



## Environmental Statement

**Chapter 11:** Ground Conditions

**Appendix 11.9:** Ardley Trackways Technical Note

Document 6.11I

On behalf of

**Oxfordshire Railfreight Limited**

Prepared by BWB Consulting Ltd  
**January 2026**

# OxSRFI: Ardley Trackways Technical Note

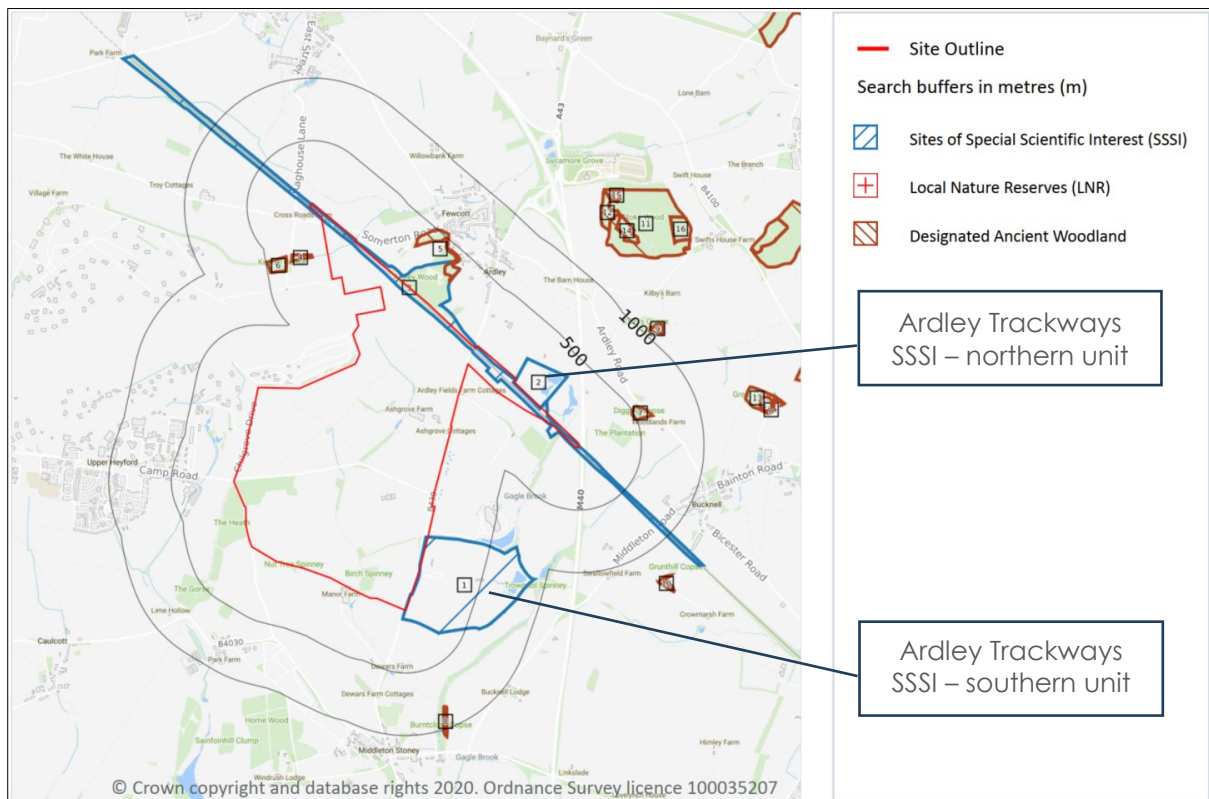
## January 2026

Project Name: Oxfordshire Strategic Rail Freight Interchange  
 Project No: NTH2479  
 Revision: P02  
 Reference: OXSRFI-BWB-ZZ-XX-RP-YE-00013\_TNDino  
 Author: [REDACTED]  
 Approver: [REDACTED]

Oxfordshire Railfreight Limited (The Applicant) are promoting a Strategic Rail Freight Interchange (SRFI) on land east of the former Upper Heyford Air Base, south of the Chiltern Main Line, and southwest of Junction 10 of the M40 motorway. The draft Order Limits for the Development Site is located adjacent to Ardley Trackways. Ardley Trackways is designated as a Site of Special Scientific Interest (SSSI) due to the presence of fossilised dinosaur (sauropod and theropod footprints, which form trackways. This SSSI is split into:

- The southern unit, located at Dewars Farm Quarry, an operational limestone quarry, to the east and south-east of the site;
- The northern unit, located at an historical, now restored limestone quarry, to the north of the railway line; to the north-east of the site.

