




1MCo4 Main Works - Contract Lot S2

Minor Technical Variation (Installation Permit) - Application and Summary – Waste Transfer and Treatment Station (RSSP-WTS) S2

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Co1.1	Elizabeth Lyon	18/03/2024	Lutuf Shah	08/03/2024	Clive Sherwood	09/04/2024	Application to increase treatment tonnage and add lime suppliers



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Introduction

Overview

This application has been prepared to apply for an installation's minor variation to an existing environmental permit (referenced [EPR/GB3301GY/V002](#)) for the Waste Transfer and Treatment Station - Ruislip Southern Sustainable Placement (RSSP-WTS). This is an installation, and is also referred to as the facility within this document.

The facility is operated by Skanska Costain STRABAG Joint Venture (SCSJV) (Skanska Construction UK Limited (00191408), Costain Limited (00610201), Strabag AG-UK Branch (BR015270)), for the management of Tunnel Boring Machines (TBM) arisings material generated from High Speed 2 (HS2) Phase One project (Northolt Tunnels West, West Ruislip Portal).

The Waste Transfer and Treat Station is located at National Grid Reference TQ06517 87233 approximately 600m North-West of the outskirts of Ickenham, Uxbridge.

The Ruislip Southern Sustainable Placement - Waste Transfer Station (RSSP-WTS) constructed facility will treat TBM materials with lime, prior to permanent placement in the Southern Sustainable Placement Area (SSPA). The SSPA is a designated landfill area (permit reference [EPR/WP3029SW](#)), adjacent to the RSSP-WTS.

The material generated as part of the TBM drive will arrive at the RSSP-WTS facility directly via a conveyor system, or by road in tipper lorries, should the conveyor system be unavailable for any reason.

The fundamental sustainability principles of HS2 determine that all materials generated by earthworks are managed foremost in accordance with the objectives of reuse, and of minimising road haulage and distances from place of origin.

The RSSP-WTS facility will also handle non-waste material arisings. Non-waste TBM arisings required in engineering fill for the Cophall Cut & Cover Tunnel are sent via return conveyor back over the Chiltern Railway line to Cophall East. This non-waste material is handled in accordance with HS2 Technical Standard – Materials Management Plan (document reference [HS2-HS2-EV-STD-000-000006](#)).

The handling of excavated material from tunnel construction works that cannot be used in engineering, and therefore requiring disposal, is undertaken in line with the Environmental Permitting (England and Wales) Regulations 2016 (EPR). In accordance with the HS2 Waste Environmental Permitting Framework (document reference [HS2-HS2-EV-STD-000-000007](#)).

This application relates to the treatment (by lime addition in pugmills) of waste TBM arisings at the RSSP-WTS facility. The single destination of the treated waste is permanent deposit (disposal) in the neighbouring SSPA. The treatment capacity of the RSSP-WTS exceeds 50 tonnes per day, therefore an installation permit in accordance with the EPR (Schedule 1) is required.

Permit Variation Application

Summary of Changes

- 1.1.1 This application is for a **minor variation** to the installation permit for the RSSP-WTS (reference EPR/GB3301GY/V002). Two changes to the permit are sought:
1. An increase in the volume of TBM arisings to be treated with lime in a 24-hour period – Table S1.1, activity AR1, limits of the activities; and
 2. The addition of additional lime suppliers (raw materials) – Table S2.1
- 1.1.2 Though this application requests a change in the daily throughput and addition of lime supplier, there will be no increase in the storage capacity, nor change in the annual throughput.
- 1.1.3 Risk assessments considering the changes proposed in section 2.1.1, have concluded that there will be no increase in environmental risk.
- 1.1.4 The proposed changes will not alter the nature of the facility's operation nor increase the environmental risk posed from the installation's operations.

Tabulated summary of changes:

Permit Table Reference	Change Proposed
Table S1.1	Change "6,800 tonnes" to: <i>No more than 16,000 tonnes shall be processed per day</i>
Table S2.1	Add: Manufacturer: Singleton Birch Limited (Melton Ross Quarries) Product name: Quicklime – Finelime 2 Product name: Quicklime – Microlime 90 and Manufacturer: Tata Steel UK Limited Product name: Cor-Stable Fine Lime

Pre-application Discussions

This application has been discussed with the Environment Agency – Matthew Wales, Lucy Gallagher, and Jonty Bates. Reference meetings with SCSJV 22nd February 2024 and 5th March 2024.

