1MC04 Main Works - Contract Lot S2

Management Systems and Procedures - Waste Transfer and Treat Station - Ruislip Southern Sustainable Placement S2

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Appendix C - Site Specific Risk Assessment

1 Introduction

1.1.1 Phase One of HS2 will provide dedicated high-speed rail services between London, Birmingham, and the West Midlands. It will extend for approximately 230km (143 miles). Just north of Lichfield, high speed trains will join the West Coast Main Line for journeys to and from Manchester, the North West and Scotland.

1.1.2 Phase One of HS2 is the first phase of a new high-speed railway network proposed by the Government to connect major cities in Britain. It will bring significant benefits for inter-urban rail travellers through increased capacity and improved connectivity between London, the Midlands, and the North. It will release capacity on the existing rail network between London, Birmingham and the West Midlands and so provide opportunities to improve existing commuter, regional passenger, and freight services.

1.1.3 The Materials Management Plan Framework for the HS2 scheme sets out framework for materials reuse within the scheme.

1.1.4 This Management Systems Plan has been prepared for the Waste Transfer and Treat Station - Ruislip Southern Sustainable Placement (RSSP-WTS) operated by Skanska Costain STRABAG Joint Venture (SCSJV). The site is located in an area of semi-rural, former agricultural land located immediately north west of Ickenham and to the west of West Ruislip, in the London Borough of Hillingdon; centred around Grid Reference TQ06517 87233. This document containing the Management Systems and Procedures will comprise a suite of documents that together will be submitted to the Environment Agency (EA) as part of an application for an environmental permit.

1.1.5 The RSSP-WTS facility will receive Tunnel Boring Machine (TBM) arisings via a conveyor system directly from the construction of Northolt Tunnel West and West Ruislip Portal. Materials entering the facility will be temporarily stored and, if required, treated within the facility with lime to ensure that they have suitable properties (geotechnical and chemical) for placement in the following areas: Ruislip Southern Sustainable Placement (RSSP) and Copthall Tunnel (Copthall backfill). Materials transported from RSSP-WTS to Copthall Tunnel will be via a return conveyor mechanism, whilst transport to RSSP will be via vehicular transport along a designated haul road.

1.1.6 The document provides the following:

- A summary of the management systems that will be implemented;
- Details of the management and staffing of the site;
- Details of the training provided for staff and management;
- Procedures to control operations that may have an adverse impact on the

environment;

- Complaints and incident management;
- Assurance and performance evaluation; and
- Methods outlining continual improvement.

1.1 Associated Documents

1.1.1 This report should be read in conjunction with the following documents:

- Environmental Permit Application Forms (1MC04-SCJ_SDH-EV-FRM-SS05_SL07-000011);
- Non-technical summary (1MC04-SCJ_SDH-EV-NOT-SS05_SL07-000008);
- Site Condition Report (1MC04-SCJ_SDH-EV-REP-SS05_SL07-000009);
- Site Operating Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016);
- Noise and Vibration Management Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000015);
- Dust and Emissions Management Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013); and
- Best Available Techniques Reference (BREF) Conclusions Checklist (1MC04-SCJ_SDH-EV-REP-SS05_SL07-000023).

1.1.2 Documents associated with the wider RSSP-WTS facility and permit site are cross referenced where appropriate.

2 Environmental Management System

2.1.1 SCSJV operates an externally audited Environmental Management System (EMS) which is certified to ISO14001:2015 and in line with the overarching Environmental Management Plan [R2] and associated environmental topic plans and procedures. These overarching plans provide a high-level overview of the environmental and sustainability requirements associated with the project. The EMS should also be read in conjunction with the HS2 Code of Construction Practice (CoCP) [R3], which sets out the minimum standards and control measures to be implemented on HS2 sites.

2.1.2 A copy of the EMS ISO14001:2015 certificate is included in Appendix A.

3 Staff roles and responsibilities

3.1.1 The site will be operated in a safe and efficient manner using fully competent staff.

3.1.2 All new personnel will undergo induction training and will be supervised by an appropriate senior member of staff in respect of the Environmental Permit, the Environmental Management System, the Site Operating Plan, Sustainability Policy (HS2-HS2-SU-POL-000-000001) [R4], SCSJV Environmental Policy (1MC03-SCJ-EV-POL-S001-000001) [R5], Waste and Excavated Materials Procedure (1MC03-SCJ-EV-PRO-S001-000007) [R19] and the Site Waste Management Plan (SWMP) (1MC03-SCJ-EV-PLN-SS02_SL02-000005) [R20]. The induction training will allow all involved personnel to be aware of the designated roles and responsibilities before the onset of the works.

3.1.3 Any changes in the technically competent management of the site and any incoming person together with evidence that such person has the required technical competence will be submitted to the Agency in writing within 5 working days of the change in management. Technically Competent Management and Technical Competence shall be as defined under Section 74 of the Environmental Protection Act 1990.The following key roles and appointments are applicable to this site. The training and competency requirements for each of these roles is set out in the overarching EMP [R2] and the associated topic specific plans.

Role	Responsibility
Skanska Costain STRABAG Joint Venture (SCSJV) Area Lead/ Lead Construction Manager	Allocate sufficient resources and authorities to meet contractual obligations. Support and enable SCSJV to deliver an environmental beneficial and sustainable project.
Section Lead/ Terminal Manager	Approves Risk Assessments and Method Statements (RAMS) and supports environmental review processes with SCSJV Environmental Managers/ Advisors and the SCSJV Community Liaison Manager. Responsible for assigning and communicating roles, responsibilities and authorities for environmental management and compliance (with relevant environmental permits etc.) within the Terminal Team, to meet the requirements of the Environmental Management Systems. These individuals (Environmental Managers, Waste Controllers etc.) must be appointed and notified to the Environmental Advisor. Ensure RAMS contain the required level of environmental assessment and controls, including named individuals with responsibilities for environmental controls and waste. Responsible for communicating the environmental requirements to subcontractors and the effective management of the works in line with the Site-Specific Environmental Control Plan (SSECP). Brief staff and ensure they are aware of the requirements of environmental conditions in RAMS and procedures through toolbox talks (TBTs). Provide SCSJV with a record of all briefings to ensure all information is disseminated to staff prior to work commencing. Ensure any alerts/ exceedances, or potential exceedances (environmental monitoring of noise, dust, vibration etc.) are tracked, responded to, and subsequently investigated. Ensure fortnightly environmental site inspections are undertaken and supplied to Environmental Advisors. Review fortnightly environmental inspection reports at regular SCSJV planning & progress meetings, recording any resulting actions.
Earthworks Construction Manager	Provide area-wide advice and guidance on movement and storage of excavated material on site, including tunnel arisings. Responsible for production of Material Management Plan (MMPs) and manages earthworks sub-contractor. Oversee excavation works programme and movements to ensure adherence with environmental requirements.
Environmental Manager/ Advisor	Reviews environmental sections of RAMS. Co-ordinates environmental specialist support and technical submission of environmental consents.

Role	Responsibility
	Leads communication, engagement and reporting with HS2 and regulators. Communicates EMS requirements and supports training as required. Assess and agrees training needs with the Training Manager. Supports the Terminal Manager to enhance and assure environmental performance and reporting of any areas of improvement/ corrective action. Plan audits, inspections and monitoring to confirm environmental compliance.
Terminal Manager/ Manager	Develops RAMS to ensure they contain the required level of environmental assessment and controls and monitors subcontractors for MS and RAMS compliance. Support Construction Managers and the Noise & Vibration Specialist to manage noise and vibration including reporting to HS2 and regulators.
Technically Competent Management (TCM)	TCM will operate under the WAMITAB Scheme. (See Appendix A2). The TCM will be responsible for the day-to-day operations at the premises, and to ensure that premises personnel operate the site in compliance with the Environmental Permit. They will be responsible for ensuring adequate training of staff has been undertaken. The TCM will report any problem, or potential problem, to Senior Management as well as the Environment Agency. The TCM will attend site in accordance with the attendance criteria specified within 'Environmental Management – Guidance: Legal Operator and Competence Requirements: environmental permits' available on the GOV.UK website.
Site Supervisor/ Foreman/ Engineer	Responsible for the day-to-day implementation of best practicable means (BPM) mitigation measures required to minimise the impact arising from the works.
Environmental Consents Manager	Provide central coordination role between specialists, environmental team, Terminal Team, and planners to ensure all required consents are received on time. Assist the specialist in gathering required construction/ design related information to support consent application.
Area Logistics Manager	Responsible for overseeing the logistics planning of all materials, plant, and vehicle deliveries to and from site. Co-ordinates vehicle/ lorry checks. Responsible for coordination with logistics control tower. Managing on-site logistics activities. Work closely with the Environmental Managers/ Advisors and air quality specialist(s) to ensure environmental compliance.

Role	Responsibility
Stakeholder Interface Manager	Responsible to build positive relationships with all local stakeholders and ensure that SCSJV activities are explained to residents, businesses, and local authorities in a clear and timely manner, including, responsible for resolving noise related comments or complaints from our neighbours and proactively managing relationships with our stakeholders and warning stakeholders of emergency works. Reviews community liaison/ U&A sections within RAMS Liaise with Environmental Managers/ Advisors to report and mitigate complaints relating to environmental nuisance/ property Supports community and social engagement aspects (Considerate Constructors Scheme (CCS) etc.). Notifies residents that may be affected by potentially disruptive activities Develop separate Community Relations Plans for each London Borough detailing engagement with the local community including receiving and responding to complaints and ensuring appropriate action is taken in response to any non-compliance.
Design House Consultants/ Specialists	Work closely and collaboratively with Environmental Managers/ Advisors, to assess the final design of all assets against the requirements of the HS2 Environmental Statement, Environmental Minimum Standards and associated technical papers and information papers.
Environmental Co-ordinator (appointed)	Carry out fortnightly recorded site inspections and support compliance with the CCS. Inform Environmental Advisor of any environmental issues. Supports the Environment Team and Terminal Team to maintain environmental records. Manage site lighting plans and control of light pollution. Monitor subcontractors for RAMS compliance. Support Construction Managers and the Noise & Vibration Specialist to manage noise and vibration including reporting to HS2 and regulators. Ensure any alerts/ exceedances, or potential exceedances (environmental monitoring of noise, dust, vibration etc.) are tracked, responded to and subsequently investigated.

Role	Responsibility
Waste Controller (appointed)	Works with the Environment Team and the Waste and Materials Specialist to ensure an area Site Waste Management Plan (SWMP) is in place, identifying and implement ways to avoid, reduce, reuse, and recycle waste prior to activities commencing on site. Manage legal and contractual waste management requirements with support from the Environment Team and the Waste and Materials Specialist. Ensure Duty of Care requirements are complied with and that all waste is classified correctly prior to removal from site. Maintain all records and supports the Waste and Materials Specialist with monthly reports. Support the Waste and Materials Specialist to audit waste processes from cradle to grave to ensure legal compliance. Advise and support Terminal Teams on waste management issues.
SHE Systems/ Training Manager	Manages the Safety, Health and Environment (SHE) training needs and records matrix (1MC03-SCJ-HS-TEM-S001-0000510 [R6]) and works with Environmental Managers/ Advisors to identify, plan, and deliver training as appropriate/ required.
Procurement & Supply Chain Manager	Implements the SCSJV Sustainable Sourcing Plan (SSP) (1MC03-SCJ-EV-PLN-S001-000010) [R7] across the supply chain, working with Environment and Commercial Teams to manage sustainable sourcing requirements through the project. Ensures all major subcontractors and consultants are issued with controlled copies of this SSECP and any other applicable environmental plans and procedures.
Commercial Manager	Manages the environmental performance and conformance of appointed suppliers and contractors including the monitoring and collection of data, with the support of Environmental Managers/ Advisors.
Air Quality Specialist	Provide area-wide advice and guidance on air quality related matters including monitoring and compliance to ensure works packages are delivered in accordance with the requirements of the EMS. Develop and maintain the Dust and Emissions Management Plan (DEMP) (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013) and lead its implementation at all Asset locations. Managing compliance within agreed air quality constraints. This includes completion of Non-Road Mobile Machinery (NRMM) compliance checks on all plant and equipment being delivered and used on site, prior to their arrival. Ensuring appropriate action is taken in response to any NRMM non-compliance.

