Noise Management Plan

Site details

Site name: Humber Refinery

Site address: Eastfield Rd, South Killingholme, Immingham, DN40 3DW

Operator name: Phillips 66 Ltd

Permit number: EPR/UP3230LR Humber Refinery

Who this plan is for

Humber refinery staff will use this Noise Management Plan (NMP) to manage the noise on and from the Humber Refinery Installation. The Environmental Services Group (ESG) will be responsible for the NMP – but more specifically the Environmental Leader. The Emergency Response Team will be made aware of this document through their in-house training. The NMP will be held on Livelink within the Environmental Management System (EMS).

Document owner

Document author: Arup – reviewed by Sarah Catmull

Version number: R01

List of revisions

Revision number	Revision authorised by	Date submitted to Environment Agency	Revision owner
1		January 2024	

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1. Introduction

This Noise Management Plan (NMP) has been prepared for Phillips 66 to manage noise levels on, and from, the Humber Refinery.

The NMP has been produced to support the Environmental Permit variation application (Permit number: EPR/UP3230LR) for the Humber Refinery to enable the installation of a Post-Combustion Carbon Capture (PCC) plant and associated facilities.

1.1 Site description

The Humber Refinery, operated by Phillips 66, processes crude oil and supplies transport fuel for the UK, among many other specialist products. It operates 24 hours a day, 7 days a week, and consists of many process departments and process blocks.

The addition of a PCC plant is proposed, to prevent the emission of up to 0.5 million tonnes per annum of carbon dioxide (CO_2) via the PCC retrofit to the Fluid Catalytic Cracker (FCC) stack at the Humber Refinery. The facilities will be designed to operate 24 hours per day, 7 days per week, with programmed offline periods for maintenance approximately every 6 years.

The Humber Refinery is set within a heavily industrialised area, surrounded by other refineries, such as Lindsey Oil Refinery, and power plants, such as Immingham Combined Heat and Power plant.

The closest noise sensitive receptors are approximately 500 metres away, in the village of South Killingholme.

1.2 Maintenance and review of the NMP

The Environmental Services Group (ESG) will be responsible for the NMP – but more specifically the Environmental Leader. The NMP will be held on Livelink within the Refinery's Environmental Management System (EMS) and reviewed every 5 years.

The Emergency Response Team (ERT) conduct weekly noise monitoring in the local area and are trained in house by the Environmental Leader.

Phillips 66 investigate all noise complaints and enquiries received (attributable and non-attributable), and keep a log of all complaints and any actions taken. All complaints received, either directly by the company or via other channels, are logged and kept open as action items until they have been satisfactorily resolved. Resolution of noise complaints involves investigation of the origin of the noise and implementation of the appropriate action by the ESG.

1.3 Relevant sector guidance on which this NMP is based

Relevant guidance for noise emissions from industrial plants has informed this noise management plan:

• Industrial Emissions Directive 2010/75/EU Integrated Pollution Prevention and Control 2015 Best Available Techniques (BAT) Reference Document for Refining of Mineral Oil and Gas (Refineries BRef)

• Commission Implementing Decision (EU) 2014/738/EU of 9 October 2014 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the refining of mineral oil and gas (Refineries BATc)

• Environment Agency 2021 - Post-combustion carbon dioxide capture: Best Available Techniques (BAT) Guidance[1], and accompanying BAT Review for New Build and Retrofit Post-Combustion Carbon Dioxide Capture Using Amine-Based Technologies for Power and CHP Plants Fuelled by Gas and Biomass and for Post-Combustion Carbon Dioxide Capture Using Amine-Based and Hot Potassium Carbonate Technologies on EfW Plant as Emerging Technologies under the IED for the UK[2]

