16.0 MITIGATION AND MONITORING

16.1 INTRODUCTION

The purpose of this chapter is to collate the mitigation and monitoring measures identified in the EIAR that are considered necessary to protect the environment prior to, and during, the works and restoration phases of the Proposed Development.

The design of the Proposed Development takes environmental constraints and considerations into account, with embedded mitigation a fundamental component of the design that enables many potential environmental impacts to be avoided entirely. Where environmental impacts cannot be avoided by embedded mitigation, additional mitigation and monitoring measures have been recommended in the EIAR. These are collated and presented in this chapter.

The EIAR Project Team contributed to the compilation of this chapter.

16.1.1 PROJECT DESCRIPTION

A full project description is provided in Chapter 3.0 (Project Description). A project description summary is provided below:

The Proposed Development is the establishment and operation of a soil recovery facility within a 17.08 hectare site at Kilmartin, Co. Wicklow (approximately 4 km north-east of Ashford) (hereafter referred to as 'the Site'). The soil recovery facility will import up to 2,160,000 tonnes of inert waste, primarily clean soils and stones from construction and development sites. Clean soil and stone will be used to progressively infill a steep-sided natural valley within the Site and raise ground levels to approximately 57 mOD, tying in with the surrounding landscape. The infill area covers approximately 14 hectares.

The soil recovery facility will accept up to 100 loads per day on average (maximum 150 in exceptional circumstances) with a projected operational lifespan of up to 10 years depending on market conditions within the construction sector, followed by one year for final restoration and aftercare of the lands.

The Proposed Development will require the following structures be installed and maintained for the operational life of the Soil Recovery Facility: office and welfare facilities; six parking bays for private vehicles; weighbridge and associated weighbridge cabin; one wheel wash and one spray-system wheel wash; two waste inspection bays and one bunded waste quarantine area; hardstanding area (for vehicle movement and storage); surface water drainage infrastructure from hard standing and discharge to ground (including two interceptors and two soakaways); an internal access road; internal haul roads (constructed from recycled aggregates where available); security features including security gates and fencing; and power supply. These structures will be removed from the Site at the end-of-life point of the soil recovery facility.

Approval will be sought for a connection to the ESB Network for the site office and welfare facilities. Diesel generators will be used to power mobile lighting, if required. Temporary lighting, if required, will be cowled to prevent light spillage.

The temporary relocation of ESB poles within the fill area will be required. This will be subject to prior agreement with ESB.

Wastewater from office and welfare facilities will be managed by a third-party provider, with no connection to foul water mains.

All truck deliveries will access the Site via the N11/M11 and Coynes Cross Road, with internal queuing space provided within the Site and no parking on public roads.

The existing land entrance located on R772 will be upgraded and will be retained following the completion of the Proposed Development.

A groundwater abstraction borehole will be installed to supply water for wheel washes, dust suppression, and welfare facilities, and will be retained for monitoring after restoration.

Restoration will return the Site to grassland and hedgerow habitat, similar to its pre-development state. Approximately 140 m of fence and hedgerow opposite the entrance will be temporarily removed to improve sightlines during the life of the soil recovery facility and this will be subsequently reinstated. Native species will be used in hedgerow planting. The restored land will revert to agricultural management.

Permission is sought from An Coimisiún Pleanála for a period of up to 10 years, with an additional year for restoration. The Proposed Development will require a waste licence[1] from the Environmental Protection Agency (EPA) and aligns with national and regional policy objectives to provide adequate licensed soil recovery capacity for the Dublin and Wicklow regions.

16.2 MITIGATION MEASURES

Mitigation measures and environmental commitments have been identified as general requirements that will help to avoid, reduce or offset potential impacts and these are relevant to a number of the environmental aspects addressed in the EIAR. These general environmental mitigation measures are described in Table 16-1.

Specific mitigation measures are described within the EIAR technical assessments and are provided in Table 16-1 to Table 16-11 below.

Note that embedded design mitigation is described in Chapter 3.0: Project Description and within technical chapters and Table 16-2 to Table 16-11 where relevant.

The timing of the implementation of the mitigation measures is indicated within the tables as associated with the relevant phase. The technical EIAR chapters provide detail regarding the extent of that mitigation requirement within the phase (e.g. where mitigation only applies to the operation of the soil recovery facility within the works phase). The phases are:

- Works Phase: enabling works to provide facilities required for the operation of the soil recovery facility and the operation of the soil recovery facility (i.e. acceptance of clean soil and stone to Site and its subsequent emplacement within the fill area).
- Restoration Phase: broadly following the work phase (with some temporal overlap), will comprise the shaping of the final landform in the fill level, restoration of stored topsoil, seeding (where necessary), and planting with subsequent aftercare and maintenance.

