OMEGA ZONE 8, ST HELENS

Omega St Helens Ltd / T J Morris Ltd

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ABBREVIATIONS AND ACRONYMS

Abbreviation	Description
ALARP	As Low as Reasonably Practicable
CDM	Construction Design Management
COMAH	Control of Major Accident Hazard
Defra	Department for Environment, Food and Rural Affairs
EIA	Environmental Impact Assessment
EMS	Environmental Management System
HSE	Health and Safety Executive
LUP	Land use planning
NWEP	North West Ethylene Pipeline

GLOSSARY

The definition of key terms used in this report are provided below. These definitions have been developed by reference to the definitions used in EU and UK legislation and guidance relevant to major accidents or disasters as well as professional judgement based on knowledge and experience of similar schemes in the context of the Proposed Development.

Term	Definition
Consultation zone	The Health & Safety Executive (HSE) sets a Consultation Distance (CD) around major hazard sites and major accident hazard pipelines after assessing the risks and likely effects of major accidents at the major hazard. The area enclosed within the CD is referred to as the consultation zone. The Planning Authority is notified of this CD and has a statutory duty to consult HSE on certain proposed developments within the zone the CD forms.
Disaster	In the context of the Proposed Development, a naturally occurring phenomenon such as an extreme weather event (for example storm, flood, temperature) or ground-related hazard events (for example subsidence, landslide, earthquake) with the potential to cause an event or situation that meets the definition of a Major Accident as defined below.
External Influencing Factor	A factor which occurs beyond the application site that may present a risk to the Proposed Development, e.g. if an external disaster occurred (e.g. earthquake, COMAH site major accident) it would increase the risk of serious damage to an environmental receptor associated with the Proposed Development.
Hazard	Anything with the potential to cause harm, including ill-health and injury, damage to property or the environment; or a combination of these.
Internal Influencing Factor	A factor which occurs within the application site that may present a risk to the Proposed Development.
Major Accident	In the context of the Proposed Development, an event that threatens immediate or delayed serious damage to human health, welfare or the environment, and requires the use of resources beyond those of the Applicant or its contractors to respond to the event. Serious damage includes the loss of life or permanent injury and/or permanent or long-lasting damage to an environmental receptor that cannot be restored through minor clean-up and restoration efforts. The significance of this effect takes into account the extent, severity and duration of harm and the sensitivity of the receptor.
Major Event	A term used to encompass both the term Major Accident and the term Disaster.
Risk	The likelihood of an impact occurring combined with effect or consequence(s) of the impact on a receptor if it does occur.
Risk Event	An identified, unplanned event, which is considered relevant to the Proposed Development and has the potential to be a Major Accident or Disaster subject to assessment of its potential to result in a significant adverse effect on an environmental receptor.
Vulnerability	In the context of the EIA Regulations 2017, the term refers to the 'exposure and resilience' of the Proposed Development to the risk of a major accident or disaster. Vulnerability is influenced by sensitivity, adaptive capacity and magnitude of impact.

13. MAJOR ACCIDENTS AND DISASTERS

13.1. INTRODUCTION

13.1.1. This chapter reports the outcome of the assessment of the potential vulnerability of the Proposed Development to the risk of major accident(s) and/or disaster(s) as required by Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (Ref.13.1).

13.1.2. This chapter describes the assessment methodology and the baseline conditions relevant to the assessment and a summary of the likely significant effects resulting from the vulnerability of the Proposed Development to the risk of major accident(s) and/or disaster(s). Where appropriate, this chapter includes the further mitigation measures required to prevent, reduce or offset any significant adverse effects, the preparedness for and proposed response to emergencies, and the expected residual effects after these measures have been employed.

13.1.3. This chapter (and its associated figures and appendices) is intended to be read as part of the wider ES, with particular reference to **Chapter 6 (Air Quality)**, **Chapter 8 (Cultural Heritage)**, **Chapter 9 (Biodiversity)**, **Chapter 11 (Water)**, **Chapter 12 (Transport)**, and **Chapter 14 (Land and Soils)**.

13.2. CONSULTATION, SCOPE, METHODOLOGY AND SIGNIFICANCE CRITERIA

CONSULTATION UNDERTAKEN TO DATE

13.2.1. General consultation activities have been undertaken in support of the Proposed Development and specific environmental aspects; additionally, there has been specific consultation regarding the major hazards pipeline (summarised in **Table 13-1**), outside the process for the EIA and the statutory consultation undertaken by the Applicant.

