

1.0 INTRODUCTION

1.1 General

Golder Associates Ireland (Golder) was appointed in August 2007 as Consultants to Cemex (ROI) Ltd. (the “Applicant”) to prepare a Planning and Waste Licence Application for the continued restoration of the worked-out sand and gravel pit at Walshestown, Co. Kildare (the “Application Site”).

The location of the proposed Application Site is shown in a regional context on Figure 1.1. Figure 1.2 depicts the Site in the context of the adjoining Punchestown Racecourse, which was identified at the outset of the Restoration Plan as the principal stakeholder, which led to detailed communications throughout the design of this Plan. Figure 1.3 shows the location of the Application Site in the local context (aerial photograph 2005), and shows the Punchestown Racecourse and complex to the west and north of the Application Site.

The Application Site is located within the townlands of Walshestown, Tipperkevin, Bawnogue and Blackhall (Figure 1.2). It is important to note that unless properly managed the existing worked-out sand and gravel pit will continue to have an impact on the general landscape character in the vicinity of the Site, and will remain a potential health and safety concern unless fully restored.

1.2 Location

The subject Site is approximately 68.0 hectares (ha.) in area, circa 5 km south east of Naas and ca. 6 km northwest of the town of Blessington, Co. Wicklow. The location of the Site is depicted in Figure 1.1. Figure 1.2 depicts the Site in its local context and includes details of the adjoining townlands. An aerial photograph with details of the Application Site is provided in Figure 1.3.

1.3 Access

The existing Site is currently accessed via the L6042, as depicted in Figure 1.2. The L6042 County Road extends from the R410/L2023 to the north-west of the Site. The road is approximately 6 metres in width at the Site access and approximately 5.5m in width elsewhere.

Current traffic movements within the Application Site itself are initially over a short hard-standing section between the existing Site entrance and the weighbridge. Thereafter traffic moves within the Application Site over a network of unpaved roads. Further details of the reception area are included in Section 8.0 of this EIS (Volume 1).

1.4 General Topography

The general topography of the area is one of undulating rolling landscape, and is located within the Eastern Kildare Uplands Transition character area as defined in the Kildare County Development Plan 2005 to 2011. The lands to the west of the Site, occupied by the

Punchestown Complex, are relatively flat in character at ca. 141 to 143 mAOD. The lands then rise across the Application Site to the east to ca. 170 mAOD.

The Site has been worked since the late 1960s/early 1970's by Readymix plc, and more recently Cemex (ROI) Ltd., for sand and gravel production.

1.5 Principal Objective of Restoration Plan

The principal objective of this application is to fulfil a specific objective of the Kildare County Development Plan 2005 to 2011, which states that rehabilitation clauses are essential for any further planning permissions for the Walshestown Pits (Pit No. 9, Page 215 of Development Plan).

A strategic and key element of the overall conceptual design of the Restoration Plan is to return the Application Site to its former landscape character, i.e. Eastern Kildare Uplands Transition. Furthermore, the Restoration Plan for the Application Site includes the creation of a walkway linking the historical Pilgrim's Walk with Punchestown Racecourse, which is also highlighted in the Strategic Objective for Walshestown Pit.

1.6 Background to the Applicant, Cemex (ROI) Ltd.

The Application Site is owned by Readymix plc, now trading under Cemex (ROI) Ltd. (Cemex). To protect the environment and communities in which they operate, Cemex comply fully with high national and international environmental standards by using raw materials which are sympathetically sourced. Cemex operates in accordance with an in-house Environmental Management System (EMS) at their various facilities.

1.7 General Rationale for Project

Figure 1.3, an aerial photograph taken in 2005, depicts the extent of the worked-out sand and gravel pit at Walshestown, Co. Kildare. Figure 1.3 also shows the Punchestown Racecourse lands located along the western and northern boundaries of the Application Site.

The lands have been worked since the late 1960's/early 1970s for sand and gravel production. This has resulted in much of the lands requiring restoration, as can be seen from the aerial photograph. Section 4.2 of the EIS reviews historical planning permissions for the Application Site, with many of these permissions requiring restoration. It is the intention of this Application to meet the requirements of these permissions in one master restoration plan. This master plan is intended to meet Specific Objective No. 9 of the Kildare County Development Plan, which requires rehabilitation for any future planning permissions for this Site (Section 4.3 of EIS).