[1] The Proposed Development will be carried out in accordance with a waste licence from the EPA or in accordance with by-product regulations, Article 27 of the European Communities (Waste Directive) Regulations 2011 (see Section 3.5 in Chapter 3.0: Project Description of this EIAR for further detail).

Table 16-1 - General Environmental Mitigation Requirements

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
GM1	The Applicant will continue to implement the Environmental Management System (EMS) at their Site. The purpose of the system is: ▪ Minimise the environmental impact of the operation. ▪ Ensure compliance with environmental legislation. ▪ Provide a system of continuous improvement in environmental performance. ▪ Provide a means to achieve the operation's environmental policy. The EMS shall be submitted for agreement with Wicklow County Council (WCC). The EMS shall contain the mitigation measures and plans identified in the following Sections (as a minimum), and also the wider EIAR. The Applicant shall incorporate into the EMS and implement the conditions set out in the planning approval. The EMS shall set out all the intended methods to manage potential environmental impacts from the operation and restoration of the Site. The EMS is a live document and will be reviewed on a regular basis and updated accordingly by the Applicant, in particular the document shall be reviewed on receipt of planning approval in accordance with the relevant planning conditions.	Works Phase
GM2	The key elements of the EMS shall include: ▪ Appointment of a facility manager by the Applicant for the duration of the activities. ▪ Incorporation of environmental commitments, purpose and objectives of the activities. ▪ Incorporation of procedures to record any environmental incidents on site and procedures for implementing appropriate corrective and preventative measures. ▪ Outlining the relevant guidance (with those outlined in the EIAR as a minimum) that have informed the planned development. ▪ Incorporation of procedures for staff environmental awareness. Incorporation of environmental monitoring procedures. Incorporation of a system of audit and review.	Works Phase
GM3	**Site Security** Records of checking, maintenance and repairs to the fence and all gates to the Site will be maintained in the EMS.	Works Phase

	The Site is presently well defined with fencing and hedgerows. These will be maintained and repaired as necessary to restrict access. Currently, the Application boundary is secured by post and wire fencing and/or hedgerow and a pair of padlocked metal field gates at the Site entrance. Prior to commencement of the proposed infilling and restoration activities, a permanent security fencing system will be provided around the Application boundary where required to ensure access is restricted to the Site by: ▪ enhancing existing dense hedgerows; ▪ installing 1.8 m high post-and-wire fencing at each side of the mouth of the Site entrance; ▪ erecting 1.2 m high post-and-wire fencing along the public road boundary A security gate will be located on the Site entrance road at its junction with the Coynes Cross road. A security gate will also be installed at an existing second Site entrance located approximately 150 m to the north-east of the proposed main entrance. This existing secondary entrance will not be used during the operational life of the soil recovery facility. The integrity of the fencing and gates leading into the Site will be checked monthly. Records of checking, maintenance and repairs to the fence and all gates to the Site will be maintained in the EMS. All defects in any of the above listed fencing system will be made good by effecting an immediate temporary repair and permanent repair within 72 hours of the detection of the defect. Visits to the Site will be monitored, logged in at the office and welfare facilities, and supervised at all times including truck deliveries.	
GM4	The appointed facility manager shall ensure that the EMS is fully implemented during the operation and restoration phases in agreement with WCC, to prevent or reduce the impacts identified in the impact assessment.	Works Phase
GM5	The Applicant will implement the Restoration Plan at their Site. **The proposed restoration plan is provided as an appendix to Chapter 3.0: Project Description of this EIAR.**	Works Phase
GM6	**Restoration of lands** Fencing will be provided to protect establishing hedgerow from livestock until it matures. Planted hedgerow and trees will be replaced in the event that they do not take (i.e. establish). Reinstated/seeded section of the Site will not be used for livestock until grasses have established on the Site.	Restoration phase