Table 13-1 – Summary of consultation undertaken to date

Body / Organisation	Individual / statutory body / organisation	Meeting dates and other forms of consultation	Summary of outcome of discussions
Health & Safety Executive (HSE)	Land Use Planning (LUP) Unit	27/6/2019 – HSE LUP Web app	Advice: HSL-190625105620-715 DO NOT ADVISE AGAINST. As the Proposed Development is within the Consultation Distance of a major hazard pipeline, the Applicant should consider contacting the pipeline operator.
Penspen /ESSAR	Robin Plamer North West Ethylene Pipeline (NWEP) operator	2/8/2019 - email	Provision of information to pipeline operator in order to understand their restrictions/controls for building above/near the pipeline.
Penspen /ESSAR	Robin Plamer NWEP operator	5/8/2019 - email response from Penspen	Provision of standard conditions for working near underground pipeline provided by pipeline operator.

Body / Organisation	Individual / statutory body / organisation	Meeting dates and other forms of consultation	Summary of outcome of discussions
Penspen /ESSAR	Robin Plamer NWEP operator	27/9/2019 - email	Provision of further information to pipeline operator to better understand the development near the pipeline.
Penspen /ESSAR	Robin Plamer NWEP operator	7/10/2019 - telecon	Pipeline operator reported no issue with the principle of a service yard over the pipeline (happens in other locations). Generally, they look for minimum cover of 1m from top of pipe to Finished Ground Level. Their records show the pipeline crossing the Proposed development being at an average depth of 2m-2.4m.
Penspen /ESSAR	Robin Plamer NWEP operator	w/c 21/10/19 – telephone discussions to request consent to build (part of) a concrete service yard over the pipeline easement.	Other than obtaining planning permission from St. Helens, feedback was that Essar would have to approve the method statement, risk assessment (RAMS) and programme of works and no work shall commence without written consent from ESSAR being given.
Penspen /ESSAR	Robin Plamer NWEP operator	29/10/2019 - email	Requesting clarification of process to obtain ESSAR's approval of RAMS.
Penspen /ESSAR	Robin Plamer NWEP operator	7/11/2019 – email	Draft RAMS sent for review by ESSAR.
Penspen/ ESSAR	Robin Plamer, NWEP operator. Paul Boyle, ESSAR	26/11/2019 - email	Confirmation that the proposed Risk Assessment and Method Statement for work near the pipeline is in principal acceptable to ESSAR.

SCOPE OF THE ASSESSMENT

13.2.2. The scope of this assessment has been established through an ongoing scoping process. Further information can be found in **Chapter 5: Approach to EIA**.

13.2.3. This section provides an update to the scope of the assessment, taking into account the Scoping Opinion (Ref. 13.17) received from St. Helens Council on 11 December 2019.

Elements scoped out of the assessment

13.2.4. The major accident(s) and/or disaster(s) event types not considered to make the Proposed Development vulnerable to the risk of major accident(s) and/or disaster(s) are detailed in **Appendix 13.1** and have therefore not been considered further within the ES.

Elements scoped into the assessment

13.2.5. The Short List of scoped in potential major accident(s) and/or disaster(s) events, as identified at the scoping stage, with respect to the construction and operation phases is shown and further discussed in **Table 13-2**.

Table 13-2 – Major Accidents and Disaster Events Short List

Major Accident(s) and/or Disaster(s) Group	Major Accident(s) and/or Disaster(s) Category	Major Accident(s) and/or Disaster(s)Type	Relevant to Location	Construction	Operation	Basis on which further consideration is required
Technological or manmade hazards	Industrial/Urban Accidents	Major Hazards	Y	Y	Y	Parts of site overlap with Major Accident Hazard pipeline which makes the Proposed Development potentially vulnerable to the risk of a major fire/explosion

EXTENT OF THE STUDY AREA

13.2.6. Major accident(s) and/or disaster(s) types will be considered both within and outside the Proposed Development boundary along with potential internal and external influencing factors.