Role	Responsibility
Historic Environment Specialist	Provide advice and guidance on heritage matters. Develop and obtain heritage consents for all work packages. Liaison with enforcing authorities including Historic England and HS2. Provide advice and guidance on archaeological matters. Develop and obtain archaeological consents for all work packages
Carbon Specialist	Manage contractual requirement with regard to carbon assessment, reduction, and reporting.
Ecology and Arboricultural Specialist	Provide area-wide advice and guidance on ecological matters including invasive species/biosecurity issues and on arboricultural issues. Develop and obtain ecological consents for all work packages. Liaison with enforcing authorities including Natural England. Complete Stage 1 and 2 tree surveys and advise site team on trees to be retained and protection measures. Provide area-wide advice and guidance on arboricultural related matters. Review and assure tree survey reports. Carry out inspections/audits of tree surveys, felling and pruning operations by the landscape contractors (including timber evaluations).
Contaminated Land Specialist	Provide area-wide advice and guidance on land contamination related matters to ensure work packages are delivered in accordance with the requirements of the SCSJV Land Quality Management Plan (1MC03-SCJ-EV-PLN-S001-000012) (LQMP) [R9].
Landscape Architect	Provide area-wide advice and guidance on landscape and urban design related matters. Review and assure landscape design and operations by the landscape contractors.
Temporary Works Manager	Provides site drainage and lighting design drawings to support consents as required. Provide area-wide advice and guidance on lighting requirements. Review and assure lighting design and ensure that lighting requirements are in accordance with the CoCP [R3] and Lighting Management Plan [R10]. Liaison with residents as required.
Utilities Manager	Manages the design of water treatment systems and secures consent to discharge to sewer for site drainage. Works with the Environment Team and the Water Specialist to manage compliance with consent condition and monitoring requirements.
Noise and Vibration Specialist	Provide area-wide advice and guidance on noise and vibration related matters to ensure work packages are delivered in accordance with SCSJV Overarching EMP [R2], and CoCP [R3], including dispensations, variations, and overrun applications.

Role	Responsibility
Building Research Establishment's Environmental Assessment Method (BREEAM) Specialist	Supports the development of the EMS to achieve the BREEAM Excellent target. Ensures specific credits targeted for each area are included in Section 4 of this plan.
Waste and Materials Specialist	Oversee land contamination management across the MWCC assets and classification, management and coordination of wastes generated across all work packages. Provide updates on key waste legislation, duty of care documentation and audit requirements. Responsible for providing advice and guidance to the Excavated Materials Manager to assist with completion of MMPs and to ensure their correct implementation on site.
Water Resources and Flood Risk Specialist	Provide area-wide advice and guidance on specific water resources and water related matters to ensure work packages are delivered in accordance with the EMS, CoCP [R3], water-related consents. Identify areas of high risk for contamination and heightened sensitivity to flood risk. Provide support to the SCSJV Environmental Consents Manager on compilation and submission of any water-related consents as required.
All staff	Carry out works in accordance with agreed methods and briefings. Report anything that deviates from agreed processes. Report all incidents, spills, and best practice to site agents. Attend induction and environmental training as required.

Table 1 - Roles, responsibility, and responsible persons

4 Operations and maintenance

4.1 Procedures to control operations that may have an adverse impact on the environment

4.1.1 The Site Supervisor will identify those operations that may have an adverse impact on the environment. Environmental risks will be managed in accordance with Best Practicable Means BPM and the control measures detailed in the CoCP [R3].

4.1.2 Site-Specific Risk Assessments for dust are presented in Appendix C.

4.1.3 The following control measure categories have been identified:

- Air quality and dust;
- Materials and waste (including land quality);
- Plant, equipment, and material storage;
- Sound, noise, and vibration; and
- Water.

4.2 Air quality and dust

4.2.1 The following controls apply:

Ref	Action	Owner	Evidence	Target date/frequency
C4.2.1	All works including, but not limited to the following: • site establishment/layout; • operation of plant, vehicles, and equipment; • transportation, storage and handling of waste and materials; • use of haul roads; Shall be managed and controlled in line with Best Practicable Means (BPM). BPM site-specific control measures are detailed in the DEMP for RSSP-WTS 1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013 [R8]. See Fugitive Dust and Emissions Risk Assessment for the control measures that are to be applied (Appendix C2).	Terminal Manager Temporary Works Manger Earthworks Construction Manager Logistics Manager Environmental Manager	Site layout drawings PPM/ plant service records Vehicle and plant records RAMS TBTs as per RAMS Inspections	TBC (site layout) Refer to RAMS schedule Daily dust inspections and fortnightly environmental inspections
C4.2.2	All logistics activities including construction, excavated materials, highways/ local traffic, and travel to work shall be managed through the SCSJV Logistics Strategy (1MC03-SCJ-CL-PLN-S001-000001) [R12] and corresponding plans. Vehicle and plant (NRMM) shall be procured in line with project requirements and checked upon delivery.	Refer to RAMS schedule Daily dust inspections and fortnightly environmental inspections	Logistics Strategy [R12] and corresponding plans	N/A

Ref	Action	Owner	Evidence	Target date/frequency
C4.2.3	Monitoring and reporting will be undertaken in line with the Fugitive Dust and Emissions Risk Assessment (Appendix C2) and the DEMP for RSSP-WTS (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013)[R8]. The Air Quality Specialist will manage the installation and maintenance of the air quality monitors and reporting. Training will be provided to the SCSJV site team to ensure appropriate on-site management of fugitive dust and emissions and response to trigger alerts. An automatic continuous real-time particulate monitor (PM10) (Osiris Monitor) which meets MCERTS performance standard for indicative ambient particulate monitors will be installed and operational at the western site boundary of the site towards the nearest sensitive residential premises (approx. 100m to the west of the storage bins area a. The monitor forms part of a network of multiple dust monitors around SCSJV sites in the area and the wider HS2 route in London.	Air Quality Specialist Terminal Manager Environmental Manager/ Advisor	Installation, maintenance, and calibration records Trigger alert system and investigation recording RAMS/ TBTs/ training Monthly monitoring reports	Prior to procurement As required
C4.2.4	Operation and design precautions are taken when mixing or blending wastes. The dosing system is a fully contained system. The only time it discharges to the atmosphere is at the final stage flowing into the pugmill. The pugmills themselves are also covered to further contain dust emissions. The drop height from where the lime meets the TBM arisings has been minimised. Furthermore: to prevent dust, as the TBM arisings and lime fall into the pugmills there are additional plastic curtains that ensure a smooth flow of material and	Air Quality Specialist Terminal Manager Environmental Manager/ Advisor	Installation, maintenance, and calibration records RAMS/ TBTs/ training Monthly monitoring reports	As required

Ref	Action	Owner	Evidence	Target date/frequency
	prevent excessive spreading of the material that can result in dust.			
C4.2.5	Measures adopted as part of the design to minimise the potential diffuse emission sources: The pipe layout has been designed and checked by a third party to minimise the runs and ensure the best pipe layout to avoid blockages and issues. Due to the length on pipe the number of flanges and couplings has been kept to a minimum. Large radius bends have been incorporated into the design. Dosing silos are gravity fed. The only pressurised system is from the storage silos into the dosing silos. Because it is a dense phase system rather than lean phase the integrity of the system is higher. The system is not pressurised all the time and is only pressurised to fill the dosing silos from the storage silos when required (when dosing silos require filling). The pipework has been kept to a minimum with diverter values used for the re-filling loop on the metering silos. The drop height from where the lime meets the TBM arisings has been minimised. Furthermore: to prevent dust, as the TBM arisings and lime fall into the pugmills there are additional plastic curtains that ensure a smooth flow of material and prevent excessive spreading of the material that can result in dust.	Air Quality Specialist Terminal Manager Logistics Manager Environmental Manager/ Advisor	Installation, maintenance, and calibration records RAMS/ TBTs/ training Monthly monitoring reports	Prior to procurement

4.3 Materials, land quality and waste

4.3.1 The following controls apply:

Ref	Action	Owner	Evidence	Target date/frequency
C4.3.1	If wastes that are suspected to not conform to the EWC code (detailed in the 1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016) are identified in incoming waste, the load should be rejected, and the import should stop, and the Environmental Advisor notified. If any potentially contaminated load has been tipped, it should be quarantined and chemically tested. The import should stop, and the producer formally contacted. Following the rejection of 3 loads of the same material from the same supplier, an incident shall be raised by the Environmental Advisor.	Procurement Manager Terminal Manager Quality Manager/ Waste and Materials Specialist Technically Competent Manager	Procurement records Quality management system (ITPs) TBTS as per RAMS	Prior to procurement As required
C4.3.2	A material output quality management system will be in place at the facility. The process requires addition of lime to render the material suitable for use at the RSSP facility. As such ensuring the materials are at the correct moisture content is critical. The process starts with monitoring of the input weight and moisture content of the TBM arisings. The addition of lime is then added by metering equipment with a controlled output typically between 2 – 4%. The aim of the lime is to reduce the moisture content of the incoming material to allow placement and compaction (deposit) within the RSSP. To ensure the material is suitable output checks are also performed. After each shift the total amount of lime and TBM arisings delivered are checked to confirm the target % dosing has been achieved. Furthermore, the outbound conveyors have additional moisture content readers to again confirm the specification has been obtained. The target is to obtain a moisture content typically less than 25%.	Terminal Manager Quality Manager/ Waste and Materials Specialist Technically Competent Manager	Quality management system (ITPs) TBTS as per RAMS	Daily

Ref	Action	Owner	Evidence	Target date/frequency
	The instruments (weigh scales and moisture detectors) are calibrated by a third party on a 6 monthly basis.			

4.4 Plant, equipment, and material storage

4.4.1 The following controls apply:

Ref	Action	Owner	Evidence	Target date/frequency
C4.4.1	All work materials shall be stored appropriately to guard against breakage, theft, and damage. The site is covered with a concrete apron and surface water drainage systems (see Water Section) which provide a site wide impermeable surface. There will be a COSHH store on site for minor chemicals, which will be contained and bunded. The materials stored are sodium hexametaphosphate and cube mould oil, which will be stored in COSHH cupboard with a spill nappy underneath. The access will be restricted to certain staff only. Drainage will allow the laboratory floor to be washed down, which will be connected to a washout system; where it will be treated. Polluting material storage facilities shall be located on reinforced concrete slab surfaces and located away from storm water sewers, grids, channels and water courses or adequate measures must be taken to protect against pollution. Sources of pollutions (including waste skips, fuel storage) shall be stored over 10 metres from watercourses (including floodplain areas). No diesel, oil or polluting material storage facilities will be located within the RSSP-WTS permit boundary, rather they will be located within the existing Copthall South Office. Lime will be stored within silos, which are contained over a concrete treatment apron which is drained. Where possible, mobile plant should be refuelled in the designated area and no refuelling must take place within 10 metres of any drains or watercourses.	Terminal Manager Temporary Works Manager Procurement Manager	Site plans Procurement records RAMS/ TBTs Appointment Fortnightly and monthly inspections	Refer to RAMS schedule Prior to procurement Investigation recording

Ref	Action	Owner	Evidence	Target date/frequency
	Appointed and trained person only to use diesel-filling equipment in line with the SCSJV refuelling guidance. Where appropriate, the use of drip trays shall be used on all static plant and regularly maintained. Plant nappies will be placed under all plant and equipment where appropriate. A suitable area for maintenance of plant and equipment including vehicle washdown areas will be provided in the Copthall South Office premises. This will be located over 10 metres away from drains and watercourses. Spill response equipment, appropriate to the size of the facility, shall be located in close proximity of the facility. All spills to be reported as per incident procedure.			
C4.4.2	All plant and equipment shall be specified, operated, and maintained in good/ efficient working order and in line with the DEMP (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013) [R8] and RSSP-WTS Specific Noise and Vibration Management Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000015) [R11] and any consents e.g., Section 61 consent. Plant shall never be left running unnecessarily and where reasonably practicable, plant shall be located away from sensitive noise boundaries.	Terminal Manager Procurement Manager Environment Manager/ Advisor	Procurement records RAMS TBTs as per RAMS Fortnightly and monthly inspections	Prior to procurement Refer to RAMS schedule
C4.4.3	Selection and use of high-integrity equipment, corrosion protection and leak detection: All the values have double packing seals and they are all fail safe so the system will shutdown if there is a loss of pressure. The facility has high-integrity gaskets and compressors are fitted with mechanical seals instead of packing.	Terminal Manager Procurement Manager Environment Manager/ Advisor	Procurement records RAMS TBTs as per RAMS Fortnightly and monthly inspections	Prior to procurement Refer to RAMS schedule

Ref	Action	Owner	Evidence	Target date/frequency
	The plant is serviced on a regular maintenance schedule and verified by third parties. All pipework on the treatment facility is galvanised or painted. The checking of these coatings is part of the planned maintenance schedule. Note: the majority of the structure and pipework is galvanised. Also note the lifetime expectation of this facility is around 18 months. The treatment facility is set up with a failsafe system which means that should a leak or loss of pressure occur, then the system would shutdown to keep any discharge of lime to a minimum. Should a leak occur the system warning would occur on the PLC reporting into the control room and the auto shutdown would take place. At this stage an investigation would commence to find the fault to carry out the required repair. Post repair quality check sheets would be signed off and system tested once again before bringing back into use.			