2. Receptors

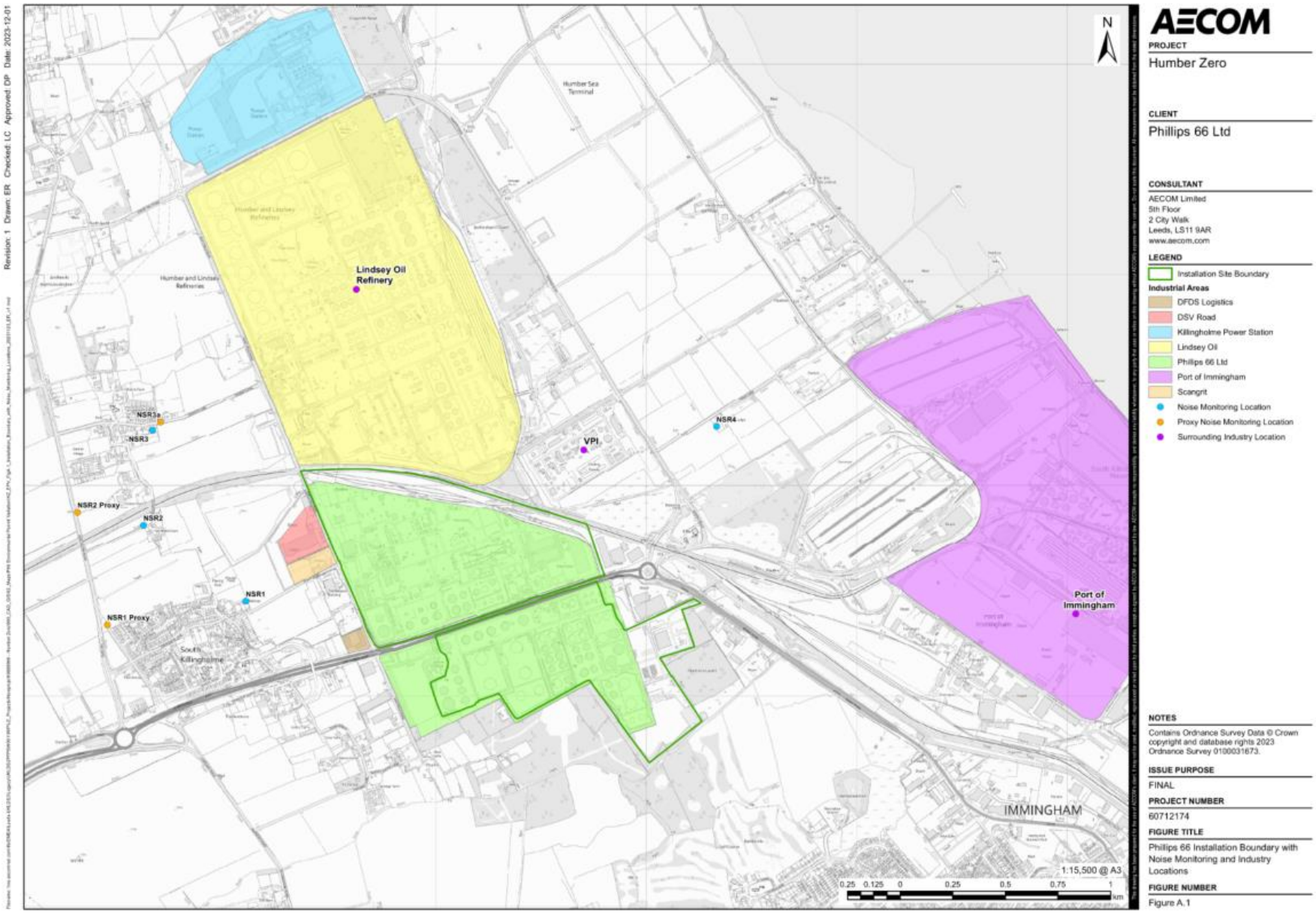
2.1. Receptor List

Table 2.1. Receptor list

Receptor reference	Land use e.g. house, school, hospital, commercial	Direction from site (north, south, east, west)	Approximate distance to site boundary (m)
NSR 1	Residential, Staple Road	West	520
NSR 2	Residential, Clarks Road	North-west	790
NSR 3	Residential, Church Lane	North-west	770
NSR 4	Residential, Hazel Dene, Marsh Lane	East	1,650

[1] Available at: Post-combustion carbon dioxide capture: best available techniques (BAT) - GOV.UK (www.gov.uk)
[2] Available at: Best Available Technology (BAT) information for CCS | UKCCSRC

Figure 2.1 Map of site location and receptors



3. Noise sources and processes

3.1 Noise impact assessment (NIA) conclusion

A noise impact assessment (NIA) has been carried out for the PCC plant. The BS4142 assessment focused on NSRs 1, 2, and 3 as the noise climate at NSR 4 is dominated by noise from the Immingham Combined Heat and Power plant.

The NIA assessed a number of scenarios, due to the challenges encountered in monitoring the baseline noise climate.

Scenario 1 used a baseline from ambient noise surveys carried out in 2022, and concluded there would be up to 2 dB increase in the excess of rating level over background sound level at NSRs 1, 2 and 3, when the existing Humber Refinery and the PCC plant are combined, compared to the BS 4142 assessment for the existing Humber Refinery operations.