13.2.7. At the scoping stage, a 5km corridor either side of the centre line of the Proposed Development was used in order to capture internal and external influencing factors which may have high adverse consequences on the Proposed Development. The following factors and associated distances were adopted for setting the study area in order to capture:

- Manmade features:
  - Control of Major Accident Hazard (COMAH) facilities within 5km;
  - Major accident pipelines within 1km;
  - Fuel retail sites (including Liquefied Natural Gas, Liquefied Petroleum Gas) within 1km;
  - Rail infrastructure within 1km; and
  - Transmission (gas, electrical, oil/fuels) crossing the development limits.
- Natural features with the potential to create risks within:
  - 3km (chiefly hydrological (dam failure) and geological (seismic activity)); and
  - 1km (chiefly hydrological (flood risk) and geological (unstable ground conditions, contamination).

13.2.8. The extent of the study area used for the major accident(s) and/or disaster(s) assessment is a narrower area than that used at the scoping stage as subsequent work found that the key influencing external factors lay within 50m of the application site.

METHOD OF BASELINE DATA COLLATION

Desk study

13.2.9. Information regarding baseline conditions has been obtained from reviewing the following:

- Features external to the Proposed Development that contribute a potential source of hazard to the Proposed Development;
- Sensitive environmental receptors (see paragraph 13.2.11) at risk of significant effect; and
- Current (without the Proposed Development) major accident and disaster risks for the existing road network.

13.2.10. Baseline conditions of the study area have been assessed using information from the following sources:

- British Geological Survey Geo Index Onshore (Ref. 13.18).
- Prevention Web Europe: Tsunamis Hazard Map (Ref. 13.19).
- Other ES chapters, in particular Water, Biodiversity, Land and Soils, and Transport.
- Health & Safety Executive's Land Use Planning tool (Ref. 13.20).
- Health & Safety Executive's COMAH 2015 Public Information Search (Ref. 13.21).
- UK Government National Risk Register of Civil Emergencies (Ref. 13.5).

13.2.11. In line with Regulation 4(4) of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (Ref. 13.1), the following sensitive receptors were considered with respect to major accident(s) and/or disaster(s):

- Members of the public and local communities;
- Infrastructure and the built environment;
- The natural environment, including ecosystems, land and soil quality, air quality, surface and groundwater resources and landscape;
- The historic environment, including archaeology and built heritage; and
- The interaction between the factors above.

Note: The specific potential receptors of effects resulting from major accident(s) and/or disaster(s) are reported in the relevant ES chapters.

13.2.12. The baseline features most significant to this Proposed Development are presented in **Table 13-3**.

Table 13-3 – Major Accidents and Disasters Baseline

Feature	Hazard Source or Receptor	Activities	Regulatory Status of Feature	Approximate Distance & Direction from Proposed Development
North West Ethylene Pipeline	Source	Cross-country ethylene pipeline	Major hazard pipeline	Within north-western corner of application site.

13.2.13. The Applicant has committed to constructing and managing the Proposed Development in accordance with, inter alia:

- Environmental, Health & Safety Management systems.
- Supplier management environmental, health & safety standards (e.g. Construction Skills Certification Scheme).
- Risk Management systems.
- Construction Environmental Management systems (including a Construction Environmental Management Plan).

Site visit and surveys

13.2.14. For the purpose of this assessment, no site visit or surveys were required.

ASSESSMENT METHODOLOGY

13.2.15. To date, there is no specific guidance on how to consider major accidents and disasters within the context of EIA. However, the assessment takes account of emerging EIA good practice (Ref.13.2, 13.3, 13.4), which refers to other relevant documentation, including the Cabinet Office's National Risk Register of Civil Emergencies (Ref. 13.5).

13.2.16. The assessment of major accident(s) and/or disaster(s) has been achieved through a review of available documentation and regulatory requirements. The assessment does not involve assessment from 'first principles' as it is recognised that existing legislation and health and safety requirements already identify risks and help to protect human beings and the environment (**Appendix 13.2**).

13.2.17. The assessment presents any identified risks along with whether these are managed to be As Low As Reasonably Practicable (ALARP) or require further precautionary mitigation actions beyond those already integrated into the design and execution of the Proposed Development.

13.2.18. The potential for identified relevant major accident(s) and/or disaster(s) to result in a significant adverse environmental effect have been evaluated using a risk based approach. The approach has considered the environmental consequences of a Major Event, the likelihood of these consequences occurring, taking into account planned design and embedded mitigation, and the acceptability of the subsequent risk to the environment. The following process has been applied to each of the scoped in Major Event categories:

- Identifying risks.
- Screening these risks.
- Defining the impact.
- Assessing the likelihood.
- Assessing the risk.

