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The Management of Waste from National Road Construction Projects

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TII Publications

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1. Introduction

The effective management of waste, arising from the construction of national road projects, 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 (EU) legislation, and, in this respect, successful proceedings have been taken against Ireland at the Court of Justice of the European Union (CJEU) on account of the existence of unauthorised facilities for the disposal of construction waste.[*]

Due to the broad legal definition of waste in the Waste Management Acts 1996–2011, waste issues must 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. As well as 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 standards document is intended to assist all parties – designers, local authorities, contractors, etc. – on how the challenge of effective waste management is to be met in a road-building context.

In particular, this standards document will:

- Help all parties understand the complicated legal framework which governs the management of wastes generated by national road construction projects;
- Set out good practice to ensure that effective waste management remains a priority throughout the design and construction stages of national road projects; the purpose being to minimise 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; and
- Provide information to facilitate an effective dialogue between road contractors, relevant statutory bodies and third parties on how waste should be correctly handled in a road-building context.

[*] Refer to Case C-494/01 Commission v Ireland [2005] ECR I-3331

2. Environmental Operating Plans

This Standard should be read in conjunction with *Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan* (the National Roads Authority (NRA), 2007) [1] and must be considered by main contractors in the drafting of the Environmental Operating Plan (EOP). While further detail is contained in the guidelines, 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, etc.; and
- Requires that an audit system be put in place to ensure the EOP's effectiveness.

This Standard must be complied with when the site-specific Waste Environmental Control Measures Sheet is devised in accordance with the EOP guidelines.

3. National Initiatives and Issues

Waste management has become a very high profile issue in Ireland over the last 20 years. A series of national policy documents have been produced, along with a comprehensive package of legislation to advance national and EU-instigated environmental protection goals. While much progress has been made in the roll-out of these initiatives, it is clear that more still has to be done in respect of this aspect of environmental policy.

The Environmental Protection Agency (EPA) estimated that the amount of construction and demolition (C&D) waste arising in Ireland annually was approximately three million tonnes in 2011 (EPA 2013a, p.66); [2] a significant decrease from the 17 million tonnes produced in 2006 (EPA 2007a). [3] The EPA suggests that approximately 66% of this construction waste 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 C&D waste for earlier years, the EPA acknowledges that there remains uncertainty about the final destination of a significant proportion of this type of waste.

In 2011, there were four main destinations for waste categorised as soil and stones (EPA 2013a, p.67). [2] Approximately one million tonnes (70%) were consigned for land reclamation purposes at sites authorised by waste facility permits, issued by the local authorities. A total of 16% passed to EPA licensed landfill sites, to be used for landfill cover and for other site engineering purposes, and 10% was consigned to other, non-landfill, licensed waste sites and was recovered. A further 2% was disposed of at the licensed landfill infrastructure.

More recent data became available in 2016, with the publication of a national report on C&D waste by the three regional waste planning offices (Eastern Midlands Region/Connacht Ulster Region/Southern Region (EMR/CUR/SR), 2016). [4] The purpose of this document was to focus solely on the management of the soil and stone component of construction waste, attempting to match arisings with available recovery capacity.

The following key findings are particularly important:

- A 55% increase in the volume of construction-related soil and stones was generated between 2012 and 2015, resulting in an increase in this waste stream from 2.25 million tonnes to 3.5 million tonnes over the period; and
- A forecasting exercise was undertaken as part of this work and suggested an annual construction-related waste growth rate of 5% from 2016 to 2021, with a 3% year-on-year increase for 2022 and 2023. This suggests that the volume of the soil and stone fraction of construction waste could rise to 5–6 million tonnes per year between 2018 and 2023.

The magnitude of waste generated was approximately 10 times greater than the total amount of waste produced from Irish households.[*] Moreover, it is widely recognised that there is significant and poorly tapped potential to reduce the quantity of C&D 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 C&D waste management has been a theme of the four national waste policy documents that have been published by the Government since 1998.

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

3.1 The four waste policy documents

The first policy document was entitled *Waste Management – Changing our Ways* (Department of the Environment, Heritage and Local Government (DoEHLG) 1998). [5] It noted that, while recovery technologies were mature and readily available, significant quantities of construction waste were being unnecessarily disposed of. In response, the Government proposed the following recycling targets in the policy for C&D waste (DoEHLG 1998, p.7): [5]

- Recycling of at least 50% within a five-year period, ending in 2003; and
- Recycling to increase to 85% over a 15 year period, finishing in 2013.

In order to further these objectives, the 1998 policy document invited C&D 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 national 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). [6] It approvingly notes that the C&D 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 C&D Waste Management Council, which comprised representatives of the sector, including a delegate from the NRA.

A third national policy document was published in 2004, entitled *Waste Management – Taking Stock and Moving Forward* (DoEHLG 2004). [7] 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 C&D waste, with EPA data being cited to suggest that sectorial recycling rates of 65% had been achieved in 2001 (DoEHLG 2004, p.33); [7] a figure that is stated to exceed the first of the two national recovery targets.

In 2012, *A Resource Opportunity – Waste Management Policy in Ireland* (Department of the Environment, Community and Local Government (DoECLG) 2012) [8] was published, which covers the period up to 2020. This most recent policy document contains the following three over-arching 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; and
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 C&D waste. This may be due to a 70% target for the recovery and re-use of this waste type already being contained in national law, to be achieved by 2020.[*] Furthermore, the EPA has reported that Ireland is on track to meet this objective, with 2014 data indicating a 68% recovery figure (EPA 2017a). [9]

[*] This target applies to all non-hazardous C&D 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)

3.2 Waste policy and regulatory structures

National waste management policy falls within the remit of the Department of Communications, Climate Action and Environment.[*] Land-use planning and development control is dealt with separately, being under the aegis of the Department of Planning, Housing and Local Government.[†]

Policy implementation is devolved principally to the EPA and to the 31 county or city councils. As a general rule, the EPA regulates the most environmentally significant industrial and waste infrastructure on a national basis, issuing licences via its Office of Environmental Sustainability.[‡] Licence compliance is monitored by its Office of Environmental Enforcement. The EPA also has a role of general oversight of local authority environmental activities and, for example, investigates allegations from members of the public relating to inadequate enforcement.

Individual local authorities are tasked with the authorisation of many of the smaller waste facilities and with the issuing of planning permissions. They are also primarily responsible for investigation and enforcement relating to unauthorised dumping; the EPA only becomes involved in the more serious cases.

For reasons relating to economies of scale and organisational effectiveness, local authorities are required to act collectively in some instances, with one or more local authorities acting a "lead" body. For example, for waste planning purposes, the local authorities are grouped by three geographical areas, with related activities being coordinated respectively by the Southern Region Waste Management Office (SRWMO[§]), the Eastern-Midlands Waste Regional Office (EMWRO[**]) and the Connacht-Ulster Waste Regional Office (CUWRO[††]). Similarly, the more strategic aspects of waste enforcement fall within the remit of the three Waste Enforcement Regional Lead Authorities (WERLAs[‡‡]). Contrastingly, and as discussed in Section 4, the waste collection permit system is operated by Offaly County Council on a national basis, while Dublin City Council acts nationally in relation to the control of the movement of hazardous waste and also in respect of monitoring and approving international waste movements.

3.3 Waste prevention and the Waste Hierarchy

In 2009, the EPA published its first revision of a National Waste Prevention Programme which covered the period up to 2012 (EPA 2009); [10] an initiative that spawned from the 2004 national waste policy document and EU proposals that were finally included in the 2008 revision of the Directive on Waste.[§§] The EPA's document proposed a waste prevention initiative, aimed at improving the handling of non-natural construction waste.