The locations of the above two SSSI units are indicated on the below plan.



### Ground Conditions

British Geological Survey (BGS) mapping for the site indicates that the site is predominantly underlain by White Limestone Formation (comprising limestone, wackestone, packstone,

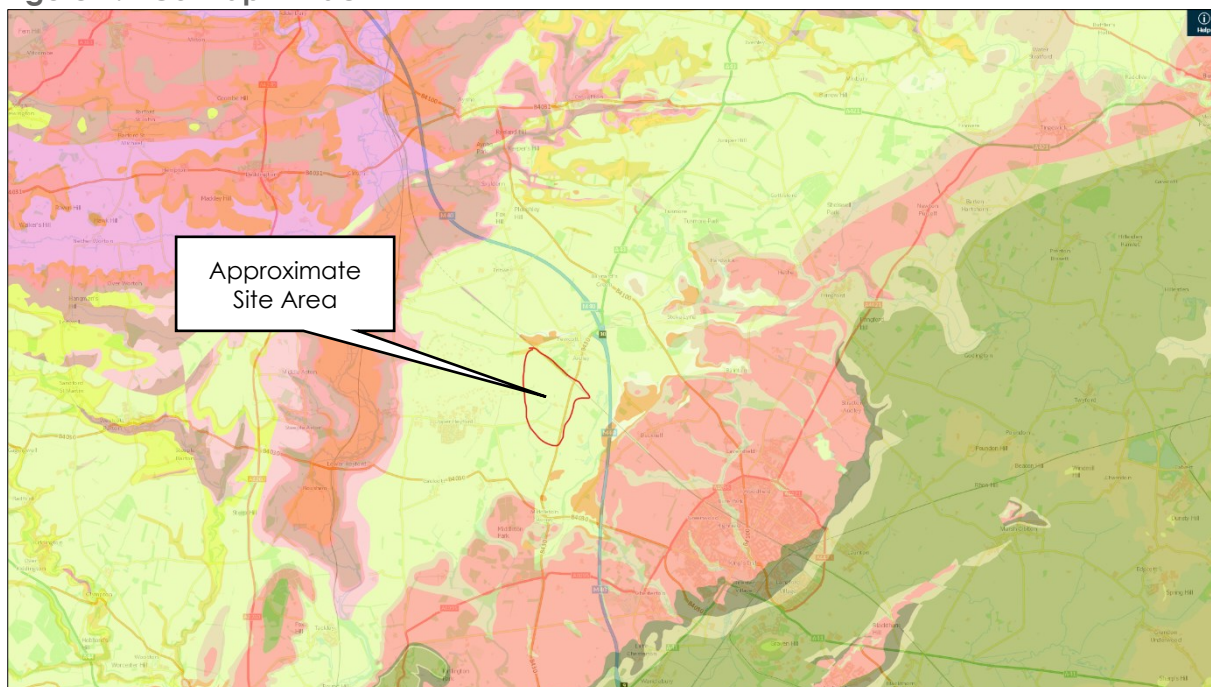
grainstone and mudstone), with superficial deposits absent. The entire site area is underlain by Sedimentary Bedrock formed during the Jurassic Period. The White Limestone Formation is subdivided into the Bladon Member, the Ardley Member and the Shipton Member:

- The Bladon Member: comprises a green and grey clay/mudstone, which is commonly lignitic.
- The Ardley Member: comprising a pale grey to off-white or yellowish limestone, peloidal wackestones and packstones with common ooidal and shell fragmental grainstones, and recrystallised limestone with beds of argillaceous limestone, sandy limestone, marl and mudstone or clay at some levels.
- The Shipton Member: comprising pale grey to off-white or yellowish limestone, peloidal wackestone and packstone with subordinate ooidal and shell fragmental grainstone, and recrystallised limestone with beds of argillaceous limestone, marl and mudstone or clay.

