Appendix 4A: Outline Construction Environmental Management Plan

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4A.1. Introduction

4A.1.1 Overview

4A.1.1.1 This Outline Construction Environmental Management Plan (CEMP) has been prepared by AECOM Ltd (AECOM) on behalf of VPI Immingham LLP and Phillips 66 Ltd ('The Applicants') in relation to two planning applications ('the Applications') for the construction, operation and maintenance of two proposed Post-Combustion Carbon Capture (PCC) developments located at VPI Immingham's Combined Heat and Power (CHP) Power Station ('the Proposed VPI Development') and Phillips 66 Ltd's Humber Refinery ('the Proposed Phillips 66 Development') (collectively referred to as 'the Proposed Developments').

4A.1.1.2 The Proposed Developments will be consented under the Town and Country Planning Act 1990. Two planning applications will be submitted – one for the Proposed VPI Development and one for the Proposed Phillips 66 Development – because the Applicants are different for each development, but in recognition of the inter-related nature of the two parts of the Proposed Development, the EIA for both applications is integrated, as is this Outline CEMP.

4A.1.1.3 The Proposed Developments will deliver up to 3.8 Mega tonnes per annum (Mtpa) of abated CO_2 emissions via:

- PCC retrofit to two gas turbines (GT1 and GT2) and two auxiliary gas boilers at the VPI Immingham CHP Power Station ('the Proposed VPI Development'); and
- PCC retrofit to the Fluid Catalytic Cracker (FCC) stack at the Humber Refinery ('the Proposed Phillips 66 Development').

Progress of the Proposed Developments is subject to the necessary consents being granted and government policy/ funding support being in place to enable final investment decisions to be made.

4A.1.1.4 The Proposed Developments aim to form the basis for a potential cluster of projects in the future, with ambitions for both green and blue hydrogen production and further decarbonisation related developments, collectively known as Humber Zero.

4A.1.2 The Applicants

4A.1.2.1 VPI Immingham LLP own and operate the gas-fired Combined Heat and Power Plant located on Rosper Road in Immingham. The CHP Plant operates 24/7 to provide the electricity and steam that is critical to the operation of the neighbouring refineries and also to supply electricity to the National Grid.

4A.1.2.2 Phillips 66 Limited own and operate the Humber Refinery at Eastfield Road, South Killingholme. The Humber Refinery is one of the most sophisticated in Europe; it is highly integrated, energy efficient and manufactures both fuels and specialist products. It is Europe's only supplier of synthetic graphite coke for Electric Vehicle batteries and consumer goods and is a UK leader in the production of lower carbon liquid fuels.

4A.1.2.3 The designs of the Proposed Developments demonstrate the Applicants' commitment to decarbonisation.

4A.1.3 Carbon Capture and Storage

4A.1.3.1 Carbon Capture and Storage (CCS) comprises the removal of CO_2 from industrial processes, e.g., power stations, which otherwise would have been emitted to the air contributing to the greenhouse effect. This CO_2 is then compressed and transported via pipelines to a permanent underground storage site. In the UK, permanent storage sites are deep geological formations situated in either offshore in saline environments or in depleted oil and gas fields.

4A.1.3.2 For the Proposed Developments, PCC units will be fitted to the existing operations at both the VPI Site and the Phillips 66 Site to remove CO_2 produced by power generation at the VPI Site and a refinery activity (the FCC) at the Phillips 66 Site. The CO_2 will be compressed and transported via a pipeline to a subsea storage site under the North Sea (Humber Low Carbon Pipelines CO_2 transportation network

to be stored in Northern Endurance aquifer storage and/ or the Viking CCS CO_2 transportation network to be stored in the Viking fields).

4A.1.3.3 CCS is crucial to reducing CO_2 emissions and combatting global warming. The UK Government has committed to achieving Net Zero in terms of greenhouse gas emissions by 2050. This is a legally binding target. UK Government policy further states that the *'deployment of power CCUS projects will play a key role in the decarbonisation of the electricity system at low cost'* (HM Government, 2020a, page 47).

The Proposed Developments

4A.1.3.4 The Proposed VPI Development will include a PCC plant and associated facilities for capturing CO_2 from two of the gas turbines (GT1 and GT2)[1] and two auxiliary boilers at the VPI Immingham CHP Plant. There will be two PCC units with low-pressure CO_2 compression, oxygen removal and dehydration, and high-pressure CO_2 compression to 135 barg as required for export to the CO_2 transportation network.

4A.1.3.5 The Proposed Phillips 66 Development will include one PCC unit for the FCC. The plant requires flue gas pre-treatment prior to the capture unit, and will include low-pressure CO_2 compression, oxygen removal and dehydration, and high-pressure CO_2 compression to 135 barg as required for export to the CO_2 transportation network.

4A.1.3.6 The water, steam and power required for the Proposed Developments will be supplied from existing Humber Refinery systems and the VPI Immingham CHP Power Station.

4A.1.3.7 The PCC facilities will be designed for 95% CO_2 capture during steady state operation. It is intended that CO_2 will be exported at high pressure (dense phase) via an interface to a CO_2 transportation network adjacent to the Sites.

4A.1.3.8 The Proposed Phillips 66 Development will include the following components:

- FCC flue gas waste heat exchanger for energy recovery;
- ducting over an existing internal access road to connect the FCC unit to the PCC plant;
- flue gas pre-treatment using Selective Catalytic Reduction (SCR), a wet gas scrubber and wet electrostatic precipitator with associated air-cooled heat exchangers;
- one PCC unit with associated absorber, stack, stripper/ regenerator, thermal reclaimer unit and air-cooled heat exchangers/ fin fans;
- a CO_2 vent stack for use during start up, shut down and emergencies only;
- CO_2 compression facility with associated air-cooled heat exchangers/ fin fans;
- oxygen removal and dehydration facilities;
- CO_2 metering and a pipeline connecting the PCC plant and compression facilities to the CO_2 gathering network interface, including a pipeline crossing of the Phillips 66 railway sidings and Network Rail railway line;
- on-site electrical substation;
- caustic, solvent and other chemical offloading and storage facilities;
- solvent disposal and purge water disposal;
- utilities (including chillers, steam generator and air compressors)
- internal access roads;
- surface water and foul water drainage systems;
- construction and maintenance laydown areas; and
- a new site access from Eastfield Road.

4A.1.3.9 The Proposed VPI Development will include the following components:

- ducting to connect GT1, GT2 and the auxiliary boilers to the PCC plant;

[1] The third gas turbine is proposed to be converted to hydrogen firing as part of the wider Humber Zero project.

- two PCC units (or 'trains'), each with associated blower, direct contact cooler, absorber, stack, stripper/ regenerator, thermal reclaimer unit and air-cooled heat exchangers;
- a CO_2 vent stack for use during start up, shut down and emergencies only;
- CO_2 compression facility with associated air-cooled heat exchangers;
- oxygen removal and dehydration facilities;
- CO_2 metering and a pipeline connecting the PCC plant and compression facilities to the CO_2 gathering network interface;
- up to four on-site electrical substations;
- caustic, solvent and other chemical offloading and storage facilities;
- utilities (including chillers, steam generator, hydrogen package and air compressors)
- internal access roads;
- surface water drainage system
- realignment of the existing ditch (South Killingholme Drain) within the VPI Site;
- construction and maintenance laydown areas; and
- a new site access from Rosper Road.

4A.1.4 The Sites of the Proposed Developments

4A.1.4.1 The planning application boundaries for each of the Proposed Developments are referred 'the VPI Site' and 'the Phillips 66 Site' (collectively 'the Sites'). The Sites lie 1.6 km north of Immingham and 1.5 km west of the Humber Estuary. The Sites are located within the administrative boundary of North Lincolnshire Council (NLC).

4A.1.4.2 ES Figures 1.2 and 1.3 show the boundaries of the Sites, ES Figure 2.1 shows the parts of the Sites and ES Figures 3.1 and 3.2 show the indicative layouts of the Proposed Developments.

4A.1.5 Phillips 66 Site

4A.1.5.1 The Phillips 66 Site is largely within the operational Humber Refinery, accessed from Eastfield Road, but also includes land to the east of the Refinery for pipeline and cable connections, including part of the railway line between the Port of Immingham and Ulceby which will need to be traversed by pipelines and cables.

4A.1.5.2 The main area required for the proposed Phillips 66 PCC plant and CO_2 compression is in the north-west corner of the Humber Refinery and is currently used for open storage and temporary uses such as site cabins for maintenance contractors, which will be relocated to other parts of the Humber Refinery. The westernmost part of the proposed Phillips 66 PCC plant area is used for car parking and this is not anticipated to be required for the Phillips 66 PCC plant itself, but it will be used for deliveries and a proposed new access from Eastfield Road will be created into this area.

4A.1.5.3 The route of the proposed CO_2 pipeline connecting the Phillips 66 PCC plant and CO_2 compression area to the assumed location of the CO_2 gathering network tie-in compound to the north-east of the Network Rail railway line comprises:

- an existing utilities corridor (known as Avenue A) along the northern boundary of the Refinery with several above ground pipes on racks which will be retained and will not be affected by the Proposed Phillips 66 Development;
- an existing pipe bridge over the Refinery railway sidings and the Network Rail railway line (an alternative route using an existing pipe sleeve under the Network Rail railway line may also be available and is included in the Phillips 66 Site boundary to reflect ongoing discussions with Network Rail);
- currently vacant land on the north-east side of the Network Rail railway line.

4A.1.6 VPI Site

4A.1.6.1 The VPI Site is the land to the south of the operational VPI Immingham CHP Plant site, accessed from Rosper Road and separated from the Phillips 66 Site by the Network Rail railway line between the Port of Immingham and Ulceby.

4A.1.6.2 The area for the proposed VPI PCC plant and CO_2 compression is to the south of the existing CHP Plant and comprises grassland with an open ditch running west-east through the centre, areas of hardstanding and existing below ground utilities. The northern part of the VPI PCC plant area was previously used for laydown during the construction of the existing CHP Plant.