4.5 Sound, noise, and vibration

4.5.1 The following controls apply:

Ref	Action	Owner	Evidence	Target date/frequency
C4.5.1	All logistics activities including highways/local traffic, delivery vehicles (noise from reversing alarms etc.) and travel to work sites shall be managed through the SCSJV Logistics Strategy [R12] and corresponding plans. The local community and other stakeholders will be informed in advance of works through regular ongoing engagement in line with the Community Liaison Plan (1MC04-SCJ-SE-PLN-S002-000004) [R13]. Any out of hours works must be notified to the residents 7 days prior to the work taking place.	Logistics Manager Stakeholder Interface manager	Logistics Strategy [R12] and corresponding plans Community Liaison Plan [R13] and events correspondence	NA As per Community Liaison Plan [R13]
C4.5.2	Noise and vibration on site shall be managed in line with the Noise and Vibration Management Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000015) [R11] included with the permit application. This document is based on the overarching HS2 requirements for the monitoring of noise and vibration with the addition of site-specific measures for the RSSP-WTS site following a BS4142 assessment. For specific details refer to 1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000015 included with this application. The site will be required to operate 24 hours a day, 7 days a week.	Terminal Manager Noise & Vibration Specialist Environmental Manager/ Advisor Environmental Manager	Variation or dispensation RAMS TBTs as per RAMS Fortnightly and monthly inspections Monthly noise reports/ triggers	RAMS (as per schedule)
C4.5.3	Engage with the Local Authority on a monthly basis to provide updates on programme, and proposed construction activities.	Terminal Manager Noise & Vibration Specialist Stakeholder Interface manager	Meeting minutes	Monthly As required

Ref	Action	Owner	Evidence	Target date/frequency
C4.5.4	Noise monitoring will be undertaken in line with the Noise & Vibration Management Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000015) for the RSSP-WTS area. The Noise Impact Assessment for the site has identified the need for the following site-specific measures in addition to those Best Practicable Means (BPM) measures set out in the CoCP and LEMP. The Noise and Vibration Specialist will manage the installation and maintenance of the noise monitors and reporting. Training will be provided to the SCSJV site team to ensure appropriate monitoring and response to alerts/ triggers.	Noise and Vibration Specialist Terminal Manager Environmental Manager/ Advisor Environmental Manager	Installation, maintenance, and calibration records Trigger alert system and investigation recording RAMS/ TBTs/ Training Monthly monitoring reports TBTs as per RAMS	Installed upon site establishment/ installation of hoarding. As required Refer to RAMS schedule

4.6 Water

4.6.1 The following controls apply (refer to Appendix A3 for figures and flow charts to support this text):

Ref	Action	Owner	Evidence	Target date/frequency
C4.6.1	Water resources (and consents compliance) will be managed in line with the Water Resources Plan (1MC03-SCJ-EV-PLN-S001-000036) [R21] and monitored/ reported in line with the Surface Water Monitoring Plan [R22] and the Groundwater Monitoring Plan (1MC03-SCJ-EV-PLN-S001-000030) [R23]. This will include monitoring of the water output from the facility prior to its point of discharge. A Water Management Plan is active at the site (1MC04-SCJ-EV-PLN-SS05_SL07-000039)[R27].	Water Resources and Flood Risk Specialist Utilities Manager (for sewer) Environmental Manager	Site baseline survey Site drainage design drawings and water treatment design TBC RAMS TBTs as per RAMS Reporting	Refer to RAMS schedule Reporting as required
C4.6.2	Any discharge to sewer must be agreed with Thames Water/ Affinity Water via Trade Effluent Consents which will be obtained and managed by the utilities team with the support of the Water Resources and Flood Risk Specialist. Storm Water Drainage System: There are two separate drainage systems around the treatment facility. 1- A cut-off drainage system has been installed around the TBM arising storage bins and the treatment facility. This will ensure that if there are any lime spillages that could result in high pH they are treated first by siltbuster 1 and oil interceptor No3 before they are discharged into the rain water system.	Utilities Manager Water Resources and Flood Risk Specialist Environmental Manager	Trade effluent consent TBC Site drainage design drawings and water treatment design TBC	As required.

Ref	Action	Owner	Evidence	Target date/frequency
	2 -A second system is a rainwater drainage system collects rainwater from the roof connects into this fresh water drainage system. Both drainage systems finally feed into an attenuation pond that is pumped out via a final siltbuster. This siltbuster 2 also has pH treatment equipment and telematics for continuous monitoring. The discharge is consented by the Environment Agency by a 'Schedule 33' consent. The surface water comprises run-off from these activities: • Haul Road – rainfall and wash water • Roofs of covered soil storage bays – rainfall • Dust suppression systems: • Sprinklers on haul road • Sprinklers on entrance to soil storage bays • Rainfall is onto enclosed fixed plant, covered conveyors etc The area surrounding the treatment facility (excluding the roofed soil storage bays) is bunded by the site surfacing. Ordinary rainfall would evaporate from the surface. Heavy rainfall would overtop and join the drainage system. Drainage system protections and treatment: Siltbuster 1 – initial silt and oil management (in line interceptors) has been provided as a pre-treatment. This is to improve the quality of run-off water reaching Pond 1.			

Ref	Action	Owner	Evidence	Target date/frequency
	Also, this ensures that Siltbuster 2, from where the discharge (from attenuation ponds 1, 2, and 4) to watercourse is released is not overloaded. Accidental minor spillages on the entryways to the soil storage bays is cleaned up promptly, by the nominated subcontractor (Duo) either using an excavator (with bucket) or roadsweeper, or tractor with roadsweeper attachment. Spillages would be returned to the original pile, unless swept up by the road sweeper, or unless they have become dusty or contaminated with debris, in which case they would be disposed offsite via an appropriate disposal facility. Drainage system has been designed to cope with a 1 in 30 year storm event. If an event greater than this were to occur then SCS have additional flood response measures in place such as the use of sand bags, tankers for offsite disposal and food defence equipment that would need to be implemented. SCS have already conducted drills and workshop to refine their emergency flood response and are aware that climate change has become an even greater risk to the project and local environment. Additional onsite storage is also being reviewed such as the leachate storage tanks within the RSSP.			
C4.6.3	Self-contained waste waters – not attached to surface water drainage system: There are no trade effluents and no trade effluent consent associated with the site. The site offices (not within the permitted area boundary) are provided with a cess pit, which is emptied by specialist contactor (tanker) and disposed off-site. There is a Materials Testing Laboratory on site. This is within the permitted area boundary but not associated with the permitted activities. The lab includes a concrete wash out facility. But this is carefully contained (bunded) and wash water is collected by a specialist contractor (tanker) and disposed of off-site.	Utilities Manager Water Resources and Flood Risk Specialist Environmental Manager	Trade effluent consent TBC Site drainage design drawings and water treatment design TBC	As required.

Ref	Action	Owner	Evidence	Target date/frequency
	The road sweepers in regular use (daily, available continually, used in all conditions where mud and / or dust on haul roads and yard areas is possible) – discharge off-site. The Wheel Wash (located next to quarantine bay) is self-contained. Water is re-used in the system. Silty build up (and water) are cleaned out periodically (visually inspected daily and scheduled by Site Supervisors when necessary). When emptied, this wastewater is disposed of off-site.			
C4.6.4	Treatment process – wastewaters: The treatment process does not use water. There are no effluent wastewaters except: Condensate from the dryers. Plant room – (located under the silos at the bottom of the pugmills). Some foul water, containing oil is collected from the plant room. These wastewaters are contained (IBCs) and treated with a Stirling Separation Unit prior to offsite disposal. Jet washing of the conveyors is undertaken to prevent sticking. There is potential for minor spillage / run off at the interchange points of the conveyors (where they change direction). There are controls in place to prevent any release of water containing soil conditioner (from the TBM arisings). These interchange areas are provided with bunding. Spillages of TBM arisings will be picked up and added to the material in the soil storage bays, or collected and	Utilities Manager Water Resources and Flood Risk Specialist Environmental Manager	Trade effluent consent TBC Site drainage design drawings and water treatment design TBC	As required.

Ref	Action	Owner	Evidence	Target date/frequency
	disposed off-site if the quality had become poor (e.g. dusty or contaminated with debris).			
C4.6.5	SCHEDULE 33 consent for discharge – HS2/ P10415 The Environment Agency are given power under HS2 Act (2017) Schedule 33 Part 5 to regulate the water quality of discharges from HS2 works, and to require consent for discharge activities under this schedule. Schedule 33 consents are equivalent to discharges regulated under EPR (Environmental Permitting Regulations 2016) outside the HS2 Act (2027) limits. Schedule 33 consents require as a minimum: • *Demonstration of a Written Management System, and access to records is maintained;* • *All liquids which could be hazardous to land or water requires secondary containment (e.g. silt buster chemicals)* • *Activities do not cause the spread of invasive species or plant/animal disease;* • *Controls minimise so far as reasonably practicable the polluting effects of the emissions of substances in the discharge not controlled by emission limits;* and • *Monthly Reporting of discharge quality data* The consent also sets limitations on: • daily flow rate;	Environmental Manager Environmental Advisors	Trade effluent consent TBC	As required

Ref	Action	Owner	Evidence	Target date/frequency
	• suspended solids; • pH; • iron / acrylamide; • visual – no oil and grease The Environment Agency reserves the right to seek a permit under EPR if the risk of hazardous substances within the effluent is possible. The EPR discharge permit process would facilitate further scrutiny of e.g. H1 assessment information and setting of bespoke limits for substances. It must be noted that the EA consent granting team have assessed the risk of the discharge from this activity, and confirmed that Schedule 33 controls are sufficient. It has been considered that no higher risk is present EA regulation of the Schedule 33 consents is regular (weekly). Monitoring is undertaken and reported to the EA in line with the Schedule 33 consent.			
C4.6.6	Monitoring and Inspections: Siltbuster 2 and Pond 1 are monitored in accordance with the Schedule 33 consent Currently weekly sampling is undertaken from these points. A daily visual inspection of all drainage (surface) runs and ponds is included in normal environmental management and site foremen and supervisor's regular walkovers. Any anomalies would be reported (to site team and management) to be investigated or rectified (usually actioned (/ scheduled) same day).	Utilities Manager Water Resources and Flood Risk Specialist Environmental Manager	Trade effluent consent TBC Site drainage design drawings and water treatment design TBC	As required.

Ref	Action	Owner	Evidence	Target date/frequency
	A full environmental inspection is conducted fortnightly by an Environmental Manager (or Advisor). Monthly inspections (TRMs) are conducted for environmental impacts (including dust specific etc). Fortnightly and monthly inspections always include water management systems. Inspections are recorded on centralised systems.			

