OXFORDSHIRE
STRATEGIC RAIL FREIGHT INTERCHANGE

DCO Submission

Environmental Statement

Chapter 13: Waste
Appendix 13.1: Landfill Reprofiling Technical Note

Document 6.13A

On behalf of
Oxfordshire Railfreight Limited

Prepared by WSP
March 2026

TECHNICAL NOTE

DATE:	20 March 2026	**CONFIDENTIALITY:**	Public
SUBJECT:	Landfill Reprofiling Technical Note Document Number: 6.13A		
PROJECT:	OxSRFI	**AUTHOR:**	[redacted]
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1. Introduction

The purpose of this Technical Note is to set general principles for the proposed works to excavate and reprofile material within Ardley Landfill Cells A & B to enable construction of the OxSRFI railway sidings and associated works (referred to as "Landfill Works" which form Work No. 34 in the Development Consent Order (DCO)). This note outlines the works required including the approach to capping, infrastructure interfaces/diversions, maximum reprofiling height parameter, access arrangements (including continued access to the operational household waste facility) and the effect on the current environmental permit for the landfill site.

2. Context

The Oxfordshire Strategic Rail Freight Interchange (OxSRFI) is a Nationally Significant Infrastructure Project (NSIP) promoted by Oxfordshire Railfreight Limited. Located near Ardley, adjacent to the Chiltern Main Line and close to Junction 10 of the M40, the project aims to deliver a high-quality, multi-modal logistics campus. The scheme supports the UK Government's ambition to shift freight from road to rail contributing to a low-carbon, sustainable transport system. The location of OxSRFI is shown on the Location Plan (Document 2.4).

The Order Limits for the OxSRFI development extend into Ardley Landfill, and the proposed railway connection and the principal access works intersect Cells A & B of the Ardley Landfill. A plan detailing the Cells of the Ardley Landfill site which are affected by the OxSRFI works is appended to this note at **Appendix 1**.

Ardley Landfill operated for ~35 years and closed in April 2014. It is now owned by Valencia Waste Management under Permit No. BV7346IM. Cells A & B are the oldest cells, filled predominantly in the 1980s, and were constructed on a "dilute and disperse" basis with no formally engineered liner as permitted by the regulatory controls at the time. Although the majority of the excavated landfill waste is expected to be non-hazardous, there is potential for hazardous material (e.g. asbestos) to be present.

Cells A & B are much higher than the existing railway; the elevation difference between the top of landfill in this location and the railway line is up to 8 m, requiring excavation and reprofiling to achieve the required rail formation level. The excavated waste will then be reprofiled within Cells A & B.

3. Description of the Proposed Reprofiling Works

3.1. Overall approach to the works

It is currently estimated that ~275,000 m³ of landfill waste, engineered material and naturally occurring soils would need to be excavated to facilitate the OxSRFI construction works within the landfill site.

The proposal is to excavate material where the rail alignment/road works require it and to reprofile (re-deposit) the excavated landfill waste within the same Cells A & B.

The Environment Agency has agreed in principle that the Landfill Works involve reprofiling waste already deposited, rather than reopening the landfill. This is because no additional waste is produced or brought onto the site. Non-waste material (e.g. natural occurring soils) will be retained and used for restoration where applicable.

3.2. Engineering works

It is proposed that the landfill waste to be excavated to create the rail corridor and road works will be relocated within Cells A & B. In order to close the remaining waste body with a modern standard lining system (i.e. capping) and maintain long-term slope stability, it is currently envisaged that the waste will be over-excavated to a temporarily steeper but safe slope angle (no steeper than 1 vertical to 2 horizontal (1v:2h)), and then capped with a Landfill Directive compliant lining system, before being restored to a shallower slope angle (no steeper than 1 vertical to 3 horizontal (1v:3h)) with suitable engineered fill materials. As part of reprofiling, the intention is to remove the existing mineral cap and then seal the reprofiled waste with an engineered cap that conforms to modern standards and is delivered under a Construction Quality Assurance (CQA) process. The reprofiled landfill side wall adjacent to the proposed rail link is also intended to conform to modern standards to reduce environmental risk associated with landfill gas and leachate.

Figure 1 below shows illustratively how the waste reprofiling work could be delivered. Due to the relatively high leachate levels within the waste body, it is considered necessary to install a series of leachate extraction wells at the crest of the slope to reduce the leachate level prior to excavation. In addition, it is also anticipated that a leachate drain will need to be installed at the toe of the excavated waste slope. Leachate may need to be continuously pumped out from the leachate wells, and the leachate drain throughout the construction period, in order to maintain the stability of the temporary waste slope.