4A.1.6.3 The southernmost part of the VPI Site will not be developed by VPI (the land is reserved for other proposed developments including pipelines and tie-in compounds for the CO_2 gathering network(s)), but it will be used for construction laydown for the Proposed VPI Development.

4A.1.7 Consenting Regime and Requirement for EIA

4A.1.7.1 As noted above, planning consents for the Proposed Developments are to be sought via two planning applications under the Town and Country Planning Act 1990.

4A.1.7.2 With regards to EIA, the relevant regulations are the Town and Country Planning (EIA) Regulations 2017 (as amended) (hereafter referred to as the 'EIA Regulations').

4A.1.7.3 The Proposed Developments are of a type which falls within Schedule 1 Part 23 of the EIA Regulations ("*Installations for the capture of carbon dioxide streams for the purposes of geological storage pursuant to Directive 2009/31/EC from installations referred to in this Schedule, or where the total yearly capture of carbon dioxide is 1.5 megatonnes or more*").

4A.1.7.4 An EIA Scoping Report was submitted to NLC to commence the EIA process and represented the first notification to NLC, as the Local Planning Authority (LPA), that the Applicants will undertake an EIA in respect of the Proposed Developments and produce an Environmental Statement (ES) to report the findings of the EIA.

4A.1.7.5 EIA is an iterative process that feeds into the engineering design process to mitigate significant environmental effects where they are predicted to occur. The final design iteration, along with the findings of the EIA will be reported in this ES, in accordance with EIA Regulations.

4A.1.8 The Purpose and Structure of this Document

4A.1.8.1 This Outline CEMP sets out a series of proposed measures that would be applied by the contractors to provide effective planning, management and control during construction to control potential impacts upon people, businesses and the natural and historic environment.

4A.1.8.2 This Outline CEMP has been produced in conjunction with the ES with the aim of ensuring that design and impact avoidance measures reported in the ES are implemented and are effective, together with any additional mitigation measures proposed to reduce significant adverse effects. Site-specific controls, which will be included within the final CEMP, would be developed taking the measures set out in this Outline CEMP into account. The final CEMP will be developed in accordance with the principles set out in this Outline.

4A.1.8.3 It is expected that the contractors will comply, as a minimum, with applicable environmental legislation at the time of construction, together with any additional environmental controls imposed by the Town and Country Planning Act. The final CEMP will, therefore, be designed with the objective of compliance with relevant environmental legislation and the mitigation measures set out within the ES and this Outline. Any additional construction licences, permits or approvals that are required would be listed in the final CEMP, including any environmental information submitted in respect of them.

4A.1.8.4 Further guidance on specific areas, such as soil handling and dust management, are considered from industry best practice guidance documents, as set out in each discipline section of this Outline CEMP. The references to guidance documents are not intended to be exhaustive.

4A.1.8.5 The final CEMP will broadly reflect the structure of this Outline CEMP, which is as follows:

- Section 2 provides an indication of the construction arrangements that have been assessed in the ES.
- Section 3 presents additional information that might be included under each sub-section within the final CEMP, which includes –
    - environmental impacts (assessed through the EIA),
    - impact avoidance or reduction of measures to be applied, where the ES has assumed they would be applied during the detailed design or construction phase,
    - any other additional mitigation measures,
    - additional surveys or monitoring considered necessary pre-construction or during construction in order to confirm the status of receptors, and the effectiveness of impact avoidance/mitigation measures,
    - corrective action procedure to be applied, where necessary, and
    - links to other complementary plans and procedures; and
- Annex A comprises a Framework Site Waste Management Plan (SWMP)

4A.1.8.6 In addition, the final CEMP will identify how commitments made during the EIA (and reported in the ES) will be translated into actions on each Site.

4A.1.8.7 The contractors will be responsible for working in accordance with the environmental controls documented in the final CEMP, which will allocate responsibilities for environmental performance. The overall responsibility for implementation of the final CEMP will lie with the Applicants.

4A.2. Construction Phase Arrangements

4A.2.1 Construction Timing and Programme

4A.2.1.1 At this stage, a detailed construction programme is not available, as this is normally determined by the Engineering, Procurement and Construction (EPC) contractor who has not yet been appointed. The Applicants would each appoint a contractor for the construction of the two Proposed Developments. Table 1 shows an indicative construction and commissioning programme for the Proposed Phillips 66 Development and Table 2 provides an indicative construction and commissioning programme for the Proposed VPI Development.

4A.2.1.2 Construction of the Proposed Developments could (subject to the necessary consents being granted and an investment decision being made) potentially start in Quarter 2 of 2024 for the Phillips 66 Development and Quarter 3 of 2024 for the VPI Development.

Table 4A1: Indicative construction and commissioning programme for the Proposed Phillips 66 Development

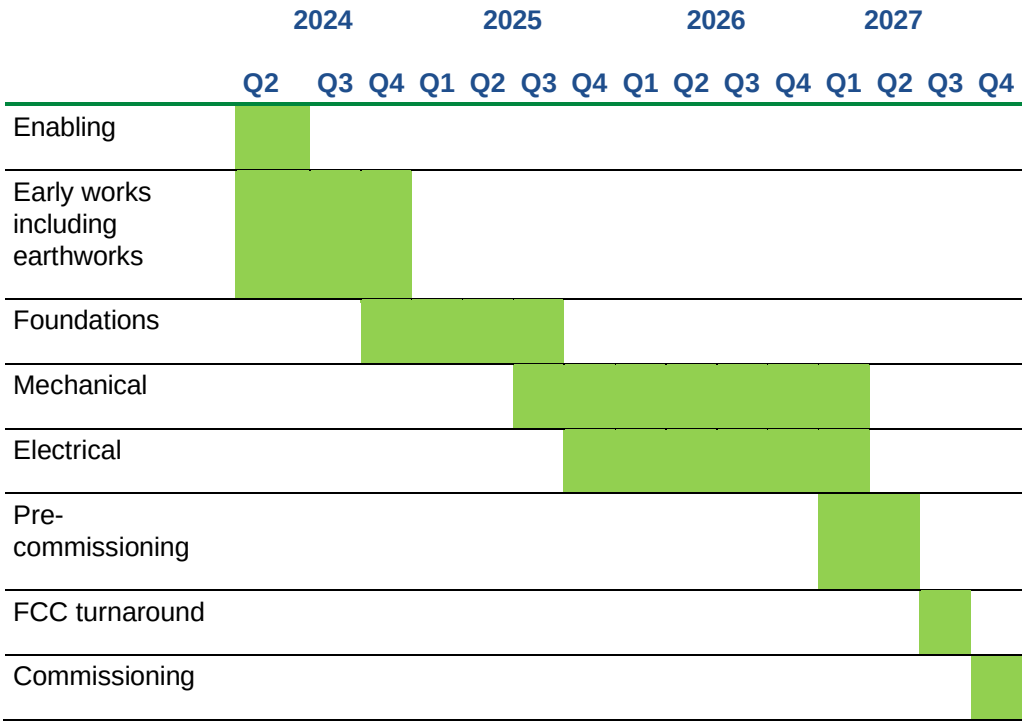
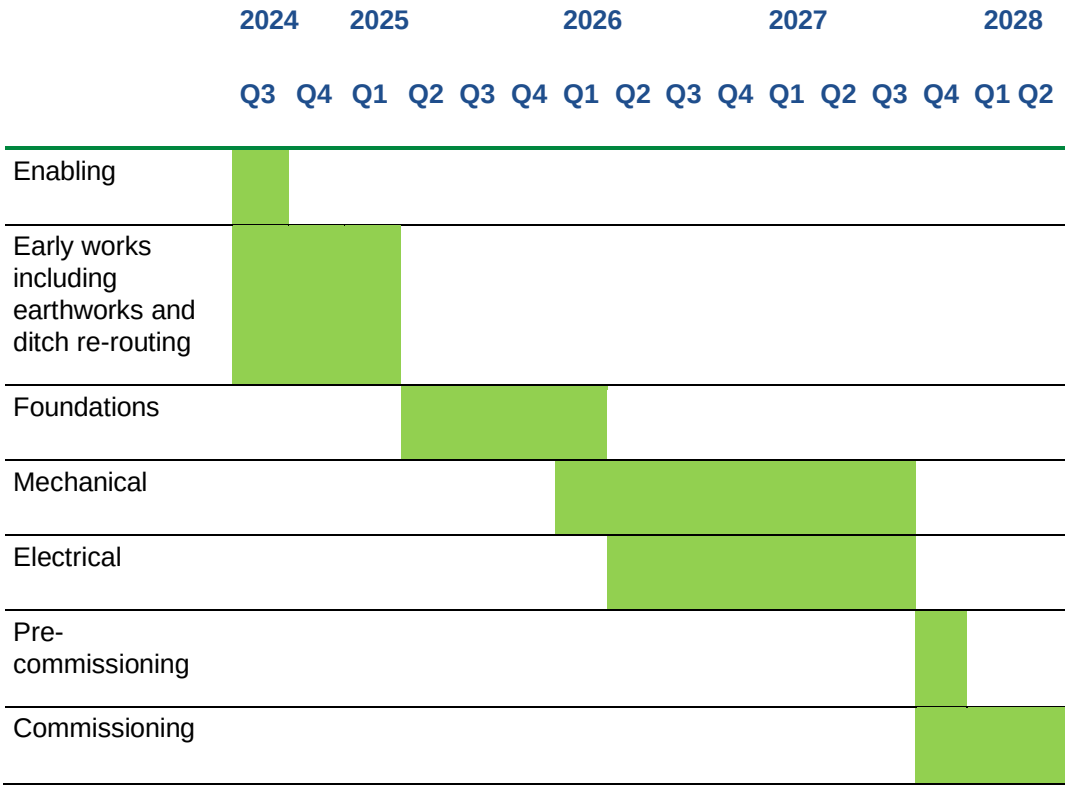


Table 4A2 Indicative construction and commissioning programme for the Proposed VPI Development



4A.2.2 Working Hours

4A.2.2.1 Normal construction working hours for the Proposed Phillips 66 Development could be 24/7 as per the existing Humber Refinery operating and maintenance working hours.