[*] http://www.dccae.gov.ie/en-ie/Pages/default.aspx
[†] http://www.housing.gov.ie/
[‡] An organisational structure of the EPA can be found at the following link (accessed 8/8/17): http://www.epa.ie/about/org/
[§] http://southernwasteregion.ie/ (accessed 8/8/17)
[**] http://emwr.ie/ (accessed 8/8/17)
[††] http://www.curwmo.ie/ (accessed 8/8/17)
[‡‡] http://www.dccae.gov.ie/en-ie/environment/topics/waste/enforcement/enforcement-structures/Pages/Waste-Enforcement-Regional-Lead-Authorities.aspx (accessed 8/8/17)
[§§] 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

In 2011, the EU requirements on waste prevention became national law, being included in the Waste Management Acts.[*] The most recent version of the National Waste Prevention Programme has been incorporated into the EPA's publication, *Towards a Resource Efficient Ireland – A National Strategy to 2020* (EPA, 2014a). [11]

In parallel to the formalisation of this waste prevention initiative, what is known as the "Waste Hierarchy" also became part of national law.[†] 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) [12] 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 comprising[‡]:

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 detail[§]. For example, "prevention" relates to measures that are applicable before a material becomes waste and include a material's re-use. In this context, the concepts of "re-use" and preparing for "re-use" are differentiated by the fact that the former does not relate to materials that are defined as waste; however, by definition, the latter must do so, as it describes a process by which waste is somehow being treated to make it usable.[**] Thus, "preparing for re-use" covers checking, cleaning and repairing operations that cause a product or its components to be suitable for re-use without any more extensive reprocessing. These terms are of significance when wastes and by-products – including those from road construction – are to be differentiated (refer to Section 4.1.4). The definition of the term "recycling" in the waste hierarchy 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 generated by road construction, this implies that the re-use of old bricks is generally 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 Section 5.

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

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

[‡] 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

[§] Refer to Waste Management Acts, Section 5(1) (as amended): refer also to European Commission (2012)

[**] Refer to European Commission (2012), p.30

3.4 Outcomes and outstanding issues

Over the period since the four national waste policy statements were published, continued progress has been made towards the achievement of the 2013 national targets which were contained in *Waste Management – Changing our Ways*. [5] As already noted, the EPA's data for 2011 suggest that high recovery rates are being achieved for C&D waste. However, much of this material is not subject to re-use, with a very significant contribution to these rates 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) [13] 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). [2] While a proportion of the discrepancy between these two statistical sources may be due to inconsistencies in data collection*, the "leakage" of C&D waste away from authorised waste management sites has been a significant problem in Ireland over the last decade.

As previously mentioned, the European Commission has already successfully pursued infraction proceedings against Ireland at the CJEU in relation to a number of unauthorised waste sites that were accepting C&D waste. A report by the EPA (EPA 2005), [14] in response to the CJEU's ruling against Ireland, sets down a series of action steps in relation to the C&D sector. These actions are reproduced in Table 1. While some of these actions have been addressed, there is still a need to continue with this progress.

As well as the EPA's suggestion that more needs to be done to ensure that all transfers of C&D waste are fully compliant with national law, there are some important issues affecting the availability of suitable sites for the receipt of C&D waste, including the soil and stone fraction. The report by the three waste planning regions mentioned previously (EMR/CUR/SR, 2016) [4] contains relevant conclusions about the availability of suitable outlets for this waste stream over the short to medium term. Accordingly, it is vital that all parties in road construction are aware of these issues, particularly that there is no guarantee that pre-existing outlets for the soil and stone fraction are available, either at all or over the entire duration of a road project.

Apart from the report indicating that there are shortages of suitable C&D waste recovery facilities in both the Dublin region and Cork, it also suggests that the availability of some of the existing and very large soil and stone facilities may become suddenly restricted. These facilities are generally licensed by the EPA, with each licence being required by EU law to contain maximum annual waste throughput limits. While such limits often are well in excess of 100,000 tonnes per year, they cannot be exceeded. The result is that, once a site has reached its annual maximum, it has to shut and only reopen in the following year. Two examples of this phenomenon are documented, with one facility having to close in July 2016 and another one closing in September 2016. Both facilities could only reopen at the start of 2017.

Overall, the report by the waste planning regions raises concerns about a shortfall in the availability of sites for inert wastes such as soil and stones, warning that these will be worsened by the economic upturn and government policy to stimulate capital expenditure on infrastructure and housing.

* 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

Table 1: EPA's action plan to address the issue of the poor management of C&D waste (EPA 2005, p.55) *[14]*

Action	Responsibility*
Those involved in illegal disposal of C&D waste should be pursued on indictment† 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‡ and consider placing on a statutory footing, the draft guidelines for C&D waste management	DoECLG
Integrate the requirements of the draft§ 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

* LAs = local authorities; DoECLG = Department of Environment, Community and Local Government (now the Department of Communications, Climate Action and Environment); C&D sector = construction and demolition sector

† As discussed elsewhere in this standards 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

‡ After the EPA's list of Action Steps was published, the Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects was finalised, being published in July 2006 by the DoEHLG

§ As noted previously, these guidelines were finalised and published in 2006

4. The Legal Requirements on Contractors involved in National Road Projects

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 onto sub-contractors or 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 project site and question relevant personnel.[*] They can also stop and board vehicles. Individuals who obstruct such activities open themselves to prosecution under the Acts.[†] A similar sanction affects persons who give false or misleading information in respect of such inquiries.

An increasing priority of the local authorities who are charged with the oversight of this system is on enforcement and implementation. Inevitably, waste management activities undertaken by road contractors seem likely to be subject to increasing levels of regulatory scrutiny.

Both local authorities and the EPA 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.[‡] 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, 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 €5,000[§] 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.

[*] Waste Management Acts, Section 14
[†] Waste Management Acts, Section 14(6)
[‡] Waste Management Acts, Section 55 and 56
[§] 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 construction project 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.

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.[*] Accordingly, these substances cannot be "waste" and none of the requirements of the Act will apply. The full legal wording of these two types of waste is as follows:

- Land (in situ) including unexcavated contaminated soil and buildings permanently connected with land; and
- 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 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.[†]

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" (refer to Section 4.1), whether it does so is also dependent on the second exclusion listed previously.

[*] 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)
[†] Some additional explanation is given in European Commission (2012) p.41

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.[*] In order for this exclusion to apply, it is essential that certain requisites be met such as:

- The material must be uncontaminated;
- The material must comprise soil or otherwise be naturally occurring materials, i.e. it cannot be composed of bricks, rubble or other man-made substances or objects;
- The material must have been excavated as part of the construction activities and be used on the project site[†] from which it was excavated for the purposes of construction, i.e. it must be acquired as part of the construction works and be deposited within those site works; and
- The material must be used "for the purposes of construction", which implies that some meaningful structure or use must arise from the 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 project site in the hope that some use will be found for it at a later stage.[‡] If it is stored in this manner, then it is likely that it will fall within the definition of "waste" that is discussed further on. The requirements of the Waste Management Acts would apply in such circumstances.

Besides the previously listed 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). [12] 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.[§]

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 CJEU.[**] As will be seen, the issue can become 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.

[*] Some additional explanation is given in European Commission (2012) p.42
[†] Project site is defined as the extent of the project area described in the EIAR and considered during the EIA process
[‡] This interpretation follows rulings from the CJEU.
[§] 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
[**] 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)

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 CJEU. However, it should also be re-emphasised that the relevant issues are clear-cut for the majority of waste transactions. In cases of uncertainty, reference should be made to material suggested in the Further Reading section (Section 4.1.9) or seek specialist legal advice for particularly complex cases. If necessary, the matter can be put before the EPA (refer to Section 4.4.4) and/or legal advice be sought.

Section 4(1) of the Waste Management Acts* defines waste. It states that:

- "'waste' means any substance or object which the holder discards or intends or is required to discard."

There are two key elements in understanding this definition as follows:

- The nature of what is meant by "discarding"; and
- The involvement of the "holder" of the waste in the process of discarding.

As well as these aspects, changes made to the national legislation in 2011† 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; and
- 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 following sections will consider each of these factors in more detail.

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. Typically, 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. Evidently, 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;

* As amended by the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)
† Regulations 27 and 28 of the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)

- It is consigned beyond the boundaries of the project site for a road project 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.

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

It is also important to understand that if a material is 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. It is also irrelevant 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.

The following 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 previously and in accordance with the law set down by the CJEU, if a material is discarded as part of a road project that material falls within the definition of "waste".

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.

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 CJEU and, accordingly, reference may need to be made to some of these judgments when points of interpretation arise.[*]

The EU provisions relating to by-products are set down in Irish law in the European Communities (Waste Directive) Regulations 2011.[†] 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 discussed in Section 4.1.1, cannot be met.

The following outlines Key Legal Criteria that distinguishes 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;

[*] Refer also to European Commission (2012) pp.14-22
[†] S.I. No. 126 of 2011

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.

Regulation 27 of the 2011 Regulations contains four criteria that distinguish a by-product from waste. Accordingly, these criteria have a key function in determining whether or not the Waste Management Acts apply to materials generated by road construction. The key legal wording[*] is set out previously in italics.

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 CJEU.

