TRU Hillhouse Construction Compound – s73 Application

Appendix F: Assessment of noise levels

Document Ref: 151667-TSA-00-TRU-REP-W-EN-001966

Network Rail

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Contents

1. INTRODUCTION

1.1 Background

1.1.1 Network Rail is proposing to develop the former Hillhouse Engine Shed and sidings at land off Alder Street, Fartown into a strategic construction compound with railway sidings and temporary railway platform ("the Development") to facilitate the construction works for the section of the Transpennine Route Upgrade (TRU) between Huddersfield and Westtown (Dewsbury) ("the Scheme").

1.1.1 A Transport and Works Act Order (TWAO) for the Huddersfield and Westtown (Dewsbury) section of the TRU was submitted to the Secretary of State for Transport on 31 March 2021 (The Network Rail (Huddersfield to Westtown (Dewsbury) Improvements) Order). Upgrading the railway between Huddersfield and Westtown (Dewsbury) is key to delivering passenger benefits along the Transpennine railway. Whilst the development of the former railway sidings into a construction compound is included within the Order application, Network Rail has submitted a standalone planning application under the Town and Country Planning Act 1990 to facilitate the use of the Hillhouse Construction Compound site (herein referred to as "the Site") as advanced works to the Order.

1.1.2 Planning Permission for the development, reference 2021/62/94337/W, was granted on 30 March 2022.

1.2 Purpose of this document

1.2.1 This document sets out a summary of the noise and vibration assessment undertaken to inform in relation to Phase 1 works, under Section 61 of the Control of Pollution Act 1974, issued to Kirklees Council in relation to the Development. The assessment considers works under the enabling phase i.e. during the initial 12 months of the site operation.

1.2.2

2. THE DEVELOPMENT

2.1 Location and characteristics of the Development

2.1.1 The Site is located at Hillhouse railway yard, Alder Street, Fartown at approximate National Grid Reference (NGR) 414838, 418129.

2.1.2 The Hillhouse Construction Compound site encompasses an area of approximately 5 hectares, which is entirely under the ownership of Network Rail. The Site is operational railway land within the meaning of Section 263 of the Town and Country Planning Act 1990.

2.1.3 The Site is bounded by residential properties to the north-east, the operational railway to the south and Alder Street to the north-west. The Site is located within 20m of residential properties on Abbey Road, Hammond Street and Abbey Place.

2.1.4 Works associated with the Development will comprise a number of elements:

- Use of the Site as an enabling works construction compound;
- Use of the Site as a temporary strategic construction compound;
- Construction of retaining wall;
- Construction of environmental mitigation measures (noise attenuation);
- Construction/provision of temporary platform for use whilst remodelling works take place at Huddersfield Station. The platform will not be brought into use until the TWAO for the Huddersfield to Westtown (Dewsbury) section of the TRU is granted (should this be the decision); and
- Associated utilities/drainage work.

2.1.5 The Site will be used principally as a temporary construction compound to serve the TRU works between Huddersfield and Westtown (Dewsbury).

2.1.6 Initially the Site will be set up to facilitate the enabling works; a layout arrangement is provided in drawing 151667-TSA-31-MVL3-DRG-T-LP-162886 in Appendix A. It is anticipated that this stage of the Development will persist for 12 months. During this time, works will be undertaken to prepare the site for its use as a strategic construction compound. During this time, the Site will also be used for storage of ballast, waste and excavated material. Welfare cabins will be installed to the east of the Site and will be 2-storey and accommodate circa 30 staff.

2.1.7 The Site's use as a strategic construction compound to service the wider TRU (West of Leeds) Scheme is anticipated from spring 2023. Activities undertaken will include storage of plant and equipment and areas for trackwork and overhead line equipment (OLE) assembly. The Site will continue to be used for the storage of ballast, waste and excavated material.

2.1.8 During this phase, the Site will make provision for welfare cabins for construction staff and associated parking (including parking for maintenance and construction vehicles, along with 23 car parking spaces). The welfare cabins will be 2-storey and accommodate up to 30 staff. The layout details of this stage of development are provided in planning drawing 151667-TSA-31-MVL3-DRG-T-LP-162881.

3. NOISE ASSESSMENT – PHASE 1

3.1 Scope of assessment

3.1.1 This assessment considers works proposed during the enabling phase i.e. up to March 2023 and considers baseline sound levels are those presented in the TRU W3 Environmental Statement and are based on long-term baseline noise survey[1]. It assesses the following works:

- Site clearance;
- Demolition;
- Vegetation clearance;
- Earthworks and drainage;
- Compound welfare facilities installation;
- Retaining wall construction (including rotary bored piling); and
- Highways construction.

