



NOISE SCREENING ASSESSMENT

on behalf of

PEEL HOLDINGS (LAND & PROPERTY) LTD

for the site at

WARRINGTON WATERFRONT

REPORT DATE: 17TH APRIL 2018

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Summary

Miller Goodall Ltd (MG) has, on behalf of Peel (Land and Property) Ltd, undertaken a desktop noise screening assessment to review the potential issues associated with a proposed development for the re-development of Warrington Waterfront.


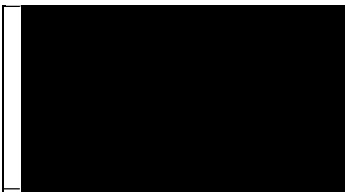
The study has considered the likely noise sources that will be located at the proposed Port re-development, along with the Business Park and Country Park and considered the likely design principals which should be adopted to mitigate for noise.

In relation to the impact of the development on the noise environment, information is limited and significance will need to be assessed via detailed noise modelling and noise monitoring as part of a full noise impact assessment for the planning application. This assessment would include details in relation to noise mitigation measures considered necessary for the development. These may include:

- Consideration given to the location of specific noisy activities at the proposed Port;
- Detailed consideration given to the design of the Port and Business Park in relation to the use of buildings for the screening and mitigation of the noise;
- Use of natural and formed bunds and barriers as mitigation for noise;
- The implementation of a Noise Management Plan; and
- The implementation of a Construction and Environmental Management Plan (CEMP).

The study concludes that noise should not be a barrier to development, however noise assessments are required to ensure good acoustic design in relation to the proposed Port development.

Record of changes

Prepared By	Matt Wilson MIOA	Reviewed By	Jo Miller MIOA
Signed		Signed	
Date	29 th October 2019	Date	29 th October 2019

Version	Date	Change	Initials
1	23 rd March 2018	Draft Issue	JLM
2	17th April 2018	Final Draft	JLM
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Contents

Summary	1
Contents	3
1 Introduction.....	4
2 Site Description	4
3 Proposed Development	4
4 Policy Context.....	5
4.1 Noise Policy Statement for England	5
4.2 National Planning Policy Framework	6
4.3 Planning Practice Guidance – Noise	7
4.4 Local Planning Policy	8
5 Acoustic Standards and Guidance	8
5.1 BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings	8
5.2 World Health Organisation (WHO) Guidelines for Community Noise 1999	9
5.3 BS 4142: 2014 ‘Methods for rating and assessing industrial and commercial sound’	9
6 Impact of Noise from the Proposed Development	10
6.1 Port Warrington	10
6.2 Arpley Meadows Business Hub.....	11
6.3 Road Traffic Noise.....	11
6.4 Noise Sensitive Receptors around the Warrington Waterfront	11
6.5 Existing Noise Environment.....	12
6.6 Measurements of Existing Noise Sources.....	12
6.7 Monitoring Results.....	15
6.8 Potential Mitigation	Error! Bookmark not defined.
6.9 Construction Noise and Vibration Impacts	18
6.10 New Commercial and Industrial Developments.....	18
6.11 Protecting amenity areas from increased noise.....	21
6.12 Protecting residential areas from increased noise.....	22
7 Summary and Conclusions	24
APPENDICES	25
Appendix 1: Site Outline and Noise Sensitive Receptors	26
Glossary of Terms	28

1 Introduction

- 1.1 This noise screening report is submitted in support of a proposed development of Warrington Waterfront, including:
- The expansion and re-development of Port Warrington as part of the Warrington Local Plan Core Strategy, including commercial and industrial uses associated with the Port, access to the canal, including ships docking and loading/unloading.
 - Development of a Business Park to the north east of the proposed Port Warrington Extension and
 - Further improvement of Arpley Meadows Country Park.
- 1.2 The site sits within the administrative boundary of Warrington Borough Council (WBC).
- 1.3 The report provides a review of noise issues in proximity to the proposed development site and assesses the potential impact of the proposed development on the local noise environment.
- 1.4 The noise assessment shall consider the impact of the development on the surrounding noise sensitive properties. The assessment is considered as a strategic screening assessment, rather than a full detailed noise assessment. The assessment shall consider likely noise impacts of the developments and provide guidance in relation to future detailed noise assessments and the likely areas of mitigation which may be necessary.
- 1.5 Noise impacts need to be considered as part of the planning process to ensure the new development does not create adverse noise impacts on existing receptors.

2 Site Description

- 2.1 Port Warrington is an existing operation with planning permission for a multi-modal port facility on a site located at Acton Grange, Birchwood Lane, Warrington. The site is located immediately adjacent to the Manchester Ship Canal, to the north east of Moore Lane. The existing Port Warrington site is long established and occupies an area of circa 25 acres for warehousing and distributions activities which are entirely dependent upon road haulage activities.
- 2.2 Arpley Meadows is the site of a completed landfill site which is currently being completed to enable the development of Arpley Meadows Country Park.
- 2.3 There is a proposed development of the Warrington Western Link Road (WWLR) which is currently being considered in relation to the transport links into the site.

3 Proposed Development

- 3.1 The Warrington Waterfront Development is to include the development at Port Warrington (PW) for allocation as part of the wider Warrington Waterfront major development area. Peel's aspirations are for multi-modal (road/rail/water) port related development with the potential for a range of uses including up to 3 million sq ft of B8 logistics uses. The site redline is provided in Appendix 1.
- 3.2 There is proposed to be access to the rail connection for the West Coast line.