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 CJEU. 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. According to the CJEU, a by-product is something – to use the Court's term – that "falls away" when such a process takes place.[†] 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. Inevitably, in an ideal world, the operator would not wish to produce it at all.

As can be seen previously, the four conditions are set down in the European Communities (Waste Directive) Regulations 2011 to indicate when a material "may"[‡] be a by-product rather than a waste. All of the following must be satisfied:

- The further use of the material must be "certain", i.e. the intended end-use must be known at the time the material is produced; by contrast, the CJEU 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;[§]
- 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; and
- 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.

[*] European Communities (Waste Directive) Regulations 2011, Regulation 27(1)
[†] Refer to the judgment of Palin Granit, Case C-9/00, 18 April 2002, Para 32
[‡] By contrast, the separate end-of-waste provisions in Regulation 28 state that a material "shall" not be considered to be waste, when four other criteria are met
[§] Refer to 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

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 discretionary* and, when they are exercised by the EPA, a copy of the operator's notification must be placed in a public register.† The EPA has an on-line notification form to facilitate this process and will no longer accept paper-based applications.‡ All potential users wishing to access this form need to register on the EPA's Environmental Data Exchange Network (EDEN) electronic portal. 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 CJEU. The submission of this type of material will ensure that the EPA has all of the considerations relevant to what is being proposed.

The Agency's guidance document [15] 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 determines whether a particular substance or object is a waste or is a by-product, i.e. 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,§ should it not be made, the burden of proof in any subsequent legal proceedings rests with the holder of the by-product/waste. Therefore, that person 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) [16] 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. Generally, it is based on "lean design" where a deliberate approach is taken to achieve an earthworks balance.

Earlier in this Section, 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 Acts 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.

* Refer to "may" in the European Communities (Waste Directive) Regulations 2011, Regulation 27(3)(a)
† European Communities (Waste Directive) Regulations 2011, Regulation 27(5)
‡ The on-line form and additional explanation can be found at this link:
http://www.epa.ie/waste/wastereg/byprod/ (accessed 23/5/17)
§ 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 2011
** Section 3(1), as amended by the European Communities (Waste Directive) Regulations, 2011

In general, many natural and uncontaminated excavated materials taken from within the boundaries of the project site and used for site engineering purposes anywhere else within the authorised development are likely to benefit from this exclusion. In addition and notwithstanding the existence of this statutory 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.

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 are 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. Therefore, 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 previous general principles to apply, a number of factors need to be satisfied. These include the following:

- That the extraction and deposit operations associated with a cut-and-fill operation are clearly envisaged in the environmental impact assessment report (EIAR) or other documentation used for the purposes of gaining statutory approval for the road project;
- That the cut-and-fill elements occur within the project site 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; and
- 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. If the material is unsuitable for immediate use, it is to be regarded as needing to be discarded. Therefore, 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 CJEU 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 as to whether they are no longer to be viewed as discarded. This will particularly be 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.[*]

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

[*] Refer also to European Commission (2012) pp.22-27

to define the point when the definition of waste is no longer applicable 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 details of what Regulation 28 comprises, it is worth noting that there are certain contrasts between these provisions and those discussed previously that relate to by-products. Firstly, 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 occurred. 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 C&D 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 2011 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. Certain specified waste shall cease to be waste when it has undergone a recovery operation, including recycling, 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.

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 CJEU. Accordingly, the EPA must ensure that any decisions it takes are consistent with these rulings.

* This process is explained from the EPA's perspective at this link on the Agency's website: http://www.epa.ie/waste/wastereg/art28/ (accessed 23/5/17)

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

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.

A key issue, which arises both from the case law and also from one of the four criteria mentioned previously, is the need to consider whether a waste has been fully – or "completely" – recovered. For example, the first three of the four criteria highlight the need for the recovered material to be suitable for the specified use. Overall, this issue must be approached carefully, particularly as EU and national law requires that a case-by-case approach is taken, with the CJEU'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 project from any location outside the project site 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 in the following paragraph – the actual recovery process takes place when the materials have been combined into the foundations of whatever structure is being constructed on the road project.

Increasingly, C&D 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 the following:

- 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 recovered material 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, i.e. that a readily available market for the material already exists and is immediately accessible; and
- That the material resultant from the processing operation has a significant market value to prospective purchasers.[*]

[*] Following the earlier discussion in this standards 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

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 United Kingdom (UK) by the Waste and Resources Action Programme (WRAP).* 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). [17] 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, etc. 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.

Additionally, the EU Construction & Demolition Waste Management Protocol (European Commission 2016, p20) [18] suggests that reference can be made to EU standards for construction materials as a way of demonstrating material quality. These are required by the EU Regulation on Construction Products (Regulation 305/2011†) and take the form of some 420 Harmonised European Standards (hENs). Should there be no standard available, the Protocol suggests that reference can be made to the European Technical Assessment, issued in accordance with the European Assessment Document (EAD).‡

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;§ 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 project, there may be more than one "holder". A main contractor involved in the project, in combination with one or more subcontractors actually undertaking the work, may be operating in tandem; 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 standards document, if more than one organisation commits an offence in relation to the Waste Management Acts, all such bodies are open to possible prosecution.

* Refer to http://www.wrap.org.uk. Refer also to the UK's EQual Programme and its on-line quality protocol checker at http://qpchecker.info/ and the UK code of practice developed by Claire (2011)
† As amended by EU Regulations 568/2014 and 574 of 2014: refer to http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02011R0305-20140616&rid=1 (accessed 12/6/17)
‡ Refer also to Information Note on the Construction Products Regulation published by the Building Regulations Advisory body, available at http://www.housing.gov.ie/sites/default/files/migrated-files/en/Publications/DevelopmentandHousing/BuildingStandards/FileDownLoad%2C30649%2Cen.pdf (accessed 12/6/17)
§ 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 2011)

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 given in the Waste Management Acts states that a waste is something that the holder of it:

- Discards;
- Intends to discard; or
- Is required to discard.

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 discarded 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.[*]

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 states. For example, it is obvious why persons are not allowed to simply state that they are not discarding a material and thereby 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, what is normal practice for the handling of materials of this nature, etc.

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 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. 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 previously, uncontaminated excavated materials for use 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 criteria[†] (refer to Section 4.1.1). Accordingly, if this exclusion applies, there is no need to embark on a detailed consideration of the definition of "waste", whether the material is being discarded, etc. That debate only applies to materials that cannot be said to benefit from this legal exclusion.

[*] Refer also to European Commission (2012) pp.10-12
[†] Waste Management Acts, Section 3(1)(c)

It also needs to be understood that while the content of this standards 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 CJEU 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 surrounding whether something is "waste" and/or if an authorisation under the Waste Management Acts is needed, this matter can be settled by requesting the view of the EPA. This process now has more than one route since the Acts were amended in 2011. As discussed previously, 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,[*] 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 – which is termed an "Article 11 Determination" – are set down on the EPA's (EPA 2014b) website. This process is initiated by the completion and submission to the Agency of an on-line form which sets out the details of what is being proposed.

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 project 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 standards document.

4.1.9 Further reading

As the CJEU 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 *Guidance Manual Waste Facility Permit and Registration Regulations* (2008) [19] contains some extracts of EU material, a more detailed discussion of the CJEU's judgments on the definition of waste can be found in the EPA's guidance on the environmental regulations affecting the quarrying sector (refer to Appendix 1 of EPA 2012a). [20] 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 2013b). [16]

Additionally, the matter of whether the backfill of a worked-out quarry constitutes a waste "recovery" or "disposal" operation was analysed in 2015 by the Court of Appeal in the UK.[†] As the basis of the definition of these terms is EU law, it is likely that a similar approach would be followed in Ireland.

[*] 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)

[†] Refer to Tarmac Aggregates v Secretary of State for Environment [2015] EWCA Civ 1149; available at http://www.bailii.org/cgi-

At European level, the European Commission has produced general guidance on the revised Directive on Waste (European Commission 2012). [12] This document is particularly useful as describes key terms, such as “discard”, “by-product”, etc.

UK-sourced guidance is also useful as 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 (Department for Environment, Food and Rural Affairs (DEFRA) 2012), [21] with this document containing a detailed analysis of the judgments of the CJEU.* More recently, a web-based IsItWaste tool has been published,† which has also spawned guidance on whether a waste-derived material can be safely substituted for a primary material.‡

Reflecting the increasing trend in the UK for devolution, the Scottish Environment Protection Agency (SEPA) has published its own guidance, with publications being available on the regulatory approach to recycled aggregates (SEPA 2013) [22] and road planings (SEPA undated). [23]

Another valuable UK guidance document, 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). [24] 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.§ 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.