3.1.2 Details of the assessment were included in the enabling works s.61 consent application submitted to Kirklees Council.

3.1.3 The following s61 approvals were granted by Kirklees to cover works during Phase 1

- Works during the period 1 June 2022 to 31 March 2023 – reference WK202214371, dated 31 May 2022.
- Works during the period 10 May 2023 to 31 July 2023 – reference WK202310239, dated 10 May 2023.
- Works during the period 11 April 2023 to 31 July 2024 – reference tbc, date tbc.
- Works during the period 1 August 2024 to 31 March 2025 – reference WK202422562, dated 30 July 2024.

3.2 Resultant Sound Levels

3.2.1 Noise levels have been predicted at a total of 19 sample receptors located within approximately 300m of the works. These sample receptors are representative of nearby receptors.

3.2.2 Sound pressure levels are presented as LAeq,T levels at 1 metre from the façades of noise sensitive receptors. Calculations have been carried out on a weekly basis and include all the construction activities that will occur concurrently.

3.2.3 The calculated sound pressure levels are for construction noise only (i.e. they exclude any ambient noise).

3.2.4 All calculations have been undertaken using the methodology detailed in BS 5228-1. Construction noise levels have been calculated on a week-by-week basis and show the

[1] The Network Rail (Huddersfield to Westtown (Dewsbury) Improvements) Order. Environmental Statement – Volume 3, Appendix 8: Noise and vibration. Appendix 8-2 – Baseline surveys - noise and Appendix 8-3 - Baseline surveys - vibration https://sacuksprodnrdigital0001.blob.core.windows.net/twao-huddersfield-westtown/Huddersfield%20to%20Westtown%20(Dewsbury)/03%20Environmental%20Statement/Volume%203%20-%20Technical%20Appendices/Ch08%20Noise%20and%20Vibration%20-%20App%208.1-8.3.pdf

highest predicted daily noise level during that week. Further consideration is given to instances where the significant observed adverse effect levels (SOAEL) is exceeded to determine the duration of the exceedance and whether the temporal significant criteria are exceeded. More detailed results can be made available to the Local Authority on request.

3.2.5 Best practicable means (BPM), as defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990, will be applied during all construction works to minimise noise and vibration at neighbouring residential properties and other sensitive receptors. In doing so, due consideration will be given to the recommendations contained within BS 5228:2009+A1:2014, approved by the Secretary of State as the Code of Practice for noise and vibration control on construction and open sites. The following control measures will therefore be implemented in carrying out the construction works:

- All plant and equipment will comply with the noise limit and noise marking requirements
  prescribed by the “Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001” and the “Noise Emission in the Environment by Equipment for Use
  Outdoors (Amendment) Regulations 2005” implementing the EU Directives 2000/14/EC.
- All plant, equipment and noise control measures applied to plant and equipment shall be maintained in good and efficient working order and operated such that noise emissions are minimised as far as reasonably practicable. As far as reasonably practicable, any plant, equipment or items fitted with noise control equipment found to be defective will not be operated until repaired.
- All generators shall be super-silenced units. Where reasonably practicable, other fixed items of construction plant should be electrically powered in preference to diesel or petrol driven.
- Vehicles and mechanical plant employed for any activity associated with the construction works will, where reasonably practicable, be fitted with effective exhaust silencers and shall be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable.
- Machines in intermittent use will be shut down or throttled down to a minimum during periods between works.
- Whenever used, all percussion tools shall be fitted with appropriate mufflers or dampers of the type recommended by the manufacturers.
- Static noise emitting equipment operating continuously (generators, compressors etc) will be screened or housed within suitable acoustic enclosure, where appropriate.
- Wherever practicable, the use of barriers in the form of acoustic enclosures or barriers shall be employed.
- All personnel on site will undergo site specific inductions and briefings, to include section 61 consent requirements and noise and vibration control measures. Where relevant, specific noise control measures will be incorporated into Works Package Plans.
- A programme of site inspections and noise monitoring will be carried out to assess whether BPM is being employed in the control noise and vibration, to investigate any noise complaints or incidents and compare actual construction noise levels against those predicted in this Section 61 consent application.
- Noise from reversing alarms from delivery and construction vehicles will be controlled and limited as far as possible through the following means:
  - Designing the site layout to limit the need for reversing vehicles;
  - The use of banksmen for traffic management at site entrance gates and within site

footprint;
- Reversing alarms incorporating directional sounders, broadband signals self-adjusting output sounders or flashing warning lights; and
- Setting reversing alarms to the minimum output noise level required for health and safety compliance.
- Where reasonably practicable, plant and/or methods of work causing significant levels of vibration at noise sensitive receptors (NSR) should be replaced by other less intrusive plant and/or methods of working. For example, rotary bored piling produces significantly less vibration than percussive or vibratory piling; and
- Stationary plant with the potential to generate vibration should be located away from NSR or/and isolated using resilient mountings.

