

Guidelines for

THE MANAGEMENT OF WASTE FROM NATIONAL ROAD CONSTRUCTION PROJECTS



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Disclaimer

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THE EFFECTIVE MANAGEMENT OF WASTE ARISING FROM THE CONSTRUCTION OF NATIONAL ROAD SCHEMES PRESENTS A SIGNIFICANT CHALLENGE TO ALL PARTICIPATING PARTIES.

Introduction

1

Due to the broad legal definition of waste in the Waste Management Acts, 1996-2011, waste issues should be given early consideration in the design stages of road projects.

The effective management of waste arising from the construction of national road schemes presents a significant challenge to all participating parties. The cost of managing waste has increased significantly in recent years and increasingly complex environmental legislation, along with more sophisticated and better-resourced enforcement arrangements, place growing constraints on potential disposal outlets. Some of the more significant legal requirements related to the handling of waste stem from European Union legislation, and in this respect successful proceedings have been taken against Ireland at the Court of Justice of the European Union on account of the existence of unauthorised facilities for the disposal of construction waste.¹

Due to the broad legal definition of waste in the Waste Management Acts, 1996-2011, waste issues should be given early consideration in the design stages of road projects. The management of waste materials can rapidly become a significant cost item where material needs to be moved off-site, particularly if no prior account has been taken of such requirements. Road contractors may face additional costs due to a shortage of local facilities that are suitable to handle the wastes being generated. Inadequate material management on-site and cross-contamination due to poor waste segregation can compound this problem. Insufficient care in the arrangement of waste management outlets may result in the infringement of

the statutory requirements of the Waste Management Acts. Besides attracting the possibility of legal action, failure to comply with the legislation may result in delays to road developments, resulting in unplanned expenditure and may invite local controversy and the attention of the media.

All of these factors require that waste management issues be properly addressed throughout the life-cycle of a road project. This short guide is intended to assist all parties - designers, local authorities, contractors, etc. - on how the challenge of effective waste management could be met in a road-building context.

A key purpose of this document is to help all parties understand the complicated legal framework which governs the management of wastes generated by national road construction projects. A second aim is to set out good practice guidelines to ensure that effective waste management remains a priority throughout the design and construction stages of these projects. The purpose here is to encourage the minimisation of the environmental impacts of roads-related construction waste, as well as the volume of the actual waste being generated and to facilitate compliance with the provisions of the Waste Management Acts. Finally, these guidelines also have the objective of providing information to facilitate an effective dialogue between road contractors, relevant statutory bodies and third parties on how waste should be properly handled in a road-building context.

¹ See Case C-494/0 *Commission v Ireland* [2005] ECR I-3331.



Environmental Operating Plans

2

This guidance document should be read in conjunction with the NRA's *Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan* (NRA 2007). It must be considered by main contractors in the drafting of the Environmental Operating Plan (EOP). While further detail is contained in the NRA's 2007 publication, in summary the EOP:

- provides a method of documenting compliance with the Waste Management Acts and other environmental legislation
- outlines the methods by which construction work is to be managed to minimise, reuse or recycle any waste produced
- identifies the roles and responsibilities of the main contractor's staff with regard to waste management
- sets down procedures for communication and training with regard to the handling of waste, its minimisation, and so on
- requires that an audit system be put in place to ensure the EOP's effectiveness.

The contents of this guidance document also should be considered when the site-specific Waste Environmental Control Measures Sheet is devised in accordance with the EOP guidelines.



Waste management has become a very high profile issue in Ireland over the last 15 years. A series of national policy documents have been produced, along with a comprehensive package of legislation to further national and EU-instigated environmental protection goals. While much progress has been made in the roll-out of these initiatives, it is clear that much still has to be done in respect of this aspect of environmental policy.

The Environmental Protection Agency's (EPA) most recent (2011) figure for the amount of construction and demolition waste arising in Ireland annually was about three million tonnes (EPA 2013a, p.66): a significant decrease from the 17 million tonnes produced in 2006 (EPA 2007a). The EPA suggests that about 66% of the construction waste arising in 2011 comprised natural materials which fall into the category "soil and stones", with the remainder being composed of rubble, wood, metal and other mixed materials. As was the case with the national data on construction and demolition waste for earlier years, the EPA acknowledges that there remains uncertainty about the final destination of significant proportion of this waste type.

In 2011, there were four main destinations for the material categorised as soil and stones (EPA 2013a, p.67):

- Nearly 226,000 tonnes passed to EPA-licensed landfill sites, to be used for landfill cover and for other site engineering purposes;
- 23,400 tonnes was disposed of at EPA licensed landfill sites;
- A further 135,000 tonnes was consigned to other, non-landfill, licensed waste sites and was recovered;

- About one million tonnes was sent to sites which are subject to waste facility permits issued by the local authorities.

The magnitude of these figures will be readily apparent: for example, in 2006 the annual volume of construction waste generated was roughly ten times greater than the total amount of waste produced from Irish households.² Moreover, it is well-recognised that there is significant and poorly tapped potential to reduce the quantity of construction and demolition waste being produced, particularly in the recovery or re-use of raw materials from this waste stream. Accordingly, the need to improve the quality of the management of construction and demolition waste has been a theme of the four national waste policy documents that have been published by the Government since 1998.

3.1. The four waste policy documents

The first policy document was entitled *Waste Management – Changing our Ways*, (DoEHLG 1998). It noted that, while recovery technologies were mature and readily available, very significant quantities of construction waste were being unnecessarily disposed of. For example, the EPA (1996, p.43) has suggested that, for 1995, nearly two thirds of construction and demolition waste passed to landfill.

² EPA (2007a, p.11) suggests that the total annual national household waste arising in 2006 was about 1.7 million tonnes.

3

National Initiatives

In response, the Government proposed in *Waste Management – Changing our Ways* the following recycling targets for construction and demolition waste (DoEHLG 1998, p.7):

- Recycling of at least 50% within a five-year period ending in 2003
- Recycling to increase to 85% over a 15 year period which finishes in 2013.

In order to further these objectives, the 1998 policy document invited construction and demolition companies to work towards these targets through a voluntary industry-led initiative. In the event that this approach failed, the document envisaged the imposition of mandatory “producer responsibility” obligations on the sector.

The proposals contained in the 1998 policy document were re-visited by a second policy statement in 2002, which took the form of the publication *Preventing and Recycling Waste – Delivering Change* (DoEHLG 2002). It approvingly notes that the construction and demolition sector had established a task force to address waste management and that a Task Force Report containing some 66 recommendations had been produced. These recommendations were then to be taken forward via the establishment of a Construction and Demolition Waste Management Council, which comprised representatives of the sector, including a delegate from the National Roads Authority.

A third national policy document was published in 2004, entitled *Waste Management – Taking Stock and Moving Forward* (DoEHLG 2004). This document acknowledged

that considerable progress had been made in relation to the achievement of the numerous targets set for the waste sector in the earlier publications. This included construction and demolition waste, with EPA data being cited to suggest that sectorial recycling rates of 65% had been achieved in 2001 (DoEHLG 2004, p.33) – a figure that is stated to exceed the first of the two national recovery targets.

In 2012, the Department of the Environment, Community and Local Government published *A Resource Opportunity, Waste Management Policy in Ireland* (DoECLG 2012). It covers the period to 2020, with a review programmed for 2016.

This most recent policy document contains three overarching guiding principles for national waste management:

- 1) To place waste prevention and minimisation at the forefront of waste policy;
- 2) To extract the maximum value from any waste that is generated;
- 3) To place the use of landfill as a last resort.

The 2012 policy document does not set new targets for the re-use or recovery of construction and demolition waste. This may be because a 70% target for the recovery and re-use of this waste type already was contained in national law, having to be achieved by 2020³. Moreover, there has been a very significant drop in the annual volume of construction and demolition waste since the onset of the recession, coupled with significantly improved recovery rates.

³ This target applies to all non-hazardous construction and demolition waste, with the exception of natural materials such as soil, rock and stone. It is a requirement of the revised Directive on Waste, being transposed into national law by the European Communities (Waste Directive) Regulations 2011, Regulation 31(2)(b)

The 2012 national policy document, however, also indicated that a possible “Producer Responsibility Initiative” (PRI) for larger construction projects is to be considered. If adopted, this proposal would join the existing initiatives that relate to packaging waste, waste electrical and electronic equipment and end-of-life vehicles. Each of these initiatives are aimed at ensuring that a particular industrial sector exercises greater legal and financial responsibility for the management of the waste it generates, thereby furthering compliance with EU and national performance targets.

3.2. Outcomes and outstanding issues

Over the period since these national policy statements were published, continued progress has been made towards the achievement of the 2013 national target contained in *Waste Management – Changing our Ways*. EPA figures for 2011 suggest that high recovery rates are being achieved for construction and demolition waste. However, much of this material is not subject to re-use, with a very significant contribution to these rates is being made by the application of inert waste, such as soil, subsoils and rock, for land spreading and other land reclamation purposes.

In 2006, the EPA (2006a, p.34) reported that at least 1.5 million tonnes of construction waste that was known to have been collected could not be matched against the data on volumes of waste received at authorised waste management facilities. The equivalent figure for 2011 was

500,000 tonnes (EPA 2013a, p.68). While a proportion of the discrepancy between these two statistical sources may be due to vagaries in data collection⁴, the “leakage” of construction and demolition waste away from authorised waste management sites has been a significant problem in Ireland over the last 10 years.

As previously mentioned, the European Commission has already successfully pursued infraction proceedings against Ireland at the Court of Justice of the European Union in relation to a number of unauthorised waste sites that were accepting construction and demolition waste. A report by the EPA (EPA 2005) in response to the Court of Justice’s ruling against Ireland sets down a series of action steps in relation to the construction and demolition sector. These are reproduced here as Table 1. While some of these action points have been addressed, what seems clear from the EPA’s more recent work is that there still remains some way to go in ensuring that all transfers of construction and demolition waste fully accord with the requirements of the Waste Management Acts.

⁴ EPA (2012b, p48) proposes a “C&D Anomaly Project” to address this issue, along with the publication of additional guidance on waste quantification and validation techniques

3

National Initiatives

Table 1: EPA's action plan to address the issue of the poor management of construction and demolition waste (EPA 2005, p.55)

Action	Responsibility ⁵
Those involved in illegal disposal of C&D waste should be pursued on indictment ⁶ by the enforcement authorities	LAs, EPA,
Local authorities need to ensure that they have up to date and reliable information on the quantities and fate of C&D waste in their functional areas	LAs
The C&D sector needs to provide much better and more reliable information on the quantities and fate of waste produced	C&D sector
Sufficient outlets for the recovery and disposal of C&D waste are required and should be planned for by local authorities and the C&D sector through the waste management planning process	LAs, C&D sector
Finalise ⁷ and consider placing on a statutory footing, the draft guidelines for C&D waste management	DoECLG
Integrate the requirements of the draft ⁸ guidelines for C&D waste management with the planning and development process for developments that are likely to produce significant quantities of waste	LAs
Radical improvements are required by the C&D sector in relation to general site and materials management to minimise waste produced on site	C&D sector
More work is required by the C&D sector on the development of end-uses, outlets and material specifications for C&D waste	C&D sector
Review the effectiveness of the C&D waste industry's voluntary initiative	DoECLG

⁵ LAs = local authorities; DoECLG = Department of Environment, Community and Local Government; C&D sector = construction and demolition sector

⁶ As discussed elsewhere in this guidance document, prosecutions on indictment are taken by the Director of Public Prosecutions and involve fines of up to €15 million and prison sentences of up to 10 years

⁷ After the EPA's list of Action Steps was published, the *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects* was finalised, being published in July 2006 by the Department of the Environment, Heritage and Local Government

⁸ As noted above, these guidelines were finalised and published in 2006

In 2009, the EPA published its first revision of its National Waste Prevention Programme which covered the period up to 2012 (EPA 2009), an initiative that spawned from the 2004 national waste policy document and EU proposals that eventually were included in the 2008 revision of the Directive on Waste.⁹ The EPA's document mooted a waste prevention initiative aimed at improving the handling of non-natural construction waste. In 2011, the EU requirements on waste prevention became national law, being added into the Waste Management Acts.¹⁰

In parallel to the formalisation of this waste prevention initiative, what is known as the "Waste Hierarchy" also became part of national law¹¹. This finds its basis in the revised EU Directive on Waste, being intended to discriminate against waste disposal processes in favour of waste recovery, recycling, re-use and waste minimisation. Its importance needs to be appreciated, as the European Commission (2012, p48) terms it as now being "the cornerstone of European waste policies and legislation". In order of priority, the Hierarchy sets out the most desirable approaches to waste management as comprising¹²:

- (a) Prevention
- (b) Preparing for re-use
- (c) Recycling
- (d) Other recovery (including energy recovery), and
- (e) Disposal.

The accompanying legislation defines these terms in more detail¹³. For example, "preparing for re-use" covers checking, cleaning and repairing operations that cause a product or its components to once again be suitable for re-use without any more extensive reprocessing. "Recycling" clarifies that it neither includes fuel production from waste nor backfilling, with these operations featuring lower down the Hierarchy as "other recovery". In respect of waste generating by road construction, this implies that the re-use of old bricks is usually a more desirable approach than using them for backfill.

However, the Hierarchy is not absolute in its ordering and departures are allowable. When such changes are being contemplated, they need to be justified on a site-specific and individualised basis which considers the overall environmental outcome. Within this process, the key criterion is what the EU – and hence the Irish – legislation terms "lifecycle thinking". This issue, and the workings of Hierarchy itself, is discussed further in Chapter 5.

⁹ Directive 2008/98/EC of the European Parliament and of the Council of 19th November 2008 on Waste and Repealing Certain Directives; *Official Journal of the European Communities* No. L312/3, 22.11.2008

¹⁰ Section 27A, added by the European Communities (Waste Directive) Regulations, 2011 (S.I. No. 126 of 2011)

¹¹ Waste Management Acts, Section 21A (introduced as an amendment by the European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011)

¹² While the Waste Hierarchy appeared in earlier national policy documents, the finalised EU version contains some subtle differences that have caused some waste management options now to have greater priority. For example, an earlier version gave equal status to re-use, recycling and other forms of recovery.

¹³ See Waste Management Acts, Section 5(1) (as amended): see also European Commission (2012)



The Legal Requirements on Contractors involved in National Road Projects

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Every person, organisation, company, state body, etc., in Ireland is required to comply with the relevant provisions of the Waste Management Acts. Contractors on major road projects are no different in this regard.

These legal obligations cannot be devolved onto others, such as downwards onto sub-contractors or in the direction of the main contractor, engineering consultant or resident engineer. An incident involving non-compliance with the Waste Management Acts may involve the culpability of a number of parties, and the Acts allow for each and every guilty party to be subject to legal proceedings in such cases.

When breaches of the Waste Management Acts are suspected, officers of the EPA and local authorities are legally entitled to enter onto a road scheme and question relevant personnel.¹⁴ They can also stop and board vehicles. Individuals who obstruct such activities open themselves to prosecution under the Acts.¹⁵ A similar sanction affects persons who give false or misleading information in respect of such inquiries.

Local authorities and the EPA also are entitled to serve statutory notices in relation to incidents of non-compliance with the Waste Management Acts. These notices can require a person to undertake certain specified actions, such as obligating that waste illegally dumped is removed or that a particular activity ceases.¹⁶ Non-compliance with these notices is also an offence. Court orders – termed injunctions – can be served in respect of serious waste related offences.

Each person involved in environmental crime associated with waste issues can be subject to legal proceedings. In respect of companies, both the company itself and each of its directors,



Excavation and Removal of Municipal Solid Waste to Landfill
(Photograph courtesy of Roadbridge Ltd)



Excavation of Non-Hazardous Waste and Clay
(Photograph courtesy of Roadbridge Ltd)

¹⁴ Waste Management Acts, Section 14

¹⁵ Waste Management Acts, Section 14(6)

¹⁶ Waste Management Acts, Section 55 and 56

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The Legal Requirements on Contractors involved in National Road Projects



Excavation and Removal of Municipal Solid Waste to Landfill
(Photograph courtesy of Roadbridge Ltd)

managers or company secretary individually can be prosecuted for offences. Employees may be criminally liable on an individual basis when offences are committed by them while at work.

The maximum penalty set down by the Waste Management Acts for prosecutions at the District Court is a fine of €5,000¹⁷ and imprisonment for a term not exceeding 12 months. In legal proceedings, defendants may be charged with multiple offences and, if found guilty, be subject to this level of penalty in respect of each offence. Defendants also can be made to pay the prosecuting authority's costs in taking the legal action.

More serious offences will involve a prosecution on indictment. In this case, the Office of the Director of Public Prosecutions (DPP) is involved and the maximum penalties are significantly greater. Fines of up to €15 million can be imposed, as well as prison sentences of up to 10 years. The DPP's Office has become more involved in the prosecution of more serious offences involving environmental crime, partly because the European Commission has expressed concern that the relatively low maximum penalties that can be imposed by the District Court do not act as an adequate deterrent.

¹⁷ This penalty was increased from €3,000 by the Fines Act 2010

4.1 What is "waste" and how is it defined in the Waste Management Acts?

As its title suggests, the fundamental purpose of the Waste Management Acts is to set out a framework of arrangements for the management of waste in Ireland. Each element of the Acts places obligations on the different parties involved in waste management. Virtually everyone is affected: householders and all other producers of waste, hauliers, operators of waste facilities, local authorities, state bodies and other organisations.

For these obligations to apply, the material in question must fall into the definition of "waste" that is set down in the legislation. This means that, for example, a contractor on a road scheme is only subject to the obligations of the Waste Management Acts when that body has some form of involvement in the handling of materials that are defined as "waste". It follows that it is vital that all organisations involved in road construction understand the meaning of the term "waste"; if they do not, they are open to the possibility of inadvertently infringing national law.

The Waste Management Acts contain a detailed legal definition of the term "waste". The definition used in the Acts closely follows EU law. Since many common types of waste pass across the borders of different EU countries, there is a need for a European-wide definition. This is intended to ensure that the same substances are defined as waste by each EU Member State. Given that waste lifecycles are commonplace, widespread and sometimes complex, this is an ambitious task, particularly as it is also vital to differentiate between wastes and those other goods or products which are freely traded.

1.1.1.

The Legal Requirements on Contractors involved in National Road Projects

4

4.1.1. Two key materials that are never “waste”

Two generic types of material that arise from construction activities are excluded from all of the provisions of the Waste Management Acts.¹⁸ Accordingly, these substances cannot be “waste” and none of the requirements of the Act will apply. The full legal wording of these two types is shown in **Box 1**.

The first of these exclusions relates to land and buildings that are in-situ. This is partly to ensure that the Waste Management Acts do not apply to undisturbed land where construction activities have yet to commence. This includes contaminated land and, for example, the exclusion prevents any suggestion that a waste licence may be needed to regulate a petrol station where it has been discovered that an underground fuel tank is leaking. **Instead, any environmental impact is dealt with under other legislation.** A similar principle would apply to a building with an asbestos roof.¹⁹

However, this first exclusion only applies while the material remains untouched and in-situ. Once it has been excavated or otherwise removed, the material may enter into the control regime set down by the Waste Management Acts. Besides the issue of the definition of “waste” (see later), whether it does so is also dependent on the second exclusion shown in **Box 1**.