4.2 Transferring waste generated by a national road project

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.** As will be covered further on in this standards document, an authorisation can take the form of a waste collection permit, a waste or industrial emissions licence, a waste 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.

bin/format.cgi?doc=/ew/cases/EWCA/Civ/2015/1149.html&query=(title:(+Tarmac+))+AND+(title:(+Aggregates+)) (accessed 15/6/17)

* 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

† https://www.gov.uk/government/publications/isitwaste-tool-for-advice-on-the-by-products-and-end-of-waste-tests/isitwaste-tool-user-guide#definition-of-waste-information-needed-to-use-the-tool (accessed 15/6/17)

‡ Environment Agency (2014) End-of-waste and By-product Hazard and Risk Assessment, available at https://s3-eu-west-1.amazonaws.com/is-it-waste/risk-guidance.pdf (accessed 15/6/17)

§ 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 2013b)

** Such bodies are termed “appropriate persons” under Section 32(5) of the Waste Management Act

When transferring waste, at the very minimum, each contractor involved in arranging for waste to be transferred away from a road project must check to ensure the following:

- 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 project 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; and
- That these authorisations will not expire within the lifetime of the project.

While the nature of the more important forms of statutory authorisation will be covered further on, parties sub-contracting other service providers to handle waste must 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 projects; otherwise, a waste movement may contravene Section 32 of the Waste Management Acts and the contractor may incur potential criminal liability. In cases of uncertainty, the information can be checked with the EPA or with the local authority charged with issuing the authorisation.

The checks outlined previously are the minimum checks a contractor involved in the construction of a national road project has to carry out in relation to engaging a person to manage waste off site. Documentary evidence of making this verification should be retained.

4.3 Waste collection permits

Subject to some minor exceptions, all bodies involved in the collection[*] of waste – including those handling inert waste, waste soil and stones, waste bricks or rubble – are required to be authorised by a waste collection permit.[†] As well as 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. As well as being open to prosecution, if collection permit holders are involved in unauthorised waste activities, such persons can have their permit revoked.

[*] Refer to definition in Waste Management Acts, Section 5(1), as amended by the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)

[†] 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), the Waste Management (Collection Permit) (Amendment) Regulations 2015 (S.I. No. 197 of 2015), the European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 430 of 2015), the Waste Management (Collection Permit)(Amendment) Regulations 2016 (S.I. No. 24 of 2016) and by the Waste Management (Collection Permit) (Amendment)(No.2) Regulations 2016 (S.I. No. 346 of 2016)

The Waste Management (Collection Permit) Regulations 2007 set down the detail of how waste collection permits are issued. Depending upon the applicant's wishes and the geographical spread of that person's business, permits are issued to authorise the collection of waste in a single local authority's area, in one of the three waste management planning regions or for the whole of Ireland. The constituent local authorities of the three waste planning regions are listed in Table 2.

Since 1st February 2012, new and revised waste collection permits are applied for and issued by the National Waste Collection Permit Office,* 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. In 2016, the geographical extent of a collection permit for a particular region of Ireland was simplified by reducing what were hitherto 10 regions to three.† This change coincided with an earlier amalgamation of the areas delineated for waste management planning purposes.

Table 2: Geographical Extent of Regional Waste Collection Permits‡

Region	Constituent Local Authorities
Connacht-Ulster Region	Cavan, Donegal, Galway, Leitrim, Mayo, Monaghan, Roscommon and Sligo County Councils and Galway City Council
Eastern and Midlands Region	Dún Laoghaire-Rathdown, Fingal, Longford, Westmeath, Kildare, Offaly, Louth, Laois, Meath, Wicklow and South Dublin County Councils and Dublin City Council
Southern Region	Carlow, Cork, Clare, Kerry, Kilkenny, Tipperary and Wexford County Councils, Limerick City and County Council, Waterford City and County Council and Cork City Council

As noted, waste collection permits are issued to authorise the collection of waste in a single local authority area or, more commonly, in one or more of the three waste management planning regions. For example, a permit issued in respect of waste collection activities in the Southern Region allows waste to be collected in the functional areas of Carlow, Cork, Clare, Kerry, Kilkenny, Tipperary and Wexford County Councils, Limerick City and County Council, Waterford City and County Council and Cork City Council. This means that, for example, where a road development is extending from the functional area of Kilkenny County Council into County Laois, a collection permit issued only for collection activities in the Southern Region will not authorise waste to be collected in Laois. The haulier must hold a multi-regional collection permit that covers both the Southern Region and the Eastern and Midlands Region. Alternatively, that person can hold a permit that authorises the collection of waste across the entire country.

Copies of waste collection permits are held by the National Waste Collection Permit Office and that Office can also be contacted for advice. Permit application forms are also 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. While a more uniform approach is now in place due to the formation of the National Waste Collection Permit Office, a few local authorities have required particular conditions to feature in a permit that is to apply in their area. Moreover, some variation in the scope of permits is also a function of the content of the application that was made to obtain it. These factors mean that contractors on road projects must 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.

* http://www.nwcpo.ie/
† Changed by the Waste Management (Collection Permit)(Amendment) Regulations 2016 (S.I. No. 24 of 2016)
‡ Note that a waste collection permit also can be held for single local authority areas or for the whole of Ireland

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. Since it was amended in 2016, the legislation stipulates that this application must be lodged before 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.† 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.

Regarding waste collection permits, at the very minimum, each contractor involved in employing a waste haulier must check to ensure the following:

- That the organisation holds a valid collection permit for the collection of waste along the entire route of the road project;
- Whether the collection permit has an expiry date in relation to the duration of the construction of the road project 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: refer to 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 project;
- That the conditions of the permit allow for the recovery and disposal facilities specified for the management of waste from the road project to be accessed (some collection permits identify which disposal and recovery facilities are to be used by the permit holder, and 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; and
- That the permit is checked regularly to establish if any changes have been made, including any consequent to a review by the issuing authority.

These are 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 must be retained.

As part of its function of administering the collection permit system, the National Waste Collection Permit Office has developed a searchable register of all collection permits it has issued.‡

* 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 as a review, in reality it is a completely new application

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

‡ http://www.nwcpo.ie/permitsearch.aspx (accessed 9/6/17)

4.4 EPA licences, waste facility permits and certificate of registration

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

- Industrial emissions licences;
- Waste licences;
- Waste facility permits; and
- Certificate of registration.

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 some 40 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 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 certificate of registration. Operators of most large waste sites that stopped accepting biodegradable or hazardous waste before 7th January 2014 also remain subject to a waste licence.

These changes are significant as 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 but where restoration and capping works are still underway.

As well as the EPA's two licensing regimes, a revised lower-tier scheme of statutory authorisations involving waste facility permits and certificate of registration 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; a certificate of registration authorises 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.[*] These regulations will be termed the "Facility Permit Regulations" in the remainder of this standards document.

[*] 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), the Waste Management (Facility Permit and Registration)(Amendment) Regulations 2014 (S.I. No. 320 of 2014), the Waste Management (Facility Permit and Registration) (Amendment) Regulations 2014 (SI 546 of 2014), the Waste Management (Facility Permit and Registration) (Amendment) Regulations 2015 (S.I. No. 198/2015) and the European Union (Household Food Waste and Bio-Waste) Regulations 2015 (S.I. No. 430 of 2015).

As well as introducing a new system of certificate of registration 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.

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 previously. 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:[*]

- 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; and
- Where other forms of inert waste are to be accepted – particularly non-natural materials such as concrete, bricks, etc. – 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 well as its licence application forms and associated more general guidance, the EPA has an advice note available specifically aimed at prospective waste licence applicants involved in soil recovery facilities (EPA 2017b). [25] This relates to sites where uncontaminated natural soils, sub-soils, stone and rock are to be deposited for the purposes of land reclamation or redevelopment.

As noted previously, 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 affects, with the operator being obligated by the licence to continue with the requisite environmental monitoring. The licence's duration is controlled by the

[*] 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)

EPA, which has the role of adjudicating when the licence should cease to bind the holder and can be surrendered. Appendix A contains further information.

