

**LOWER THAMES CROSSING  
DEVELOPMENT CONSENT ORDER EXAMINATION**

**RESPONSE TO ExQ1s at DEADLINE 4**

**on behalf of**

**KATHRYN HOMES LTD: Unique Reference 20035583**

**RUNWOOD HOMES LTD: Unique Reference 20035580**

**RUNWOOD PROPERTIES LTD: Unique Reference 20035582**

1. **PD-029** sets out the ExA's First Written Questions (ExQ1s) and one Question (ExQ(1)13.1.13) is directed to the above Objectors as the owners and operators of the Whitecroft Care Home, Stanford Road, Orsett, Thurrock. This document provides the Objectors' response to ExQ(1)13.1.13.
2. ExQ(1)13.1.13 is as follows:

*"Whitecroft Care Home 2*

*Without prejudice to their Compulsory Acquisition position can the representatives of Whitecroft Care Home clarify whether any special protective measures would be necessary at the existing care home to safeguard residents against risks to life, or negative health or wellbeing arising from construction or operation; what might those be; and would the residual effects on residents be acceptable in a normal nursing care setting?"*

Response to ExQ(1)12.1.13

3. The Objectors set out their position on Compulsory Acquisition at CAH2 (and as summarised in the Post Hearing Submissions also to be submitted at D4). The Objectors also set out their overall position on the efficacy of mitigation measures in their Written Representations [**REP1-373**] at paragraphs 37- 42.
4. Notwithstanding those representations, and without prejudice to them, the Objectors have given further consideration to the question of mitigation

measures/special protective measures, beyond those matters already proposed by the Applicant and sought to be secured by one or more of the control documents.

Construction Period

5. Noise: the context is that the original farmhouse at Whitecroft (which includes some of the residential accommodation) is a GII listed building and works which affect its character as a listed building would require listed building consent. It may therefore not be practicable to install measures such as acoustically sealed windows or mechanical ventilation for all parts of Whitecroft. Such measures would, in any event, deprive residents of access to fresh air when indoors and would not be acceptable for that reason. Also, mechanical ventilation/cooling would introduce a further noise source and be disturbing to residents. Such measures would not address impacts on outdoor amenity/recreational areas.
  
6. Notwithstanding these concerns, BY Acoustics has considered whether criteria could be set for construction noise. Their advice (as set out in Report 19-0003-M6-1 dated 18 September 2023, separately submitted at D4) puts forward the following noise criteria (in its Table 4.1):

Time Period	External Limit	Internal Limit
Day (07:00-19:00 weekdays and 07:00-13:00 Saturdays)	65 dB $L_{Aeq, 1}$ hour * ** 70 dB $L_{Amax, f}$ *	- 60 dB $L_{Amax, f}$ ***
Night (23:00-07:00)	45 dB $L_{Aeq, 1}$ hour * ** 55 dB $L_{Amax, f}$ *	- 45 dB $L_{Amax, f}$ ***
Evenings and weekends (time periods not covered in above rows)	55 dB $L_{Aeq, 1}$ hour * **	-

	60 dB $L_{Amax,f}$ *	50 dB $L_{Amax,f}$ ***
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\*Level as measured at 1m from the relevant façade

\*\*Free-field level as measured at the property boundary

\*\*\*Reverberant level measured at a location representative of the bed-head in a bedroom

7. BY Acoustics also recommend lower limits for substantial earth-moving works if they are considered to be long-term (55 dB  $L_{Aeq}$ , 1 hour (day)) and 42 dB  $L_{Aeq}$ , 1 hour (night)) and a limit of 10 dB above the baseline LA90 background levels for day, evening and night. They also recommend a potential measure of no evening or overnight construction works. NB this would include use of the haul roads by construction traffic. They refer to screening as a potential measure but consider there is insufficient information to assess its effectiveness and note it would have visual impacts and could reduce available light if close to the care home. In relation to vibration BY Acoustics consider insufficient information has been provided to formulate mitigation.
  