Details of the proposed right of way across the Application Site to link the Punchestown Racecourse and future bridle path, are provided in Sections 10.0 (Flora and Fauna) and 18.0 (Cultural Heritage and Archaeology). Figure 10.3 depicts the location of the proposed right of way which extends the Pilgrims Walk from Tipperkevin to Punchestown Lands.

1.8 Public Consultation Undertaken

Since June 2006 there have been ongoing communications with various stakeholders concerning the proposed restoration plan at Walshestown. Punchestown Racecourse was identified as a significant stakeholder early in the process and therefore particular attention was paid to the Punchestown Complex. The key stakeholders that were engaged include the following:

- Punchestown Management;
- Kildare County Council (Planning Department);
- Kildare County Council (Environment Department);
- The Environmental Protection Agency (EPA);
- An Taisce;
- National Parks and Wildlife Service (NPWS), Department of Environment, Heritage and Local Government (DoEHLG); and
- National Museum of Ireland (Archaeology).

This scoping process with stakeholders described above provided invaluable information on the study; ascertained the perceptions and requirements of local stakeholders (i.e. Punchestown Racecourse), government and regulatory agencies, and other interested groups; and assisted in gathering additional information of relevance.

1.9 Types of Wastes to be Accepted

The types of materials to be used to restore the Walshestown Pit will be confined to inert dry waste arising mainly from civil engineering and building construction and demolition projects. The waste types acceptable for restoration purposes under any future Waste Licence will include inert materials such as stone & soils, glass, concrete, brick, tiles, and ceramics.

The materials to be accepted at the Walshestown Facility will be mainly sourced from wastes generated by construction, demolition and excavation projects in the Greater Dublin Area in the first instance, and in Leinster in general. All incoming material will undergo rigorous acceptance procedures to ensure that suitable materials are used for restoration purposes.

Non-inert materials that may be contained in loads delivered to the Site (such as wood, plastics, metals etc that are not removed at source) will be separated out and removed at the Inert Waste Processing Area, to be recovered/recycled or disposed of by authorised and approved waste management contractors at appropriately authorised waste management facilities.

1.10 Volume of Wastes to be Accepted

It is proposed to import ca. 4.2 million cubic metres of inert materials from greenfield and brownfield sites primarily from the Greater Dublin Area, as defined in the Regional Planning Guidelines 2004 to 2016. Using a conversion factor of 1.8 tonnes per cubic metre, this equates to ca. 7.56 million tonnes of inert materials. This equates to 600,000 tonnes per year

on average over a 13 year development. The actual amount imported in any year will depend on market forces. A summary of the proposed volume of waste, tonnage and timeline are highlighted in Table 1 below.

Table 1: Inert Waste Volumes to be Accepted at the Facility

Volume (m ³)	Conversion Factor	Total Tonnage	No. of Years (filling)
4,200,000	1.8	7,560,000	13

2.0 ENVIRONMENTAL ASPECTS OF THE DEVELOPMENT

The following section provides details of the potential impacts of the proposed development on various aspects of the environment.

2.1 Traffic

A detailed Traffic and Transport Assessment was undertaken of the road network accessing the Application Site. Two developments adjacent to the proposed quarry restoration operation have been identified. Behan's Land Restoration Ltd. and CPI Ltd generate considerable HGV traffic movements in the vicinity of the proposed development and are also serviced by the L6042 County Road. The cumulative impacts of all three developments have been identified and assessed as part of this Traffic and Transport Assessment.

The assessment indicates that the R410/L2023 junction will continue to operate within capacity until the year 2018. Between 2018 and 2023 the junction would operate above capacity in the afternoon peak hours. Following the cessation of restoration work activity the R410/L2023 junction will operate below capacity in the afternoon peak. The provision of a "ghost-island" right turn lane would improve the operational performance of the R410/L2023 junction after 2018, and it is recommended that the provision of a "ghost-island" right turn lane be incorporated into a redesigned R410/L2023 junction that meets the requirements as set out in NRA DMRB TD 42 and that such a redesigned junction should be operational from the year 2018.