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- 3.3 To the north-east of the port area, land is proposed for allocation as Arpley Meadows Business Hub which could accommodate c.1m sq ft of B1/B2/B8 class uses. .
- 3.4 It is understood that the existing industrial facility on the site is a distribution facility with a single berth on the ship canal, and enjoys an allocation for B8 Port Use with permitted development rights. It is proposed to expand the facilities at the port and extend the wharf to develop a multimodal facility which enjoys access to the local canal, road and rail networks.
- 3.5 This assessment covers the elements of the project that would be part of the permitted port activity. This includes all activities related to a typical container logistics opportunity, such as import, export and storage of freight containers. Due to the operational requirements of the Manchester Ship Canal and the necessary adherence to the tide times, it will be necessary for loading and unloading of vessels to be undertaken at any time in a typical 24-hour period.
- 3.6 This assessment does not consider any potential uses of the site which would be subject to separate planning applications for general industrial B2 use classes.

4 Policy Context

4.1 Noise Policy Statement for England

- 4.1.1 The Noise Policy Statement for England (NPSE¹), published in March 2010, sets out the long-term vision of Government noise policy. The Noise Policy aims, as presented in this document, are:

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- avoid significant adverse effects on health and quality of life;
- mitigate and minimise adverse effects on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life.”

- 4.1.2 The NPSE makes reference to the concepts of NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level) as used in toxicology but applied to noise impacts. It also introduces the concept of SOAEL (Significant Observed Adverse Effect Level) which is described as the level above which significant adverse effects on health and the quality of life occur.

- 4.1.3 The first aim of the NPSE is to avoid significant adverse effects, taking into account the guiding principles of sustainable development (as referenced in Section 1.8 of the Statement). The second aim seeks to provide guidance on the situation that exists when the potential noise impact falls between the LOAEL and the SOAEL, in which case:

“...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development”.

¹ Noise Policy Statement for England, Defra, March 2010

4.1.4 Importantly, the NPSE goes on to state:

“This does not mean that such adverse effects cannot occur”.

4.1.5 The Statement does not provide a noise-based measure to define SOAEL, acknowledging that the SOAEL is likely to vary depending on the noise source, the receptor and the time in question. NPSE advises that:

“Not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available”

4.1.6 It is therefore likely that other guidance will need to be referenced when applying objective standards for the assessment of noise, particularly in reference to the SOAEL, whilst also taking into account the specific circumstances of a proposed development.

4.2 National Planning Policy Framework

4.2.1 The National Planning Policy Framework (NPPF²) was published in March 2012. One of the documents that the NPPF replaces is Planning Policy Guidance Note 24 (PPG 24) “Planning and Noise”³.

4.2.2 Paragraph 109 of the NPPF states that the planning system should contribute to and enhance the natural and local environment by, (amongst others) “preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, water or noise pollution or land stability”.

4.2.3 The NPPF goes on to state in Paragraph 123 “planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including thorough use of conditions;
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land use since they were established, and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value”.

4.2.4 The NPPF document does not refer to any other documents regarding noise other than NPSE.

² National Planning Policy Framework, DCLG, March 2012

³ Planning Policy Guidance 24: Planning and Noise, DCLG, September 1994

4.3 Planning Practice Guidance – Noise

4.3.1 As of March 2014, a Planning Practice Guidance⁴ for noise was issued which provides additional guidance and elaboration on the NPPF. It advises that when plan-making and decision-taking, the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

4.3.2 In line with the Explanatory Note of the NPSE, the PPG goes on to reference the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

“...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation”.

4.3.3 Examples of these factors include:

- The source and absolute noise level of the source along with the time of day that it occurs;
- Where the noise is non-continuous, the number of noise events and pattern of occurrence;
- The frequency content and acoustic characteristics of the noise;
- The effect of noise on wildlife;
- The acoustic environment of external amenity areas provided as an intrinsic part of the overall design;
- The impact of noise from certain commercial developments such as night clubs and pubs where activities are often at their peak during the evening and night.

4.3.4 The PPG also provides general advice on the typical options available for mitigating noise. It goes on to suggest that Local Plans may include noise standards applicable to proposed developments within the Local Authority’s administrative boundary, although it states that:

“Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed”.

4.3.5 The PPG was amended in December 2014 to clarify guidance on the potential effect of noise from existing businesses on proposed new residential accommodation. Even if existing noise levels are intermittent (for example, from a live music venue), noise will need to be carefully considered and appropriate mitigation measures employed to control noise at the proposed accommodation.

⁴ Planning Practice Guidance – Noise, <http://planningguidance.planningportal.gov.uk/blog/guidance/noise/>, 06 March 2014

4.4 Local Planning Policy

Warrington Local Plan Core Strategy

- 4.4.1 The expansion of Port Warrington has been a long standing strategic priority for WBC and the adopted Warrington Local Plan Core Strategy (WLPCS) has established the principal of expansion of the Port Warrington into the Green Belt. The WLPCS states within Policy CS2 - 277ha of land for business, general industrial and storage/distribution should be made available in Warrington to 2027 in order to support growth of the local and sub-regional economy. The strategy notes that major warehousing and distribution developments should ideally be located away from areas sensitive to heavy vehicle movement.

Warrington Preferred Options Local Plan

- 4.4.2 The Preferred Options Local Plan for Warrington has identified that it will, alongside the land allocated at M56 Junction 9, meet the majority of Warrington's employment land requirement of 381ha over the next 20 years (Policy W1) and open up Port Warrington to "become one of the most important employment areas in the North West region." It notes that the Port will provide a key distribution centre of c. 200,000 sqm and has the potential to become a multi-modal Port.

5 Acoustic Standards and Guidance

5.1 BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings

- 5.1.1 This standard provides recommended guideline values for internal noise levels within dwellings which are similar in scope to guideline values contained within the World Health Organisation (WHO) document, Guidelines for Community Noise (1999)⁵. These guideline noise levels are shown in Table 1, below.