The second exclusion is aimed at making clear that the on-site re-use of certain uncontaminated excavated materials is not subject to the national waste legislation.²⁰ In order for this exclusion to apply, it is essential that certain requisites are met:

“ | Box 1

Activities Excluded from the Waste Management Acts

- land (in situ) including unexcavated contaminated soil and buildings permanently connected with land
 - uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated.
- The material must be uncontaminated
 - It must comprise soil or be otherwise naturally occurring materials; in other words, it cannot be composed of bricks, rubble or other man-made substances or objects
 - It must have been excavated as part of the construction activities and be used on the site from which it was excavated for the purposes of construction. In other words, the material must be won as part of the construction works and be deposited within those works
 - It must be used “for the purposes of construction”, which implies that some meaningful structure or

¹⁸ Waste Management Acts, Section 3(1)(b) and (c), as amended by the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)

¹⁹ Some additional explanation is given in European Commission (2012) p.41.

²⁰ Some additional explanation is given in European Commission (2012) p.42.

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The Legal Requirements on Contractors involved in National Road Projects

use must be the outcome of this process. The re-use of the material in the construction works must be “certain”. This means that its re-application within the construction site must accord to the design of the development. By contrast, this exclusion would not apply to material stored at the site in the hope that some use will be found for it later.²¹ If it is stored in this manner, then it is likely that it will fall within the definition of “waste” that is discussed below. The requirements of the Waste Management Acts would apply in such circumstances.

Besides the above criteria, the exclusion set down in both the Directive on Waste and in the Waste Management Acts states that it only applies where the material is to be used “in its natural state”. This might suggest that uncontaminated excavated material cannot benefit from this exclusion when it has to be processed by crushing and similar activities to make it suitable for on-site re-use. However, the context of the introduction of the exclusion into the EU legislation in 2008 needs to be considered. This is explained in guidance issued by the European Commission, which indicates that the purpose of including this exclusion in EU law was to clear up uncertainty about whether waste management controls apply at construction sites when naturally occurring materials are being re-used (European Commission 2012, p.42). As crushing, grading and other analogous processes are routine and essential activities in such settings, this would suggest that material processed in this manner can benefit from this exclusion. In other words, where the exclusion refers to excavated material being “in its natural state” when re-used, this does not disbar outputs from commonplace intermediate physical processing operations.²²

4.1.2. The legal definition of “waste”

As the definition of “waste” used in the Waste Management Acts is set down in EU law, any interpretation of it must embrace a significant amount of case law from the Court of Justice of the European Union. As will be seen, the issue can get somewhat complex in respect of materials that are to be re-used or reclaimed; however, in other cases, the legal framework is straightforward and it is obvious what lawful compliance entails.

The following discussion covers the definition of waste and summarises the key principles by which it should be interpreted. It is essential to understand that site-specific circumstances will apply and hence it is sometimes difficult to draw up general rules. Moreover, the final decision-maker is the national courts and – ultimately – the Court of Justice of the European Union.²³ However, it should also be re-emphasised that the relevant issues are clear-cut for the majority of waste transactions. In cases of doubt, reference should be made to material suggested in the “further reading” section later in this chapter or seek specialist legal advice for particularly complex cases. If necessary, the matter can be put before the EPA (see later) and/or legal advice be sought.

Section 4(1) of the Waste Management Acts²⁴ defines waste. It says that:

“‘waste’ means any substance or object which the holder discards or intends or is required to discard.”

²¹ This interpretation follows rulings from the Court of Justice of the European Union (see later).

²² Even if this is not the case, material re-used in this manner would not normally be considered “discarded” in accordance with the definition of waste that is discussed in the next section

²³ A detailed discussion of most of the relevant case law can be found in the EPA’s guidance on the Waste Management (Management of Waste from the Extractive Industries) Regulations 2009 (EPA 2012a, Appendix 1, pp.92-109).

²⁴ As amended by the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)

The Legal Requirements on Contractors involved in National Road Projects

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Bulk Excavation of Inert Construction and Demolition Waste
(Photograph courtesy of Roadbridge Ltd).JPG



Reworking of Inert Construction and Demolition Waste to Suitable Material following Screening
(Photograph courtesy of Roadbridge Ltd).JPG

There are two key elements in understanding this definition:

- The nature of what is meant by “discarding”
- The involvement of the “holder” of the waste in the process of discarding.

Besides these aspects, changes made to the national legislation in 2011²⁵ have introduced two additional concepts that need to be considered. These concern whether:

- a material should be considered to be a by-product, rather than a waste, and, if so, whether it is to be regarded as being outside the control system set down by the Waste Management Acts,
- a point has been reached whereby something that was hitherto defined as “waste” has been processed to such an extent that it should instead be regarded as a primary product. Again, if this has been achieved, the waste legislation will no longer apply.

The next sections will consider each of these factors in more detail.

²⁵ Regulations 27 and 28 of the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)

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4.1.3. "Discarding"

In summary, the legislation states that whether something is discarded determines whether it is waste. In this respect, the concept of discarding has a special legal meaning in the legislation. Normally, discarding means simply throwing away something; however, while the definition in the Waste Management Acts covers that type of action, its meaning extends somewhat further. This is because, under EU and Irish law, waste can be discarded not only when it is consigned to a disposal facility but also when it is destined to be accepted at waste recovery infrastructure or is to go for recycling. Rather obviously, waste that is abandoned or otherwise dumped has also been discarded. For example, this means that waste can be discarded when:

- it is put in a skip and waiting collection or consigned to a landfill site,
- It is deposited by a householder in a bottle bank, it comprises scrap metal sent to a metal reclamation facility,
- It is consigned beyond the boundaries of the compulsory purchase order (CPO) for a road scheme and needs further processing prior to its eventual use, or
- It is abandoned on a construction site with no further use being either known or intended.

In essence, the main principle being demonstrated here is that the definition of waste embraces substances or objects that have ceased to be required for their original purpose, normally because they are unsuitable, unwanted or surplus to the requirements of the person involved in their production.

What is also important to understand is that, should a material be somehow surplus to the person who produced it, the definition of waste applies regardless of whether the recipient of the material has a potential use for it. European case law has confirmed that issues such as whether the material may be useful to someone else or has a monetary value have little bearing on whether it is defined as waste. Nor does it matter if the material being handled is physically or chemically inert and has little potential for any environmental impact. The key issue is whether it has been discarded.

Box 2 provides an indicative list of the range of types of waste that may arise in road projects. It should be noted that some of these have some monetary value. However, as described above and in accordance with the law set down by the European Court of Justice, if a material is discarded as part of a road project that material falls within the definition of "waste".

“Box 2

Example of wastes that may arise from road projects

topsoil; sub-soil; peat; rock; trees, hedges and other plant matter; bricks and blocks; concrete and reinforced concrete; timber; bituminous materials such as bitumen macadam and asphalt; paving slabs; kerbs; used shuttering; packaging waste; dredging materials; asbestos and asbestos cement; scrap metal, scrap pipes and other plastics; canteen and office waste; lubricating oil, hydraulic oil, scrap parts and other fluids generated from equipment maintenance; sewage from site toilets where there is no sewer connection or percolation area.

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4.1.4. “Waste” or “by-product”?

In 2008, the EU published a legally binding series of criteria that are aimed at distinguishing between substances or objects that are legally defined as “waste” and those that are instead to be considered “by-products” and thus be outside the waste control regime. These criteria draw heavily upon earlier case-law from the Court of Justice of the European Union and, accordingly, reference may need to be made to some of these judgments when points of interpretation arise.²⁶

The EU provisions relating to by-products are set down in Irish law in the European Communities (Waste Directive) Regulations 2011.²⁷ However, readers should be clear that these only need be considered when the principle legal exclusion relating to the on-site handling of naturally occurring excavated materials, as shown in Box 1, cannot be met.

Regulation 27 of the 2011 Regulations contains four criteria that distinguish a by-product from a waste. Accordingly, these criteria have a key function in determining whether or not the Waste Management Acts apply to materials generated by road construction. **Box 3** sets out the key legal wording.²⁸

For these criteria to be relevant, Regulation 27 indicates that it is essential that (a) the material in question is “resulting from a production process” and (b) its production is not the “primary aim” of that process. Again, these caveats reflect earlier judgments of the Court of Justice of the European Union.

²⁶ See also European Commission (2012) pp.14-22

²⁷ S.I. No. 126 of 2011.

²⁸ European Communities (Waste Directive) Regulations 2011, Regulation 27(1)

“ | Box 3

Key Legal Criteria Distinguishing a “By-Product”

A substance or object, resulting from a production process, the primary aim of which is not the production of that item, may be regarded as not being waste but as being a by-product only if the following conditions are met:

- (a) further use of the substance or object is certain;
- (b) the substance or object can be used directly without any further processing other than normal industrial practice;
- (c) the substance or object is produced as an integral part of a production process; and
- (d) further use is lawful in that the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

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In terms of whether a material arises from a “production process” when road building takes place, it would seem that this concept should be interpreted quite widely, with the term “production process” not just being confined to manufacturing. Road construction and many sub-processes embraced by it would seem to constitute such a process.

The matter of whether a material is produced in a manner that is not the “primary aim” of the production process is a concept that finds its basis in the case law of the Court of Justice of the European Union. Clearly, when the production of something is the primary aim of a production process, it is not to be regarded as a by-product of that process. As the Court of Justice held, a by-product is something – to use the Court’s term – that “falls away” when such a process takes place.²⁹ As this type of material does not constitute the actual end-product, the operator of the production process has an in-built incentive to limit the amount that is produced. Indeed, in an ideal world, the operator would not wish to produce it at all.

As can be seen in **Box 3**, four conditions are set down in the European Communities (Waste Directive) Regulations to indicate when a material “may”³⁰ be a by-product rather than a waste. All of the following must be satisfied:

- The further use of the material must be “certain”. In other words, the intended end-use must be known at the time the material is produced; by contrast, the Court of Justice has held that material stock-piled in the hope that a market is found for it sometime in the future is a waste rather than a by-product.³¹

- The material must be able to be used “directly” without any further processing beyond what is standard industrial practice
- The material must be produced as an integral part of a production process.
- The further use must be lawful, complying with all relevant product, environmental and health protection requirements, as well as not causing any adverse environmental impact.

Regulation 27 of the European Communities (Waste Directive) Regulations 2011 also contains powers that allow the EPA to rule on whether a substance or object that is notified to it as a by-product is, in fact, a waste. These powers are discretionary³² and, when exercised, a copy of the operator’s notification must be placed in a public register.³³ The EPA has available what it terms an “Article 27 Notification Form” that must be completed to initiate this process.³⁴

When the EPA is approached for a ruling on this matter, it is essential that the full circumstances of how the material arose, what exactly the production process comprises, the intended end-use, etc., are fully set out. In more complex cases, reference may need to be made to the legislation and the relevant case law in order to show how what is being proposed accords to the legal principles of EU law and the judgments of the Court of Justice of the European Union. The submission of this type of material will ensure that the EPA has before it all of the considerations relevant to what is being proposed.

²⁹ See the judgment of *Palin Granit*, Case C-9/00, 18 April 2002, Para 32

³⁰ By contrast, the separate end-of-waste provisions in Regulation 28 (see later) state that a material “shall” not be considered to be waste, when four other criteria are met

³¹ See the judgments of *Palin Granit*, Case C-9/00, 18 April 2002 and *Avesta Polarit*, Case C-114/01, 11 September 2003: discussed in EPA 2012a, pp101-104

³² See “may” in the European Communities (Waste Directive) Regulations, Regulation 27(3)(a)

³³ European Communities (Waste Directive) Regulations, Regulation 27(5)

³⁴ <http://www.epa.ie/pubs/forms/lic/art27/article27notificationforms.html#.U9ud2VJ0yRs> (accessed 15/8/14)

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The Agency's guidance on this process emphasises that the decision to classify a material as a by-product is one that is made by the holder of the material; it is not the purpose of Regulation 27 to place the EPA in a position whereby it is to determine whether a particular substance or object is a waste or is a by-product. In other words, the notifier must make the case as to why the material is a by-product, with the EPA's role being confined to indicating that it disagrees with this view.

Regulation 27 also indicates that, where a person makes a decision that a material is to be considered a by-product rather than a waste, the EPA should be notified of both the decision and of its grounds. While this notification is not mandatory,³⁵ should it not be made, the burden of proof in any subsequent legal proceedings rests with the holder of the by-product/waste. That person therefore has to convince the court that the material is in fact a by-product rather than a waste.

In April 2013, the EPA issued a report on a stakeholder consultation (EPA 2013b) that has significant relevance to bodies involved in road construction. It sets out how the Agency intends to view the waste/by-product distinction in the context of naturally occurring construction waste, such as sub-soil and stone, when it is transported off-site for deposit as backfill. All parties to any proposal to backfill off-site waste arising from road construction are urged to read this document carefully and to comply fully with its requirements.

4.1.5. The status of cut-and-fill projects

The "cut-and-fill" approach involves material excavated from road cuttings being used to provide embankments or other physical features of a road project. Normally, it is based on "lean design" where a deliberate approach is taken to achieve an earthworks balance.

Earlier in this chapter it was noted that, subject to certain caveats, uncontaminated soil and other naturally occurring excavated material that is re-used on the site of construction activities is not subject to the Waste Management Acts. This is because such materials are excluded from the Acts³⁶ and, being excluded from the Acts, they are also not caught by the definition of "waste". Accordingly, this exclusion would absolve many cut-and-fill road construction projects from being subject to the national and EU waste legislation. However, and as noted, it is vital that such activities fully accord to the requirements of this exclusion.

In general, many natural and uncontaminated excavated materials taken from within the boundaries of the CPO and used for site engineering purposes in that development are likely to benefit from this exclusion. In addition and notwithstanding this exclusion, there is often no element of discarding material used in this way and thus the excavated sub-soil, rock, etc., is unlikely to be defined as waste for this additional reason also.

³⁵ In the sense that a person who does not make such a notification does not commit an offence under the European Communities (Waste Directive) Regulations

³⁶ Section 3(1), as amended by the European Communities (Waste Directive) Regulations, 2011

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Accordingly, the re-use of uncontaminated and naturally occurring excavated materials derived from roads construction is subject to this legal exclusion from the Waste Management Acts when they are directly suitable for use. Non-naturally occurring but uncontaminated materials, such as brick rubble or broken concrete that are re-used on-site via crushing, screening and other processes, are unable to benefit from this exclusion. However, they unlikely to be considered to be discarded as they are being re-used within the actual development: they are not unsuitable, unwanted or surplus to the project. Accordingly, it follows that these processed materials are not defined as “waste” - as long as they are deposited as part of the development.

However, for the above general principles to apply, a number of factors need to be satisfied. These include:

- That the extraction and deposit operations associated with a cut-and-fill operation are clearly envisaged in the environmental impact statement (EIS) or other documentation used for the purposes of gaining statutory approval for the road project
- That the cut-and-fill elements occur within the CPO of the road, taking place on land that has been acquired for that purpose and not on other land owned by third parties
- That the embankments, landscaping features or other engineering uses arising from the cut-and-fill operation are necessary for the development of the road
- That the materials being used are suitable for use for the envisaged site engineering purposes.

As part of the final factor, an issue that will be highly relevant when excavation and other materials are being proposed to be deposited within the line of a road is whether they are contaminated. Most forms of contaminated material are not suitable for re-use without treatment. Environmental impacts such as the leaching of pollutants may result, while the contaminants may negatively affect the structural properties of the material. It follows that any such material should be taken off-site and/or remediated prior to its re-use. In such circumstances, this material is likely to fall within the definition of waste, as it needs to be treated prior to any further use. Being unsuitable for immediate use, it is to be regarded as needing to be discarded. Being discarded, it follows that it is defined as waste under the Waste Management Acts.

4.1.6. When does recovery cause a material to be no longer defined as waste?

Once a material falls into the definition of waste in the legislation, the Court of Justice of the European Union has held that it remains within that definition until fully recovered. Partial recovery – such as very basic sorting and grading processes – may not sufficiently alter the form of many materials to satisfy the legislation’s test about whether they are no longer to be viewed as discarded. This will be particularly the case where what is recovered does not meet any identifiable specification or standard which makes it equivalent to a raw material. Deciding where the boundaries lie in this respect is sometimes difficult, with the result that so-called “end-of-waste criteria” have been developed, forming part of the revised Directive on Waste.³⁷

³⁷ See also European Commission (2012) pp.22-27

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These end-of-waste criteria have been transposed into Irish law by Regulation 28 of the European Communities (Waste Directive) Regulations 2011. As their title suggests, these criteria are intended to define the point when the definition of waste is no longer to apply to a material that was hitherto considered to be “waste”. As noted, this point typically is reached after a waste has been fully recovered or recycled, with the resultant material instead being regarded as equivalent to a “normal” product.

Before going into the detail of what Regulation 28 comprises, it is worth noting that there are certain contrasts between these provisions and those discussed earlier that relate to by-products. The main one is that the original intention of the EU legislation from which they are derived was for Europe-wide end-of-waste criteria to be developed as an on-going process. By contrast, the waste/by-product distinction is to be made within each EU state on a case-by-case basis.

Secondly, unlike the waste/by-product provisions, the end-of-waste criteria only apply after a recovery or recycling operation has taken place. Implicit in the concept of end-of-waste is the fact that the material had been defined as “waste” before it was processed.

At the present time, there seems little prospect of there being EU end-of-waste provisions for construction and demolition waste. In the interim, EU countries are allowed to make their own, case-by-case, decisions. Accordingly, Regulation 28 of the European Communities (Waste Directive) Regulations confers the EPA with a power to make, on an individual waste-specific basis, a determination on whether a material has been sufficiently recovered or recycled so as to no longer be defined as “waste”.

However, potential applicants who wish for the EPA to make a ruling about end-of-waste need to be aware of the

extended timeline that pertains to this type of decision. In accordance with EU law, the Waste Directive Regulations require this type of decision to be subject to a notification process involving consultation with other EU member states. In order for there to be a successful outcome, there also must be no unresolved objections from any other EU country.

Meeting the criteria on end-of-waste requires compliance with four conditions or principles. These are shown in full in **Box 4** and they all need to be satisfied. Accordingly, it is necessary for a holder of a substance or object that was hitherto regarded as waste to be able to demonstrate that this material is widely used throughout the sector and that there is a market demand for it. The holder must also be in a position to prove that, after re-processing, the output is suitable for use, fulfilling the relevant technical requirements and complying with any relevant legislation and standards applicable to comparable products. It is essential that the use of the reclaimed material does not have any significant negative environmental or human health impact.

As was the case with the waste/by-product distinction, these conditions, while originating from the revised EU Directive on Waste, are based on case law of the Court of Justice of the European Union. Accordingly, the EPA must ensure that any decisions it takes are consistent with these rulings.