4A.2.2.2 Normal construction working hours for the Proposed VPI Development will be 07:00 and 19:00 Monday to Friday (except Bank Holidays) and 07:00 to 13:00 on Saturdays (the hours defined by British Standard 5228: Code of practice for noise and vibration control on construction and open sites (British Standards Institute, 2009) as 'daytime' hours), with no working on Sundays and Bank Holidays. However, it is likely that some construction activities may need to be undertaken outside of these normal working hours and could be 24/7, limited to manage critical periods where required, principally because certain construction activities cannot be stopped, such as concrete pouring, pipework testing and commissioning but also potentially to manage the construction programme. Where on-site works are to be conducted outside the normal construction working hours, they will comply with any restrictions agreed with the local planning authority, in particular regarding control of noise.

4A.2.2.3 Due to 24/7 working hours on the Phillips 66 Site and the potential for works to be 24/7 working hours on the VPI Site, twenty-four hour working for certain activities has therefore been assessed in Chapter 7: Noise and Vibration (ES Volume I) which sets out specific mitigation and control measures required to prevent disturbance from any activities outside of core working hours. Requirements in the Town and Country Planning Application secure the working hours and the approach to exceptions to the core working hours. Any such works will be minimised and will be carefully managed to reduce effects on the local community.

4A.2.3 Traffic Management

4A.2.3.1 During construction, the appointed contractors will ensure that the impacts from construction traffic on the local community (including local residents and businesses and users of the surrounding transport network) are minimised, where reasonably practicable, by implementing the measures set out in the Construction Traffic Management Plan (CTMP) and the Construction Workers' Travel Plan (CWTP) (Appendix 8B and Appendix 8C, respectively, ES Volume II).

4A.2.3.2 Access to the Proposed VPI Development during construction (HGVs) would be via an additional new access will be created to the north of the existing middle access on Rosper Road to Humber Road. For the Proposed Phillips 66 Site new internal roads will be constructed providing a new access onto Eastfield Road to Humber Road.

4A.2.3.3 It is expected that the majority of construction traffic would access the Sites from the A160 and A180. The traffic will then access the VPI Site and the Phillips 66 Site from Rosper Road or Eastfield Road respectively.

4A.2.3.4 The A160 links the South Humber Gateway to the wider Strategic Road Network and is a primary freight route. From the Manby Road roundabout the A160 runs westwards for 4.3 km before joining the A180 at a grade separated junction.

4A.2.3.5 The A180 and A15 are the key trunk roads in the area which connect to the Sites via the A160. The A180 is an east to west routing route which runs from Grimsby in the east to the M18 in the west. The A15 provides a nearby connection over the River Humber to Hull

4A.2.3.6 HGVs will be required to use a specific route based on the following elements:

- use of the shortest feasible route to/ from the site to/ from the primary A-road network whilst avoiding settlements and sensitive receptors;
- where possible, use primary A-roads and B-roads for routing; and
- avoid other routes constrained by narrow roads, weight restrictions, height restrictions and avoid any other route restrictions.

4A.2.3.7 The following daily construction staff and HGV numbers across the Sites are forecast for the concurrent construction phases of the two Proposed Developments:

- a peak of 350 two-way daily HGV movements (175 arrivals and 175 departures) occurring in 2026.
- a peak of 1,984 two-way daily staff movements (992 arrivals and 992 departures) occurring in 2025.

4A.2.3.8 These movements indicate a combined total for both Sites.

4A.2.3.9 The Proposed Developments will require the movement of Abnormal Indivisible Loads (AILs). an AIL report will be prepared for each of the Proposed Developments to assess the delivery of large components which will be supported by desk based swept path analysis and a record of consultation and agreement with North Lincolnshire Council.

4A.2.3.10 Normal construction working hours for the Proposed Phillips 66 Development will be 24/7 as per the existing Humber Refinery operating and maintenance working hours.

4A.2.3.11 Normal construction working hours for the Proposed VPI Development will be 07:00 and 19:00 Monday to Friday (except Bank Holidays) and 07:00 to 13:00 on Saturdays

4A.2.3.12 However, it is likely that some construction activities may need to be undertaken outside of these normal working hours, principally because certain construction activities cannot be stopped, such as concrete pouring, but also potentially to manage the construction programme. Where this occurs mitigation methods set out into Final CEMPs will ensure that they will comply with any restrictions agreed with the local planning authority, in particular regarding control of noise.

4A.2.3.13 Temporary signs providing route information for contractors will be erected at key locations along the proposed construction traffic routes on the local road network and potentially the strategic road network. It is also proposed that project information boards will be erected at each of the Sites and will include key project information for the public and relevant contact details.

4A.2.3.14 The appointed contractor will be required to maintain all the HGV route signage.

4A.2.4 Parking Provisions

4A.2.4.1 Parking demand will vary throughout the construction phase and parking areas will be set aside within the Proposed Development Sites to accommodate parking for construction workers. Both the VPI Site

and Phillips 66 Site are considered to have capacity to accommodate parking for construction workers. Car parking use will be monitored during construction and targets will be introduced to manage usage.

4A.2.4.2 It is anticipated that this may be on each Site within designated laydown areas. The location and size of these areas is yet to be confirmed.

4A.2.5 Wheel Cleaning Facility

4A.2.5.1 In the interests of highway safety, wheel cleaning facilities will be installed at the Sites from the start of the construction phase. All HGV will be required to use the wheel wash prior to exiting the Sites. The need for this measure will be periodically reviewed throughout the construction phase.

4A.2.6 Site Lighting

4A.2.6.1 Construction temporary site lighting, including external lighting is proposed to enable safe working on the construction site in the hours of darkness.

4A.2.6.2 The external lighting scheme will be designed to provide safe working conditions whilst reducing light pollution and the visual impact on the local environment. The temporary construction lighting will be arranged so that glare is minimised outside the construction site. Before any lighting is installed, a lighting scheme will be submitted to the local planning authority for approval. The lighting scheme will be designed in accordance with relevant standards, including the Guidance Notes for Reduction of Obtrusive Light (2021) published by the Institution of Lighting Professionals.

4A.2.7 Recycling and Disposing of Waste

4A.2.7.1 To control the waste generated during the site preparation and construction phase, the contractors will minimise the creation of waste, maximise the use of recycled materials and assist the collection, separation, sorting, recycling and recovery of waste arisings, as far as reasonably practicable.

4A.2.7.2 Site Waste Management Plans (SWMPs) will be developed for each of the Proposed Developments to control construction activities to minimise, as far as reasonably practicable, impacts on the environment and will specify the waste streams to be estimated and monitored and will set goals with regards to the waste produced. A Framework SWMP is included in Annex A of this Outline CEMP. The SWMPs will be finalised by the contractors, with specific measures to be implemented prior to the start of construction.

4A.2.7.3 The Applicants will require that the contractors segregate the waste streams on-site, prior to them being taken to a waste facility for recycling or disposal. All waste to be removed from the Sites will be undertaken by fully licensed waste carriers and taken to permitted waste facilities.

4A.2.8 Best Practice Measures

4A.2.8.1 The selected contractors would be encouraged to be a member of the 'Considerate Constructors Scheme' which is an initiative open to all contractors undertaking building work.

4A.2.8.2 Construction industry guidance (e.g. from the Construction Industry Research and Information Association (CIRIA)) will be adopted as far as reasonably practicable to assist in reducing the potential for pollution and nuisance. This will be achieved by employing best practice measures.

4A.2.9 Soil Management

4A.2.9.1 Impacts relating to the handling, movement and temporary storage of soils, will be controlled through the final CEMPs. Measures within the final CEMPs will include:

- a method statement for the works to include soil handling and storage proposals;
- a restoration specification; and
- a pre-and post-works survey to confirm condition.

4A.2.9.2 All soils will be managed in accordance with the Department for the Environment, Food and Rural Affairs (Defra) Construction Code of Practice for the Sustainable Use of Soil on Development Sites (Defra, 2009) to minimise impacts on soil structure and quality.

4A.2.9.3 The disposal of soil waste contaminated or otherwise to landfill sites will be mitigated by minimisation of the overall quantities of waste generated during construction and by ensuring that excavated material consigned to landfill cannot, as an alternative, be put to use either on Site or on other sites

4A.2.9.4 Any excess spoil generated during construction of the Proposed Developments will be managed through Site Waste Management Plans (SWMPs) that would form part of the Contractors' final CEMPs. Demolition waste will also be managed through the SWMPs.

4A.3. Impact Avoidance and Mitigation Measures Implementation Plan

4A.3.1 Overview

4A.3.1.1 This section sets out the embedded impact avoidance and additional mitigation, enhancement, and management measures to be included as a minimum in the final CEMPs. It also illustrates where additional surveys will be required, either pre-construction or during construction. It describes how the monitoring strategy would be implemented in order to assess the effectiveness of mitigation measures, monitor the impact of construction works and take other actions necessary to enable compliance.

4A.3.1.2 In the final CEMPs, this section will identify the responsible party for each mitigation, enhancement measure or monitoring requirement. As contractors have not yet been appointed, responsibilities cannot be assigned at this stage.

4A.3.1.3 The details of the topic specific mitigation, enhancement measures, monitoring and additional survey requirements are detailed below as follows:

- Table 3: Air Quality;
- Table 4: Noise and Vibration;
- Table 5: Traffic and Transport;
- Table 6: Water Environment and Flood Risk;
- Table 7: Geology, Hydrogeology and Land Contamination;
- Table 8: Landscape and Visual Amenity;
- Table 9: Cultural Heritage;
- Table 10: Ecology and Nature Conservation;
- Table 11: Climate Change;
- Table 12: Materials and Waste; and
- Table 13: Major Accidents and Disasters.