For Scenario 2, which was based on 2006 noise model predictions, there would be up to 1 dB increase in the excess of rating level over background sound level at NSR 1, when the existing Humber Refinery and the PCC plant are operational, compared to the BS 4142 assessment for the existing Humber Refinery operations. No change was predicted at NSRs 2 and 3.

These increases are only slightly above the level at which it could be concluded that the sound source will have a low impact.

The existing sound climate in the vicinity of the Humber Refinery also needs to be taken into account, and that the proposed PCC plant predictions are a worst-case scenario, with all plant, including cooling fans, operating at maximum capacity for the respective daytime and night-time period. For the majority of the time, not all the cooling fans will be in use, therefore reducing the overall sound emissions from the proposed PCC plant.

Therefore overall, considering the BS 4142 assessment outcomes and the context of the existing sound environment, the addition of the proposed PCC plant is predicted to have a low impact on nearby NSRs.

3.2 Noise sources

Table 3.2 Description of noise emitting processes

Plant reference	Noise Source	Quantity	Sound pressure level (dBA) @1m	Operational conditions	Additional comments (including spectrum reference used in SoundPLAN model)
Humber Refinery	Pumps	Entire Humber Refinery current site	56.8 specific noise level, at Staple Road (NSR1) (Individual noise level not available, modelled noise level at closest NSR for the entire site)	24 hours a day, 7 days a week	Specific environmental noise level from Environmental Noise report (Bureau Veritas 2006) and ranked noise sources from Environmental Noise Modelling report (Acoustic Technology 1999)
	Valves/ pipework				
	Air Fin Cooler				
	Heater				
	Ductwork				
	Building				
	Cooling Tower				
	Drum				
	Fan				
	Steam Leak				
	Global Calciners				
	Gas Turbine				
	Compressor				
	Generator				
	Water Filtration System				

Plant reference	Noise Source	Quantity	Sound pressure level (dBA) @1m	Operational conditions	Additional comments (including spectrum reference used in SoundPLAN model)
PCC plant items					
P66-3	P66 H01 Selective Catalytic Reduction (SCR) Package	1	80	24 hours a day, 7 days a week. Cooling plant will operate continuously however, more fans will be utilised as the air temperature increases.	BS 5228 Table C5.5 Compressor for hand-held pneumatic breaker
P66-4	P66 H01 Ammonia In-jection Package	1	80		BS 5228 Table C5.5 Compressor for hand-held pneumatic breaker
P66-5	P66 H01 CCU Con-densate Spray Water Pump	1	80		SoundPLAN library ref 160 Cooling Tower
P66-6	P66 H01 Condensate Transfer Pump	1	80		BS 5228 Table C2.45 Water pump
P66-7	P66 H01 Recovered Water Return Pump	1	80		BS 5228 Table C2.45 Water pump
P66-9	P66 H01 600# Steam Waste Heat Exchanger	1	80		BS 5228 Table C5.5 Compressor for hand-held pneumatic breaker
P66-10	P66 H01 BFW Preheat Economiser	1	80		BS 5228 Table C5.5 Compressor for hand-held pneumatic breaker
P66-13	P66 H02 – Piperack (E/W) B&W - Slurry Cooler	16 fans	82*		SoundPLAN library ref 90 Axial flow fan
P66-14	P66 H02 – PTU B&W - Oxidation Blower	2	80		SoundPLAN library ref 90 Axial flow fan
P66-15	P66 H02 – PTU B&W - Oxidation Re-circulation Pump	1	80		BS 5228 Table C2.45 Water pump

Plant reference	Noise Source	Quantity	Sound pressure level (dBA) @1m	Operational conditions	Additional comments (including spectrum reference used in SoundPLAN model)
P66-16	P66 H02 – PTU B&W - Treated Water Pump	1	80		BS 5228 Table C2.45 Water pump
P66-18	P66 H02 – PTU B&W - Clarifier Unit	1	80		BS 5228 Table C2.45 Water pump
P66-19	P66 H02 – PTU B&W - Oxidation Unit	1	80		BS 5228 Table C2.45 Water pump
P66-20	P66 H02 – PTU B&W - Coagulant Make-up and Dosing Package	1	80		BS 5228 Table C2.45 Water pump
P66-21	P66 H02 – PTU B&W - Flocculant Make-up and Dosing Package	1	80		BS 5228 Table C2.45 Water pump
P66-23	P66 H02 – WGS B&W - Slurry Recircu-lation Pump	1	80		BS 5228 Table C2.45 Water pump
P66-24	P66 H02 – WGS B&W - Wet Gas Scrubber Stack Exhaust	1	80		SoundPLAN library ref 160 Cooling tower
P66-25	P66 H02 – WGS	1	80		SoundPLAN library ref 160 Cooling tower

