

## **15 CLIMATE**

### **15.1 INTRODUCTION**

This section provides an update of Chapter 15 of the Environmental Impact Assessment Report (EIAR) which considers the likely significant effects from the proposed development on climate change as well as the likely significant effects of climate change on the proposed development. This addendum report considers a proposed alternative construction access road to allow for construction of the three Coolpowra Energy Projects – Reserve Gas Fired Generator (An Coimisiún Pleanála; Ref. 320095), GIS Generator (An Coimisiún Pleanála; Ref. 320094), and ESS (An Coimisiún Pleanála; Ref 32091). This report does not replace the EIAR it is an updated assessment of the potential climate impacts of the proposed temporary access route.

### **15.2 DESCRIPTION OF THE PROPOSED DEVELOPMENT**

The overall proposed development for which planning permission is sought comprises three elements – the Reserve Gas-Fired Generator, the GIS Electrical Substation and the proposed Energy Storage System (ESS) using long duration energy storage (LDES) battery technology and synchronous condenser technology. A single Environmental Impact Assessment Report (EIAR) has been prepared for all three projects proposed as part of the development. The potential environmental impacts from each project are assessed individually and cumulatively (with each other and with any other identified projects) within the EIAR.

The proposed development which is the subject of this assessment is an alternative construction access which will route through lands under the control of the applicant. It is proposed to construct a temporary road from the N65 which will provide vehicular access to the main development site (south of the L8763). The road will be used for the construction stages of the projects. The proposed alternative construction access road will route from a new junction along the N65 and traverse three undulating grassed fields. The access route will cross the L8763 by staggered junction and extend from here into the main development lands, before connecting to the proposed access lane which will serve the site during operation (i.e. that which was originally applied for).

### **15.3 IMPACT ASSESSMENT METHODOLOGY**

The impact assessment methodology is based on the Institute for Environmental Assessment and Management (IEMA) Guidance (2017, 2020, 2022) on the assessment of Greenhouse Gas Emissions and Climate Impacts. The EPA Guidelines on the Information

to be Contained in Environmental Impact Assessment Reports were published in May 2022 and are considered in this assessment. The assessment in this updated report of a temporary access route uses the same methodologies employed in the EIAR. Since the proposed alternative access route is intended only for construction phase access, the updated assessment only considers potential construction phase impacts.

#### **15.4 LEGISLATION, POLICY AND GUIDANCE**

There are no changes or updates to this section of the EIAR.

#### **15.5 GREENHOUSE GAS ASSESSMENT**

##### **15.5.1 CONSTRUCTION PHASE GREENHOUSE GAS ASSESSMENT**

Construction phase Greenhouse Gas Emissions were estimated in the EIAR using currently available information about the duration and scale of the construction works and the design of the facility as currently developed. The total GHG emissions for the construction phase of the project were estimated as set out in Section 15.5.1 and Table 15.1 of the EIAR. The only change to the development is to consider a proposed alternative construction access road to the site for the construction phase. The scale of it is indistinguishable from the scale of the original access route assessed as part of the EIAR, and there is no quantifiable difference in the magnitude of the potential impacts of the proposed alternative access route relative to the original access route proposal. When the GHG emissions are compared to the Irish carbon budgets, the construction phase emissions contribute significantly less than 1% of the annual carbon budget during the projected construction period, and this is unchanged for the proposed alternative construction access road.

##### **15.5.2 OPERATION PHASE GREENHOUSE GAS ASSESSMENT**

The proposed alternative construction access road is for construction phase only so there is no Operational Phase climate impact associated with the proposed development.

#### **15.6 CLIMATE CHANGE RESILIENCE ASSESSMENT**

The principal potential climate change impacts on the Proposed Development and the adaptation methods to increase the resilience of the Proposed Development are detailed in Table 15.4 of the EIAR. None of the identified risks are deemed significant. The potential impact of the proposed alternative construction phase access route were considered and there is no change to the findings presented in the EIAR. Climate change resilience effects

during construction are deemed to be minimal and indistinguishable relative to the original proposed access route.

### **15.7 REFERENCES**

There are no new References cited.

## **16 CUMULATIVE EFFECTS AND INTERACTIONS**

### **16.1 INTRODUCTION AND SCOPE**

This section considers cumulative effects and interaction arising from the Proposed Development (as amended), and other plans or projects that could reasonably interact with the works during construction, operation or decommissioning.

The assessment addresses the potential for cumulative effects to occur where there is temporal overlap between construction activities, additional demands on shared infrastructure (in particular the local and national road networks), and combined nuisance effects at sensitive receptors, and also considers the interaction of environmental factors in line with the EPA EIAR Guidelines (2022).

### **16.2 COOLPOWRA PLANNING APPLICATIONS**

The planning applications are currently under consideration by An Coimisiún Pleanála and comprise a reserve gas-fired generator, an energy storage system and a gas insulated switchgear electricity substation. These projects have been assessed under the EIA Directive and the Habitats Directive, and supporting reports have demonstrated that, with appropriate mitigation during construction, operation and landscaping, the projects would have no significant effects on biodiversity or on the Natura 2000 Network.

The Proposed Development will include a Construction Environmental Management Plan and associated environmental commitments designed to avoid potential negative effects on European sites within the potential zone of influence and to avoid and, where practicable, enhance biodiversity. On this basis, and provided the identified mitigation measures are implemented, no in-combination effects are predicted to arise from the Proposed Development (as amended).

### **16.3 GAS PIPELINE CONNECTION**

The Proposed Development (as amended) will require a connection to the national gas transmission system. Gas Networks Ireland ("GNI") is the developer and competent applicant in respect of the gas transmission connection, and that connection will be subject to a separate statutory consent process under the relevant legislative code applicable to GNI's works. Potential routes for the underground transmission gas pipeline required to serve the reserve gas-fired generator are currently being considered by GNI. There is potential for the route to traverse areas containing habitats or fauna not currently confirmed, including badger activity. Any such risks will be managed through appropriate

routing, avoidance and mitigation measures to ensure that cumulative effects do not arise. The detailed environmental assessment of the final pipeline alignment will be undertaken as part of the separate consent process for the gas transmission connection. The EIAR has also considers the potential for cumulative effects with other known enabling or related projects necessary for the operation of the development. In addition, the Galway County Development Plan requires that plans and projects which could affect Natura 2000 sites within the same zone of influence are screened for Appropriate Assessment and, where Stage 2 Appropriate Assessment is required, that suitable mitigation measures are applied to avoid, reduce or ameliorate negative effects. This approach provides a framework through which potential in-combination effects with other plans or projects in the surrounding townlands would be identified and avoided.

#### **16.4 CONSENTED DEVELOPMENT IN THE VICINITY**

A review of developments granted permission in the vicinity indicates that permissions have generally been conditioned to secure sustainable development outcomes in compliance with the relevant Development Plan and the requirements of the Habitats Directive. In that context it is not predicted to have effects on any European site, in-combination or cumulative effects with other consented development are not anticipated.

#### **16.5 CUMULATIVE EFFECTS**

##### **16.5.1 POPULATION AND HUMAN HEALTH**

Cumulative population and human health effects could arise where the construction programme overlaps with other developments or background roadworks in the area, potentially increasing overall construction traffic and pressure on the local road network. The proposed alternative construction access road reduces the potential for such cumulative effects by concentrating project-related HGV movements onto a managed, purpose-designed route between the N65 and the works area, thereby limiting additional traffic on the L8763 local road network and reducing combined nuisance and safety effects at residential frontages.

Subject to implementation of the Construction Environmental Management Plan, including delivery scheduling, traffic management measures and ongoing monitoring, cumulative effects on population and human health are expected to remain not significant, with any residual effects likely to be temporary and slight.

### **16.5.2 CUMULATIVE AIR QUALITY EFFECTS**

The cumulative impacts of the Proposed Development on air quality, in conjunction with current and future developments in the vicinity of the site, have been considered. There is no discernible difference in emissions or the potential for air quality impacts associated with the proposed alternative construction access road compared with the position assessed in the July 2024 EIAR. Accordingly, there is no change to the air quality cumulative assessment relative to the EIAR, and cumulative air quality effects remain not significant, subject to good practice construction management and dust control measures implemented through the Construction Environmental Management Plan.