	The configuration of the proposed hedgerow planting within the restoration plan will be beneficial to local ecology (once established) as it will improve ecological corridors present at the Site by increasing the quality of continuous hedgerow on the Site post construction. Large stones and some deadwood from the site during the works will be retained on the wider site for later placement within field margins for enhanced lizard basking and insect habitat.	
GM7	It is noted that the applicant will seek a waste license form the EPA and the conditions outlined in this will be adhered to.	Works Phase
GM8	The Applicant will engage with ESB Networks to agree the temporary relocation of ESB poles within the fill area and restoration of the poles in line with ESB guidelines.	Pre-Works Phase/Restoration phase
GM8	The Applicant will undertake percolation testing on the lands at the Site in advance of enabling works to ensure that the relevant surface water drainage features (e.g. the soakaway) are constructed with sufficient capacity to manage flow/infiltration rates. Based on a desktop review of the existing surface water runoff regime at the Site, it is expected that the Applicant's lands located north of the fill area will maintain adequate capacity to discharge any seasonally accumulated surface water runoff to the ground via infiltration. Percolation testing will be carried out to the north of the fill area at this located, if required.	Pre-Works Phase/ Works Phase/Restoration phase (as appropriate)
GM9	The environmental controls set out in Section 3.9 of Chapter 3.0 (Project Description) of this EIAR will be adhered to.	Pre-Works Phase/ Works Phase/Restoration phase (as appropriate)
	NOTE: Any further general environmental mitigation measures within authorisation or consents to be included in this section and adhered to.	

Table 16-2 - Specific Environmental Mitigation Requirements – Population and Human Health

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
	No specific mitigation measures are proposed for Population and Human Health. Relevant mitigation measures relating to Population and Human Health in the context of environmental factors have been presented, where required, in the relevant chapters in this EIAR: Land, Geology and Soils (Chapter 7.0), Water (Chapter 8.0), Air Quality and Climate (Chapter 9.0), Noise (Chapter 10.0); Landscape and Visual (Chapter 11.0); and Traffic and Transport (Chapter 12.0). The potential impacts arising during the works phase can be addressed by good construction and site management practices and implementation of the mitigation and monitoring measures set out in this EIAR. **NOTE: Any further mitigation measures related to Population and Human Health detailed within authorisation or consents to be included in this section and adhered to.**	Works and Restoration Phases

Table 16-3 - Specific Environmental Mitigation Requirements – Ecology and Biodiversity

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
EB1	**Loss of Hedgerows** It is suggested that a new hedgerow be planted in all areas where removal is proposed. Methodology should be as per guidance provided by Teagasc (2010) (see Appendix 6C). Teagasc guidance suggests suitable species mixes, which includes native species that exist currently onsite. Hedgerows should be planted as soon as possible, once a piece of land becomes available after filling has ceased in that area, in line with the phased approach to the proposed works.	Works and Restoration Phases
EB2	**Bats** It will be necessary to confirm whether the potential roost features (PRFs) identified during the walkover survey and subsequent tree-climbing survey are in fact utilised by roosting bats. In line with guidance from Collins (2016), PRFs with 'High' potential as a bat roost should be subject to a total of four surveys during the active season, one of which has already been completed. PRFs with 'Moderate' potential as a bat roost should be subject to a total of two surveys during the active season, one of which has already been completed. These surveys will lead to one of two possible conclusions – a bat roost is present, or it is not. Mitigation measure EB3 provides broad suggestions on appropriate actions in either case. The Applicant will engage a suitably qualified and experienced ecologist to scope and carry out bat survey works.	Works Phase
EB3	**Loss of Roosting Habitat and Injury/Death of Roosting Bats** If roosting bats are confirmed, then the destruction or disturbance of the roosts would be considered an offence under Section 23 (5)(d) of the Wildlife Acts. In this scenario, a derogation licence would be required via application to the National Parks and Wildlife Service (NPWS). An ecological consultant may suggest the following measures, or a combination thereof. 1. During tree-climbing surveys, if PRFs are found not to be in use, these can be sealed off in order to prevent bats re-entering. 2. Restrict clearance works to September/October, in order to avoid the maternity and hibernation seasons, when bats are most vulnerable. 3. Carry out 'soft felling', such that tree limbs are cut, lowered gently to the ground and left grounded overnight to allow any bats to make their way out.	Works Phase