8. Air quality/dust: Air Quality Consultants recommend that there should be baseline monitoring of 3-12 months pre-commencement of works to account for metrological conditions, that construction dust should be monitored in line with IAQM guidelines 'Guidance on Monitoring in the Vicinity of Demolition and Construction Sites' (2018), and that dust mitigation measures should be implemented in accordance with IAQM guidelines 'Guidance on the assessment of dust from demolition and construction' (August 2023). Those mitigation measures are set out in detail in section 8.2 of the guidance and Whitecroft should be treated as a 'high risk' site in terms of those measures. The recommended measures include the use of a 10 mph maximum speed for all vehicles on unsurfaced haul roads, and compliance with the Non-Road Mobile Machinery requirements set by the GLA/Mayor of London. An extract from that guidance is annexed to this response. Due to the sensitive users of Whitecroft in addition to construction dust monitoring, nitrogen dioxide

monitoring should also be undertaken, with baseline monitoring being undertaken between 3-12 months pre-commencement.

9. Safety: given the proximity of roads and haul roads on three sides of Whitecroft, and the hazards for residents were they to leave Whitecroft when disorientated/confused, it would be essential for Whitecroft to have a secure perimeter at all times. Such a perimeter would have negative effects in terms of the perception of closing off residents from their wider surroundings.
10. However, even if all of the above measures were to be required, the Objectors do not accept that the residual impacts of a 4+ year construction period for the residents of Whitecroft would provide an environment that was acceptable in a normal care home/nursing home setting, especially having regard to the particular sensitivities of the Whitecroft residents by reason of the numbers suffering from dementia or related conditions, and their likely life expectancy experiencing those residual impacts.

#### Operational Period

11. The Objectors are unable to identify meaningful mitigation for the operational period due to the Objectors' outstanding unresolved queries and concerns as regards the adequacy of the Applicant's assessment of effects.

19 September 2023

Document Reference **19-0003-M6-1**

Project Name **The Whitecroft Care Home**

Subject **ExQ1 13.1.13 Response**

Date:

Prepared by:

Reviewed by:

18 September 2023

Johnny Berrill

Ian Yates

## 1 Introduction

- 1.1 This memorandum sets out a response on noise elements to the Examining Authority's (ExA) first written questions and requests for information relating to Whitecroft Care Home, namely Q13.1.13 which states:

“Without prejudice to their Compulsory Acquisition position can the representatives of Whitecroft Care Home clarify whether any special protective measures would be necessary at the existing care home to safeguard residents against risks to life, or negative health and wellbeing arising from construction or operation; what might those be; and would the residual effects on residents be acceptable in a normal nursing care setting?”

## 2 Development Operation (Road Traffic Noise)

- 2.1 Points have been raised previously relating to the operational noise levels, and noise level changes, calculated at the Care Home. These points, some of which are long standing - dating back to 2021 - are detailed in BY Acoustics documents 19-003-R3-1 and 19-0003-M5-0. The points remain unanswered. Without a suitable response from the Applicant team, it is not possible to answer Q13.1.13 accurately. However, it will be answered as completely as possible given the available information.
- 2.2 Figures 12.7 and 12.8 of the Environmental Statement set out calculated noise level changes in two scenarios. The resolution of the figures provided does not allow for detailed analysis of the noise level changes at The Whitecroft Care Home. It appears that calculated noise level changes vary between “No Change” and “Moderate Beneficial Change” in the Opening Year analysis while the calculated noise level changes vary between “No Change” and “Minor Beneficial Change” in the Future Year analysis.
- 2.3 If the analysis and conclusions are taken to be accurate, there would be no significant operational noise impact on the care home and as such no protective measures would be considered necessary. However, as noted above, it is not possible to take such accuracy with confidence without an appropriate response from the Applicant team on the previously raised points. Based on the information available, our own assessment indicated that there could be a significant increase in noise levels at the south façade of The Whitecroft, due to the introduction of the new LTC road traffic noise source, in the context of a current absence of significant noise sources affecting the south façade.



- 2.4 Analysis is not provided for night time noise level changes and so cannot be commented on. It may not be reasonable to assume that the noise level changes at night will reflect the noise level changes during the daytime, due in particular to the potential for the proposed LTC to carry a higher proportion of traffic relative to daytime flows in comparison to the existing roads.