It is understood that the footprints were found in the lower sections of the White Limestone Formation geological bedrock, probably within The Shipton Member. This is one of the basal members of the formation in the Oxfordshire area, named after the Shipton-on-Cherwell Quarry. The White Limestone formation was laid down during the Jurassic era between 165 and 168 million years ago and is a sedimentary rock that forms from the accumulation of the remains of marine organisms, such as coral and shells, and the precipitation of calcium carbonate from water. Limestone is known for its fossil content with such exposures of limestone often designated as SSSIs, such as rock exposures along the Chiltern Railway Line.

The presence of limestone is not rare; indeed, vast areas of the surrounding region are directly underlain by limestone bedrock of the White Limestone Formation. However, the fossil footprints discovered on the adjacent quarry are very rare, hence its designation as a SSSI. While dinosaur bones and the “hard parts” of prehistoric creatures can (in the right conditions) end up preserved as fossils, the likelihood of transient features such as creature footprints in fine soils being preserved/fossilised is a much lower possibility. The pale yellow/green on the below image taken from the BGS mapping viewing portal shows the extents of the White Limestone Formation. As can be seen from the below image, this formation extends across a much greater area than either the site (roughly outlined in red) or the adjoining SSSI.

**Figure 1: BGS Map Extract**



## **SSSI Designation**

The unique circumstances surrounding the discovery of the dinosaur footprints on the adjacent quarry stemmed from the extensive exposure of a limestone bedding surface. Jurassic rock face exposures (i.e. that cross the bedding planes) created in the local areas have been designated as SSSIs such as along the Chiltern Line rock exposures.

The primary concern for palaeontological management pertains to the potential for exposing significant bedding surfaces during enabling works, and possibility for dinosaur (or other rare) fossils which could theoretically be contained within those surfaces.

It is important to note that the occurrence of such fossil footprints is exceptionally rare. While similar features have been identified and exposed on the adjacent site, the probability of encountering or exposing comparable features at the subject site is considered very low, though not entirely negligible.

The majority of the proposed Main Site has limited cut (<3m) which are mainly in more weathered deposits and so would not contain fossils. The main areas where excavation will be deeper into more competent rock are in western areas to form unit plateaus, and in the north west where the rail freight terminal is proposed, and excavation is locally >7m.