2.2 Flora & Fauna

The purpose of this development is to restore the lands to Eastern Kildare Uplands Transition character, and in doing so meet the specific objective of the Kildare County Development Plan 2005 – 2011 for Walshestown Pit No. 9. The final restoration plan has been developed to meet the following key objectives:

- Final end-use is to provide semi-natural grassland area, managed through light grazing;
- Encourage a wide range of habitats including linear wetland for maximum ecological diversity and its value for wildlife;
- Integrate the final landform into the local landscape;

- To improve the visual quality of the existing Site for surrounding sensitive visual receptors, in particular views from the Punchestown Racecourse; and
- To deliver a high quality planting scheme of lasting benefit.

As highlighted in these key objectives, upon completion of the works the general landscape will be dramatically improved. Further visual benefits to the general public will result from the introduction of semi-natural grasslands and other habitats which will be selected for maximum ecological diversity and wildlife value.

2.3 Soils & Geology

The restoration activity will serve to integrate the bare worked-out sand and gravel pit into the surrounding landscape, in a manner sensitive to the visual amenity of the area. The Application Site will be restored under the terms of an EPA Waste Licence. Backfilling of the Site will occur in the worked-out areas using inert materials, and the lands will be capped so as to protect the soils, geological and groundwater environment into the future. Finished restoration contours will be in keeping with the surrounding landscape.

Provided the proposed mitigation measures outlined in the EIS are implemented, there will be a neutral long term impact on the soil and geological environment during the operational phase of the development.

Some of those mitigation measures include:

- Comprehensive on-Site verification, comprising visual inspection and recording of all imported soil unloaded at the Site;
- The backfilling and restoration of the Application Site will prevent further soil-erosion and the potential loss of soils off-Site, and the risk of potential slope instability in the northern part of the Site;
- As the land is restored on a phased basis the surface will be capped, graded and re-vegetated in such a way as to further encourage rainfall run-off to the infiltration trenches around the boundaries;
- Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated hardstand bunded refuelling area; and
- All oils, solvents and paints used during construction will be stored within appropriately designed and bunded containers.

Ultimately the Site will benefit as the currently disturbed soils (i.e. worked out sand and gravel pit) will be returned to beneficial uses including species-rich grasslands which will enhance biodiversity for the surrounding area (Section 10).

2.4 Water

Groundwater

An assessment of the potential impacts of the proposed development on groundwater was carried out using a risk assessment methodology, and a detailed groundwater impact assessment was prepared for the proposed development. Four potential sources of contaminants associated with the proposed development were examined in the risk assessment:

- Materials used to restore the Site;
- Materials placed in stockpiles awaiting processing in the Inert Waste Processing Area;
- Non-inert wastes arriving at the Site and awaiting testing; and
- Oil and fuel spills.

Because the local groundwater flow direction is towards the west-northwest, any aquifer located east of the Application Site (up-gradient) will be largely unaffected by activities on the Site either during construction or operation. Any potential impact on groundwater outside the Application Site is likely to be confined to the glacial deposits and the weathered bedrock zone in the down-gradient direction (to the west and northwest of the Site).

Rigorous waste acceptance procedures will be enforced to ensure that contaminant concentrations that were envisaged in Golden's water impact assessment will not be exceeded. Only materials meeting stringent quality criteria will be accepted at the facility for restoration purposes.

Proposed mitigation measures will include:

- The existing ground surface will be graded and/or excavated to allow construction of a compacted clay liner a minimum of 1.0 m thick, with a co-efficient of permeability of less than or equal to 1×10^{-7} m/s;
- To minimise the volume of rainfall infiltrating to the backfilled area, during the operation and development of the Site all temporary surfaces will be graded to encourage run-off to surface water collection/infiltration drains around the Site boundaries; and
- Free-draining sand and gravel will be used to infill the groundwater ponds on Site, up to a minimum of 1 m above the maximum recorded water table level in that locality. This will minimise the potential for impact on the overburden groundwater.

Surface Water

An assessment of the potential impacts of the proposed development on surface water was also carried out using the risk assessment methodology. Five sources of contaminants

associated with the proposed development that may impact the surface water quality were examined in the risk assessment:

- Run-off from bare areas of restoration materials across Site requiring final restoration layers and vegetation;
- Run-off from materials placed in stockpiles in the Inert Waste Processing Area;
- Run-off and discharges from Quarantine Areas and the wheel wash;
- Run-off from the Fuel Storage Areas; and
- Oil and Fuel spills

Proposed mitigation measures include the following:

- Rigorous waste acceptance procedures will be enforced;
- The area of exposed soils will be kept to a minimum during construction and operation phases;
- Temporary vegetation cover shall be encouraged on exposed surfaces awaiting final restoration; and
- Surface runoff water will be directed into infiltration drains located around the Site boundaries.