### **16.5.3 CUMULATIVE NOISE EFFECTS**

Potential construction impacts at noise sensitive receptors are greatest within approximately 40 metres of works, after which they reduce as noise attenuates with distance. As noise addition is logarithmic, the dominant contributors are generally those closest to receptors and these tend to define the overall impact magnitude.

The proposed alternative construction traffic route is expected to be built out first and separately to the development of the three projects described in the EIAR; therefore, no cumulative construction noise impacts arise from the construction of the alternative route itself.

With regard to traffic-related noise, cumulative HGV movements are expected to increase to approximately 15 arrivals during the peak hour. The predicted  $L_{Aeq,1hr}$  value for HGV traffic at roadside noise sensitive receptors located between Loughrea and the construction site entrance, at 20 metres from the roadside and inclusive of baseline, is 55dB and is therefore assessed as short-term minor negative and insignificant. Cumulative car movements are expected to increase to approximately 95 arrivals during the peak hour. The predicted  $L_{Aeq,1hr}$  value for cars at roadside noise sensitive receptors located south of the construction site entrance, at 20 metres from the roadside and inclusive of baseline, is 54dB and is therefore assessed as short-term negligible negative and insignificant.

### **16.5.4 CUMULATIVE ARCHAEOLOGY AND CULTURAL HERITAGE EFFECTS**

No significant cumulative effects on archaeological or cultural heritage resources are predicted as a result of the proposed vehicular access route. No effects are anticipated on known archaeological, architectural or cultural heritage features within the site or the surrounding landscape. An existing operational 400kV AIS electricity substation (Oldstreet) is already located immediately adjacent to and west of the proposed access route, which contributes to an established baseline of strategic infrastructure in the area.

The indicative route for an associated gas pipeline has also been designed to avoid known archaeological and architectural heritage constraints, and Gas Networks Ireland will undertake appropriate due diligence, including an archaeological and cultural heritage assessment, as part of any separate consenting process.

## **16.6 INTERACTION OF ENVIRONMENTAL FACTORS**

The Proposed Development has the potential to interact across environmental topics, particularly through construction activity and construction traffic. Construction-related air quality effects have potential to interact with population and human health; however, these effects are predicted to be short term and to range from not significant to slight, with predicted concentrations at the nearest residential receptors below relevant air quality limit values, resulting in negligible effects. On the ecological side, effects on protected sites and biodiversity are not significant, and therefore no significant interaction is predicted.

Noise has the potential to interact with population and human health, and with biodiversity, particularly where ecological receptors are located in proximity to the development lands. Construction-phase noise controls and mitigation will be set to ensure applicable construction noise targets are achieved, with measures further detailed within the construction management plan. Operational noise associated with the projects has been assessed as compliant with lower limits appropriate to areas of low background noise. In that context, and given the nature of ecological receptors and the predicted levels, noise interaction effects on biodiversity are not considered significant.

Landscape and visual effects can interact with population and human health and with biodiversity. No designated scenic views are affected. Proposed mitigation planting will increase the variety of native tree and shrub species and will deliver positive effects through enhanced screening and ecological benefit over time. Residual visual effects range from substantial-moderate to imperceptible, with effects reducing considerably beyond the immediate context of the site. Having regard to the receiving landscape's low sensitivity classification within the Galway County Development Plan and compliance with relevant policy objectives, interaction effects are not considered to give rise to significant cumulative impacts.

There is a recognised interaction between soils and geology and the water environment, in that soil disturbance during construction can affect water quality if sediment-laden runoff reaches water features or drains. Construction activities that disturb or expose soils, including any works in proximity to drainage features, have the potential to increase suspended solids. This interaction is managed through construction mitigation measures,

including sediment control and prevention of polluted discharges, implemented through the Construction Environmental Management Plan framework. During operation of the access road, there will be no direct process discharges to soils or surface waters; stormwater will be managed in accordance with sustainable drainage best practice as presented in the drainage assessments, and no significant in-combination effects are predicted.

Traffic and transport effects can interact with population and human health, air quality, noise and vibration and biodiversity, particularly during construction. These interactions are addressed within the relevant EIAR chapters. Importantly, the proposed alternative construction access road is intended to reduce these interactions by providing a direct, controlled route between the N65 and the works area, limiting use of local roads and thereby reducing the potential for combined impacts at receptors. Overall, traffic-related interaction effects are short term during construction, not significant (depending on the activity and proximity), and imperceptible during operation.

## **16.7 CONCLUSION**

Having regard to the separation and sequencing of works, the implementation of the Construction Environmental Management Plan and topic-specific mitigation, and the function of the proposed alternative construction access road in reducing construction traffic interaction with the local road network and sensitive receptors, cumulative effects associated with the Proposed Development (as amended) are not predicted to be significant. Residual effects, where they arise, are expected to be temporary and slight.

## 17 MAJOR ACCIDENTS AND DISASTERS

### 17.1 INTRODUCTION

This chapter has been prepared for inclusion in the Environmental Impact Assessment Report (EIAR) to provide a dedicated assessment of the vulnerability of the Proposed Development to the risks of major accidents and/or disasters relevant to it and, where appropriate, the expected significant adverse effects on the environment arising from such events. The assessment has been prepared having regard to the EIA Directive (as amended) and the EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EIAR) (2022).

A full description of the development can be found in Chapter 2 of the July 2024 EIAR (Proposed Development) and Chapter 2 of the EIAR Addendum (Description of Development Changes and Alternatives).

### 17.2 BACKGROUND AND PURPOSE

The EIA Directive requires that EIARs consider the likely significant effects of the project on the environment, including effects deriving from the vulnerability of the project to risks of major accidents and /or disasters that are relevant to it. In this context, the term "*major accident*" includes low-likelihood, high-consequence events such as fires, explosions, loss of containment and associated secondary effects (for example, contaminated firewater/runoff), whilst "*disasters*" may include natural hazards (for example, extreme rainfall events) and other external events.

This chapter focuses on those accident /disaster scenarios that are credible for the Proposed Development as Amended and that could give rise to environmental effects beyond normal operational emissions and discharges. The assessment is proportionate to the nature and scale of the Proposed Development as Amended and makes use of risk assessment work completed for the project, including the Environmental Risk Assessment<sup>43</sup> (see Appendix 17.1) and Consequence Study and Technical Land Use Planning (TLUP) Assessment<sup>44</sup> (see Appendix and 17.2).

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<sup>43</sup> DNV, Project Coolpowra Environmental Risk Assessment (ERA), Document No. 2246099, Rev 2, 27 January 2025. This report supersedes the original ERA contained in Appendix 4.1 of the July 2024 EIAR.

<sup>44</sup> DNV, Consequence Study and TLUP Assessment Report, Document No. 2246462, Rev 2, 27 January 2025. This report supersedes the original ERA contained in Appendix 4.2 of the July 2024 EIAR.

### **17.3 ASSESSMENT APPROACH**

The EPA EIAR Guidelines (2022) recognise that EIARs may draw upon established risk assessment work undertaken for other regulatory regimes, where relevant, while ensuring that the EIAR clearly identifies the potential environmental effects and the mitigation that avoids or reduces significant adverse effects. The assessment in this chapter therefore:

- identifies major accident and disaster hazards relevant to the Proposed Development as Amended;
- considers credible source-pathway-receptor linkages for environmental effects;
- summarises likelihood /risk context in a proportionate manner, drawing on available quantitative and semi-quantitative assessments;
- identifies mitigation (embedded design measures and additional measures where required) and provides a conclusion on residual effects.

The principal project-specific information sources used in preparing this chapter comprise:

- DNV, Project Coolpowra Environmental Risk Assessment (ERA), Document No. 2246099, Rev 2, 27 January 2025. This report supersedes the original ERA contained in Appendix 4.1 of the July 2024 EIAR.
- DNV, Consequence Study and TLUP Assessment Report, Document No. 2246462, Rev 2, 27 January 2025. This report supersedes the original ERA contained in Appendix 4.2 of the July 2024 EIAR.

