

VHE Construction Plc Construction and Environmental Management Plan

Former Emsworth Holder Station, Palmer's Road, Emsworth

Client: Southern Gas Network (SGN)

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Document Issue

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Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

Contents

1.	Introduction	1
1.1.	Background	1
1.2.	Site Location.....	1
1.3.	Site Information	1
1.4.	Proposed Works.....	2
2.	Remediation Works Environmental Risk Assessment	2
3.	Summary of Guidance / Compliance Levels.....	7
4.	Background Monitoring.....	8
5.	Dust & Air Quality Management Plan	9
5.1.	Overview	9
5.2.	Dust and Airborne Asbestos Management.....	9
6.	Noise, Odours, Vibration & Lighting Management Plan.....	10
6.1.	Control of Occupational Exposure to Noise and Vibration.....	10
6.2.	Control of Environmental Noise and Vibration.....	11
6.3.	Monitoring of Noise	11
6.4.	Monitoring of vibration.....	12
6.5.	Nuisance Odours.....	13
6.6.	Lighting Nuisance	16
7.	Traffic Management Plan and Site Compound	17
7.1.	Overview	17
7.2.	Vehicle/Plant Safety.....	17
7.3.	Haul Road & Operational Area Maintenance.	17
7.4.	Site Compound and Parking.....	17
7.5.	Delivery and Export.....	17
8.	Waste Management	22
8.1.	• Disposal at a licenced facility Hazardous Waste	23

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

9.	Stockpile Management, Use of Materials and Site Criteria	23
10.	Management of Ground & Perched Waters	23
11.	Storage of Materials/ Spillage Control	24
12.	Site Security and Access	24
13.	Responsible Personnel	24
14.	Location of Monitoring Points	24
15.	Emergency Response Plans.....	25
16.	Contractor Communication	25
16.1.	Overview	25
16.2.	Adopted Measures.....	25
16.3.	Complaints	25
17.	Monitoring Records and Reporting	26

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

1. Introduction

1.1. Background

VHE Construction plc (VHE) have been appointed as Principal Contractor to undertake remediation works to address unacceptable risks from historical land contamination caused by the historical use of the site at Palmer's Road, Emsworth, Hampshire for coal gas manufacture, storage, distribution and associated use.

Tetra Tech Environment Planning Transport Limited (Tt) was commissioned by VHE Construction plc to undertake the remediation design.

There is no specific plans to redevelop the site and the design is based on a future generic commercial end use of the site with consideration also given to a potential residential use assumed to be flats with open space.

This Construction and Environmental Management Plan (CEMP) outlines the environmental control and monitoring to be implemented during the remediation works. The principles of the CEMP take into account relevant environmental legislation appropriate to the site activities, as identified throughout the plan and will be incorporated into and managed in accordance with the construction phase Safety, Health and Environment (SHE) Plan.

1.2. Site Location

The site is located between Palmers Road to the south and Seagull Lane in the north of the town of Emsworth, Hampshire within a predominantly mixed residential and light industrial area. The Ordnance Survey (OS) National Grid Reference for the site centre are approximately 474921E, 106161N and the site location and boundary are shown on Tt Drawing No. B046196-TTE-00-XX-DR-U-0001 (Site Location Plan).

1.3. Site Information

The historical development of the site has been determined from historical Ordnance Survey 1:2,500 mapping of the site and other archive documents as illustrated on Tt Drawing No. B046196-TTE-00-XX-DRU-0004 (Site Investigation Locations and Historical Structures Plan) and summarised below:

- 1866: A gasworks has already been constructed in the north of the site comprising a gasholder, a building in the north (suspected gasworks manager house) and a gasworks building of unknown use in the south (likely retort house). Agricultural land occupies the southern area of the site.
- 1883: Remains largely unchanged.
- 1898: Remains largely unchanged.
- 1909: A second gasholder now shown within the northwestern boundary of the site and a rectangular building of unknown use, is located to the southwest of the second circular structure. A rectangular grid shaped structure (suspected purifiers) is located to the south of the original gasworks building and a further building is located in the southwest corner (later identified as a booster house).

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

- 1953: The original gasworks building and purifiers have been removed by this time and Gasholder No.3 has been constructed across the eastern boundary of the site and a new booster house is shown to the west of the gasholder. 2 small structures are shown in the location of the original gasworks building. Gasholder No.3 extends on to the SGN retained land to the west. Industrial and residential development shown to the south of Palmers Road.
- 1969: Largely unchanged; small structure in the location of the existing gasworks building now labelled as substation.
- 1980: Largely unchanged.
- 1993: Largely unchanged.

1.4. Proposed Works

The remedial options study has identified source removal (excavation and disposal) as the best available techniques for addressing the identified relevant contaminant linkages.

Remediation Zones are shown on TT Drawing No. B046196-TTE-00-XX-DR-U-0006-P01 (Remediation Zone Plan).

Each Remediation Source Zone will be excavated to the full lateral extent defined on Tt Drawing No. B046196-TTE-00-XX-DR-U-0006-P01 (Remediation Zone Plan) and extended as required to remove NAPL/grossly contaminated Made Ground where visible in the base or sides of excavations. The vertical extent of the excavation will be limited by;

- Absence of gross contamination within exposed base and sides; and
- Natural Superficial Deposits exposed in the base of infilled tank (Source 3); or
- Achieving the target depths (Source 1 and Source 5).

As far as practicable, relict substructures and redundant services and drainage will be broken out and removed where necessary to facilitate the excavation of the source materials and the walls and bases of any relict tanks will be broken out following removal of the tank contents.

Any obstructions and hard materials (i.e. foundations for former structures) will be crushed and subjected to verification testing prior to re-use as site won backfill.

Perched water and/ or NAPL will be abstracted from excavations as soon as reasonably practicable and will be treated prior to disposal to foul sewer under a temporary effluent discharge license or disposed off-site to a suitably licensed facility.

The site levels will be restored to their pre-existing levels. The upper surface of infilled remediation excavations will be completed with a granular stone fill to provide a suitable surface for pedestrian and vehicular traffic.

2. Remediation Works Environmental Risk Assessment

The Remediation Works Environmental Risk Assessment has been developed to characterise the potential risks to human health, controlled waters and the surrounding environment with respect to

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

the proposed site activities. The risk assessment establishes the hazards that may arise from the proposed site activities and assesses the potential risk to the receptors. Where necessary, allowance is made for appropriate control and mitigation measures to be implemented during the relevant site activities, to eliminate or reduce the associated risk.