Table 4A3 Air Quality: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Increased particulates and deposited dust from soil and spoil movements and handling	• avoid mechanical roughening or grinding of concrete surfaces, where appropriate; • store sand and aggregates in bunded areas and store cement powder and fine materials in silos, where appropriate; • use water suppression and regular cleaning to minimise mud on roads, and control dust during earth moving activities; • cover vehicles leaving the construction site that are carrying waste materials or spoil; • employ wheel wash systems at site exits; • restrict, where practicable, the use of unmade road accesses; • minimising duration of storage of topsoil or spoil during pipeline construction; and • prohibit open fires on site.	n/a	To be confirmed in the final CEMPs
Emissions from road traffic and Non-Road Mobile Machinery (NRMM)	• minimise vehicle and plant idling; • where reasonably practicable, locating static plant away from sensitive boundaries or receptors; and • minimise operating time outside of core working hours/ daylight hours.	n/a	To be confirmed in the final CEMPs

Table 4A4: Noise and Vibration: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Temporary Noise effects on residential Noise Sensitive Receptors during construction of the Proposed Phillips 66 Development and the Proposed VPI Development	• abiding by agreed construction noise limits at locations to be agreed with NLC; • ensuring that processes are in place to minimise noise before works begin and ensuring that BPM are being achieved throughout the construction programme, including the use of localised screening around significant noise producing plant and activities; • ensuring that modern plant is used, complying with applicable UK noise emission requirements, and selection of inherently quiet plant where possible; • hydraulic techniques for breaking to be used, in preference to percussive techniques where reasonably practicable; • use of lower noise piling (e.g., rotary bored or hydraulic jacking) rather than driven piling techniques, where reasonably practicable; • off-site pre-fabrication for components of the Proposed Developments, where reasonably practicable; • all plant and equipment being used for the works to be properly maintained, silenced where appropriate, operated to prevent excessive noise and switched off when not in use; • all contractors to be made familiar with current legislation and the guidance in BS 5228 (Parts 1 and 2) (BSI, 2014a and b), which should form a prerequisite of their appointment; • loading and unloading of vehicles, dismantling of site equipment such as scaffolding or moving equipment or materials within the Proposed Development Sites to be conducted in such a manner as to minimise noise generation, as far as reasonably practicable; • appropriate routing of construction traffic on public roads and along access tracks, to reduce construction traffic noise, as far as reasonably practicable (see Chapter 8: Traffic and Transportation ES Volume I); • provision of information to NLC and local residents to advise of potential noisy works that are due to take place; • monitoring of any noise complaints and reporting to the Applicant for immediate investigation and;	A detailed noise and vibration assessment will be undertaken once the contractors are appointed, and further details of construction methods are known in order to identify specific mitigation measures for the Proposed Developments. The control and monitoring of noise during construction is proposed to be secured by a planning condition.	The Applicants and their contractors

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	• Regular communication with the local community throughout the construction period will also serve to publicise the works schedule, giving notification to residents regarding periods when higher levels of noise may occur during specific operations, and providing lines of communication where any complaints can be addressed. Method statements regarding construction management, traffic management, and overall site management will be prepared in accordance with best practice and relevant British Standards, to help to reduce the impacts of construction works. Regular communication with the local community throughout the construction period will also serve to publicise the works schedule, giving notification to residents regarding periods when higher levels of noise may occur during specific operations, and providing lines of communication where any complaints can be addressed.		
Noise impacts to noise sensitive receptors as a result of Phillips 66 construction activities during evening/ night-time periods where levels exceed SOAEL.	Control measures of restrictions to be put in place during evenings/ night-times so as to not exceed the SOAEL or other relevant noise criteria at locations to be agreed with NLC. Such measures could include timing of construction works and avoiding nosier activities during evening, weekend and night-time periods.	As above, the need for monitoring of noise and vibration levels during construction will also be determined through the detailed assessment to be undertaken.	The Applicants and their contractors
Vibration impacts upon buildings/structures within the existing Phillips 66 or VPI Sites	Appropriate mitigation measures to be confirmed in final CEMPs and to be complaint with any planning conditions, but likely to include timing of works to avoid quieter time periods.	Further assessment once construction methods confirmed and appropriate mitigation so as not to exceed vibration SOAEL.	The Applicants and their contractors

Table 4A5: Traffic and Transport: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Construction HGV traffic	The programming of HGV movements could potentially be subject to restrictions during certain periods of the day. A CTMP has also been developed, which identifies how traffic would be managed throughout the duration of the construction period, which details the most appropriate route for vehicles travelling to and from the Sites. Control measures will include: • all construction traffic to adhere to the Traffic Route Plans included in the CTMP; • all vehicles will be able to access and egress the site in a forward gear, with sufficient room off the public highway to allow them to wait without blocking the main carriageway; • welfare facilities will be provided so as to minimise the need for off-site trips by staff during the working day; • at all site accesses, suitable supervision will be provided as required to ensure that traffic is controlled at access points during construction (for example banksman checking road traffic and controlling construction vehicle movements) and mud deposits on the roads are minimised; and • where required, traffic signals (in accordance with New Roads and Street Works Act (NRSWA) or stop-go boards will be used to control road traffic. Road signs will conform to Chapter 8 of the Traffic Signs Manual (DfT, 2009) and NRSWA.	n/a	To be confirmed in the final CEMP
Road Safety	The accesses from the public highways (namely, Rosper Road and Eastfield Road) will use banksmen if required to manage the movement of HGVs on and off the public highway. Warning signage will be provided on the approaches to the access junctions.	n/a	To be confirmed in the final CEMP

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Pedestrian and Cycling Amenities	A Construction Workers Travel Plan (CWTP) will be developed for the Proposed Developments to mitigate the impacts of car/ LGV trips on the local road network and pedestrians and cyclists. Internal site layouts to accommodate the movement of pedestrian and cyclists will be designed.		To be confirmed in the final CEMP
Increased road traffic	A CWTP will be introduced in order to encourage sustainable travel to both Proposed Developments. The Travel Plans would include measures such as encouragement of car sharing and public transport usage, better marketing of information and implementation of a Travel Plan Co-ordinator. Where appropriate, a shuttle bus to transport workers to key interchange locations could be introduced. Where appropriate, HGVs would access and egress in a forward gear. At all accesses, warning signage will be provided on the approaches to the access junctions.	n/a	To be confirmed in the final CEMP

Table 4A6: Water Environment and Flood Risk: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Contaminated surface runoff and spillage of pollutants on water quality	All construction works will be completed in accordance with a Construction Environmental Management Plan (CEMP). CEMPs will be prepared by each of the Principal Contractors and will include measures to: • control and minimise the risk of pollution to surface waters by managing construction site runoff and the risk of chemical spillages; • measures to control the storage, handling and disposal of potentially polluting substances during construction; • management of flood risk during construction on-site and off-site; and • appropriate methods and mitigation measures when undertaking works within, over, under and adjacent to water features. The CEMPs will align with relevant good practice guidance, including the following Guidance for Pollution Prevention (GPP) which have been released to date on the NetRegs website (NetRegs, n.d.) such as: • GPP 1: Understanding your environmental responsibilities – good environmental practices; • GPP 2: Above ground oil storage; • GPP 3: Use and design of oil separators in surface water drainage systems; • GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer; • GPP 5: Works and maintenance in or near water; • GPP 8: Safe storage and disposal of used oils; • GPP 13: Vehicle washing and cleaning; • GPP 19: Vehicles: Service and Repair; • GPP 20: Dewatering underground ducts and chambers; • GPP 21: Pollution Incident Response Plans; • GPP22: Dealing with spills; and • GPP26: Safe storage – drums and intermediate bulk containers.	Water quality monitoring will be undertaken along South Killingholme Drain and potentially within Rosper Road Pools. If this monitoring demonstrates unsatisfactory levels of solids or other pollutants, measures will be implemented to control polluted discharge to watercourses. Pre-construction sediment contamination testing will be undertaken prior to works commencing. If material is considered to be contaminated, it will be disposed of to a licensed facility.	To be confirmed in the final CEMP

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility

The CEMPs and subsequent construction activity will also align with the following additional good practice guidance documents:

- British Standard BS8582 Code of practice for surface water management for development Sites (British Standards Institute (BSI), 2013a);
- British Standard BS6031:2009 Code of Practice for Earth Works (BSI, 2009);
- C741 Environmental good practice on site guide, 4th Edition (CIRIA, 2015c);
- Control of pollution from linear construction sites – Technical Guidance (CIRIA, 2006);
- C736F Containment systems for prevention of pollution (CIRIA, 2014);
- C609 Sustainable Drainage Systems, hydraulic, structural and water quality advice (CIRIA, 2004a);
- C753 The SuDS Manual (second edition) (CIRIA, 2015a);
- C624 Development and flood risk – Guidance for the construction industry (CIRIA, 2004b);
- C532 Control of water pollution from construction sites – Guidance for consultants and contractors (CIRIA, 2001);
- Environment Agency (2013) Pollution Prevention Pays in England and Wales; and
- Environment Agency (2021) Regulatory Position Statement: Temporary Water Discharges from Excavations.

The contractors will ensure that construction personnel are fully aware of the potential impact to water features associated with the proposed construction works and procedures to be followed in the event of an accidental pollution event occurring. This would be included in the site induction and training to be given to all personal working on the Sites, with an emphasis on procedures and guidance to reduce the risk of water pollution.

