed development when fully operational on the surrounding local road network together with the resultant increase in the predicted AADT volumes detailed in section 6.0 during 2004 and 2020 is as follows:

Route	*Predicted AADT volumes generated by development when fully operational (vehicles)*	*Increase in AADT volumes due to development when fully operational (%)*	
		2004	**2020**
R152 (immediately north of development)	262	+4.3%	+3.1%
R152 (north) (1)	147	+2.4%	+1.8%
R152 (south) (2)	41	+0.8%	+0.6%
R150 (east) (3)	102	+2.7%	+2.0%
R150 (west) (4)	57	+1.9%	+1.4%
N2 (north) (5)	45	+0.3%	+0.2%
N2 (south) (6)	41	+0.2%	+0.2%
R153 (west) (7)	57	+0.7%	+0.5%

NOTES:

(1) North of R150 junction
(2) At N2 junction
(3) West of Duleek, 4 vehicles generated at Duleek
(4) West of N2 junction
(5) North of R150 junction
(6) South of R152 junction
(7) West of R150 junction.

8.0 PREDICTED PEAK HOUR TRAFFIC FLOWS GENERATED BY THE PROPOSED DEVELOPMENT

8.1 The total predicted two-way peak hour traffic flows generated by the proposed development when fully operational is 60 vehicles.

8.2 The distribution of the total predicted two-way peak hour traffic flows generated by the proposed development when fully operational on the surrounding local road network is as follows:

Route	*Predicted two-way peak hour traffic flows generated by the development when fully operational*	
	total vehicles	**(heavy commercial vehicles)**
R152 (immediately north of development)	38	(12)
R152 (north) (1)	22	(7)
R152 (south) (2)	6	(2)
R150 (east) (3)	15	(5)
R150 (west) (4)	8	(3)
N2 (north) (5)	7	(2)
N2 (south) (6)	6	(2)
R153 (west) (7)	8	(3)

NOTES:

(1) North of R150 junction
(2) At N2 junction
(3) West of Duleek, 1 vehicle generated at Duleek
(4) West of N2 junction
(5) North of R150 junction
(6) South of R152 junction
(7) West of R150 junction.

9.0 PREDICTED VOLUME/CAPACITY RATIOS ON THE R152 AND R150 AT LOS C AND LOS D WITH AND WITHOUT THE PROPOSED DEVELOPMENT

9.1 The predicted two-way peak hour traffic flows on the R152, immediately north of the proposed development and the R150, west of Duleek, both with and without the proposed development expressed in terms of passenger car units (p.c.u.'s) are as follows:

Predicted two-way peak hour traffic flows (p.c.u.'s)

	2004		2020	
	Without Development	With Development	Without Development	With Development
R152, immediately north of proposed development	890	952 (+7.0%)	1,180	1,242 (+5.3%)
R150, west of Duleek	350	375 (+7.1%)	450	475 (+5.6%)

9.2 The predicted two-way peak hour traffic flows on the R152, immediately north of the proposed development and the R150, west of Duleek would increase by up to 7.1% during 2004 and by up to 5.6% during 2020 due to the proposed development.

9.3 On the basis of the estimated design capacities of the R152, immediately north of the proposed development and the R150, west of Duleek detailed in section 2.7, the predicted volume/capacity ratios at Level of Service C (LOS C) and Level of Service D (LOS D) at these locations both with and without the proposed development are as follows:

Predicted Volume/Capacity Ratios

	Without Development		With Development	
	LOS C	*LOS D*	*LOS C*	*LOS D*
2004				
R152, immediately north of proposed development	107%	68%	115%	73%
R150, west of Duleek	53%	34%	57%	36%
2020				
R152, immediately north of proposed development	142%	91%	150%	96%
R150, west of Duleek	68%	44%	72%	46%

9.4 Predicted 2020 volume/capacity ratios for the R152, immediately north of the proposed development and the R150, west of Duleek were also determined in the event of a worst case traffic growth scenario, where the predicted traffic growth rates detailed in section 5.0 are exceeded. The predicted 2020 volume/capacity ratios at LOS C and LOS D at these locations both with and without the proposed development, determined on the basis of an assumed annual average traffic growth rate of 3.5% for the period 2004 to 2020 are as follows:

Predicted 2020 Volume/Capacity Ratios for a Worst Case Traffic Growth Scenario

	Without Development		With Development	
	LOS C	LOS D	LOS C	LOS D
R152, immediately north of proposed development	186%	118%	193%	123%
R150, west of Duleek	91%	58%	95%	61%

9.5 In the event of such a worst case scenario, the predicted two-way peak hour traffic flows on the R152, in the vicinity of the proposed development and the R150, west of Duleek would increase by up to 3.4% during 2020 due to the proposed development.