The remediation works Environmental Risk Assessment is provided in **Appendix 1** and a summary of the key environmental hazards associated with the site, as well as relevant controls, and monitoring to be implemented during the works is outlined in Table 1.

The proposed site activities associated with the remediation works that could have potential for those adverse impacts to local receptors include:

- Loading, unloading, processing, storage of contaminated soils;
- General earthworks including movement of machinery and vehicles on site;
- On-site fuel storage and refuelling;
- Excavation and stockpiling of contaminated soils;
- Off-site transportation of contaminated soils.
- Import of material
- Breaking out concrete

The potential hazards that may arise from the above site activities include:

- Nuisance dust;
- Noise;
- Vibration;
- Vapours and odours;
- Airborne asbestos;
- Contamination of controlled waters;
- Mud/soil on roads;
- Fuel leakages and spills.

The receptors that could be impacted as a result of the works include:

- Site personnel, including all site workers and visitors.
- Residential properties to the northwest and southwest of the site.
- Commercial/industrial properties to the northeast and southeast of the site.
- River Ems (60 m to the East of the site) and Meadow Brook (Local Nature Reserve) beyond.
- Chichester Harbour (610 m to the South of the site) is an Area of Outstanding Natural Beauty.

Should the remediation works be required to change or deviate from the Remediation Strategy for the site, the risk assessment will be updated and amended accordingly to consider any additional environmental risks. Further detail on the methods for monitoring, controls and mitigation to be implemented during the works is discussed in the following sections.

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

Table 1 - Summary of Control and Monitoring to be implemented.

Hazard	Receptor(s)	Control and Mitigation Measures	Monitoring to be Implemented
Release of harmful odours and vapours	Site personnel	Assess whether personnel are required to work in vicinity of high risk activities. Where unavoidable, provide Respiratory Protective Equipment (RPE) to those personnel.	Personal organic vapour monitors (PID) will be provided to those operatives working in the vicinity of areas identified as high risk by the site risk assessment. These will be provided on a daily basis, should the day's site activities take place in an area of high risk. Warning alarms will be set against the compliance limits (Table 2) and will warn personnel when RPE is necessary or to vacate the working area.
	Local workers/ residents	The nearest sensitive receptors to the site activities is the residential house associated with each garden. There are also other businesses and residents in the surrounding area.	Environmental monitoring will include olfactory assessment and PID monitoring, implemented during the daily site walkover. This will specifically address site boundaries and sensitive receptors. When not in use for the site walkover, the PID will be placed on the site boundary within the vicinity of the most sensitive receptor, or on the downwind boundary from the activities for that day.
Loss of ecological importance	On and off-site ecological receptors	A Preliminary Ecological Survey would be undertaken prior to commencement of any works to assess for potential ecological risks. A second ecological investigation would be undertaken prior to any site clearance works to ensure no active nests present within vegetation or buildings prior to site clearance and dewatering.	A watching brief for ecological receptors will be implemented during the works. Should any sensitive ecological receptors be identified, then an ecologist will be informed.
Generation of dust	Surrounding residents, roads, pedestrians, and industrial estates.	To control these emissions the following procedures will be implemented: - Dust suppression measures will be implemented during the works, where necessary, such as water dampening using a water bowser of haul roads and stoke piles. - The use of Dust/ Debris netting will be used to control the emission of dust - To further reduce potential for dust on the site, all site	Monitoring will comprise deposited Total Suspended Particles (TSP), as well as a visual assessment during the daily site walkover. The visual assessment will instigate where control measures, such as water dampening needs to take place. Further monitoring will be carried out to determine whether control measures are working / appropriate. This monitoring will be accomplished through using Permanent dust monitoring stations to allow for daily monitoring of the dust produced during the works. Where exceedances of the dust guidance/compliance levels (Table 2) are

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

Hazard	Receptor(s)	Control and Mitigation Measures	Monitoring to be Implemented
		dump trucks are to have exhausts which do not discharge towards the ground. Drop heights will be minimised to avoid dust spillage.	identified, the site monitoring data will be reviewed to determine the reasons for exceedances and whether control measures in place are appropriate. Haulage will utilise existing surfaced areas wherever possible.
Generation of excessive vibration levels	Site personnel, properties and residence in the adjacent properties.	Compliance to the Control of Vibration at Work Regulations 2005. Prior to the commencement of works the vehicles and machinery to be used on site will be identified and the suppliers will provide information as to which processes may lead to significant levels of vibration, such as breakers. Where vibration is identified to be at levels of unacceptable risk, those processes will not be used on site.	Monitoring will take place on a daily basis and will involve the measurement of vibration during operational hours where relevant site activities are being carried out. The location of the monitor will consider: - Identification of those site activities taking place that day that may have the greatest potential to give rise to elevated vibration levels; - The location of those site activities, and - The location of the nearest or most sensitive receptor(s). The monitor will be placed at the closest point to any sensitive receptor along the site boundary, or where possible, within 1m of the façade of the nearest occupied building.
	Live services - gas mains	Unless direct evidence demonstrates otherwise, all services are considered to be live. Ground mat protection and protection scaffold will be implemented to protect gas mains within roadways/other haulage routes. Any plant crossings where access is required over cable ducts, warning signs will be established to maintain awareness of the location and types of services throughout the works.	
Generation of excessive noise levels	Site personnel	Compliance with the Control of Noise at Work Regulations 2005, regarding noise emissions and implementation of noise reduction methods. Hearing protection will be made available to all personnel working in the vicinity of any activities identified as having noise levels that exceed the lower exposure action values, as	Monitoring will take place on a daily basis and will involve the measurement of noise levels during operational hours that site activities are being carried out. The location of the monitor will take into account: - Identifying those site activities taking place that day that may have the greatest potential to give rise to significant noise levels; - The location of those site activities, and

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

Hazard	Receptor(s)	Control and Mitigation Measures	Monitoring to be Implemented
		defined in the regulations. Where activities exceed the upper exposure action levels personnel will be required to use hearing protection. Noise protection zones will be established.	The location of the nearest or most sensitive receptor(s). The monitor will be placed at the closest point to any sensitive receptor along the site boundary.
	Local residents	Compliance to the Control of Noise at Work Regulations 2005, regarding noise emissions and implementation of noise reduction methods, where necessary.	
Leakage or spills of fuel or chemicals on to site	Soil beneath the site	Storage of fuel tanks within impermeable bunds. Bunds will be established with a capacity to hold 110% of the total capacity of the fuel tank(s).	Daily checks of the fuelling point will be undertaken during the site walkover and all refuelling tanks & bowsters will carry the appropriate spill kits.
	Ecological receptors	Spill kits will be stored with the fuel tanks at the refuelling points.	
	Water courses	Plant nappies to be used when refuelling & when plant is not in use on evenings & weekends Chemicals will be stored on-site within a bunded chemicals storage cage that will be placed inside a further bund to ensure a bund capacity of at least 110% of the total capacity of the stored chemicals	
Mud on roads from off-site transport of hazardous waste	Road users	There will be road sweeper in attending to clean the immediate haulage route in the vicinity of the site if required. Haulage routes within the site will maximise use of existing hardstanding surfaces.	A gateman will be posted to ensure all vehicles leaving site are clean and sheeted, where appropriate.