Identify Risks

13.2.19. The major accident(s) and/or disaster(s) considered in the assessment are rare events.

13.2.20. All low consequence events, whatever their likelihood, do not meet the definition of major accidents and disasters. For example, minor spills which may occur during construction, but would be limited in area and volume and temporary in nature, do not meet the definition of a major accident. Such minor events would be dealt with under the construction contractor's Environmental Management System (EMS) and do not fall within the scope of this assessment.

13.2.21. This assessment focuses on low likelihood but potentially high consequence events as illustrated in **Figure 13-1**.

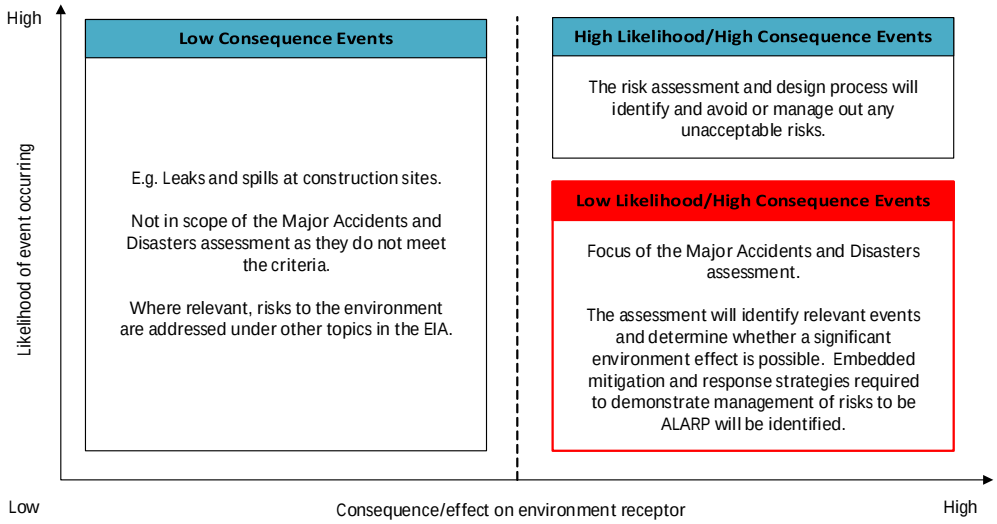

Figure 13-1 - Graphical Representation of Major Accidents and Disasters Consequence Significance

13.2.22. Low likelihood is defined for the purposes of this assessment, as: May occur during the lifetime of the Proposed Development, so no more than once in 10 years for the construction phase, and no more than once in 100 years for the operational phase.

13.2.23. This is an upper boundary for low likelihood. Very low likelihood events will also be included in the assessment, which may only occur at most once in every 1,000 years. Mitigation measures will reflect what is reasonable for such rare events, considering their potential consequence, within the guiding principle of risks being ALARP.

13.2.24. High consequence events are considered to lead to a significant adverse effect.

13.2.25. The risk identification process has used existing sources of information wherever possible, as described in paragraph 13.2.10 such as risk assessments undertaken for the Proposed Development as part of other processes (many of which are required by law) or Risk Events identified within the UK's current National Risk Register. No additional risk assessments have been undertaken and the risk identification activity has focused on collating and reviewing the existing sources.

13.2.26. In order to identify whether a Risk Event has the potential to be a Major Event, which also has the potential to have a significant adverse effect on an environmental receptor, three components need to be present: a source, a pathway (between source and receptor) and a receptor. As such, and as recommended by Defra (Ref.13.11), the assessment uses the following conceptual model:

- The source is the original cause of the hazard, which has the potential to cause harm;
- The pathway is the route by which the source can reach the receptor; and
- The receptor, which is the specific component of the environment that could be adversely affected, if the source reaches it.

13.2.27. Risk Events which do not have all three components have been screened out from the assessment.

Screen Risks

13.2.28. The following major accident(s) and/or disaster(s) screening process has been used to identify those Risk Events which would require further consideration within the assessment:

- Is there a potential source, and/or pathway and/or receptor as defined in paragraph 13.2.26 above? If not, no further assessment required;
- Is there a relevant environmental receptor (paragraph 13.2.11) present in the locations where the Risk Event could occur, and a pathway whereby the source of harm can reach the receptor? If not, no further assessment required; and
- Does the potential impact on the environmental receptor meet the definition of a significant adverse effect given in paragraph 13.2.24? If not, no further assessment required.