For each Site the Contractor will prepare a Pollution Prevention Plan which will include:

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	• the implementation of an effective temporary drainage system (e.g. identification of any existing surface water drainage networks and the prevention of ingress by construction site runoff (see below for further details); • careful storage and use of potentially polluting chemical substances (e.g. fuel, hydraulic fluids, or cementitious products) (see below for further details); • the specific measures and added precautions to be adopted where works are being undertaken in, over, under and generally in close proximity to water features; • spill kits will be available on site in all compounds, on mobile plant and where there are works close to water features. They will be checked regularly and topped up after use. Staff will be trained in their appropriate use; • an Emergency Spillage Plan will be prepared and will set out the specific action that shall be taken during a pollution incident and then afterwards to ensure lessons are learned and communicated to all staff on Site. This will include how the Environment Agency and the NELIDB will be informed immediately in the unlikely event of a suspected pollution incident; and • water quality monitoring of the works (using hand held water quality meters, visual and olfactory observations, and ad hoc water sampling as necessary). • Temporary drainage facilities will be provided during the construction phase and will be designed to ensure that there is appropriate storage on site to attenuate runoff but also to treat that runoff. It will be a contractual requirement of the contractors to ensure that runoff from the Sites does not cause pollution or flooding. Measures that will be considered for implementation for temporary drainage through the construction design and/or CEMPs include: • installation of measures such as construction swales, geotextile silt fences, earth bunds, straw bale and sand/ gravel bag walls, and appropriately sized settlement tanks/ ponds to control the movement of construction site runoff, prevent ingress into water features and reduce sediment load;		

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	• cut-off ditches, earth bunds, straw bale walls or geotextile silt-fences will need to be installed around excavations, exposed ground and stockpiles to prevent uncontrolled release of sediments from the Proposed Development; • site access points will be regularly cleaned to prevent build-up of dust and mud using options such as regular road sweepers or wheel washes; • a valve will be installed to isolate the settlement tank/ ponds in the event of a polluted discharge to allow this to be captured in the tank/pond and then disposed of safely; • placing arisings and temporary stockpiles at least 20m away from drainage systems and water features (on flat ground) and directing surface water away from stockpiles to prevent erosion. If areas located within Flood Zone 2 are to be utilised for the storage of construction materials, then a permit will be obtained from the Environment Agency. If present for more than two weeks, soil/earth stockpiles will be seeded to reduce risk of fine sediment running off them; • if necessary, proprietary measures such as temporary oil interceptors, lamella clarifiers or chemical flocculation can be used to provide additional protection or enhanced treatment, where risk assessment determines they may be required; and • all potentially polluted waters (including washdown areas, stockpiles and other areas of risk for water pollution) will have separate drainage and be tankered away from the Sites. During construction the storage and use of chemical substances such as fuel, other oils or cementitious products may lead to chemical spillages that can cause water pollution and harm the aquatic environment. The contractors' CEMPs will incorporate measures and will include as a minimum the following: • All chemicals will be stored in accordance with their Control of Substances Hazardous to Health (COSHH) guidelines; • Oil/ fuel will be stored in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001. Spill kits would be provided in areas of fuel/ oil storage, on mobile plant, and in areas where there are works close to water features;		

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	• Fuel and other chemicals are to be stored in secure locations within compounds other than when in use. They should be stored on hard standing with isolated drainage or within enclosed containers; Appropriate security measures will be implemented on the Site; • Refuelling of mobile plant will be undertaken by trained operatives in designated areas within compound areas and on hard standing with isolated drainage system. Certain large less mobile plant may need to be refuelled elsewhere on the Site by mobile bowser. In these circumstances an appropriate task specific risk assessment will need to be carried out by the Contractor. • An Emergency Spillage Plan will be produced for each Site, which site staff will have read and understood; • Containment measures will be implemented, including drip trays or plant nappies on mobile/ static plant, bunding or double-skinned tanks of fuels and oils; • The mixing and handling of materials will be undertaken in designated areas and away from surface water drains; • Plant and machinery will be inspected before each use to ensure they are in good working order. They shall be kept away from surface water features wherever possible and will have drip trays installed beneath oil tanks/ engines/ gearboxes and hydraulics, which will be checked and emptied regularly; • Designated waste management areas will be provided within the compound(s); • Concrete washout areas will be designed to ensure that there is no pathway for waste water to drain to a water feature directly or indirectly via existing land drainage, or to infiltrate to ground (e.g. repurposed skips or protected using a geotextile; • Exposed ground and stockpiles will be protected as appropriate and practicable to prevent windblown migration of potential contaminants. Water suppression will be used if there is a risk of fugitive dust emissions (see Chapter 6: Air Quality, ES Volume I). A septic tank or bioreactor is likely to be used for treatment of sanitary or domestic wastewater from offices/ administration/ welfare facilities during construction. Solids from the septic tank are regularly gulped and discharged into the Anglian Water foul drain sewer (located on site).		

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	Foundations and services will be designed and constructed to prevent the creation of pathways for the migration of contaminants and will be constructed of materials that are suitable for the ground conditions and designed use. No discharges from any self-contained wheel wash and localised wheel wash will be permitted to discharge into any surface water system.		
Suspended sediments in site runoff/ resuspension of suspended sediments	The movement and storage of construction and waste materials to and from the Sites, unstable exposed soils, excavated materials, in channel works, and from other construction activities, has the potential to give rise to suspended solids that could become entrained in surface water run-off from the Sites following rainfall. This creates a potential risk of increased sediment loads being discharged into the nearby surface water. With the measures set out in the above section including the implementation of a CEMP, the likelihood of this occurring will be low.	Water quality monitoring will be undertaken along South Killingholme Drain and potentially within Rosper Road Pools. If this monitoring demonstrates unsatisfactory levels of solids or other pollutants, measures will be implemented to control suspended solids or other polluted discharge to watercourses.	To be confirmed in the final CEMP
Temporary changes to morphology and loss of habitat due to diversions and in channel works	South Killingholme Drain passes across the VPI Site. The Drain is to be diverted to the south of the proposed VPI PCC plant. The diversion construction will follow best practice guidance, including: • excavation of the diversion channel in a dry, isolated working environment, retaining 'plugs' at the upstream and downstream end until it is completed; • removal the downstream plug first and then the upstream plug to prevent flow 'washing' through the new channel; • maintaining the existing channel through diversion construction, to prevent temporary changes to flood risk; • only allowing water to flow through the channel once all material/equipment has been removed, and the diversion channel has been created and permanently stabilised through vegetation or other sediment stabilisation methods, to prevent mobilisation of silt and sediment; • stockpiling of material excavated during formation of the diversion channel away from the channel edges (minimum 20 m) or protect	Water quality monitoring will be undertaken along South Killingholme Drain and potentially within Rosper Road Pools.	To be confirmed in the final CEMP

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	stockpiles, to prevent sediment run-off during rainfall or high flows; and • maintaining existing channel capacity through the diversion channel to prevent increased flood risk upstream or downstream.		
Temporary changes to flood risk due to construction activities	The CEMP will incorporate measures aimed at preventing an increase in flood risk during the construction works. Examples of measures that will be implemented in the areas of the Sites that are located in Flood Zones 2 and 3 include: • topsoil and other construction materials will be stored outside of the 1 in 100 year floodplain extent. If areas located within Flood Zone 2 are to be utilised for the storage of construction materials, then a permit will be obtained from the Environment Agency; • connectivity will be maintained between the floodplain and the River Humber, with no changes in ground levels within the floodplain as far as practicable; and • the construction site offices and supervisors will be notified of any potential flood occurring by use of the Floodline Warnings Direct service. The contractors for each Proposed Development will be required to produce Flood Risk Management Action Plans/ Method Statements, as part of the CEMPs, which will provide details of the response to an impending flood and include: • a 24 hour availability and ability to mobilise staff in the event of a flood warning; • the removal of all plant, machinery and material capable of being mobilised in a flood for the duration of any holiday close down period; • details of the evacuation and site closedown procedures; and • arrangements for removing any potentially hazardous material and anything capable of becoming entrained in floodwaters, from the temporary works areas. The following flood resilience measures will be included specific to the construction stage, subject to final design: • adequate containment of storage areas to ensure material does not wash away and cause pollution;		To be confirmed in the final CEMP

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	• inclusion into existing emergency response procedures; and • implementation of a Surface Water Management Strategy.		

Table 4A7: Geology, Hydrogeology and Land Contamination: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Impact on controlled waters	The surface water runoff will be controlled using appropriate drainage measures and segregating uncontaminated surface water from any potentially polluted waters, as well as impermeable surfacing to minimise infiltration into the ground where necessary. If piled foundations are proposed for the Proposed Developments, piling risk assessments will be undertaken in accordance with Environment Agency guidance. Pollution Plans agreed with the Environment Agency and North East Lindsey Internal Drainage Board will be produced and adhered to mitigate against accidental pollution. If dewatering of either the VPI Site or Phillips 66 Site is required during the construction phase of the Proposed Developments a water discharge activity (WDA) environmental permit from the Environment Agency to discharge to surface water or a trade effluent consent to discharge to foul sewer, agreed with the local sewerage undertaker, will need to be obtained. Washing out of vehicles or equipment will only take place in controlled areas. Suitable locations will be agreed upon through consultation with the Environment Agency and identified within the contractors' CEMPs. Stockpiled excavated material (temporary) will be located in a designated area of each of the Sites located away from watercourses to prevent run-off from the stockpile from entering surface water bodies. All areas of stockpiled material may be reseeded or otherwise covered temporarily if they are not to be used within three months. All areas of unused and exposed soil within the Sites following construction of the Proposed Developments will be reseeded or otherwise covered as soon as possible. Erosion protection matting	A ground investigation has been undertaken at the VPI Site which included installation of groundwater monitoring wells, groundwater monitoring and testing of groundwater. A ground investigation is also planned to be undertaken at the Phillips 66 Site. A Generic Quantitative Risk Assessment (GQRA) will be undertaken for the Sites and a Detailed Quantitative Risk Assessment (DQRA) may be required depending on the findings of the GQRA..	To be confirmed in the final CEMP

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	may also be used to minimise sediment being entrained by water flow or becoming entrained by the wind if allowed to dry out.		
Impact on human receptors through direct contact with contamination and inhalation of dust and/or soil derived vapours	The potential impacts specific to construction workers during construction of the Proposed Developments at both the VPI Site and Phillips 66 Site will be managed by adherence to the working practices in accordance with Construction Industry Research and Information Association (CIRIA) C741 Environmental Good Practice on Site 4th Edition (CIRIA, 2015), including: • measures to minimise dust generation; • provision of personal protective equipment (PPE), such as gloves, barrier cream, overalls etc. to minimise direct contact with soils; • provision of adequate hygiene facilities and clean welfare facilities for all construction site workers; • monitoring of confined spaces for potential ground gas accumulations, restricting access to confined spaces; and • preparation and adoption of a site and task specific health and safety plan.		To be confirmed in the final CEMP
Impact on soil resource	There are no universally applicable measures available to mitigate the direct loss of agricultural land. The primary measures to mitigate the impacts on soil resources would be set out in a Soil Management Strategy, to be prepared during the detailed design stage. The Soil Management Strategy would include a Soil Resource Plan and Soil Handling Strategy which would confirm the different soil types; the most appropriate re-use for the different types of soils; and the proposed methods for handling, storing and replacing soils on-site. This is applicable to the land within the VPI Site, which partially overlaps with the site boundary of the Phillips 66 Site.	Soil surveys	To be confirmed in the final CEMP
Impact on development infrastructure	Materials used in infrastructure will be designed and specified taking due account of any aggressive ground conditions identified by the ground investigations. The assessment methodology set out in BRE Special Digest 1 (2005) has been adopted to determine the appropriate concrete classification in relation to the protection of buried concrete against sulphate attack. The design specification may include the import of engineered fill to improve the bearing capacity of the soil. The specification of materials		To be confirmed in the final CEMP

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	to be used for the construction of the Proposed Developments will be specific to the ground conditions into which they will be placed. The ground investigations will be used to determine the suitable founding material which will be required across the Phillips 66 Site and the VPI Site. Any residual risks relating to soft ground will be addressed during the detailed design stage, taking into account the ground investigation results. The specification design will be determined using data from proposed ground investigation and chemical analysis of soil samples analysing the BRE Sulphate suite.		