### 3 Development Construction

- 3.1 Chapter 12 and Appendix 12.4 of the Environmental Statement set out construction noise criteria and calculated construction noise levels at The Whitecroft without mitigation measures. As set out in 19-0003-R3-1 and 19-0003-M5-0, the criteria are not considered appropriate for the increased sensitivity of the care home residents. Additionally, the level of analysis detail – setting out approximate attenuation levels for unspecified mitigation measures to achieve the conclusion of no significant noise impact – is not considered appropriate.
- 3.2 The ES Chapter and Appendix acknowledge that even this level of analysis concludes a likelihood of construction noise levels at night exceeding the proposed criteria. It is stated, again without any detailed evidence, that such exceedance is likely to be short term. Given the sensitive nature of the care home residents, any exceedance of the criteria (which are not currently considered appropriate) should be considered unacceptable.
- 3.3 On the basis of the current approximate analysis, at a minimum, mitigation would be required to ensure residents have access to internal and external areas with appropriate noise levels. It is possible that, with an appropriate detailed analysis, the level of mitigation required to control noise levels suitably could increase beyond what is practically achievable.
- 3.4 Assessments of the effectiveness and suitability of different mitigation measures depend upon both the accuracy and level of detail provided in the calculation model and the target criteria. These points are considered in subsequent sections below.

### 4 Construction Noise Criteria

- 4.1 19-0003-R3-1 recommends that, in order to reflect the sensitive of the care home residents, the SOAEL thresholds should be based on a 1-hour  $L_{Aeq}$  period rather than a full day, evening, or night period. It is also recommended that  $L_{Amax}$  levels should be controlled in bedrooms to not exceed 45 dB  $L_{Amax,F}$  more than 10-15 times in any one night and no more than twice per hour.
- 4.2 It is additionally recommended here that, in order to protect the sensitive residents and reflect the likelihood of them resting or sleeping at any time of day, limits of 60 dB  $L_{Amax,F}$  and 50 dB  $L_{Amax,F}$  should apply respectively to the day and evening periods in bedrooms, again to be exceeded no more than twice per hour. The periods follow examples in BS5228 as follows:
- Daytime relates to 07:00-19:00 Weekdays and 07:00-13:00 Saturday
  - Evening relates to 19:00-23:00 Weekdays, 13:00-23:00 Saturday, and 07:00-23:00 Sunday
  - Night relates to 23:00-07:00 all days



- 4.3 During enabling works and construction, noise monitoring should be continuously undertaken by the applicant to provide accurate measurements of construction noise levels at the façades and in garden areas.
- 4.4 The following Table 4.1 clarifies the recommended limits to apply at any part of The Whitecroft premises:

Time Period	External Limit	Internal Limit
Day (07:00-19:00 weekdays and 07:00-13:00 Saturdays)	65 dB $L_{Aeq,1\text{ hour}}^{1,2}$	-
	70 dB $L_{Amax,f}^1$	60 dB $L_{Amax,f}^3$
Night (23:00 – 07:00)	45 dB $L_{Aeq,1\text{ hour}}^{1,2}$	-
	55 dB $L_{Amax,f}^1$	45 dB $L_{Amax,f}^3$
Evenings and weekends (time periods not covered in above rows)	55 dB $L_{Aeq,1\text{ hour}}^{1,2}$	-
	60 dB $L_{Amax,f}^1$	50 dB $L_{Amax,f}^3$

Table 4.1 Recommended construction noise limits to help protect care home residents

<sup>1</sup> Level as measured at 1m from the relevant façade

<sup>2</sup> Free-field level as measured at the property boundary

<sup>3</sup> Reverberant level measured at a location representative of the bed-head in a bedroom

- 4.5 The above proposed limits are considered robust and it may be appropriate to apply lower limits in some cases. For example, in line with BS5228 Annex E5, if substantial earth-moving works are considered to be long-term, ambient noise levels during the day and night respectively should not exceed 55 dB  $L_{Aeq,1\text{ hour}}$  and 42 dB  $L_{Aeq,1\text{-hour}}$ . It may also be appropriate to set limits 10 dB above the baseline  $L_{A90}$  background noise levels during the day, evening and night (subject to the aforementioned absolute limits not being exceeded).

## 5 Potential Mitigation Measures

### 5.1 Close Windows and Vents

- 5.1.1 It is understood that bedrooms and living rooms within the care home are naturally ventilated, using open windows. Where operational and/or construction noise results in elevated levels at façades, the first measure likely to be taken to reduce noise could be to close all windows and vents which provide a direct external opening.
- 5.1.2 It is likely that mechanical ventilation (potentially with cooling) would be required for the rooms as a result of this. Such a solution is not expected to be appropriate for the residents, as detailed in clause 15.3.8 of REP1-370<sup>1</sup>.