13.2.29. For those Risk Events which are not screened out during the three step process, the following assessment methodology has been used. The assessment forms the basis for recommending additional mitigation measures, as appropriate.

Define Impact

13.2.30. Several mechanisms are in place to reduce the vulnerability of the Proposed Development to major accident(s) and/or disaster(s) or mitigate significant effects on the environment should they occur. All measures to manage and reduce the risk of significant adverse effects occurring as a result of the vulnerability of the Proposed Development to major accident(s) and/or disaster(s) are considered to be primary mitigation measures for the purposes of the assessment. It has been assumed that:

- The design, installation, commissioning, operation and maintenance of plant, drainage systems, equipment and machinery, including associated systems, will take into account Good Engineering Practice.
- The construction stage(s) of the Proposed Development will be managed through the implementation of the Construction Phase Plan (required under the CDM Regulations 2015) and a Construction Environmental Management Plan.

13.2.31. This framework (paragraph 13.2.30) and the measures therein of relevance to the assessment are described in the relevant ES chapters.

13.2.32. A reasonable worst case environmental impact(s) has been identified for each scoped-in Risk Event. Impacts have been identified in consultation with relevant disciplines for each environmental factor assessed within this ES. The environmental impacts are identified through a qualitative process which seeks to answer the question ‘could this event constitute a major accident or disaster in terms of the definitions provided’ (see Section 13.2). Where relevant, specific sensitive receptors around the Proposed Development are considered (see **Table 13-3**). The Risk Record (**Appendix 13.3**), records the outcome of this process.

Assess Risk

13.2.33. The likelihood of the reasonable worst case environmental effect(s) occurring has been evaluated taking into account the following:

- The likelihood of the risk event occurring considering the measures already embedded into the design and execution of the Proposed Development; and
- The likelihood that an environmental receptor is affected by the risk event.

13.2.34. Likelihood assessments evaluate whether the effect (for example, loss of life) is a possible outcome of the risk event.

13.2.35. This evaluation refers to existing risk assessments as well as consultation with relevant discipline specialists.

13.2.36. The assessment of the risk has been carried out using a major accidents and disasters assessment tool, developed by WSP. Where likely significant adverse effects are identified, mitigation measures must be in place, commensurate with the likelihood of the event occurring. The assessment considers, in consultation with relevant disciplines, whether the risk to the environmental receptor is managed to be ALARP with the existing measures. If gaps are identified, where the existing measures do not represent management of risks to an environmental receptor to be ALARP, then additional measures would be required. The Risk Record presented in **Appendix 13.3** records the outcome of the assessment.

Appraise Risk Management Options

13.2.37. Risk management options fall into the following categories:

- Eliminate (or 'avoid') the risk, by adopting alternative processes in order to eliminate the source of the hazard, or remove the receptor;
- Reduce the risk by adapting proposed processes such that either the likelihood or the impact of the risk event can be reduced;
- Isolate the risk, by using physical measures to ensure that should the risk event occur, it can be effectively isolated such that there is no pathway;
- Control the risk, by ensuring that appropriate control measures are in place (for example emergency response) so that should a risk event occur, it can be controlled and managed appropriately. The mitigation hierarchy of repair and compensate any significant damage to environmental receptors may then apply following a control measure; and
- Exploit the risk, if it presents potential benefits or new opportunities.

13.2.38. As safety risks will be required to be adequately addressed within the regulatory framework for the Proposed Development, it is not anticipated that significant residual effects, in terms of safety risks, will be identified as an output of the assessment.

SIGNIFICANCE CRITERIA

13.2.39. By definition, a major accident and/or disaster would have a major significant effect on the environment. Accordingly, any risks that could result in a major event without suitable mitigation, management or regulatory controls in place will be assessed as significant.

13.3. BASELINE CONDITIONS

13.3.1. Major accident(s) and/or disaster(s) risks relevant to the baseline in the absence of the Proposed Development include extreme weather events and associated flooding. Baseline 'without Development' conditions are described in detail in the following chapters: **Chapter 9 (Biodiversity)**, **Chapter 11 (Water)**, **Chapter 12 (Transport)** and **Chapter 14 (Land and Soils**). Those aspects of most relevance to this assessment are summarised below.

INDUSTRIAL ACCIDENTS

13.3.2. There are no industrial sites within the study area which could have an influence on the vulnerability of the application site.