Table 4A8: Landscape and Visual Amenity: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
The visibility of proposed structures (temporary and permanent), effecting the perceptual qualities and tranquillity of a character area.	None proposed	n/a	

Table 4A9: Cultural Heritage: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Potential impacts to heritage assets as a result of the direct and permanent loss of heritage assets during construction activities Alteration of the setting of the heritage assets due to visual intrusion (of the works/ elements of the works) and a potential increased noise as heard from the heritage asset Physical impacts on known or unknown heritage assets arising from construction activities such as earthworks excavation, the formation of construction compounds and the installation of drainage and/ or service infrastructure Physical impacts on landscapes of historical, cultural, or archaeological significance as a consequence of construction, such as the loss of important elements of the landscape as a result of site clearance The disturbance, compaction, or removal of previously unrecorded sub-surface archaeological deposits through construction activities	Where possible embedded mitigation measures, or mitigation by design, has been incorporated into the design of the Proposed Development. For this development the integrated heritage measures consists of a programme of archaeological evaluations: • VPI Site – A programme of geotechnical survey and geophysical survey followed by a programme of archaeological trial trench evaluation and paleoenvironmental evaluation. This work will inform on the presence, extent, character and nature of any archaeological features and deposits present at this site. • Phillips 66 Site - A geotechnical survey will be undertaken which will be monitored by a suitable geoarchaeologist, and the data collected used to inform as to the presence / degrees of preservation of any archaeological features and deposits at this Site. During the construction phase of the Proposed Developments direct physical impact upon archaeological remains could be reduced by the implementation of a number of mitigation measures either on their own or in combination with each other. These theoretical options are: 1. Mitigation by avoidance - employing this mitigation measure entails a proposed development being designed in such a way as to completely avoid any impacts upon any known heritage assets i.e. all elements of the development are designed in such a way so as to completely avoid all known heritage assets. This would also naturally result in preservation in situ of these assets; 2. Mitigation by preservation in situ – employing this mitigation measure entails a proposed development being designed in such a way that whilst work may impact heritage assets, the impact does not damage the asset which effectively preserves the asset where it is e.g. placing landscape bunds over known heritage assets rather than ground penetrative development elements (buildings etc); and 3. Mitigation by investigation and recording - where the other two options are not feasible a proportionate programme of detailed archaeological, investigation, recording, analysis, and publication allows the data the assets represent to be preserved when the	Geotechnical and Geophysical surveys will be undertaken. Liaison with the Heritage Environment Officer for NLC will determine if any further Archaeological works are required.	To be confirmed in the final CEMP.

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	physical remains of the asset itself cannot be. This option is typically implemented when implementation of the other two options is not feasible. The appropriate and proportionate mitigation methodology will be confirmed in the final CEMP and implemented during construction		

Table 4A10: Ecology and Nature Conservation: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Loss of vegetation within the Sites.	Both applications include a commitment to achieve 10% Biodiversity Net Gain (BNG). The preparation of BNG solutions for each Proposed Development is ongoing. Whilst the precise solutions are still being discussed, there is confidence that the BNG solution for each Proposed Development will fully mitigate the adverse effects identified.		Client
	Clearance of any vegetation suitable for use by nesting birds will be undertaken outside the breeding season, typically early March to mid-August inclusive for most species. Where this is not possible, the area would be searched for active nests by an ecologist in advance of the works. Any active nests (those being built, or with eggs or young) would be cordoned off and protected until the young have fledged.		Contractor
	Features suitable for use by roosting bats can appear relatively quicky, for example, as a result of disused woodpecker nest holes and storm damage. Any trees subject to felling will therefore be inspected for potential roost features in advance of work by an ecologist with a Natural England bat licence.		Contractor
Diversion and culverting of sections of South Killingholme Drain within the VPI Site and along Rosper Road (for the new VPI Site access)	A water vole survey will be undertaken of any suitable watercourse prior to partial culverting, diversion work or any work affecting the bank face or channel.		Contractor
	Excavations will be covered overnight or will have a batter or scaffold board at one end to provide a means of escape for any animal that might fall in		
Disturbance to sensitive habitats within the vicinity of the Site.	The construction phase of each of the Proposed Developments will comply with industry good practice and environmental protection legislation in relation to the prevention of surface and ground water pollution, dust management, noise prevention and artificial light pollution.		Contractor
	Temporary lighting will be managed so as to avoid unnecessary light spill onto sensitive habitats		

Table 4A11: Climate Change: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
The release of greenhouse emissions	Proposed measures to reduce GHG emissions through: • Reducing fuel consumption on site in vehicles, equipment, and plant through minimisation of idling, and switching off when not being used. Preference of lower carbon fuels such as HVO fuel, biodiesel or electric powered plant instead of traditional fossil fuels; • Reducing water consumption in the on-site amenity blocks and construction activities (including dampening down as part of dust mitigation); • Minimisation of transportation of materials to the Sites, by implementing measures set out in Construction Traffic Management Plan (Appendix 8B, ES Volume II); and • Setting minimum rates for material recycling and re-use, through a SWMP Reducing construction works by re-using, replacing or upgrading the existing water connection infrastructure on Site, and using techniques such as the 'no dig' trenchless construction where practicable. Consideration in specifying construction materials to options for lower embodied carbon emissions i.e. higher recycled content, where this is reasonably practicable. Construction staff are anticipated to travel to the Proposed Developments via the existing road and local networks. Minimisation of emissions through worker commuting by: • Encouraging group transport by the provision of minibuses; • Encouraging car sharing by the provisions of car share schemes; • Provision of facilities for cyclists; • On-site storage to reduce the number of tools and PPE workers would need to carry each day. This would assist those considering cycling or car sharing; and • Provision of information on public transport links.	The appointed contractors at a later stage will measure, monitor, and report energy and water consumption and GHG emissions during construction of each Proposed Development.	To be confirmed in the final CEMP.

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Extreme temperatures	The Contractor will monitor weather forecasts and plan works accordingly, protecting workers and resources from any extreme weather conditions. Measures and actions to combat extreme heat conditions (e.g. avoid working on hot summer days, welfare training for identifying heat illness, training for working in hot conditions, work in shaded areas, plan major activities for cooler parts of the day, wear loose fitting/breathable clothing). Consider inspection of vulnerable construction assets after a hot day.		The contractor
Extreme Rainfall	Suitable storage and bunding of pollutants to protect from high rainfall events. This will be further supported by the Site Emergency Response Plan.		To be confirmed in the final CEMP.
Sea level rise	Appropriate surface water drainage and attenuation will be provided for the construction phase to manage the risk of flooding.		To be confirmed in the final CEMP.
Storms	The Contractor will monitor weather forecasts and receive Environment Agency flood alerts and plan works accordingly, protecting workers and resources from any extreme weather conditions such as storms, flooding		The contractor

Table 4A12: Materials and Waste: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Waste generated from; site remediation and preparation, demolition, and site construction.	The following mitigation measures have been considered and implemented where applicable: • Design for reuse and recovery: identifying, securing and using materials that already exist on site, or can be sourced from other projects; • Design for materials optimisation: simplifying layout and form to minimise material use, using standard design parameters, balancing cut and fill, maximising the use of renewable materials and materials with recycled content; • Design for off-site construction: maximising the use of pre-fabricated structure and components, encouraging a process of assembly rather than construction; • Design for the future (deconstruction and flexibility): identify how materials can be designed to be more easily adapted over an asset lifetime and how deconstructability and demountability of elements can be maximised at end of first life; • Design for waste and material asset efficient procurement: identify and specify materials that can be acquired responsibly, in accordance with a recognised industry standard; and • Engineering plan configurations and layouts that show how the most effective use of materials and arisings can be achieved. If required, a Materials Management Plan (MMP) will be developed under the CL:AIRE Definition of Waste: Development Industry Code of Practice by the appointed construction contractors to support the re-use of excavated materials, minimise off-site disposal; and to demonstrate the necessary lines of evidence to support the proper reuse/offsite disposal of materials and ensure compliance with regulatory guidance.		To be confirmed in the final CEMP.

Table 4A13: Major Accidents and Disasters: Construction Mitigation, Enhancement, Monitoring and Additional Survey Requirements

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Fire/ explosion and risk of release of harmful gas.	Control measures will be implemented via the CEMPs to prevent fires and emergency procedures will be prepared and implemented to respond to fires, in the event that they were to arise.		To be confirmed in the final CEMP.
Extreme weather (flooding)	Risk to be managed through provision of a Flood Warning and Evacuation Plan (FWEP) to reduce the risk to site occupants and infrastructure from flooding and detail the emergency evacuation procedures required in the event of a breach of the tidal flood defences. Appropriate storage of materials on the Sites to prevent pollution in the event of flooding.		To be confirmed in the final CEMP.
Spillage/ leak of pollutants into groundwater/ surface water during construction activities.	Prior to ground investigations, service providers will be contacted before mobilisation and known services marked out. The Sites will also be scanned using Cable Avoidance Tool (CAT) and Ground Penetrating Radar (GPR) before ground works, and hand dug investigation where necessary. In addition to this, drawings and information related to current and previous structures would be obtained to further reduce the risk of striking unidentified tanks. CEMPs will be implemented to manage storage of construction materials. All piling and penetrative foundation works will be carried out in accordance with approved method statements to prevent contamination of the underlying soils and groundwater.	A ground investigation will be undertaken prior to construction	To be confirmed in the final CEMP.
Risk of vandalism/ arson leading to fires/ explosions.	Appropriate security measures will be installed at the construction site, including site security and fencing to prevent trespassers (where required in addition to existing security fencing at the Sites) and mitigate this risk to ALARP. Measures will include compliance with existing security procedures; controlled vehicular accesses; perimeter fencing and CCTV.		To be confirmed in the final CEMP.