While the EPA is required to document all notifications relating to its waste/by-product decisions in a public register, there is no similar requirement in respect of determinations about end-of-waste. The legislation also contains no analogous obligation for waste holders to notify the EPA of their own, internal, decision that a material has been sufficiently processed to attain end-of-waste status.

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“ | Box 4

Legal Criteria relating to “end of waste”³⁸

Certain specified waste shall cease to be waste when it has undergone a recovery, including recycling, operation and complies with specific criteria to be developed in accordance with the following conditions:

- (i) the substance or object is commonly used for specific purposes;
- (ii) a market or demand exists for such a substance or object;
- (iii) the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and
- (iv) the use of the substance or object will not lead to overall adverse environmental or human health impacts.

A key issue, which arises both from the case law and also from one of the four criteria mentioned above, is the need to consider whether a waste has been fully – or “completely” – recovered. For example, the first three of the four criteria all point to the need for the recovered material to be suitable for the use it is put. Overall, this issue must be approached carefully, particularly as EU and national law requires that a case-by-case approach is taken, with the Court of Justice’s jurisprudence emphasising that it is absolutely fundamental that the requirements of the governing EU legislation are not being circumvented.

If, for example, demolition waste such as unsorted and otherwise unprocessed broken bricks and concrete is imported onto a road scheme from any location outside the CPO boundaries or from a construction activity unconnected with the development, this material is likely to be considered to be waste. The fact that this material has been taken away from the site of its generation is a good indication that the holder of the waste has discarded it, even more so if the activities at the source are unconnected to the road development. Being defined as waste in such circumstances, the law requires that it must stay so defined until “completely” recovered.

Should the material be used directly as fill and not be subject to intermediate processing – the latter issue is discussed below – the actual recovery process takes place when the materials have been combined into the foundations of whatever structure is being constructed on the road scheme.

Increasingly, construction and demolition wastes are being subject to forms of intermediate processing, such as crushing and screening. For a recovered material to fall out of the definition of waste, there is the requirement of EU-generated case law that recovery must be “complete”, with this being demonstrated in respect of the need to satisfy each of the four end-of-waste criteria. In general, recovery in such circumstances will be regarded as complete only when the materials have been processed to a consistent pre-defined standard or specification which allows for their immediate re-use.

Accordingly, in order to be confident that recovery is complete and that a material is no longer waste, an operator of a recovery facility or a recipient of the resultant material must be in a position to satisfy certain key issues. These include demonstrating:

³⁸ European Communities (Waste Directive) Regulations, Regulation 28(1)

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- That the quality of the resultant material is governed by an identifiable standard or specification
- How compliance with that standard or specification is being assured on a day-to-day and load-by-load basis
- That the material that is recovered can be used in exactly the same manner as an equivalent virgin material and without the need for any further processing
- That no environmental risk or other related concerns will arise from the material's transportation, storage or end-use
- That the intended end-use is certain and will take place immediately; in other words, that a readily available market for the material already exists and is immediately accessible
- That the material resultant from the processing operation has a significant market value to prospective purchasers.³⁹

A key way of showing how the relevant "end-of-waste" factors are being adhered to by a waste recovery plant operator is via that person's documented compliance with a written quality protocol. Although there are no published protocols in Ireland, a number of useful documents have been published in the UK by the Waste and Resources Action Programme (WRAP).⁴⁰ One of the most pertinent to road construction is WRAP's protocol entitled *Aggregates from Inert Waste - End of Waste Criteria for the Production of Aggregates from Inert Waste* (WRAP 2013). This defines the types of waste covered by the protocol, the relevant

waste acceptance criteria and verification frequencies, as well as setting down requirements that operators provide method statements for the processing, inspection, record-keeping and testing procedures and so on. This protocol has been approved by the main UK regulatory body – the Environment Agency for England and Wales – and precise adherence to the requirements of this document may be a way of demonstrating the "completeness" of any recovery process for waste-derived aggregates.

4.1.7. The role of the holder in the definition of waste.

A second key element in the definition of waste is understanding the term "holder". The definition of waste in the Waste Management Acts states that it is the holder who is involved in the discarding of the material. Often it is obvious who that person is, but sometimes it is necessary to consider the identity of this individual more carefully. Regard must be had to the definition of the term "waste holder" in the Waste Management Acts;⁴¹ but when this definition is being considered, it must be viewed in the context of the relevant EU case-law about the definition of "waste".

In general, these principles mean that the term "holder" refers to the person or organisation responsible for the production of the waste. Where there are a variety of organisations working together, which would be typical on a national road scheme, there may be more than one "holder". A main contractor involved in the scheme in combination with one or more subcontractors actually undertaking the work may be operating in tandem;

³⁹ Following the earlier discussion in this document, a lack of value may well indicate that the material is being discarded and that the material remains defined as waste even after processing

⁴⁰ See <http://www.wrap.org.uk>. See also the UK's EQual Programme at <https://www.gov.uk/government/groups/equal-ensuring-quality-of-waste-derived-products-to-achieve-resource-efficiency#latest-updates> and the UK code of practice developed by Cl:aire (2011)

⁴¹ The term "waste holder" is set down in Section 5(1) of the Waste Management Acts (as amended by the European Communities (Waste Directive) Regulations

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accordingly, they may be collectively responsible for producing the waste. However, the fact that there may be more than one holder does not affect whether some substance is or is not to be regarded as waste. Moreover, and as covered elsewhere in this guidance document, if more than one organisation commits an offence in relation to the Waste Management Acts, all such bodies are open to possible prosecution.

In summary, whether something is being discarded by a holder revolves around an assessment of a range of factors. Central to these is the consideration of the intent of the holder in relation to the material. The definition of waste in the Waste Management Acts states that a holder may:

- Discard a material
- Intend to discard a material
- Be required to discard a material.

Obviously, the first factor involves some action by the holder that actually causes a material to be discarded. The legislation also views waste as something that the holder “intends” to be discarded. This might, for example, refer to surplus materials that are stored on-site prior to their collection. Finally, something is defined as waste when it is “required to be discarded”. An example could be surplus spoil left over at the end of a road project that has to be got rid of for the reason that its volume exceeds the amount required for on-site landscaping. Similarly, if the material is contaminated or otherwise not suitable for use without treatment, it may be something which “is required to be discarded”. Accordingly, it will be defined as “waste” for that reason.⁴²

It is often helpful to consider the intent of the person who holds the material when considering the definition of “waste” in the context of the issue of discarding and a material’s recovery or re-use. In this respect, that issue is not only assessed by what someone involved says. For example, it is obvious why persons are not allowed to simply state that they are not discarding a material and thereby be able to absolve themselves of any legal obligation under the Waste Management Acts. Instead, the issue of intent is assessed in relation to what the person has done with the material, why it has arisen in the first place, what is normal practice for the handling of materials of this nature, and so on.

While some of the issues in respect of the re-use, reclamation and recovery of materials can become involved, it is important to understand that, in many cases, whether something is defined as “waste” under the Waste Management Acts is obvious. Somebody who dumps something is obviously discarding it. Sub-soils which arise in quantities which significantly exceed the requirements of any earthworks and landscaping works associated with a road project are usually surplus to that development. Some sub-soils may be unsuitable for site engineering purposes, unable to conform to any published specification and have only a limited potential for land-reclamation or other end uses without significant processing. Accordingly, it may well follow that they are being discarded when they are moved off-site.

4.1.8. The need for a common-sense approach

Within any debate about whether a substance or object arising from a road project falls into the definition of waste, a common-sense approach needs to be applied.

⁴² See also European Commission (2012) pp.10-12

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An overly-pedantic interpretation of the legislation may result in undesirable outcomes, particularly where no environmental impact is likely.

What also must be appreciated is that, since the Waste Management Acts were amended in 2011, the key factor to be considered is whether a material arising from a road development is excluded from the scope of the legislation. As shown above, uncontaminated excavated materials that are to be used in the course of the development do not fall within the EU or Irish waste legislation when they and their intended use complies with certain specified criteria⁴³ (see Box 1 earlier in this chapter). Accordingly, if this exclusion applies, there is no need to embark on a detailed consideration of the definition of “waste”, about whether the material is being discarded, and so on. That debate only applies to materials that cannot be said to benefit from this legal exclusion.

It also needs to be understood that while the content of this guidance document can summarise the relevant issues in respect of matters such as the “discard” test, it is not possible to set down hard-and-fast rules that apply in all cases. The Court of Justice of the European Union has made clear that a case-by-case approach is necessary, which involves an assessment of the full facts relating to the form of the material in question in the context in which it arises. In this respect, no two cases will be exactly alike. It is therefore inappropriate to over-apply analogies which have been gleaned from one decided legal case onto a different situation. Inevitably, the exact circumstances of the second case will differ from the first.

In cases of doubt about whether something is “waste” and/or if an authorisation under the Waste Management

Acts is needed, this matter can be settled by requesting the EPA for its view. This process now has more than one route since the Acts were amended in 2011. As discussed above, the Waste Directive Regulations allow for the EPA to rule on whether a material is a waste or a by-product. Albeit that the process is more drawn-out and entails EU-wide consultation, the Agency also can be asked to determine if a waste has been processed sufficiently comprehensively for it to be regarded as having attained “end-of-waste” status.

Alternatively, the Waste Management (Facility Permit and Registration) Regulations 2007,⁴⁴ empower the EPA to make a final decision on not only on whether a waste licence, waste facility permit or registration certificate is required but also whether such an authorisation is needed at all. The full details of this process are set down on the EPA’s (EPA 2014) web site, which also contains a form which indicates the type of information needed.

Contractors are recommended to explore these options where any doubt arises about the legal status of proposed internal and off-site movements of materials arising from a road construction project. They also may wish to discuss the matter with the Environment Section of the local authorities affected by a road scheme and/or obtain independent legal advice.

One final point to note is that, although something may be defined as waste, this does not of course imply that it cannot be re-used or recycled. What it does mean is that its haulage and final processing must be fully compliant with the Waste Management Acts. The nature of these legal obligations will be summarised in the forthcoming sections of this guidance document.

⁴³ Waste Management Acts, Section 3(1)(c)

⁴⁴ S.I. No. 821 of 2007, as amended by the Waste Management (Facility Permit and Registration (Amendment) Regulations 2008 (S.I. No. 86 of 2008)

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4.1.9. Further reading.

Because the Court of Justice of the European Union has been developing the case law on the definition of waste, much of the guidance written between 2000 and 2010 became rapidly out-of-date. However, since then, there has been a significantly lower volume of legal judgments, perhaps due to many of the key legal principles being clarified by the Court and by the publication of updated EU legislation.

While the EPA's (2008) *Guidance Manual on the Waste Facility Permit and Registration Regulations*, contains some extracts of EU material, a more detailed discussion of the Court of Justice of the European Union's judgments on the definition of waste can be found in the EPA's guidance on the environmental regulations affecting the quarrying sector (see Appendix 1 of EPA 2012a). In addition, there is also the more tightly-focussed document on the EPA's proposed approach to the regulation of the back-fill of soil and stone arising from construction activities (EPA 2013).

At European level, the European Commission has produced general guidance on the revised Directive on Waste (European Commission 2012). This document is particularly useful, as it goes through key terms, such as "discard", "by-product" and so on, one-by-one.

UK-sourced guidance is also useful for the reason that the EU basis of the definition of waste causes similarities in approach to the Irish legislation. For example, national guidance on the entire waste issue was published in August 2012 for England and Wales (DEFRA 2012),

with this document containing a detailed analysis of the judgments of the Court of Justice of the European Union.⁴⁵

Another valuable UK guidance document that is directly relevant to road construction is that published by Contaminated Land: Applications in Real Environments (Cl:aire). Originally published in 2008, an updated version appeared in 2011, with both versions having the title *The Definition of Waste: Development Industry Code of Practice* (Cl:aire 2011). The revised document covers both contaminated and uncontaminated land affected by construction projects. However, readers are cautioned that the EPA may take a different stance in respect of equivalent projects operating in Ireland.⁴⁶ Accordingly, while this Code of Practice is useful, it is not a substitute for the EPA's own view of how construction waste should be managed and controlled.⁴⁷

4.2. Transferring waste generated by a road scheme

The Waste Management Acts requires that waste must be transferred only to a body that is duly authorised by the Acts to receive it. This applies to most forms of waste movement from one party to another, including waste taken off-site from road developments. This is an obligation under Section 32 of the Acts, which explicitly requires that waste is only transferred to a person authorised to undertake the collection of the waste or its recovery or disposal.⁴⁸ As will be covered later, an authorisation can take the form of a waste collection permit, a waste or industrial emissions licence, a waste

⁴⁵ Readers should note that some of the views expressed in the DEFRA guidance are a consequence of legal judgments made in England and Wales and that these are not binding on the Irish courts.

⁴⁶ At least some of the view expressed within the Code of Practice is a consequence of a small number of legal judgments that only have binding application to England and Wales. The EPA has clarified its position about the movement of uncontaminated material as back-fill (EPA 2013).

⁴⁷ See also the Scottish Environmental Protection Agency's (SEPA) *Guidance on the Production of Fully Recovered Asphalt Road Planings* (SEPA, Undated).

⁴⁸ Such bodies are termed "appropriate persons" under Section 32(5) of the Waste Management Act.

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facility permit or a certificate of registration. An integrated pollution control (IPC) licence may also be applicable, but licences of this type will have little relevance to road projects. The Acts and/or the subsidiary regulations also identify a small number of bodies that are exempt from the requirement for statutory authorisation, but again these are of limited relevance to this kind of development. Local authorities are automatically authorised to collect waste under Section 32 of the Acts, albeit that any disposal or recovery facility operated by them has to be subject to a waste licence, industrial emissions licence or certificate of registration.

While the nature of the more important forms of statutory authorisation will be covered below, parties sub-contracting other service providers to handle waste should ensure that all of these organisations possess the requisite authorisation or are otherwise exempt from such a requirement. Additionally, any such authorisation must explicitly sanction the handling of the waste in question, both in respect of the specified waste types and the quantity to be accepted. Other conditions may also provide constraints. All of these issues need to be verified by contractors working on road schemes; otherwise, a waste movement may contravene Section 32 of the Waste Management Acts and the contractor may incur potential criminal liability. In cases of doubt, the information can be checked with the EPA or with the local authority charged with issuing the authorisation.

Box 5 indicates the minimum checks a contractor involved in the construction of a national road scheme should carry out in relation to engaging a person to manage waste off site. Documentary evidence of making this verification should be retained.

“ | Box 5

Transferring waste

At the very minimum, each contractor involved in arranging for waste to be transferred away from a road scheme should check to ensure:

- That any waste haulier employed by the contractor is authorised by a waste collection permit or is exempt from such a requirement.
- That any disposal or recovery facility to be used for the management of waste arising from the scheme is subject to an authorisation under the Waste Management Acts or other legislation.
- That the terms and conditions of these authorisations allow for the acceptance of the waste in question.
- That these authorisations will not expire within the lifetime of the project.

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4.3. Waste collection permits

Subject to some minor exceptions, all bodies involved in the collection⁴⁹ of waste are required to be authorised by a waste collection permit.⁵⁰ Besides the need to possess a collection permit, holders are also legally obliged to abide by its conditions. Collection permits are issued to the permit applicant and cannot be transferred to another person.

The main purpose of a waste collection permit is to ensure that all significant hauliers of waste are authorised by a regulatory body and have to abide by the conditions of the permit. Besides being open to prosecution, if collection permit holders are involved in unauthorised waste

activities, such persons can have their permit revoked. The Waste Management (Collection Permit) Regulations 2007 set down the detail of how waste collection permits are issued to authorise the collection of waste in one or more of 10 regional areas of Ireland. The constituent local authorities of these areas are listed in **Table 2**.

Since 1 February 2012, new and revised waste collection permits are applied for and issued by the National Waste Collection Permit Office⁵¹, which is hosted by Offaly County Council. Other aspects of existing collection permits are also administered by that Office, rather than by one of the 10 local authority bodies that were previously charged with this role. The enforcement of the requirements of any permit, however, remains with the individual local authorities.

Table 2: Geographical Extent of Waste Collection Permits

Region	Constituent Local Authorities
Connaught	Galway County & City Councils, Leitrim County Council, Mayo County Council, Sligo County Council, Roscommon County Council
Cork	Cork County Council & City Council
Donegal	Donegal County Council
Dublin	Dublin City Council, Dun Laoghaire-Rathdown County Council, Fingal County Council, South Dublin County Council
Midlands	Laois County Council, Longford County Council, North Tipperary County Council, Offaly County Council, Westmeath County Council
Mid-West	Clare County Council, Limerick County & City Councils, Kerry County Council
North East	Cavan County Council, Louth County Council, Meath County Council, Monaghan County Council
Kildare	Kildare County Council
South-East	Carlow County Council, Kilkenny County Council, South Tipperary County Council, Waterford County & City Councils, Wexford County Council
Wicklow	Wicklow County Council

⁴⁹ See definition in Waste Management Acts, Section 5(1), as amended by the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011).

⁵⁰ Waste Management Act, Section 34 and the Waste Management (Collection Permit) Regulations, 2007 (S.I. No. 820 of 2007), as amended by the Waste Management (Collection Permit)(Amendment) Regulations, 2008 (S.I. No. 87 of 2008), the Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009), the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) and by the European Union (Household Food Waste and Biowaste) Regulations 2013 (S.I. No. 71 of 2013).

⁵¹ <http://www.nwcpo.ie/>

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As noted, waste collection permits are issued to authorise the collection of waste in one or more of ten regions. For example, a permit issued in respect of waste collection activities in the South-East allows waste to be collected in the functional areas of Waterford City and Carlow, Kilkenny, South Tipperary, Waterford and Wexford County Councils. This means that, for example, where a new road is extending from the functional area of Waterford County Council into County Cork, a collection permit issued only for collection activities in the South-East will not authorise waste to be collected in Cork. The haulier must hold a multi-regional collection permit that covers both the regions of the South East and County Cork.

As the arrangements relating to multi-regional permits can become a little complex, potential applicants are advised to contact the National Waste Collection Permit Office for advice. Application forms can also be obtained from this source.

The conditions of a collection permit will vary between permit holders. Historically, this has been partly due to differences in the practices of the issuing authority, but a more uniform approach is now expected since the formation of the National Waste Collection Permit Office. However, variation is also a function of the content of the application that was made to obtain the permit. This means that contractors on road schemes should verify the credentials of each permit holder prior to a waste haulier being engaged. Each permit should be checked to ensure that it is valid for both the geographical area in which the waste is to be generated and also for all the wastes expected to arise from the road project.

Unless an applicant requests a shorter period, a waste collection permit is issued for a period of no more than five years. In order to extend its longevity, an application for a review must be made. The legislation stipulates that this application⁵² must be lodged at least 60 days prior to the date of expiry of the current permit. As long as the application has been lodged prior to that deadline, the date of expiry on the permit ceases to have effect up to the point the review application is determined. Once the application for the review is successful, the collection permit is required to be reviewed again at the end of a further five years.

The Collection Permit Regulations require that any changes to the information furnished in a waste collection permit application are forwarded to the issuing authority.⁵³ Many collection permits require the holder to notify all registration numbers of vehicles being used by a permit holder. The relevant numbers must be updated by the holder as and when required to reflect vehicle purchases or disposals.