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

3. Summary of Guidance / Compliance Levels

Environmental monitoring will be carried out to assess whether the works are compliant with relevant regulations and guidance, where review of the control measures and/or implementation of mitigation may be necessary. The appropriate guidance/compliance levels are detailed in **Table 2** below.

Table 2 Guidance / Compliance Levels

Parameter	Guidance / Compliance Levels	Reference	Monitor Type	Monitor location	Frequency
Nuisance dust – deposited Total Suspended Particles	200mg/m ² /day	‘Airborne Particulate Matter in the UK: Third Report of the Quality of Urban Air Review Group.’ Quality of Urban Air Research Group. (1996).	Frisbee Dust monitors	On the North, South, East and West boundaries of the site.	Weekly
Noise – environmental	ABC method from BS 5228:2014: Part 1 to be used (Based on background monitoring)		Class 1 Cirrus 171 B Sound Level Monitor or similar.	On the boundary closest to where works are being undertaken.	Daily
Vibration environmental	12.5 mm/sec	BS 5228:2014: Part 2 ‘Code of practice for noise and vibration control on construction and open sites. Vibration’	Vibrocock V 9000 Seismograph or similar.		Daily
Asbestos airborne monitoring	0.01 fibres/cm ³ averaged over a continuous 4 hour period	HSG 248: ‘Asbestos: The Analysts Guide for Sampling, Analysis and Clearance Procedures.’	Carried out by an independent analyst in accordance with HSG 248	In areas containing Asbestos impacted soils.	When processing and moving asbestos containing soils.
Vapour Monitoring	1ppm Long Term Exposure Limit (8 hour TWA); 3ppm Short Term; Exposure Limit (15mins); Instantaneous Low level 10ppm; Instantaneous High level 20ppm	EH40/2005 Workplace Exposure Limits	PID or similar	Personal photoionisation detector (MiniRAE or ToxiRAE) in cabs of excavators and carried during site walkovers.	Daily
Odour Monitoring	As stated in IAQM: Guidance on the assessment of odour for planning		Sensory sniff test	Throughout the day while on site.	Daily

*Monitors may be used at other monitoring points (including ones not yet identified, depending on site activities.

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

4. Background Monitoring

To quantify any impact that may arise from the site activities, background monitoring of noise, vibration, odour monitoring will be undertaken at the site compound and at locations around the Fishponds estate. The results will be used to aid assessment of any potential impacts from the site activities during the works and identify that appropriate guidance/compliance levels are in use.

The methodology for background monitoring will comply with the appropriate procedures outlined below within the air quality and noise and vibration monitoring plans to ensure collected data is comparable.

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

5. Dust & Air Quality Management Plan

5.1. Overview

This Air Quality Management Plan (AQMP) details the procedures that will be implemented on-site to control, monitor and mitigate any dust and/or airborne asbestos that may arise from the decommissioning works proposed on the site. Implemented Intervention measures will be in accordance with industry guidance and best practice including:

- BRE Report 456 - Control of Dust from Construction and Demolition activities
- IAQM Guidance on the assessment of dust from demolition and construction 2014
- HSE Construction Information Sheet No 36 "Construction Dust".

5.2. Dust and Airborne Asbestos Management

5.2.1. Dust and Potential Airborne Asbestos Trigger Assessment

A daily site walkover will be carried out by the Environmental Engineer where weather conditions will be recorded including precipitation, wind speed and direction. The levels of dust will be monitored throughout with permanent Frisbee dust monitors that records the total deposited and direction dust. To determine the potential for dust propagation the methods detailed in the AEA Technology Ltd, 2011 report¹ will be used, as shown in Table 1 below.

Table 1 Potential for the Initiation of Dust Propagation Based on Wind Speed

Wind speed (ms ⁻¹)	Potential for dust propagation
<0.5	Essentially calm, very low potential for dust movement.
>0.5	Low wind speeds, low potential for dust movement.
>2	'Average' wind speeds, moderate potential for dust movement.
>6	High wind speeds, reasonable potential for dust movement.
>10	Very high wind speeds, significant potential for dust movement.

It is stated in the AEA Technology Ltd, 2011 Good Practice Guide: *Control and Measure of Nuisance Dust and PM₁₀ from the Extractive Industries* that wind speeds greater than about 5ms⁻¹ dries exposed materials and can initiate the dispersion of dust. Therefore, the Environmental Engineer will consider the climatic conditions where wind speeds are recorded at speeds of >5m s⁻¹, in particular whether there is precipitation at that time and predicted in the immediate weather forecast.

This will also be supplemented through visual observations of dust at key receptor locations and gauged against a scale of 1 to 4 as identified below:

1. Not noticeable
2. Slight dust
3. Moderate dust
4. Unacceptable dust (remedial action required)

¹ Management, Mitigation and Monitoring of Nuisance Dust and PM10 emissions arising from the Extractive Industries: An Overview, AEA Technology, February 2011

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

This visual and climatic assessment will provide an immediate assessment of the potential for dust for that day to allow for an immediate response with respect to control and mitigation of dust generation, as detailed within Table 2.

Prevention of the generation of dust will inhibit the potential for asbestos fibres to become airborne.

5.2.2. Mitigation of Dust

Mitigation of the generation of dust (and airborne asbestos) may include one or more of the following control/mitigation measures:

- Avoid double handling of materials, where reasonably practicable,
- Sealing/covering stockpiles, and
- Suppression measures to be employed, such as sprayed water from a tractor/bowser system and a water bar should screening of materials be necessary.