Table 1: BS 8233: 2014 guideline indoor ambient noise levels for dwellings

Location	Activity	07:00 to 23:00	23:00 to 07:00
Living Room	Resting	35 dB $L_{Aeq,16hr}$	-
Dining room/area	Dining	40 dB $L_{Aeq,16hr}$	-
Bedroom	Sleeping (daytime resting)	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

⁵ World Health Organisation Guidelines for Community Noise, 1999

5.1.2 BS 8233:2014 advises that:

“regular individual noise events...can cause sleep disturbance. A guideline value may be set in terms of SEL⁶ or $L_{Amax,F}$ depending on the character and number of events per night. Sporadic noise events could require separate values”.

5.1.3 BS 8233:2014 adopts guideline external noise values provided in WHO for external amenity areas such as gardens and patios. The standard states that it is “desirable” that the external noise does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ whilst recognising that development in higher noise areas such as urban areas or those close to the transport network may require a compromise between elevated noise levels and other factors that determine if development in such areas is warranted. In such circumstances, the development should be designed to achieve the lowest practicable noise levels in external amenity areas.

5.2 World Health Organisation (WHO) Guidelines for Community Noise 1999

5.2.1 The WHO Guidelines 1999 recommends that to avoid sleep disturbance, indoor night-time guideline noise values of 30 dB L_{Aeq} for continuous noise and 45 dB L_{AFmax} for individual noise events should be applicable. It is to be noted that the WHO Night Noise Guidelines for Europe 2009⁷ makes reference to research that indicates sleep disturbance from noise events at indoor levels as low as 42 dB L_{AFmax} . The number of individual noise events should also be taken into account and the WHO guidelines suggest that indoor noise levels from such events should not exceed approximately 45 dB L_{AFmax} more than 10 – 15 times per night.

5.2.2 The WHO document recommends that steady, continuous noise levels should not exceed 55 dB L_{Aeq} on balconies, terraces and outdoor living areas. It goes on to state that to protect the majority of individuals from moderate annoyance, external noise levels should not exceed 50 dB L_{Aeq} .

5.3 BS 4142: 2014 ‘Methods for rating and assessing industrial and commercial sound’

5.3.1 BS 4142: 2014⁸ provides guidance on the assessment of the likelihood of complaints relating to noise from industrial sources. It replaced the 1997 edition of the Standard in October 2014. The key aspects of the Standard are summarised below.

5.3.2 The standard presents a method of assessing potential noise impact by comparing the noise level due to industrial sources (the Rating Level) with that of the existing background noise level at the nearest noise sensitive receiver in the absence of the source (the Background Sound Level).

5.3.3 The Specific Noise Level - the noise level produced by the source in question at the assessment location - is determined and a correction applied for certain undesirable acoustic features such as tonality, impulsivity or intermittency. The corrected Specific Noise Level is referred to as the Rating Level.

⁶ Sound exposure level or L_{AE}

⁷ WHO Night Noise Guidelines for Europe 2009

⁸ BS 4142:2014 Methods for rating and assessing industrial and commercial sound

5.3.4 In order to assess the noise impact, the Background Sound Level is arithmetically subtracted from the Rating Level. The standard states the following:

- *Typically, the greater this difference, the greater the magnitude of the impact,*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context,*
- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context,*
- *The lower the Rating Level is relative to the measured Background Sound Level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the Rating Level does not exceed the Background Sound Level, this is an indication of the specific sound source having a low impact, depending on the context.*

5.3.5 In addition to the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, the 2014 edition places emphasis upon an appreciation of the context, as follows:

An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.

5.3.6 The 2014 edition of BS 4142 also introduces a requirement to consider and report the uncertainty in the data and associated calculations and to take reasonably practicable steps to reduce the level of uncertainty.

6 Impact of Noise from the Proposed Development

6.1 Port Warrington

6.1.1 The re-development of Port Warrington is likely to include a number of noise sources, details of which are not currently available, however they are likely to include:

- Noise during the construction phase;
- Noise from loading/unloading of ships along the ship canal;
- Operational noise from road vehicle movements, on-site rail movements, ship movements, container handling and activities in and around the warehouses; and
- Off site road vehicle movements.

6.1.2 The noise sources identified are likely to include loud impact noise sources such as banging of containers during the loading/unloading of ships. These noise sources have as yet not been fully identified or assessed as a result of the early nature of this application. It is recommended that once details of the application are known the noise sources are included within a noise modelling package to predict the impact to the closest noise sensitive receptors. The modelling will also include topographical information to ensure the model takes account of all the features of the area, including the extensive height of the railway line in comparison to the level of Port Warrington.

6.2 Arpley Meadows Business Hub

6.2.1 The proposed business park is likely to include activities such as; loading bays, HGV and light vehicle movements and noise from plant and machinery. There is the potential for these noise sources to impact on existing and future residential uses. At this stage there is no detail in relation to these noise sources, however as identified above a noise model will need to be developed to include noise from the proposed business park to assess the impact of the noise and recommend any potential mitigation measures. As the business hub is not likely to be part of the B8 permitted development Port operations, the potential effects are not assessed as part of this high level assessment. Indicative HGV loading operations have been included in this area to assume worst case impact if the area is part of a 24 -hour logistics hub.

6.3 Road Traffic Noise

6.3.1 Off-site noise associated with development including; HGV movements and vehicles associated with the use of the Port are not known at this stage. However it is known that the existing routes to the port are via local road networks off A56 with routes to the west converging on Moore Lane. It is proposed that this access will be closed to freight traffic as part of the wider development.