	4. After bats have evacuated the roost, affix limbs that contain roosting features to existing trees that are proposed for retention, so that PRFs are retained within the application boundary. 5. Affix bat roosting boxes to existing trees that are proposed for retention. This will result in a positive net gain in PRFs within the Site; and 6. Appoint a suitably experienced bat ecologist to supervise the above works. If, after sufficient surveys have been undertaken, roosting bats are not found onsite, then a derogation licence will not be required to facilitate clearance works. However, in order to offset the loss of potential roosting habitat, it is suggested that steps 4-6 above be implemented, so that PRFs are retained and supplemented within the application boundary.	
EB4	**Loss of Badger Breeding Habitat** In advance of the commencement of site works, the sett should be monitored using a camera trap in the same fashion as described in Chapter 6.0, which will confirm whether the sett has in the interim become occupied by a breeding female. Subsequent actions are to be determined by a suitably experienced badger ecologist and will be in accordance with the requirements of the Wildlife Acts and in accordance with relevant guidance.	Works Phase
EB5	**Injury/Death of Badgers** In advance of the commencement of site works, specific details of plans pertaining to the interference with badger setts must be submitted to the NPWS for agreement. Whilst they are not currently able to issue derogation licences for works impacting badgers, the NPWS can provide recommendations and agree methodologies on a non-statutory basis prior to works proceeding. In general, the following steps are recommended, to be followed according to the guidance provided by the National Roads Authority (NRA) (2005). ▪ Exclusion of badgers from the sett – typically through the installation of a one-way gate. This must be implemented during the period of July-November in order to avoid the breeding season; ▪ Careful, gradual excavation of the sett, under the supervision of a suitably experienced badger ecologist, who will periodically check exposed tunnels for recent badger activity and/or live individuals that might be inside, having entered via an undetected entrance or having dug around the one-way gate; and ▪ Once it is confirmed that badgers are absent, the remaining section of the sett may be destroyed and levelled so as to no longer to be suitable for badger occupancy.	Works Phase

EB6	**Injury/Death of Nesting Birds or Disturbance of Nests** To limit the potential impact of construction on breeding birds, removal of woody vegetation (hedgerows and scrub) should be restricted to the non-breeding season (September to February, inclusive). Where the construction programme does not allow this, an ecologist should undertake a breeding bird check immediately prior to vegetation clearance. Where no breeding birds are present, clearance may proceed without requiring a derogation licence from the NPWS. If the applicant intends to carry out clearance works during the bird breeding season, guidance should be sought from the NPWS with regard to compliance with Section 40 (1) and Section 40 (2) (1) of the Wildlife Acts (see below): *40. (1) (a) It shall be an offence for a person to cut, grub, burn or otherwise destroy, during the period beginning on the 1st day of March and ending on the 31st day of August in any year ,any vegetation growing on any land not then cultivated.* *(1) (b) It shall be an offence for a person to cut, grub, burn or otherwise destroy any vegetation growing in any hedge or ditch during the period mentioned in paragraph (a) of this subsection.* *40. (2) Subsection (1) of this section shall not apply in relation to (e) the clearance of vegetation in the course of road or other construction works or in the development or preparation of sites on which any building or other structure is intended to be provided.* The above sections of the Wildlife Acts should be read as an additional consideration, on top of Section 22 of the Acts, which pertains to disturbance/destruction of nests and injury/death of wild birds.	Works Phase
EB7	**Importation of Invasive Species – Biosecurity Measures** Biosecurity measures will be implemented in accordance with the Invasive Species Management Plan (ISMP) which has been provided as a standalone document in the SID application submission. The following measures will be adopted to mitigate against the spread of invasive species into and from the Site, both during site preparatory works and during filling operations (i.e. works phase). ▪ Power washing of construction machinery prior to arrival at the Site. ▪ Use of wheel wash facilities for all vehicles entering and leaving the Site. ▪ Installation of boot cleaning stations for site personnel. ▪ Clear signage and awareness measures for all site users. ▪ Verification that suppliers of all imported material are aware of the prohibition on invasive species. ▪ Other measures outlined in the ISMP will be adopted where relevant.	Works and Restoration Phases

	NOTE: Any further mitigation measures related to Ecology and Biodiversity detailed within authorisation or consents to be included in this section and adhered to.	

Table 16-4 - Specific Environmental Mitigation Requirements – Land, Geology and Soils