Should this not alleviate the problem, then the foreman will cease all operations giving rise to elevated dust levels and alternative work methods employed. Methods for reporting are discussed in Section 16.

Should any complaints be received, these shall be dealt with as outlined in Section 15.

5.2.3. Mitigation of Potential Release of Airborne Asbestos Fibres

Airborne asbestos monitoring will be undertaken by an independent specialist asbestos contractor holding UKAS accreditation during the works of known asbestos contaminated gardens to ensure that airborne fibre concentrations do not exceed the control limit of 0.1f/ml over 4 hours or the short term exposure limit/sporadic and low intensity (STEL/SALI) of 0.6f/ml over 4 hours when asbestos impacted soils are being excavated or moved, or, stockpiled asbestos containing materials are being moved. Monitoring will comprise personal monitors as well as fixed boundary monitoring.

Wherever practical, good practice measures will be implemented and followed by all site personnel throughout the works to reduce risk of exposure of potential asbestos fibres, in line with CIRIA and CAR-SOIL 2012 guidance. Good practice measures will be documented within site specific risk assessments and method statements (RAMS) by the Site Manager and regularly communicated to all site personnel and site visitors.

6. Noise, Odours, Vibration & Lighting Management Plan

6.1. Control of Occupational Exposure to Noise and Vibration

6.1.1. Occupational Noise Exposure

VHE will be compliant with the Control of Noise at Work Regulations 2005. Prior to the commencement of works the vehicles and machinery to be used on site will be identified and the suppliers will provide information as to which processes may lead to significant levels of noise, such as breakers, crusher buckets, and screens. Where ear defender protection is necessary when working in the vicinity of these site activities, associated personnel will be provided with such equipment and required to wear this. Details of such exposure and PPE will be provided to the site personnel within the site induction and subsequent Toolbox Talks.

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

6.1.2. Occupational Vibration Exposure

VHE will be compliant with the Control of Vibration at Work Regulations 2005. Prior to the commencement of works the vehicles and machinery to be used on site will be identified and the suppliers will provide information as to which processes may lead to significant levels of vibration, such as breakers and screens. Where vibration is identified to be at levels of unacceptable risk to site personnel, then the site agent will review procedures and take necessary action. Details of such exposure and PPE will be provided to the site personnel within the site induction and subsequent Toolbox Talks.

6.2. Control of Environmental Noise and Vibration

Excessive noise and/or vibration will be prevented through the provision of compliance with appropriate regulations and guidance including:

- BS 5228:2014: Part 1 'Code of Practice for noise and vibration control on construction and open site. Noise',
- BS 4142:1997: Method for rating industrial noise affecting mixed residential and industrial areas, and
- CIRIA Guidance Note C692: 'Environmental Good Practice on Site', 3rd Edition, 2010 and subsequent editions/ publications.

Environmental disturbance to local residents and the surrounding environment, will be managed through the operational hours, where works will not take place outside of 08:00 to 18:00 on weekdays. There shall be no working on Saturdays, Sundays or Public Holidays.

Prior to the commencement of any works during each day, the locations of those activities known to potentially cause noise and/or vibration above the compliance levels will be addressed with respect to the nearest sensitive receptors. Should these works be in proximity to potentially cause harm, appropriate control measures will be implemented prior to the works commencing and include:

- Altering or suspending operations until a suitable method is adopted, and
- Provision of noise reduction measures such as screens or bunds.

Should any complaints be received regarding excessive noise or vibration levels, then these shall be managed appropriately, as outlined in Section 16.

6.3. Monitoring of Noise

Routine noise monitoring will be carried out on a daily basis in the respective garden, adjacent to sensitive receptors, and will involve the measurement of noise levels over each day that site activities are being carried out.

Recorded observations will be made regarding the audibility of the works including details of plant operating during each monitoring period. A detailed log of any extraneous events affecting noise levels will also be recorded.

6.3.1. Noise Monitoring Equipment

The noise monitoring equipment will comprise of a Class 1 Cirrus:171B Sound level monitor and will comprise of a waterproof external microphone and a tripod. It will be supplied with all recent calibration certificates and a Class 1 acoustic calibration device for daily on-site calibration. It will be capable of measuring sound levels in the range 40 to 140 dB (A), recording percentile levels, L_{Aeq} , L_{Amax}

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

and L_{Amin} , and have a memory sufficient to store results for a period of one week with a sample interval of 5 minutes. All necessary software and cables will be supplied, and the data will be downloaded, and a report produced.

The microphone height should be between 1.2 m and 1.5 m above ground level. To minimize the influence of reflections, the microphone position should be at least 3.5 m from any reflecting surface other than the ground. In the event of measurements having to be made close to a wall or building a suitable 'correction factor' should be applied to the results to convert them to free-field levels.

The type of instrumentation used for the survey will be recorded and will include the monitor serial number. The VHE SLMs undergo extensive calibration tests every 12 months and details of the calibration, including copies of the test certificates will be kept with the noise monitor and provided to the Supervisor.

The SLM will be field calibrated before and at the end of each survey by applying an acoustic calibrator or pistonphone conforming to the latest versions of BS EN 60942:2003 (Electroacoustics – Sound Calibrators), to the microphone to check the sensitivity of the measuring equipment. Details of the calibration will be recorded in the Daily Environmental Monitoring Log including any drift in calibration levels. Environmental Noise Impact Assessment

The noise monitoring guidance level will be calculated using the ABC method defined within BS 5228:2014: Part 1, following completion of the background monitoring. This level provides an indication that there is potential significance of noise effects. Therefore, should the guidance level be exceeded, the Environmental Engineer and/or Site Agent will undertake a review of the environmental monitoring data to identify whether there is any significant effect from noise generated by the site activities. This may include:

- Identifying whether any complaints have been received as a result of noise.
- Undertaking further noise monitoring within the effected properties, where permission has been granted from property owners.
- Assessing any impacts from off-site activities.

Should the assessment conclude that there is significant impact from noise generated by the site activities then the Site Agent will then decide on the course of action necessary to reduce the noise levels. This may include altering or suspending the operations until a suitable method is adopted or implementation of noise reducing measures such as screens or bunds.

Such events will be recorded within the environmental monitoring log and reported as discussed in Section 16.

6.4. Monitoring of vibration

Monitoring will take place on a daily basis and will involve the measurement of vibration levels over each day that site activities are being carried out. The monitor will be located in the respective garden, close to any sensitive boundary.

Recorded observations will be made regarding the type of site activities occurring that day including details of plant operating during each monitoring period.