6.3.2 Potential alternative routes to the Port could be developed off the existing road network: via Old Liverpool Road, Barnard Street and Forrest Way. After crossing the River Mersey, the route could use the existing un-adopted roads via the Arpley land-fill site.

6.3.3 PW is an important part of WBC's Warrington Waterfront draft allocation in the Preferred Development Objection (PDO). The PDO notes that:

"The waterfront development is dependent on the delivery of the 'Western Link' connection."

6.3.4 The Western Link (WL) is a major highways improvement connecting the A56 and A57 to the west of the town centre, reducing through traffic through the town and also providing access to development sites.

6.3.5 A future noise assessment of the transport infrastructure for Port Warrington will consider the impact of increased road traffic from the Port and associated industrial/commercial park on the local receptors.

6.4 Noise Sensitive Receptors around the Warrington Waterfront

6.4.1 There are a number of existing noise sensitive receptors located around the proposed Port Warrington development. The closest of these are identified in Appendix 1 and include:

- Bell House Farm, located to the south of the development site (NSR 1);
- Residential property on Bellhouse Lane, Higher Walton (NSR 2)
- Residential Property at the Big Hand (Riding School), Off Moor Lane, Higher Walton (NSR 3)
- Promenade park, off Moss Lane, Moore, Warrington - A residential park containing approximately 80 homes (NSR 4);
- Moss Lane Farm, Moss Lane, Moore (NSR 5)
- Meadowbank Cottage and Residential Park off Moore Lane, Moore (NSR 6)
- Residential Properties off Moss Side Lane (NSR 7)
- Moss Side Farm, Lapwing Lane, Moore (NSR 8)

-
- Residential properties off Mill lane, Moore (NSR 9) and
 - Residential properties off Sunflower Drive, Warrington (NSR 10).

6.5 Existing Noise Environment

6.5.1 The properties identified are likely to be impacted by existing noise sources in the area to varying extents, including ;

- Noise from the railway line, West Coast Main Line, which includes existing freight and passenger traffic;
- Existing noise from Port Warrington, including; warehouse activities, fork lift trucks, loading and unloading and HGV movements which is permitted to operate 24 hours;
- Noise from the existing road network, including Chester Road (A56);
- Aircraft noise from both Liverpool and Manchester Airport; and
- Existing industrial and commercial noise in the area.

6.6 Measurements of Existing Noise Sources

6.6.1 A full baseline noise survey has not been undertaken at the site, however information from previous surveys have been considered along with additional short term noise measurements at sensitive properties close to the site.

Daytime noise measurements were initially undertaken at one location (MP1) identified in Appendix 1 in accordance with BS 7445-1: 2003⁹ by Gareth Willox of Miller Goodall Ltd. The calibration of the sound level meter was checked before and after measurements with negligible deviation (<0.1 dB). Details of the equipment used are shown in

⁹ BS 7445-1: 2003 Description and measurement of environmental noise - Part 1: Guide to quantities and procedures

6.6.2 Table 2, below.

6.6.3 A second monitoring assessment of night time noise was conducted by Matt Wilson of Miller Goodall on 4th July 2019 to measure background noise levels at night in the area close to the Moore Lane Swing Bridge (MP2).

Table 2: Noise monitoring equipment

Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
Daytime					
Class 1 ^{10,11} Integrating Real Time 1/3 Octave Sound Analyser	NOR 140	Norsonic	1406017	23/05/17	03238/2
Microphone	NOR 1225	151206	23/05/17	03238/2	151206
Class 1 Calibrator ¹²	NOR 1251	Norsonic	34123	05/07/17	02777/1
Night time					
Class 1 ^{13,14} Integrating Real Time 1/3 Octave Sound Analyser	NOR 140	Norsonic	1406017	29/05/19	04255/2
Microphone	NOR 1225	Norsonic	151206	29/05/19	04255/2
Class 1 Calibrator ¹⁵	Type 4231	Brüel & Kjær	2478249	29/05/19	04255/1

6.6.4 Specific, background and ambient noise monitoring was undertaken at the times specified in Table 3, below. Weather conditions were determined both at the start and on completion of the survey. It is considered that meteorological conditions were appropriate for environmental noise measurements. Measurement locations are shown in Appendix 1.

Table 3: Dates, times and weather conditions during noise measurements

Measurement Location	Date	Time	Weather conditions
MP1	29/03/2018	09:15 – 10:40	Overcast, dry, 3 – 7 °C, still
MP2	04/07/2019	00:00 – 02:00	Clear, dry, still, 12°C

¹⁰ IEC 61672-1 (2002) Electroacoustics – Sound level meters Part 1: Specifications

¹¹ IEC 61260 (1995) Electroacoustics – Octave-band and fractional-octave-band filters

¹² IEC 60942 (2003) Electroacoustics – Sound calibrators

¹³ IEC 61672-1 (2002) Electroacoustics – Sound level meters Part 1: Specifications

¹⁴ IEC 61260 (1995) Electroacoustics – Octave-band and fractional-octave-band filters

¹⁵ IEC 60942 (2003) Electroacoustics – Sound calibrators

6.6.5 Measurements were taken to establish an estimate of the background sound levels in the area. Further more detailed noise monitoring would be required to support a full noise assessment for the site.