<sup>1</sup> REP1-370: TR010032-002652-Kathryn Homes Ltd, Runwood Homes Ltd and Runwood Properties Ltd - Written Representation (WR) 1: Psychiatric Report



- 5.1.3 The level of attenuation achieved through this measure would depend on an analysis of the existing glazing. Establishing the effectiveness of this attenuation measure in achieving suitable internal noise levels for the residents is dependent on receiving an accurate construction noise assessment for the care home.
- 5.1.4 This measure would, however, have no impact on external noise levels which would remain elevated.

## 5.2 Introduce Secondary Glazing

- 5.2.1 It is possible that closing windows would not provide sufficient reduction in noise to provide suitable conditions for the residents. In this case it may be necessary to introduce enhanced mitigation such as secondary glazing.
- 5.2.2 The magnitude of attenuation achieved through this option would depend on the level of attenuation provided by the care home façade itself. Given the nature of the building it is possible that the sound insulation performance of the facade is relatively low. Therefore, in order to maximise the benefit of introducing secondary glazing it may be necessary to enhance the façade construction also.
- 5.2.3 The introduction of secondary glazing, and possible enhanced façade construction, would again limit the ability to naturally ventilate the rooms, thus requiring alternative ventilation strategies as noted in Section 5.1 above.
- 5.2.4 The level of attenuation achieved through this measure would depend on analysis of the existing glazing and façade. Establishing the effectiveness of this attenuation measure in achieving suitable internal noise levels for the residents is dependent on receiving a sufficiently detailed and accurate construction noise assessment for the care home.

## 5.3 Introduce Screening

- 5.3.1 No physical barriers are proposed as part of the mitigation measures for operational noise impacting on The Whitecroft. The road to the west of The Whitecroft is in cutting, with a bund between the road and the care home. These would effectively act as screens and thereby reduce noise levels in comparison to the same road on the same level as the care home without any screening in place.
- 5.3.2 Screening is mentioned as part of potential mitigation measures for construction noise. Potential reductions from screening are stated of “up to 10 dB” for general construction works and “up to 20 dB” for static plant. It is noteworthy that maximum attenuation is typically achieved when a screen is located as close as possible to the noise source or to the receptor.
- 5.3.3 Due to the nature of roadworks, screening directly adjacent to the noise source can be very difficult to implement for all but static sources such as generators. Therefore it is possible that attenuation due to screening from the general works could fall below the stated 10 dB maximum.
- 5.3.4 Any significant screening introduced close to The Whitecroft boundary could have a visual impact on the residents. If screening was introduced close to the care home façade, in order to maximise its effectiveness, this would have the potential to impact on natural light entering the rooms.





5.3.5 The extent to which any screening would reduce operational or construction noise levels is not possible to determine due to the lack of information provided by the Applicant. Screening could potentially reduce noise levels to external areas, however this too is not possible to establish from the existing level of information provided.

#### 5.4 No Evening or Overnight Construction Works

5.4.1 An additional mitigation measure to be considered (at least hypothetically) is the cessation of construction works during evening and night time hours. This would allow care home residents periods of respite from the works and their associated impacts. However this would not deal with the potential for excessive noise level during daytime hours. It also may not be practical.

#### 5.5 Construction Vibration

5.5.1 There is currently insufficient assessment of construction vibration, for example in relation to earth works and haul routes near the Whitecroft. Should mitigation prove to be necessary, it is likely that it would have to be at source. For example, this could include moving sources of vibration further from The Whitecroft, reducing operational times of works and equipment, selecting equipment with lower vibration emissions, or a combination of these and other means of mitigation at source.



## 6 Conclusion

6.1 For ease of reference, Q13.1.13 is repeated below:

“Without prejudice to their Compulsory Acquisition position can the representatives of Whitecroft Care Home clarify whether any special protective measures would be necessary at the existing care home to safeguard residents against risks to life, or negative health and wellbeing arising from construction or operation; what might those be; and would the residual effects on residents be acceptable in a normal nursing care setting?”

6.2 The Applicant has not provided sufficient information to enable all elements of the question to be answered in full.

6.3 Based on the available information, there is a distinct possibility of additional protective measures being necessary, beyond the mitigation outlined in the Applicant’s assessments. This is particularly the case in relation to construction noise and vibration but may also be the case with regard to operational road traffic noise.