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
Ground / excavation collapse	To reduce risks associated with ground instability, industry standard construction methods/ design features appropriate to the context of the Sites will be used, recognising that the existing VPI Immingham CHP Plant and Phillips 66 Humber Refinery have been successfully built and operated at the Sites for many years.		To be confirmed in the final CEMP.
Major road traffic accident	Risks to road safety have been assessed as negligible in Chapter 8: Traffic and Transportation and mitigation measures will include: • accesses from the public highways Rosper Road and Eastfield Road will use Banksmen where necessary to manage the movement of HGVs on and off the public highway; and • warning signage will be provided on the approaches to the access junctions.		To be confirmed in the final CEMP.
Aircraft/ drone impact	The Sites are located in an area which does not have a high density of air traffic. It is expected that the Applicants would continue to consult with relevant airports (in particular Humberside Airport)/ Civil Aviation Authority (CAA) to manage interfaces and define appropriate control measures. The Applicants understand that they will be required to follow relevant guidance in relation to cranes set out in Appendix B of CAP738: Safeguarding of Aerodromes (CAA, 2020) and related guidance in respect of notification procedures and aviation warning lighting and lighting to be fitted to tall construction machinery that exceeds relevant limits.		To be confirmed in the final CEMP.
Pandemic	If a pandemic was to disrupt the construction of the Proposed Developments, measures would be adopted in line with current UK Government guidance and decisions regarding any site closure would be taken considering the need to safely close the construction site, if required and provide necessary security.		To be confirmed in the final CEMP.
Increased risk associated with neighbouring on-Site hazardous facilities/ domino effects	The Applicants will engage with the neighbouring facilities where considered necessary to understand the risks and control measures. It is assumed that existing safety precautions at neighbouring industrial sites, along with the implementation of CEMPs at the Sites, will mitigate the risk of domino effects occurring.		To be confirmed in the final CEMP.

Potential Impact	Mitigation Measures	Monitoring and Additional Survey Requirements	Responsibility
	As the COMAH facilities and the Proposed Developments are within the control of the Applicants, any risks can be appropriately managed. Where relevant, early engagement with the emergency services would be undertaken to provide assurance regarding access for emergency services during construction.		
Rail accidents	The design of the crossing and construction methods will be agreed with Network Rail to ensure the crossing does not introduce any new risk to railway users or assets.		To be confirmed in the final CEMP.
Utilities strikes/ failure (gas, electricity, water, oil, communications)	24/7 on-Site emergency response provision. The existing emergency plans in place at the Sites will be adhered to. Any additional emergency arrangements that are required will be written into the final CEMPs and implemented by the contractors. The final CEMPs will set out requirements for emergency planning and response. Utilities connections will be protected at all times during the construction works. Inspection pits for buried utilities wil be performed and clearances clearly demarcated at each Site. Critical services may require back up power supply or batteries.		To be confirmed in the final CEMP.

4A.3.2 Implementation and Operation

4A.3.2.1 The final CEMPs will set out all roles, responsibilities and actions required in respect of implementation of the measures described in this Outline CEMP, including:

- an organogram showing team roles, names and responsibilities;
- training requirements for relevant personnel on environmental topics;
- information on site briefings and toolbox talks that will be used to equip relevant staff with the necessary level of knowledge to follow environmental control procedures;
- measures to advise employees of changing circumstances as work progresses;
- communication methods (e.g., updates via the Applicant's website(s));
- document control; and
- environmental emergency procedures.

4A.3.2.2 All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan unless otherwise agreed with the relevant planning authority.

4A.3.3 Checking and Corrective Action

Monitoring

4A.3.3.1 Environmental monitoring of impacts will be undertaken throughout the construction phase. In addition to any monitoring specified in other licences and consents (e.g. under Protected Species Licensing if required), the requirements of the CEMP specified in Tables 3-13 will be closely monitored.

4A.3.3.2 As part of the monitoring process, the appointed contractors will allocate a designated Environmental Site Officer(s), who would be present on-site throughout the construction, including when new activities are commencing. The Environmental Site Officer will observe site activities and report any deviations from the final CEMPs in a log book, along with the action taken and general conditions at the time. The Applicants will be informed of any deviations from the final CEMPs as soon as possible following identification of such issues. The Environmental Site Officer will also assist the Applicants with day-to-day contact with NLC, and other regulatory agencies.

4A.3.3.3 During construction, the Environmental Site Officers will conduct regular walkover surveys to ensure all requirements of the final CEMPs are being met. Action from these surveys will be documented on an Environmental Action Schedule, discussed with the Site Foreman for programming requirements and issued weekly for actioning.

4A.3.3.4 The Environmental Site Officers will arrange regular formal inspections to ensure the requirements of the final CEMPs are being met. After completion of the works, the Environmental Site Officer will conduct a final review.

Records

4A.3.3.5 The Environmental Site Officers will retain records of environmental monitoring and implementation of the final CEMP. This will allow provision of evidence that the final CEMP is being implemented effectively. These records will include:

- an Environmental Action Schedule;
- records of licences, permits and approvals;
- results of inspections;
- other environmental surveys and investigations; and
- environmental equipment test records.

4A.3.3.6 The final CEMP will be a live document and as such updated regularly, with a full review on at least a quarterly basis throughout construction.

Management Review

4A.3.3.7 The final CEMPs will be signed off on completion of the construction works. The operators of the Proposed Development Sites will then implement and maintain an Environment Management System (EMS).

4A.4. References

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CL:AIRE Definition of Waste: Development Industry Code of Practice. Available at: https://www.claire.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dow-cop-main-document

Defra (2009) Construction Code of Practice for the Sustainable Use of Soil on Development Sites. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/fil

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4A.1 FRAMEWORK SITE WASTE MANAGEMENT PLAN (SWMP)

4A.A.1 Introduction

4A.A.1.1 This Framework Site Waste Management Plan (SWMP) provides an outline waste management strategy for the construction phase, considering likely waste arising from construction based activities such as earthworks, and addresses how these would be managed through application of the principles of the waste hierarchy as identified within the Waste Framework Directive (European Commission, 2008). Plate A.1 shows the waste hierarchy.

4A.A.1.2 This Framework SWMP does not replace the requirement for the completion of a construction stage SWMP. The Framework SWMP presents the approach that would be adopted as a minimum throughout construction and forms a framework for the approach of the construction stage SWMP.

4A.A.1.3 Waste Management Legislation and Policy Context

4A.A.2 Legislative Background

4A.A.2.1 Relevant waste legislation would be complied with during construction. Waste legislation (principally originating from European Directives) includes (but is not limited to) those listed below:

- Control of Pollution (Amendment) Act 1989 (HM Government, 1989);
- Environmental Protection Act 1990 (HM Government, 1990);
- Environmental Protection (Duty of Care) Regulations 1991 (HM Government, 1991);
- Controlled Waste Regulations 2012 (HM Government, 2012);
- Environment Act 1995 (HM Government, 1995);
- The Hazardous Waste (England and Wales) Regulations 2005 (HM Government, 2005); The Environmental Permitting (England and Wales) Regulations 2016 (HM Government, 2016);
- Site Waste Management Regulations 2008 (HM Government, 2008);
- The Environmental Damage (Prevention and Remediation) Regulations 2015 (HM Government, 2015); and
- The Waste (England and Wales) Regulations 2011 (as amended) (HM Government, 2011).

4A.A.2.2 The Waste (England and Wales) Regulations 2011 (as amended) set the legal basis for the 'Duty of Care' for the management of waste in England and Wales.

4A.A.2.3 Note that this list includes base legislative references only – a number of regulations have also been amended.

4A.A.3 National Planning Policy

4A.A.3.1 In England, waste management strategies and principles are set out in a number of documents:

- Waste Strategy 2000 (subsequently built upon by the Waste Strategy for England (Department for Environment, Food and Rural Affairs, 2007) introduced new underlying principles of sustainable waste management, some key aspects of which are outlined in Table A.1.
- National Planning Policy Framework (NPPF) 2019 (Department for Communities and Local Government, 2019) sets out the Government's objectives in order to help achieve sustainable development. The framework does not include specific waste policies. Rather, these have been published as part of the National Waste Management Plan for England (Department for Environment, Food and Rural Affairs, 2021).
- the Overarching National Policy Statement for Energy (EN-1) outlines that the applicant should prepare a SWMP and provides guidance on sustainable waste management techniques; and

- the National Planning Policy for Waste (NPPW) (Department for Communities and Local Government, 2014) provides guidance of relevance to the Proposed Developments in outlining that it is the responsibility of the local planning authority to ensure that non-waste related development does not impact on existing waste management facilities and does not prejudice implementation of the waste hierarchy or the efficient operation of such facilities. Similarly, there is a requirement that new, non-waste development makes sufficient provision for waste management and promotes good design to secure the integration of waste management facilities with the rest of the development. NPPW requires the handling of waste arising from the construction such that a development maximises reuse/recovery opportunities and minimises off-site disposal.

4A.A.3.2 Taking this into account, the arrangements described and defined within the SWMP should include information on the proposed waste recovery and disposal system for all waste generated by the Proposed Developments, and an assessment of the impact of the waste arising from the Proposed Developments on the capacity of waste management facilities to deal with other waste arising in the area.