If mitigation measures as described above and in the EIS are put in place the potential for the proposed restoration works to have an impact on surface water bodies is considered to be negligible.

Groundwater and surface water quality will continue to be monitored in accordance with the conditions of the Waste Licence, to ensure the groundwater quality at the Site boundary and the local surface water bodies remain in compliance with relevant Standards.

2.5 Climate

The nature and scale of the proposed development is such that no significant impact is likely to be caused to the climate. Notwithstanding this, climatic conditions are likely to influence other media during the life of the restoration project, including air, noise and water.

The winter rainy season will significantly reduce the potential for the re-suspension of dust resulting from trucks travelling along the access and internal haul road surfaces. However, during the summer months, higher day-time temperatures and lower relative humidity will increase the evaporation rate of moisture from the road surface and so this will increase the potential for dust-blow from surfaces and also plant equipment, particularly during windy conditions.

Climatic and weather data indicate that the incidence of extended adverse weather conditions is low (e.g. slight dust dispersal during extended dry weather). If mitigation measures for dust

reduction at these times are followed then adverse impacts are unlikely to occur (Section 14.0, Air).

Traffic volumes are not anticipated to increase from volumes previously associated with extraction activities (95 loads per day, as provided for in the 96/100 Planning Permission).

The proposed development therefore is not anticipated to significantly impact local, national, or global climate.

2.6 Air

The main potential impact during the construction and operational phases will be due to airborne dust and potential dust deposition outside the Application Site boundaries. However, any such activities will be transient in nature and will be dealt with by implementing mitigation measures. The release of fine particulates during short periods of ground disturbance will also be minimised through good on-Site practices and mitigation measures, which include the following:

- Vehicles using Site roads will have their speed restricted;
- All vehicles exiting the Site will make use of a wheel wash facility;
- Spraying of water on haul roads and areas around the Site where dust blow is evident;
- Sweeping of haul roads to remove any spilled material from transport;
- Public roads outside the Site will be regularly inspected for cleanliness, and cleaned as necessary;
- A dust suppression system will be installed; and
- Work will cease if mitigation measures fail during dry, very windy conditions which would increase dust blow.

It is not anticipated that the proposed development will have a major impact on air quality in the area. The mitigation measures outlined for both the construction and operation phases of the development will ensure that impacts are kept to a minimum. It is also anticipated that once restoration is complete that deposition levels will all be relatively lower than the existing rates as all bare un-vegetated areas will be capped and vegetated.

2.7 Noise

Construction Phase

The main construction phase will last circa 9 months and in the context of minimising impacts on the noise environment, will include constructing berms to reduce noise emissions from the Application Site. All construction activities will be undertaken in general accordance with the National Road Authority (NRA) 'Guidelines for the treatment of noise and vibration in normal road schemes' 2004. The following measures will be implemented:

- Where possible meet the NRA guidance values for noise during construction activities;
- Development of screening /acoustic berms around the fill phases area;
- Use of plant with low inherent potential for generation of noise and vibration where possible; and
- Restriction of plant from sensitive areas.

Operation Phase

It is anticipated that noise generated from the proposed development will be less than that which occurred during previous quarrying activities as measures will be taken to reduce elevated noise levels, including the following:

- On-going monitoring and compliance in accordance with EPA Guidance values for scheduled activities;
- Construction of berms around the processing area in sensitive areas;
- Planting and maintenance of berms around fill phase boundary;
- Restricting the operational times of the Inert Waste Processing Area to daytime hours;
- The enclosure and cladding of plant and machinery where possible;
- Minimising drop heights of material from plant and machinery;
- Use of rubber linings on chutes and transfer points;
- Selecting machines with mufflers installed, and ensuring these are maintained in good condition;
- Avoidance of audible tones or impulsive noises as far as is possible;
- Internal traffic routing; and
- Regular maintenance and lubrication of plant and machinery.

2.8 Landscape and Visual Impact

The ca. 68.0 hectare Site lies within a transitional landscape comprising agricultural pasture land together with the adjacent nationally important Punchestown Racecourse. The Site is not within a designated or nationally protected landscape area nor has it any other designations attached to it. The infill development will re-create an elevated landform which rises gently from west to east, which is considered in keeping with the Eastern Kildare Uplands (Transition) Character. The final restoration will also reinstate fields of similar shape, size and composition to those surrounding the Site.