As mentioned previously, each licence will contain an annual quantity limit for the amount of waste that can be accepted for recovery and disposal each year (refer to EMR/CUR/SR, 2016). [4] It is a legal requirement that this limit is not exceeded, with the result that, if this threshold is reached, a site may have to close and not re-open until the start of the following year. Contractors need to be aware of this factor, and either obtain suitable reassurances from the site operator about continued access to capacity or have alternative arrangements available.

The following paragraph indicates the minimum checks a contractor must carry out in relation to using a licensed waste management facility. Furthermore, it is important that this verification process is adequately documented.

For 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 must check to ensure the following:

- 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 project;
- That the annual quantity limit set by the licence is appropriate for the volume of waste expected to be generated and that there will be continued access to capacity throughout any phase involving the off-site removal of suitable waste; and
- That the conditions of the licence will not be otherwise contravened by the acceptance of the waste from the road project.

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;* however, the over-riding requirement of the definition of waste “recovery”† 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. A suitable example is crushed concrete or bricks replacing the quarry fill in a construction project. It is important 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 amended by European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)
† Refer to 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)

As waste facility permits are restricted to waste recovery activities, they can neither be granted to authorise significant amounts of waste to be disposed of, nor 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 projects. In all of these cases, an industrial emissions licence or waste licence must be held.

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. Similar to EPA licences, conditions of the permit may require site infrastructure to be installed and maintained, e.g. a wheel wash. 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 plenty of 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 has been processed to completion.

Appendix A of this standards document 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 as follows:

- 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; and
- Unsuitable waste is delivered to the site by a waste haulier unbeknown to the permit holder.

In the latter case, 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 projects include the authorisation of the following:

- 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 C&D waste such as bricks, concrete, etc. 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 C&D 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 C&D waste. Again, the allowable quantity is reduced by the presence of an adjoining facility and by historic waste deposits; and

- A facility that does not involve land improvement and where inert waste is being recovered. The waste being processed must stem from C&D activities. Up to 50,000 tonnes of waste can be accepted per year. No less than 85% of the incoming material must be recovered, with no more than 15% of residual waste* passing to a disposal facility such as a landfill site. Brick crushers and power screens would be examples of the type of activity that might fall within this provision.

A searchable national register of waste facility permits has been complied by the National Waste Collection Permit Office,† which is hosted by Offaly County Council. However, the continued validity of any permit and the existence of any amendments should be checked with the local authority that issued it.

Regarding waste facility permits, at the very minimum, each contractor involved in using a site subject to a waste facility permit must check to ensure the following:

- A valid waste facility permit exists for the site;
- The permit allows for the acceptance of the types of wastes generated by the road project;
- The expiry date of the permit is sufficient for the permit to remain in force over the duration of the construction of the road project;
- 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 project; and
- 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.

4.4.3 Certificates of registration

Small-scale waste recovery‡ operations can be authorised by a certificate of registration. 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. Similar to facility permits, certificates also have a five-year life, which may be extended by an application for a review of the certificate.

* Prospective operators of C&D waste recovery infrastructure should note the definition of this term in Article 5(2) of the amended Facility Permit Regulations
† http://facilityregister.nwcpo.ie/ (accessed 9/6/17)
‡ The definition of what “recovery” means in the Waste Management Act is discussed previously in the section about waste facility permits

Examples of activities that relate to the handling of waste from road projects and which can benefit from a certificate of registration include the following:

- 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 C&D 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 C&D 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 C&D activities; and
- A brick crusher, power screen or other similar recovery unit, processing waste from C&D 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 previously are also constrained by the presence of any adjoining site that is subject to a certificate of registration 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 previously in this section.

4.4.4 Deciding when a licence, facility permit, certificate of registration 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 an Article 11 declaration. Apart from 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.

In addition, a local authority which receives an application for a waste facility permit or certificate of registration 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 project is absolutely sure what type of statutory authorisation is needed. If there is uncertainty, 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 previously, Section 32 of the Waste Management Act obligates persons such as contractors employed on a road project 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 following:

- 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; and
- The hauliers employed to remove waste from the road project 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 litter;*
- Wastes generated by the road project are burnt in an uncontrolled manner;
- Excavated contaminated land is incorrectly handled; and
- Biodegradable waste is allowed to degrade on site.

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.† Accordingly, these provisions could be used to prosecute a contractor working on a road project when a third party engaged by the contractor dumps the waste inappropriately.

* 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 (refer to Section 4.5.2 in this standards document) in relation to litter emissions

† 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)

4.5.4 Landfill levy liabilities from unauthorised waste activities

In 2002, a levy on the deposit of biodegradable waste at landfill sites was introduced as a means of incentivising a reduction of the State's dependency on landfill and to stimulate waste recovery and other non-landfill alternative options. At the present time (2017), the rate is set at €75 per tonne of waste deposited.

In June 2015, the liability to pay the levy was extended to cover persons who dispose of waste in an unauthorised manner.* This means that those involved in unauthorised dumping are not only subject to penalties set by the Waste Management Acts, but are also potentially liable to pay €75 for every tonne of waste deposited. Liability in these circumstances initially rests on the person who carried out the waste disposal activity. However, if this responsibility cannot be established, liability for levy payment then applies to the land-owner. Besides levy non-payment also being an offence under the Waste Management Act, interest is payable for each day when levy liabilities remain outstanding.

There are certain exemptions from levy payment which apply when construction waste is deposited at authorised landfill sites, but only where the material is being used for bona-fide site engineering works. For obvious reasons, no such exemptions apply to the dumping of such wastes at unauthorised waste sites.

This change to the legal requirements surrounding landfill levy payment provides an additional reason for all parties involved in a road construction project to ensure that surplus and unwanted spoil is managed correctly. It is quite insufficient to pile material upon a surplus piece of land on completion of a road project, plant a few trees and leave it there.

4.5.5 Hazardous waste and contaminated land

Persons undertaking road projects 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). [26] 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.† In general, it is national policy that hazardous wastes are to be removed unless a more favourable environmental option presents itself. Remediation is always required to take place in relation to the following:

- 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; and
- Other high amenity areas.

* By the Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
† Or by a suitably qualified and experienced consultant employed by the holder of the waste

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) [27] 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* [28] 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.

Hazardous waste is defined in Section 4 of the Waste Management Acts and by Regulation 29 of the European Communities (Waste Directive) Regulations 2011.† 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.‡ 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 – is binding as to how hazardous waste is defined under national law. In 2015, the List of Waste was updated, with an annotated version being included in the EPA's publication entitled *List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (EPA 2015). [29] This document also replaces the EPA's earlier Hazardous Waste Classification Tool and Hazardous Waste Classification Worksheet.

The range of C&D waste types, as contained in Chapter 17 of the List of Waste, is reproduced in Appendix B of this standards document. 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.§

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.

* The obligation on state bodies to be bound by this code of practice and, where necessary, remove illegally deposited waste has been emphasised by the High Court in the judgment of Brownfield Restoration Ireland Ltd. v Wicklow County Council & anor; Wicklow County Council -v- O'Reilly & ors No.3, [2017] IEHC 456; available at http://www.courts.ie/Judgments.nsf/09859e7a3f34669680256ef3004a27de/2231b86d53346f7a80258164002afee9?OpenDocument (accessed 11/8/17)

† S.I. No. 126 of 2011

‡ This Schedule has been replaced twice, most recently by the European Union (Properties of Waste which render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015). The hazardous property HP14 "Ecotoxic" is defined by EU Regulation 2017/997, with this definition entering into force on 5/7/18 (refer to http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0997&from=EN, accessed 18/6/17)

§ In accordance with 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: "HP7 carcinogenic"

The following 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 hazardous 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"; and
- Similarly, for excavation waste, there is hazardous waste code 17 05 03*, "soil and stones containing hazardous 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, there needs to be an assessment of whether there are "hazardous substances" present. This process is explained in Appendix 2 of the EPA's List of Waste Guidance (EPA 2015). [29] That document sets down six steps in making such an assessment, with the main one entailing considering the chemical composition of the waste in relation to an EU-derived classification system for hazardous substances.

As the previous paragraph suggests, the process of determining whether a waste is hazardous or not can become involved on occasions, but complexity mainly relates to wastes that have been assigned the so-called "mirror entry" waste codes. By contrast, if a waste is identified as either non-hazardous or hazardous – with its hazardous nature being indicated by the asterisk referred to earlier – then it is automatically defined as non-hazardous or hazardous.*

If necessary, the EPA can be requested to confirm whether a waste is hazardous or non-hazardous;† however, it is likely that the Agency will ask for a full chemical analysis and for evidence that the waste holder has made an assessment in accordance with the EPA's published guidance.