### **17.4 ELEMENTS OF THE PROPOSED DEVELOPMENT AS AMENDED RELEVANT TO MAJOR ACCIDENTS AND DISASTERS**

For the purposes of this chapter, the elements considered most relevant to major accidents and /or disasters include (non-exhaustive):

- secondary fuel storage and handling infrastructure (diesel storage tanks, associated pipework and road tanker unloading).
- natural gas infrastructure (underground pipeline within the site and the Above Ground Installation (AGI)).
- long duration energy storage / battery energy storage system (LDES/BESS) compound and associated electrical infrastructure.
- transformers, switchgear and other electrical equipment where fire and /or insulating fluid release could occur.

- site drainage, interceptors, isolation features and firewater retention infrastructure, which are relevant to preventing off-site pollution in the event of a spill or fire.

## **17.5 RECEIVING ENVIRONMENT AND KEY ENVIRONMENTAL RECEPTORS**

The baseline receiving environment is described within the EIAR (refer to relevant topic chapters). For major accident and disaster assessment purposes, the key receptors and pathways of relevance include:

- Surface water features within the site (including field drains and the Ballynaheskeragh Stream) and the downstream receiving environment including the Kilcrow River and Lough Derg.
- Soils and subsoils within the site and along potential overland flow pathways.
- Groundwater beneath the site (aquifer and vulnerability context as described in baseline).
- Agricultural land within and adjacent to the site.
- Designated sites and sensitive ecological receptors downstream of the site (where pathways could exist).

## **17.6 IDENTIFICATION OF MAJOR ACCIDENT AND DISASTER SCENARIOS**

Table 17.1 identifies the principal major accident and disaster scenarios considered for the Proposed Development as Amended. The screening has focused on scenarios that could give rise to environmental effects (for example, pollution of surface waters or soils, smoke deposition and contaminated runoff), rather than those that are solely occupational safety matters.

**Table 17.1 Identification of Major Accident and Disaster Scenarios**

Scenario group	Representative event	Primary environmental pathway	Key receptors	Screening outcome
Fuel storage /handling	Catastrophic loss of containment from a diesel storage tank	Overland flow / drainage to surface waters; soil infiltration	Kilcrow River / Lough Derg; soils; groundwater	Potential MATTE scenario identified in ERA; assessed quantitatively
Fuel storage /handling	Diesel spill during tanker unloading /hose failure	Local containment; potential drainage entry if controls fail	Soils; surface waters (via drainage)	Localised; assessed qualitatively with controls
Fire and firefighting	Diesel pool fire and contaminated firewater/runoff	Runoff to drainage; interception and retention	Surface waters; soils	Assessed qualitatively; managed via drainage isolation and retention
Natural gas systems	AGI or on-site pipeline rupture/leak leading to jet fire /flash fire /explosion	Smoke and soot deposition; contaminated firewater/runoff; debris	Local receiving environment; on-site soils/surface waters	Off-site population risk not anticipated; environmental effects primarily secondary
LDES /BESS	Thermal runaway/fire within LDES /BESS container(s), potential propagation	Smoke and evolved gases; deposition; contaminated runoff	Air quality locally; soils/surface waters via runoff	Off-site smoke effects possible only in unlikely large-scale event; mitigation required
Electrical infrastructure	Transformer or switchgear fire (incl. insulating fluids)	Local spill and runoff to drainage if not contained	Soils; surface waters	Localised; managed via containment and drainage controls
External/natural hazards	Extreme rainfall/flooding affecting containment and drainage performance	Overtopping and bypass of containment; mobilisation of contaminants	Surface waters; soils	Baseline flood risk low; resilience measures required
External/natural hazards	Lightning strike or external fire /wildfire affecting site compounds	Fire initiation; contaminated runoff	Air; soils; surface waters	Qualitative; addressed through emergency planning and design measures

## 17.7 ASSESSMENT OF VULNERABILITY AND POTENTIAL ENVIRONMENTAL EFFECTS

### 17.7.1 CATASTROPHIC DIESEL TANK FAILURE (POTENTIAL MATTE TO KILCROW RIVER / LOUGH DERG)

The DNV ERA. catastrophic failure of a diesel fuel tank, with a release of approximately 6,196 tonnes of diesel identifies a single source-pathway-receptor linkage with Major Accident to the Environment (MATTE) potential, i.e (based on a tank capacity of 7,333m<sup>3</sup>) and a pathway to the Kilcrow River / Lough Derg receptor. The ERA classifies this as a MATTE consequence Level B.

In the absence of effective containment, a release reaching surface waters could result in an oil slick with the potential to cause significant harm to aquatic habitats over a prolonged duration, with consequent effects on biodiversity and ecosystem function. Such effects would be significant, long-term and could require extensive remediation.

The ERA reports that the unmitigated frequency for the relevant MATTE scenario is  $3.3 \times 10^{-4}$  events per year, which plots within the '**tolerable if ALARP**' region of the CDOIF risk matrix. Following consideration of the protection layers in place (and associated probabilities of failure on demand), the mitigated MATTE frequency is reported as  $1.65 \times 10^{-7}$  events per year, which plots within the '**Broadly Acceptable**' region.

Key embedded protection layers identified include the following:

- Diesel tank bunding (designed to contain at least 150% of the contents of a single tank and includes level monitoring and CCTV coverage).
- Below-ground fire wastewater retention tank with collection via infiltration points and oil/water interceptors routed to the retention tank.

With these measures in place, and subject to detailed design confirmation, inspection /maintenance and operational management (including bund valve management and spill response readiness), the risk of significant adverse environmental effects associated with catastrophic diesel tank failure is assessed as "**not likely to be significant**".

### 17.7.2 TANKER UNLOADING

Diesel delivery and unloading is identified, and represents, a credible spill scenario. Potential effects would be localised contamination of made ground /soils and, in the absence of containment, entry to the site drainage system and onward migration to surface waters.

The Proposed Development incorporates oil /water interceptors and drainage collection features that are intended to prevent uncontrolled off-site migration of hydrocarbons. In addition, operational management (delivery procedures, supervision, hoses /connection standards, and spill response provisions) will be put in place to ensure that any spill is rapidly contained and recovered. With these measures, significant adverse environmental effects are not anticipated.

### **17.7.3 FIRE EVENTS AND CONTAMINATED FIREWATER**

Fire scenarios (including diesel pool fires and potential escalation between fuel inventories) may lead to secondary environmental effects arising from smoke /soot deposition and contaminated firefighting water. The consequence work undertaken by DNV highlights that, while off-site impacts are not identified for the modelled natural gas and diesel hazards, pool fires may create high thermal radiation levels on-site and may threaten critical infrastructure (including firewater tanks) in worst-case scenarios.

The engineering design of the Proposed Development as Amended includes measures to intercept and retain contaminated fire wastewater from the reserve gas-fired generator, and to enable for controlled testing and disposal. These measures are critical to preventing significant adverse effects on surface waters and will be detailed and confirmed at detailed design stage (including isolation strategy, capacities, discharge controls and maintenance).

### **17.7.4 NATURAL GAS LOSS OF CONTAINMENT AND IGNITION**

Credible major accident scenarios associated with the natural gas infrastructure include pipeline or AGI leaks /ruptures leading to jet fires, flash fires and, under certain conditions, explosion overpressures. While these events are primarily safety-related, secondary environmental effects could arise through smoke deposition, debris and the generation of contaminated runoff during response actions.

The consequence study and TLUP assessment undertaken indicates that no off-site impacts were identified for the modelled natural gas hazards. The TLUP assessment indicates that land use planning risk contours are not expected to impact local populations and that no off-site fatalities are anticipated. Nevertheless, the hazard contour results identify layout sensitivities, including the potential for escalation and the need to ensure that occupied buildings and assembly points are located outside relevant hazard zones.