3.3 Resultant Vibration Levels

3.3.1 Construction vibration levels have been calculated and assessed at nine receptors within 100m of vibration generating activities in accordance with the methodologies described in BS 5228-2. The assessment takes account of proposed plant items, construction methodologies, works programme, and work and receptor locations.

3.3.2 Construction vibration likely anticipated from compaction works only. There are no proposed percussive or vibratory piling activities, with piling activities being rotary bored which does not produce significant levels of vibration.

3.3.3 No buildings are anticipated to experience vibration levels at which building damage is likely to occur.

3.3.4 There is a slight likelihood of the SOAEL being exceeded at four locations. This represents receptors immediately adjacent to the north of the site on Alder street, Abbey Road, and Hammond Street, and receptors to the southwest on Midland Street. That said, compaction activities would be expected to be relatively short duration at any given location, typically occurring during a single day only and prior notice would be given to nearby residents in line with good practice.

3.3.5 On this basis, no receptors are expected to experience a significant adverse effect and no properties would require temporary rehousing due to construction vibration.

3.3.6 The results indicated that the lowest observable adverse effect level (LOAEL) is likely to be exceeded at four sample receptor locations, and there is a slight chance of the LOAEL being exceeded at all receptors within 100m works.

4. NOISE ASSESSMENT – PHASE 2

4.1.1 During Phase 2 works will be managed in line with the wider principles employed on TRU (on other areas this is managed via the Noise and Vibration Management Plan and not via the section 61 consent route). Works under Phase 2 will follow this route and the key elements of the process are outlined below in the paragraphs below.

4.1.2 Staff, operatives and sub-contractors have the authority and responsibility to protect the environment at all times during execution of the works.

4.1.3 The responsibilities outlined in this section will be highlighted during Site inductions. All personnel will be trained in the necessary skills to fulfil their role. Key personnel for specific job roles are set out in the Table 4-1. The roles outlined may be substituted as required providing that the key environmental responsibilities are clearly and appropriately allocated.

4.1.4 Contact details for all key contractors will be displayed on notice boards in the site offices.

Table 4-1 Roles and responsibilities

Role	Key environmental responsibilities
Project Manager	• Responsible for ensuring the Environmental Management System for the project is implemented. • Ensures that the Network Rail Environmental Policy is drawn to the notice of all employees under his control. • Establishes effective lines of communication with all employees under their control. • Promotes the continuous improvement of environmental performance • Monitors and reviews the implementation of environmental objectives and targets on the project.
Principal Environment Manager	• Carries overall responsibility for delivery of the design stage of the project and for meeting environmental performance objectives and targets. • Ensures adequately trained and competent resources are provided to implement the NVMP. • Ensures that environmental risks are evaluated and considered during the planning stage of the project. • Interfaces between various design disciplines to ensure that environmental considerations have been taken account of in final design output. • Approves all specific or specialist environmental procedures that are required. • Responsible for setting and meeting project objectives and targets.
Site Environment Manager(s)	• Responsible for providing a focal point for all communications between the construction team and outside environmental bodies • Maintaining and revising the NVMP and all specific or specialist environmental procedures that are required. • All measures in the NVMP are implemented on Site. This includes ensuring that adequate resources are allocated to environmental management on Site. • Collecting and collating the project's environmental performance records. • Collating reportable environmental incident and NCR data, establishing cause and implementing actions to prevent reoccurrence • Reviews and approves risk assessments and WPPs (RAMS) for environmental content.

Role	Key environmental responsibilities
	• Ensuring that internal environmental audits are undertaken and reported. • Drawing up measures for emergency preparedness and response procedures. • Environmental issues in risk assessments are communicated effectively on site and that appropriate training is delivered. • Producing monthly environmental reports and forwarding them to the Site Manager.
Site Manager(s)	• Responsible for management of the construction phase, and ensuring compliance with all relevant legal requirements, commitments and targets. • Ensures that site-specific training needs are identified, and training programmes are effectively undertaken. • Establishes and implements comprehensive environmental inductions, training awareness and education programmes for all level of site staff and operatives.
Resident liaison officer	• Ensures any enquiries or complaints directed to site staff are submitted to the Network Rail helpline • Is the first point of contact for the Network Rail Community Relations team for enquiries or complaints that have been submitted to the Network Rail helpline. • Role will link directly with the Network Rail Community Relations team
All site staff	• Protect the environment and act sustainably. • Report any environmental concerns to their supervisors. • Comply with specified systems of work. • Promote and communicate newly developed best practice. • Ensure only staff who have the required understanding, qualifications, and where necessary certification, carry out the specialised tasks.