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
LSG1	Any sludge collected from the wheel washes will be tested and either used as part of the soils recovery process (if the quality is acceptable) or disposed of to an appropriate licensed waste disposal facility. No used water or settled solids will be disposed of to land without prior consent of the EPA.	Works Phase
LSG2	Vehicle movements outside the area where filling will take place will be restricted to dedicated routes or on areas of hardstanding.	Works Phase
LSG3	Existing topsoils in the footprint of the fill area will be removed prior to fill emplacement and temporarily stored in stockpiles.	Works Phase
LSG4	Topsoil will be stockpiled to heights that result in no deformation to the structure of the soil. The topsoil will be reused during the land reinstatement.	Works and Restoration Phases
LSG5	Stockpiles of material will be evaluated and monitored and kept stable for safety and to minimise erosion.	Works and Restoration Phases
LSG6	Should there be any requirement to for additional topsoil, this will be inert and imported to Site using a suitability licensed third party supplier.	Restoration Phase
LSG7	No deep excavation is planned, only shallow topsoil stripping and land raise.	Works Phase
LSG8	There is no known land contamination at the Site. If during works previously unidentified contamination is encountered, work will be undertaken to characterise this and determine if there is a risk to land quality or human health that requires action.	Works Phase
LSG9	The land raise, and all temporary operational facilities to enable the soil recovery facility to operate, will be developed using inert soil and stone (e.g. land raise), recycled aggregates (e.g. haul roads), and concrete slab (e.g. Site entrance curtain, waste inspection bays and bunded waste quarantine area).	Works Phase

LSG10	Material acceptance for the imported material will be as per the Waste Licence. No contaminated soils will be accepted at the facility. Authorised vehicles only will be received. The origin and weight of incoming material will be known. Representative samples will be taken from a certain proportion of loads to make sure they comply with acceptance criteria.	Works Phase
LSG11	There will be two waste inspection bays and a bunded waste quarantine area that are enclosed on three sides and base-lined with concrete.	Works Phase
LSG12	During emplacement of materials, the site operative will inspect what is being laid down. Suspect or non-compliant material will be transferred to the quarantine area for further inspect and classification. Materials that are not compliant with Waste Licence requirements will be removed from the Site for disposal at an appropriate facility.	Works Phase
LSG13	Temporary slopes in the infilled soils (and existing valley slopes) will be visually inspected, at least once a month, by site staff and records will be kept. Should these inspections give rise for concern, an inspection of the affected area(s) will be undertaken by a qualified geotechnical engineer and measures will be implemented to address any instability issues with the infilling operation.	Works Phase
LSG14	There will be no underground storage tanks.	Works Phase
LSG15	There will be no on-site concrete batching.	Works Phase
LSG16	Any fuels stored onsite will be stored in double skinned tanks in an appropriately bunded storage area. Contained concrete bunds will have a minimum capacity of 110% of the fuel tank. Any pipes and valves associated with storage tanks will be located within a bund. A concrete apron will be constructed adjacent to the tank and vehicles loading or unloading diesel will park on the concrete apron. The edges of the apron will be ramped so that oil spillages occurring during loading or unloading will be contained on the concrete apron. Bunds will be inspected.	Works Phase
LSG17	If small quantities of lubricants and hydraulic oil need to be stored on on-site, these will be stored on a bunded pallet.	Works Phase
LSG18	Disposal of spills / leaks collected in bunded areas will be to an appropriate, licensed facility.	Works Phase
LSG19	Any refuelling of plant onsite will take place on the hardstanding area and drip traps will be used. Refuelling will be undertaken by a suitably responsible person.	Works Phase

LSG20	Spill kits will be maintained on Site to deal with all spills and leaks, and spill training will be provided to relevant staff members.	Works Phase
LSG21	Mobile plant parking will be available on the hardstanding for vehicle movement and storage. Drip trays and mats will be placed under parked plant.	Works Phase
LSG22	The spray wheel washing facility will be a wet-grate design, located upon concrete hardstanding that will be maintained for the duration of the Proposed Development. The effluent water from the wheel wash will be recycled within the system. The final design of the wheel wash will be agreed with local authority. A secondary wheel wash will be used for vehicles entering/exiting the active fill areas.	Works Phase
LSG23	All waste from the welfare facilities will be collected by a third-party provider and disposed of to a suitable off-site facility.	Works and Restoration Phases
LSG24	All hard-standings adjacent to administration buildings, including the waste inspection and quarantine bays, the internal haul road, and the concrete apron at the Site entrance will be drained to a surface water drainage system. The run-off from hard-standing will be directed to an interceptor and discharged to a soak pit that will be constructed onsite. The interceptors will be maintained, as required.	Works and Restoration Phases
LSG25	Any waste removal will be managed and undertaken by a competent contractor appointed by the Site Operator according to industry standard practice and disposed of accordingly by a licensed waste disposal contractor.	Works and Restoration Phases
LSG26	An EMS (Environmental Management System) will be developed for the Site to support a waste licence application to the EPA and will be in keeping with industry best practice and statutory guidelines. Plans within the EMS will set out how the construction and operation of the Proposed Development will be managed. The plans will include widely used good practice measures to avoid or reduce the potential impact of construction works on workers, members of the public and the environment. These will include, but not be limited to, the following: • All works will be conducted in accordance with the appropriate site rules. • Appropriate Personal Protection Equipment (PPE) will be used by all workers. • Hazardous materials will be labelled clearly, transported with care by competent and trained persons, and stored in dedicated areas in appropriately bunded containers. Any liquid accumulating within the bunds, or secondary containment systems, will be disposed of at a suitably authorised facility.	Works and Restoration Phases