Plant reference	Noise Source	Quantity	Sound pressure level (dBA) @1m	Operational conditions	Additional comments (including spectrum reference used in SoundPLAN model)
	B&W - Wet Electro-static Precipitator				
P66-27	P66 H03 – Abs Shell - CO_2 Absorber Inter Cooler Pump	1	80		BS 5228 Table C2.45 Water pump
P66-28	P66 H03 – Abs Shell - Wash Water Pump	1	80		BS 5228 Table C2.45 Water pump
P66-30	P66 H03 – Abs Shell - CO_2 Absorber – Stack Exhaust	1	80		SoundPLAN library ref 160 Cooling tower
P66-32	P66 H03 – Abs Shell - CO_2 Absorber	1	80		SoundPLAN library ref 160 Cooling tower
P66-33	P66 H03 – Piperack (E/W) Shell - Lean Solvent Cooler	6 fans	82*		SoundPLAN library ref 90 Axial flow fan
P66-34	P66 H03 – Piperack (Main N/S) Shell - CO_2 Absorber Inter Cooler	16 fans	82*		SoundPLAN library ref 90 Axial flow fan
P66-35	P66 H03 – Piperack (Main N/S)	4 fans	82*		SoundPLAN library ref 90 Axial flow fan

Plant reference	Noise Source	Quantity	Sound pressure level (dBA) @1m	Operational conditions	Additional comments (including spectrum reference used in SoundPLAN model)
	Shell – Wash Water Cooler				
P66-36	P66 H03 – Piperack (Main N/S) Shell – Lean Solvent Cooler	10 fans	82*		SoundPLAN library ref 90 Axial flow fan
P66-37	P66 H03 – Piperack (Small N/S) Shell - Thermal Re-claimer Condenser	2 fans	82*		SoundPlLAN library ref 90 Axial flow fan
P66-38	P66 H03 – Solvent Shell - Rich Solvent Pump	1	80		BS 5228 Table C2.45 Water pump
P66-39	P66 H03 – Strip Shell - MVR Compres-sor	1	90		BS 5228 Table C5.5 Compressor for hand-held pneumatic breaker
P66-40	P66 H03 – Strip Shell - Lean Solvent Pump	1	80		BS 5228 Table C2.45 Water pump
P66-41	P66 H03 – Strip Shell - CO_2 Stripper Reflux Pump	1	80		BS 5228 Table C2.45 Water pump
P66-42	P66 H03 – Strip Shell - Stripper Con-densate Pump	1	80		BS 5228 Table C2.45 Water pump
P66-43	P66 H03 – Strip	1	80		SoundPLAN library ref 160 Cooling tower

Plant reference	Noise Source	Quantity	Sound pressure level (dBA) @1m	Operational conditions	Additional comments (including spectrum reference used in SoundPLAN model)
	Shell - CO_2 Stripper				
P66-46	P66 H03 – TRU Shell - Thermal Reclaimer Vacuum Package	1	80		SoundPLAN library ref 892 Manure trailer - vacuum pump
P66-47	P66 H03 – TRU Shell - Thermal Reclaimer Reflux Pump	1	80		BS 5228 Table C2.45 Water pump
P66-48	P66 H03 – TRU Shell - Thermal Reclaimer Bottom Pump	1	80		BS 5228 Table C2.45 Water pump
P66-49	P66 H03 – TRU Shell - Thermal Reclaimer Degraded Solvent Pump	1	80		BS 5228 Table C2.45 Water pump
P66-50	P66 H03 – TRU Shell - Thermal Reclaimer Column	1	80		BS 5228 Table C5.5 Compressor for hand-held pneumatic breaker
P66-51	P66 H04 – Piperack (E/W) Shell - CO_2 Stripper Condenser	4 fans	82*		SoundPLAN library ref 90 Axial flow fan
P66-53	P66 H05 Recovered Water Distribution Pump	1	80		BS 5228 Table C2.45 Water pump