The European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011‡ require that a system of "Waste Transfer Forms" is used to document the movement of hazardous waste within Ireland. Dublin City Council has been assigned the duty of operating this system on a national basis, being thus able 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 website§ 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. This information must be held for at least three years.**

* Refer to, for example, Section 1.1 of the EPA's guidance on the List of Waste (EPA 2015)
† Refer to European Communities (Waste Directive) Regulations 2011, Regulation 29(7)
‡ 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
§ http://www.dublincity.ie/main-menu-services-water-waste-and-environment-waste-and-recycling-national-tfs-office/new (accessed 7/6/17)
** European Communities (Waste Directive) Regulations 2011, Regulation 45

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.* Dublin City Council is also designated as the national regulatory body that deals with these types of waste movements from Ireland.

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.† 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. The requirements are set out in Section 4.5.6.

4.5.6 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.‡

However, these principles do not apply in certain circumstances. The exceptions are as follows:

- The Waste Management Act only allows for the temporary storage of waste at the project site where it was produced. Hence, any road construction waste must be stored within the line of the project site, and not on adjoining land; and
- The Waste Management Act defines the phrase “the temporary storage of waste”,§ limiting it to having a six-month duration. This means that the temporary storage of waste arising on the site does not require a waste licence, waste facility permit or certificate of registration, provided the storage does not exceed this period.

The restriction in the Waste Management Acts, regarding the allowable duration of temporary storage, is particularly important in relation to the longer 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. An alternative view of this restriction is that it incentivises the movement of waste off site for suitably authorised disposal or recovery.

* 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.

† 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).

‡ Refer to 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

§ Waste Management Act, Section 5(3)

4.5.7 Litter Pollution Acts, 1977–2009

In addition to the provisions of the Waste Management Acts, the Litter Pollution Acts 1977–2009 and the Litter Pollution Regulations, 1999, are relevant to a contractor on a road construction project. 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,[*] having an EU-wide 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.[†] 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 more rigorous manner than was previously 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 are at fault or negligent, i.e. 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.

[*] 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

[†] S.I. No. 547 of 2008, later amended by the European Communities (Environmental Liability) (Amendment) Regulations 2011 (S.I. No. 307 of 2011), by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I No. 477 of 2011) and by the European Communities (Environmental Liability) (Amendment) Regulations 2015 (S.I. No. 293/2015).

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. 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 further described in the EPA's guidance to the legislation (EPA, 2011). [30]

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

In general, no separate form of planning permission is needed for roads construction-related waste management activities taking place within the area subject to the compulsory purchase order (CPO). This is provided that they have been contemplated by the EIAR 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 significance* should be clearly described in the EIAR for the project. This is due to the requirements of the legislation governing the environmental impact assessment (EIA) process, which extend to require construction-related impacts and associated mitigation measures to be considered.†

Additionally, if the waste management activities expected to be carried out on site are clearly documented in the EIAR, there is no room for debate later on about whether they may need a separate planning permission. As they are covered by the EIAR, 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 EIAR is being compiled, it is 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.

* An EIAR 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 EIAR also should contain estimates of the types and quantities of waste arising from the project and which are being handled on and off site.

† Refer to EPA's (2002, 2003) guidance on this matter (a revised version of these documents is expected in later in 2017)

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 Regulations 2001–2017, this is not a general rule. For example, planning permission may be required for off-site land reclamation activities due to factors such as the following:

- 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 requiring an EIA; and*
- 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.‡

It is vital that contractors on road projects 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 undertaken 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 2000–2017.

4.9 Compliance documentation

The main contractor on a road project 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 must keep a full record of the following:

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

* The relevant thresholds for requiring EIA are relatively low. Schedule 5 to the Planning and Development Regulations requires an EIA 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, EIA 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 CJEU has confirmed that, via the EIA Directive, this concept also embraces waste recovery activities (refer to Case C-486/04 *Commission v. Italy* [2006] ECR I-11025 and refer also to European Commission (2015, p.28) and European Commission (2013, p.53). Where EIA is required, the Planning and Development Act states in Section 4(4) that a project cannot be conferred exempt development status (refer also to Planning and Development Regulations, Article 9(1)(c))

† For example, exempt development status cannot be conferred on a location where Appropriate Assessment is required under the EU Habitats Directive (refer to the Planning and Development Act, Section 4(4) and the Planning and Development Regulations, Article 9(1)(a)(viiB))

‡ Planning and Development Acts, 2000–2017, Section 5

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 the following:

- 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; and
- 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 surrounding 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 is 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 previously, 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.

Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan (NRA, 2007) [1] provide guidance on the necessary documentation relating to compliance with the Waste Management Acts and other environmental legislation.

5. Advice for the Correct Management of C&D Waste from Road Construction Projects

The following sections set out key issues that affect how waste generated by road developments should be managed. This standards document is based on the general approach, developed more recently at a European level as the *EU Construction & Demolition Waste Management Protocol* (European Commission 2016). [18]

5.1 Allocating responsibility

Implicit in the effective management of raw materials and waste in any construction project is the comprehensive allocation of responsibilities to key individuals. Unless responsibility is defined internally between the main contractor and key sub-contractors, any waste management policies that have been developed 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 further on, this element needs to be supported by a management and monitoring system that ensures 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. The main contractor on a road project must lead by example.

In order to do this, the main contractor appointed to a road project must allocate responsibility for materials and waste management to one or more individuals of sufficient seniority to implement the relevant procedures. 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.[*]

[*] The TII's (NRA, 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.

5.2 Waste management and road projects

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 following:

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

As well as issues relating to financial cost savings, Section 3.3 of this standards document 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.* Fundamental to the effective management of raw materials and wastes at roads construction sites are the following, in order of priority:

a) Prevention;

b) Preparing for re-use;

c) Recycling;

d) Other recovery, such as energy recovery; and

e) Disposal.

As mentioned in Section 3.3 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 as follows:

“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.”

At the present time, this concept is relatively new and the full ramifications have yet to be fully assessed and understood.‡ 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 the development of road projects.

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.

* Directive 2008/98/EC of the European Parliament and of the Council on Waste, Article 4(2)
† European Commission (2012) p49
‡ Written material is steadily becoming available, with the lead body being the EU’s Joint Research Centre (JRC: http://lct.jrc.ec.europa.eu/): refer to, for example, Joint Research Centre (2011)

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, etc. 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 be found that a number are being used to remove potential raw materials from the site, i.e. 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) [12] 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 (European Commission 2012, p30). [12]

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 road 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. However, any such practice must not compromise the requirement for good design and the optimisation of material reuse as specified in TII's road design standards.* Moreover, 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 discarding surplus soil. All of these issues should be covered in the preliminary design contained in any EIAR submitted for the statutory approval of a road project and, later on, in any final design after a contract has been awarded.

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 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 correct 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

* http://www.tiipublications.ie/

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.

As road projects 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.

Where “preparing for re-use” takes place, it involves a form of recovery and therefore implies that the material being so prepared is waste (refer to European Commission 2012, p30). [12] It is defined in law as including checking, cleaning and repairing.* 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, etc.

* Refer to the definition in Section 5(1) of the Waste Management Acts (as amended)

Examples of possible recycling initiatives appropriate to roads development are 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, etc. However, in accordance with the definition under EU law and the Waste Management Acts, * "recycling" does not include the use of C&D 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 C&D 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, much excavated contaminated land has to be consigned from 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, etc. 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.

* Refer to Waste Management Acts, Section 5(1) (as amended)

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 DoEHLG (2006) [31] issued a publication entitled *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Project*s. These guidelines formed part of a long-term initiative by the C&D 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): [31]

- Promote a coherent and integrated approach to the management of C&D 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 C&D waste management plans; and
- 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 clarify 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 & Demolition Projects* were initially introduced on a voluntary basis, planning authorities and An Bord Pleanála have been granted discretion to include conditions on C&D waste management in planning permissions.* A suggested text for such a condition is included in the Guidelines with the aim of ensuring a consistent approach by planning authorities. As well as these obligations, planning authorities and An Bord Pleanála are also required by the Waste Management Acts† 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 on the Preparation of Waste Management Plans for Construction & 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),‡ [32] 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 correct management of C&D wastes. This obligation not only covers the detailed guidance on the contents of a C&D 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.