	• Maintenance checks and procedures will be completed to reduce the potential for leaks and spills from plant and substance storage. • Pollution management measures will be implemented to prevent contamination by machinery pollutants, such as fuels, oils and lubricants during construction and operational (i.e. works phase) activities. These measures will be informed by guidance provided in relevant documents, such as the CIRIA guides to environmental good practice on site. • Other information on good practice to reduce the potential for environmental pollution that will be consulted includes the following documents developed by the Environment Agency (England and Wales), the Scottish Environment Protection Agency and the Northern Ireland Environment Agency: – GPP 1 Understanding your environmental responsibilities - good environmental practices; – GPP 2 Above ground oil storage tanks; – PPG 6 Working at construction and demolition sites; – GPP 8 Safe storage and disposal of used oils; – GPP 13 Vehicle washing and cleaning; – GPP 21 Pollution incident response planning; – GPP 22 Dealing with spills; and – GPP 26 Safe storage - drums and intermediate bulk containers.	
LSG27	The groundwater borehole for abstraction will be installed by a suitably experience contractor and in line with EPA Well Guidelines. The well will be maintained through the works phase and decommissioned at the closure of soil recovery facility. The quality of water in the well will be analysed and monitored in line with EPA guidelines. It is not anticipated that the facility will have significant water requirements. However, abstraction will be registered with the EPA should 25 cubic meters (25,000 litres) of water or more per day be abstracted (as required by European Union (Water Policy) (Abstractions Registration) Regulations 2018 (S.I. No. 261 of 2018)).	Works and Restoration Phases
	NOTE: Any further mitigation measures related to Land, Geology and Soils detailed within authorisation or consents to be included in this section and adhered to.	

Table 16-5 - Specific Environmental Mitigation Requirements – Water

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
	Embedded and additional mitigation measures identified in Chapter 7.0: Land, Geology and Soils and Table 16-4 will be implemented. **NOTE: Any further mitigation measures related to Water detailed within authorisation or consents to be included in this section and adhered to.**	Works and Restoration Phases

Table 16-6 - Specific Environmental Mitigation Requirements – Air Quality and Climate

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
AQ1	Regular visual inspections by Site personnel to assess visual dust emissions.	Works Phase
AQ2	The timing of operations is optimised in relation to meteorological conditions.	Works Phase
AQ3	A water bowser is available on Site for dust suppression/dampening of internal haul roads and stockpiles to minimise dust blow during working hours.	Works Phase
AQ4	Stockpiles will only be used in poor weather conditions and will be located as close to the void as possible to take advantage of shelter from the wind, in the centre of the Site.	Works Phase
AQ5	Consider the use of temporary baffle mounds around active working areas.	Works Phase
AQ6	Plant is regularly maintained.	Works Phase
AQ7	Incoming loads of backfilling material will be contained in covered HGVs to minimise wind blow.	Works Phase
AQ8	Internal haul roads are compacted or made of concrete hardstanding.	Works Phase
AQ9	All exiting vehicles will pass through wheel washes prior to exit onto the Coynes Cross public road.	Works Phase
AQ10	On site speed restrictions (<10 kph) are maintained in order to limit the generation of fugitive dust emissions.	Works Phase
AQ11	Areas of exposed soils will be kept to a minimum where practical.	Works Phase
AQ12	Filling activities will not take place in during strong winds.	Works Phase
AQ13	The amount of dust or fines carried onto the public road network will be further reduced by periodic sweeping of internal paved site roads and the existing public roads, if required.	Works Phase

	NOTE: Any further mitigation measures related to Air Quality detailed within authorisation or consents to be included in this section and adhered to.	

Table 16-7 - Specific Environmental Mitigation Requirements – Noise

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
N1	The predicted operational noise levels for the Proposed Development meet the criteria, therefore specific mitigation has not been considered. Practical measures which would reduce the likelihood of unnecessary noise are provided as follows: ▪ Infilling from the north to the south, such that infilled areas provide screening of noise from the Site at noise sensitive receptors (NSRs) to the north (most exposed NSRs); ▪ Maintenance of haul roads to minimise rattling from empty trucks as they leave the Site; ▪ Switch off all plant when not in use and discourage idling of trucks waiting to enter the Site; ▪ Minimise the drop height when moving materials; ▪ Consider the use of temporary baffle mounds around active working areas; and ▪ Operate an effective maintenance schedule for plant items.	Works Phase
	NOTE: Any further mitigation measures related to Noise detailed within authorisation or consents to be included in this section and adhered to.	