Following the waste excavation, it is envisaged that a toe berm will be constructed to serve as the containment structure of a landfill capping system to be installed, as well as to form a definitive boundary between the landfill and the railway. In addition, a clay bund will also be constructed on top of the landfill cells (prior to waste excavation) to serve as the containment structure for the relocated waste material.

Figure 1. Proposed Waste Reprofiling Work - Construction Stage

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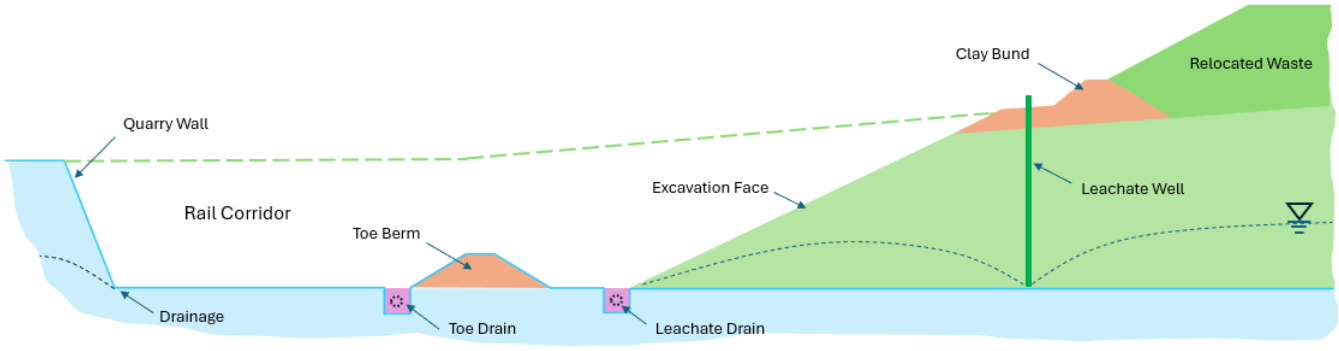
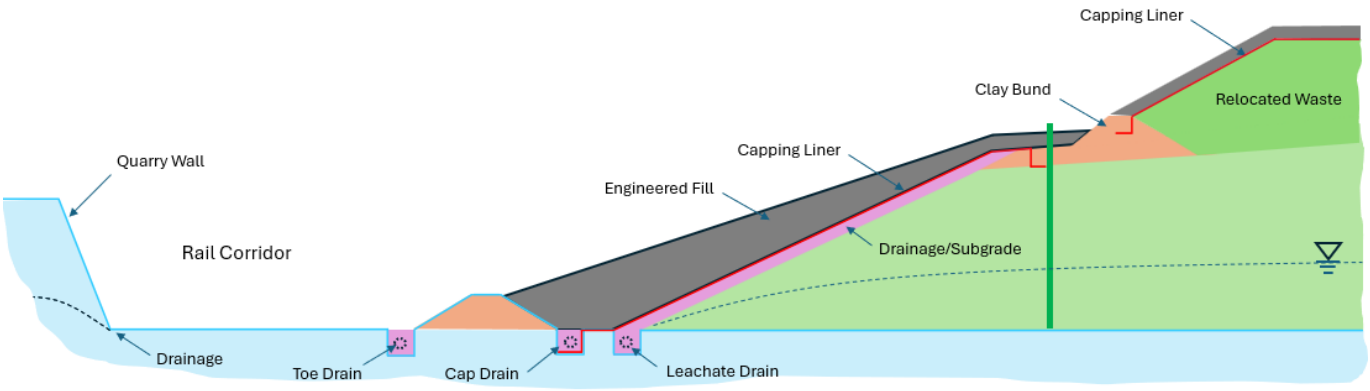


Figure 2 below shows illustratively how Cells A & B could appear after the proposed waste reprofiling work. Following the waste excavation and toe berm construction, the temporary waste slope will be prepared by placing a layer of drainage/subgrade suitable for receiving the lining system. The capping liner is currently envisaged to comprise a 1mm thick textured Linear Low-Density Polyethylene (LLDPE) geomembrane overlying a protection geo-textile/geo-composite layer. Suitable engineering fill material will then be placed between the lining system and the toe berm to form a shallower slope angle with improved slope stability in the long-term. The relocated waste at the top will also be sealed with the same lining system to achieve long-term containment.