Box 6 indicates the minimum checks a contractor should carry out in relation to employing a waste haulier. It is highly desirable that documentary evidence of this verification process is retained.

⁵² An application also can be made by a permit holder to extend the permit to allow waste to be collected in additional regions or anywhere in Ireland. While the legislation refers to this type of application a review, in reality it is a completely new application.

⁵³ Waste Management (Collection Permit) Regulations 2007 (as amended), Article 33

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“ | Box 6

Collection Permits

At the very minimum, each contractor involved in employing a waste haulier should check to ensure:

- that the organisation holds a valid collection permit for the collection of waste along the entire route of the road scheme
- whether the collection permit has an expiry date in relation to the duration of the road scheme and whether any review of the permit is required over that period (waste collection permits have a maximum life of five years and review applications need to be lodged before expiry: see main text for details).
- that the permit authorises the collection of all of the types of waste that are required to be collected from the road scheme
- that the conditions of the permit allow for the recovery and disposal facilities specified for the management of waste from the road scheme to be accessed (Some collection permits identify which disposal and recovery facilities are to be used by the permit holder. Changes to this list have to be agreed with the issuing authority)
- that an up-to-date version of the permit is being checked, and that it includes any changes made to it consequent from any review of the permit by the issuing authority
- that the permit is checked regularly to see if any changes have been made, including any consequent to a review by the issuing authority.

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4.4. EPA licences, waste facility permits and registration certificates

There are now four separate levels for the statutory authorisation of waste facilities in Ireland. These are:

- Industrial emissions licences
- Waste licences
- Waste facility permits
- Registration certificates.

The EPA issues both industrial emissions licences and waste licences, with the former type of licence being introduced in 2012. This change was consequent to the EU Directive on Industrial Emissions (2010/75), with its most significant effect being the transfer of 42 existing waste licences into a new industrial emissions licensing regime. While operated by the EPA, the industrial emissions licensing regime falls within the Environmental Protection Act, rather than emanating from the Waste Management Acts.

Notwithstanding these changes, the waste licensing system still remains in operation. It now authorises those waste facilities that are not subject to the Directive on Industrial Emissions but which are too large to be subject to waste facility permits or registration certificates. Operators of most large waste sites that stopped accepting biodegradable or hazardous waste before 7 January 2014 also remain subject to a waste licence.

These changes are significant, for the reason that either of these types of EPA licence may authorise facilities

where waste from road construction is consigned. For example, uncontaminated sub-soils and other related materials may be consigned to active landfill sites where biodegradable waste is also deposited. This type of facility is now controlled by an industrial emissions licence. Similar materials may be consigned to landfills that either were specifically designed to accept only inert waste or where the acceptance of biodegradable waste ceased prior to January 2014.

Besides the EPA's two licensing regimes, a revised lower-tier scheme of statutory authorisations involving waste facility permits and registration certificates was introduced in 2008. While EPA licensing covers both large-scale waste disposal facilities and major waste recovery sites, waste facility permits authorise waste management operations of an intermediate size; registration certificates authorise relatively small-scale sites. The legislation enacting the lower-tier system of permits and certificates is the Waste Management (Facility Permit and Registration) Regulations 2007.⁵⁴ These regulations will be termed the "Facility Permit Regulations" in the remainder of this document.

As well as introducing a new system of registration certificates as a means of authorising relatively small-scale waste recovery activities, the Facility Permit Regulations altered the boundary for when an EPA licence is needed, extending it to encompass some activities which were hitherto subject to the earlier Waste Management (Permit) Regulations, 1998. This change made licensable some of the larger-scale off-site facilities that accept excavation wastes and which involve land improvement and reclamation.

⁵⁴ S.I. No. 821 of 2007, as amended by the Waste Management (Facility Permit and Registration) Regulations, 2008 (S.I. No. 86 of 2008), the Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009), the Waste Management (Management of Waste from the Extractive Industries) Regulations 2009 (S.I. No. 566 of 2009), the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011), the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), the European Union (Household Food Waste and Biowaste) Regulations 2013 (S.I. No. 71 of 2013) and by the Waste Management (Facility Permit and Registration)(Amendment) Regulations 2014 (S.I. No. 320 of 2014).

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4.4.1. Industrial emissions licences and waste licences

Most of the larger waste facilities in Ireland are subject to one of the two types of licence issued by the EPA and described above. This will include construction waste recovery facilities operated at landfill sites, as well as the more significant land reclamation sites, composting facilities and many waste transfer stations. The larger hazardous waste sites are generally authorised by industrial emissions licences. Most contaminated land treatment processes and in-situ disposal operations will be subject to either of these licences. A significant amount of excavation waste passes to licensed landfills for the purposes of the covering of biodegradable waste and for site engineering and landscaping purposes.

Since the Facility Permit Regulations entered into force in 2008, waste licences are required to authorise any of the larger sites that take uncontaminated construction wastes to improve or restore agricultural and other land. In summary, sites of a size above either of the following limits are licensable:⁵⁵

- Where only inert excavation wastes comprising clay, silt, sand and gravel or stone are deposited, a waste licence is needed for a site which exceeds a total capacity of 100,000 tonnes
- Where other forms of inert waste are to be accepted – particularly non-natural materials such as concrete, bricks and so on – a licence is needed for a site which exceeds 50,000 tonnes total capacity.

These rules are also further constrained when such sites adjoin each other. For example, the assessment of the maximum allowable quantity of waste must take into account the amount of waste already deposited at any adjoining site. It must also consider any waste which has been previously deposited at the site under a waste permit that has expired.

As noted, both industrial emissions licences and waste licences are issued and policed by the EPA. Their purpose is to ensure that a waste site's operation is acceptable from an environmental protection point of view. Either type of licence will set down the types and quantity of waste that a facility is authorised to accept. Other conditions may well apply to the handling of this material, as well as dictating the general environmental performance of the facility itself.

A licence issued by the EPA will continue to bind the holder for some considerable time after the actual recovery or disposal activity has ceased. This time period is necessary to ensure that the presence of the facility has had no long-term environmental effects, with the operator being obligated by the licence to continue with the requisite environmental monitoring. The licence's duration is controlled by the EPA, which has the role of adjudicating when the licence should cease to bind the holder and can be surrendered. Appendix 1 contains further information.

Box 7 indicates the minimum checks a contractor should carry out in relation to using a licensed waste management facility. Again, it is important that this verification process is adequately documented.

⁵⁵ The relevant thresholds are set down in Classes 5 and 6 to Part I to Schedule 3 to the Waste Facility Permit Regulations (as amended)

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“ | Box 7

Industrial Emissions Licences and Waste Licences

At the very minimum, each contractor involved in using – either directly or via the engagement of a haulier that is a waste collection permit holder – a licensed waste management facility should check to ensure:

- That a valid EPA licence exists for the facility
- That the conditions of the licence allow for the types of waste arising from the project to be handled
- That the conditions allow for the quantity envisaged as arising from the project to be handled
- That the licence will remain in force over the required time period relating to the road scheme
- That the conditions of the licence will not be otherwise contravened by the acceptance of the waste from the road scheme

4.4.2. Waste facility permits

Waste facility permits are issued by each County Council or City Council that is responsible for the area in which the waste management activity is to take place. The types of activity that can be subject to such a permit are set down in Part I to the Third Schedule to the amended Facility Permit Regulations.

Waste facility permits mainly are issued to authorise waste “recovery” processes. An indicative list of such activities is set down in the Fourth Schedule to the Waste Management Acts;⁵⁶ however, the over-riding requirement of the definition of waste “recovery”⁵⁷ is that the result of this process is for the waste being processed to serve a useful purpose as a substitute for a primary material. An obvious example is crushed concrete or bricks replacing the quarry fill in a construction project. What is key here is that, for waste “recovery” to take place – and hence for a waste facility permit to be required rather than a waste licence – the process in question must always displace the use of primary products or materials.

As waste facility permits are restricted to waste recovery activities, they cannot be granted to authorise significant amounts of waste to be disposed of. Nor can they be issued in respect of landfill sites or for other sites that exceed the size thresholds contained in the Facility Permit Regulations. They also cannot authorise the handling of hazardous wastes such as contaminated land that may arise from road schemes. In all of these cases, an industrial emissions licence or waste licence must be held.

⁵⁶ As amended by European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)

⁵⁷ See the definition of “recovery” in Section 4(2) of the Waste Management Acts (as amended by European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011))

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The purpose of a waste facility permit is to ensure that the operations taking place at the site are appropriate in terms of their scale and type in the context of the local environment. Like EPA licences, conditions of the permit may require site infrastructure to be installed and maintained – a wheel wash for example. They will often dictate the hours within which waste can be accepted and will set boundaries on the type and quantity of waste that can be taken in.

Waste facility permits are issued for a maximum period of five years. Operators wishing to renew a permit need to make an application for its review in good time in the final year. In general, this application must be lodged sixty working days before the permit's expiry date. This is necessary as the Facility Permit Regulations annul the expiry date pending the determination of the application. Conversely, if an application is made after the sixty day deadline, the waste management activity must cease at the end of the five year period and only restart when the application have been processed to completion.

Appendix 1 provides more information on waste facility permits, including a summary of the application process.

Non-compliance with a waste facility permit is an offence under Section 39 of the Waste Management Acts.

Examples of circumstances when such an offence may be committed are when:

- A waste facility permit holder accepts waste that falls outside the bounds of the permit, fails to install the required site infrastructure or does not undertake the environmental monitoring or record-keeping required
- Unsuitable waste is delivered to the site by a waste haulier unbeknown to the permit holder

In the second case above, the waste haulier who disposed of unsuitable waste at the site subject to a waste facility permit is open to prosecution.

Examples of waste facility permits that will be commonly issued for the handling of waste from road schemes include the authorisation of:

- A site that involves the deposit of natural materials from excavation activities which comprise only clay, silt, sand, gravel or stone. The purpose of the activity must be land improvement and its size must not exceed 100,000 tonnes in total. This limit is reduced where the site is adjacent to another similar facility or is situated on a site where filling activities have taken place previously under a waste permit that has expired
- A land improvement site which takes only inert construction and demolition waste such as bricks, concrete and so on. In this case, the total capacity is limited to 50,000 tonnes, with this limit being reduced by the presence of adjoining facilities or where waste has been accepted in the past
- A land improvement site taking both natural materials such as clay, silt, sand, gravel and stone and also inert construction and demolition waste such as bricks or concrete. The maximum allowable waste quantity is either 50,000 tonnes or 100,000 tonnes in total. Which limit applies depends on whether it is envisaged the largest proportion of incoming waste will be inert excavation materials or construction and demolition waste. Again, the allowable quantity is reduced by the presence of an adjoining facility and by historic waste deposits
- A facility that does not involve land improvement and where inert waste is being recovered. The waste being processed must stem from construction and demolition activities. Up to 50,000 tonnes of waste

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can be accepted per year. No less than 85% of the incoming material must be recovered, with no more than 15% of residual waste⁵⁸ passing to a disposal facility such as a landfill site. Brick crushers and powerscreens would be examples of the type of activity that might fall within this provision

Box 8 indicates the minimum checks a contractor should carry out in relation to using a site subject to a waste facility permit.

“ | Box 8

Waste Facility Permits

At the very minimum, each contractor involved in using a site subject to a waste facility permit should check to ensure that:

- a valid waste facility permit exists for the site
- the permit allows for the acceptance of the types of wastes generated by the road scheme
- the expiry date of the permit is sufficient for the permit to remain in force over the duration of the construction of the road scheme
- the conditions of the permit allow for the quantity of waste envisaged as arising from the project to be handled and that the quantity does not exceed either the relevant limits set down in Part I to the Third Schedule to the Facility Permit Regulations or any contained in the actual permit
- the conditions of the waste facility permit will not be otherwise contravened by the acceptance of the waste from the road scheme
- where a permit is due to expire at the end of its five year life, an application has been made to extend this period by a permit review and that this has been lodged no later than sixty working days before the end of the duration of the permit

⁵⁸ Prospective operators of construction and demolition waste recovery infrastructure should note the definition of this term in Article 5(2) of the amended Facility Permit Regulations

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4.4.3. Certificates of registration

Small-scale waste recovery⁵⁹ operations can be authorised by a registration certificate. These certificates are issued to the private sector by the local authority for the area in which the waste management activity is to take place. Local authorities are also entitled to obtain certificates for non-licensable waste operations and in this case the EPA is the issuing authority. The types of activity that can be subject to a certificate are set down in Part II to the Third Schedule to the amended Facility Permit Regulations.

Unlike waste licences and waste facility permits, certificates of registration do not usually contain a series of conditions which relate to the site in question and its operational performance. Instead, a system of standard rules applies, with these rules being set down in the Fourth Schedule to the Facility Permit Regulations. Like facility permits, certificates also have a five year life, which may be extended by an application for a review of the certificate. Examples of activities that relate to the handling of waste from road schemes and which can benefit from a certificate of registration include:

- A land improvement site where no more than 25,000 tonnes of waste is to be accepted. The material being deposited must comprise only inert waste from excavation activities and be composed solely of clay, silt, sand, gravel or stone
- A land improvement site where construction and demolition waste is accepted. In this case, all of the material must be inert waste and no more than 10,000 tonnes can be deposited in total

- Where both inert excavation waste and construction and demolition waste are accepted at the same site for land improvement purposes, the maximum allowable limit is either 25,000 tonnes or 10,000 tonnes, being dependent on whether the bulk of the waste will be excavation waste or inert waste from construction and demolition activities
- A brick crusher, power screen or other similar recovery unit processing waste from construction and demolition activities. No more than 10,000 tonnes of waste can be accepted per year and at least 85% of the incoming material must be recovered.

Where land improvement activities are to be authorised by a certificate of registration, the quantity limits set out above are also constrained by the presence of any adjoining site that is subject to a registration certificate or permit and by the existence of historic waste deposits. These restrictions are similar to those which apply to waste facilities permits and have been summarized earlier in this section.

4.4.4. Deciding when a licence, facility permit, registration certificate or “none of these” is needed.

As mentioned in the context of the earlier discussion about the definition of waste, the Facility Permit Regulations allow for the EPA to be requested to make a determination on the correct form of statutory authorisation for a proposed waste management activity. This involves a so-called Article 11 declaration. Besides indicating that a licence, permit or certificate is necessary, the Agency can also rule that no form of statutory authorisation under the Waste Management Acts is required.

⁵⁹ The definition of what “recovery” means in the Waste Management Act is discussed earlier in the section about waste facility permits

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In addition, a local authority which receives an application for a waste facility permit or registration certificate can contact the EPA when it is unsure that the application does in fact relate to the correct form of authorisation. Finally, the EPA can itself rule that a local authority has incorrectly issued a permit or certificate. Such a ruling may require a waste licence application to be made.

- It is imperative that a person wishing to establish a processing operation relating to waste arising from a road scheme is absolutely sure what type of statutory authorisation is needed. If there is doubt, the EPA can be requested to make a ruling under Article 11 of the Facility Permit Regulations.

4.5. Other waste regulation issues

4.5.1. Operating and using unauthorised waste sites

As mentioned earlier, Section 32 of the Waste Management Act obligates persons such as contractors employed on a road scheme to transfer waste only to appropriately authorised waste hauliers and waste facilities. This Section was amended in 2011, so that it additionally prohibits the abandonment, dumping and unauthorised management or treatment of waste. Persons who “cause or facilitate” these activities commit an offence, with this wording affecting not only those that are directly involved; it is designed to catch other parties that supplied the waste or otherwise arranged for its deposit at the unauthorised site.

A separate legal obligation also arises under Section 39 of the Act. Section 39 forbids someone from operating a waste site that does not have an appropriate authorisation. Accordingly, these sections of the Act require contractors involved in road projects to ensure that appropriate forms of authorisation are in place for:

- The waste disposal and recovery activities they themselves carry out
- The waste facilities operated by third parties which are used for the disposal or recovery of waste generated from roads construction
- The hauliers employed to remove waste from the road scheme for off-site recovery or disposal.

4.5.2. Causing environmental pollution

Section 32 of the Waste Management Act states that a person who causes environmental pollution when involved in the handling of waste commits an offence. This can relate to waste storage on-site, its transportation, its treatment, its disposal or its recovery. The Act defines “environmental pollution” widely, and the concept embraces the creation of nuisance in the form of litter, noise and odour. For example this means that an offence may be committed if:

- Office or canteen waste is poorly stored on-site and causes wind-blown litter⁶⁰
- Wastes generated by the road project are burnt in an uncontrolled manner
- Excavated contaminated land is not handled correctly
- Biodegradable waste is allowed to degrade on-site.

⁶⁰ Note that there may be some overlap between an offence under Section 32 of the Waste Management Act and the offences contained in the Litter Pollution Acts (see later in this document) in relation to litter emissions

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4.5.3. Duty to ensure safe recovery or disposal

Two new provisions were added to the Waste Management Acts in 2011 to place an explicit legal requirement on all waste producers and holders to ensure that waste is either recovered or disposed of in an environmentally safe manner.⁶¹ Accordingly, these provisions could be used to prosecute a contractor working on a road scheme when a third party engaged by the contractor dumps the waste inappropriately.

4.5.4. Hazardous waste and contaminated land

Persons undertaking road schemes may encounter hazardous waste and contaminated land. Hazardous waste may be generated by activities such as the demolition of existing buildings, where for example asbestos roofing materials may be found. On-site maintenance activities on a road project may generate hazardous waste in the form of waste oil, oil-contaminated filters, brake fluid and other associated materials. Residues left in drums of chemicals or fuels used on the site may cause those containers and their contents to be classed as hazardous waste. Contaminated land from historic industrial uses may be discovered. Particular care must be exercised in the removal of underground storage tanks, as these may contain fuel or other chemical residues. It is also not uncommon to encounter previously-deposited waste materials in a road construction context.

In 2005, a Ministerial Direction was published under Section 60 of the Waste Management Act in relation to the discovery of old dump sites or other unauthorised disposal facilities (DoEHLG 2005). When such sites are discovered, the Direction requires that the scale and seriousness of the situation be assessed. Whether the deposited materials are to be removed should be

dependent on a risk assessment, with the assessment being done by the holder of the waste.⁶² In general, it is national policy that hazardous wastes are to be removed unless a better environmental option presents itself. Remediation is always required to take place in relation to:

- Land proximate to existing or planned residential development
- Wetland areas
- Land designated for conservation purposes such as Natural Heritage Areas, Candidate Special Areas of Conservation or Special Protection Areas
- Other high amenity areas.

In the event that the waste is to be left in-situ, the Ministerial Direction requires that a waste licence or other alternative authorisation be obtained. The likelihood of one of these forms of statutory authorisation being issued by a regulatory body will itself be a significant determining factor governing whether the waste should be removed.

In 2006, the EPA (2006b) issued a guidance document which supplements the Section 60 Ministerial Direction. This publication is entitled *Methodology for the Identification of Waste Disposal or Recovery Sites in Ireland*. This document can be used in conjunction with the EPA's (2007b) *Code of Practice Environmental Risk Assessment for Unregulated Waste Sites* to determine the desirability of whether historically dumped waste should be excavated or left in-situ. In all cases, it is essential that the local authority responsible for the area in which the waste deposit was discovered is informed of its existence and that advice is sought about appropriate management or remediation options.