Table 16-8 - Specific Environmental Mitigation Requirements – Cultural Heritage

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
CH1	To mitigate for the potential presence of undiscovered archaeological remains within the Site, it is recommended that strip map and record under archaeological supervision during topsoil stripping is undertaken by a suitably qualified and licensed specialist archaeological contractor. The appointed archaeological contractor will be required to prepare an archaeological method statement for the proposed archaeological work, which will need to be agreed and approved by the National Monuments Service of the Department of Housing, Local Government and Heritage. The appointed archaeological contractor will also be required to obtain the relevant licences to undertake the works.	Works Phase
	NOTE: Any further mitigation measures related to Cultural Heritage detailed within authorisation or consents to be included in this section and adhered to.	

16-9 - Specific Environmental Mitigation Requirements – Traffic and Transport

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
TT1	Revision of the existing site access to maximise sightlines to both sides of the access on the R772. The upgraded access will be 18 m wide and setback 4 m from the edge of the R772 carriageway. The fence line at the access will taper from this location to a width of 6 m where security gates will be provided. The gates will be setback 20 m from the edge of the R772 carriageway. The area within the access between the edge of the R772 carriageway will be comprised of a hardstanding material throughout with no verges or level differences.	Works Phase
TT2	Cutting back boundary vegetation, and setting back the fence line, that is currently reducing visibility to the south on the R772 from the proposed site access, and which is also reducing forward Stopping Sight Distance (SSD) for northbound drivers on the R772.	Works Phase
TT3	All HGVs exiting the Site during all development phases will be required to pass through wheel washes.	Works Phase
	NOTE: Any further mitigation measures related to Traffic and Transport detailed within authorisation or consents to be included in this section and adhered to.	

Table 16-10 - Specific Environmental Mitigation Requirements – Landscape and Visual

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
LV1	Siting of the Proposed Development in a robust rural setting that is currently overlaid by anthropogenic influences such as a major route corridor and existing rural land uses and built form (to the north).	Works Phase
LV2	The final mitigation of the infill will be seeding and planting to establish a pastoral landcover similar to that which existed prior to works. Once fully established, the grassland landcover will blend with the surrounding pastoral character of the local landscape	Works and Restoration Phases
	NOTE: Any further mitigation measures related to Landscape and Visual Impacts detailed within authorisation or consents to be included in this section and adhered to.	

Table 16-11 - Specific Environmental Mitigation Requirements – Material Assets

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
MA1	A cable avoidance tool will be used prior to any intrusive works (e.g. topsoil stripping) to locate any underground cables.	Works Phase
MA2	All works will be carried out in line with the ESB guide 'ESB Networks Code of Practice for Avoiding Danger from Overhead Electricity Lines (ESB 2019)	Works Phase
	NOTE: Any further mitigation measures related to Material Assets detailed within authorisation or consents to be included in this section and adhered to.	

16.3 MONITORING

Monitoring measures have been identified that will be used to check that the particular phases of the Proposed Development conform to the predictions made as part of the EIAR process.

The monitoring will take place after the consent is granted for the Proposed Development and will provide assurance that aspects of the design and management are functioning as intended and therefore not generating significant effects.

Environmental monitoring requirements set out in any Waste License will be implemented.

Environmental sampling, monitoring and testing will generally be undertaken by the Applicant's staff as required. All staff undertaking this activity will receive appropriate training in waste management and sampling. However, the Applicant will engage the services of a professional environmental consultant, as required. Records of environmental monitoring and testing will be maintained on-Site and forwarded to the EPA as required under the terms of the waste licence.

16.3.1 POPULATION AND HUMAN HEALTH

No specific monitoring measures required in addition to those set out in other chapters of the EIAR.

16.3.2 ECOLOGY AND BIODIVERSITY

Annual surveys should be undertaken to monitor the spread of invasive species within the development site.

After filling operations have ceased, one survey is suggested one growing season following de-mobilisation from Site.

- If any invasive species are found, the infested areas are to be fenced off and appropriate warning signage erected.
- No machinery is to enter these fenced-off locations until appropriate management measures have been put in place.
- Any management measures should refer to the NRA's (2010) 'Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads'. Measures will differ depending on the species and the extent of coverage.