The Proposed Development as Amended will implement appropriate design standards for gas systems, incorporates effective isolation and detection systems, and adopts layout and emergency response measures consistent with good practice and ALARP. This will

ensure that significant adverse environmental effects from gas accident scenarios are not anticipated.

#### **17.7.5 LDES/BESS INCIDENTS**

Grid connected battery systems introduce hazards associated with stored electrical energy, including thermal runaway and fire. The consequence study notes that the risk posed by the LDES system must not be underestimated and that, in the unlikely event of a large-scale compound fire with propagation across multiple containers, there is potential for off-site impacts associated with smoke and evolved gases.

Potential environmental effects include temporary degradation of local air quality due to smoke and evolved gases, deposition of particulates on land/water and contaminated firefighting runoff. The significance of effects would depend on event scale, meteorological conditions, duration and the effectiveness of containment and response measures.

Accordingly, a fire risk management plan (FRMP) and Emergency Response Plan (ERP) containing clear procedures to be followed in the event of a fire, or similar emergency is provided in Appendix 17.3. The document put shall be further considered and revised as applicable to the final technology selection and agreed with the fire services authority in advance of operation. The primary purpose of this assessment is to identify and evaluate potential fire hazards associated with the design, installation, and operation of the facility and to propose appropriate fire risk mitigation measures.

BESS safety and environmental protection measures include: all enclosures (battery and MVPS) will be UL9540A (2024) tested and certified, enclosure segregation and spacing, early detection and automatic isolation, measures to prevent propagation, local inert gas suppression, BESS compound 500m<sup>3</sup> static water tank supplying hydrants for cooling adjacent structures if needed) which exceeds requirements as set out under NFPA 855 (2026)<sup>45</sup>. With these measures, significant adverse environmental effects are not anticipated.

#### **17.7.6 ELECTRICAL EQUIPMENT AND TRANSFORMER FIRE /INSULATING FLUID RELEASE**

Electrical fires (including transformer fires) could result in localised release of insulating fluids and/or combustion products, with potential for soil contamination and pollution of surface waters if not contained. The Proposed Development as Amended includes drainage controls and interception /retention measures that are intended to prevent off-site

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<sup>45</sup> NFPA 855, Standard for the Installation of Stationary Energy Storage Systems (2026)

migration. HV transformers will be located outdoors and will be the oil immersed design type. All HV transformers will be banded and the high voltage (HV) transformers include blast walls. Transformer bands will be designed utilising a water displacement system which negates the requirement for a pump to remove stormwater from within the band. This system will be connected directly to the piped underground gravity drainage system upstream of the SUDS management train elements. This band design can accommodate a pumped solution if required. Within the LDES, MVPS (or Power Control System (PCS)) units and small transformers will also be positioned in self-contained weather-proof enclosures. Detailed design will confirm the specific containment arrangements (including transformer banding, interceptors and isolation provisions) and maintenance regimes.

### **17.7.7 DISASTERS AND EXTERNAL HAZARDS**

Disaster scenarios considered include extreme rainfall events and flooding, as well as lightning and external fire. The baseline assessment indicates that the site is within an area of low probability of flooding; however, climate resilience requires that drainage, banding and containment measures are designed and maintained to perform under relevant design storm conditions and that operational preparedness is maintained.

With appropriate resilience measures (including inspection and maintenance, emergency procedures, and protection of critical environmental containment systems), significant adverse environmental effects arising from disasters and external hazards are not anticipated.

### **17.8 TLUP AND ENVIRONMENTAL RISK CONTEXT**

A TLUP assessment has been carried out in accordance with Health and Safety Authority (HSA) guidance to determine land use planning zones based on individual risk and to provide additional context for on-site and off-site risks. Key conclusions include:

- No individual risk contours are expected to impact local populations; the maximum tolerable risk of fatality to a member of the public ( $1 \times 10^{-6}$  per year) and to a person at an off-site work location ( $5 \times 10^{-6}$  per year) is not foreseen to be exceeded.
- Consultation distances (Zones 1 to 3) extend beyond the site boundary in the vicinity of the AGI and diesel storage area, but are unlikely to affect local populations; no Level 1, 2, 3 or 4 developments are located within the contours.
- The  $1 \times 10^{-9}$  (one in a billion) fatality risk contour does not include off-site populations or the neighbouring existing substation.

- Societal risk analysis indicates no intolerable risks and no off-site fatalities are anticipated.

In environmental TLUP context, the prevention of Major Accidents to the Environment (MATTEs) is a primary objective. The TLUP assessment references the ERA undertaken, which identifies catastrophic diesel tank failure reaching the Kilcrow River as the only MATTE scenario (Type B). The ERA demonstrates that, with identified protection layers, the risk is reduced to broadly acceptable levels consistent with criteria for new COMAH establishments.

### **17.9 MITIGATION MEASURES AND COMMITMENTS**

Mitigation in relation to major accidents and disasters comprises embedded design measures and additional commitments. The following measures are required to avoid or reduce the potential for significant adverse environmental effects:

- During detailed design, bund capacity, integrity and management (including freeboard, penetrations, and bund drain valve controls) will be confirmed at detailed design stage. A documented inspection and maintenance regime will be implemented.
- Site drainage controls are provided and will be maintained, including oil /water interceptors, isolation arrangements and a firewater retention system. Procedures for retention, sampling /testing and authorised disposal of contaminated waters will be developed during detailed design.
- Fuel delivery and unloading procedures will be developed and implemented. This will include supervision, connection standards, emergency shut-off where appropriate, and readily accessible spill response equipment and training.
- Detailed fire protection strategies for diesel storage and unloading areas will be developed and implemented.
- Occupied buildings and assembly points will be sited outside relevant hazard zones informed by the consequence and TLUP outputs.
- Where practicable, separation between natural gas systems (underground pipelines and AGI) and the BESS /LDES compound will be maximised to reduce escalation potential.
- A safety and emergency response strategy will be developed for the BESS /LDES compound to prevent propagation and to manage smoke and runoff, aligned with applicable standards /guidance.
- Further risk assessment will be undertaken at detailed design stage (including a quantitative risk assessment as appropriate).

## **17.10 RESIDUAL EFFECTS AND CONCLUSION**

The assessment identifies that the principal scenario with Major Accident to the Environment (MATTE) potential is a catastrophic diesel tank failure with a pathway to the Kilcrow River / Lough Derg receptor. The ERA demonstrates that, with the identified layers of protection, the mitigated risk is within the broadly acceptable region.

The DNV consequence and TLUP assessment indicates that off-site population impacts are not anticipated for the modelled natural gas and diesel hazards, while noting layout sensitivities (including occupied buildings and assembly points) and the importance of robust design and emergency response for the LDES /BESS compound.

Having regard to the nature and extent of the Proposed Development as Amended, and subject to implementation of the embedded design measures and mitigation commitments identified in this chapter, significant adverse environmental effects deriving from the vulnerability of the Proposed Development as Amended to major accidents and /or disasters are not anticipated.

## 18 SCHEDULE OF MITIGATION

### 18.1 INTRODUCTION

This consolidated schedule has been prepared to provide a clear description of (i) the features (if any) of the proposed development (as amended) and (ii) the measures (if any) envisaged to avoid, prevent or reduce and, where feasible, offset likely significant adverse effects on the environment.

For the purposes of this schedule, "*mitigation*" includes: (i) measures embedded in the project design and layout (mitigation by avoidance and reduction) and (ii) management, procedural and monitoring measures to be implemented during construction, operation, decommissioning and reinstatement (as applicable).

All mitigation and management measures shall be incorporated into the Contractor's final Construction Environmental Management Plan (CEMP), together with any planning conditions and any additional method statements required to implement the controls described herein. The CEMP is a live document and will be reviewed and updated as required.

### 18.2 STRATEGY AND IMPLEMENTATION

Mitigation measures are incorporated at various stages of the proposed development. The preferred hierarchy of mitigation applied is:

- Prevention: at design stage – avoid, relocate or modify the design and/or do not proceed with the development.
- Reduction: introduce design modification or additional structures (e.g. screens), reduce size and scale of development, etc.
- Compensation or remediation: provide like-for-like replacement for any lost environmental elements, where feasible.