This application meets the guidance criteria for an installation’s minor variation. The change in daily tonnage is a change in treatment daily throughput only and there is:

- No change to storage capacity;
- No change in annual throughput; and
- No increase in environmental risk.

Guidance Reference: <https://www.gov.uk/government/publications/environmental-permitting-charges-guidance/environmental-permitting-charges-guidance#varying-a-permit-charges> (3.4.2 Waste and installations minor variations).

Further information regarding the operation and the emissions profile (environmental risk) are given in the Non-Technical Summary below.

Lime Suppliers

The addition of another lime supplier has been discussed with the Environment Agency including site officer Ross Bigley (meetings as referenced above).

The reason for adding another approved supplier to ensure reliability and quality of supply. Demand for this raw material in the industry currently is high, and there is competition for supply.

Ross Bigley advised that it will be possible to add lime suppliers. But it would be prudent to trial lime from the additional supplier first to ensure it does meet SCSJV requirements. A trial batch has been supplied and used (e.g. Singleton Birch week commencing 4th March 2024). SCSJV confirms we would like to add the suppliers to the permit.

The certificates of conformity have been added within Appendix A and B for reference.

Non-Technical Summary

Requirement for Daily Tonnage Increase

The Northolt Tunnels West twin TBM tunnel drive has been in operation since September 2022. The progress of the TBMs each day is dependent on several factors: planned non-productive days for hyperbaric and atmospheric interventions, conveyor belt extensions, cable extensions and planned maintenance, unplanned plant breakdowns – TBM, conveyor, Treatment plant, water treatment plant,

grout plant, cooling plant, supply issues impacting production, tunnel logistics with other non TBM related activities such as cross passages and invert concrete, ground conditions.

The variation is proposed to allow for peaks in productivity. Where a maximum number of rings may be achieved, equating to a higher total than the 24-hour limit currently in Table S1.1.

The maximum TBM output is estimated to 8,000 tonnes per TBM per day at the peak of operations so the maximum allowable daily figure being requested in this variation is 16,000 tonnes per 24hrs for the treatment facility.

The maximum daily tonnage on the current permit is limited to 6,800t per day. This figure is more akin to an average and not a maximum. As noted above the TBM's will have a number of days where productivity is minimal and other days where they are both making good progress. This variation aims to ensure these peaks in productivity are accounted for and that the works are not unduly limited.

Furthermore, the Northolt Tunnels West tunnel drive travels from West Ruislip, towards the Vent Shaft site locations at South Ruislip and Mandeville Road, and onto Greenpark Way Vent Shaft, Where Northolt Tunnels West terminates.

The underlying geology that the tunnel drive is going through changes periodically as the tunnel moves along the route and goes deeper underground. The ground conditions change along the route with a mixture of London Clay, Chalk, Harwich, and Lambeth Group layers.

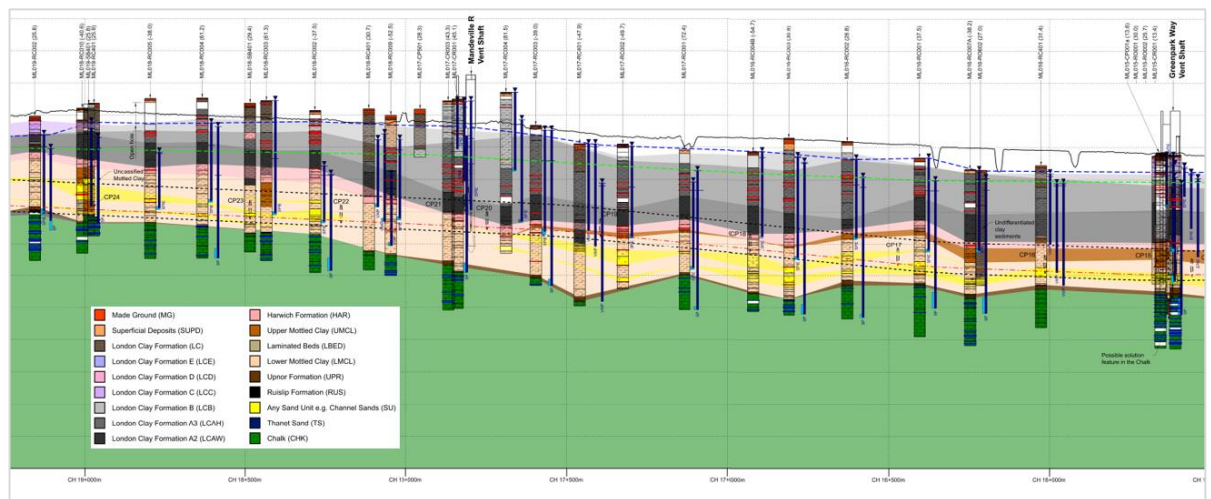


Figure 1- Geology on the remainder of the TBM Drive to Greenpark Way

The TBMs have now gone passed the first vent shaft site and are moving towards Mandeville Road. The ground conditions are set to be easier for the next part of the drive.