5 Complaints and incident management

5.1 Incident response

5.1.1 The SCSJV has developed its incident management procedures to align with the HS2 incident management process which, in summary includes:

- A three-tier response command structure (Gold, Silver, Bronze) to manage an incident;
- A single process for the management of all events that constitute an incident, with defined levels to help frame the response – Levels 1 to 4 (Level 1 being the most serious incidents);
- A 24-hour, 365-day Help Desk, operated by HS2, to start the co-ordination of HS2's response to an incident and to support the SCS JV where appropriate. The help desk is the first point of contact (0207 944 6570) to HS2 for all Level 1 and 2 incidents on the programme; and
- An on-line incident reporting system (HORACE) that records the details of an incident and supports communications, investigation, and follow-up activities to avoid a recurrence.

5.1.2 The Environmental Incident Control Plan (1MC03-SCJ-EV-PLN-S001-000008) [R24] details the requirements for dealing with an environmental incident. The incident levels and flow chart can be found in Appendix B.

5.1.3 Unexpected discoveries are anything encountered on site which was not planned for.

5.1.4 Environmental incidents will also be reported to the Environment Agency in line with the permit conditions.

5.2 Complaints

5.2.1 HS2 operate the HS2 Public Help Desk 24 hours per day, 7 days a week, to manage all complaints, handle enquiries and co-ordinate incident response. The SCSJV Community Engagement Team maintain 24/7 contact with the helpdesk and be available to answer any queries or liaise with site supervisors for investigation and resolution of complaints.

6 Communication

6.1 Risk assessment, method statements and start of shift briefings

6.1.1 Risk assessments and method statements will be written to cover specific activities and work. The Terminal Team works with the environment team to review and provide environmental content within RAMS. This plan will be used when drafting RAMS to ensure the relevant environmental risks are effectively captured and assessed, making sure RAMS are approved in accordance with the controls stated within this document.

6.1.2 Site Supervisors/Managers will hold daily start of shift briefings to ensure suitable coordination of site activities. Relevant environmental risks and control measures identified in the RAMS will be communicated as required.

6.2 Training and Awareness

Project and site inductions

6.2.1 All staff will receive a HS2 MWCC Induction. SCSJV and HS2 staff and operatives engaged on-site will undertake a site-specific health, safety, and environmental management induction prior to visiting or commencing work on site.

6.2.2 The induction will include the main requirements of the EMS to inform staff and operatives of the main environmental risks and controls to be implemented on site.

6.3 Specific environmental training and appointments

6.3.1 In addition to the full site induction and task briefings, a number of tailored environment training courses will be delivered throughout the project that are site specific and relevant to operatives' roles and responsibilities.

6.3.2 All site supervisors shall attend Site Environmental Awareness Training (SEATS) within 3 months of joining the project, unless they have evidence to show they have completed the course within the last 5 years. This training shall be repeated every 5 years.

6.3.3 The two key environmental appointments on site are the Waste Controller and the Environmental Manager. These individuals must be nominated and appointed by the Terminal Manager and have attended the training/ signed the appointment letters for these roles. Key personnel will also require specific Waste Duty of Care training.

6.3.4 The SHE Systems Manager/ Training Manger maintains the SHE Training Matrix [R6] that identifies and records environmental training for all individuals working on lots S1 and S2.

6.3.5 Specific environmental training will be developed as required on site. Current courses in development include Air Quality/ Dust monitoring and Monitoring of Noise and Vibration.

6.3.6 Tool-box talks will be provided by both the Terminal Team, The Environment Team, and the environmental specialists. The content and frequency of these briefings will be included in site specific RAMS and corresponding TBTs.

7 Assurance and performance evaluation

7.1 Introduction

7.1.1 As detailed under each of the control measures, inspections and audits will be undertaken throughout the operational life of the permit.

7.2 Environmental monitoring

7.2.1 Environmental monitoring encompassing noise, vibration and air quality monitoring will be required to support the environmental assurance requirements.

7.3 Inspections and audits

7.3.1 Targeted Risk Matrix (TRM) assessment will be undertaken on a fortnightly basis by the site environmental advisor. Quarterly scored inspections will be undertaken internally by SCSJV, and quarterly environmental audits will also be undertaken internally by SCSJV. Monthly reporting of the environmental condition of the facility will be undertaken and submitted for review to the Environment Agency.

7.4 Sustainability reporting

7.4.1 SCSJV will measure and report environmental data as monitored above and in line with the Sustainability Reporting Technical Standard (HS2-HS2-SU-STD-000-000007) [R24] using the Environmental Sustainability Reporting Template (HS2-HS2-SU-TEM-000-000007) [R25] through the monthly Project Management Update (PMU).

7.4.2 The information will be used to monitor performance of the works against SCSJV objectives and targets that will be reviewed at HS2/ SCSJV environment meetings.

7.5 Energy Management

7.5.1 To meet the SCSJV carbon reduction and sustainability strategy, a 'Decarbonising Construction Activities' (DCA – formerly known as 'diesel free') audit is completed at least once per year. The DCA audit is the main determinant utilised by SCSJV to track performance against the Sustainability Strategy – diesel free KPIs. Throughout 2023, the Southern Treatment Area site improved its energy management performance to achieve an award one level higher than in 2022 (Bronze 2022, Silver 2023). The DCA tracks use of generators, fuel usage by SCS and its subcontractors, electricity connections and use of electric vehicles, NRMM plant, idling, welfare facilities (energy efficiency and improvements), and de-mobilisation plans.

7.5.2 No diesel is utilised on site. All current generators and plant operating within the WTS utilise Hydrogenated Vegetable Oil (HVO) fuel. Once mains power is fully installed for the WTS

(expected September 2023) all operations that previously utilised generators within the Southern Treatment Area will be connected to mains power.

7.5.3 Mains power that will power this facility is sourced from the West Ruislip Portal site and is made accessible to the Southern Treatment Area via the conveyor that runs from the West Ruislip Portal site. Mains power sourced to this facility (MPAN 1050002218665), is based from a clean renewable tariff.

7.5.4 Continual improvement has already been evidenced in this area, for example the siltbuster water treatment plant within this area has previously been operated by a HVO generator but is proposed to be upgraded to mains.

8 Continual improvement

8.1 Non-conformance and corrective actions

8.1.1 Non-conformances (identified through audits, lessons learnt or incidents) will be logged on a Non-conformance Log by the Environment Team.

8.1.2 The Non-conformance Log will be reviewed during progress review meetings and lessons learnt will be shared with parent companies, other contractors and with HS2.

8.2 Opportunities for improvement

8.2.1 The SCSJV will review incidents to ensure investigations and corrective and preventative actions have been completed on time; identify trends and actions to be implemented; and disseminate lessons learnt with the aim of preventing recurrence.

8.2.2 Operatives will be encouraged to report near misses (a Level 4 incident) and good practice on the HS2 online incident reporting system.

8.3 Environmental management review

8.3.1 An environmental management review will be held at least every 6 months. This will include members of the Terminal Team and the Senior Leadership Team and key supply chain members where appropriate.

8.3.2 Environmental performance will be reviewed, including risks and opportunities identified and actions taken.

References

The following documents are client and industry related documents from which the above information is drawn or to be referred to:

Reference	Title	Reference
R1	Materials Management Plan Framework	HS2-HS2-EV-STD-000-000006
R2	SCSJV MWCC Overarching Environmental Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000003
R3	HS2 Environmental Minimum Requirements Annex 1: Code of Construction Practice	LWM-HS2-EV-STA-000-000107
R4	HS2 Sustainability Policy	HS2-HS2-SU-POL-000-000001
R5	SCSJV Environmental Policy	1MC03-SCJ-EV-POL-S001-000001
R6	SHE Training Matrix	1MC03-SCJ-HS-TEM-S001-0000510
R7	SCSJV Sustainable Sourcing Plan	1MC03-SCJ-EV-PLN-S001-000010
R8	Dust and Emissions Management Plan - Waste Transfer and Treat Station - Ruislip Southern Sustainable Placement S2	1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013
R9	Land Quality Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000012
R10	Lighting Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000027
R11	Noise and Vibration Management Plan - Waste Transfer and Treat Station - Ruislip Southern Sustainable Placement S2	1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000015
R12	Construction Logistics Strategy S1 & S2	1MC03-SCJ-CL-PLN-S001-000001
R13	Community Liaison Plan S2	1MC04-SCJ-SE-PLN-S002-000004
R14	Site Specific Environmental Control Plan, West Ruislip	1MC04-SCJ-EV-PLN-SS05_SL07-000003
R15	Statement of Intent	1MC03-SCJ-EV-APP-SS02_SL02-000001
R16	Fugitive Dust and Emissions Risk Assessment - Waste Transfer and Treat Station - Ruislip Southern Sustainable Placement S2	See Appendix A1 of Document: 1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013
R17	Importing Recycled Aggregates Procedure	1MC03-SCJ-EV-PRO-S001-000009
R18	Excavated Materials Management Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-0000017
R19	Water Resources Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000036
R20	Surface Water Monitoring Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000029

R21	Groundwater Monitoring Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000030
R22	Environmental Incident Control Plan S1 and S2	1MC03-SCJ-EV-PLN-S001-000008
R23	Monthly Environmental Inspection	1MC03-SCJ-EV-TEM-S001-000018
R24	Sustainability Reporting Technical Standard	HS2-HS2-SU-STD-000-000007
R25	Environmental Sustainability Reporting Template	HS2-HS2-SU-TEM-000-000007
R26	Best Available Techniques Reference (BREF) Conclusions Checklist	1MC04-SCJ_SDH-EV-REP-SS05_SL07-000023
R27	Water Management Plan	1MC04-SCJ-EV-PLN-SS05_SL07-000039

Appendix A1 - EMS Certificate

bsi.

Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

This is to certify that:

Costain Group Plc
Costain House
Varwell Business Park
Maidenhead
Berkshire
SL6 4UB
United Kingdom

Holds Certificate Number: EMS 45057

and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scope:

The provision of professional services relating to the delivery of engineering and technology led solutions at every stage in the life-cycle of a client's asset, from conception, planning, design through delivery, testing, commissioning, handover, operation, and decommissioning.
These services may be provided to a client as a sole entity, in a joint venture or as a member of an alliance.

For and on behalf of BSI:

Andrew Launn, EMEA Systems Certification Director

Original Registration Date: 1999-06-07
Latest Revision Date: 2020-10-28

Effective Date: 2020-11-09
Expiry Date: 2023-11-08

Page: 1 of 3

...making excellence a habit.

Appendix A2 - Wamitab Certificate

CIWM

Continuing Competence Certificate

This certificate confirms that

Miles German

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 10/02/2022

LH	Landfill - Hazardous Waste
TMNH	Treatment - Non Hazardous Waste

Expiry Date: 10/02/2024

Verification date: 31/01/2022
Authorised:

Professional Services Director

Learner ID: 982
Certificate No.: 5192554
Date of Issue: 10/02/2022

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

Scan code on reverse to authenticate that this is a genuine paper

Appendix A3 – Water Management

The following figures are provided to support the text in Section 4.6

Figure A3.1: HS2/P10415 Schedule 33 Consent Monitoring Map for Southern Treatment Area