Visual impacts are currently significant from the recreational receptors at Punchestown Racecourse. In the short term during early Site establishment, these impacts will however reduce once screen mounding is in place and perimeter planting becomes established. Seeding and greening of the upper eastern slopes, where necessary, will further reduce potential impacts from the Punchestown perspective.

Visual impacts are limited to a few residential properties around the Site and to road users gaining local access. A progressive restoration programme will provide a mixed end use of grazing and nature conservation elements including a linear wetland area. Adjoining and visually linking the Site with Punchestown, a landscape of fields divided by species-rich hedgerows will be created.

The impact on landscape character during early establishment and operational phases (i.e. during first 3 years) is predicted to be moderate adverse to substantial adverse, but due to the mitigation measures included in the proposed restoration/final closure scheme the overall impact on landscape character (after completion) is predicted to be moderate beneficial.

The proposals include restoration of the entire Site which will improve the immediate setting and surrounding landscape. A combination of grassland establishment and reinstatement of hedgerows/hedgerow enhancement will significantly improve the integration of the Site into the surrounding landscape. The use of native plant species will help to reinforce this integration. The creation of a wetland feature will diversify the wildlife and habitat creation value of the Site.

2.9 Archaeology

A desk-top review and fieldwork by Dr. Charles Mount of the Irish Concrete Federation was carried out during April-May 2008. The proposed development area has been the subject of quarrying since circa 1969/1970, with all topsoil stripping since 1997 being the subject of archaeological monitoring.

The only possible archaeological feature in the Application Site is the continuation of the possible trackway (KD024-32---) the Pilgrim's Walk through the very southern part of the Site.

The restoration plan for the Site will include a provision for the continuation of the possible trackway (KD024-32---), the Pilgrim's Walk, across the south of the Site with a link to the Punchestown Racetrack. Interpretative display boards will be provided with historical information about the walk. Due to the possibility of the survival of sub-surface archaeological deposits or finds within the circa.10% of the lands not previously disturbed, it is recommended that, should any works be proposed in this area, topsoil stripping be archaeologically monitored.

2.10 Material Assets

As the Application Site already has existing utilities, it will not require further connections in terms of electricity, telecoms and water. The restoration of the Application Site will have both positive and negative impacts on the public amenities in the area, these are discussed under the headings below.

The restored area will incorporate a public walk way along the perimeter of the Site which will be an extension of the Pilgrim's Walk (understood to have originally linked Tipperkevin

to Glendalough), as required by Specific Objective for Pit No. 9 of the County Development Plan. This feature will provide a link from the public walkway around the restored area to the Punchestown Racecourse which is commonly used by local residents for daily walks. Another aim of the restoration plan is to increase habitat diversity in the area. The proposed restoration plan will also improve the view of the Application Site from Punchestown Racecourse which attracts thousands of people every year to various events.

In terms of traffic, vehicle movements along the L6042 will be maintained at those levels provided for in the most recent planning permission (Planning reference No. 96/100).

3.0 ENVIRONMENTAL MONITORING

Environmental monitoring at the Facility and in its environs will be undertaken during the full life cycle of the Facility, including: prior to construction; during construction; while inert materials are being deposited; during the capping of the restored Site; during the closure period of the Facility; and in the post closure period. Monitoring will be carried out to check the environmental performance of the Facility (against the baseline for the Site) and to ensure compliance with conditions of the Waste Licence. The monitoring requirements of this Facility will be imposed by the EPA and contained in the Waste Licence.

The environmental monitoring will include the following media:

- Groundwater and surface water locations across the Site, including up-gradient and down-gradient locations;
- Noise levels;
- Dust levels;
- Periodic monitoring by an experience ecologist; and
- Archaeological monitoring of any lands previously undisturbed.

Monitoring will be carried out by suitably qualified persons and samples will be analysed at an accredited laboratory. Monitoring equipment will be calibrated when required and records maintained by the Licensee. Monitoring schedules will be contained in the Environmental Management Plan to be reviewed as part of the Environmental Management System (EMS).

3.1 Long Term Monitoring

The Long Term Monitoring Plan (post-closure) will be developed during the active life of the Facility and will be based on the results of monitoring carried out up to and including that point. The Long Term Monitoring Plan will be reviewed and agreed annually with the EPA.