During construction, environmental protection measures will be implemented through the CEMP and associated plans and method statements (including, as relevant, a Construction Traffic Management Plan and Dust Management Plan). Operational controls will be implemented through applicable standards and management systems, including licensing requirements where relevant. Decommissioning and reinstatement will be implemented through a site closure /decommissioning plan and, in the case of the temporary construction access road, a decommissioning and reinstatement method statement.

### 18.3 FEATURES OF THE PROPOSED DEVELOPMENT AS AMENDED

The design and layout of the Proposed Development as Amended incorporate a range of embedded measures intended to avoid or reduce potential effects. In addition the proposal includes an alternative purpose-designed temporary construction access road and associated temporary works to avoid construction impacts on nearest receptors.

Key embedded features of the Proposed Development as Amended include the following:

- The chosen location avoids the need to route HV overhead lines to a location "*removed or distant*" from the existing HV electricity network (i.e., concentrating development adjacent to existing grid infrastructure). Consolidating the development proposed at an existing node, reducing the extent of new infrastructure spread and associated environmental effects.
- Selection of OCGT technology (rather than diesel-only) aligned with environmental requirements and operational need; primary fuel being natural gas fuel with banded secondary fuel storage and potential future conversion for biomethane /hydrogen blends.
- Selection of grid connected energy storage technologies (BESS and synchronous condenser) with no combustion /air emissions, and which support a wide range of "*ancillary services*".
- Selection of a GIS substation over an AIS substation due to the smaller compound footprint and lesser potential impact on the receiving environment in terms of noise and landscape/visual effects.
- Provision of an alternative purpose-designed temporary construction access road routing from a new junction on the N65, traversing three fields, crossing the L8763 by staggered junction and extending into the main works area.
- Located on lands with low environmental sensitivities and adequate receptor separation as an avoidance measure.
- Suitably positioning the development within the subject site whilst allowing maximum and sufficient distance to receptors.
- Determination of compound finished levels following consideration of cut and fill requirements and local topography, to reduce overall perceived height within its setting.
- Realignment of a portion of the Treananearla Stream and incorporation of SuDS principles within the stormwater drainage scheme.
- Creation of an undulating berm (approximately 4–5m high and approximately 1.4km long) using soils arising from excavation works on site, to minimise potential landscape/visual and noise effects at sensitive receivers.

- Provision of new and enhanced hedgerow planting and new woodland planting with native broadleaved species (including SuDS features designed to increase biodiversity value).
- Wherever possible, existing roads with the site are utilised and follow existing topography to minimise ground disturbance (e.g. access to the AGI) and alteration of physical landscape character.
- Crossing of water features (watercourses/drainage ditches) using clear-span structures (precast concrete deck units supported on gabion abutments set back from banks), to reduce in-channel works.
- Temporary access road drainage via continuous roadside filter drains on both sides, incorporating perforated carrier pipes within aggregate and geotextile-wrapped trench systems designed for attenuation, treatment and infiltration.
- Layered access control measures to prevent unauthorised public use of the temporary access route (including lockable gates/barriers, controlled entry procedures and signage).
- Decommissioning and reinstatement of the temporary construction access road following completion and commissioning of the overall development, including removal of temporary road layers/drainage features as appropriate and reinstatement of soils, field drainage and agricultural land use.
- Provision of a purpose-built wildlife tower /roost house within the site to support nesting/roosting features and provide nesting for birds. The roost house will also incorporate an integrated bat roost/hibernation area (permanently dark, cool and damp with an earth floor) and bat boxes within a dedicated lower section, with bat access via a horizontal slot (15 mm high by 40 mm wide) located at approximately 2m above ground level. The location will be in an area of the site with no artificial lighting.
- Provision of SuDS attenuation ponds designed with gentle sloping side slopes and native wetland planting to provide still water habitat (including breeding/roosting opportunities for waterbirds) and increased invertebrate prey availability.
- Implementation of a bat-sensitive external lighting strategy with lighting confined to entrance roads and built habitats; battery storage areas, treelines/hedgerows and attenuation ponds to remain unlit where feasible and to achieve light spill on treelines/hedgerows of below 0.1 lux except where access roads require entrances. Luminaires to include integral rear shields and a mounting tilt of 0 degrees to minimise back-spill and upward light; specify warm colour temperature not exceeding 3000K; provide photocell control (dusk/dawn) with lights programmed off during the months May to September inclusive unless required for safety/security.

## 18.4 SCHEDULE OF MEASURES BY ENVIRONMENTAL FACTOR

The measures below are grouped by environmental factor and include mitigation by design, construction management measures, monitoring provisions and reinstatement commitments, as relevant to the proposed development (as amended). Measures apply to construction, operation and decommissioning/reinstatement phases as applicable.

### 18.4.1 POPULATION AND HUMAN HEALTH

Phase	Measures / features
Design / Embedded features	Provision of a direct, purpose-designed temporary construction access route between the N65 and the main works area, reducing HGV movements along the L8763 in proximity to sensitive receptors; layered access control measures to prevent unauthorised public use of the temporary access route.
Construction	Prepare and implement a CEMP in advance of construction works; incorporate mitigation measures and any planning conditions. Implement construction traffic management (including Road Safety Audit recommendations), dust management and noise management measures to minimise nuisance and safety risks at nearby dwellings. Implement external communications and complaint management procedures, including logging and responding to complaints. Standard working hours: Monday to Friday 07:00–19:00; Saturday 07:00–13:00; site closed Sundays and Bank Holidays (subject to agreement where otherwise required).
Operation	Operate the development in accordance with relevant standards and licensing requirements (including Industrial Emissions licensing for Project 1, where applicable), with associated environmental controls and monitoring.

### 18.4.2 BIODIVERSITY

Phase	Measures / features
Design / Embedded features	Realignment of a portion of the Treananearla Stream with enhancement features (including meanders and fringing vegetation) and incorporation of SuDS features designed to increase biodiversity value. Replacement and enhancement planting including native woodland, hedgerows and wildflower /

	<p>meadow establishment (including along the temporary access road corridor) to maintain and strengthen ecological connectivity.</p> <p>Provide a purpose-built wildlife tower / roost house within a dark zone (no artificial lighting) to provide nesting and roosting opportunities for Barn Owl, Kestrel and other bird species, together with integrated bat roost/hibernation provision (including bat boxes).</p> <p>Implement a bat-sensitive lighting strategy, including confining lighting to entrance roads and built habitats, maintaining treelines/hedgerows and attenuation ponds unlit where feasible, and incorporating shielding and control measures to minimise light spill.</p> <p>For bat-sensitive lighting, target light spill on treelines/hedgerows of below 0.1lux except where access roads require entrances; provide luminaires with integral rear shields and 0 degree tilt, warm colour temperature not exceeding 3000K, and photocell controls with seasonal programming (lights off May to September inclusive unless required). Ensure the battery storage area and attenuation ponds remain unlit.</p> <p>Design and construct the wildlife tower / roost house to include (as a minimum) a 2m x 2m block faced in stone with a minimum height of 4.5m, an A-frame roof with overhang to the east and a Barn Owl entrance at approximately 3.5m height; provide a shallow open-fronted cavity on the west-facing wall suitable for Kestrel; incorporate numerous cavities in mortar on the south-facing wall for invertebrates and nesting passerines; provide sparrow-sized openings for hole-nesting birds; provide a dedicated lower, permanently dark bat hibernation area with earth floor and bat access via a horizontal slot positioned at approximately 2m height.</p>
<p>Construction</p>	<p>Avoid potential impacts on nesting birds by cutting vegetation outside the bird nesting season (01 March to 31 August). If vegetation removal must occur within this period, undertake pre-clearance surveys for nesting birds/nests; where none are recorded, vegetation may be removed within 48 hours. Implement construction management measures to avoid impacts on hydrologically connected European sites; control silt and prevent pollution during works near watercourses and during any stream diversion/realignment. Minimise light spill onto perimeter habitats</p>