13.3.3. The Proposed Development will be constructed over an existing ethylene pipeline (under the ownership of ESSAR and currently operated by Penspen) which comes from north of the western side of the application site, crosses the north western corner and then diverges 120m south of the M62, continuing in a south-west direction.

13.3.4. According to available sources including those in the public domain, no industrial fires have occurred within the study area.

13.3.5. Overhead electricity distribution lines run 150 m into the application site from the north east corner to a pylon before splitting into two sets of overhead lines. One set of overhead lines travels south along the boundary of the application site, the other set of overhead lines continues in a south east direction passing south of Booth's Wood and out of the application site.

FUTURE BASELINE

13.3.6. The future baseline is not anticipated to differ significantly from the current baseline with regards major accident(s) and/or disaster(s).

13.3.7. The predicted changes in climate due to climate change between now and the operational year (2023) are considered insignificant in relation to their potential to influence major accident(s) and/or disaster(s).

13.4. LEGISLATIVE FRAMEWORK, POLICY AND GUIDANCE

LEGISLATIVE FRAMEWORK

13.4.1. The applicable legislative framework is the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, Schedule 4 Paragraph 8 (EIA Regulations 2017) (Ref.13.1).

13.4.2. The applicable legislative framework covering the design, construction, operation and maintenance of the Proposed Development is summarised as follows, further details are presented in **Appendix 13.2**:

- Health and Safety at Work etc. Act 1974 (Ref.13.7);
- Management of Health and Safety at Work Regulations 1999 (Ref.13.8);
- Construction (Design and Management) Regulations 2015 (CDM) (Ref.13.9);
- Pipeline Safety Regulations 1996 (Ref.13.23); and
- Occupier's Liability Act 1984 (C.3) (Ref.13.10).

POLICY

13.4.3. There are no applicable policy documents at the time of writing.

GUIDANCE

13.4.4. There is currently no published guidance for the application of the legal requirements to major accidents and disasters. However, selected relevant guidance for risk assessment methodology is summarised as follows:

- Defra (2011) 'Guidelines for Environmental Risk Assessment and Management (Ref.13.11);
- Chemical and Downstream Oil Industries Forum, (2013), Guideline - Environmental Risk Tolerability for COMAH Establishments (Ref.13.12); and
- The International Standards Organization's ISO 31000: 2009 Risk Management - principles and guidelines (Ref.13.13).

13.4.5. Additionally, the following have been consulted to support the identification of all potential major accident(s) and/or disaster(s):

- The Cabinet Office National Risk Register of Civil Emergencies (2017 Edition) (Ref.13.5). This document is the unclassified version of the National Risk Register and it identifies the main types of civil emergencies that could affect the UK in the next five years. It is recognised, however, that this document does not provide an all-encompassing list of all potential accidents and disasters and its timescales are short term.
- The International Federation of Red Cross & Red Crescent Societies Early Warning, Early Action (2008) (Ref.13.14). This guidance looks to other countries including those in warmer climates, thereby identifying risks that the UK may encounter in the future in light of climate change and global warming.
- The International Disaster Database (Ref.13.15). This online source contains data covering over 22,000 mass disasters in the world since 1900 to the present day and aims to *"rationalise decision making for disaster preparedness, as well as provide an objective base for vulnerability assessment and priority setting"*.

13.5. ASSESSMENT OF POTENTIAL MAJOR ACCIDENTS AND DISASTERS EVENTS

13.5.1. Key management and mitigation measures are described in **Appendix 13.3**. In all cases, compliance with the legal and regulatory requirements described in this section to manage risks to be ALARP must be demonstrated, including the requirement to:

- manage all construction risks in accordance with the CDM Health & Safety Plan;
- comply with design standards, this will include designing to appropriate environmental parameters (flood, wind, lightning, ground stability) including climate change. Design standards apply to controls and systems and civil infrastructure; and
- co-ordination between the Applicant and its maintenance contractors.

CONSTRUCTION PHASE

Potential Major Risk Events

13.5.2. Major accident(s) and/or disaster(s) to which the Proposed Development may be vulnerable during the construction phase are summarised in **Table 13-4** below, which lists those Risk Events whose impact on an environmental receptor has the potential to be a Major Event as defined in Section 13.2. All considered events are set out in **Appendix 13.3.**

Table 13-4 - Potential Major Accident and / or Disaster Events during Construction Grouped by High Level Risk Event

Risk Record Entry Number	Risk description	Risk Event (High level)	Reasonable Worst Consequence if Event Did Occur
1	Fire, explosion or release of flammable vapour cloud	Fire and / or explosion or release of harmful gas	Fire and/or explosion affects construction workers and/or members of the public using the adjacent M62

13.5.3. Based on the assumptions and mitigation measures put forward in other relevant ES chapters, it is considered that the identified potential major accident(s) and/or disaster(s) events above would all be managed to be ALARP.