⁶¹ Waste Management Acts 1996-2011, Sections 29(2A) and 38(5A), as amended by the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)

⁶² Or by a suitably qualified and experienced consultant employed by the holder of the waste

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Hazardous waste is defined in Section 4 of the Waste Management Acts and by Regulation 29 of the European Communities (Waste Directive) Regulations 2011.⁶³ The result is slightly complex. The Acts state that a hazardous waste is something that displays the specified hazardous properties set down in their Second Schedule.⁶⁴ This approach is supplemented by what is said in the European Communities (Waste Directive) Regulations 2011, which indicates that what is known as the “List of Waste” – the European Waste Catalogue and Hazardous Waste List that was published as Council Decision 2000/553/EC⁶⁵ – is binding as to how hazardous waste is defined under national law.

The range of construction and demolition waste types, as contained in Chapter 17 of the List of Waste, is reproduced in Appendix 2. This follows the general format of the List of Waste, whereby all waste types are assigned a 6-digit identifier code. Any of the entries marked with an asterisk (*) are to be determined as hazardous waste. For example, corrugated asbestos cement sheeting - which is commonly found on the roofs of many sheds, barns and industrial buildings - is classified as hazardous waste. This is because it is identified under the code 17 06 05 “construction materials containing asbestos”, with the numeric coding ending in an asterisk.⁶⁶

As indicated, a material is a hazardous waste if its waste code is accompanied in the List of Waste by an asterisk. This is known as a “unique entry”. Alternatively, a material

is classified as hazardous only if it actually exhibits one or more hazardous properties. For example, depending on the level of hazardous materials it contains, contaminated land may or may not be defined as a hazardous waste. This is addressed by the so-called “mirror entry” categories in the List of Waste. In such instances, there are two separate codes, one of which applies when the material is non-hazardous and the other, being accompanied by an asterisk, when it is hazardous. Two examples illustrate this point:

- There are two entries that describe demolition waste. Waste code 17 01 06*, covers “mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances” and the non-hazardous code 17 01 07 describes “mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06”.
- Similarly, for excavation waste, there is waste code 17 05 03*, “soil and stones containing dangerous substances”, with the corresponding non-hazardous mirror entry being 17 05 04, “soil and stones other than those mentioned in 17 05 03”.

In these and other similar instances, the List of Waste suggests that whether there are “dangerous substances” present is assessed in respect of the list of such substances which is contained in the updated version of an EU Directive⁶⁷ and, if so, whether it exhibits certain specified properties.⁶⁸ In practice, the amended definition of

⁶³ S.I. No. 126 of 2011

⁶⁴ This Schedule was also replaced by the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)

⁶⁵ The List of Waste contained in Council Decision 2000/553/EC has been amended by Council Decisions 2001/118/EC, 2001/119/EC and 2001/573/EC. All the updates are included in the EPA’s (2002a) publication, *European Waste Catalogue and Hazardous Waste List*

⁶⁶ In accordance to Section 4 of the Waste Management Acts, this material also would be a hazardous waste as it exhibits at least one of the properties set down in the Acts’ Second Schedule: “H7 carcinogenic”

⁶⁷ Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances

⁶⁸ The properties referred to are in Annex III of Council Directive 91/689/EEC on Hazardous Waste: see EPA (2002a) *European Waste Catalogue and Hazardous Waste List*, page 14, paras 5 and 6. However, this cross-reference and this element of the EPA’s version of the Waste Catalogue are now out of date. At the time of writing (August 2014), some of the groundwork for the revision of the Waste Catalogue is underway at EU level.

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hazardous waste in the Waste Management Act is clear that the properties in question are those contained in its Second Schedule.⁶⁹

As the above paragraphs suggest, this process can become involved on occasions, with this procedure not being helped by the some parts of the List of Waste being out of date in respect of its discussion of the EU legislation. However, the List of Waste is a useful and accessible first point of reference about whether something is a hazardous waste.

In a few instances, a further key issue will be whether a material does actually exhibit the hazardous properties set down in the Schedule to the Waste Management Acts. Determining this matter sometimes can be only decided using statistically valid sampling techniques and laboratory analysis.⁷⁰ In addition, the EPA can be requested to determine whether a waste is hazardous or non-hazardous.⁷¹

The European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011⁷² require that a system of "Waste Transfer Forms" is used to document the movement of hazardous waste within Ireland.⁷³ This enables Dublin City Council to track hazardous waste from its source to a recovery or disposal

facility within the State. This form is obtained from the City Council's web site⁷⁴ and is completed on-line before the waste is collected. A copy is downloaded, signed, and accompanies the consignment of hazardous waste when it is in transit. On the load's arrival, the recipient disposal or recovery facility logs-in and completes the relevant details documenting the receipt of the waste. Prior to accessing the system for the first time, all users must register and allow two working days for an approval to access the system to be granted. It is an offence under these Regulations to move hazardous waste in a manner that contravenes this legislation.

As a producer of hazardous waste, a road contractor is required to keep a chronological record of the quantity, nature and origin of any hazardous waste produced, as well as its destination, frequency of collection, mode of transport and treatment method.⁷⁵ This information must be held for at least three years.

Often hazardous and non-hazardous waste, including contaminated land, is sent for disposal or recovery outside the State. In this case, an international consignment note/notification system governs these transactions.⁷⁶ Dublin City Council is also designated as the national regulatory body that deals with these types of waste movements from Ireland.

⁶⁹ The properties in the Second Schedule are derived from revised Directive 2008/98 on Waste, which entered into force on 12/12/2010. Inter alia, that Directive revokes the earlier Directive 91/689/EEC on Hazardous Waste

⁷⁰ Guidance on how to determine whether something is a hazardous waste under these criteria has been published by the EPA in the form of the report entitled Paper Tool of the Procedure for the Identification of the Hazardous Components of Waste (Finn et al 2004). However, readers need to be aware that the legislation has changed somewhat since this Tool was launched and that the 2004 report needs to be read in conjunction with an update issued by the EPA in 2013: Amendments/Clarifications to the Hazardous Waste Classification Procedure and Worksheet. See <http://www.epa.ie/waste/hazardous/class/#.U-D8u1J0yRu> (accessed 5/8/14)

⁷¹ See European Communities (Waste Directive) Regulations 2011, Regulation 29(7)

⁷² S.I. No. 324 of 2011: these superseded the earlier Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998) in July 2011. There are also additional requirements under Regulations 33-35 and 45 of the European Communities (Waste Directive) Regulations 2011

⁷³ These replace the earlier so-called "C1 Form" system required under the 1998 Regulations

⁷⁴ <https://wrms.dublincity.ie/> (accessed 15/8/14)

⁷⁵ European Communities (Waste Directive) Regulations 2011, Regulation 45

⁷⁶ This is controlled by a combination of EU Regulation No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on Shipments of Waste and the Waste Management (Shipment of Waste) Regulations, 2007 (S.I. No. 419 of 2007 (as amended by the Waste Management (Registration of Brokers and Dealers) Regulations 2008 (S.I. No. 113 of 2008) and by the European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)). The notification system does not apply to certain, low-hazard, recyclable materials, but such materials are not normally generated in road construction.

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Road contractors should be aware that they are subject to a general legal duty to ensure that hazardous waste of different types is not mixed together.⁷⁷ It also should not be intermingled with non-hazardous waste as a way of diminishing any or all of its hazardous properties.

Where hazardous waste is being stored on a road project pending its removal, the contractor responsible for the project is additionally required to comply with certain requirements on waste storage. These are over-and-above any other obligations which relate to site health and safety. Their nature will be set out in the next section.

4.5.5. Storing waste on-site

In general, no form of statutory authorisation is needed for the temporary storage of waste that arises on-site and remains there awaiting collection. In this respect, holding waste in skips on a road construction site is little different to waste stored pending collection at factories or building sites. A similar principle affects excavation materials which are awaiting their movement off-site.⁷⁸

However, the above principles do not apply in some circumstances. The exceptions are as follows:

- The Waste Management Act only allows for the temporary storage of waste at the site where it was produced. Hence any road construction waste must be stored within the line of the development, not on adjoining land.
- The Act defines the phrase “the temporary storage of waste”,⁷⁹ limiting it to having a six-month duration.



Temporary Storage of Waste Material
(Photograph courtesy of Roadbridge Ltd)

This means that the temporary storage of waste arising on the site does not require a waste licence, waste facility permit or registration certificate provided the storage does not exceed this period.

The restriction in the Waste Management Acts about the allowable duration of temporary storage is particularly important in relation to the more drawn-out timeframe of many road construction activities. It may mean that a waste facility permit or certificate of registration – or, if need be, an EPA licence – will be required to authorise longer term waste storage where it will exceed six months.

⁷⁷ European Communities (Waste Directive) Regulations 2011, Regulation 34. As this requirement stems from EU law, further explanatory material can be found in European Commission (2012, pp.58-65).

⁷⁸ See the wording of Paragraphs D15 and R13 in the amended Third and Fourth Schedules to the Acts. In effect, these paragraphs state that the temporary storage of waste at the premises it is produced is not classed by the Acts as a waste recovery or disposal activity. Accordingly, the requirements for waste licences (etc.) do not apply: this is because the legislation only requires the authorisation of activities that are defined as either waste recovery or disposal.

⁷⁹ Waste Management Act, Section 5(3).

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4.5.6. Litter Pollution Acts, 1977 to 2009

In addition to the provisions of the Waste Management Acts, the Litter Pollution Acts 1977 to 2009 and the Litter Pollution Regulations, 1999, are relevant to a contractor on a road construction scheme. There is a general prohibition on the creation of litter, with the occupier having an obligation to keep the land litter-free.

4.6. Environmental liability regime

The Environmental Liability Directive was published in April 2004,⁸⁰ having the aim to prevent and remedy environmental damage from a wide range of industrial and other related activities. It mandates for specified organisations that have caused such damage to be financially liable for remedying all of the effects. Where damage has not occurred but is imminent, the Directive also requires those responsible to take appropriate preventative action.

The background to this initiative was a number of incidents of catastrophic environmental damage in some European countries. These demonstrated significant variations in Member States' legal systems in respect of the degree to which the organisation responsible was obliged to fund clean-up or preventative measures.

The Directive became part of Irish law in April 2009, in the form of the European Communities (Environmental Liability) Regulations 2008.⁸¹ This legislation affects all operators who hold a statutory environmental authorisation, such as a waste facility permit or a waste collection permit, making them financially liable if an associated waste activity causes

long-term damage to surface or ground water, creates land contamination or damages designated protected species or habitats. Other organisations, including those more generally involved in road construction, are similarly liable in respect of damage to a protected species or designated habitat. In the context of this legislation, the "operator" of such activities is defined widely, in order to embrace not only those that had direct control over whatever happened but also others who are in a position to exercise "decisive economic power" in respect of delegated activities.

A key element of these provisions is the strengthening of the "Polluter Pays Principle" in a much more rigorous manner than was hitherto possible under civil law. Subject to certain exceptions, the Environmental Liability Regulations mandate that organisations that have caused specified types of pollution automatically should be required to pay for not only the cost of clean-up but also for the return of a damaged habitat back to its original state. They also are obliged to fund any mitigation measures which may be necessary where it is likely that imminent environmental damage will take place. There is no upper limit to the costs which may need to be paid by an operator in this process. What is particularly significant about this new regime is that affected operators are required to fund corrective measures regardless of whether they were at fault or negligent. In other words, this legislation imposes a "strict liability" regime.

Due to the potential financial costs involved in clean-up and habitats restoration, this legislation is intended to spur operators to take a more pro-active approach to running their businesses, with a view to them ensuring that they do not pose any significant risk to sensitive habitats and other environmental receptors.

⁸⁰ Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on Environmental Liability with regard to the Prevention and Remedying of Environmental Damage, Official Journal of the European Communities, L143/56, 30.4.2004.

⁸¹ S.I. No. 547 of 2008, later amended by the European Communities (Environmental Liability) (Amendment) Regulations 2011 (S.I. No. 307 of 2011) and by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011).

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The EPA has been designated with regulatory responsibility for the legislation's implementation. It has wide powers to direct an operator to carry out immediate measures where there is an imminent threat to the environment or where damage has already occurred. The Agency can also direct that particular forms of remediation take place at the operator's expense. The failure by an operator to comply with any of these requirements is an offence. Operators are required by law to inform the EPA where environmental damage is imminent despite protective measures or where it has occurred. Third parties who are affected or threatened by environmental damage, as well as certain environmental organisations, can request the EPA to respond under this legislation.

These and other aspects are more fully described in the EPA's guidance to the legislation (EPA, 2011). It is intended that at least some of the current national legislation will be replaced by an Environmental Liability Act in due course.

4.7. Planning permission, the EIS process and on-site waste management activities

In general, no separate form of planning permission is needed for roads construction-related waste management activities that are to take place within the area subject to the CPO. This is provided that they have been contemplated by the EIS or other form of documentation that formed part of the process of obtaining development consent for the project. In such circumstances, the statutory approval for the road project may well be sufficient and no additional form of planning permission is needed.

In order to benefit from this process, any waste processing activity of any magnitude or other significance⁸² should be clearly described in the EIS for the project. This is due to the requirements of the legislation governing the environmental impact assessment process, which extend to require construction-related impacts and associated mitigation measures to be considered.⁸³ Additionally, if the waste management activities likely to be carried out on-site are clearly documented in the EIS, there is no room for debate later on about whether they may need a separate planning permission. As they are covered by the EIS, it follows that, unless the consent of the development states otherwise, they are subject to An Bord Pleanála's approval for the development as a whole.

In instances where the exact nature of these activities has not been finalised when an EIS is being compiled, it may be desirable that a range of possible approaches and handling/recovery technologies are described, their impacts assessed and the relevant waste types and quantities estimated. This will allow any contractor later appointed to develop the road flexibility in respect of the selection of the most desirable approach.

4.8. Planning permission and off-site waste management activities

Waste disposal and recovery activities that take place off-site and outside the boundaries of a road project generally require planning permission. This includes many land-spreading operations which involve excavation waste. While some forms of land reclamation constitute exempt development under the Planning and Development

⁸² An EIS is only required to address environmental effects which are significant or constitute the main effects of the project. However, all significant on-site waste recovery and treatment processes should be documented in the project description. The EIS also should contain estimates of the types and quantities of waste arising from the project and which are being handled on and off-site.

⁸³ See EPA's (2002b, 2003) guidance on this matter (a revised version of these documents is expected in 2015).

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Regulations 2001-2013, this is by no means a general rule. For example, planning permission may be needed for off-site land reclamation activities due to factors such as:

- the contents of the Development Plan for the area
- the access to the site causing a traffic hazard
- the magnitude or nature of the development meaning that an EIS is needed⁸⁴ the land in question having a nature conservation significance.

The relevant local authority and, ultimately, An Bord Pleanála can rule on whether or not a proposed activity requires planning permission or constitutes exempt development.⁸⁵

It is vital that contractors on road schemes satisfy themselves that planning permission either has been obtained or is not required for any site they wish to use for the off-site management of waste generated from the project. This can be done informally via a consultation with the planning authority. A more formal route is an application for a declaration on whether planning permission is required, which is made under Section 5 of the Planning and Development Acts.

4.9. Compliance documentation

The main contractor on a road scheme should be aware of where all waste arising from the project is going to and who is taking it. At the very minimum, the contractor should keep a full record of:

- All waste collection permits which are held by sub-contractors involved in moving waste away from the road scheme
- All EPA licences, waste facility permits and registration certificates covering the destination of the waste generated by the road scheme
- The details of any exemption from the above requirements claimed by any organisation employed to handle wastes from the road project
- Which wastes from the project these organisations are handling or will handle, the quantities, types and so on.

In some instances, a waste contractor may indicate that the proposed destination of a waste stream is confidential and may refuse to disclose it for commercial reasons. Only in exceptional circumstances is this position acceptable, such as where the transaction relates to recycled material of some significant commercial value or involves the re-use of a highly specialised waste stream. Outside this type of instance, requiring confidentiality is not to be considered an acceptable practice for many waste transactions, particularly those which involve:

⁸⁴ The relevant thresholds for requiring an EIS are relatively low. Schedule 5 to the Planning and Development Regulations requires an EIS be prepared for a waste recovery facility which involves more than 25,000 tonnes of non-hazardous waste being accepted annually, thereby catching many of the more significant land reclamation and other inert waste in-fill sites. Moreover, an EIS may be needed for projects below that threshold when they are associated with significant effects on the environment. While the Schedule refers only to “disposal” activities in this context, case law from the European Court of Justice has confirmed that, via the EIA Directive, this concept also embraces waste recovery activities (see Case C-486/04 Commission v. Italy [2006] ECR I-11025 and see also European Commission (2008, p.18) and European Commission (2013, p.53)). Where an EIS is required, the Planning and Development Regulations state in Article 9(1)(c) that a project cannot be conferred exempt development status

⁸⁵ Planning and Development Acts, 2000-2014, Section 5.

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- Wastes which require disposal and are clearly unsuitable for any form of recovery
- Mixed inert and non-inert wastes, such as wastes contaminated with biodegradable waste, paper cardboard, canteen waste, etc.
- Inert wastes where land-spreading or land reclamation is the likely recovery option
- The handling of hazardous waste or contaminated land.

In general, the intended destination of the waste arising at a road project needs to be known. Otherwise, a contractor may not be able to verify if the facility is appropriately authorised and that the receipt of waste from road construction is environmentally acceptable. Consequently, as a general rule, a waste haulier who declines to provide the requested information should not be employed to service a national road project.

Without an assurance about legitimacy of the outlets for the waste being generated, it is possible that other organisations involved in the road project may accrue criminal liability under the Waste Management Acts when an unauthorised waste site was being used by a sub-contractor. Moreover, reliance on someone to remove waste from a road project who turns out not to be accessing appropriately authorised waste management facilities leaves the contractor vulnerable in other ways. As mentioned earlier, regulatory action by a local authority or the EPA may disrupt the timetabling for the removal of waste off-site, cause unexpected additional costs to arise and may ultimately damage corporate reputation.

The NRA's (2007) *Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan* provide guidance on the necessary documentation relating to compliance with the Waste Management Acts and other environmental legislation.

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Implicit in the effective management of raw materials and waste in any construction project is the comprehensive allocation of responsibilities to key individuals.

5.1 Allocating responsibility

Unless responsibility is defined internally between the main contractor and key sub-contractors, any waste management policies that have been drawn up will remain a paper exercise of good intentions. To put these intentions into practice, contractors and sub-contractors need to know what their role is and what is expected of them. While the nature of good practice will be expanded upon below, this element needs to be supported by a management and monitoring system that ensures that the defined requirements take place. This process must be enforced systematically, which is something that becomes challenging due to many road projects being divided into a series of construction centres and also by the presence of sub-contractors. Relevant staff, including that of sub-contractors, need to have “ownership” of the elements of any on-site waste management scheme that are within the scope of their responsibilities. To do this, good communication between parties is the key, with each body being clear on what their responsibilities are and what is expected of them. Contracts issued to sub-contractors should include provisions to support or enforce these initiatives. It hardly needs stating that the main contractor on a road project must lead by example.