	<p>by using directional and/or cowed lighting and programming lights to be off unless required; lighting plan to be reviewed by a bat ecologist and may require additional surveys/monitoring.</p> <p>Employ an Ornithologist Ecological Clerk of Works (ECoW) during the construction phase to micromanage construction locations and avoid disturbance to key bird species; based on ongoing surveys, implement micro exclusion zones / buffer distances and, where necessary, temporarily halt works in affected areas in cooperation with the overseeing ornithologist, site manager and NPWS / Local Authority representatives.</p> <p>Tree felling to avoid sensitive periods for bats and, where practicable, undertake felling in October to November or January to February. Any tree ranked category 1 or 2 for bat roost potential will be examined 'at height' prior to felling to confirm absence of bats.</p> <p>For precautionary felling of category 3 trees, adopt a soft-felling approach whereby trees are nudged lightly two to three times with pauses of approximately 30 seconds between nudges before being pushed to the ground slowly; felling works to be overseen by an Ecological Clerk of Works. Category 4 trees can be felled and removed immediately.</p> <p>Undertake pre-demolition bat surveys of the dwelling and associated sheds prior to demolition; if bats or bat roosts are identified, obtain the required derogation licence and implement species-specific measures prior to works proceeding.</p> <p>During SuDS pond establishment, minimise runoff from bare soils through rapid establishment of green cover on slopes and use of base-of-slope trenches to intercept runoff and sediments; where practicable, time works to avoid autumn and winter periods when higher runoff rates are expected.</p> <p>Ensure contractors are instructed that non-native aquatic or marginal species are not to be included in planting schemes; avoid planting schemes that require biocide or fertiliser treatment.</p> <p>Where soft-felling is required, allow a period of at least 24 hours and preferably 48 hours to elapse following initial disturbance/loosening prior to final felling operations, to allow any bats present to escape; felling works to be overseen by an Ecological Clerk of Works.</p>
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Operation	<p>Replace hedgerow loss with a linear band of woodland and wildflower meadow (approx. 1.4km) to the south of the site; provide additional hedges around the AGI area (approx. 100 m) to strengthen ecological connectivity. Plant approximately 7,500m<sup>2</sup> of native woodland along the southern boundaries and apply biodiversity-friendly management of retained hedgerows.</p> <p>Install bird nesting features to compensate for loss of existing nesting structures, including barn swallow ledges/structures within a suitable shed building and provision of house martin and swift nest boxes on suitable proposed buildings.</p> <p>Implement SuDS pond planting and management to support biodiversity, including avoiding the use of nutrient-rich topsoil in the catchment area and pond margins and focusing on suitable native wetland species; undertake a check by an experienced botanist prior to sign-off to confirm what has been planted, and re-check for invasive species after one year.</p>
Decommissioning /Reinstatement	<p>Decommission and reinstate the temporary construction access road following completion and commissioning of the overall development. Reinstate soils and agricultural land and implement remedial planting/ground stabilisation as required. Undertake post-decommissioning inspections to confirm reinstatement and establishment/survival of planted hedgerows/trees/meadows, with remedial actions undertaken where required.</p>

### 18.4.3 SOILS AND GEOLOGY

Phase	Measures / features
Construction	<p>Locate construction compounds at least 30m from watercourses where applicable; provide hardstanding for deliveries and vehicle wash-out areas. Segregate topsoil and subsoil; stockpile stably and protect stockpiles (including smoothing, silt fencing, covering or seeding for longer-term storage) to prevent erosion and sediment mobilisation. Mix concrete off-site and import to site; provide specific areas for oil storage and refuelling, separated at least 10m from adjacent watercourses and with bunding to contain 110% of on-site fuel storage capacity. Provide spill kits, drip trays, banded pallets and secondary containment; implement a site-specific Incident Response Plan and good housekeeping. Retain excavated</p>

	material on site for landscaping berming where feasible, ensuring original material remains available for decommissioning works.
Operation	Drain roads to filter drains to provide filtering, delay and storage action; use permeable membrane-wrapped stone media to facilitate infiltration and reduction action. Provide dedicated indoor chemical storage areas; store fuels and oils in bunds (greater of 110% of the largest tank/drum within the bund or 25% of total stored volume). Bund floors to fall to internal sumps for controlled emptying via pump only following manual inspection. Route "dirty" area stormwater through oil interceptors prior to infiltration; maintain separation and isolation of contaminated and uncontaminated surface water; export interceptor contents containing oil-contaminated rainwater off-site for suitable disposal.
Decommissioning / Reinstatement	Prepare a site closure and decommissioning plan prior to decommissioning to identify and mitigate effects present at that time and demonstrate successful clean closure via completion of an independent closure audit. For the temporary construction access road, update and implement a Decommissioning and Reinstatement Method Statement including removal of temporary road materials as appropriate, reinstatement of field drainage, replacement of subsoil/topsoil in correct order and thickness and reinstatement of agricultural land use through cultivation and reseeded; undertake verification inspections and rectify defects as required.

**18.4.4 WATER ENVIRONMENT**

Phase	Measures / features
Design / Embedded features	<p>Realignment of a portion of the Treaneanearla Stream (method statement provided) and adoption of SuDS principles within the stormwater drainage scheme. Clear-span crossings of two water features/drainage ditches on the temporary access road, with abutments set back from banks, avoiding placement of structural elements within the wetted channel. Temporary access road drainage based on continuous filter drains providing attenuation, treatment and infiltration.</p> <p>Design finished floor levels to satisfy the Flood Risk Guidelines freeboard requirement of 300 mm above Q1000 flood levels (adjusted for climate change); amend finished floor levels where</p>

	<p>required, including raising the proposed finished floor levels at Structures 3, 4, 5 and 6 to 51.22mOD and raising the proposed finished floor level at Structure 22 to 51.22mOD.</p> <p>Design the two proposed bridges and associated crossings to meet OPW criteria for channels maintained as part of an arterial drainage scheme, including capacity to transmit Q100 with a 1.6 drainage factor applied, plus climate change; provide the proposed 1,200 mm diameter culvert along Realignment 02 to achieve a 300 mm freeboard under Q100 x 1.6.</p>
<p>Construction</p>	<p>Locate construction compounds at least 30m from watercourses where practicable; provide hardstanding for deliveries and vehicle wash-out; mix concrete off-site and import to site. Provide designated fuel /chemical storage and refuelling areas (at least 10m from watercourses) with bunding to contain 110% of on-site fuel storage capacity; provide spill kits and secondary containment; secure storage areas; implement an Incident Response Plan. Sequence stream realignment works such that the new channel is constructed to an agreed specification, water is re-diverted and the redundant channel is infilled once isolated; consult OPW in advance and develop an agreed method statement; install silt fencing and other controls to prevent downstream impacts. Manage silt-laden runoff by minimising exposed ground, locating stockpiles away from watercourses, using buffer zones, silt traps/settlement controls, wheel washing in designated areas with runoff directed to soakaways, and re-vegetating disturbed areas as soon as possible. Undertake a pre-works walkover of the access route and adjacent drainage features to confirm the location/condition of drains and ditches and inform final protection measures; increase inspection frequency during and after heavy rainfall events.</p> <p>Obtain permission from the OPW by way of a Section 50 application for works affecting channels maintained as part of the arterial drainage scheme, including the two proposed bridge crossings.</p> <p>Update Stream Realignment Method Statement as part of detailed design work and make it available to Galway County Council, National Parks and Wildlife Service and Inland Fisheries Ireland for review prior to works commencing.</p> <p>Sequence channel diversion works from the downstream end; construct diverted channels and associated structures prior to</p>