6.6.6 The measurement locations are detailed below and indicated on Appendix 1.

- MP1 - Approximately 90 m south of Moss Side Farm on Lapwing Lane, at the approximate location of NSR 8.
- MP2- Immediately south of Moore Lane Swing Bridge

6.6.7 The noise sources within the vicinity of the measurement locations are summarised in Table 4, below:

Table 4: Description of noise sources affecting the site

Measurement Locations	Noise Sources
MP1	Occasional passing vehicles, distant road traffic noise and dog walkers.
MP2	Occasional trains at different speeds on the rail line, distant traffic, barn owl screeching, small engine or generator (unobserved visually) on the Manchester Ship Canal, isolated vehicles crossing the bridge, including HGV, motorbikes and tractors

6.7 Monitoring Results

6.7.1 A summary of the broadband measurement data is provided in Table 5 below. All data are sound pressure levels in dB re 20 μ Pa.

Table 5: Summary of noise measurements

Measurement Location	Start Time	$L_{Aeq,T, 5 \text{ mins}}$ (dB)	Overall L_{AFmax} (dB)	$L_{AF10,5 \text{ mins}}$ (dB)	$L_{AF90,5 \text{ mins}}$ (dB)
MP1	09:15	43.8	56.7	47.2	39.8
MP1	09:20	42.1	58.2	43.8	39.5
MP1	09:25	46.1	57.3	48.9	40.6
MP1	09:30	50.6	64.1	54.3	40.7
MP1	09:35	46.9	70.0	49.6	39.3
MP1	09:40	48.9	62.3	53.1	39.8
MP1	09:45	46.2	62.3	47.9	41.1
MP1	09:50	45.1	55.6	49.0	39.7
MP1	09:55	42.4	54.8	45.1	39.0
MP1	10:00	41.8	53.2	44.0	39.0
MP1	10:05	52.0	66.8	56.4	39.4
MP1	10:10	44.2	60.7	46.7	39.6
MP1	10:15	48.1	59.3	52.8	39.5
MP1	10:20	56.5	88.2	45.1	39.5
MP1	10:25	44.3	60.4	46.2	41.4
MP1	10:30	49.3	61.9	54.2	39.7
MP1	10:35	46.9	59.8	50.8	39.7
MP1	10:40	44.7	57.4	48.5	38.9
MP2	00:00	49.3	67.0	48.8	30.9
MP2	00:05	60.5	83.8	48.0	32.6
MP2	00:10	60.8	82.4	47.6	30.0
MP2	00:15	33.3	52.2	34.5	29.6
MP2	00:20	32.7	51.3	34.2	30.0
MP2	00:25	56.1	77.7	43.8	29.9
MP2	00:30	31.6	43.1	32.9	29.1
MP2	00:35	39.0	50.9	44.1	30.0
MP2	00:40	32.9	43.6	36.6	29.8
MP2	00:45	32.4	47.8	35.2	29.6
MP2	00:50	65.4	86.6	62.6	28.6
MP2	00:55	29.5	37.5	30.2	28.7
MP2	01:00	33.8	55.8	33.5	29.1
MP2	01:05	33.9	53.2	36.1	29.5
MP2	01:10	35.8	47.7	40.4	30.0
MP2	01:15	30.4	34.1	31.2	29.4
MP2	01:20	36.3	43.2	41.0	29.8
MP2	01:25	55.1	71.9	54.6	29.6
MP2	01:30	31.1	37.3	33.3	29.0
MP2	01:35	47.4	67.9	40.2	29.2
MP2	01:40	45.1	55.1	51.1	29.6
MP2	01:45	35.2	45.7	39.6	28.8
MP2	01:50	35.7	44.3	39.2	31.0
MP2	01:55	32.2	48.5	32.1	30.1

- 6.7.2 Each measurement period consisted of sequential 5 minute samples. The results show a relatively low level of existing ambient noise and background sound, which is to be expected at a location such as this.
- 6.7.3 A full environmental noise surveys has not been undertaken at this stage of the assessment. It is however recommended as part of the full noise assessment that a background noise survey is agreed with the Local Authority and undertaken as part of the assessment. Given the proposed 24 hour/7 day proposals for the proposed Port Warrington, long-term day and night surveys are suggested.
- 6.7.4 An Environmental Impact Assessment for the extension of Arpley Landfill Site was submitted in October 2013, this assessment included a noise impact assessment undertaken by NVC. Full details of the noise measurements are included within the ES chapter, however a summary of the long-term measurement results are included in Table 6 below.

Table 6: Summary of noise data from Arpley Landfill EIA – October 2013

Location	Daytime (07:00 – 23:00 hours) (Saturday)			Night-time (23:00 to 07:00 hours) (Monday to Friday)			Night-time (23:00 to 07:00 hours) (Saturday and Sunday)		
	$L_{Aeq,T}$ dB	L_{A90} dB (range)	L_{AMax} dB (range)	$L_{Aeq, T}$ dB	L_{A90} dB (range)	L_{AMax} dB (range)	$L_{Aeq, T}$ dB	L_{A90} dB (range)	L_{AMax} dB (range)
Saxon Park (close to NSR 10)	50	41 – 48	66 - 82	46	41 – 47	50 – 71	45	40 – 46	50 - 75
Moss Lane, Moore – (close to NSR 5)	49	40 – 42	66 – 75	42	31 – 43	46 – 75	40	35 – 39	45 - 68

- 6.7.5 It can be seen from Tables 5 and 6 that the background sound levels for Moore Lane, Lapwing Lane and the Moss Lane area are relatively low, particularly during the weekend night-time period. The Saxon Park area has higher noise levels, mainly due to the proximity to the local road traffic network, along with the existing industrial activity within the loop of the river Mersey and potentially from the commercial units along Forrest Way. The information provides an indication of the most sensitive areas which may be impacted from the future proposed development, however as previously stated additional noise monitoring would be required as part of the full noise impact assessment.