In order to do this, the main contractor appointed to a road project should allocate responsibility for materials and

waste management to one or more individuals of sufficient seniority to put the relevant procedures into practice. Such persons should be appointed to ensure that any on-site procedures for raw materials handling and waste management are put into practice and that the roll-out of these systems on the ground is regularly monitored or otherwise policed. Seniority in the project team is required to ensure that any difficulties encountered are raised at an appropriate level within the project team and acted upon. Relevant individuals must have access to ordering and stock-control records, as well to information on waste removal practices. They must also have sufficient authority to be effective in the context of the project team’s overall management and in dealing with sub-contractors.⁸⁶

5.2. Waste management and road schemes

5.2.1. Key issues

It is in the commercial self-interest of all parties involved in roads construction that the works are executed in a resource efficient manner and the generation of waste is minimised. Removing waste off-site is expensive in terms of both haulage costs and the gate fees levied at recovery and disposal facilities. Poor quality materials management at a roads construction site may cause a contractor to be doubly penalised. This is because the contractor has to pay for:

- The unused raw materials delivered to the site and, later on,
- The cost of their haulage from the site and the price of their disposal or recovery.

⁸⁶ The NRA’s (2007) Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan cover the allocation of duties and responsibilities of a main contractor’s staff.

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Besides issues relating to financial cost savings, Section 4 of these Guidelines has discussed the Waste Hierarchy. As noted, this became part of national law in 2011, with each EU member state being under an obligation to take all relevant measures to ensure the best overall environmental outcome.⁸⁷ Fundamental to the effective management of raw materials and wastes at roads construction sites must be the following in order of priority:

- (a) Prevention
- (b) Preparing for re-use
- (c) Recycling
- (d) Other recovery, such as energy recovery
- (e) Disposal.

As mentioned in Chapter 4, departures from the ordering of the hierarchy are only allowable when they can be justified on the basis of what the EU legislation terms “life-cycle thinking”. The European Commission’s definition of this term is set down in Box 9. At the present time, this concept is relatively new and the full ramifications have yet to be fully assessed and understood.⁸⁹ However, given that, under EU law, all state bodies and local authorities are required to comply, it is a matter that requires due consideration by all parties in road construction.

While it is essential that the principles of the Waste Hierarchy be followed throughout the lifecycle of road construction, it must be appreciated that decisions made early on in the project can place significant constraints on later outcomes. Accordingly, a key approach must be to ensure that the philosophy of waste minimisation and Hierarchy compliance is fully reflected at all design stages.

“ | Box 9

Life-cycle Thinking

“Life Cycle Thinking (LCT) is a conceptual approach that considers upstream and downstream benefits and trade-offs associated with goods and services. LCT takes into account the entire life cycle, starting with the extraction of natural resources and including material processing, manufacturing, marketing, distribution, use, and the treatment of waste. By introducing life-cycle thinking into waste policies, the WFD [Waste Framework Directive] integrates waste policies, when departing from the waste hierarchy, into the broader framework of reducing environmental pressures and increasing resource efficiency. Over their life-time, products (goods and services) can contribute to various environmental impacts.”



Example of Good Waste Segregation on the M7M8 Motorway Scheme
(Photograph courtesy of the Office of the NRA's Representative)

⁸⁷ Directive 2008/98/EC of the European Parliament and of the Council on Waste, Article 4(2)

⁸⁸ European Commission (2012) p49.

⁸⁹ Written material is steadily becoming available, with the lead body being the EU's Joint Research Centre (JRC: <http://lct.jrc.ec.europa.eu/>): see, for example, Joint Research Centre (2011).

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Processing of Material on the M3 Clonee to North of Kells Scheme

Record-keeping is a vital part of monitoring the effectiveness of this approach. The provision of quite basic information, such as the number of skips on hire at any one time, the frequency of collection, the price paid and so on, allows for an overall picture of waste management expenditure to be gathered.

The further development of this methodology involves the establishment of centralised knowledge about what exactly each skip is being used for, why it was ordered and who ordered it. It may well be found that a number are being used to remove potential raw materials from the site: materials which have been paid for, have not been used and that are now to be dispatched off-site at the contractor's expense.

A factor that is not often appreciated is that waste management costs are an item that is within the direct control of any business. Road-building projects are no different in this regard. Many other costs, such as plant hire, labour, raw materials, fuel and energy, are not something that can be as readily controlled. Waste management costs can be controlled, and excessive expenditure, including purchases of raw materials that are not used and contribute to the waste stream, has a direct

influence on overall project delivery costs. Accordingly, there is a sound financial cost justification to abide by the Waste Hierarchy.

5.2.2. Prevention

The first priority to the effective management of materials at any road construction site must involve waste prevention. In essence, this approach implies a careful balancing of the materials that are being deployed for construction purposes against what is required to carry out the works. The European Commission (2012, p28) classes prevention as not involving waste at all, for the reason that it only deals with substances and objects before they become waste. As such, the re-use of materials is a form of waste prevention, provided that the material in question can be re-used in an unchanged state (ibid, p30).

Perhaps the most obvious example of waste prevention in road projects is the cut-and-fill philosophy that has already been mentioned. This implies that a materials balance approach to roads design be taken to ensure, where feasible, that the quantities excavated from a project match the requirements for the construction of embankments and other landscaping elements. While material that arises in quantities that exceed the requirements for embankments can be used for general landscaping, these must be a necessary and integral part of the overall project design and not just a means of getting rid of surplus soil (see earlier in this guidance document). All of these issues should be covered in the preliminary design contained in any EIS submitted for the statutory approval of a road project.

The prevention approach is also one that has the avoidance of over-ordering as its basis. Unplanned, immediate and crisis-averting ordering inevitably causes over-delivery. Poor quality material specification also

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leads to unnecessary and potentially unusable materials arriving on site and being stored there. At least some of these materials will need to be removed for off-site disposal or recovery at the end of the project. Often the cost of the removal of un-used raw materials as waste exceeds its purchase cost by a significant margin. This will be particularly the case when waste segregation is not practiced and inert materials become contaminated by general site rubbish.

Parallel to the oversight of materials deliveries is their careful management after they have arrived at the site. This stage will involve proper storage procedures being followed, as well as ensuring that the materials are stored and handled to avoid damage. Material segregation policies are key to ensuring that practices that cause cross-contamination do not occur, such as the mixing of sub-soils and top soil, or the contamination of clean materials such as concrete, bricks, etc., with excavation wastes, packaging or other materials. Clear site signage and the unrestricted availability of appropriate locations for materials and waste storage significantly contribute to this process. Ordering at a too early stage causes long-term storage on-site, and with it the possibility of weather-related deterioration. The prevention approach also embraces the purchase of pre-formed or pre-manufactured elements, a practice which reduces the on-site generation of scrap materials.

Because road schemes may involve a number of different delivery and storage points, it is vital that these principles are put into practice at all of these locations. Inevitably, raw materials inventory management can be challenging in such circumstances. Accordingly, it is vital that ordering,

storage and handling procedures are reviewed regularly and that inventories at each location are monitored. Otherwise, the existence of geographically separate construction centres encourages the over-delivery of materials. By contrast, a well-monitored and centralised system for raw material ordering and stock control has the potential to optimise raw materials use. When raw materials use is tightly controlled, the unnecessary generation of waste can be minimised.

The inevitable presence of sub-contractors on road developments also has the potential to stimulate the unnecessary generation of waste. Again, it encourages the over-ordering of materials. Raw materials may be purchased in excessive amounts to guarantee that shortages do not occur. If off-site disposal costs are borne by the main contractor, sub-contractors may have little direct incentive to reduce the wastes they generate. Accordingly, it is often desirable that, where possible, the responsibility for the ordering of raw materials and waste management costs are contractually devolved to an appropriate level in a road project.

5.2.3. Preparing for re-use

A fundamental approach to the design and construction of road projects is for potentially surplus materials generated within the boundaries of the development to be re-used. This approach should be a key philosophy, and one which stretches from preliminary design to detailed design and on to the construction stage. It implies that the consignment of materials off-site should be a last resort and, as such, should only be considered when their re-use or recycling is not possible.

⁹⁰ See the definition in Section 5(1) of the Waste Management Acts (as amended)

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Where “preparing for re-use” takes place, it involves a form of recovery and therefore implies that the material being so prepared is waste (see European Commission 2012 p30). It is defined in law as including checking, cleaning and repairing.⁹⁰ The re-use of materials on-site is encouraged by segregation practices which avoid contamination. Well designed and clearly labelled storage areas support this practice, as does the regular monitoring of these and other areas for compliance with relevant procedures.

The demolition of buildings in the line of a road development offers opportunities for materials re-use. This can involve the utilisation of materials such as cut stone being cleaned-up and sold as architectural salvage. The segregation of materials generated by demolition practices, e.g. by the removal of roof trusses prior to the total demolition of the structure, offers opportunities for materials re-use and greatly reduces the potential for contamination.

5.2.4. Waste recycling

Where the production of waste cannot be prevented or the resultant materials re-used, their recycling should be considered as the next possible option. In general, re-use and recycling are differentiated on the basis that re-use involves a material being utilised in an unchanged state; by contrast, recycling involves the application of some process to make the material suitable either for its original use or for a different one.

Again high quality inventory management and waste segregation are keys to effective recycling, thereby ensuring that materials that can be reclaimed on-site are

suitable, that cross-contamination is minimised and so on. Examples of possible recycling initiatives appropriate to roads development is the processing of waste timber, such as from demolition or from used shuttering, by chipping and then consignment of this material for fibreboard manufacture, the crushing and screening of waste concrete, asphalt recovery and so on. However, in accordance to the definition under EU law and the Waste Management Acts⁹¹, “recycling” does not include the use of construction and demolition waste as backfill.

5.2.5. Other recovery

The legislation governing the Waste Hierarchy also distinguishes between waste recycling and waste recovery, with recycling being viewed as a more desirable option. This approach forms part of the start of a new and ambitious EU-wide policy aimed at better using raw materials. Accordingly, it is more desirable that a material is re-used or recycled rather than recovered. For example, it is better to re-use timber from construction and demolition activities, rather than recover this material by chipping it for use as a mulch or fuel. Similarly, it is preferable to re-use bricks rather than use them as backfill. As noted, backfill is placed lower down within the Hierarchy, being part of the category “other recovery”.

5.2.6. Secure ultimate disposal

Having exhausted the waste prevention, re-use, recycling and recovery approaches, inevitably some materials will be left over and will require disposal. Effective on-site management practices should be aimed at minimising the volume of this material. Rigid storage and segregation philosophies are again necessary to ensure that such wastes pass to the most appropriate facilities. For example,

⁹¹ See Waste Management Acts, Section 5(1) (as amended)

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much excavated contaminated land has to be consigned from the Ireland for processing in continental Europe. Given the cost of this exercise and the ready availability of disposal outlets in Ireland for other types of waste that cannot be recycled, it is essential that these waste streams are entirely segregated.

5.2.7. Ensuring the suitability of waste destined for sites authorised under the Waste Management Acts

It is vital that wastes sent from road projects to waste management facilities are entirely acceptable in relation to the conditions of the statutory authorisations governing these sites. Often land-spreading sites are subject to waste facility permits which tightly define the nature of the materials to be deposited. The conditions of the permit may limit incoming wastes to soils, sub-soils and rock only. Accordingly, other materials should not be taken there. Even if they are physically inert, concrete, bricks and similar substances should not be sent to such sites, unless the acceptance of these materials is explicitly covered by the relevant authorisation. Other wastes of a biodegradable nature, including plasterboard, canteen waste and so on, should not be consigned to facilities that are not authorised to take these materials. A similar approach applies to any excavated material that is contaminated.

5.3. C&D waste management plan for road projects

5.3.1. The status of a C&D waste management plan

In 2006, the Department of the Environment, Heritage and Local Government (2006) issued a publication entitled *Best Practice Guidelines – Preparation of Waste Management Plans for Construction and Demolition Projects*. These guidelines formed part of a long-term initiative by the

construction and demolition industries to promote waste prevention, re-use and recycling across the sector. A central element of the guidelines is the production of a waste management plan for all large construction sites in Ireland. The purpose of these Best Practice Guidelines was to (DoEHLG 2006, p.4):

- Promote a coherent and integrated approach to the management of construction and demolition waste throughout the duration of any building project
- Outline the manner by which clients, planners, designers, suppliers, contractors and sub-contractors should act so that the waste arising from the sector is reduced and its management improved
- Provide designers, developers, practitioners and regulatory bodies with guidance for determining the adequacy of construction and demolition waste management plans
- Indicate both general and specific guidance on the content of such plans when used in the context of development which exceeds one of a series of specified size thresholds.

The Guidelines make clear that they apply to both the private and public sectors when such bodies are involved in significant construction work. This includes when a public body is acting as a contracting authority.

While the *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects* were initially introduced on a voluntary basis, planning authorities and An Bord Pleanála have been granted discretion to include conditions on construction and demolition waste management in planning permissions.⁹² A suggested text for such a condition is included in the Guidelines with the aim of ensuring a

92 See Section 34(4)(l) of the Planning and Development Acts 2000-2014.

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consistent approach by planning authorities. Besides these obligations, planning authorities and An Bord Pleanála are also required by the Waste Management Acts⁹³ to ensure that necessary measures are taken to cause waste to be recycled or otherwise managed correctly. This can include obligating developers to prepare a plan for waste handling.

In 2007, the voluntary status of the *Best Practice Guidelines – Preparation of Waste Management Plans for Construction and Demolition Projects* changed and they were given a statutory footing. This is consequential to the publication of *Planning Guidelines 13 – Development Management – Guidelines for Local Authorities* (DoEHLG, 2007),⁹⁴ which were issued under Section 28 of the Planning and Development Acts. This new guidance requires planning authorities to have regard to the Guidelines on Waste Management Plans to ensure the proper management of construction and demolition wastes. This obligation not only covers the detailed guidance on the contents of a construction and demolition waste management plan, but extends to include record keeping, tracking waste flows, waste audits and the submission of summary audit reports to the relevant local authority.

It also should be understood that it is not essential that an entirely separate C&D waste management plan be prepared. Provided that the relevant principles are being followed, it can form part of the larger environmental operating plan for the project, its overall quality plan or other similar document.⁹⁵

5.3.2. When a plan is needed

The Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects set down thresholds which, if exceeded, cause the relevant requirements to apply. Two of the four thresholds used by the Guidelines are relevant to road construction:

- Projects which involve demolition, refurbishment or renovation which generate in excess of 100 m³ of construction and demolition waste
- Civil engineering projects producing in excess of 500 m³ of construction and demolition waste, but where this total does not include waste used on-site as part of the project.

While these thresholds are useful, it is the NRA's policy that all significant road construction projects accord with these Guidelines. This requires that these Guidelines should be applied to all national road projects subject to an environmental impact statement. Moreover, other road renovation works, such as carriageway replacement or bridge re-construction that generates in excess of 100 m³ of waste, should also be subject to these provisions.

5.3.3. When a C&D waste management plan should be initiated

The drafting and implementation of a C&D waste management plan should be something which starts early on and continues through the life of a road project. It is vital that it is initiated at an early stage. During the detailed

⁹³ See Section 22(10D) of the Waste Management Acts (as amended by the Protection of the Environment Act 2003, Section 26).

⁹⁴ The statutory status of the *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects* is set out in Section 7.8.1 of that publication.

⁹⁵ The NRA (2007a) recommends that a C&D waste management plan should form part of the main contractor's environmental operating plan

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design stage it is important that there is consultation between all parties, including the design team, landscape architect, ecologist, geologist, etc., to ensure that adequate considerations have been taken of material handling issues. As noted above, a new legal obligation that must be reflected in the plan is compliance with the Waste Hierarchy.

Waste management issues will remain highly significant throughout the road-building lifecycle. Besides forming part of the design of a proposed road development, they will be germane to the content of the EIS (particularly in respect of the project description and the impact mitigation of the construction phase), affect the tendering process, be reflected in the contract drafting stage and should figure prominently in the construction phase.

Different degrees of detail will be required at these stages of a project. Depending on the contract type, the obligation to augment and implement the plan may shift from the designer to the contractor who successfully tendered to carry out the work. In such instances, the obligation to follow the existing plan and develop it further should form part of the contract documents for the project.

5.3.4. What the plan should contain

The Department of the Environment's Guidelines emphasise that C&D waste management plans do not need to be complicated documents. The requirements should be reasonable and practicable – otherwise they will not progress far in the implementation stage. It also is vital that the plan is both relevant to the project and concise. The Guidelines require that content of the plan should be oriented to the following aspects of the development:

- An analysis of the wastes being generated and expected materials surpluses
- Specific waste management objectives of the project
- Methods proposed for waste prevention, re-use and recycling
- Material handling procedures
- Proposals for the education of the workforce about quality waste management and C&D waste plan implementation.

The Department of the Environment's Guidelines also suggest that the plan should contain sections which accord to the following headings:

- A description of the project
- An analysis of the expected nature and quantities of different types of waste generated by the project (including proposals for waste prevention, re-use and recycling)
- Estimates of waste management costs
- A sub-plan covering any demolition works
- Specific waste management objectives for the project
- Allocation of roles and responsibilities for waste management and plan implementation
- Record keeping procedures
- Waste plan auditing and other implementation-verification methods.

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A number of these headings cover self-explanatory items, and reference should be made to the explanations contained in the Department's own guidelines. The following sub-sections expand on some of the themes that have particular relevance in a road-building context.⁹⁶

5.3.5. Waste quantification

All wastes expected to be generated in a road project are required to be identified and quantified in the waste management plan. Having done that, those drafting the plan should consider these wastes in the context of the Waste Hierarchy and the above-mentioned approaches of waste prevention, re-use, recycling, other recovery and disposal. In each instance where off-site haulage is identified as being required, the necessity of this route needs to be explicitly justified. Specific disposal sites should be identified early on, so that realistic disposal cost estimates can be generated.

The next component of this process is the identification of waste management costs and the quantification of the expected expenditure required for the waste management element of the entire project. The predictions made at the preliminary design stage may need to be revised, but the expected cost figures will later provide an indicative benchmark of the project's waste management performance.

When waste management costs are being assessed, all of the relevant expenditure heads need to be taken into account. Traditionally, a number of these have tended not to figure in the more simplistic forms of calculation. However, their inclusion is often relatively simple and the resultant figure gives a much better and more sophisticated measure of the true costs of this element of a road project.

Following some of the themes discussed earlier in this publication, waste management costs should be calculated broadly and should incorporate:

- The cost of the purchase of un-used raw materials that end up in the waste stream. This process should tie in with raw material wastage assumptions; for example, a 5% wastage rate on concrete blocks
- Handling costs, such as the use of the machinery employed to load any waste prior to its removal of the waste off-site
- Transportation and haulage costs
- Skip and other long-term container rental
- Final disposal costs (including any landfill levy)

In some cases these costs can be off-set against any revenue generated from any sales of re-useable materials – topsoil sales is an obvious example. However, the true cost of top-soil removal can only be quantified when handling, loading and any transportation costs have been fully included.