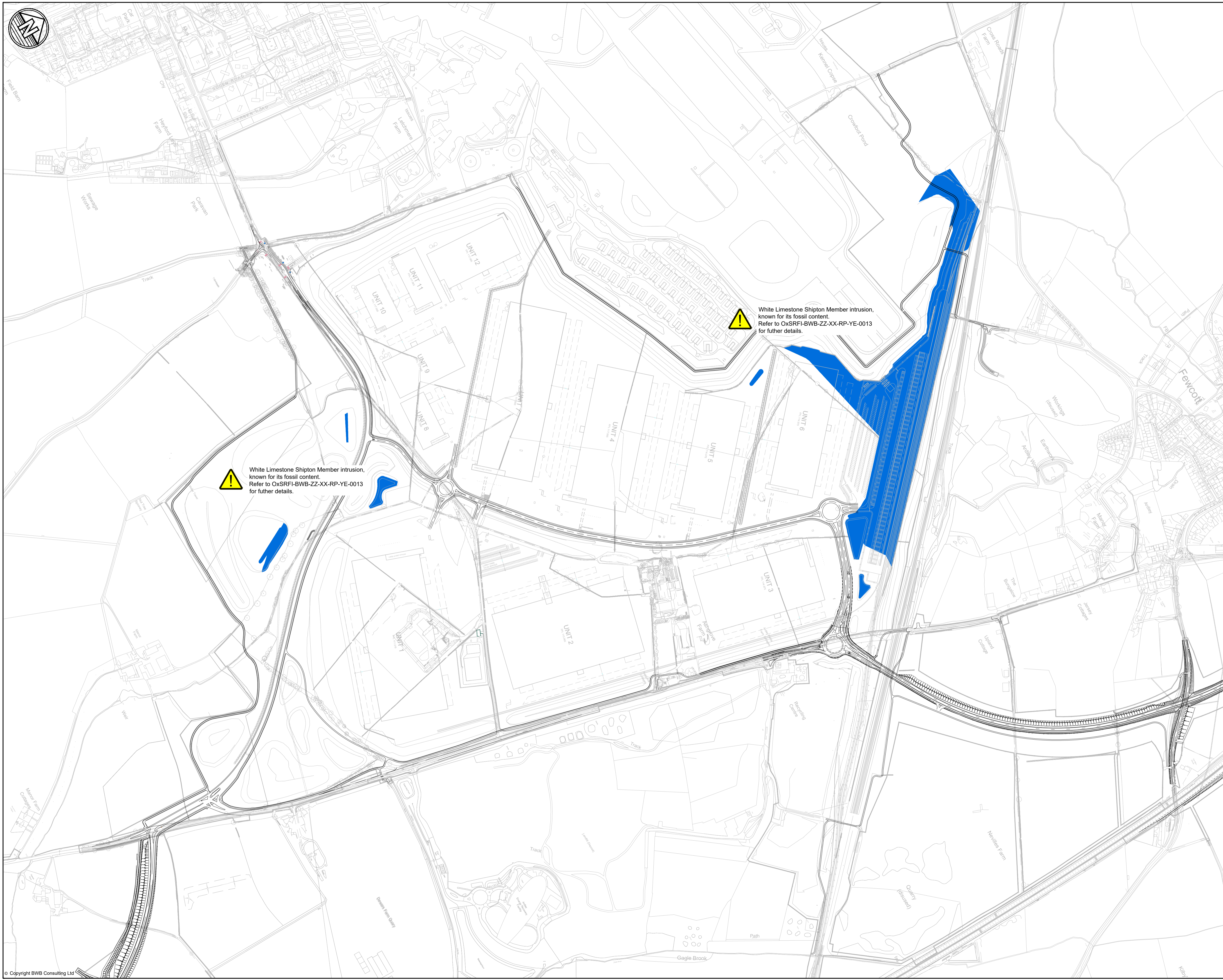
Neither of the existing Trackway SSSIs will be affected by the Proposed Development.

## **Contingency**

In reality, if footprints were to be discovered it is highly unlikely that they would be at formation depth (i.e. final target excavation levels) and further excavation would be a necessity for the scheme beyond where fossils were to be discovered to achieve the final target levels.

It is proposed that a watching brief by a palaeontologist will be undertaken where deeper excavations are undertaken into the lower portion of the White Limestone Formation, known as the Shipton Member, which is the strata more abundant in fossils. The areas for this is presented on the plan appended to the back of this Technical Note.

Should potential footprints, or similar geology/fossils or high interest be identified, the palaeontologist would examine the footprints to determine the species, age, significance and condition to help inform decisions about an appropriate approach to mitigation. Depending on the significance of any discovery, appropriate measures may include controlled excavation, detailed examination and possibly removal of any fossils. This process should include detailed documentation potentially incorporating high-resolution photography and/or 3D laser scanning.



**Notes**

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

**Legend**

Likely Area of cut into Shipton Member

The area shows the extent of cut between the Main site Formation Levels and Top of the Shipton Member. The top of the Shipton Member is inferred from local BGS data.

This drawing should therefore be taken as being an illustration of the likely area where the Shipton Member may be found.

P01	03.12.25	Issue for Information	RP	RR
Rev	Date	Details of issue / revision	Dw	Rev

**Issues & Revisions**

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Client  
**OXFORDSHIRE RAILFREIGHT LTD.**

Project Title  
**OxSRFI**  
OXFORDSHIRE  
STRATEGIC RAIL FREIGHT INTERCHANGE

Drawing Title  
**MAIN SITE SHIPTON MEMBER CUT AREA**

Drawn:	R.Picknell	Reviewed:	R.Robinson
BWB Ref:	NTH 2479	Date:	03.12.25
Scale@A1:	1:5000		

Drawing Status  
**FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
OxSRFI-BWB-GEN-XX-SK-CH-SK129	S2	P01

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