6.4.1. Vibration Monitoring Equipment

Vibration monitoring will be undertaken on a daily basis using a ground seismograph. This will comprise a portable weather-proof seismic recording instrument such as the Vibrock V901 or similar.

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

It shall be set to run in continuous mode and able to digitally record vibration levels up to 20mm/s peak particle velocity, for frequencies between 5Hz and 250Hz, in compliance with BS EN ISO 8041:2005. All necessary software and cables will be supplied to enable data to be downloaded and converted into a Microsoft compatible format.

The vibration monitor is calibrated by an approved laboratory on an annual basis and the appropriate certificates will be provided with the relevant monitor.

6.4.2. Vibration Monitoring Assessment

Personal exposure vibration monitoring will be assessed using the guidelines provided in BS 6472-1:2008 'Guide to evaluation of human exposure to vibration in buildings Part 1: Vibration'.

Ground borne vibration will be assessed using guidelines provided in BRE Digest 403, 'Damage to Structures from Ground borne Vibration'. The acceptable maximum limits for vibration at the receptor is 12.5mm/s peak particle velocity over the frequency range of 1Hz to 80Hz. At this limit the probability of damage tends towards zero. These levels will be agreed with NGPH, other sensitive equipment operators and the Local Environmental Officer.

Should these limits be exceeded at the identified receptors those associated works will cease immediately. Methods for reporting are discussed in Section 17.

Should complaints arise from off-site receptors due to the vibration levels they are experiencing within neighbouring properties, monitoring will be undertaken at that property and assessed according with the VHE complaints procedure.

6.5. Nuisance Odours

6.5.1. Monitoring of Nuisance Odours

This strategy for odour management takes into consideration the recommendations in the Environment Agency Technical Guidance Note H4 – 'Odour management', 2011 and Guidance on the assessment of odour for planning, Institute of Air Quality Management (2018). During the daily site walkover, the Environmental Engineer will undertake an olfactory assessment of odours along the site boundary. The odour levels will be gauged against a scale of 1 to 6 for intensity and extent of odour as shown in Table 3 below.

Table 3 – Odour Score Guide

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

Intensity		Extent
No detectable odour	1	No detectable odour
Faint (barely detectable, need to inhale facing wind)	2	Local and impersistent (only detectable when wind drops or blows)
Moderate (easily detectable with back to wind)	3	Persistent (but fairly localised)
Strong Bearable, may lead to lingering smell to clothes/hair)	4	Persistent and pervasive (detected up to 50M from the site boundary)
Very Strong (unbearable, may introduce retching/vomiting)	5	Persistent and widespread (detected over 50m from the site boundary)

Where odours are detected at intensity level 3, an investigation should take place, with a review of sources and the effectiveness of existing measures. At odour intensity 4, remedial action should be considered. At intensity 5 and 6, remedial action is required. Observations will be recorded on the Daily Monitoring Log (see Appendix 2) and will also include any details of mitigation procedures that may be implemented.

6.5.2. Monitoring of Vapours

MiniRae 3000 and ToxiRae Pro Photo Ionisation Detectors (PID) will be used to monitor occupational and environmental vapours during the site works. These will be set to detect for benzene using the EH40/2005 Workplace Exposure Limits and a STEL of 3ppm 15mins. Calibrating the PID to benzene provides a 'worst case' estimate of benzene concentrations in the air as it assumes the detected concentration consists entirely of benzene.

Each monitor will have an audio / visual alarm set to alert personnel of any exceedance of the benzene limits of 1ppm 8hour TWA and 3ppm 15mins STEL. These monitors will also have instantaneous alarm levels for Benzene set at 10ppm (low alarm) and 20ppm (high alarm).

The PID monitors will be calibrated and checked daily before use using isobutylene to ensure there is no 'calibration drift' or erroneous readings. Each monitor will be set for data logging, which will be downloaded daily, and a record will be kept in the site file.

6.5.3. Control of Occupational Exposure

Managing potential exposure will be based on a hierarchy of control measures where control options at the source are considered first and control through Personal Protective Equipment (PPE) is a last resort.

6.5.4. Monitoring Occupational Exposure

Monitoring of occupational exposure will comply with the recommendations made by the Health and Safety Executive (HSE) in MDHS 70 'General gas methods for sampling airborne gases and vapours' 1993. Each morning the Site Foreman will inform the Environmental Engineer of the works to take place that day, who in turn will determine whether personnel are working in areas of high risk with

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Southern Gas Network (SGN)

respect to potential release of vapours, as risk assessments dictate. Where a high risk is identified, personal organic vapour monitors will be provided to those personnel working in these areas.

The personal PIDs will be carried by site workers deemed most at risk of exposure to vapours arising from contaminated soils/waters. PIDs will be attached to the lapel of outer clothing. Should any of the alarms relating to the 1ppm 8hour TWA, 3ppm 15mins STEL and 20ppm be triggered at any time, personnel working in these areas will be required to wear RPE.

If at any time personnel working in areas with highly odorous materials become unwell and develop headaches or sore throats, then they are to inform site management immediately. An assessment will be made with regards to the use of respiratory equipment and additional VOC testing will be carried out. During the site induction and regular Toolbox Talks site personnel will be informed of the potential health effects from inhalation of vapours and the necessity to inform site management immediately if these symptoms develop. Site personnel are encouraged to raise health and safety issues through on-site informal reporting using VHE initiative "Prevention of Unsafe Conditions and Acts".

6.5.5. Environmental Control and Monitoring of Vapours

As well as monitoring for personnel working in the vicinity of any treatment areas, VHE will implement procedures for the control and monitoring of vapours that may impact the surrounding environment, including nearby residents and the general public.

This will include a daily site assessment for vapours using a PID (MiniRAE or similar) set to benzene and will be carried out during the site walkovers

The PIDs will be calibrated and checked daily using isobutylene. Reports will be produced with the recorded data, and any high readings will be included on the Daily Monitoring Logs.

During the boundary monitoring of vapour levels should the 15-minute average (STEL) or the 10ppm instantaneous low alarm sound, then works methods will be reviewed, slowed down, temporarily suspended or re-located until the vapour levels have reduced below the limits.

Should the 8-hour TWA alarm or the 20ppm instantaneous high alarm sound, all associated works shall be ceased immediately, and site management will review the works, taking any necessary action that may be needed to reduce the values.

If levels continually exceed the limits the works shall cease until additional mitigation measures are implemented as discussed below.