4.1.5 All personnel, whose work may result in noise and vibration, will receive environmental training specific to their task. This will be appropriate to their level and role, and will include subcontractors and the wider supply chain, as appropriate.

4.1.6 BPM will be employed to reduce noise impacts from the site. BPM are defined in Section 72 of the Control of Pollution Act 1974 (CoPA) as those measures which are:

> "reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications".

4.1.7 British Standard BS 5228:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (BS 5228-1) and Part 2: Vibration (BS 5228-2) have Approved Code of Practice status (in England) under the powers conferred by sections 71(1)(b), (2) and (3) of the CoPA, as enacted under The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015. Compliance with the best practice noise and vibration requirements stated therein became a statutory obligation under the Act.

4.1.8 If noisy processes can be avoided, then the amount of noise reaching NSR will be reduced. Alternative ways of reducing noise are to either increase the distance between the construction noise source and NSR or to introduce noise reduction screens, barriers or bunds.

4.1.9 The movement of plant onto and around the site should have regard to the normal operating hours of the site and the location of any noise sensitive premises as far as is reasonably practicable.

4.1.10 The use of conventional audible reversing alarms has caused problems on some sites and alternatives are available. Audible reversing warning systems on mobile plant and vehicles should be of a type which, whilst ensuring that they give proper warning, have a minimum noise impact on persons outside sites. When reversing, mobile plant and vehicles should travel in a direction away from noise sensitive properties whenever possible. Where practicable, alternative reversing warning systems should be employed to reduce the impact of noise outside sites.

4.1.11 The plant and activities to be employed on the site should be reviewed to ensure that they are the quietest available for the required purpose; this is in accordance with BPM. Where reasonably practicable, noisy plant or activities should be replaced by less noisy alternatives if noise problems are occurring.

4.1.12 With regards to vibration there is a relationship between the energy of the plant (for piling or compaction) and the resulting level of vibration at an NSR. It may therefore be possible to reduce the level of vibration and/or noise by reducing the plant input energy. However, the trade-off is that longer durations may be required to achieve the required outcome. The trade-off will not necessarily be linear owing to other losses in energy in the system. As such the increased duration of works may lead to an increase in the overall impact of works compared to a higher sound or vibration level for a shorter duration..