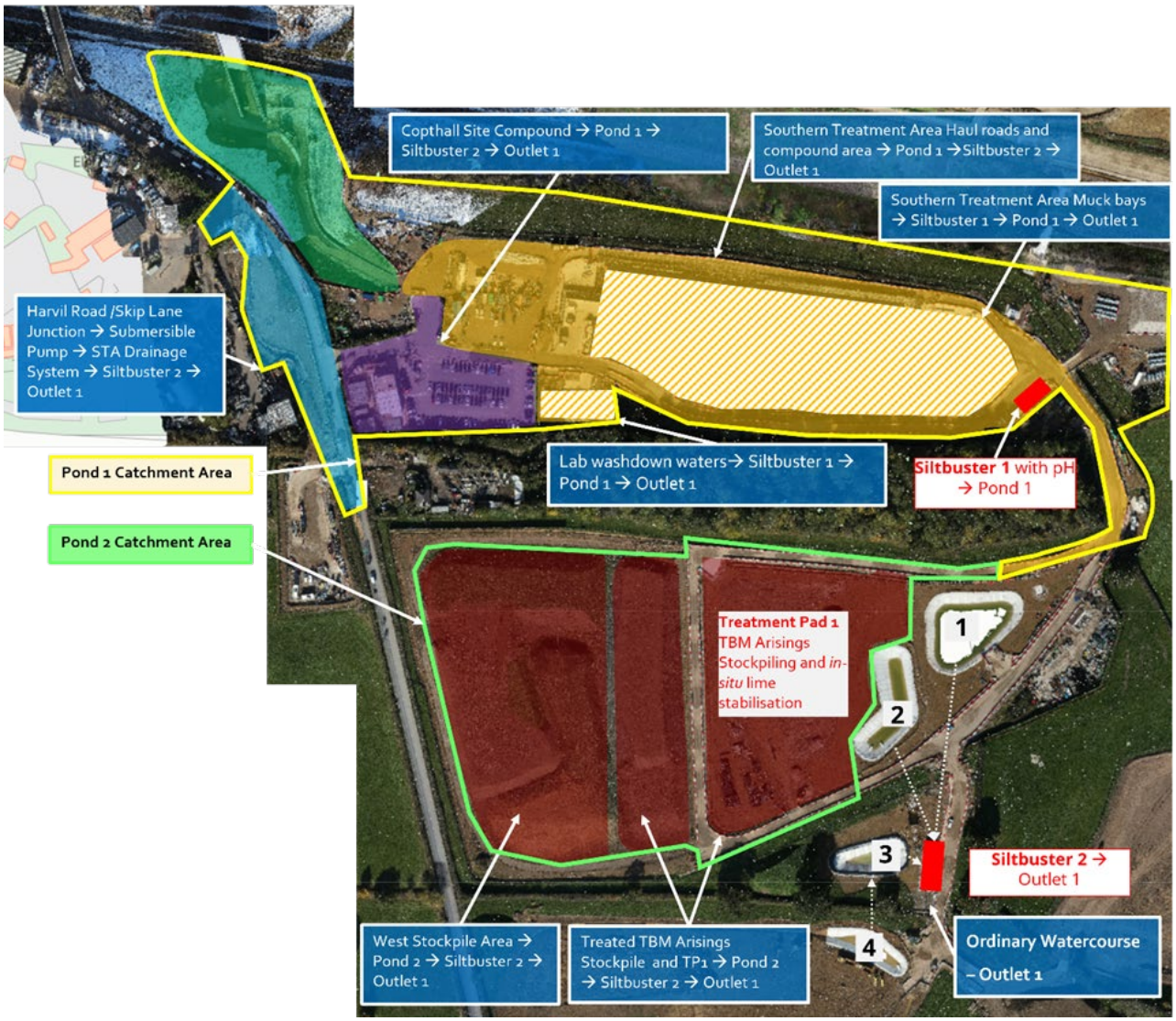


Figure A3.2: Southern Treatment Area and Skip Lane Drainage Diagram with Map Diagram 1 (Note aerial photograph is pre-roof installation)

Site Labels			
HROC	Harvil Road Over Chiltern Line	**SL**	Skip Lane
MB1-3	Muck bin 1-3	**WML**	West Materials Lab
CL	Chiltern Line	**CP**	Cesspit
CGL	Cadent gas line	**CC**	Copthall Covert
CON	Conveyor	**PUG**	Pugmill

Figure A3.3: Southern Treatment Area and Skip Lane Drainage Diagram with Map Diagram 2

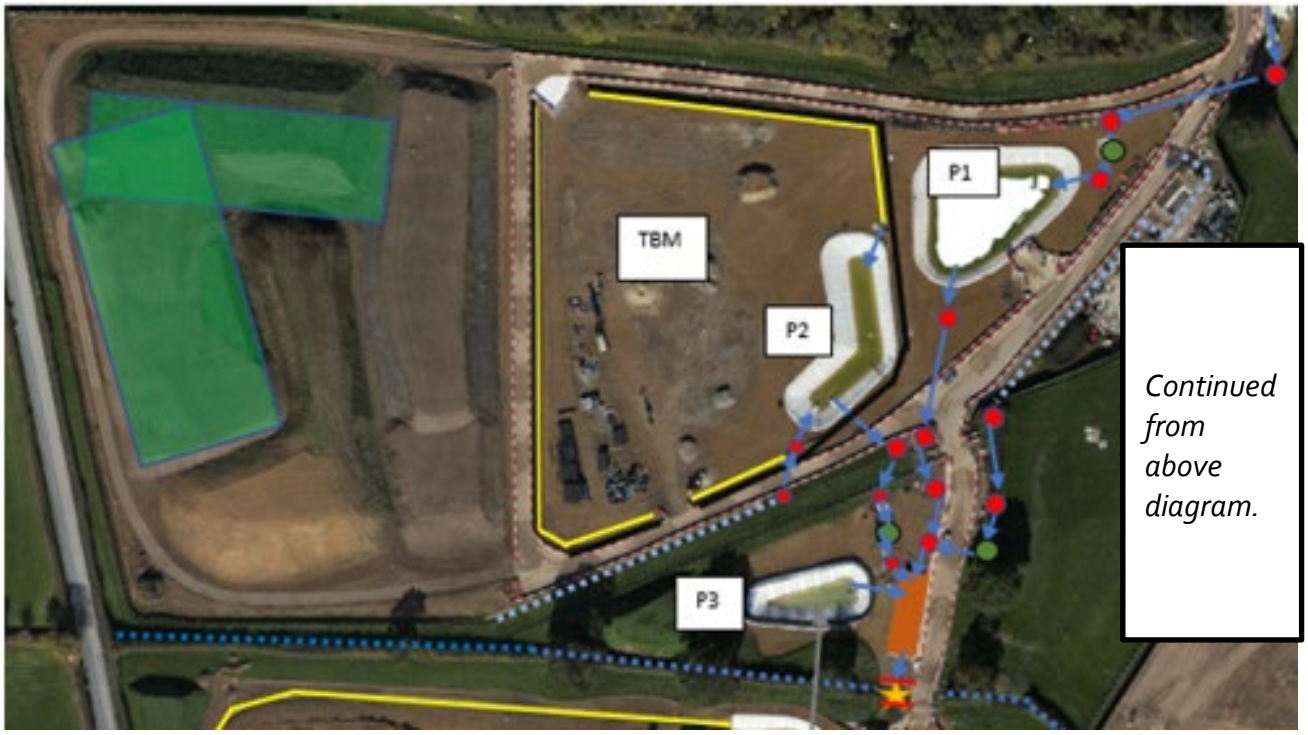
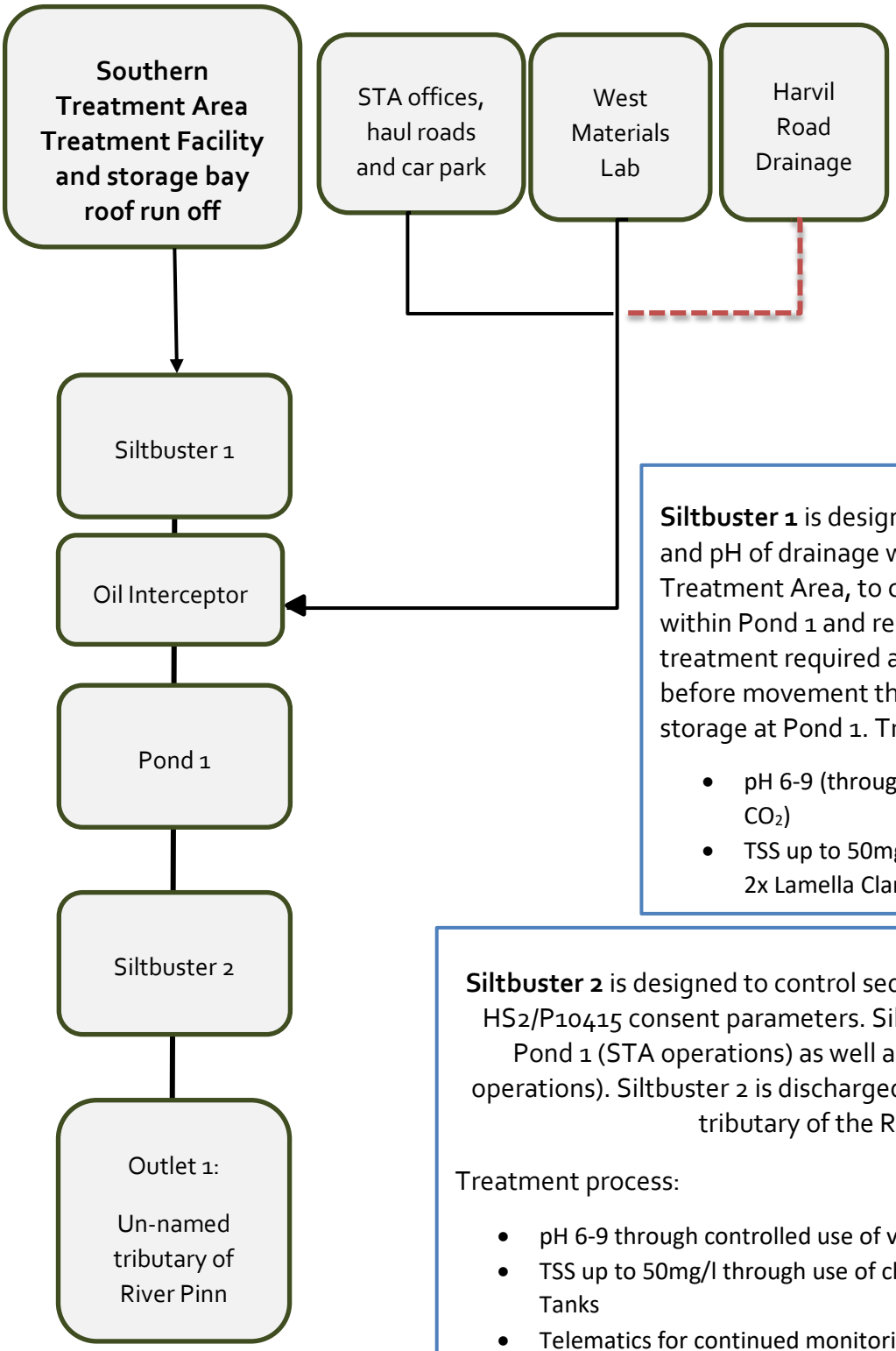

TBM
P1
P2
P3
Continued from above diagram.

Figure 4: Flow Diagram showing drainage origin and treatment pathway



Harvil Road: The ongoing construction of Harvil Road over the Chiltern line required realigning the road. During this realignment, the road drainage was diverted into a manhole on the construction site. A variation to Schedule 33 was made to pump the road drainage into the site drainage system. However, SCS identified the road drainage was a major contributor to Chr VI so the manhole was no longer pumped into the site drainage system. External contractor dewaters this manhole and disposes of the wastewater at a registered waste facility offsite.