When not in use for the site walkover, the PID will be positioned at the downwind boundary for that day. It will be set up to record readings across the working day and the results will be downloaded on a daily basis and kept in the site records.

6.5.6. Odour and Vapour Mitigation Measures

If the odour assessment identifies odours at a score of 4 or more, mitigation measures will be implemented and assessed where necessary, which may include temporary suspension of the working operations, covering contaminated materials and reassessing the PPE provided.

These will address the necessary procedures that must be followed where odour levels are assessed as 'high' and include the provision for the following mitigation measures:

- Sealing/covering storage areas,

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Southern Gas Network (SGN)

- Provision of appropriate RPE (occupational monitoring),
- Use of neutralising mist sprays,
- Road vehicles removing materials from site may be sprayed with an odour neutraliser or a PVA mixture that will lock in any potential odours/ vapours at the surface, and suitably sheeted, and
- Ceasing the associated works.

Should any complaints be received, then these shall be dealt with as outline in the complaint's procedure, section 16.

6.6. Lighting Nuisance

VHE recognise that whilst safe operation, including use of the site compound/non-working areas occasionally requires the use of work lighting, such lighting can pose a nuisance to adjacent site uses where not appropriately managed. As such, to ensure that nuisance from lighting is appropriately considered, the site manager will look to have such plant/machinery positioned in such as way to minimise as far as practicable any nuisance to off-site stakeholders.

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Southern Gas Network (SGN)

7. Traffic Management Plan and Site Compound

7.1. Overview

A Traffic Management Plan has been developed as part of the Works Information to appropriately manage traffic movements to and from the site, including rules for haulage vehicles.

The site has two vehicular access points: one via the northwest corner of the site via an access road shared with residential properties on Seagull Court, and one via Palmer's Road to the south which is via the SGN Regulated land.

For the purpose of the works all deliveries and access shall be via the Palmer's Road entrance.

All HGV and deliveries shall access the site via the A27, exiting on the A259 into Emsworth and joining the B2148 (North Road) at the roundabout, before turning right onto Palmer's Road. There are two access points onto Palmer's Road, the southernmost access will be used as the north access is very narrow.

7.2. Vehicle/Plant Safety

Wherever practicable, all vehicles used on site will incorporate safety features to provide audible 'broadband' or 'white noise' reversing alarms. Such alarms have been demonstrated to be as effective as traditional 'beep' reversers but significantly reduce fugitive noise nuisance, particularly to offsite stakeholders.

7.3. Haul Road & Operational Area Maintenance.

VHE recognise that vehicles such as tracked excavators and other works plant & vehicles have the potential to generate dust during normal operation. In order to address this risk, the site manager will ensure that where any surfaces are being trafficked with a reasonable likelihood to generate nuisance dusts, that measures including dust suppression where necessary, will be adopted to mitigate such risks.

7.4. Site Compound and Parking

A site compound comprising welfare cabins will be located wholly within the site. All vehicles associated with the works shall park within the site. Deliveries etc will enter the site to be offloaded/loaded and then exit the site. It is anticipated during the demolition works up to 10 people will be on site at any one time.

7.5. Delivery and Export

All deliveries to the site and removal of any plant, materials or machinery from the site will be scheduled in compliance with the permitted working hours. Deliveries will be scheduled not to occur during network peak periods (08.00-09.00am and 17.00-18.00).

It is anticipated during the demolition works there will be up to 10 vehicle movements during the first couple of days bringing plant, equipment and welfare to site. The same number is again expected upon completion of the works to remove the equipment from site.

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

The plant & equipment anticipated for mobilisation to site comprise:

- 1-2 excavators in the 14-25t range
- 1-2 9t forward tipping dumper trucks, or 1 rear loading articulated dumper truck
- Towable welfare units including office, canteen and washing facilities
- MEWP where necessary to facilitate environmental assessment of structures

During the demolition works it is expected that there will be one movement per day bringing and removed waste skips from the site as the demolition progresses. At a peak, this may increase to 3 movements per day.

Vehicles will be loaded within the site, where possible keeping to the existing stoned or metalled surfaces and shall be manually cleaned prior to exiting site using jetwash, as necessary.

Materials storage will consist of temporary stockpiles of segregated waste streams arising from the demolition works, which will be located within the confines of the site works area.

Vehicles will be self-sheeting and before leaving the site will be subject to inspection and when required wheels will be cleaned using a powered jet-spray. The wheel washing facilities will be located as close as practicable to the site entrance or

Periodic road-sweeping will be undertaken when required by manual means and or mechanical road sweeper. All export of material will be consigned with a duty of care note.