5. CONCLUSIONS

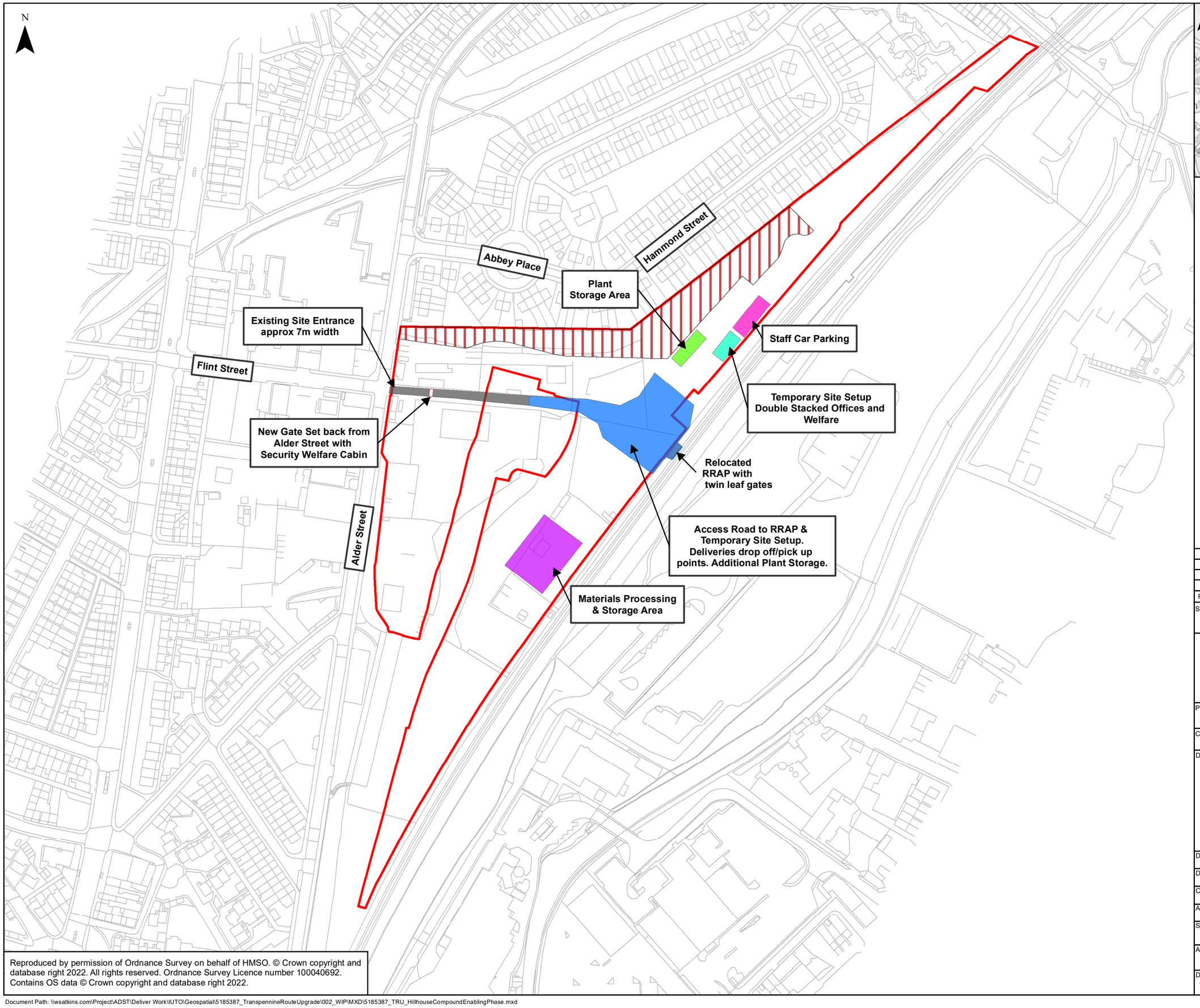
5.1.1 This assessment covers works proposed between April 2022 and March 2023 (Phase 1 works). Noise and vibration levels have been predicted at nearby residential receptors and following the assessment methodology in BS 5228 parts 1 and 2 respectively.

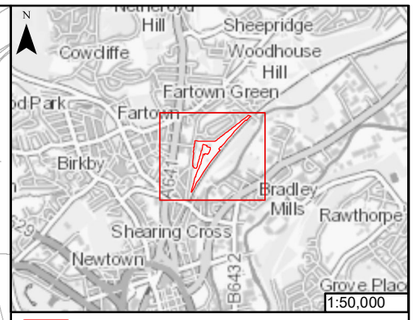
5.1.2 The results indicate that the SOAEL is not expected to be exceeded at any receptor. However, the LOAEL would be exceeded at receptors immediately adjacent to the north of the Site on Alder Street, Abbey Road, and Hammond Street, and receptors to the south-west on Midland Street.

5.1.3 With regards to construction vibration, the results indicated that the there is a slight likelihood of the SOAEL being exceeded at receptors immediately adjacent to the north of the Site on Alder Street, Abbey Road, and Hammond Street, and receptors to the south-west on Midland Street due to compaction works. However, such works would only be for a short duration.

5.1.4 On this basis, no receptors are expected to experience a significant adverse effect and no properties would require temporary rehousing or sound insulation due to construction noise or vibration impacts at the site.

APPENDIX A – ENABLING WORKS SITE LAYOUT





- Application Site Boundary
- Access Road Extension to RRAP & Temporary Site Setup
- Car Parking
- Existing Access Cobble Sets Road
- New Gate
- Material Storage Area
- New RRAP with twin leaf gates
- Plant Storage Area
- Retaining Wall
- Temporary Site Setup Double Stacked Offices & Welfare

0 10 20 40 60 80 100 Metres

SCALE 1:2,500

Rev	Date	Description of Revisions	Drwn	Chkd	Appr
P01	11/04/22	FIRST ISSUE	MMN	NB	NB

Status: SHARED

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Project: HILLHOUSE CONSTRUCTION COMPOUND

Contract No.: 151667

Drawing Title: HILLHOUSE CONSTRUCTION COMPOUND ENABLING PHASE

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Drawn	M.Mallesha Nayaka	Signed Electronically	Date 11/04/2022
Checked	N.Booth	Signed Electronically	Date 11/04/2022
Approved	N.Booth	Signed Electronically	Date 11/04/2022

Scale(s): 1:2,500

ELR & Project Chainage: ---

Alternative Reference: ---

Sheet: 1 of 1

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