6.8 Construction Noise and Vibration Impacts

- 6.8.1 It is common for the control of construction noise, vibration and dust emission to be addressed by the application of Best Practicable Means (BPM) and detailed within a Construction and Environmental Management Plan (CEMP). The impact of construction noise from a development of this size is likely to be the main noise impacting on existing noise sensitive receptors, albeit over a relatively short period of time.
- 6.8.2 Prior to commencement of works, a quantitative noise impact assessment using guidance in BS 5228¹⁶ on site may also be required but in our experience is usually unnecessary, unless there are nearby high risk or noise sensitive receptors, provided a robust CEMP is in place and agreed upon by the Local Authority.
- 6.8.3 WC are likely to have their own recommended wording for planning conditions relating to the control of noise and vibration from construction works.

6.9 New Commercial and Industrial Developments

- 6.9.1 Any new commercial and industrial developments will need to be considered as part of the planning application for the site. The likely noise sources from these areas will need detailed prediction to ensure their impact is not significant on existing or future residential uses. Any new operations on the site that do not form part of the expansion of permitted B8 Port use will be subject to separate individual planning applications and will not form part of this assessment.
- 6.9.2 Good acoustic design incorporated at an early stage in the development of the site will help to reduce the impact of noise sources to protect existing and future noise sensitive receptors.

Indicative Assessment Operational Noise from Port Operations

- 6.9.3 An indicative assessment has been undertaken considering a range of typical noise sources from a Port. Similar port noise has been measured a site in Irlam and modelled using CadnaA noise modelling software. The model also includes indicative logistics at nearby warehouses. The following assumptions have been made for a worst case operational hour when a ship is at the port and containers are being transferred to and from the wharf.
- Industrial Buildings at 15m
 - Container stacks at 15.5m (6 high)
 - Refrigerated HGV delivery vehicles within Arpley Meadow Business Hub and Port Warrington;
Area source (roof) - $L_w=94.0\text{dB}$
Area source (side) - $L_w=98.3\text{dB}$
 - Port Area: Area source at 4.0m high:
2no. wheeled Hyster Reach Loader [46-41LS CH] operating full time
Spectrum: from direct measurement
 $L_w=101\text{dBA}$
 - Container Load to HGV, 2no. locations
 $L_w=122.6\text{dB}$ (4 sec event duration)

¹⁶ BS 5228 Noise and Vibration Control on Construction and Open Sites - Part 1: Noise: 2009+A1:2014

30/hour day

15/hour night

- STS Crane (2no. @ 10m height)

Operating 100%

$L_w=102\text{dB}$ – inclusive of collection of containers, lifting, rotating, setting down.

- Ship onboard generator for use at berth (2no at 4m above waterline)

Operating 100%

$L_w=80\text{dB}$

6.9.4 Noise contours (4.0m grid height) are shown in Appendix 2.

6.9.5 It can be assumed that characteristics of noise associated with the port will require rating adjustment due to impulsivity which is just perceptible +3dB.

6.9.6 Data given in the tables above suggest baseline background noise (L_{A90}) levels will be in the region of 30 at night and 40 during the day. It is proposed that a full baseline noise assessment be undertaken at appropriate positions to determine baseline L_{A90} levels.

6.9.7 Assuming the lowest L_{A90} levels determined above, an example BS4142 industrial noise assessment is given in Table 7 below for the 10 identified receptors, due to the noise levels modelled. The noise levels discussed below assume both berths and cranes are in operation simultaneously for

Table 7: indicative BS4142 assessment

Receptor	$L_{Aeq,T}$ dB	Rating Penalty dB	Rating Level dB	L_{A90} dB	Difference	Potential Impact
Day						
NSR1	40	3	43	40	3	Low
NSR2	43	3	46	40	6	Adverse
NSR3	36	3	39	40	-1	Low
NSR4	33	3	36	40	-4	Low
NSR5	27	3	30	40	-10	Low
NSR6	35	3	38	40	-2	Low
NSR7	37	3	40	40	0	Low
NSR8	37	3	40	40	0	Low
NSR9	36	3	39	40	-1	Low
NSR10	37	3	40	40	0	Low
Night						
NSR1	40	3	43	30	13	Significant Adverse
NSR2	43	3	46	30	16	Significant Adverse
NSR3	36	3	39	30	9	Adverse
NSR4	33	3	36	30	6	Adverse
NSR5	27	3	30	30	0	Low
NSR6	35	3	38	30	8	Adverse
NSR7	37	3	40	30	10	Significant Adverse
NSR8	37	3	40	30	10	Significant Adverse
NSR9	36	3	39	30	9	Adverse
NSR10	37	3	40	30	10	Significant Adverse

- 6.9.8 The assessment shows that whilst daytime port activities are expected to be a low impact, night time activities have the potential to give a significant adverse impact depending on context.
- 6.9.9 Whilst at night the predicted noise level from port activities exceeds the typical baseline noise level by an amount which would be considered to demonstrate a significant effect, the absolute noise level would be at worst 43 dB $L_{Aeq,15min}$. A typical open window used for background ventilation at night is assumed to offer approximately 15 dB of attenuation. As such internal noise levels in bedrooms at night are estimated to be below the 30 dB $L_{Aeq,8h}$ criteria set in BS8233.
- 6.9.10 Maximum noise events, such as setting down of containers on the wharf may reach 65 dB L_{AFmax} at the closest receptors, this would likely exceed an internal noise level of 45 dB L_{AFmax} . As such mitigation measures will be required for operations at night.
- 6.9.11 The predictions assume two ships in the port at the same time with full operations from associated reach loaders. Such an event is unlikely to occur, especially at night and therefore the levels shown are very much worst case.
- 6.9.12 The uncertainty in this assessment is high and the assessment is considered on the conservative side, due to the number of assumptions made regarding noise sources, on times and locations. As such this assessment should not be considered suitable for planning assessment and should be refined in terms of baseline noise levels and operational data.