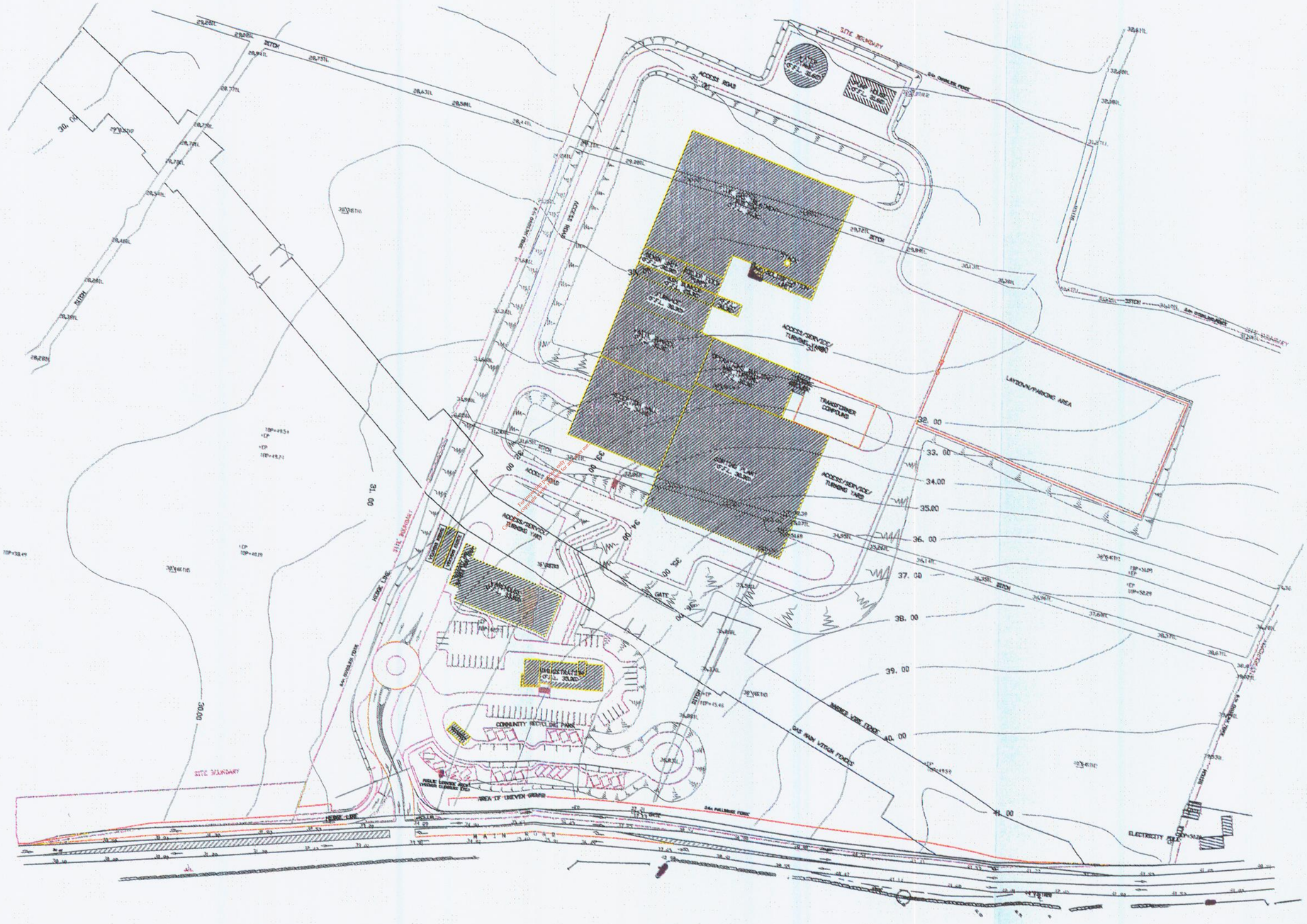
9.6 Meath County Council have indicated that in the event of such a worst case traffic growth rate scenario occurring on the R152 and R150, appropriate mitigation measures will be provided by the County Council and the Department of the Environment.

10.0 FUTURE LOCAL ROAD NETWORK JUNCTION ARRANGEMENTS

10.1 The revised proposed entrance junction on the R152 to the proposed development is shown at reduced 1:500 scale on Figure 5.

10.2 Meath County Council have indicated that it is proposed to provide a staggered priority controlled junction at the R152/R150 junction. Detailed drawings of the proposed layout have been provided by Meath County Council's Roads and Traffic Department.

10.3 It is envisaged that the existing priority controlled junction layouts at the N2/R150, N2/R152 and R150/R153 junctions will be retained.



PROPOSED ENTRANCE LAYOUT *FIGURE 5*

11.0 ANALYSIS OF 2004 JUNCTION OPERATIONS WITH AND WITHOUT THE PROPOSED DEVELOPMENT

11.1 The expected future local road network junction arrangements were analysed for the predicted 2004 peak hour traffic flows with and without the proposed development in place using the computer software programme PICADY for priority controlled junctions. Details of the programme are provided in the EIS. Full details of the analysis are provided in Appendix B. The results are summarised as follows:

R153/R150 Junction

2004 Peak Hour without Development	The junction would operate within capacity with a highest Ratio of Flow to Capacity (RFC) of 0.25. Highest average delays per vehicle would be 9.0 seconds. No significant queuing would occur for turning vehicles.
2004 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.26. Highest average delays per vehicle would be 9.0 seconds. No significant queuing would occur for turning vehicles.