The occurrences of anticipated enhanced performance and progress are likely to be more frequent as the drive progresses.

Tunneling drive rates have started to improve and are expected to be on a higher level towards Greenpark Way Vent Shaft.

This is supported by HS2 Ltd. Each month in which the delivery of the project can be further optimized is a benefit in terms of cost and programme. The daily running costs associated with the TBMs are high enough that even a few days of programme benefit would represent a reasonable saving for the project and best use of public funding.

If this variation is approved, then each TBM will be able to achieve a maximum of 24 rings in a 24-hour period. 48 rings in total would equate to 16,000 tonnes of displaced material.

This will not occur every day due to the factors noted above that will impact progress of the drive. The schematic below provides further detail and outlines the potential outputs and material flows anticipated:

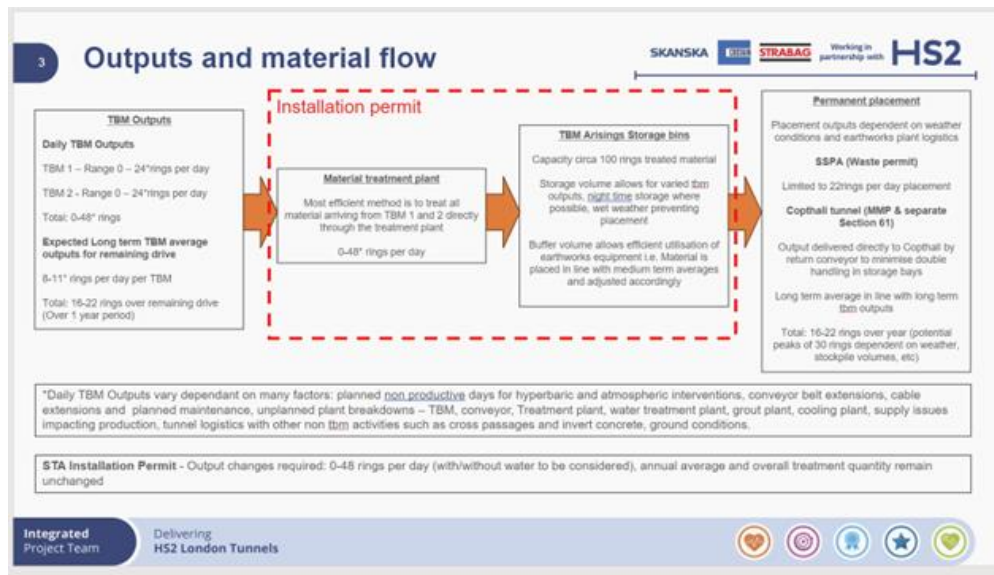


Figure 2- West Delivery Unit (22/02/2024)

The variation request is to allow for a higher potential maximum in a single 24 hours. The current daily limit of the activities in the permit is not expected to be exceeded as a daily average and the overall permitted maximum quantity (2,500,000 tonnes a year) (Table S2.2) will not be exceeded as the total remaining volume of TBM arisings to be displaced from the drive is lower than this volume.

TBM arisings for both the SSPA and the Cophthall Tunnel are lime treated at the facility in the pugmills. The SSPA is treatment for disposal (D5 activity) and therefore the D9 activity is listed in the permit.

The emissions profile of the operation is different when the treated material is sent by return conveyor to the tunnel, than when it is loaded for transportation to the SSPA. Both have been accounted for in the approved Operating Techniques. As explained in the section below.

As previously mentioned, there is no increase in environmental risk associated with this enhanced short-term performance (Peaks) as the capacity available in the muck bins can accommodate this additional material. The plant and equipment used to remove the TBM arisings from the storage bins remains the same and therefore a more consistence flow of material is transported out of the storage bins.

Emissions Profile of Operation

The increase in treatment volume proposed will involve more material sitting in the pugmills at a given time. The pugmills (3no.) operating at once has been included within the Noise Impact Assessment already approved for the facility.