* Refer to Section 34(4)(l) of the Planning and Development Acts 2000–2017
† Refer to Section 22(10D) of the Waste Management Acts (as amended by the Protection of the Environment Act 2003, Section 26)
‡ The statutory status of *the Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects* is set out in Section 7.8.1 of that publication

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 EOP for the project, its overall quality plan or other similar document.*

5.3.2 When a plan is needed

The *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects* set down thresholds which, if exceeded, cause the relevant requirements to apply. The following 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 100m^3 of C&D waste; and
- Civil engineering projects producing in excess of 500m^3 of C&D waste, but where this total does not include waste used on site as part of the project.

While these thresholds are useful, it is TII'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 EIA. Moreover, other road renovation works, such as carriageway replacement or bridge re-construction that generates in excess of 100m^3 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 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 previously, a new legal obligation to reflect in the plan is compliance with the Waste Hierarchy.

Waste management issues will remain highly significant throughout the road-building lifecycle. As well as forming part of the design of a proposed road development, they will be germane to the content of the EIAR (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.

* (NRA, 2007a) requires that a C&D waste management plan should form part of the main contractor's EOP

5.3.4 What the plan should contain

The Best Practice 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; and
- Proposals for the education of the workforce regarding quality waste management and C&D waste plan implementation.

The 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; and
- Waste plan auditing and other implementation-verification methods.

A number of these headings cover self-explanatory items, and reference should be made to the explanations contained in the actual Guidelines. The following sub-sections expand on some of the themes that have particular relevance in a road-building context.[*]

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. After this, those drafting the plan should consider these wastes in the context of the Waste Hierarchy and the previously-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 or recovery sites should be identified early on, in order to facilitate the generation of realistic estimates of waste management costs.

[*] As noted previously, (NRA, 2007a) requires that the C&D waste management plan should form part of the main contractor's EOP.

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 "Design and Environmental Evaluation" phase 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 provides a more accurate and sophisticated measure of the true costs of this element of a road project.

Following some of the themes discussed previously in this standards document, waste management costs should be calculated broadly and should incorporate the following:

- 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 such as, 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; and
- 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 project, this element may be relatively small or be of greater significance, being dependant on the extent of demolition occurring 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 which could be undertaken as follows:

- 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.; and
- Segregate the separated waste fractions resultant from the demolition process.

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, etc.

NRA's (2005a) Guidelines for the Treatment of Bats during the Construction of National Road Schemes [33] should be considered where buildings are likely to contain bat roosts.

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 and results recording 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 previously, all parties to road projects need to be clear as to their respective roles in implementing a waste management plan. 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.

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, etc. 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 standards 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, while there is the reality that some waste will inevitably arise from any construction project, etc. 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 for archaeological investigation purposes or when the materials are 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 quality and properties are maintained and that soil types are deposited in a manner which retains a local consistency. 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). [34]

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 (refer to A Guide to Landscape Treatments for National Road Schemes in Ireland (NRA 2006)). [34]

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 2m 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; and
- 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 in accordance with a pre-determined specifications. Where practicable, topsoil should be left in place until just before the commencement of any archaeological investigation or the actual earthworks.

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). [35] 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). [36]

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 (EIS) 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 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, as well as obviating the need for dewatering. 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 the following:

- 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; and
- Removing ruts caused by heavy equipment operating at the site.

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

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

* These subsoils are defined in Clause 601 of the Specification for Road Works Series 600 – Earthworks (including Erratum No. 1, dated June 2013) (CC-SPW-00600)

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

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 CC-SPW-00600.

Treatment processes that allow for otherwise unusable subsoils to be reclaimed include the following:

- 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; and
- 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, where it meets the required Standards, as rock armour, drainage blankets, starter layer, etc. 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 (refer to 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.

Table 4: Uses for Rocks and Aggregates

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

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 medium-density fibreboard (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, [37] 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, e.g. 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 previously, 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 Acts 1987–2011.

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[30] The Environmental Protection Agency, *Environmental Liability Regulations Guidance Document,* Wexford: The Environmental Protection Agency, 2011.

[31] Department of the Environment, Heritage and Local Government, *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects,* Dublin: Department of the Environment, Heritage and Local Government, 2006.

[32] Department of the Environment, Heritage and Local Government, *Planning Guidelines 13 – Development Management – Guidelines for Local Authorities,* Dublin: Department of the Environment, Heritage and Local Government, 2007.

[33] The National Roads Authority, *Guidelines for the Treatment of Bats during the Construction of National Road Schemes,* Dublin: The National Roads Authority, 2005.

[34] The National Roads Authority, *A Guide to Landscape Treatments for National Road Schemes in Ireland,* Dublin: The National Roads Authority, 2006.

[35] The National Roads Authority, *Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes,* Dublin: The National Roads Authority, 2008.

[36] The National Roads Authority, *Guidelines for the Assessment of Ecological Impacts of National Road Schemes,* Dublin: The National Roads Authority, 2009.

[37] The National Roads Authority, *Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub, post, prior and during the Construction of National Road Schemes,* Dublin: The National Roads Authority, 2006.

[38] E. P. Agency, “Guidance on classification and notification of soil and stone as a by-product in the context of article 27 of the European Communities (Waste Directive) Regulations 2011,” November 2017.

Appendix A:

Obtaining a Waste Licence, Waste Facility Permit or Certificate of Registration

Types of EPA licence

Previously, this standards document 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 Section 4, a certificate of registration only relates to very small-scale waste management activities.

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, 2004[*] with further procedures being contained in the Waste Management Acts 1996–2011. 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 2011–2015. [†]

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 Environmental Impact Assessment Report (EIAR)[‡] must be compiled[§] and Article 13 be complied with. Screening for Appropriate Assessment; therefore, 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–€35,000;[**]

[*] 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).

[†] 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), the European Communities (Birds and Natural Habitats) (Amendment) Regulations 2013 (S.I. No. 499 of 2013), the Radiological Protection (Miscellaneous Provisions) Act 2014, Section 34, the Water Services (No. 2) Act 2013, Section 7(2) and the European Communities (Birds and Natural Habitats) (Amendment) Regulations 2015 (S.I. No. 355 of 2015); refer to in particular Articles 43-48

[‡] Note that the requirements in relation to EIA are expected to change later in 2017 with the transposition of the revised EIA Directive (Directive 2014/52)

[§] An EIAR 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 projects. Should no EIAR 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

[**] 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

2. Publishing a newspaper notice within a period of two weeks before the application is made. This announces the intention of lodging the application, with the form and content of this notice being set down in the Licensing Regulations;
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; and
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 EIA until planning permission has been issued.††

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 European Union (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; and

facilities involve both waste recovery and disposal, the EPA's practice is to charge a combined fee covering both of these elements

†† Refer to Waste Management Acts 1996–2011, Section 42(1D)(d) (as inserted by the EU (Environmental Impact Assessment) (Waste) Regulations 2012 (S.I. No. 283 of 2012, Article 7))

- 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.

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 light of the application content, all submissions and objections received, a report of any oral hearing held, etc.

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 EIAR. As noted previously, 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. EIA is or is not required;
2. Appropriate Assessment is or is not needed; and
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.

Unlike the case with planning applications, the waste legislation does not set a timeframe for the determination of a licence application by the EPA. In some instances, this can become protracted (refer to EMR/CUR/SR, 2016) and there is a need for prospective applicants to be aware of this reality.

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 generally be found on each local authority's website. The application process is governed by the Waste Management (Facility Permit and Registration) Regulations, 2007 (S.I. No. 821 of 2007).‡‡ The EPA has published a Guidance Manual (EPA 2008) that summarises key aspects of the application process.

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

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 (refer to second point). An application fee which varies from €1,000–€2,000 must be submitted;
2. Publishing a newspaper notice within a period of 10 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; and
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.

Along with the application document, an EIAR may need to be submitted for any recovery[§§] facility that either exceeds a threshold of 25,000 tonnes of annual waste input or, if below that level, is associated with significant effects on the environment. Additionally, under the European Communities (Birds and Natural Habitats) Regulations 2011–2015, an Appropriate Assessment may be required.

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.