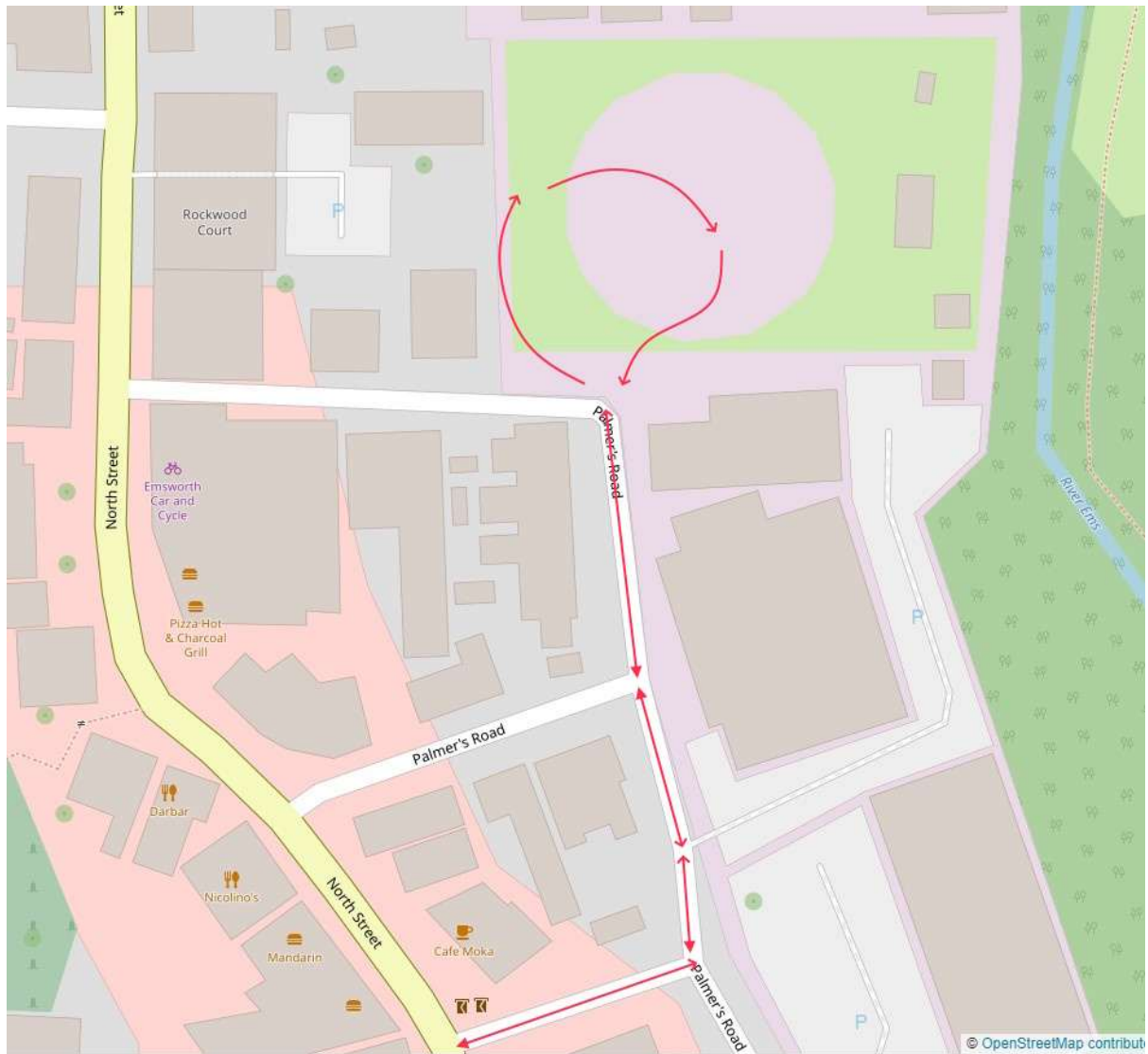
The access along Palmer's Road is noted as being quite congested with parked vehicles, however the designated parking bays on the western site and double yellow lines in the eastern site are considered sufficient to enable to the planned vehicle movements to and from the site without introduction of a Temporary Traffic Regulation Order (TTRO).

In addition, VHE together with SGN will undertake a liaison with the local businesses and residents ahead of the works to inform them of the works that shall be taking place and the timing. VHE shall also undertake day to day liaison as necessary to ensure that access is available as required.

Access to the site via the northern Palmers Road is not suitable for large vehicles due to its narrow nature, this will not be used to large vehicles. All deliveries to the site and supplier shall be provided details and a plan detailing the access route.

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Southern Gas Network (SGN)



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Southern Gas Network (SGN)



Fig 4 – Site access gates looking north up Palmer's Road



Fig 5 – Palmer's Road looking south from the site entrance

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Southern Gas Network (SGN)



Fig 6 – Palmer's Road looking west from the site entrance – this is not to be used for deliveries.

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Southern Gas Network (SGN)

8. Waste Management

Material from remedial excavations will be classified before the works commence. Throughout the remedial excavation a geoenvironmental engineer will assess the material ensuring its being transported to the correct waste stream. The material will be segregated into waste stream stockpiles before any off site disposal. VHE implement a Site Waste Management Plan (SWMP) for all sites. An Export Log will be kept for all waste removed from the site.

As well as construction wastes this will also manage wastes created by site staff, which will be placed within bins within offices. Once full these will be emptied into a covered skip which will be collected on a weekly basis and taken to a suitably licenced disposal facility. Bins containing food waste or other wastes likely to attract pests or scavengers will be monitored, kept secure and emptied before a problem arises.

During the daily site walkover should any litter be identified on site, litter pickers will be employed and will dispose of litter into the appropriate on-site covered skips.

All waste removed from the site will be by registered waste carriers to suitably licenced facilities. A Duty of Care Ticket or Hazardous Waste Consignment Note will be produced for the waste

General waste management measures include, but are not limited to:

- Completion of a Waste Audit and a Pre-Demolition Audit of the structures on-site to identify and removal hazardous materials, and those able to be re-used or recycled.
- VHE will oversee the implementation of the waste control strategy and the handling of any waste material, as set out in the SWMP.
- A waste management compound will be established to handle waste from clearance activities. This will be designed to facilitate the segregation of key waste streams to maximise the opportunity to re-use, recycle and return wastes generated on site.
- Excavated materials such as soil, will be carefully stored in segregated piles for subsequent reuse on site, where possible.
- The Principal Contractor will be required to divert all vegetation waste (if any) from landfill, unless identified as an invasive species and no other options are available. The greatest opportunity for the sustainable management of vegetation waste is through recycling into compost.
- Recycling and waste bins/ skips are to be kept clean and will be clearly marked/ colour coded in order to avoid contamination of materials.
- Shelter will be provided to prevent materials such as cardboard, paper, plasterboard from deteriorating while being sorted or awaiting collection. Space will be provided to accommodate skips and the storage of reusable materials.
- For all waste management options on site, consideration will need to be given for identifying whether waste exemptions or permits are required to enable for the storage and treatment of waste materials.

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

Waste management options will be supported by the identification of appropriately permitted waste management and recycling facilities in close proximity to the Site through the use of appropriate Duty of Care procedures and legal obligations. Asbestos Containing Waste

The risk from release of asbestos during the works will be managed in accordance with The Control of Asbestos Regulations 2012 and associated codes of practice and guidance. Measures for managing asbestos will include but are not limited to:

- Employing competent (and licensed where necessary) contractors to carry out the works.
- Principal Contractor shall implement a procedure for dealing with potentially suspect materials exposed requiring sampling and analysis by an independent specialist surveyor.
- Formal exchange of information before start of work, including relevant information from the Asbestos Register to clearly identify location of asbestos- containing materials.
- Method statements for any works in the vicinity of asbestos-containing materials to avoid any disturbance to such materials.

8.1. • Disposal at a licenced facility Hazardous Waste

Should hazardous materials identify to be present on site, the Principal Contractor will comply with all relevant legislation relating to protection of employees and others who may be affected from health risks within working environments, including the Control of Substances Hazardous to Health (COSHH) Regulations 2002 and Control of Lead at Work Regulations 2002.