	<p>diverting flow from the existing channels and infilling redundant channels. Following opening of the diverted channels, maintain water flow in the existing channels for a minimum period of 24 hours to facilitate downstream migration of any insects/fish.</p> <p>Undertake in-channel works between August and September to coincide with low stream flows and to avoid interference with spawning runs; schedule bank maintenance works on existing sections (primarily removal of scrub) between October and March.</p> <p>Implement sediment and pollution controls during channel opening, including placement of a cofferdam at the downstream end of each diverted channel to trap excess sediment and prevent discharge downstream; place straw bales at increments along diverted channels to trap sediment and undertake periodic sediment removal over the initial weeks following flow entering the diverted channels. Use excavated soils stockpiled temporarily to cap the banks of the rehabilitated channels to promote vegetation establishment; plant banks with native species that can be controlled/maintained to ensure channel conveyance capacity is not significantly reduced by overgrowth, and ensure bank gradients are stable to avoid bank failure or slippage.</p> <p>Apply standard precautionary measures for invasive species management, including cleaning machinery (including excavator and dumper) with a pressure washer prior to arriving on site and upon leaving site.</p>
<p>Operation</p>	<p>Operate SuDS-informed drainage with oil interception for "dirty" areas; ensure separation of contaminated and uncontaminated drains; contain and export interceptor contents off-site for suitable disposal. Maintain a site-specific Incident Response Plan and spill response provisions.</p>
<p>Monitoring</p>	<p>Undertake water monitoring downstream of the site during construction. For the temporary access road, undertake daily checks of downstream watercourses for visual indicators (discolouration, oily sheen, scums/foams, dead biota) and monitor basic parameters (turbidity, pH, temperature, dissolved oxygen and conductivity) at agreed locations, with records maintained in a sampling register. Project 1 will require an Industrial Emissions Licence which will prescribe monitoring requirements to protect receiving waters and</p>

	require preparation of a baseline site report to inform closure planning and ELRA requirements.
Decommissioning / Reinstatement	Prepare a site closure and decommissioning plan prior to decommissioning. For the temporary access road, remove temporary drainage features not required long-term, reinstate pre-existing field drainage pathways and restore soils and land use.

#### 18.4.5 AIR QUALITY

Phase	Measures / features
Design / Embedded features	Routing of construction traffic via a managed, purpose-designed temporary access route and provision of hardstanding/defined traffic routes within the site to reduce dust generation and track-out.
Construction	Formulate and implement a Dust Management Plan for the construction phase; designate a Site Agent with responsibility for dust management and provide an effective training programme for site personnel. Implement dust minimisation and control measures, including locating dusty activities as far as possible from receptors, using hard-surfaced /compressed ground haul routes, hardstanding in construction compounds and orienting material storage away from dominant wind direction. Use fixed and mobile water sprays on stockpiles and road/yard surfaces as necessary during dry and/or windy weather. Implement wheel washing at site entrances (without detergents) with appropriate containment to prevent transfer of mud onto public roads. Implement daily inspection of dust controls and a dust deposition monitoring programme at site boundaries for the duration of construction. Apply national guidance for Aspergillus risk management during construction.
Operation	The proposed OCGT units (Reserve Gas Fired Generator) are fitted with Dry Low NOx combustion (DLN), a technology that uses staged combustion and lean-premixed fuel-air mixtures practices and the use of natural gas fuel as its primary fuel <sup>46</sup> (in this instance DLN is also referred to as Dry Low Emissions (DLE) technology). Particulate emissions (PM <sub>10</sub> and PM <sub>2.5</sub> ) is controlled through the use of best available control techniques (BAT) and using natural gas as the primary fuel source. BAT was introduced as a key principle in

<sup>46</sup> Best available control techniques for particulate emissions from combustion sources is the use of natural gas.

	<p>the IPPC Directive, 96/61/EC and in the identification of BAT, emphasis is placed on pollution prevention techniques rather than end-of-pipe treatment. In addition to natural gas being the primary fuel and it generating low particulate emissions, particulate emissions will be further limited by the use of a high-efficiency inlet air filtration system, which would remove particulates in the ambient air prior to entering the combustion turbine generator processes. The exhaust stacks will be fitted with continuous emissions monitoring systems which continuously sample the stack concentrations of controlled emissions to ensure that the exhaust parameters remain within permitted parameters.</p>
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#### 18.4.6 MATERIAL ASSETS

Phase	Measures / features
Design / Construction	<p>Provide required connections to infrastructure and services within the proposed development land boundary only. Incorporate improvements to the N65/L8763 junction in accordance with TII design standards; provide a purpose-designed temporary construction access road from the N65 for construction-stage traffic. Retain soils arising from earthworks on site for use in boundary berm construction.</p>
Construction	<p>Prepare and implement a Construction Traffic Management Plan addressing traffic control and signage, delivery scheduling, driver management requirements, temporary speed management at tie-in locations and protocols for abnormal loads, agreed with the relevant road authority. Undertake visual inspections of the relevant road network prior to, during and post construction and make good any localised degradation observed, in agreement with Galway County Council where relevant. Utilities protection measures including desk-based utility searches/consultation with statutory undertakers, verification (e.g., CAT and Genny / GPR where appropriate) and implementation of a permit-to-dig system with service exclusion zones and trial holes as required. Inspect and maintain temporary access road drainage, crossings and environmental controls, including targeted checks following heavy rainfall events and during periods of heightened construction traffic.</p>

Decommissioning /Reinstatement	Implement a Decommissioning and Reinstatement Method Statement for the temporary access road and associated temporary works, including removal of temporary structures where required, reinstatement of drainage and restoration of soils and land use, with post-decommissioning inspection and rectification where required.
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#### 18.4.7 NOISE AND VIBRATION

Phase	Measures / features
Construction	Appoint a Site Representative for noise and vibration; investigate complaints and maintain a written complaints log. Minimise and manage noise in accordance with the CEMP, including standard working hours and avoidance of heavy construction activities outside normal hours where practicable. Carry out noise monitoring with capability for real-time review where works are planned in close proximity to noise sensitive receptors; cease works if threshold values are met or exceeded and implement corrective measures immediately. Provide temporary acoustic screening/hoarding where possible along boundaries between construction activities/access routes and the nearest receptors, to break line of sight where feasible. Select low-noise plant and ensure equipment complies with EC Directive 2000/14/EC (as amended) and Directive 2005/88/EC; undertake precautionary vibration monitoring where works are in close proximity to receptors.
Operation (embedded design)	Enclose main OCGT noise sources within a turbine hall with an Rw value greater than 50dB. Provide blast walls (to 9.55m) partially enclosing LV transformers and an absorptive barrier to the south and west of the coolers. Provide berms (approximately 4.5m in height) along the western, southern and eastern boundaries; orient inverters inwards towards battery units. Service and maintain equipment to avoid inadvertent noise increases and comply with NG4 requirements for tonal and impulsive noise.

#### 18.4.8 LANDSCAPE AND VISUAL

Phase	Measures / features
Design / Embedded features	Siting of the proposed development in a robust landscape context classified with low landscape sensitivity in the Galway County

	<p>Development Plan; maintaining offset distances to receptors and utilising screening from rolling terrain and intervening vegetation. Several concepts were assessed to understand how the development would present within the receiving landscape context. A varied mix of tones and textures was incorporated into the Reserve Gas-Fired Generator building's design to further reduce its perceived scale<sup>47</sup>. It is proposed that the OCGT stacks will be finished an off-white/grey tone. This approach ensured that, when the uppermost portions of the stacks were viewed against the sky, they presented a low degree of contrast, thereby reducing the overall perceived visual mass of the development. Furthermore, when viewed from the south, the variation in tone and texture of the full stacks finished in an off-white/grey, contrasted against the darker grey tones of the reserve gas-fired generator building, helps to further break up the perceived visual mass of the development.</p> <p>Construction of earthen rolling berms rising to a maximum height of 5m along western, southern and eastern boundaries and provision of extensive native woodland planting to screen and soften the development.</p>
<p>Construction</p>	<p>Retain existing hedgerow boundaries within and around the site where feasible; reinstate temporary construction areas and cable trenches and revegetate disturbed areas following construction. For the temporary access road, limit vegetation removal to that required to facilitate the access and sightlines.</p> <p>Different options regarding the use of materials and finishes as a means of either breaking up the mass of the structure/buildings or selecting a singular colour palette so that no one element stood out. The studies were undertaken to help diminish the perceived scale of the reserve gas-fired generator building and extent when viewed from the surrounding landscape. Whilst the more organic form of the building aids in assimilating the development into the low, rolling surrounding landscape,</p>