6.4 While there are potential means of mitigating noise at the Whitecroft itself, they are not necessarily compatible with the heightened sensitivity of the residents. For example, introduction of secondary glazing and mechanical ventilation may not be acceptable.

6.5 In relation to external areas of the Whitecroft, any noise mitigation would have to be at source, or on the site boundary.

6.6 Vibration mitigation would have to be at source, as there are unlikely to be any practical means of mitigation at the Whitecroft itself.

6.7 It is still not possible to determine whether the residual effects on residents would be acceptable in a normal care home setting, due to the lack of sufficient detail in the Applicant’s information.

# Guidance on the assessment of dust from demolition and construction

August 2023 (Version 2.1)



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## 8.2 Dust and Air Emissions Mitigation Measures

The mitigation measures have been divided into general measures applicable to all site and measures applicable specifically to demolition, earthworks, construction and trackout, for consistency with the assessment methodology. The following tables detail the mitigation required for high, medium and low risk sites, as determined in **STEP 2C**.

For those mitigation measures that are general, the highest risk category should be applied. For example, if the site is medium risk for earthworks and construction, but a high risk for demolition and track-out, the general measures applicable to a high risk site should be applied.

It should be noted that it is difficult to provide generic guidance, as each site and its location will be different and professional judgement is required.

### Key to tables:

- H** Highly recommended
- D** Desirable
- N** Not required

### Mitigation for all sites: Communications

Mitigation measure	Low Risk	Medium Risk	High Risk
1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	N	H	H
2. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.	H	H	H
3. Display the head or regional office contact information.	H	H	H

Mitigation Measure	Low Risk	Medium Risk	High Risk
4. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, realtime PM <sub>10</sub> continuous monitoring and/or visual inspections.	D	H	H
<b>Site Management</b>			
5. Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.	H	H	H
6. Make the complaints log available to the local authority when asked.	H	H	H
7. Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.	H	H	H
8. Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	N	N	H
<b>Monitoring</b>			
9. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.	D	D	H
10. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.	H	H	H
11. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	H	H	H
12. Agree dust deposition, dust flux, or real-time PM <sub>10</sub> continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	H	H	H
<b>Preparing and maintaining the site</b>			
13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	H
14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	H
15. Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.	D	H	H
16. Avoid site runoff of water or mud.	H	H	H
17. Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	H

Mitigation Measure	Low Risk	Medium Risk	High Risk
18. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.	D	H	H
19. Cover, seed or fence stockpiles to prevent wind whipping.	D	H	H
<b>Operating vehicle/machinery and sustainable travel</b>			
20. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.	H	H	H
21. Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H
22. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H	H	H
23. Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).	D	D	H
24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	N	N	H
25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	N	D	H
<b>Operations</b>			
26. Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.	H	H	H
27. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate	H	H	H
28. Use enclosed chutes and conveyors and covered skips.	H	H	H
29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	H
30. Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	D	H	H
<b>Waste management</b>			
31. Avoid bonfires and burning of waste materials.	H	H	H

### Measures specific to demolition

Mitigation Measure	Low Risk	Medium Risk	High Risk
32. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	D	D	H
33. Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.	H	H	H
34. Avoid explosive blasting, using appropriate manual or mechanical alternatives.	H	H	H
35. Bag and remove any biological debris or damp down such material before demolition.	H	H	H



### Measures specific to earthworks

Mitigation Measure	Low Risk	Medium Risk	High Risk
36. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	N	D	H
37. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	N	D	H
38. Only remove the cover in small areas during work and not all at once.	N	D	H

### Measures specific to construction

Mitigation Measure	Low Risk	Medium Risk	High Risk
39. Avoid scabbling (roughening of concrete surfaces) if possible.	D	D	H
40. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	D	H	H
41. Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	N	D	H
42. For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D	D

### Measures specific to trackout

Mitigation Measure	Low Risk	Medium Risk	High Risk
43. Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.	D	H	H
44. Avoid dry sweeping of large areas.	D	H	H
45. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H	H
46. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H	H
47. Record all inspections of haul routes and any subsequent action in a site log book.	D	H	H
48. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	N	H	H
49. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	D	H	H
50. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	N	H	H
51. Access gates to be located at least 10 m from receptors where possible.	N	H	H