‡‡ 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), by the Waste Management (Facility Permit and Registration)(Amendment) Regulations 2014 (S.I. No. 320 of 2014), the Waste Management (Facility Permit and Registration) (Amendment) Regulations 2014 (SI 546 of 2014), the Waste Management (Facility Permit and Registration) (Amendment) Regulations 2015 (S.I. No. 198/2015) and the European Union (Household Food Waste and Bio-Waste) Regulations 2015 (S.I. No. 430 of 2015)

§§ While the national and EU EIA legislation refers only to waste "disposal" facilities, the Court of Justice of the European Union (EU) has determined that this term includes potential sites involved in the recovery of waste (refer to Case C-486/04 *Commission v. Italy* [2006] ECR I-11025 and refer also to European Commission (2015) p.28 and European Commission (2013) p.53

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 the following 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; and
- 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 unless:[***]

- 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;
- The site is compliant with planning or constitutes exempt development under the Planning and Development Acts; and
- 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.

Certificate of registration

The process by which a certificate of registration 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.

[***] Waste Management (Facility Permit and Registrations) Regulations 2007 (as amended), Article 18(4)
[†††] Refer to Waste Management (Facility Permit and Registration) Regulations 2007 (as amended), Article 37

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; and
- 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, certificate of registration 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.

The Waste Facility Permit, certificate of registration 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, certificate of registration 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, certificate of registration or a waste licence. Some of the key elements are as follows:

- 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 certificate of registration 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 certificate of registration. 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 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 EIAR. While there is no mention of any requirements for EIA in the Facility Permit Regulations, this is a requirement that is confirmed in the EPA's Guidance Manual. Accordingly, it would be expected that local authorities will require an EIAR 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;
- Waste sites located anywhere in the locality of a protected habitat 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;‡‡‡ and
- The waste licensing process for major complex and controversial projects may 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.

‡‡‡ Similar to 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 B:

The European Waste Catalogue

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

17 01 Concrete, bricks, tiles, ceramics

17 01 01 Concrete

17 01 02 Bricks

17 01 03 Tiles and ceramics

17 01 06 * Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics, containing hazardous substances

17 01 07 Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06

17 02 Wood, glass and plastic

17 02 01 Wood

17 02 02 Glass

17 02 03 Plastic

17 02 04 * Glass, plastic and wood containing or contaminated with hazardous substances

17 03 Bituminous mixtures, coal tar and tarred products

17 03 01 * Bituminous mixtures containing coal tar

17 03 02 Bituminous mixtures containing other than those mentioned in 17 03 01

17 03 03 * Coal tar and tarred products

17 04 Metals (including their alloys)

17 04 01 Copper, bronze, brass

17 04 02 Aluminium

17 04 03 Lead

17 04 04 Zinc

17 04 05 Iron and Steel

17 04 06 Tin

17 04 07 Mixed metals

17 04 09 * Metal waste contaminated with hazardous substances

17 04 10 * Cables containing oil, coal tar and other hazardous substances

17 04 11 Cables other than those mentioned in 17 04 10

17 05 Soil (including excavated soil from contaminated sites), stones and dredged spoil

17 05 03 * Soil and stones containing hazardous substances

17 05 04 Soil and stones other than those mentioned in 17 05 03

17 05 05 * Dredging spoil containing hazardous substances

17 05 06 Dredging spoil other than those mentioned in 17 05 05

17 05 07 * Track ballast containing hazardous substances

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 hazardous substances

17 06 04 Insulation materials other than those mentioned in 17 06 01 and 17 06 03

17 06 05 * Construction materials containing asbestos

17 08 Gypsum-based construction materials

17 08 01 * Gypsum-based construction materials contaminated with hazardous 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 hazardous 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 to be a hazardous waste (refer to main text for more details and refer also to EPA, 2015).

Appendix C:

Relevant Legislation

Statutes

The legislation covered previously in this standards document 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, 2000–2017, 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 this standards document 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 website and at this alphabetical link:

http://revisedacts.lawreform.ie/revacts/alpha. This applies to the following:

- Planning and Development Acts, 2000–2017;
- The Waste Management Acts, 1996–2011;
- The Environmental Protection Agency Acts, 1992–2011; and
- The Roads Acts, 1993–2015.

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.

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 further on.

Subsidiary to the Planning and Development Acts are the Planning and Development Regulations 2001–2017. Two, slightly different, unofficial consolidated versions are available on the Department of Housing, Planning, Community and Local Government's website.[*]

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 EU (Waste Incineration Plants and Waste Co-Incineration Plants) Regulations 2013 (S.I. No. 148 of 2013);

[*] http://www.housing.gov.ie/planning/legislation/planning-regulations (accessed 7/6/17)

- 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 (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), 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), by the Waste Management (Facility Permit and Registration) (Amendment) Regulations 2014 (S.I. No. 320 of 2014), the Waste Management (Facility Permit and Registration) (Amendment) Regulations 2014 (S.I. 546 of 2014), the Waste Management (Facility Permit and Registration) (Amendment) Regulations 2015 (S.I. No. 198/2015) and the EU (Household Food Waste and Bio-Waste) Regulations 2015 (S.I. No. 430 of 2015);
- 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), the Waste Management (Collection Permit) (Amendment) Regulations 2015 (S.I. No. 197 of 2015), the EU (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 430 of 2015), the Waste Management (Collection Permit) (Amendment) Regulations 2016 (S.I. No. 24 of 2016) and by the Waste Management (Collection Permit) (Amendment) (No.2) Regulations 2016 (S.I. No. 346 of 2016);
- 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) and by the Waste Management (Prohibition of Waste Disposal by Burning) (Amendment) Regulations 2015 (S.I. No. 538/2015);
- 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) and by the EU (Waste Directive) (Amendment) Regulations 2016 (S.I. No. 315/2016);
- European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011); and
- Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015).

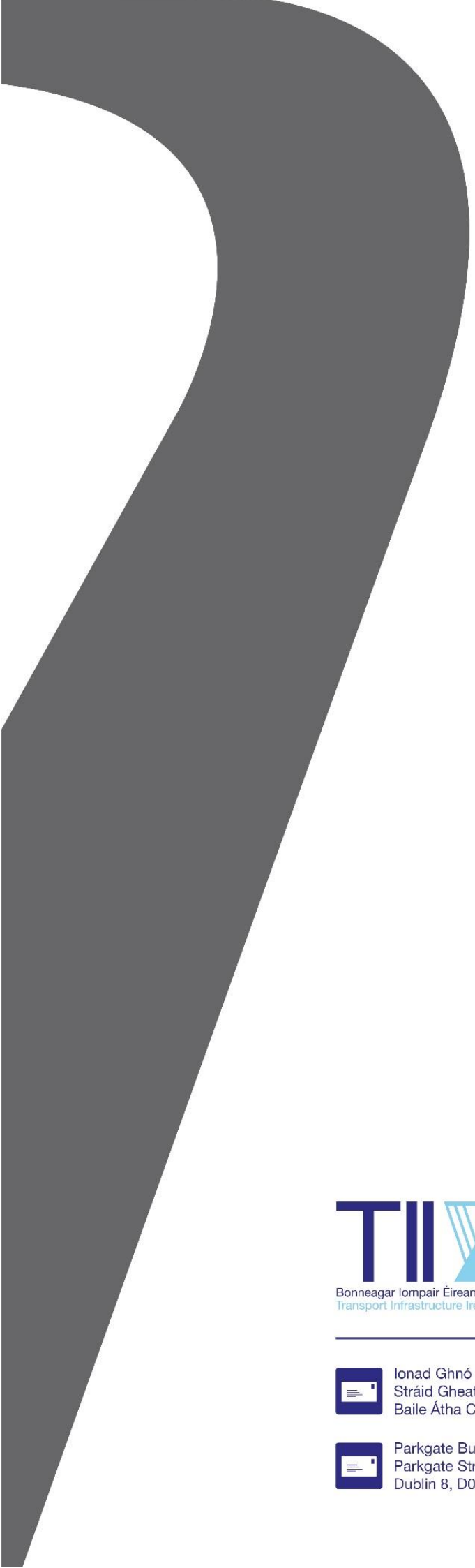
The environmental liability regime discussed in Section 4 is a consequence of the European Communities (Environmental Liability) Regulations 2008, S.I. No. 547 of 2008, as amended by the:

- 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); and
- European Communities (Environmental Liability) (Amendment) Regulations 2015 (S.I. No. 293/2015).

Legislation on Appropriate Assessment† 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:

- EU (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);
- Radiological Protection (Miscellaneous Provisions) Act 2014, Section 34;
- Water Services (No. 2) Act 2013, Section 7(2); and
- European Communities (Birds and Natural Habitats) (Amendment) Regulations 2015 (S.I. No. 355 of 2015).

† 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.



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