Plant reference	Noise Source	Quantity	Sound pressure level (dBA) @1m	Operational conditions	Additional comments (including spectrum reference used in SoundPLAN model)
P66-54	P66 H05 Dehydration Unit	1	80		SoundPLAN library ref 11 Power station (boiler & coal mill room)
P66-57	P66 H06 Common HP/LP Compression (Including Ancillaries)	1	90		BS 5228 Table C5.5 Compressor for hand-held pneumatic breaker
P66-58	P66 H06 – Piperack (N/S) Cooling Tower Cell	4 fans	80		SoundPLAN library ref 90 Axial flow fan
P66-59	P66 H09 Pretreatment Caustic Feed Pump	1	80		BS 5228 Table C2.45 Water pump
P66-60	P66 H09 Caustic transfer pump	1	80		BS 5228 Table C2.45 Water pump
P66-61	P66 H09 Thermal Reclaimer Caustic Feed Pump	1	80		BS 5228 Table C2.45 Water pump
P66-65	P66 H11 Air Compressor	1	80		BS 5228 Table C5.5 Compressor for hand-held pneumatic breaker
P66-66	P66 H11 Chiller Package	1	80		BS 5228 Table C5.5 Compressor for hand-held pneumatic breaker
P66-67	P66 H11 Closed Loop Cooling Water Air Cooler	2 fans	82*		SoundPLAN library ref 90 Axial flow fan

Plant reference	Noise Source	Quantity	Sound pressure level (dBA) @1m	Operational conditions	Additional comments (including spectrum reference used in SoundPLAN model)
P66-68	P66 H11 Cooling Water Supply Pump	1	80		BS 5228 Table C2.45 Water pump
P66-69	P66 H11 Chilled Water Supply Pump	1	80		BS 5228 Table C2.45 Water pump
P66-70	P66 H11 Steam Electrical Gen-erator	1	90		SoundPLAN library ref 10 Power Station (generator turbine hall)

* Each fan unit is 85 dBA at 1m and contains 2 fans per unit

3.3 Overview of noise processes and emissions

The future operation of the site will consist of the existing Humber Refinery and the new PCC plant.

The Humber Refinery is divided into a number of process departments and process blocks. Pumps, valves, air fin coolers and compressors are the plant types making the greatest contributions to the existing sound climate. The existing refinery operates 24 hours per day, 7 days per week. In addition, potentially noisy transient events such as equipment requiring maintenance, flares or system safety valves lifting, are conducted during the day, where possible.

The proposed PCC plant will prevent the emission of up to 0.5 million tonnes per annum of CO_2 via the PCC retrofit to the Fluid Catalytic Cracker (FCC) stack at the Humber Refinery.

The PCC plant will include the following components:

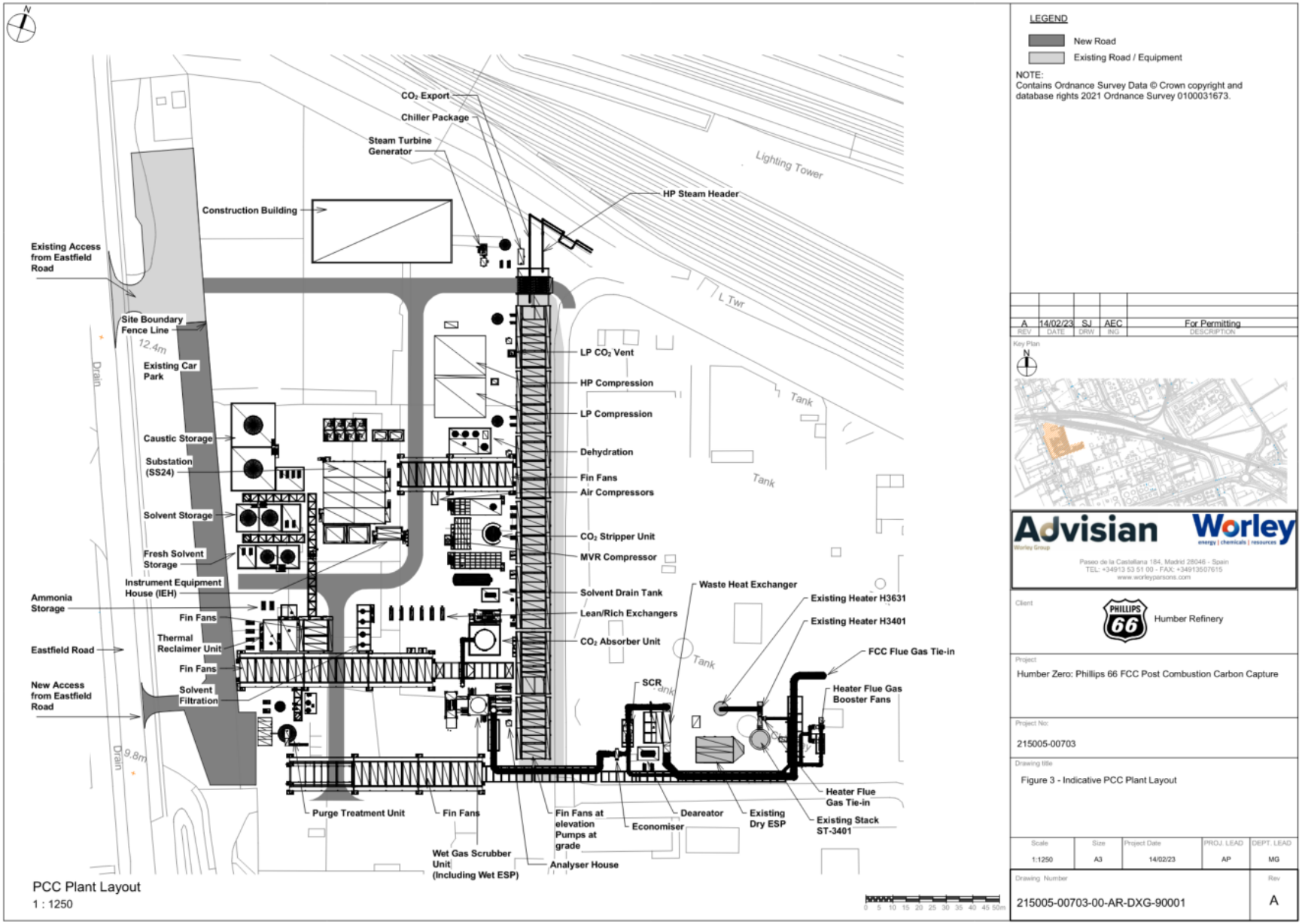
- FCC flue gas waste heat exchanger for energy recovery;
- ducting to connect the FCC unit to the PCC plant;
- flue gas pre-treatment using Selective Catalytic Reduction (SCR), a wet gas scrubber (WGS) and wet electrostatic precipitator (Wet ESP) with associated air-cooled heat exchangers;
- one PCC unit with associated CO_2 absorber, stack, CO_2 stripper/ regenerator, thermal reclaimer unit and air-cooled heat exchangers;
- a low and high pressure 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, 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; and
- utilities (including chillers, steam turbine generator and air compressors).

The noisiest items of equipment are air-cooled heat exchangers (fin fan air coolers), compressors and the steam turbine generator. The proposed PCC plant uses fin fan coolers to maintain the required temperatures at various process points, hence a sufficient number of fin fans needs to be installed to achieve the required cooling duty during periods of higher ambient temperature (e.g. peak day time temperature). Whereas during periods of lower ambient temperature, fewer fin fan air coolers need to be in operation to achieve the same cooling duty (e.g. overnight). The daytime assessment is based on 58 fin fans required to be in operation, based on 27°C ambient temperature, and the night-time assessment is based on 38 fin fans required to be in operation, based on 21°C

ambient temperature. This assessment captures a worst-case summertime operating scenario.

The facilities will be designed to operate 24 hours per day, 7 days per week, with programmed offline periods for maintenance approximately every 6 years. A labelled map of the PCC process is shown in Figure 3.3.

Figure 3.3 – Indicative site plan showing locations of noise emitting processes, with routes shown of mobile noise emitting sources



4. Control measures and process monitoring

4.1 Appropriate measures / best available techniques (BAT)

Table 4.1.1 Actions and procedures which will be in place to achieve appropriate measures / best available techniques (BAT)

Activity which produces noise	Operational Hours / days	Control measures (Appropriate Measure/ BAT)	Contribution to overall impact	Action taken if outside optimum process parameters
P66 H03 CO_2 Absorber fin fans	More fans are in operation as ambient air temperatures increase	Confirmed -11dB attenuation will be achieved during the detailed design stage (see measures below)	High	Turn off individual noisy items of plant where feasible. Investigate reasons for elevated sound levels and options for mitigation.
P66 H03 CO_2 Stripper/ Regeneration fin fans	More fans are in operation as ambient air temperatures increase	Confirmed -11dB attenuation will be achieved during the detailed design stage (see measures below)	High	Turn off individual noisy items of plant where feasible. Investigate reasons for elevated sound levels and options for mitigation.
P66 H02 fin fans	More fans are in operation as ambient air temperatures increase	Confirmed -10dB attenuation will be achieved during the detailed design stage (see measures below)	High	Turn off individual noisy items of plant where feasible. Investigate reasons for elevated sound levels and options for mitigation.
P66 H05 & H04 fin fans	More fans are in operation as ambient air temperatures increase	Confirmed -10dB attenuation will be achieved during the detailed design stage (see measures below)	High	Turn off individual noisy items of plant where feasible. Investigate reasons for elevated sound levels and options for mitigation.