N2/R150 Junction

2004 Peak Hour without Development	The junction would operate within capacity with a highest RFC of 0.37. Highest average delays per vehicle would be 12.6 seconds. No significant queuing would occur for turning vehicles.
2004 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.40. Highest average delays per vehicle would be 13.2 seconds. No significant queuing would occur for turning vehicles.

N2/R152 Junction

2004 Peak Hour without Development	The junction would operate within capacity with a highest RFC of 0.40. Highest average delays per vehicle would be 11.4 seconds. No significant queuing would occur for turning vehicles.
2004 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.40. Highest average delays per vehicle would be 11.4 seconds. No significant queuing would occur for turning vehicles.

Proposed R152/R150 Junction

2004 Peak Hour without Development	The junction would operate within capacity with a highest RFC of 0.38. Highest average delays per vehicle would be 9.6 seconds. No significant queuing would occur for turning vehicles.
2004 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.39. Highest average delays per vehicle would be 9.6 seconds. No significant queuing would occur for turning vehicles.

Proposed R152/Development Entrance Junction

2004 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.09. Highest average delays per vehicle would be 8.4 seconds. No significant queuing would occur for turning vehicles.

12.0 ANALYSIS OF 2020 JUNCTION OPERATIONS WITH AND WITHOUT THE PROPOSED DEVELOPMENT

12.1 The expected future local road network junction arrangements were analysed for the predicted 2020 peak hour traffic flows with and without the proposed development in place using the computer software programme PICADY for priority controlled junctions. Full details of the analysis are provided in Appendix C. The results are summarised as follows:

R153/R150 Junction

2020 Peak Hour without Development	The junction would operate within capacity with a highest RFC of 0.36. Highest average delays per vehicle would be 11.4 seconds. No significant queuing would occur for turning vehicles.
2020 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.37. Highest average delays per vehicle would be 11.4 seconds. No significant queuing would occur for turning vehicles.

N2/R150 Junction

2020 Peak Hour without Development	The junction would operate within capacity with a highest RFC of 0.58. Highest average delays per vehicle would be 21.6 seconds. Maximum queue lengths would be 1.3 vehicles.
2020 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.61. Highest average delays per vehicle would be 23.4 seconds. Maximum queue lengths would be 1.5 vehicles.

N2/R152 Junction

2020 Peak Hour without Development	The junction would operate within capacity with a highest RFC of 0.56. Highest average delays per vehicle would be 17.4 seconds. Maximum queue lengths would be 1.2 vehicles.
2020 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.56. Highest average delays per vehicle would be 17.4 seconds. Maximum queue lengths would be 1.3 vehicles.

Proposed R152/R150 Junction

2020 Peak Hour without Development	The junction would operate within capacity with a highest RFC of 0.57. Highest average delays per vehicle would be 14.4 seconds. Maximum queue lengths would be 1.3 vehicles.
2020 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.58. Highest average delays per vehicle would be 15.0 seconds. Maximum queue lengths would be 1.3 vehicles.

Proposed R152/Development Entrance Junction

2020 Peak Hour with Development	The junction would operate within capacity with a highest RFC of 0.10. Highest average delays per vehicle would be 9.6 seconds. No significant queuing would occur for turning vehicles.

13.0 CONCLUSIONS

13.1 It is conservatively assumed in the EIS that all traffic generated by the proposed development is new traffic to the surrounding local road network. All vehicle volumes generated by waste to energy and industrial waste sorting activity are in fact, existing traffic on the north east regional road network that would become centralised with the provision of the proposed development.

13.2 The proposed development when fully operational would increase the predicted AADT volumes on the surrounding local road network by between 0.2% and 4.3% during 2004 and between 0.2% and 3.1% during 2020.

13.3 The predicted two-way peak hour traffic flows generated by the proposed development when fully operational would be 38 vehicles on the R152 north of the development, 22 vehicles on the R152 south of the development, 16 vehicles on the R150 at Duleek and 8 vehicles or less on other routes.

13.4 The predicted two-way peak hour heavy commercial vehicles (h.c.v.'s) generated by the proposed development when fully operational would be 12 h.c.v.'s on the R152 north of the development, 7 h.c.v.'s on the R152 south of the development, 5 h.c.v.'s on the R150 at Duleek and 3 h.c.v.'s or less on other routes.

13.5 During both the 2004 and 2020 peak hours, it is predicted that the R152, immediately north of the proposed development would operate in excess of its estimated design capacity at LOS C and within capacity at LOS D, both with and without the proposed development.

13.6 During both the 2004 and 2020 peak hours, it is predicted that the R150, west of Duleek, would operate within its estimated design capacity at LOS C and LOS D, both with and without the proposed development.

13.7 The expected future local road network junctions would operate within capacity for the predicted 2004 and 2020 peak hour traffic flows both with and without the proposed development in place.