Further details on monitoring recommendations in relation to invasive species are set out in the stand-alone ISMP provided within the wider SID Application.

16.3.3 LAND, GEOLOGY AND SOILS

No monitoring requirement is foreseen to maintain and protect the conditions of the land, soil and geology. Any monitoring associated with licences or permits will be detailed within the licences or permit documentation.

16.3.4 WATER

Potential failure of operational processes and drainage systems that are proposed to manage and limit the generation of loose material and associated generation of suspended solids are considered to be the most likely risk to the surface water environment.

Pre-construction works, it is recommended that at least a further two rounds of surface water quality monitoring is completed at the upstream and downstream Coynes Cross and Kilmartin stream monitoring locations to help establish baseline conditions.

During works phase, a protocol of weekly visual inspection that compares the appearance of surface water upstream and downstream of site discharge points will be implemented to allow identification of discharges that could be increasing suspended solid content.

Ongoing sampling and analysis of surface water at the same locations will be undertaken during works phase. Monitoring will include suspended solids, as well as general quality parameters pH, temperature, electrical conductivity, total dissolved solids, ammonia, chloride and biological oxygen demand. This will be undertaken quarterly (or if the weekly visual inspection of the surface watercourses indicates a potential emission from the proposed activities). The monitoring data will be compared to the baseline to show where management of the Proposed Development has been effective or pick up early indications of concerns and help identify actions (in agreement with the regulator) to reduce the impacts to surface water.

Monitoring of the water environment, the associated reporting requirements, and an action plan (should a release be identified), will be detailed within the licence/permit documentation.

For the groundwater well to be installed for abstraction, it is recommended that:

- abstracted volumes from the groundwater well (m^3/day) are recorded.
- regular visual impaction of abstracted groundwater is carried out.
- sampling and testing of the well (including recording groundwater levels) will be undertaken on a biannual (i.e. twice yearly) basis.
- groundwater samples will be tested for a range of physical and chemical parameters in order to assess water quality and detect possible contamination arising from proposed recovery activities.

Monitoring will be carried as per the requirements of any waste licence issued by the EPA.

16.3.5 AIR QUALITY AND CLIMATE

Deposited dust monitoring will be undertaken during the operation of the soil recovery facility (works phase) at appropriate locations around the application boundary in order to monitor dust emissions that may be arising from the Site activities. An EPA waste licence will be required for the facility and the frequency and locations of monitoring will be determined in accordance with the requirements set out in the licence. Monitoring will be carried as per the requirements of any waste licence issued by the EPA.

Dust emissions will be monitored at designated monitoring locations for the duration of the proposed waste recovery activity and for a short duration thereafter. The location of the monitoring station(s) and frequency of monitoring will be determined in accordance with the waste licence requirements.

Should infilling operations of the Soil Recovery Facility be carried out in accordance with by-product regulations, Article 27 of the European Communities (Waste Directive) Regulations 2011, prior to the issue of a Waste licence from the EPA, dust monitoring requirements will be agreed with the environmental health officer/Wicklow County Council in advance of works and implemented.

16.3.6 NOISE AND VIBRATION

The operational noise monitoring regime will be in accordance with licence requirements and EPA guidelines for noise monitoring at waste licenced sites. Noise monitoring will be completed by an appropriately qualified acoustician, and will be undertaken on representative busy days. Environmental noise survey frequency will be in accordance with EPA licence requirements.

This assessment considers that the following operational noise monitoring regime may be appropriate, noting that the final schedule would be expected to be agreed with Environmental Health:

- Noise monitoring to be completed by an appropriately qualified acoustician, with an appropriately calibrated Class I or Class II sound level meter;
- Monitoring to be undertaken for up to two hours per location at locations representative of the closest NSRs to the Proposed Development;
- Monitoring to be completed on a representative busy day, expected to be during the summer period; and
- Surveys to be undertaken annually for the first two operational years of the Proposed Development (noting that these may not be consecutive years) and thereafter only in the event of a noise complaint.

16.3.7 CULTURAL HERITAGE

No monitoring measures proposed.

16.3.8 TRAFFIC AND TRANSPORT

No monitoring measures proposed.

16.3.9 LANDSCAPE AND VISUAL

No monitoring measures proposed.

16.3.10 MATERIAL ASSETS

No monitoring measures proposed.

16.4 REFERENCES

Teagasc (2010). Planting a Stockproof Hedgerow. Teagasc Forestry.