Activity which produces noise	Operational Hours / days	Control measures (Appropriate Measure/ BAT)	Contribution to overall impact	Action taken if outside optimum process parameters
P66 H03 TRU Fin fans	More fans are in operation as ambient air temperatures increase	Confirmed -10dB attenuation will be achieved during the detailed design stage (see measures below)	High	Turn off individual noisy items of plant where feasible. Investigate reasons for elevated sound levels and options for mitigation.
P66 H06 fin fans	More fans are in operation as ambient air temperatures increase	Confirmed -10dB attenuation will be achieved during the detailed design stage (see measures below)	High	Turn off individual noisy items of plant where feasible. Investigate reasons for elevated sound levels and options for mitigation.
P66 H03 MVR/H04 LP/H06 HP Compressor	24 hours a day, 7 days a week	Confirmed -9dB attenuation will be achieved during the detailed design stage (see measures below)	High	Turn off individual noisy items of plant where feasible. Investigate reasons for elevated sound levels and options for mitigation.

Table 4.1.2 Actions and procedures to achieve stated attenuation

Technique	Description	Applicability
Eliminate	Review proposed plant and design and where possible remove unnecessary items from the scope of the design	Review of the design has resulted in the routing of flue gas from fired heaters H3401 and H3630 to the new Carbon Capture Plant has been removed from scope. Operational noise will reduce with the elimination of two large Flue Gas Fans. The reduction in overall flue gas flow rate to the PCC plant also reduces the overall compression, cooling and pumping duties. The front-end loading stage 2 (FEL2) design assumed two separate CO_2 compressors for low and high pressure compression. It is anticipated that both compression stages will

Technique	Description	Applicability
		be achieved using a common compressor that has multiple compressor stages. The overall noise emissions associated with CO_2 compression is expected to be less for one common compressor versus two separate compressors.
Reduction	Where possible reduce the number of fin fans and/or selecting plant with reduced noise levels Review height of fin fans and lower where practicable	For the same cooling duty, a cooling tower requires less fan power versus that of the equivalent bank of fin fan air coolers. Studies have been undertaken to reduce the number of fin fan air coolers by partially transferring cooling duty to a cooling tower. Note, whilst this will have the benefit of reduced fin fan noise there are penalties including increased water consumption. A new waste heat exchanger recovers heat from the FCC flue gas before it is cooled further by the Wet Gas Scrubber. The Wet Gas Scrubber uses cooled slurry to reduce the flue gas temperature. Slurry is cooled by fin fans and a heat exchanger that uses cooling water from a cooling tower. The optimisation of the amount of heat that can be recovered from the FCC flue gas by the waste heat exchanger during normal operation will in turn minimise the cooling duty by Wet Gas Scrubber. This will provide flexibility on the number of fin fans that need to be in operation. The standard specification for items of equipment includes a figure for operating noise. Where a choice exists between different equipment makes/ models, operating noise will be taken into consideration when determining the make/ model selected for installation. For example, quieter fin fans may be available for particular cooling duties but could result in the requirement for more fin fan units. Quieter fin fan designs are often achieved at the penalty of a lower maximum cooling duty per cooler.

Technique	Description	Applicability
		Plot restrictions necessitate the requirement for fin fans to be installed on top of pipe racks for space conservation. The location of fin fan air coolers at elevation potentially increases offsite noise levels as there is less opportunity for attenuation by structures and other equipment. Where not prohibitive due to maintaining overhead clearances, the benefit of reducing the elevation of fin fan air cooler banks will be assessed in the next phase of the project
Engineering Control	Use of full or partial acoustic enclosures, acoustic barriers and sound absorbing surfaces	Engineering control measures required to achieve further reduction in operational noise will be determined when further equipment information is available

4.2 Onsite monitoring procedures

Table 4.2 Description of onsite processes which will ensure impacts do not increase on site.