Siltbuster 1 is designed to control the sediment and pH of drainage water from the Southern Treatment Area, to control water conditions within Pond 1 and reduce the amount of treatment required at Siltbuster 2. Siltbuster 1 is before movement through oil interceptor to storage at Pond 1. Treatment process:

- pH 6-9 (through controlled use of vaporised CO_2)
- TSS up to 50mg/l through use of chemicals and 2x Lamella Clarifier Tanks

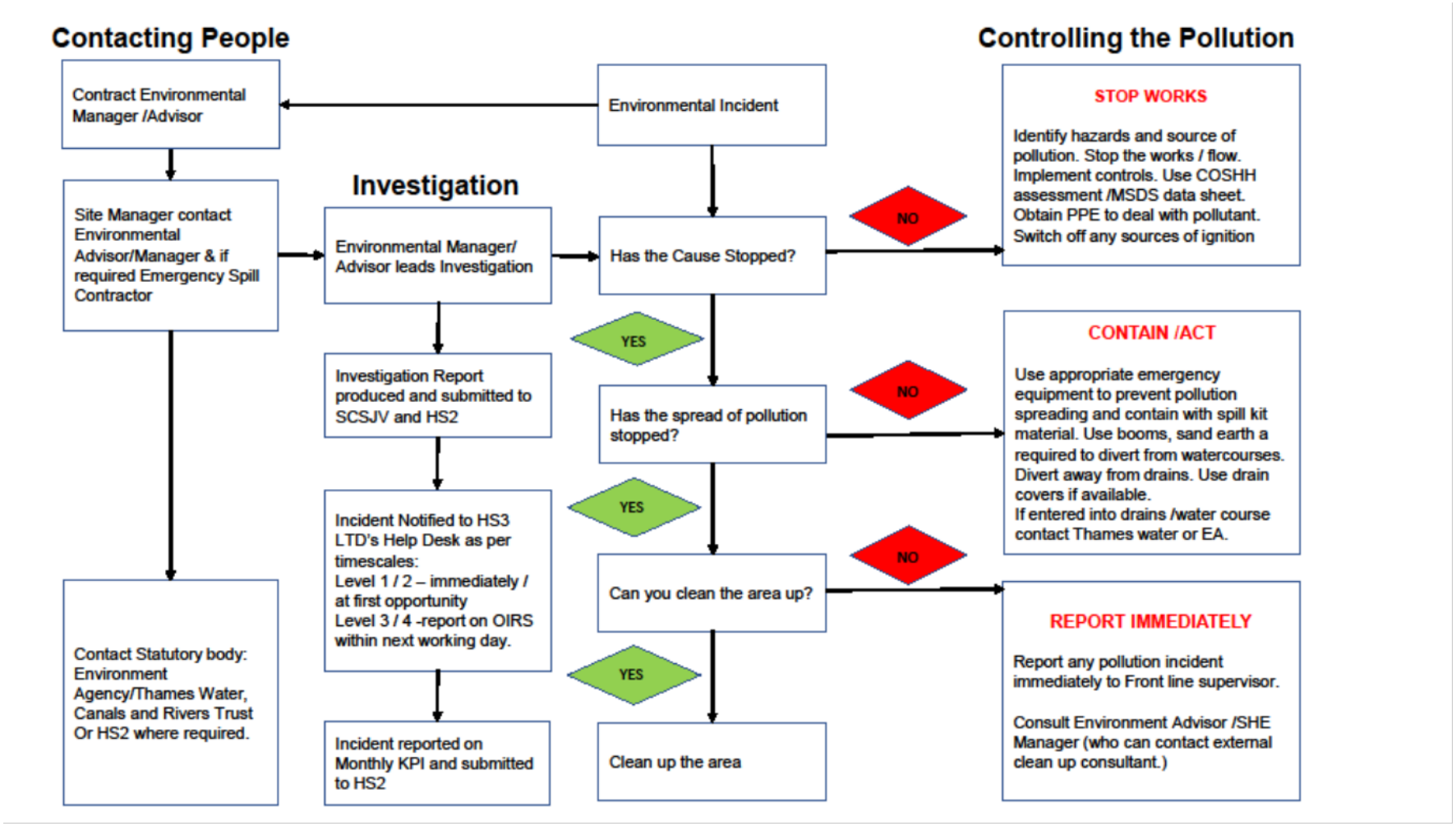
Siltbuster 2 is designed to control sediment and pH to meet Sch33 HS2/P10415 consent parameters. Siltbuster 2 treats water from Pond 1 (STA operations) as well as Ponds 2,3&4 (other site operations). Siltbuster 2 is discharged to Outlet 1 of the unnamed tributary of the River Pinn

Treatment process:

- pH 6-9 through controlled use of vaporised CO_2
- TSS up to 50mg/l through use of chemicals and 4x Lamella Clarifier Tanks
- Telematics for continued monitoring

Appendix B - Incident levels and flow chart

Level 1	Level 2	Level 3	Level 4
Incidents that cause persistent or extensive harm or damage to the environment e.g., requiring external involvement to clean-up (and therefore a high likelihood of regulatory action including receipt of a statutory notice or other intervention by enforcing authority). Persistent and significant breach of permit / licence or consent conditions	Incidents that have caused or may cause significant harm or damage to the environment; or Persistent non-significant breach or significant non-persistent breach of consent conditions.	Incidents that have caused minor harm or damage to the environment (e.g., minor fuel spill on to ground, noise monitor exceedance).	An event, controlled through implementation of an effective incident control measure (e.g., drip tray used, effective use of noise barrier).


Contacting People
Controlling the Pollution
Contract Environmental Manager /Advisor
Environmental Incident
Site Manager contact Environmental Advisor/Manager & if required Emergency Spill Contractor
Investigation
Environmental Manager/ Advisor leads Investigation
Has the Cause Stopped?
NO
STOP WORKS
Identify hazards and source of pollution. Stop the works / flow. Implement controls. Use COSHH assessment /MSDS data sheet. Obtain PPE to deal with pollutant. Switch off any sources of ignition
YES
Investigation Report produced and submitted to SCSJV and HS2
Has the spread of pollution stopped?
NO
CONTAIN /ACT
Use appropriate emergency equipment to prevent pollution spreading and contain with spill kit material. Use booms, sand earth a required to divert from watercourses. Divert away from drains. Use drain covers if available.
If entered into drains /water course contact Thames water or EA.
YES
Incident Notified to HS3 LTD's Help Desk as per timescales:
Level 1 / 2 – immediately / at first opportunity
Level 3 / 4 -report on OIRS within next working day.
Can you clean the area up?
NO
REPORT IMMEDIATELY
Report any pollution incident immediately to Front line supervisor.
Consult Environment Advisor /SHE Manager (who can contact external clean up consultant.)
YES
Contact Statutory body: Environment Agency/Thames Water, Canals and Rivers Trust Or HS2 where required.
Incident reported on Monthly KPI and submitted to HS2
Clean up the area

Appendix C - Site Specific Risk Assessment

C1 – RSSP-WTS Risk Assessment Matrix

C1.1 Exclusions

The following exclusions apply to the Risk assessment and management plans provided in C2 below:

Hydrogeology: Underlying bedrock is classified by the Environment Agency as a Principal Aquifer (Seaford Chalk). No current or historic groundwater abstractions are located within 500m of the site. Given the significant thickness of vertically confining strata (e.g., London Clay and Lambeth Group) between the main potential source of contamination (Made Ground) and the Principal Chalk aquifer (top horizon of the chalk is 25.6m bgl), there is no pathway between the source and the receptor (Chalk aquifer); as such, the chalk aquifer is not considered to be a receptor of the works at RSSP-WTS.

Designations: Designations are outlined in Table 3 of the Site Condition Report (1MC04-SCJ_SDH-EV-REP-SS05_SL07-000009)

Site Operation: Noise and Vibration Management Plan.

Environmental Risk Assessment

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
Noise and vibration						
Risks posed by noise and vibration because of the permitted activities.	The receptors considered in the site-specific assessment include: Shorthill Cottage (R1), Harvil Farm (R2), Brackenbury House (R3), Brackenbury Barn (R4), The Bungalow (R5), 160 Hoylake Crescent (R6), 178 Hoylake Crescent (R7), 77 The Greenway (R8), and Oak Farm (R9); see 1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018. These have been identified as potentially affected by sound due to their relative proximity to the RSSP-WTS area boundaries.	Airborne and land	The Noise and Vibration Management Plan (NVMP) (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000015) for the permit site includes site-specific commentary relating to the identified receptors for noise and vibration because of the permit activities, noise assessment and control measures to reduce the impacts associated with noise and vibration. A site-specific noise impact assessment was undertaken and is described within the NVMP (Appendix B). The assessment findings concluded that the proposed works result in a noise and vibration impact at the identified receptors. When the results of the BS 4142 assessment were considered in the context of both the pre-existing ambient noise levels (which are higher than the predicted construction noise levels at all receptors during the day, evening and night) and the results of the supplementary BS 5228 assessment for temporary activities, it was considered that receptor locations R1 to R5 would have impacts reduced to the adverse level, impacts at receptor groups R6 would be less than adverse, and there would be low impacts at receptor groups R7, R8, and R9. The following control measures have been adopted as part of the operation of the site, to reduce noise and vibration impacts at surrounding receptors: The general mitigation measures required for noise and vibration for HS2 are outlined in the Construction Code of Practice (CCoP) which places an emphasis on implementing ‘Best Practicable Means’ (BPM) during construction works. The following BPM will be adopted at RSSP-WTS: Within the site, internal haulage will be restricted to clearly delineated routes, on a prepared surface, vehicle speeds will be regulated on-site. Selection of modern quiet/low vibration equipment, equipped with silencers and operated in accordance with the manufacturers specifications and maintained in good working order – plant found to have defective silencing systems will be stood down until the system is rectified. Daily inspections will be carried out to all plant. Vehicles delivering waste will be in good working order. Vibratory compaction exclusion zone when carrying out vibratory compaction near existing sensitive receptors: Large Roller (Single roller JCB Type) on high setting – 70m, Large Roller (Single roller JCB Type) on low setting – 35m, and Small Ride-on Roller – 25m.	HIGH	HIGH	HIGH

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
			Equipment will be located on-site to reduce noise and vibration impact to identified receptors as much as possible. Drop heights from conveyors will be kept to the reasonably practical minimum to prevent excessive noise from falling soils. Conveyors will be fully enclosed. Where practicable, mobile plant will not be left idling when not mobile. All SCSJV site vehicles will use smart alarms, which use a white noise system which can only be heard over short distances. The larger holding compound will have a concrete base with a 3.75m high concrete wall which will reduce noise from the transfer of waste (waste to be kept at least 0.5m below the top of the wall height). The isolation holding bunded compound will have a concrete base with a 3.75m high concrete wall which will reduce noise from the transfer of the waste (waste to be kept at least 0.5m below the top of the wall height). Control of working hours in line with the requirements Section 6.6 of the NVMP (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000015). Restrictions on working periods for specific activities will be in force. Hoardings will be used where practicable to do so. Localised screening of plant and equipment to mitigate noise at source. Use of noise insulation for identified receptors (described below). Real time monitoring of noise and vibration (using existing noise monitoring locations identified in 1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018 (Appendix B of the NVMP)). Training for the SCSJV team to ensure appropriate monitoring and response to alerts and triggers. <u>Noise insulation:</u> 2.4m and 3.6m high noise barriers installed at strategic locations to provide mitigation measures to residential receptors. The locations of these are shown on Figure 8 of Appendix B in the NVMP (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000015). The 3.6m high noise barrier is in place to the north of Shorthill Cottage within the RSSP-WTS boundary.			
Dust and emissions						
Exhaust emissions from road vehicle movements on site including entering and leaving the site.	Residents to the west on Harvil Road and to the east/southeast on Breakspear Road.	Airborne	This hazard and associated receptor(s) were identified as part of the Fugitive Dust and Emissions Risk Assessment in Appendix A1 of the Dust and Emissions Management Plan (DEMP) (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013). Risk management techniques associated with this scenario are provided below: All road vehicle movements to the site will be prebooked and allocated delivery times to prevent queuing of vehicles at the site entrance off Harvil Road.	LOW	LOW	LOW

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
			All Light Duty Vehicles will meet Emission Standard Euro 6 (Diesel) and Euro 4 (Petrol). All Heavy Good Vehicles (HGVs) will meet Emission Standard Euro VI. SCS operate a vehicle register and only those vehicles that are compliant are allowed to operate on the scheme. Records of this can be made available on request. All road vehicles will be maintained in accordance with the manufacturer's instructions and hold a current MOT. A noticeboard summarising the site rules for visiting drivers is displayed in a prominent position adjacent at the site entrance, and a complete set of rules will be displayed in the site office. Copies of the site rules will be available for issue to visiting drivers. Movement of road vehicles around the site will be kept to the minimum reasonable for the effective and efficient operation of the site. Vehicles will be switched off when not in use.			
Exhaust emissions from on-site Machinery (Non-Road Mobile Machinery – NRMM).	Residents to the west on Harvil Road and to the east/southeast on Breakspear Road.	Airborne	This hazard and associated receptor(s) were identified as part of the Fugitive Dust and Emissions Risk Assessment in Appendix A1 of the Dust and Emissions Management Plan (DEMP) (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013). Risk management techniques associated with this scenario are provided below: All relevant NRMM (with a power rating between 37-560kW) will meet a minimum emission standard Euro Stage IV*. (*IIIA for constant speed engines of any power i.e. generators). NRMM meeting emission standard Euro Stage V or using alternative low/zero emission technology (e.g. hydrogen or electric) will be preferred depending on market availability. All NRMM will be operated in accordance with the manufacturer's written recommendations. On-site NRMM will be switched off and secured when not in use on-site. NRMM exhausts to be directed away from the ground and positioned at a height to facilitate appropriate dispersal of exhaust emissions. Movement of NRMM around the site will be kept to the minimum reasonable for the effective and efficient operation of the site. The use of diesel or petrol-powered generators will be reduced by using mains electricity or battery-powered equipment where reasonably practicable. All NRMM will use ultra-low-sulphur diesel or Hydrogenated Vegetable Oil (HVO). NRMM maintenance records will be kept on-site and reviewed regularly.	LOW	LOW	LOW