OPERATIONAL PHASE

Potential Major Risk Events

13.5.4. Major accident(s) and/or disaster(s) to which the Proposed Development may be vulnerable during the operational phase are summarised in **Table 13-5** below, which lists those Risk Events whose impact on an environmental receptor has the potential to be a Major Event as defined in Section 13.2. All considered events are set out in **Appendix 13.3**.

Table 13-5 - Potential Major Accident and / or Disaster Events during Operation Grouped by High Level Risk Event

Risk Record Entry Number	Risk description	Risk Event (High level)	Reasonable Worst Consequence if Event Did Occur
2	Fire, explosion of release of flammable vapour cloud	Ground subsidence leading to loss of containment.	Fire and/or explosion affects neighbouring properties and/or those people in the immediate area.

13.5.5. Based on the assumptions and mitigation measures put forward in other relevant ES chapters, it is considered that the identified potential major accident(s) and/or disaster(s) events above would all be managed to be ALARP.

ASSESSMENT AGAINST FUTURE BASELINE

13.5.6. The predicted changes in climate due to climate change between now and the operational year (2023) are considered insignificant in relation to their potential to influence major accident(s) and/or disaster(s).

13.6. LIMITATIONS AND ASSUMPTIONS

13.6.1. Key assumptions for this assessment are that:

- The Proposed Development is being designed and its implementation guided by other industry standards and codes, many of which are mandatory. These require infrastructure and systems to be designed so that risks to people and the environment are either eliminated or reduced to levels that are ALARP.
- The construction stage(s) of the Proposed Development will be managed through the implementation of the Construction Phase Plan (required under the CDM Regulations 2015) and a Construction Environmental Management Plan.
- Environmental effects associated with unplanned events that do not meet the definition of a major accident and / or disaster e.g. minor leaks and spills that may be contained within the construction sites are addressed in other relevant ES chapters.
- It is recognised that the management framework for the Proposed Development is not fully defined at this stage; however, a presumption of standard practice and regulatory compliance

within the adopted management framework has been assumed and will be developed following the appointment of the Principal contractor.

- The design, installation, commissioning, operation and maintenance of plant, drainage systems, equipment and machinery, including associated systems, will take into account Good Engineering Practice.

13.6.2. In accordance with good safety management principles, it has been assumed that all risks that have the potential to be major accidents or disasters, and could impact a local environmental receptor, would be managed using the ALARP principle.

13.7. SUMMARY

13.7.1. For the potential major accident(s) and/or disaster(s) events identified, the assessment concluded there is no likely requirement for further mitigation measures, as based on the information currently available in other relevant ES chapters, it is considered that the risks are anticipated to be as low as reasonably practicable.

13.8. REFERENCES

- Ref. 13.1: Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017 No.571).
- Ref. 13.2: Institute of Environmental Management and Assessment (IEMA), EIA Quality Mark Article: Assessing Risks of Major Accidents / Disasters in EIA, March 2016.
- Ref. 13.3: Institute of Environmental Management and Assessment (IEMA), EIA Quality Mark Article: What is this MADness? August 2017.
- Ref. 13.4: Institute of Environmental Management and Assessment (IEMA), EIA Quality Mark Webinar: Major Accidents and Natural Disasters in EIA, 13th July 2017.
- Ref. 13.5: Cabinet Office, National Risk Register of Civil Emergencies, 2017 Edition.
- Ref. 13.6: Directive 2014/52/EU of the European Parliament and of The Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.
- Ref. 13.7: Health and Safety at Work etc. Act 1974 (c. 37).
- Ref. 13.8: Management of Health and Safety at Work Regulations 1999 (SI 1999 No. 3242).
- Ref. 13.9: Construction (Design and Management) Regulations 2015 (SI 2015 No. 15) (CDM).
- Ref. 13.10: Occupier's Liability Act 1984 (C.3)
- Ref. 13.11: Defra (2011), Guidelines for Environmental Risk Assessment and Management: Green Leaves III, Cranfield University and Department for Environment, Food and Rural Affairs, November 2011.
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