4A.A.3.3 The appointed contractors should seek to minimise the volume of waste produced and the volume of waste sent for disposal.

4A.A.3.4 The appointed contractors should propose an effective system for managing hazardous and non-hazardous waste arising during construction.

4A.A.3.5 The appointed contractors should demonstrate:

- any such waste would be properly managed, both on-site and off-site;
- the waste can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area; and
- adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent to disposal, except where that is the best overall environmental outcome.

4A.A.4 Policy Relating to Specific Waste Types

4A.A.4.1 In regard to Construction, Demolition and Excavation (CD&E) Waste, the EU Waste Framework Directive (European Commission, 2008) has set a recovery target of 70% of construction and demolition waste by 2020.

4A.A.5 Local Planning Policy

4A.A.5.1 NLC is the waste disposal authority for the Site. NLC's waste hierarchy provided within the North Lincolnshire Waste Strategy (NLC, 2012) gives priority to preventing waste and if waste is created priority is then given to reuse, then recycling, then recovery and lastly disposal.

4A.A.6 Approach to Waste Management

4A.A.6.1 The Applicants are committed to delivering developments that are sustainable in regard to matters relating to waste management and will comply with the relevant statutory requirements (as detailed above), which are underpinned at a national level by the NPPW. This requirement will be passed onto the contractors.

4A.A.6.2 Waste elimination will start as early as possible and the contractor and their design team will work in conjunction with the Applicants to design and plan waste minimisation.

4A.A.6.3 In addition, an effective construction phase SWMP will be prepared which will identify, formalise and communicate waste management good site practice and responsibilities during the construction.

4A.A.6.4 The proposed construction phase SWMPs will identify the types and quantities of waste anticipated to be generated, along with the definition of suitable disposal routes. The construction phase SWMPs will

also include details as to how material reuse and recycling options will be maximised. The construction phase SWMPs will be maintained as a live document, to be updated and monitored by the contractor, in order to demonstrate compliance with the Waste Duty of Care and other relevant regulations.

4A.A.6.5 The SWMPs will require that the contractors segregate waste streams on-site, prior to them being taken to a waste facility for recycling or disposal. All waste removal from the Sites will be undertaken by fully licensed waste carriers and taken to permitted waste facilities.

4A.A.7 Waste Types and Actions

4A.A.7.1 It is anticipated that up to 100,000 m^3 of soils may need to be disposed off site and up to 165,00 m^3 of soils may need to be imported as part of the provision of a suitable platform for foundations and buildings/ equipment across the Proposed Developments. These materials would be removed from/ delivered to the Proposed Development Site via HGV. All soils will be managed in accordance with the Department for the Environment, Food and Rural Affairs (Defra) Construction Code of Practice for the Sustainable Use of Soil on Development Sites (Defra, 2009) to minimise impacts on soil structure and quality.

4A.A.7.2 Spoil which cannot be re-used will be removed from site for re-use, treatment or disposal at a permitted facility. The re-use of excavated materials during construction will be governed by either a Materials Management Plan developed in accordance with relevant guidance including 'The Definition of Waste: Development Industry Code of Practice' (CL:AIRE, 2011), an environmental permit or a relevant exemption.

4A.A.7.3 A further source of construction waste would relate to packaging waste associated with materials used during construction.

4A.A.7.4 Although, at this stage it is not possible to confirm the anticipated type and estimated volumes of waste to be produced from construction; Table A.2 provides a summary of the anticipated waste types and how each waste type is expected to be managed to reduce adverse impacts.

4A.A.8 Waste Minimisation Actions and Mitigation

4A.A.8.1 Waste minimisation actions relating to site generated construction waste will include consideration of:

- agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme;
- implementation of a 'just-in-time' material delivery system, as far as reasonably practical, to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste;
- attention to material quantity requirements to avoid over-ordering and generation of waste materials;
- re-use of materials wherever feasible;
- segregation of waste at source where practical; and
- re-use and recycling of materials off-site where re-use on-site is not practical (e.g. through use of an off-site waste segregation facility and re-sale for direct re-use or re-processing).

4A.A.9 Additional Actions for Dealing with Waste

4A.A.9.1 In addition to the waste management measures as detailed in the 'Approach to Waste Management' section above, there are actions that will be introduced as part of the construction SWMPs which would contribute to the general reduction of waste generation during construction, including:

- appointment of an Environmental Site Officer who will hold overall responsibility for waste management, coordinate all waste and environmental issues on-site, monitor waste data and identify training needs. Sites with such personnel tend to perform better in managing waste;
- accurate record keeping of waste types, volumes and disposal routes and destinations;

- staff awareness training to ensure all personnel know the correct procedures on-site for waste segregation, disposal and actively promote recycling onsite through clear signage;
- setting of targets/ Key Performance Indicators (KPIs) for waste recycling and reduction; and
- stablishing a good management structure, which will allow prompt decision making relating to improvements in waste management and recycling initiatives.

4A.A.10 Indicative Roles and Responsibilities

4A.A.10.1 Personnel at all levels have a role in managing materials and waste correctly, however typical roles and responsibilities that may be defined as part of both the construction and operational phase SWMPs (not an exhaustive list) are summarised as follows:

- Environmental Site Officer
  - responsible for the overall management, co-ordination and dissemination of the project waste management requirements through the final CEMPs;
  - supported by the Site Waste Management Representative, has responsibility for legal compliance, preparation of plans (including the construction phase SWMPs), reviewing waste data, investigating incidents, near misses and non-conformances and organising site and waste audits; and
  - development of training presentations and task briefings/ toolbox talks for construction staff and maintaining training records and certificates of competence.
- Site Foreman
  - responsible for ensuring a system is implemented that identifies and manages the waste being produced;
  - implements a construction phase SWMPs as a ‘live’ document, identifying an appropriate strategy and KPIs; and
  - co-ordinates waste management on-site.
- Site Waste Management Representative
  - co-ordinates the identification of materials for re-use or recycling and identifies opportunities for waste reduction;
  - provides staff training;
  - ensures that all waste storage containers are accurately labelled to show all site workers where to deposit specific materials; and
  - liaises with the management team to ensure the appropriate management of incoming materials, the establishment of waste management contracts, and the provision of receptacles.
- Site Personnel (as relevant)
  - reduction of materials ordered to reduce the amount of waste produced;
  - correct handling and storage of materials to prevent damage and wastage;
  - co-ordinating the reuse or recycling of materials for alternative usage where possible;
  - correct handling of waste materials by containment, separation and storage;
  - labelling of waste storage containers to show where to deposit specific materials;
  - checking that containers are stored safely and securely; and
  - monitoring the disposal of waste to appropriate sites, with correct documentation completed.

4A.A.10.2 The construction phase SWMPs will further define and assign the responsibilities of personnel at the Sites in relation to waste management.

4A.A.11 Audit Monitoring and Review

4A.A.11.1 To be most effective, it is important that the construction phase SWMPs are live documents which, like the final CEMPs, are regularly reviewed and updated. Waste will be monitored routinely. Monitoring of waste and implementation of waste management plans will assist in achieving waste minimisation obligations, as detailed within the construction phase SWMPs as well as helping to identify opportunities for improvements and potential cost reductions.

4A.A.11.2 The following is not an exhaustive list and represents typical activities undertaken at each stage.

4A.A.11.3 Waste monitoring (undertaken quarterly as a minimum), including:

- updating the construction phase SWMPs at regular intervals to illustrate changes to the Proposed Development Sites, such as waste types, volumes, sub-contractors and changes in personnel and to drive continual improvement in promoting management of wastes as high up the waste hierarchy as possible;
- monitoring compliance with relevant legislation and regulations and checking that the construction phase SWMPs is being implemented appropriately, monitored through regular Site inspections;
- completing monthly logs detailing the volume of material brought on-site and the volume of waste generated, including the type and route of disposal/ recovery; and
- collating monthly data detailing all waste movements into a quarterly report to be submitted to the Environmental Site Officer for use during the annual waste audit and waste review.

4A.A.11.4 Waste auditing (undertaken annually as a minimum), including collating/ reviewing:

- operations/ staffing levels, composition, waste monitoring reports and quantity of waste generated;
- current waste management procedures;
- existing activities including, for example, key roles and responsibilities; and
- an estimation of waste volumes including a comparison from previous and projected years (where appropriate);

4A.A.11.5 The results of the waste audit will be used to inform the waste review.

4A.A.11.6 A waste review would be undertaken following the completion of a waste audit and the completion of regular waste monitoring. The review would provide an opportunity to consider the suitability of the management strategies that are in place in relation to relevant regulations and best practice procedures, and identify areas for improvement, lessons to be learnt and improved cost saving and sustainability; and the review would consider monthly, quarterly and annual reports, compare waste related data that has been collected and include guidance and proposals to drive continual improvement.

4A.A.11.7 The monitoring procedures detailed above will be undertaken as a minimum and defined within the construction phase SWMPs.

4A.A.12 Conclusion and Summary

4A.A.12.1 This Framework SWMP presents the approach that will be implemented during the construction phase.

4A.A.12.2 This Plan illustrates and seeks to guide the appointed contractors and Applicants to:

- recognise that the construction phase SWMPs will underpin the approach to waste management for the Proposed Developments construction phases;

- define indicative roles and responsibilities within the organisations to ensure those responsible for waste management are aware of their remit;
- demonstrate that key waste legislation will be met, and local and regional drivers will be fulfilled, including reviewing procedures should waste legislation and guidance be amended or updated in future;
- demonstrate that the construction phases will minimise waste as far as reasonably practicable in accordance with best practice via the implementation of a construction phase SWMPs;
- develop a proactive and coordinated approach to sustainable waste management, reuse and recycling that will be encouraged and implemented at the Proposed Development Sites through a number of recycling initiatives to divert as much recyclable waste as possible from landfill; and
- record and audit waste movement during construction.

4A.A.12.3 Where individual waste types have not been identified within this Framework SWMP, these will be assessed in the construction phase SWMPs.

4A.A.13 References

CIRIA (2010) 'Environmental good practice on site' (third edition). [Available at] https://www.ciria.org/ProductExcerpts/C692.aspx

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