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
Dust emissions from the waste delivery to site by the conveyor system.	Residents to the west on Harvil Road and to the east/southeast on Breakspear Road.	Airborne	This hazard and associated receptor(s) were identified as part of the Fugitive Dust and Emissions Risk Assessment in Appendix A1 of the Dust and Emissions Management Plan (DEMP) (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013). Risk management techniques associated with this scenario are provided below: The conveyor belt system will be enclosed for its length of travel within the site. The conveyor belt system will have a suitable belt cleaning system (scrapers/brushes and watering) to prevent the build-up of dry friable materials on the conveyor. The conveyor system will be regularly inspected and maintained in accordance with the manufacturer's instructions to ensure the belt cleaning and dust suppression systems are working effectively and efficiently. Drop heights from the conveyor to stockpiles will be kept to the reasonably practicable minimum. The waste material storage area (muck bin storage area) will comprise walls on western, northern, and eastern facades to roof level and the 7,850m^2 area will be roofed. An automatic continuous real-time particulate monitor (PM10) (MCERTS indicative) will be installed and operational at the western site boundary towards the nearest sensitive residential premises (approx. 100m to the west of the storage bins area and immediately north of the topsoil storage area. The monitors have a site action level set at 7.5µgm/m^3 (above background) based on a 24hr average, which if triggered will send an email alert to relevant site and project personnel and instigate cessation of work and investigation into the source of the trigger. Corrective action will be implemented before recommencement of site operations. The outcome of trigger alerts and investigation will be notified to the Environment Agency (EA) as soon as practicable and within 48 hours.	LOW	LOW	LOW
Dust emissions from loading and storage of lime in silos and dosing of TBM arisings.	Residents to the west on Harvil Road and to the east/southeast on Breakspear Road.	Airborne	This hazard and associated receptor(s) were identified as part of the Fugitive Dust and Emissions Risk Assessment in Appendix A1 of the Dust and Emissions Management Plan (DEMP) (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013). Risk management techniques associated with this scenario are provided below: Lime will only be stored on-site within the designated silos. Dust emissions from unloading road tankers shall be minimised by venting to the silo filter using a delivery tanker fitted with an on-board, truck-mounted relief valve and filtration system, and by connecting transfer lines first to the delivery inlet point and then to the tanker discharge point, and by ensuring delivery is at a rate which does not pressurise the silo.	LOW	LOW	LOW

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
			Bulk lime tanker transfer lines will be securely connected to the silo delivery inlet point first, and then the tanker discharge point before the delivery commences. Materials will be delivered at a controlled rate, and the rate adjusted to prevent pressurisation of the silo. Silos shall not be overfilled or over pressurised and there shall be an overfilling and over pressure warning alarm. Deliveries will automatically stop where overfilling or over-pressurisation is identified. Displaced air from pneumatic transfer shall pass through filtration prior to emission to air. The filter systems will be regularly inspected and cleaned to prevent blockages and accumulation of powder in the filter system. Dosing and thorough mixing of TBM arisings will be carried out within the dedicated pugmills.			
Dust emissions from stockpile management within the muck storage bin area.	Residents to the west on Harvil Road and to the east/southeast on Breakspear Road.	Airborne	This hazard and associated receptor(s) were identified as part of the Fugitive Dust and Emissions Risk Assessment in Appendix A1 of the Dust and Emissions Management Plan (DEMP) (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013). Risk management techniques associated with this scenario are provided below: The height of the wase material stockpiles will always be at least 0.5m below the top of the 3.8m walls. Drop heights from vehicles/NRMM involved in the transfer of materials on the site will be kept to the reasonably practicable minimum. Vehicles/NRMM transporting materials within the site will not be overloaded. Above the entrance of each bay of the muck storage building, a sprinkler system will be installed to supress dust from vehicle and machinery movements to and from the building to avoid fugitive dust emissions becoming airborne beyond the building. Daily cleaning and suppression of dust in the muck storage bin area will be supplemented using a road sweeper (7t or larger) and/or large capacity vehicle pulled (HGV), or driven, water bowser. The number of handling operations of stockpiles waste materials will be kept to the minimum reasonably practicable. A visual inspection of operations within the muck storage bin area will be undertaken at regular intervals during the day and recorded. Any shortfalls in 'housekeeping' and effectiveness of dust suppression will be identified and rectified promptly.	LOW	LOW	LOW

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
Dust emissions from road vehicles and NRMM movements on-site including entering and leaving the site via Harvil Road.	Residents to the west on Harvil Road and to the east/southeast on Breakspear Road.	Airborne	This hazard and associated receptor(s) were identified as part of the Fugitive Dust and Emissions Risk Assessment in Appendix A1 of the Dust and Emissions Management Plan (DEMP) (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013). Risk management techniques associated with this scenario are provided below: Tipper lorries arriving at site carrying TBM arisings will be sheeted, until unloading. On-site speed limit for any vehicle/NRMM will be 5mph. Speed limit signage will be displayed at the site entrance and around the haul route and enforced by on-site traffic marshals. The entrance/egress of the site and haul road that circles the waste material storage area (muck storage bins) will comprise an impermeable concrete slab. The haul road routed south of the placement area will comprise coarse granular compacted materials. A visual inspection of haul routes ('housekeeping' and repair) will be undertaken at regular intervals during the day and recorded. Any shortfalls in 'housekeeping' will be identified and rectified promptly. Similarly, repairs will be arranged and implemented. Daily cleaning and suppression of dust on haul routes will be carried out using a road sweeper (7t or larger) and/or capacity vehicle pulled (HGV), or driven, water bowser. Manual jet washes (estimated inventory of 4-6) and sweeping facilities will be available on-site for cleaning of small/limited areas where access for larger road sweeper and vehicular water bowsers is limited/prevented. The frequency of cleaning during the day will be suitable for the purposes of suppressing dust emissions and preventing friable deposits on haul routes. All HGV Road vehicles and NRMM leaving the site will use the automated wheel-wash facility. All vehicle wheels will be subsequently checked and if necessary be re-sent through the wheel-wash for further cleaning prior to the site egress at Harvil Road. An automatic continuous real-time particulate monitor (PM10) (MCERTS indicative) will be installed and operational at the western site boundary towards the nearest sensitive residential premises (approx. 100m to the west of the storage bins area and immediately north of the topsoil storage area). The monitors have a site action level set at 75µgm^{-3} (above background) based on a 24 hour average, which if triggered will send an email alert to relevant site and project personnel and instigate cessation of work and investigation into the source of the trigger. Corrective action will be implemented before recommencement of site operations. The outcome of	LOW	LOW	LOW

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
			trigger alerts wand investigation will be notified to the EA, as soon as practicable and within 48 hours. Movement of vehicles/NRMM around the site will be kept to the minimum reasonable for the effective and efficient operation of the site. Drop heights from excavators to vehicles/NRMM involved in the transport of materials between stockpiles and road haulage vehicles or NRMM will be kept to the reasonably practicable minimum. The number of handling operations of stockpiled waste materials will be kept to the minimum reasonably practicable.			
Other environmental considerations (inclusive of those concerning contaminated land)						
Surface water run-off with high sediment load/pH impacting local surface water features	Surface water features	Land/Surface water	Section 5.3 of the Site Operating Plan (SOP) (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016) for RSSP-WTS details the requirements for surface water management. This summarised the operational surface water requirements of RSSP-WTS, which was detailed as part of a Drainage Technical Report (1MC04-SCJ-EN-REP-SS05_SL07-000027). The site drainage strategy for permitted activities in RSSP-WTS will include the following control measures as a risk management technique to the identified hazard: Modifications have been made to the drainage networks for the Copthall South compound (office and car park) area and the RSSP-WTS compound.. These are separate catchments, both part of the overall systems drainage strategy for the area. Surface water (rainfall from building roofs, haul road) only may join the RSSP-STA area from the adjacent office compound. The laboratory sits within the RSSP-STA compound permitted area boundary but all waters are controlled separately (e.g. concrete wash out) and are not associated with the permitted activity. Water from Harvil Road is included within the office compound catchment, but this is controlled separately via and attenuation tank and pumped system – before utilising the surface water treatment facilities (SB1 and SB2). This is not associated with the permitted activities. The implemented drainage networks will ensure that generated surface water runoff from constructed hard impermeable surfacing will be conveyed and controlled in an effective manner. RSSP-STA Arisings bin storage areas will have roof cladding to prevent rainwater runoff from mixing with treatment lime and arisings. Contaminated runoff with silt and concrete/lime may contribute to high silt levels and pH, which would require treatment before discharge. Any contaminated runoff will be pumped at a restricted flow rate of 20l/s into the proposed siltbusters to treat pH, remove silt, and attenuate runoff. Treated	LOW	LOW	LOW

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
			water from siltbusters will then pass into the proposed downstream drainage network which discharges into the proposed attenuation pond to the south. There are no stockpiles of arisings within the RSSP-STA permitted area, other than in the arisings bin storage areas. Stockpiles in adjacent areas (e.g. Treatment Pads 1 and 2) are provided with silt fencing, earth bunds v-ditches with sedi-matting as appropriate as to prevent silty runoff. A 400mm high earth bund is proposed to intercept field runoff from the existing grassed area/proposed storage area (to the south of the Copthall Covert) and to prevent it from entering the attenuation pond, proposed filter drains, and overloading the proposed pump operations. To prevent direct impact of channel flows on the watercourse, a series of cut-off bunds have been proposed along the bunds, which will then enter a 2m long swale before entering the discharge point. Filter drains are proposed along the haul road to capture surface runoff. The attenuation pond will collect treated runoff from RSSP-WTS. The restricted flow rate from the proposed attenuation pond into the discharge point (watercourse) is 16l/s. The attenuation pond will have capacity for temporary and permanent storage, with the permanent water stored proposed to be used for construction activities such as dust suppression. The proposed outfall from the pond will comprise a 2m swale which will connect to the existing watercourse (discharge point), which is a tributary of the River Pinn.			
Groundwater impact from the accidental importation of contaminated materials.	Principal aquifer at depth within the Chalk.	Land/Groundwater	As detailed in the Site Operating Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016), the permitted wastes that are to be accepted are EWC 17 05 04 (soil and stones) and 19 03 07 solidified wastes other than those mentioned in 19 03 06*. As such it is not anticipated that any contaminated materials will be brought to the permitted site. The source of the permitted wastes is from Phase One of HS2 (Copthall Tunnel TBM bore) which is anticipated to be natural materials, and as such the risk of accidentally importing contaminated materials is low. To implement further controls, as detailed in Section 4.2.5 of the Site Operating Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016), visual checks of the waste will take place to determine whether any unauthorised wastes are present. The objective of this inspection is to try and detect the presence of unauthorised waste (which includes contaminated materials). This will further limit the likelihood of accidentally importing contaminated materials.	LOW	LOW	LOW
Groundwater impact from general site activities.	Principal aquifer at depth within the Chalk.	Land/Groundwater	A hydrogeological risk assessment was undertaken for the Ruislip Southern Sustainable Placement (RSSP) mounds located to the south of RSSP-WTS (1MC04-SCJ_SDH-GT-REP-SS05_SL07-000034). This did not assess the hydrogeological risks associated with RSSP-WTS, rather assessed risk associated with groundwater and surface water pathways associated with the final placement of waste associated with RSSP.	LOW	LOW	LOW