5.3.6. Demolition plans

A demolition plan forms a distinct sub-section of each C&D waste management plan. In the context of a road scheme, this element may be relatively small or be of greater significance, being dependant on the extent of demolition taking place and its nature.

The purpose of a demolition plan is to ensure that demolition occurs in an orderly fashion so that the re-use and recycling of the resultant materials is given due priority. A key focus is a selective demolition approach (see

⁹⁶ As noted earlier, the NRA (2007a) recommend that the C&D waste management plan should form part of the main contractor's EOP.

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Box 10). This includes the segregation of the resultant materials, with their storage being undertaken in a manner which avoids cross-contamination. An ordered approach also allows for materials to be offered to specialist salvage organisations.

For example, the plan might include a time element to permit the removal of roofing slates, rather than having the entire structure demolished in one go. A separate key facet of this plan is a health and safety element, with this being focussed on issues such as safeguarding third parties when they are involved in materials salvage, addressing the possible presence of hazardous materials such as asbestos, and so on.

The NRA's (2005a) *Guidelines for the Treatment of Bats during the Construction of National Road Schemes* should be considered where buildings are likely to contain bat roosts.

“ | Box 10

The selective demolition approach

- Remove any remaining house contents, furniture, fittings, carpets, lino, etc.
- Remove permanent fixtures, such as doors, windows, accessible plumbing, etc.
- Remove any hazardous materials
- Demolish the structure in stages, e.g. roof, roof trusses, walls, etc.
- Segregate the separated waste fractions resultant from the demolition process

5.3.7. Implementation of a waste management plan, training, etc.

It is vital that waste management plans are “live” documents, that they are applicable to the different stages of the project and that they are beneficial. They must not become a theoretical exercise that is somehow perceived as being only a necessary part of a contractor's appointment in the tendering process. These matters can be addressed by ensuring that the contents remain relevant throughout the duration of the project. Vital to this process is plan implementation and associated monitoring. On-going monitoring should be a key duty of the site staff appointed to oversee the environmental performance of the project, and should extend to all waste management activities. Site audits form part of this process, as does the internal review of the content of the plan to ensure that it remains relevant to the project as a whole. As noted earlier, all parties to road projects need to be clear as to their respective roles in putting a waste management plan into practice. These obligations also need to be reinforced by clauses establishing contractual obligations, by communication and empowerment strategies and by policing. It is not enough for a main contractor to engage sub-contractors and then expect that the system required by the contract will somehow operate automatically.

Enforcement and communications strategies involve regular visits to the main construction areas in the road project. A visible presence is necessary so that all staff on the project remain aware of the priorities. Effective and regular communication at all levels reinforces the message that waste management issues are taken seriously and that the C&D waste management plan has the active support of the main contractor. Each plan should contain proposals to further the knowledge of the entire site workforce. Simple on-site signage also fulfils these goals.

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Waste audits provide a useful way by which not only the plan's implementation is monitored but also for better information to be gained about why waste is being generated, what the quantities and costs are and so on. This material can then be fed back into the waste management plan itself and used to benchmark performance.

5.4. The management of key waste streams

A theme of this document has been that the roads planning and design stage should aim to eliminate the off-site disposal of excavated materials wherever possible. However, surpluses may still arise, no matter how sophisticated the approach being taken. An exact balance between "cut and fill" is not often practicable. Some in-situ soils are not acceptable for structural use and require removal. Off-site disposal may be a consequence of the demolition of structures in the line of the road, the fact that some waste will inevitably arise from any construction project, and so on. However, a key aspect is the effective monitoring of waste-related issues as the project proceeds through the design stage and then through the construction phase. For example, the timetabling of items such as vegetation removal, topsoil stripping and the development of earthworks on-site should be fully thought through. The principal objective here is to ensure that suitable materials do not become unacceptable due to adverse weather impacts occurring at the handling or long-term storage stages. Vegetation and topsoil, for example, should be left undisturbed until the area needs to be stripped or the materials required for other purposes. On-going site and soil assessments during construction will facilitate rational decision-making in relation to design and road construction techniques.

5.4.1. Topsoil and sub-soil storage.

Soil type and quality may vary significantly, particularly in respect of road construction projects involving long distances. In such instances, it is often desirable that soil integrity is maintained and that different soil types are retained locally. When these materials are re-used for localised landscaping purposes, this practice encourages the re-establishment of local flora and ecology (NRA 2006a, p.35).

The management of topsoil resources should be carefully considered at the planning stages of a road construction project. Any topsoil that has to be excavated as part of the project may be required on-site for planting trees and shrubs, as well as for grassed areas adjacent to the carriageway and junctions. However, highly fertile topsoils used for verges may create a significant maintenance cost. In general, it is desirable that the extensive importation of topsoil is minimised, as the sowing of wild flower mixtures and suitable grasses on less fertile subsoils is an environmentally desirable alternative.



Excavation of Topsoil on the N7 Castletown to Nenagh Scheme
(Photograph courtesy of KCC NRDO)

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In order to minimise damage to topsoil, the following should be observed:

- Compaction due to the activities of heavy machinery should be avoided, as this will limit vegetation establishment and encourage water-logging
- Different topsoils types should not be mixed in stockpiles
- Repeated handling of topsoils should be avoided, as this practice may destroy the structure of the material
- Stockpiles should not be greater than two metres in height in order to prevent the degeneration of the soil structure due to the creation of internal anaerobic conditions
- Where possible the use of rotating hammers or cutters during screening should be avoided
- Transport over long distances should be minimised
- Movement of topsoil in wet weather should be avoided

Topsoil should be loosely dumped in stockpiles that should be shaped to shed water.

When quantities of topsoil are limited, it can be mixed with subsoils or peats. Where practicable, topsoil should be left in place until just before the required earthworks commence.

5.4.2. Peat

Peat is frequently encountered in road building in Ireland. It is a challenging material for the reason that it has little structural use and tends to arise in surplus quantities in many projects. As leachate from peats is acidic and

coloured, discharges from peat stockpiles can have adverse effects on receiving waters. Accordingly, stockpiles need to be carefully sited in respect of both watercourses and the intended end-use of underlying soils. They may also need mitigation measures such as cut-off drainage and sedimentation ponds.

Following the Waste Hierarchy's prevention approach, the optimal solution to the presence of significant peat-bearing sub-strata should involve, if feasible, routing new carriageways away from significant deposits (NRA 2008a). While the land acquisition costs of bog-land are often low, construction costs and surplus material disposal all are factors that need to be considered in the route selection process. Moreover, peat bogs are increasingly being recognised as an ecological resource (NRA 2009).

Where road construction has to proceed through peat deposits for other reasons, detailed consideration should be given at all planning stages to the management of any resulting peat surpluses. It is by no means a foregone conclusion that a suitable off-site outlet can be readily obtained. The off-site backfilling of borrow pits and other peat disposal methods will need to be authorised in accordance with the Waste Management Acts. If such sites are not situated in the lands subject to the CPO, a further planning permission or equivalent form of development consent may be needed. A separate environmental impact statement may also have to be prepared as part of this process. Moreover, peat disposal issues in respect of major construction activities have given rise to significant local concerns in some parts of Ireland.

Being compressible, the addition of rock fill directly onto deep peat can lead to long term maintenance issues. While the traditional alternative construction method of excavating the compressible material and its replacement remains an option, the waste prevention approach also

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Excavation of Peaty Material on the N7 Castletown to Nenagh Scheme
(Photograph courtesy of KCC NRDO).JPG

suggests other strategies. These include piling to a firm foundation, using lightweight fill materials and applying displacement techniques. All serve to minimise the generation of large quantities of waste peat that requires disposal. Excavated peat also has potential for commercial use, particularly as a soil improver, as well as being used as filter medium for wastewater treatment and odour treatment. Where large quantities requiring off-site disposal arise, the potential for such end uses needs to be actively considered in conjunction with organisations that have expertise in the processing and marketing of these materials.

5.4.3. Subsoil

Subsoil is readily distinguishable from topsoil as it has a lower organic matter and plant nutrient content. While some types have little potential for re-use or recovery, a

substantial proportion of Irish sub-soils exhibit beneficial properties. However, if these materials become damaged, then their worth is much reduced. Again, this emphasises the need for quality on-site management at any road project.

The main issue that may damage potentially usable subsoils is the uncontrolled ingress of water. This can be prevented by:

- Leaving the vegetation and topsoil in place for as long as possible
- Excavation at times which are optimal for subsoil quality, such as in dry conditions
- Placing the subsoils in favourable weather conditions
- Avoiding stockpiling where feasible
- Compacting the material immediately after placement
- Providing gradients on the compacted subsoils to rapidly remove any surface water
- Removing ruts caused by heavy equipment operating at the site.

For roads construction purposes, subsoils can be divided into three categories:

- Acceptable for direct re-use
- Unacceptable for direct re-use but can be processed to a defined standard
- Unacceptable and cannot be treated on-site to be acceptable.⁹⁷

Examples of the subsoils that may be directly re-used are set out in Table 3.

⁹⁷ These subsoils are defined in Clause 601 of the NRA Specification Series 600

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Table 3: Example of sub-soil re-use

Materials	Uses
Glacial tills and boulder clays	Embankments, reclamation
Boulders, cobbles, gravels and sands	Embankments, drainage channels, filters, reclamation
Silts and clays	Wetland and sedimentation pond liners

A comprehensive list of all materials, including granular and cohesive fills, which are acceptable for reuse and recovery is given in Table 6/1 of Series 600 of the NRA Specification.

Treatment processes that allow for otherwise unusable subsoils to be recovered include:

- The reduction of moisture content by evaporation using spreading techniques during warm dry periods.
- The excavation of material after dry periods (e.g. late summer/early autumn)
- Blending with sands and gravels to improve plasticity
- Crushing of boulders and cobbles to form aggregates
- Stabilization using processes which involve the addition of lime or lime/cement stabilisation

Inevitably, some materials encountered are not acceptable for construction purposes even after processing. These materials may have physical or chemical properties that make them unacceptable for use on-site. Contaminated land has already been mentioned.

5.4.4. Rock

Surplus rock many arise from the construction of cuttings and also from the demolition of stone structures. Unless excessive amounts unavoidably arise, this material can be deployed as embankments, facings, noise barriers, channel linings, buttresses in rock slopes, rock trap bunds, and so on. It also can be processed to form aggregates. Having been processed to meet a required specification, the coarser forms of these materials can be used in road drainage systems and for other purposes.

The manner by which rock is extracted from the ground can have a significant influence on the options available for its re-use. Blasting processes can be varied to suit requirements for re-use of materials either on-site or off-site. Hydraulic hammering and ripping of weathered materials give poor stability control. Pre-splitting and smooth blasting gives stable final faces. Characteristic details of the rock, including bed slope and brittleness, should be investigated as part of the detailed site investigations.

Flexible design methods can minimize surplus quantities of rock (e.g. construction of higher, wider and/or longer walls). Rock processing on-site, using mobile crushers and screens, can produce valuable aggregates (see Table 4). These can be re-used on-site, thereby minimising the importation of equivalent materials from external sources. If necessary, the material can be sold for off-site commercial uses.

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Rock Breaking Activity on the M8N8 Cashel to Cullahill Scheme
(Photograph courtesy of SRB Civil Engineering Ltd (a joint venture between Roadbridge Ltd and John Sisk & Son Ltd))



Rock Crushing on the M8N8 Cashel to Cullahill Scheme
(Photograph courtesy of SRB Civil Engineering Ltd (a joint venture between Roadbridge Ltd and John Sisk & Son Ltd))



Rock Processing on the M8N8 Cashel to Cullahill Scheme
(Photograph courtesy of SRB Civil Engineering Ltd (a joint venture between Roadbridge Ltd and John Sisk & Son Ltd))

Table 4: Uses for Rocks and Aggregates

Rocks	Aggregates
Walls, sign bases and bunds	Road foundations
Erosion control	Drainage media
Rip-rap wave protection	Verges
Habitat creation – fish pools	Concrete manufacture
Recycling as aggregates	Filters
Road foundations including through peats	
Anti-incursion measures	

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5.4.5. Wood

Depending on its age and quality, wood resultant for demolition activities can be sold for architectural salvage. Wood from demolition also can be consigned to a recovery facility for composting or chipping. The occurrence of large amounts of wood on a road project may warrant the use of an on-site chipping machine.

Wood stemming from demolition activities should neither be burnt on-site nor handed over for use as domestic fuel. Often it is contaminated by the presence of lead-based paints or wood preservatives such as creosote. Modern composite boards such as chipboard or MDF contain significant quantities of glue and other binders. Other similar materials may have plastic coatings. The presence of these materials makes uncontrolled combustion a highly undesirable practice.

5.4.6. Existing vegetation: trees, tree trunks, branches, hedgerows, leaves, etc.

In accordance with the NRA's (2006b) *Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub, Post, prior and during the Construction of National Road Schemes*, the quantity of trees and hedgerows that have to be removed should be minimised. In some situations where the planting of hedgerows is an integral part of the proposed landscape treatment for a new road, consideration should be given to the feasibility of temporarily translocating some of the existing hedgerow to the lands made available so that it can be imported back into the final landscaping for the new road. Where

the avoidance of tree and hedgerow loss is not possible, then the timber should be reused. Careful felling, cutting and storage will ensure that quality and commercial value are preserved. Timber may be reused for a whole plethora of purposes: for example oak can pass to the furniture sector, while ash can be used in the production of hurleys. Alternatively, grubbed-out trees and hedges may be processed by chipping and mulching and larger diameter timber can be sawn, split and dried for use as domestic fuel. Where only a limited amount of timber and vegetation is encountered, cut down tree trunks and brush can be left in-situ to encourage fauna and flora habitats.

As noted earlier, the traditional practice of burning grubbed-out trees and hedges at construction sites is no longer acceptable. Such a practice is contrary to both the Waste Management Acts and section 4 of the Air Pollution Act 1987.



Mulching of Existing Vegetation on the M7M8 Motorway Scheme
(Photograph courtesy of the Office of the NRA's Representative)

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7.1. Types of EPA licence

Earlier on, this report discussed the different forms of statutory authorisation for waste management facilities that are applicable in Ireland in general terms. Four of these were mentioned, including industrial emissions licences. While such licences often authorise large landfill sites where inert materials such as sub-soils are consigned for engineering, waste cover, capping and related purposes, it is considered unlikely that any contractor involved in road development will wish to embark on an application for this type of licence. This is because industrial emissions licences only pertain to landfills accepting non-inert waste, as well as to facilities such as incineration, hazardous waste disposal sites and larger composting facilities. Accordingly, most contractors will be left with a choice of applying for a waste licence or for a waste facility permit. As discussed in Chapter 4, registration certificates only relate to very small-scale waste management activities.

7.2. Applying for a waste licence

A waste licence application is made to the headquarters of the Environmental Protection Agency (EPA) in Wexford. The application process is mainly set out in the Waste Management (Licensing) Regulations, 2004⁹⁸ with further procedures being contained in the Waste Management Acts 1996 to 2011. If the development has any potential to significantly affect a European habitat site, so-called

“Appropriate Assessment” may be warranted, with the relevant requirements being set down separately in the European Communities (Birds and Natural Habitats) Regulations 2011-2013.⁹⁹

In summary, the stages of the licence application process involve:

1. Completing the EPA's waste licence application form, providing relevant drawings and other particulars. The application must contain the information specified by Article 12 of the Licensing Regulations, along with copies of the newspaper notice and site notice board. If the proposed facility is to process in excess of 25,000 tonnes of waste a year, an EIS must be compiled¹⁰⁰ and Article 13 be complied with. If there is a protected habitat in proximity, a screening report for Appropriate Assessment or a Natura Impact Statement may also need to be submitted. An application fee must be included, which will vary depending on the nature of the project, typically comprising €10,000 to €35,000.¹⁰¹
2. Publishing a newspaper notice within a period of two weeks before the application is made. This announces the intention of make the application, with the form and content of this notice being set down in the Licensing Regulations.

⁹⁸ S.I. No. 395 of 2004, as amended by the Waste Management (Registration of Brokers and Dealers) Regulations, 2008 (S.I. No. 113 of 2008), by the Waste Management (Certification Of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations, 2008 (S.I. No. 524 of 2008), by the Waste Management (Licensing)(Amendment) Regulations, 2010 (S.I. No. 350 of 2010), by the Inland Fisheries Act 2010, by the European Communities (Waste Directive) Regulations, 2011 (S.I. No. 126 of 2011), by the European Communities (Metallic Mercury Waste) Regulations 2013 (S.I. No. 72 of 2014 and by the European Union (Waste Incineration Plants and Waste Co-Incineration Plants) Regulations 2013 (S.I. No. 148 of 2013).

⁹⁹ S.I. No. 477 of 2011; see in particular Articles 43-48

¹⁰⁰ An EIS must also accompany the licence application when a project is below the 25,000 tonne threshold or where the EPA or the planning authority considers that a smaller-scale development may have significant effects on the environment. It should be noted that different thresholds apply to some other forms of waste activity, but the 25,000 tonne limit will be that which applies to most licensed facilities accepting waste from road schemes. Should no EIS be submitted with a licence application, the EPA now is required by law to consult with the planning authority about whether such a report needs to be provided by the applicant.

¹⁰¹ The exact nature of the sum required is set out in the Licensing Regulations, which prescribes fees for both waste recovery and disposal activities. Applicants need to be aware that, as many waste management facilities involve both waste recovery and disposal, the EPA's practice is to charge a combined fee covering both of these elements.

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3. Erecting a site notice board, again using the format prescribed by the legislation, prior to the submission of the application.
4. Notifying the relevant local authority of the application.
5. Submitting the application to the EPA.
6. Verifying that the notice board remains in place for at least two months after the submission of the application, replacing it as necessary.

As part of its consideration of the application, the EPA is entitled to request additional information, as well as the amendment and re-erection of the site notice board and the re-publication of the newspaper notice. If significant additional information is provided by an applicant on the effects on the environment of the proposal, a second newspaper notice may need to be published.

The application is sent out to a number of specified bodies who act as consultees. These bodies are also entitled to make submissions on it. Also, submissions also can be made by third parties.

The EPA is required to consider a licence application in the context of certain statutory documents, including those relating to national waste management policy and the waste management plan for the locality.

- It is vital that all parties involved in a potential road development appreciate that, since September 2012, the EPA is prevented from making any decision on a waste licence application in respect of an activity that also warrants an EIS until planning permission has been issued.¹⁰²

In addition, the EPA is forbidden to issue a waste licence unless all of the following criteria are satisfied:

- Any emission would not contravene any national or EU environmental standard
- The activity would not cause environmental pollution
- Best available techniques are used to control emissions
- The activity is consistent with the waste management plan for the area or the national hazardous waste management plan
- The applicant is a fit and proper person to hold a waste licence
- The applicant has complied with any requirement of the EPA on the making of financial provision, such as the lodging of a bond or other guarantee
- Energy will be used efficiently
- Any noise from the site will be compliant with national noise standards
- The necessary measures are taken to prevent accidents
- Measures would be taken to prevent environmental pollution on site closure
- The intended method by which the waste is to be treated is acceptable from the point of view of environmental protection.