6.10 Protecting amenity areas from increased noise

- 6.10.1 The NPPF recommends protecting areas of tranquillity and areas prized for their recreational and amenity value. Table 8 identifies areas which it is felt meet this criteria.

Table 8: Locations where noise should be protected

Name of Site	Type of Site	Reason
Moore Nature Reserve	Nature reserve	Protection of Wildlife and tranquillity for users of the site.
Arpley Meadows Country Park	Country Park	Protection of Wildlife and tranquillity for users of the site.

- 6.10.2 The use of good acoustic design would enable the site to be developed to protect the identified tranquil areas. This would be considered as part of the noise assessment submitted to support the planning application.

6.11 Protecting residential areas from increased noise

- 6.11.1 Although at this stage a full noise assessment has not been undertaken, there are a number of mitigation strategies which can be included to control noise emissions from the proposed development which will be considered at the design phase. The main issue in relation to this proposal is the 24 hour/ 7 day nature of the application. The following acoustic mitigation principals will be followed as part of the full design of the proposed development:
- Provision of suitable buffer zones between the main noise sources and noise sensitive receptors;
 - Provision of noise bunds and barriers between noise sources and noise sensitive receptors;
 - Location of the main noise sources to ensure maximised benefit from proposed buildings, barriers and bunds;
 - Use of best practical means to control noise sources;
 - Provision of a Construction Environmental Management Plan (CEMP) to control construction noise; and
- 6.11.2 Noise management plan to control unnecessary noise sources.
- 6.11.3 This overview report looks at the operations of the port as expanded B8 use for handling of containers, storing and stockpiling of goods and management of goods in transit. As such potential operations from any other future industrial B2 class uses on the site will not be considered as sources. Such operations will be required to submit their own stand-alone planning application when brought forward.
- 6.11.4 It will be a requirement of the expanded port operations that the site be operational at any time in a 24-hour period. The existing operations at Port Warrington, which acts as a distribution facility are already permitted 24-hours a day.
- 6.11.5 Tide times, vessel schedules and availability of locks at Eastham will be key drivers of the times at which a vessel will arrive at and leave the berth at Warrington and as such it will be necessary on occasion to undertake operations during the typical night time period (23:00 – 07:00). Night time operations will be an exception rather than typical operating practice as vessels would typically be at the berth for a 12 hour period, during which container transfer operations will occur for approximately 6 hours. Operations at night will be avoided wherever logistically possible considering all other factors detailed above.
- 6.11.6 Use of the single existing berth at Port Warrington would allow a capacity of three vessels every week. Expansion to two berths would potentially allow capacity for up to eight vessels a week. Assuming a maximum of eight vessels each week, with operations lasting 6 hours per vessel, container transfers at the port would occur for less than 30% of the time.
- 6.11.7 At other times it is likely that mobile reach loaders would move containers onto train wagons, tug vehicles or HGVs. Such operations would occur at variable locations within the wider port and would not require the large mobile cranes which have large noise emitting exhausts at 10.0 m elevation.
- 6.11.8 It is intended that use of up to date best practice methodology will be employed in any new build port infrastructure. This should include use of technology to aid the transfer of containers between ship and shore. The recently opened port at Liverpool, Liverpool 2, demonstrates computer guided techniques to allow containers to be collected using shore-based infrastructure in a carefully controlled way, minimising the unnecessary impulsive noise events typically associated with container retrieval.

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- 6.11.9 Where possible new build ports should employ similar best practice techniques to reduce unnecessary impulsive noise events when a container is being retrieved from a ship or wharf and then set down at its destination.
- 6.11.10 It is proposed that the expanded port can be served by up to six trains per day as part of the multimodal offering at the site. The site is close to the existing rail lines connecting Warrington on lines towards Chester and Crewe, including the West Coast Main Line. This route is currently very busy with passenger and freight traffic and therefore additional trains using the service would be unlikely to be noticed and would likely be part of Network Rail's rights of intensification.
- 6.11.11 Diesel locomotives that are typically utilised to pull freight of this type, such as Class 60 and Class 66 locomotives are not typically powered all the way down during times when they are not moving, however they stay idle. Future operations at the proposed rail sidings will require management of the freight services. Vehicles should spend as little time on the site as possible, with a locomotive "run-around" undertaken soon after the train arrives so that the locomotive can re-couple at the eastern end prior to taking the train out of the site.
- 6.11.12 A new build rail siding would be able to identify a stopping position for the locomotive and provide a protective noise barrier or ventilated shed to shield the idle locomotive from nearby residential areas.
- 6.11.13 Logistic operations at a multimodal port such as is proposed for the extended Port Warrington will by their very nature involve a great many sources of noise from within the site. Existing facilities of a similar nature will frequently get noise complaints from nearby residential locations, as such it will be important that the site operators use all best practicable means to reduce the effects of impulsive noise.
- 6.11.14 Movement of containers around the port area, specifically empty ones can result in potentially significant noise events when they pass over uneven surfaces on the back of HGV or tug vehicles. It will be important that road surfaces in and around the site must be durable and suitable for the freight traffic that will utilise the highways, to avoid sharp turns, bumps or other discontinuities such as pot holes and surface damage, which might cause vehicles to jolt and create a noise disturbance.
- 6.11.15 Occasional damage to road surfaces is unavoidable, however every effort must be made to keep damage to a minimum. Timely and effective maintenance to prevent small features becoming large and introducing discontinuities at surface interfaces should be achieved through appropriate site management.
- 6.11.16 Horns and alarms on vehicles should be used only when necessary for the safety of those working around the operations. Sirens and typical beeping movement alarms should be replaced wherever possible by broadband alarms at typical ear height, reduction in the number of people working in the operational area and good communications between those controlling the lifting works, banksmen and drivers of ancillary vehicles. Appropriate training and inductions should be mandatory for all workers and visitors to areas of the site where lifting works will be in progress. Clear separation of walkways, roadways and freight lay-down areas should be implemented.
- 6.11.17 It is understood that the road traffic to and from the site will utilise access routes to the north east and the proposed new road network serving Warrington. This will eliminate the requirement for traffic to cross the Moore Lane Swing Bridge and access the A56 / M56 to the south of the site.