Description of procedure	Procedure	When will this be carried out?	Corrective action
Replacing old/ faulty equipment	Procurement of new equipment	When equipment requires replacing	Replace with equipment that has sound levels which are equivalent to or lower than sound those of the existing equipment
Checking noise barriers	Visual inspection of barriers to ensure no gaps or holes	Monthly	Repair the barriers if holes or gaps are found.
Checking plant enclosures	Visual inspection of enclosure to ensure no rust or damage	Monthly	Repair the enclosure

Constant site vigilance	Staff trained to be aware of changes on site and identify any malfunctioning equipment/ potential noise exceedances	Continuously	Report as incident, equipment repaired / alternate equipment to be used if feasible

4.3 Monitoring off site sound levels

Figure 4.1 – Plan showing locations of sound level measurement positions used to monitor sound from the site

Table 4.3 Description of the sound monitoring procedures

Measurement Location	Frequency of measurement	Minimum measurement duration	Measurement period	Operating conditions on site	Expected specific sound level
E – NSR1	Monthly	15 minutes* – when noise from extraneous sources is low	Night-time	Normal operation	58

*Extraneous noise sources (such as nearby road traffic, or people noise) could be paused-out of a measurement, using a suitable sound level meter, or alternatively shorter periods could be aggregated to give a total of 15 minutes in the absence of other noise sources.

The Environmental Services Group (ESG), and ultimately the Environmental Leader are responsible for investigating and rectifying excessive noise from the Humber Refinery site. All staff can draw attention to excessive noise by informing the Shift Superintendent, who is responsible for ensuring that corrective action is taken and informing the ESG. This is outlined in the Environmental Management Procedure (HR-TEC-ENV-000), which covers external interests and 0800 community information telephone updates for the local community. Further information is embedded in the Environmental Permit Compliance Requirements (HR-TEC-ENV-006) which states that excessive noise from the refinery activity must be minimised.

The Environmental Enquires & Complaints Handling Procedure (HR -TEC-ENV-004) covers what to do when a noise enquiry or complaint is made. The Environmental Management Procedure (HR-TEC-ENV-000) covers Training and Competency – including a Training Needs Analysis (TNA) for all employees and includes a CBT for training on Environmental Enquires & Complaints Handling.

- Faulty equipment causing raised noise levels should be identified and replaced as soon as possible/ alternatives should be used where available.
- Routine noise generating transient events; such as alarm and safety valve testing are undertaken during the daytime, when the ambient noise levels around the site are higher, and also include road traffic noise.
- Transient events; such as equipment requiring maintenance, flares or system safety valves lifting, are managed as part of the site process and condition monitoring systems and should be identified and resolved quickly.

5. Complaints reporting

The Humber Refinery has set up a community email address (HumberCommunity@p66.com) which is available to interested parties to communicate any issues or concerns. External communications by telephone are received via the main refinery switchboard. During office hours this is picked up by the Newton Building Receptionist. Out of office hours, external calls to the switchboard are picked up by D-Gate Security personnel. Complaints are reported using the Environmental Enquiries and Complaints Handling Procedure (HR-TEC-ENV-004).

Upon being informed of the external communication, the Shift Superintendent/ will immediately ascertain whether there are any known problems that may have led to the call. The Shift Superintendent shall check relevant parameters such as wind speed and direction, gas and steam rates to flare and any reported operational problems, to decide whether the problem may be caused by the Refinery and will take any necessary corrective actions to reduce/ remove the impact on the environment.

The Shift Superintendent (and Environmental Services where appropriate) will visit the area as soon as reasonably practicable to investigate the severity and possible cause of the issue. Relevant samples, statements, noise readings, photographs etc. should be obtained as required. The Shift Superintendent is responsible for ensuring that any appropriate remedial or corrective action is taken as soon as practicable. Complaints will be recorded and investigated within 2 hours, and feedback will be given within 12 hours.

- Complaints should be recorded via the approved ‘External communication form’ (HR-TEC-ENV-004 Appendix 1), details to be recorded in Section A of the form.
- Investigation of the incident to be recorded in Section B of the form, with site operation (Normal/ Startup/ Shutdown/ Turnaround/ Upset/ Emergency/ Abnormal), weather conditions, onsite and offsite investigations noted.
- Any corrective actions should be noted, and impact report raised if necessary.
- Environmental services to complete Section C of the form, noting the impact classification, whether attributable to Phillips 66 activities, whether notifiable to the Environment Agency or Local Authority.
- Further follow up with interested party if appropriate/ requested.
- Environmental services to determine if a further noise assessment plan is required, noting any actions necessary to prevent recurrence.