<sup>47</sup> Initially, the proposal included finishing the entire Reserve Gas-Fired Generator Building and its stacks in the same grey tone (Option 2 in the submitted comparative photomontage booklets). However, on review, it was considered that introducing further variations in tone and texture could help reduce its perceived visual mass, particularly as the development would most often be viewed against the skyline

	<p>In this regard, several concepts were assessed to understand how the development would present within the receiving landscape context. This is provided as information to assist with understanding of our analysis and selection of mitigation. The Commission may consider that these alternatives result in a less visually obtrusive intrusion in this rural landscape and may wish to seek further information or a revision to the EIAR and design proposal to reflect this view.</p> <p>Overall, the combined mitigation measures employed help to assimilate the development into the receiving landscape context and reduce its visual presence at surrounding visual receptors.</p>
Mitigation planting and maintenance	<p>Bolster perimeter and internal hedgerows with under-planting and inter-planting (Hedgerow Type 1) and plant new Type 2 hedgerows within the site and along new access tracks. Plant sweeps of native woodland (approximately 19,918m<sup>2</sup>) to screen and soften the development; allow planting to mature (native thicket approximately 8–10m high). For the temporary access road corridor, establish new native hedgerows, plant native trees at approximately 15m centres and establish/manage native meadows within residual corridor space. Prepare landscape tender drawings and specifications and supervise landscape works by a suitably qualified landscape architect; undertake planting in the next available planting season following completion of main civil/building works. Maintain landscape planting during the establishment phase (initial three years) and monitor on an ongoing basis, including replacement planting and pruning as required.</p>

#### 18.4.9 TRAFFIC AND TRANSPORT

Phase	Measures / features
Design / Embedded features	Provision of an alternative purpose-designed temporary construction access route from the N65 to provide a direct, controlled route for construction traffic, reducing interaction with local roads and residential frontages; unauthorised access controls to prevent public use of the temporary access route.
Construction	Implement the recommendations of the Road Safety Audit in full and complete subsequent Stage 2 and Stage 3 Road Safety Audits. Implement a Construction Traffic Management Plan (signage,

	visibility requirements, delivery scheduling and routing controls) to minimise interaction with local roads and to avoid peak-time clustering. Undertake visual inspections of the road network prior to, during and post construction and make good any localised degradation observed. Where utility works (including the gas pipeline connection) involve road crossings, undertake works in accordance with agreed road opening licences and Temporary Traffic Management designed and operated in accordance with prevailing national guidance.
Monitoring	Where necessary (depending on axle loading /abnormal loads), undertake further tests to determine structural strength of the L8763 and /or further visual inspections prior to and post construction in agreement with Galway County Council.

**18.4.10 ARCHAEOLOGICAL & CULTURAL HERITAGE**

Phase	Measures / features
Pre-construction / Construction	Carry out archaeological test trenching (minimum 10% of available lands) prior to any groundworks commencing, under licence and by a suitably experienced archaeologist; position trenches to target anomalies from geophysical survey and to test the footprint of the proposed development generally. For the temporary access road corridor, carry out archaeological test trenching (minimum of 12% of the corridor footprint) prior to groundworks, subject to National Monuments Service requirements. If archaeological features or deposits are exposed, sufficiently section to assess extent, nature and significance; following test trenching, further mitigation may include preservation in situ, excavation (preservation by record) and/or monitoring of topsoil stripping, as directed by the relevant authorities. Provide adequate time and resources for resolution of any archaeology identified, including post-excavation work and specialist analysis; compile and submit a report on completion of any archaeological works. Complete a visual assessment and photographic survey of the upstanding farmhouse and associated outbuildings scheduled for demolition prior to demolition. Undertake a townland boundary survey prior to groundworks where boundaries will be affected, comprising a comprehensive written and illustrated record; any machine-dug section through a

	townland boundary will be cleaned by hand and recorded as a measured survey.
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**18.4.11 CLIMATE**

Phase	Measures / features
Construction (embedded / management)	Source raw materials locally where available (a 50km radius assumed for supply transport) to minimise environmental impact associated with vehicle emissions. Apply a balanced cut and fill design to minimise impact on the receiving environment, including no export from the site of spoil from excavation (with berming provided as part of landscape design). Fuel and plant efficiency measures including fuel-efficient driving practices, correct plant selection, regular servicing and switching off vehicles/plant when not in use. Minimise the use of generators and connect to mains electricity as soon as practicable; use energy-efficient devices (e.g., sensors linked to lighting) and staff awareness measures. Water efficiency measures including water-efficient devices and use of recycled/grey water for dust suppression where possible. Waste and materials measures supporting circular economy principles including minimising waste, procuring recycled materials where possible and implementing supplier take-back policies to reduce packaging and associated transport.
Operation (embedded)	Reserve Gas-Fired Generator shall operate in accordance with the needs of the system operator.  Primary fuel is natural gas; secondary fuel (gas oil) is contained within bunded storage and limited operational hours are assumed for secondary fuel use.

**18.4.12 MAJOR ACCIDENTS AND DISASTERS**

Phase	Measures / features
Construction (management)	Implement spill prevention and response during construction (spill kits available, staff trained, incident reporting).  Construction-phase drainage protection (temporary silt/spill controls; protect any interceptors/isolations from damage).  Develop and brief fuel delivery/unloading procedures for any temporary generators/plant (supervision, connection standards, emergency shut-off where relevant).

Operation (embedded design /management)	<p>Confirm diesel bund capacity, integrity and management (freeboard, penetrations, drain valve controls) at detailed design; documented inspection/maintenance regime.</p> <p>Permanent site drainage controls (oil/water interceptors, isolation arrangements, firewater/contaminated water retention); procedures for retention, sampling/testing, and authorised disposal of contaminated waters.</p> <p>Fuel delivery and unloading procedures (supervision, connection standards, emergency shutdown where appropriate, spill response equipment and training).</p> <p>Fire protection strategy for diesel storage /unloading areas (e.g., deluge/sprinkler/foam as appropriate) and protection of key emergency-water infrastructure.</p> <p>Locate occupied buildings and muster/assembly points outside relevant hazard zones informed by the consequence/TLUP outputs. Maximise separation, where practicable, between natural gas systems (pipelines /AGI) and the BESS /LDES compound to reduce escalation potential.</p> <p>BESS /LDES safety and emergency response strategy to prevent propagation and manage smoke and runoff, aligned with applicable standards/guidance.</p> <p>Further risk assessment at detailed design (including QRA where appropriate) and update of emergency arrangements accordingly.</p>
Decommissioning	<p>Decommissioning method statement to control spill/fire risks (isolation, make-safe, drain-down, controlled removal).</p> <p>Maintain drainage isolation/retention and pollution controls until all fuels/oils are removed and the site is clean.</p> <p>Waste classification, sampling/testing (where needed) and authorised disposal of any contaminated liquids/solids; maintain incident response capability until completion.</p>

## 18.5 IMPLEMENTATION AND VERIFICATION

The applicant will comply with all applicable legislation, codes and regulatory policy relating to grid connections (gas and electricity). The GIS will be constructed in accordance with EirGrid functional specifications and standards for 400 kV GIS substations. The Applicant will obtain all necessary statutory approvals and authorisations, including (as applicable) CRU authorisations/licences, EPA Industrial Emissions (IE) licence and GHG permit (in

place prior to commencing operations), and HSA COMAH notifications and submissions (including a Major Accident Prevention Policy), together with all required fire safety / emergency response provisions agreed with the relevant fire authority.

**APPENDICES**

**APPENDIX 17.3**

**FIRE RISK ASSESSMENT AND EMERGENCY RESPONSE PLAN**