Leachate will likely rebound to the current levels following cessation of leachate extraction from the leachate wells. The leachate wells can be used to monitor the levels in the long-term. Maintenance will be required to keep the leachate drain in working order in the long-term.

Figure 2. Proposed Waste Reprofiling Work - Permanent Work



The envisaged construction sequence can be summarised as below:

- Strip off landfill cover at the top and construct a bench and clay containment bund;
- Install leachate extraction wells and lower down leachate levels;

- Excavate waste to form rail corridor and relocate the excavated waste on top;
- Construct a toe berm and leachate drain;
- Install a capping liner on the reprofiled waste slope and on top of relocated waste; and
- Place suitable engineering fill and restoration soils.

The construction sequence is to be delivered in phases in order to mitigate against odour impacts. The construction works for the landfill will adhere to the Odour Management Plan (Document Number: 6.4F).

3.3. Reprofiling extent and maximum height parameter

The detailed design will be developed such that the completed reprofiled landform does not exceed 128m above ordinance datum which is the same height as the existing highest point of restored levels on the wider Ardley Landfill Site.

3.4. Environmental Permit

The Ardley Landfill Site is currently regulated under Permit No. BV7346IM issued by the Environment Agency to Valencia Waste Management. It is proposed that all of the landfill works will be completed under a variation of the existing permit and a partial surrender of the areas where the waste is completely excavated, which will reduce the area of the permit, so that the new rail connections and principle access are not included within the varied permit. The Environment Agency has been extensively consulted over the proposals and provided with preliminary risk assessments to demonstrate that the scheme is consentable, enabling their “in principle” agreement to the proposals.

The precise arrangements for the variation of the existing Permit depend upon the voluntary land arrangements with the existing Permit holder, Valencia Waste Management. The land arrangements are not dealt with in this note but the critical point is that OxSRFI proposals will enable the consenting and permitting arrangements to deliver the development.

4. Shared Infrastructure: Leachate, Gas (and Compressed Air) – Interfaces and Diversions

4.1. Requirement for access / isolation during works

The service road between Cells A, B and D1A/D1B and the remainder of the Landfill Site is described as a “natural separation” and is included in the Order Limits to facilitate monitoring and access (including potential new wells).

The inclusion all of Cells A, B and D1A/D1B within the Order Limits is necessary to support the ability to isolate gas, leachate and compressed air pipes during certain phases of the works. There will need to be temporary access to the gas and leachate management compounds to undertake safe isolations and modifications, as well as monitoring before, during and after the works.

4.2. Existing shared systems and management options

Infrastructure on Cells A & B feeds into a gas and leachate treatment plant. The gas is treated via combustion in gas engines to create electricity and leachate is treated to a level that allows discharge to sewage.

The proposal is for the extracted gas/leachate from Cells A & B following the completion of the landfill reprofiling works, to continue using the existing on-site leachate treatment and gas utilisation infrastructure.

5. Interaction with Oxfordshire County Council (OCC) and Valencia retained operations

5.1. Maintaining OCC objectives: continued access to the operational Household Waste Recycling Centre (HWRC) site

A meeting was held with Oxfordshire County Council (OCC) on 21/01/26 to discuss and successfully address their concerns with access to the operational HWRC.

The access arrangements during both the construction and operational phase of the proposed OxSRFI development will minimise disruption to the HWRC.

5.1.1 Construction phase access through the HWRC

The Landfill Works may require access through the HWRC for isolation/connection of new pipework when modifying leachate/gas extraction systems and compressed air lines, plus for sampling/monitoring activities. This access would be via light vehicles e.g. transit van or passenger vehicles.

This access is not expected to impact HWRC operations or public users, with vehicles able to park in the plant compound.

No HGV access through the HWRC is expected; if HGV access is required, it would be by exception and OCC (who operate the HWRC) would be notified in advance.

Continuous access is expected to be required to the landfill service road off the B430 past the HWRC entrance, typically by 4x4 vehicles with occasional HGV deliveries during the construction phase.

The above principles have been discussed and agreed with OCC. OxSRFI are keen to continue engaging with OCC and their HWRC and to develop an ongoing working relationship throughout the construction and operational phases of the project.

5.1.2 Operational phase (post-construction)

During the operational phase, access through the HWRC is only expected to be required for infrequent meter readings and sampling.