The EPA's decision on a waste licence application comprises two main stages. A "proposed decision" is issued, setting down in draft form the nature of the determination the EPA is minded to make.

¹⁰² See Waste Management Acts 1996-2011, Section 42(1D)(d) (as inserted by the European Union (Environmental Impact Assessment)(Waste) Regulations 2012 (S.I. No. 283 of 2012, Article 7)).

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If this is to grant a waste licence, a set of draft conditions will be appended with it. This will be notified to the applicant and persons who made submissions.

Either the applicant or third parties can appeal against the proposed decision by lodging an objection. Where an applicant lodges an objection, an objection fee of €500 has to be paid. Applicants need to be aware that an objection must be furnished within 28 days of the date of the proposed decision – lodgement after that period will invalidate the objection.

After the 28-day period has closed, objections are circulated by the EPA between the parties involved, and the parties have one month to comment on this material. At the end of that period, the EPA then has to embark on its final consideration of the application.

As part of this stage, very large-scale waste developments may be subject to an oral hearing, with this being overseen by a person appointed by the EPA. Both the applicant and third parties have the right to request such a hearing, although the EPA has total discretion as to whether such a request is to be granted. The convening of an oral hearing in respect of a site set up specifically to handle waste from roads construction would be unusual.

The second stage of this process ends with the issuing of the EPA's final decision. This decision is made in the light of the application content, all submissions and objections received, a report of any oral hearing held and so on.

Most waste licensed facilities also will require planning permission and there are unlikely to be any exceptions to

this rule. Given the relatively large scale of waste facilities that fall within the licensing regime, most applications for a waste licence and planning permission will need to be accompanied by an environmental impact statement (EIS). As noted above, Appropriate Assessment in respect of habitats impacts may be necessary and no waste licence can now be issued for a development that requires EIA until planning permission has been granted. Accordingly, it is vital that prospective licensees are confident, before the application is submitted to the EPA, about whether:

1. An EIS is or is not required
2. Appropriate assessment is or is not needed
3. Any waste site entailing EIA development has a valid planning permission for the waste activities contemplated on it or that adequate time has been given for an application for planning permission to be processed to completion.

7.3. Applying for a waste facility permit

A waste facility permit application is made to the local authority responsible for the area in which the proposed facility is to be situated. Application forms will normally be found on each local authority's web site. The application process is governed by the Waste Management (Facility Permit and Registration) Regulations, 2007 (S.I. No. 821 of 2007).¹⁰³ The EPA has published a Guidance Manual (EPA 2008) that summarises key aspects of the application process.

¹⁰³ As amended by the Waste Management (Facility Permit and Registration) Regulations, 2008 (S.I. No. 86 of 2008), the Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009), the Waste Management (Management of Waste from the Extractive Industries) Regulations 2009 (S.I. No. 566 of 2009), the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011), the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) and by the Waste Management (Facility Permit and Registration)(Amendment) Regulations 2014 (S.I. No. 320 of 2014).

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There are a number of stages involved in making the application. In summary, these comprise:

1. Completing the application form, drawings and other particulars. The content of the application must contain all of the information specified by Article 10 of the Facility Permit Regulations, as well as copies of the site notice and newspaper notice announcing the application (see below). An application fee which varies from €1000 to €2000 must be submitted.
2. Publishing a newspaper notice within a period of ten working days before the application is made. This announces the intention to submit the application, with the form and content of this notice being set down in the Facility Permit Regulations.
3. Erecting a site notice board, again using the format prescribed by the legislation, within a period of 10 working days prior to the submission of the application.
4. Submitting the application to the local authority.
5. Verifying that the notice board remains in place for at least 25 working days from the date the application was acknowledged by the local authority as valid, replacing it as necessary.

A local authority is allowed to ask for additional information in respect of a facility permit application. It may also require that defective newspaper notices or site notice boards are re-published or replaced. In some instances, an environmental impact statement may be required and/or a Natura Impact Statement or screening report for Appropriate Assessment.

As part of the process of a local authority's consideration of the application, any person or organisation can make a

submission about the application, with the local authority being obliged to consider all such communications in its determination of the application. In order to facilitate submissions, all documents sent to the local authority as part of the application are publicly available.

In order for submissions to be made, the minimum determination period for an application is 25 working days from the date it was received by the local authority.

In practice, the determination period is usually significantly longer than that, particularly in cases where further information is requested from an applicant. The legislation does not set down an absolute upper limit to the determination period. But in general, it requires the application to be determined within the longest of one of two time limits:

- 40 working days of the receipt of a valid application or from the date that a response was made by the applicant to a request for further information
- 25 working days of the date of receipt of any submissions (including a submission by the applicant on another party's submission).

A waste facility permit application is judged against the criteria set down in the Facility Permit Regulations. The legislation states that a local authority is forbidden from issuing a facility waste permit unless¹⁰⁴:

- the proposed development will not cause environmental pollution
- any emissions will not breach any statutory environmental standards
- best available techniques will be used in the management of emissions

¹⁰⁴ Waste Management (Facility Permit and Registrations) Regulations 2007 (as amended), Article 18(4)

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- the site is compliant with planning or constitutes exempt development under the Planning and Development Acts
- the applicant is a fit and proper person to hold the permit.

If a waste facility permit is to be granted, it will contain conditions. These have the main objective of ensuring that the site does not cause environmental pollution and that the operator fully complies with any of the other requirements specified in the Facility Permit Regulations.

The duration of a waste permit cannot exceed five years. Unless an application for a review has been lodged 60 days prior to its date of expiry, it will expire and site operations must cease. Accordingly, an application for a review of the permit must be made in good time in the final year in order to ensure that waste activities can continue.

Besides requiring a waste facility permit, most waste facilities subject to permits will also require planning permission.

7.4. Registration Certificates

The process by which a registration certificate is applied for is also governed by the Facility Permit Regulations. The application form supplied by the local authority in which the proposed activity is to be located must be completed. This form, the required drawings and a fee of €300 or €600 – depending on the nature of the proposed development – is submitted to the local authority. No newspaper notice or site notice is necessary. The determination time for the application is 25 working days from the date a valid application was received.

The following criteria must be satisfied by the applicant as, otherwise, the application must be refused:

- The activity must not cause environmental pollution
- No statutory emission standards must be breached
- What is proposed must represent best available techniques (BAT)
- The applicant must be a fit and proper person to hold the certificate.

Once granted, the certificate has a five-year duration, which can be extended by an application for a review. Unlike licences and permits, registration certificates are not issued with conditions. Instead, a successful applicant is required by law to abide with a series of rules set out in Schedule 4 to the Facility Permit Regulations.

7.5. The Waste Facility Permit, Registration Certificate or Waste Licence Route

To some extent, applicants may be able to exercise a degree of choice on whether a proposed waste site should be subject to a waste facility permit, registration certificate or waste licence. This is because it may be possible specifically to design a waste facility to exactly meet – but not exceed – the requirements of the Schedule to the Facility Permit Regulations which define when a waste facility is subject to a permit or certificate.

Prospective applicants need to consider a number of key factors in respect of the desirability of lodging an application for a waste facility permit, registration certificate or a waste licence. Some of the key elements are as follows:

¹⁰⁵ See Waste Management (Facility Permit and Registration) Regulations 2007 (as amended), Article 37

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- Since the Facility Permit Regulations entered into force in 2008, it is no longer possible to construct very large waste recovery facilities without a waste licence being required. This applies particularly in relation to land raising and land improvement sites. There are also limits that prevent sites being established next to each other or on top of each other as a way of circumventing the need for a licence application to be made
- Local authorities will be increasingly consulting the EPA when dealing with applications for waste facility permits or certificates relating to what are considered to be marginal cases
- Waste facility permits and registration certificates are of a fixed duration of a maximum of five years. An extension of this period can only be secured by an application for a review. Waste licences are not generally of a fixed duration and this may facilitate certainty and long-term business planning
- The Facility Permit Regulations contain mechanisms to amend permits and registration certificates. Waste licences issued under the Waste Management Acts also can be amended.
- Waste facility permits and certificates are not intended to expire completely at the end of their five-year life. It would seem to be the intention of the Facility Permit Regulations that these authorisations continue to bind the holder, even after waste management activities have ceased. In the same manner to waste licences, they can only be surrendered when an application has been successfully made to the local authority or the EPA. The only other way that a holder of these forms of authorisation can be absolved of the responsibility for compliance is to transfer them to another party; however, the EPA or the local authority is again the ultimate body that determines whether this transfer should go ahead. An effect of this system is that persons wishing to apply for any of these forms of authorisation need to appreciate that the intention of the legislation is that they can only be surrendered when the EPA or local authority is convinced that no outstanding environmental liabilities will arise from the facility. In order to establish this matter conclusively, it may be necessary to undertake a number of years of environmental monitoring, particularly at facilities where large amounts of waste have been deposited
- The application process for waste facility permits and licences – and, possibly, for certificates – can become drawn-out, particularly where there is third-party opposition. Determination periods in excess of a year are not uncommon, particularly for waste licences. The legislation also does not set down firm determination periods which, when exceeded, cause appeal procedures to be automatically commenced
- Applications for larger sites – including those subject to waste facility permits – may well need to be accompanied by an environmental impact statement (EIS). While there is no mention of any requirements for an EIS in the Facility Permit Regulations themselves, this is a requirement that is confirmed in the EPA's Guidance Manual. Accordingly, it would be expected that local authorities will require an EIS to be submitted for sites where the annual intake exceeds 25,000 tonnes, and also for smaller sites that are deemed to be associated with significant effects on the environment. Sites with possible protected habitat implications may need to be subject to the Appropriate Assessment process, with either screening reports or Natura Impact Statements being submitted. These requirements apply as much to waste facility permit applications as they do to waste licensing.¹⁰⁶
- The waste licensing process for major complex and controversial projects will often involve an oral hearing. Most applicants engage legal representation and expert witnesses for such events, with the result that the application process can become an expensive one.

¹⁰⁶ Like the matter of EIA, there is no mention of these requirements in the Facility Permit Regulations; however, appropriate assessment is a separate requirement of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011).

Appendix 2 The European Waste Catalogue

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Extract from the European Waste Catalogue.
Chapter 17. Construction & Demolition Waste
(Including Excavated Soil from Contaminated
Sites)

17 01	Concrete, bricks, tiles, ceramics	17 04 02	Aluminium
17 01 01	Concrete	17 04 03	Lead
17 01 02	Bricks	17 04 04	Zinc
17 01 03	Tiles and ceramics	17 04 05	Iron and Steel
17 01 06 *	Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics, containing dangerous substances	17 04 06	Tin
17 01 05	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	17 04 07	Mixed metals
17 02	Wood, glass and plastic	17 04 09 *	Metal waste contaminated with dangerous substances
17 02 01	Wood	17 04 10 *	Cables containing oil, coal tar and other dangerous substances
17 02 02	Glass	17 04 11	Cables other than those mentioned in 17 04 10
17 02 03	Plastic	17 05	Soil (including excavated soil from contaminated sites), stones and dredged spoil
17 02 04 *	Glass, plastic and wood containing or contaminated with dangerous substances	17 05 03 *	Soil and stones containing dangerous substances
17 03	Bituminous mixtures, coal tar and tarred products	17 05 04	Soil and stones other than those mentioned in 17 05 03
17 03 01 *	Bituminous mixtures containing coal tar	17 05 05 *	Dredging spoil containing dangerous substances
17 03 02	Bituminous mixtures containing other than those mentioned in 17 03 01	17 05 06	Dredging spoil other than those mentioned in 17 05 05
17 03 03 *	Coal tar and tarred products	17 05 07 *	Track ballast containing dangerous substances
17 04	Metals (including their alloys)		
17 04 01	Copper, bronze, brass		

- 17 05 08** Track ballast other than those mentioned in 17 05 07
- 17 06** Insulation materials and asbestos-containing construction materials
- 17 06 01 *** Insulation materials containing asbestos
- 17 06 03 *** Other insulation materials consisting of or containing dangerous substances
- 17 06 04** Insulation materials other than those mentioned in 17 06 01 and 17 06 03
- 17 05 05 *** Construction materials containing asbestos
- 17 08** Gypsum-based construction materials
- 17 08 01 *** Gypsum-based construction materials contaminated with dangerous substances
- 17 08 02** Gypsum-based construction materials other than those mentioned in 17 08 01
- 17 09** Other construction and demolition waste
- 17 09 01 *** Construction and demolition waste containing mercury
- 17 09 02 *** Construction and demolition waste containing pcb (for example pcb-containing sealants, pcb-containing resin-based flooring, pcb-containing sealed glazing units, pcb-containing capacitors)

- 17 09 03 *** Other construction and demolition wastes (including mixed wastes) containing dangerous substances
- 17 09 04** Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02, and 17 09 03

Any waste marked with an asterisk (*) is considered as a hazardous waste pursuant to Directive 91/689/EEC on Hazardous Waste and European Waste Catalogue and Hazardous Waste List (valid from 1/1/2002), Environmental Protection Agency, Ireland

Appendix 3 Relevant Legislation

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9.1. Statutes

The legislation covered earlier in these Guidelines is now extensive, with complexity being added to by the fact that both the relevant Acts and their subsidiary statutory instruments have been amended regularly since they first appeared. For example, the text of what is now the Planning and Development Acts, 2000-2014, has been altered by over 40 other Acts since 2000 and also by a number of statutory instruments.

Fortunately, copies of the Acts mentioned in these Guidelines have been consolidated by the Law Reform Commission to include all of the amendments. This means that the following primary legislation is available on the Commission's web site and at this alphabetical link: <http://www.lawreform.ie/revised-acts/alphabetical-list-of-revised-acts.360.html>. This applies to the:

- Planning and Development Acts, 2000-2014
- The Waste Management Acts, 1996-2011¹⁰⁷
- The Environmental Protection Agency Acts, 1992 to 2011
- The Roads Acts, 1993-2007.

While this is an invaluable resource, readers are warned that it is possible that very recent changes to the legislation may not have been incorporated into the material held by the Law Reform Commission. The Commission indicates on each of its consolidated Acts the date when updating took place.

9.2. Regulations

Typically, many Acts of the Oireachtas contain delegated provisions that empower the relevant Minister of the Government to make secondary regulations, which usually take the form of a statutory instrument. In certain cases, these have also become lengthy and complicated due to their significant amendment. Where consolidated versions are not available, a list of these provisions and their main amendments is set out below.

Subsidiary to the Planning and Development Acts are the Planning and Development Regulations 2001-2013. Two, slightly different, unofficial consolidated versions are available on the Department of the Environment, Community and Local Government's website¹⁰⁸.

The principal subsidiary legislation to the Waste Management Acts includes:

- Waste Management (Licensing) Regulations, 2004 (S.I. No. 395 of 2004); as amended by the Waste Management (Registration of Brokers and Dealers) Regulations, 2008 (S.I. No. 113 of 2008), by the Waste Management (Certification Of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations, 2008 (S.I. No. 524 of 2008), by the Waste Management (Licensing)(Amendment) Regulations, 2010 (S.I. No. 350 of 2010), by the Inland Fisheries Act 2010, by the European Communities (Waste Directive) Regulations, 2011 (S.I. No. 126 of 2011), by the European Communities (Metallic Mercury Waste) Regulations 2013 (S.I. No. 72 of 2014 and by the European Union (Waste Incineration Plants and Waste Co-Incineration Plants) Regulations 2013 (S.I. No. 148 of 2013).

¹⁰⁷ At the time of writing (August 2014), the European Union (Access to Review of Decisions for Certain Bodies or Organisations promoting Environmental Protection) Regulations 2014 (S.I. No. 352 of 2014) have yet to be included in the consolidated version

¹⁰⁸ <http://www.environ.ie/en/DevelopmentHousing/PlanningDevelopment/Planning/PlanningLegislation-Overview/PlanningRegulations/> (accessed 14/8/14)

- Waste Management (Shipment of Waste) Regulations, 2007 (S.I. No. 419 of 2007; as amended by the Waste Management (Registration of Brokers and Dealers) Regulations 2008 (S.I. No. 113 of 2008) and by the European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011).
 - Waste Management (Waste Facility Permit and Registration) Regulations, 2007 (S.I. No. 821 of 2007), as amended by the Waste Management (Facility Permit and Registration) Regulations, 2008 (S.I. No. 86 of 2008), the Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009), the Waste Management (Management of Waste from the Extractive Industries) Regulations 2009 (S.I. No. 566 of 2009), the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) and by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), European Union (Household Food Waste and Biowaste) Regulations 2013 (S.I. No. 71 of 2013) and by the Waste Management (Facility Permit and Registration)(Amendment) Regulations 2014 (S.I. No. 320 of 2014).
 - Waste Management (Collection Permit) Regulations, 2007 (S.I. No. 820 of 2007), as amended by the Waste Management (Collection Permit)(Amendment) Regulations, 2008 (S.I. No. 87 of 2008), the Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) and the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) and by the European Union (Household Food Waste and Biowaste) Regulations 2013 (S.I. No. 71 of 2013).
 - Waste Management (Registration of Brokers and Dealers) Regulations, 2008 (S.I. No. 113 of 2008)
 - Waste Management (Prohibition of Waste Disposal by Burning) Regulations 2009 (S.I. No. 286 of 2009), as amended by the Waste Management (Prohibition of Waste Disposal by Burning) (Amendment) Regulations 2013(S.I. No. 504 of 2013)
 - European Communities (Waste Directive) Regulations, 2011 (S.I. No. 126 of 2011), as amended by the European Communities (Waste Directive) (No. 2) Regulations 2011. (S.I. No. 323 of 2011)
 - European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)
- The environmental liability regime discussed in Chapter 4 is a consequence of the European Communities (Environmental Liability) Regulations 2008, S.I. No. 547 of 2008, as amended by the:
- European Communities (Environmental Liability) (Amendment) Regulations 2011 (S.I. No. 307 of 2011)
 - European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011).
- Legislation on Appropriate Assessment¹⁰⁹ relating to planning applications is contained within the Planning and Development Acts and its subsidiary regulations. In most other cases (including for waste activities), it is set down in the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended by the:
- European Union (Birds and Natural Habitats) (Sea-fisheries) Regulations 2013 (S.I. No. 290 of 2013).
 - European Communities (Birds and Natural Habitats) (Amendment) Regulations 2013 (S.I. No. 499 of 2013).

¹⁰⁹ Requirements on Environmental Impact Assessment (EIA) are contained within the Planning and Development Acts and in the Planning and Development Regulations. The Waste Management Acts and its subsidiary legislation contain EIA provisions that affect waste licence applications.

Guidelines for

THE MANAGEMENT OF WASTE FROM NATIONAL ROAD CONSTRUCTION PROJECTS



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Rock Crushing on the M8N8 Cashel to Cullin Hill Scheme
(Photograph courtesy of SRB Civil Engineering Ltd (a joint
venture between Roadbridge Ltd and John Sisk & Son Ltd)