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
			The risk assessment concluded the following: Contaminated waste migrating to underlying chalk aquifer/or River Pinn (hazard) – deterioration of groundwater and/or surface water quality (impact) – Medium (risk). In relation to RSSP-WTS, the measures to be implemented as described above and in the Drainage Technical Report (1MC04-SCJ-EN-REP-SS05_SL07-000027) will ensure that any contaminated surface water runoff will be captured via the surface water drainage and treatment system, ensuring that there is no pathway to allow discharge into ground.			
Accidental spilling of fuels during: Refuelling of NRMM. Refuelling of site plant. and the accidental release of oils/lubricants during maintenance of NRMM or other plant.	Soils/Groundwater	Land/Groundwater	As detailed within Section 5.1 (proposed infrastructure) of the SOP (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016), re-fuelling areas are currently in place at the Copthall South offices, which forms the entrance to the RSSP-WTS facility. There is the potential for accidental spilling when refuelling NRMM and/or site plant. The potential for polluting spillages and leaks/releases is detailed in Section 6.17 (potentially polluting spillages and leaks) of the Site Operating Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016). To reduce the risks associated with accidental spillages and leaks, contingencies are detailed in the SOP (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016); risk management measures include the following: The loading point for waste will be provided with a reinforced concrete slab and bunded on three sides to contain any accidental spillage. Spills kits will be available across the site, and all operatives trained in their use. Any fuel spilled on non-concreted surfaces (from vehicle leak/failure) will be dug out (using a digger), contained (in a skip or bin) and removed for disposal. Haul roads will be repaired if necessary (supplies of suitable aggregates will be kept on-site for haul road repairs). All vehicles and plant will be well maintained to reduce the likelihood of spills occurring. No fuel or oil will be stored within the permit boundary, rather any plant machinery will be refuelled at the existing premises within the Copthall South Office.	LOW	LOW	LOW
Waste – general waste from site works and staff.	Residential and commercial properties present in proximity. Areas of farmland.	Air (windblown)	Permitted wastes at the RSSP-WTS facility are presented in Section 3.2 of the SOP (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016). The materials to be accepted will comprise of European Waste Code 17 05 04 (soil and stones generated from the TBM arisings (predominantly clays, sand, and a small amount of chalk)) and 19 03 07 once limed at the RSSP-WTS facility. Noting the sources of materials to be accepted as mentioned, litter is not expected to be an issue on the site. Notwithstanding this, the following measures will be implemented and maintained throughout the operational life of the site, as outlined in Section 6.14 of the SOP (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016):	LOW	LOW	LOW

Hazard	Receptor	Pathway	Risk Management Techniques	Residual Risk (when mitigated, e.g. when considering risk management techniques)		
				Probability of Exposure	Consequence	Overall Risk
			Vehicles exporting waste will remain sheeted until the vehicle reaches the waste reception area, or, if the nature of the waste or windy conditions could give rise to windblown litter, until the vehicle reaches the unloading point (RSSP). Loose litter on the access roads or at the site entrance will be collected daily. Inspections of the site will be carried out weekly and any litter discovered will be collected and transported to a disposal facility that is authorised to receive such waste.			

What do you do that can harm			**Assessing the risk(Unmitigated)**			**Managing the Risk**	**Residual Risk(mitigated)**		
Hazard	Receptor	Pathway	Probability of exposure	Consequence	What isthe overall risk?	Risk management	Probability of exposure	Consequence	What is the overall risk?
Exhaust emissions from road vehicle movements on site including entering	Residents to the west on Harvil Road and to the East / Southeast	Air	Medium	Medium	Medium	• All road vehicle movements to the site will be prebooked and allocated delivery times to prevent queuing of vehicles at the site entrance off Harvil Road. • All Light Duty Vehicles will meet Emission Standard Euro 6 (Diesel) and Euro 4 (Petrol). • All Heavy Good Vehicles (HGVs) will meet Emission Standard Euro VI.	Low	Low	Low

What do you do that can harm			Assessing the risk(Unmitigated)			Managing the Risk	Residual Risk(mitigated)		
Hazard	Receptor	Pathway	Probability of exposure	Consequence	What isthe overall risk?	Risk management	Probability of exposure	Consequence	What is the overall risk?
and leaving the site.	on Breakspear Road					• All road vehicles will be maintained in accordance with the manufacturer's instructions and hold a current MOT. • A noticeboard summarising the site rules for visiting drivers is displayed in a prominent position adjacent at the site entrance, and a complete set of rules will be displayed in the site office. Copies of the site rules will be available for issue to visiting drivers. • Movement of road vehicles around the site will be kept to the minimum reasonable for the effective and efficient operation of the site. • Vehicles will be switched off when not in use.			
Exhaust emissions from on-site Machinery (Non-road Mobile Machinery – NRMM)	Residents to the west on Harvil Road and to the East / Southeast on Breakspear Road	Air	Medium	Medium	Medium	• All relevant NRMM (with a power rating between 37-560kW) will meet a minimum emission standard Euro Stage IV* . *IIIA for constant speed engines of any power i.e. generators. NRMM meeting emission standard Euro Stage V or using alternative low/zero emission technology (e.g. hydrogen or electric) will be preferred depending on market availability. • All NRMM will be operated in accordance with the manufacturer's written recommendations. • On-site NRMM will be switched off and secured when not in use on site. • NRMM exhausts to be directed away from the ground and positioned at a height to facilitate appropriate dispersal of exhaust emissions. • Movement of NRMM around the site will be kept to the minimum reasonable for the effective and efficient operation of the site. • The use of diesel or petrol-powered generators will be reduced by using mains electricity or battery-powered equipment where reasonably practicable. • All NRMM will use ultra-low-sulphur diesel or Hydrogenated Vegetable Oil (HVO). • NRMM maintenance records will be kept on site and reviewed regularly.	Low	Low	Low
Dust emissions from the waste delivery to site by the conveyor system	Residents to the west on Harvil Road and to the East / Southeast on Breakspear Road	Air	Medium	Medium	Medium	• The conveyor belt system will be enclosed for its length of travel within the site. • The conveyor belt system will have a suitable belt cleaning system (scrapers/brushes and watering) to prevent the build-up dry friable materials on the conveyor. • The conveyor system will be regularly inspected and maintained in accordance with the manufacturer's instructions to ensure the belt cleaning and dust suppression systems are working effectively and efficiently.	Low	Low	Low

What do you do that can harm			Assessing the risk(Unmitigated)			Managing the Risk	Residual Risk(mitigated)		
Hazard	Receptor	Pathway	Probability of exposure	Consequence	What isthe overall risk?	Risk management	Probability of exposure	Consequence	What is the overall risk?
						• Drop heights from the conveyor to stockpiles will be kept to the reasonably practicable minimum. • The waste material storage area (muck bin storage area) will comprise walls on western, northern and eastern facades to roof level and the 7,850m^2 area will be roofed. • An automatic continuous real-time particulate monitor (PM10) (MCERTS indicative) will be installed and operational at the western site boundary towards the nearest sensitive residential premises (approx. 100m to the west of the storage bins area and immediately north of the topsoil storage area. The monitors have a site action level set at 75µgm-3 (above background) based on a 24 hour average, which if triggered will send an email alert to relevant site and project personnel and instigate cessation of work and investigation into the source of the trigger. Corrective action will be implemented before recommencement of site operations. The outcome of trigger alerts and investigation will be notified to EA, as soon as practicable and within 48 hours.			
Dust emissions from loading and storage of lime in silos and dosing of TBM arisings	Residents to the west on Harvil Road and to the East / Southeast on Breakspear Road	Air	Medium	Medium	Medium	• Lime will only be stored on site within the designated silos. • Dust emissions from unloading road tankers shall be minimised by venting to the silo filter using a delivery tanker fitted with an on-board, truck-mounted relief valve and filtration system, and by connecting transfer lines first to the delivery inlet point and then to the tanker discharge point, and by ensuring delivery is at a rate which does not pressurise the silo. • Bulk lime tanker transfer lines will be securely connected to the silo delivery inlet point first, and then the tanker discharge point before the delivery commences. Materials will be delivered at a controlled rate, and the rate adjusted to prevent pressurisation of the silo. • Silos shall not be overfilled or over pressurised and there shall be an overfilling and over pressure warning alarm. • Deliveries will automatically stop where overfilling or over-pressurisation is identified. • Displaced air from pneumatic transfer shall pass through filtration prior to emission to air. • The filter systems will be regularly inspected and cleaned to prevent blockages and accumulation of powder in the filter system. • Dosing and thorough mixing of TBM arisings will be carried out within the dedicated pugmills.	Low	Low	Low

What do you do that can harm			Assessing the risk(Unmitigated)			Managing the Risk	Residual Risk(mitigated)		
Hazard	Receptor	Pathway	Probability of exposure	Consequence	What isthe overall risk?	Risk management	Probability of exposure	Consequence	What is the overall risk?
Dust emissions from stockpile management within the muck storage bin area	Residents to the west on Harvil Road and to the East / Southeast on Breakspear Road	Air	Medium	Medium	Medium	• The height of waste material stockpiles will always be at least 0.5m below the top of the 3.8m walls. • Drop heights from vehicles/NRMM involved in the transfer of materials on the site will be kept to the reasonably practicable minimum. • Vehicles/NRMM transporting materials within the site will not be overloaded. • Above the entrance of each bay of the muck storage building, a sprinkler system will be installed to supress dust from vehicle and machinery movements to and from the building to avoid fugitive dust emissions becoming airborne beyond the building. • Daily cleaning and suppression of dust in the muck storage bin area will be supplemented using a road sweeper (7t or larger) and / or large capacity vehicle pulled (HGV), or driven, water bowser. • The number of handling operations of stockpiled waste materials will be kept to the minimum reasonably practicable. • A visual inspection of operations within the muck storage bin area will be undertaken at regular intervals during the day and recorded. Any shortfalls in 'housekeeping' and effectiveness of dust suppression will be identified and rectified promptly.	Low	Low	Low
Dust emissions from road vehicles and NRMM movements on site including entering and leaving the site via Harvil Road.	Residents to the west on Harvil Road and to the East / Southeast on Breakspear Road	Air	Medium	Medium	Medium	• Tipper lorries arriving at site carrying TBM arisings will be sheeted, until unloading. • On site speed limit for any vehicle/NRMM will be 5mph. Speed limit signage will be displayed at the site entrance and around the haul route and enforced by on-site traffic marshals. • The entrance / egress of the site and haul road that circles the waste material storage area (muck storage bins) will comprise an impermeable concrete slab. • The haul road routed south the placement area will comprise course granular compacted materials. • A visual inspection of haul routes ('housekeeping' and repair) will be undertaken at regular intervals during the day and recorded. Any shortfalls in 'housekeeping' will be identified and rectified promptly. Similarly, repairs will be arranged and implemented. • Daily cleaning and suppression of dust on haul routes will be carried out using a road sweeper (7t or larger) and / or large capacity vehicle pulled (HGV), or driven, water bowser. • Manual jet washes (estimated inventory of 4-6) and sweeping facilities will be	Low	Low	Low

What do you do that can harm			Assessing the risk(Unmitigated)			Managing the Risk	Residual Risk(mitigated)		
Hazard	Receptor	Pathway	Probability of exposure	Consequence	What isthe overall risk?	Risk management	Probability of exposure	Consequence	What is the overall risk?
						available on site for cleaning of small/limited areas where access for larger road sweeper and vehicular water bowsers is limited / prevented. • The frequency of cleaning during the day will be suitable for the purposes of suppressing dust emissions and preventing friable deposits on haul routes. • All HGV road vehicles and NRMM leaving the site will use the automated wheel-wash facility. All vehicle wheels will be subsequently checked and if necessary be resent through the wheel wash for further cleaning prior to the site egress at Harvil Road. • An automatic continuous real-time particulate monitor (PM10) (MCERTS indicative) will be installed and operational at the western site boundary towards the nearest sensitive residential premises (approx. 100m to the west of the storage bins area and immediately north of the topsoil storage area. The monitors have a site action level set at 75µgm-3 (above background) based on a 24 hour average, which if triggered will send an email alert to relevant site and project personnel and instigate cessation of work and investigation into the source of the trigger. Corrective action will be implemented before recommencement of site operations. The outcome of trigger alerts and investigation will be notified to EA, as soon as practicable and within 48 hours. Movement of vehicles / NRMM around the site will be kept to the minimum reasonable for the effective and efficient operation of the site. • Drop heights from excavators to vehicles/NRMM involved in the transport of materials between stockpiles and road haulage vehicles or NRMM will be kept to the reasonably practicable minimum. • The number of handling operations of stockpiled waste materials will be kept to the minimum reasonably practicable.			