5.2. Valencia: access & monitoring

This note does not cover the detailed interactions with Valencia Waste Management Limited, however, tt is confirmed that:

- Existing contingency measures for the leachate treatment plant continue to apply to the whole of the landfill site including the cells within the Order Limits and for the avoidance of doubt the applicant would not make any changes to these arrangements.
- Access arrangements for Valencia are included under the described access proposals. This includes access rights to Cells A & B to manage/respond to gas/leachate issues impacting their treatment/utilisation infrastructure and to maintain leachate discharge infrastructure if present within the boundary and to access boreholes that will be replaced within the OxSRFI main site which are shown indicatively on the plan appended to this note at **Appendix 2**.
- Access rights would be granted to Valencia between Cells A & B to the north of the railway should Valencia not retain land ownership[1].

[1] Further detail relating to land ownership arrangements is not dealt with in this note.

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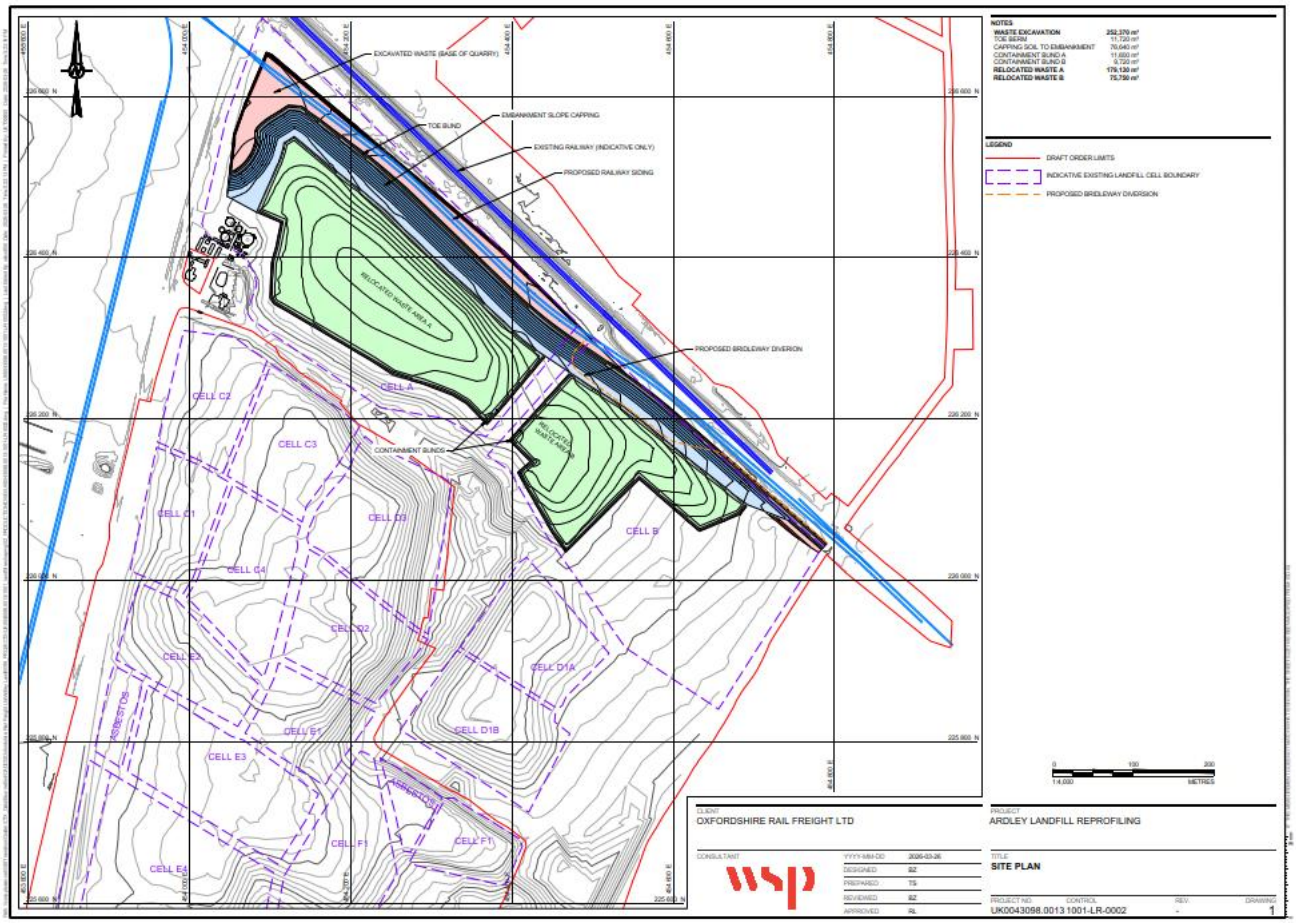
APPENDIX 1



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APPENDIX 2