Treated material will be held in the storage bays prior to movement to the SSPA. The storage capacity does not change.

The amount of mobile plant vehicles (loading shovels / excavators / tippers) operating the loading and transportation activity is limited (i.e., by noise emissions limits and logistics e.g., shovels per bay) and will not increase, or exceed the operating scenario summarized in the dust and noise emissions management plans.

Further information – as presented to Environment Agency on 22nd February 2024:

Noise

Noise Impact Assessment (Ref. Noise and vibration management plan Version Co2 –

Reference 1MCo4-SCJ_SDH-EV-PLN-SSo5_SLo7-000015) – includes a worst-case scenario allowing for:

24 / 7 operation

3x pugmills operating together

Return conveyor with hopper operating

Day / evening / night plant matrix

The amount of material in the pugmills does not change profile of operating scenario.

The storage bays have sufficient capacity to hold TBM arisings overnight and at weekends, where necessary. Which would then be moved out during day shift operations.

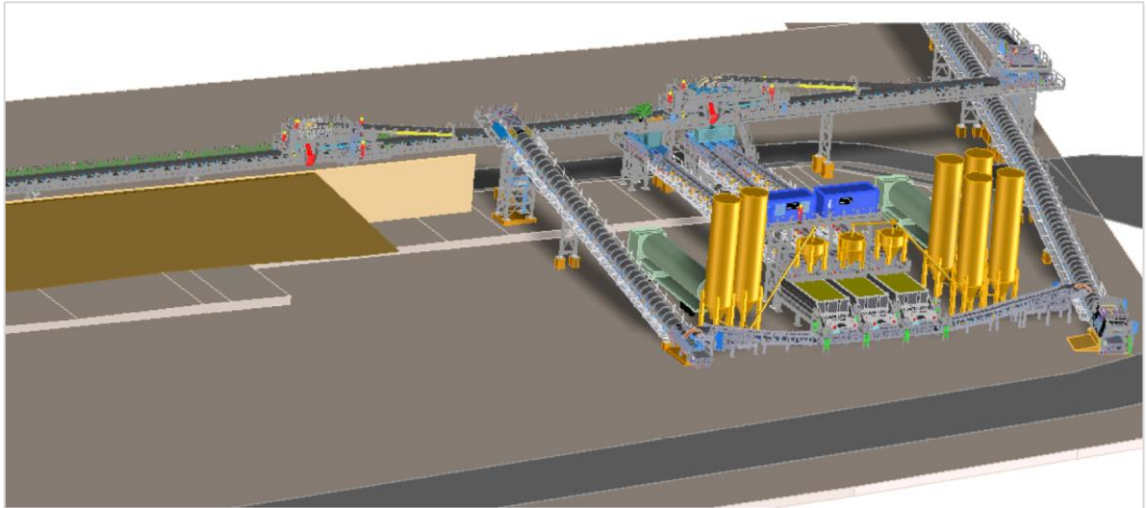


Figure 3 – Schematic of STA Installation

Dust

The loading and haulage to placement in the SSPA are the sources of dust raising activities.

There will be no increase in potential overall plant movements associated with extra tonnage treatment in the pugmills.

The facility is equipped with ample dust suppression, located at the following points:

Storage bin entrances

Haul road

Road sweepers.

Dust cannons on the SSPA

These activities are minimal during return of TBM material on the conveyor to Cophall Tunnel.

DAAs – Lime storage and deliveries

The frequency of lime deliveries is accounted for in the site operating plan and is not required to increase. The anticipated lime supply – allowed for 5% additions, and the actual addition rate required is lower than this.

The storage capacity of the lime silos does not change, and is not exceeded.

The lime management and spillage procedures are applied for all deliveries. E.g. Sealed connection from tanker to silo.



Figure 4 – Pugmills and silos

SCSJV have assessed and confirmed that there is no change to the emissions profile from the operation resulting from this variation application. The increase in treatment is accommodated within the operating scenario presented in the current approved Operating Techniques documents listed within the permit (Table S1.2)

Application Forms

The application forms accompanying this variation application have been completed and submitted as a separate document (document reference 1MCo4-SCJ-EV-APP-SSo5_SL07-000201).

The application forms completed are:

Part A

Part C2

Part C3

Part F1

The application forms document includes accompanying information of an administrative nature required by the forms.

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Appendix A Certificates of Conformity for Finelime and Microlime – Singleton Birch (Melton Ross) products

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Appendix B Certificates of Conformity for Cor-Stable Fine Lime – Tata Steel UK Limited product