9. Stockpile Management, Use of Materials and Site Criteria

All site-won materials will be stockpiled separately and labelled accordingly prior to offsite disposal. Materials for disposal will be stockpiled based on prior classification as well as visual and olfactory assessment for disposal off site.

All imported materials will be tested at source prior to being imported to site as well as regular onsite testing based on volume of material to ensure the material is suitable and complies with the specifications. Testing of import and export will be done by a UKAS accredited laboratory.

10. Management of Ground & Perched Waters

The works shall be managed to minimise the risk of ponding rainfall and the work areas shall be kept free of standing water as far as reasonably is practicable. The works shall involve multiple excavations which are likely to accumulate water during periods of rain and may even generate water encountered as perched water within the ground. Weather forecasts will be monitored daily to ensure the site team are aware of any periods of heavy rainfall to be expected and the necessary precautions and preparation will be taken in advance. All work areas will be monitored constantly during the working day to ensure that the controls in place are suitable to deal with any heavy rainfall that may occur during non-working hours and over the weekend. Within excavations, grips will be formed to sumps where the waters will then be pumped to IBC's /bowzers for treatment & disposal off site. The control of any surface water will be maintained by providing drainage grips & containment bunds to divert

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

and hold the water in suitable areas to be pumped from to ensure that surface water run-off will not be able to escape from the excavations nor have any detrimental effect to the works.

11. Storage of Materials/ Spillage Control

Routes identified as providing a pathway to impact surface waters and/or groundwater will be sealed.

Any temporary fuel tanks and lubricants will be stored in secure compounds with appropriate bunding and emergency spill kits with all fuel tanks. Due to the nature of the project & logistics, the small plant will remain at the properties rather than returning to the compound. Refuelling of these items of plant will be done so from road legal towable fuel bowzers. All items of plant will have plant nappies placed under them during refuelling operations & when not in use overnight & at weekends.

12. Site Security and Access

During the site boundary assessment as part of the daily site walkover, the boundary fence will be checked to ensure all fencing is secure. Should the fence be found to be broken at any point, this will be immediately reported to the site foreman who will ensure the fence is fixed promptly. The gates will be closed and locked during the day plus at night when the site is vacated. A monitored CCTV system will provide security during non-working hours. During any periods when numerous transport movements are required, such as if soils were imported or exported, a gateman would be deployed to open and close the gates. Access to the work site during the day will be controlled by gates which will be kept closed to prevent unauthorised persons from entering.

13. Responsible Personnel

The environmental monitoring will be the responsibility of the Environmental Engineer. They will undertake all monitoring requirements detailed within this strategy as well as any necessary changes should risk assessments and method statements dictate. They will be responsible for collation, review and interpretation of the results to ensure that all monitored parameters remain below the guidance/compliance levels. The Site Agent will be responsible for overseeing the Environmental Engineer and check that the results of the monitoring are within the acceptable limits. The Site Agent and Site Foreman will also be responsible for ensuring that the works are being undertaken in a manner to cause minimal disturbance to potential receptors.

14. Location of Monitoring Points

Each morning the Environmental Engineer will liaise with the Site Foreman to determine and record the location for the environmental monitors (noise, vibration, dust, etc.) taking into account:

- The site activities taking place that day which have the greatest potential to give rise to significant environmental risk;
- The location of those site activities, and
- The location of the nearest or most sensitive receptor(s);

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

As outlined in Section 3, there will be 4 No. Frisbee dust stations to allow one station to be placed at each boundary of the site.

Noise and vibration monitors will be placed at the boundaries nearest to where works are being undertaken and the location recorded.

15. Emergency Response Plans

Emergency Response Plans (ERPs) will be contained within the construction phase SHE Plan, where a hard copy will be maintained within the site offices throughout the works. The ERPs are a set of site specific protocols that specify set by set procedures for managing and mitigating incidents that could occur on site related to health, safety and environmental impacts.

They are a concise list of procedures that provide mitigation to ensure that environmental (and health and safety) conditions are returned below the appropriate guidance/compliance levels. They also allow for the prompt investigation and reporting of any incident including hazards and unsafe behaviour with respect to health, safety and environmental management.

Should an incident occur, this will be recorded within the construction phase SHE plan and the environmental monitoring log (where appropriate) and will detail those procedures implemented for mitigating the incident.

16. Contractor Communication

16.1. Overview

VHE understands that implementation of the planned works may raise queries from nearby stakeholders and that effective communication can help to address common questions and allow more effective community engagement.

16.2. Adopted Measures

The details of the site manager or named nominated VHE point of contact will be posted in a publicly accessible location, such as the entrance to the works area. The public will be encouraged to raise any queries or concerns with VHE directly so that such issues can be addressed as efficiently as possible.

Where appropriate, details of the works currently being undertaken and those scheduled for the near future will also be posted to allow a greater understanding of the progress of the project and that nature of the scheduled operations.

16.3. Complaints

Should VHE receive any complaints these will be logged on the VHE Complaints Register. Those complaints associated with any environmental hazards (as detailed within this plan) will be investigated, monitored and mitigated through the following procedures:

- Investigation of the matter will be carried out by the responsible personnel including checking the monitoring log and associated monitoring data;
- Should the complaint be found to be existent then appropriate mitigation measures will be implemented and monitored to ensure that the impact is being minimised;

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

- Should the impact persist then works will be stopped until an appropriate method of works is in place to minimise the impact;
- The responsible personnel will keep a record of the management procedures implemented to deal with relevant complaints including documenting the mitigation methods implemented, details of any correspondence and any further related complaints;
- All complaints will be addressed and reported to Homes England within 24 hours of receipt.

17. Monitoring Records and Reporting

The Environmental Engineer will be responsible for collating data on a weekly basis. The environmental monitoring logs will be completed each day as part of the site walkover. Should any action need to be taken in response to exceedances of the guidance/compliance levels, this will be recorded here also.

Where works are suspended as a result of environmental issues associated within the works, the Site Agent will inform the site Supervisor; detailing the specific problems and the mitigation that will be implemented.

All data logged within monitors will be downloaded on a regular basis and assessed against the appropriate limits to ensure that any exceedances are being recognised and mitigation measures actioned as appropriate.

Copies of the environmental monitoring records will be passed to the site Supervisor and following completion of the works a verification report will be submitted by the Supervisor and will include all records taken for the odour monitoring and control during the works.

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

Appendix 1 – Environmental Risk Assessment

Former Emsworth Holder Station, Emsworth, Hants.

Southern Gas Network (SGN)

Appendix 2 – Daily Monitoring Log