7 Summary and Conclusions

7.1 A noise screening assessment has been carried out to assess the impact of the expansion of Port Warrington on existing noise sensitive receptors.

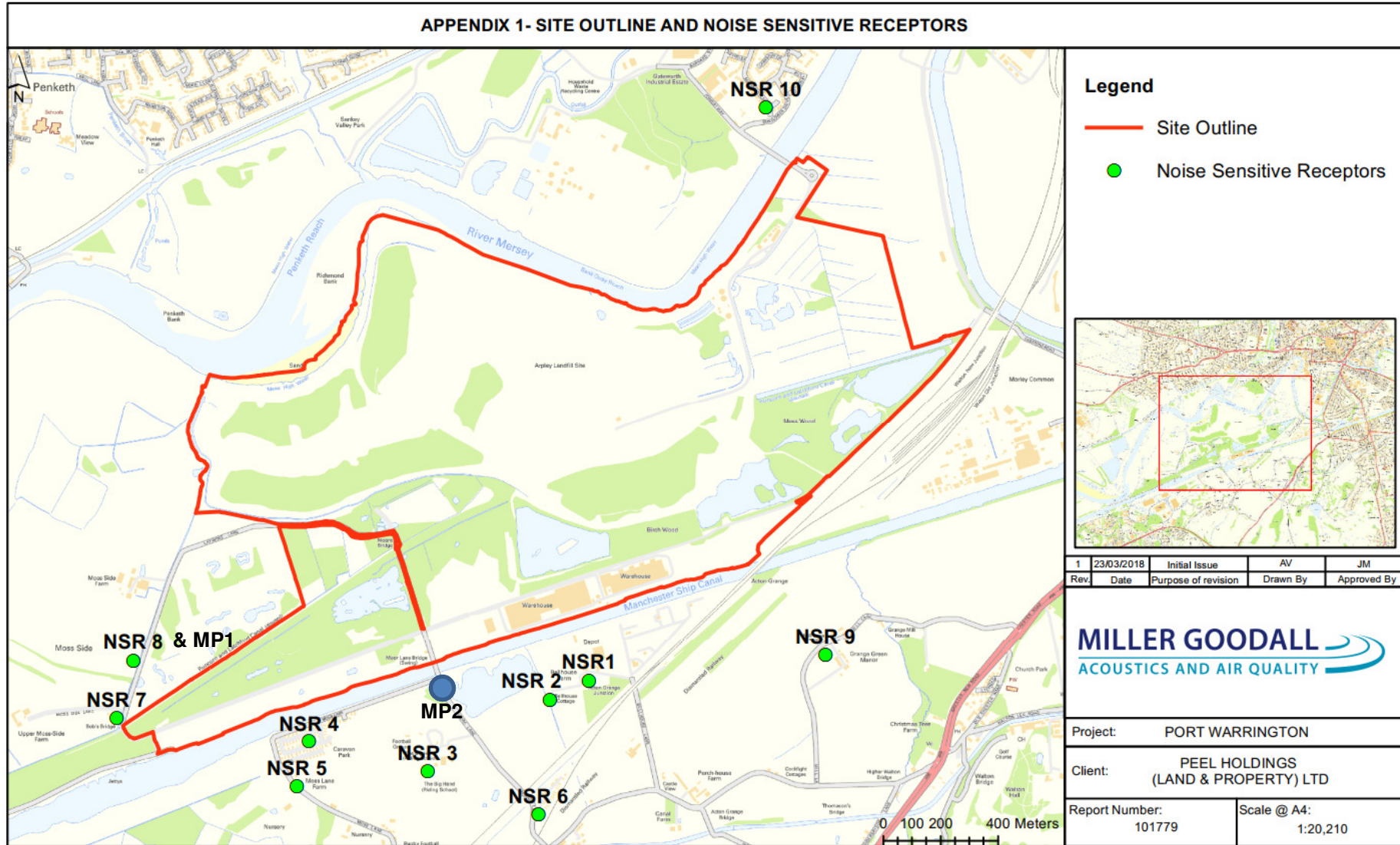
7.2 It is recommended that;

- A detailed noise assessment would be required as part of a full planning application for the site.
- Noise from transportation sources around the site would need to be considered as part of the detailed masterplan for the site and considered as part of the planning submission which is likely to require an Environmental Impact Assessment.
- Noise from industrial and commercial sources located around the periphery of the site would need to be assessed in more detail as part of a detailed planning submission for the site.
- There are areas within the site and located close to the site which are considered tranquil areas and careful design of the masterplan should aim to protect the noise environment at these locations.
- Any operations that fall under B2 class industrial use, such as processing of goods or materials on the site would not be considered part of the permitted use of the port area, and be subjected to an additional planning application.
- The use of best practicable means and the latest technology should be considered at all stages, such that the design and operation of the site reduces the likelihood and level of impact noise to a minimum.
- Good site management, maintenance and operations should also form part of best practicable means to reduce the number of

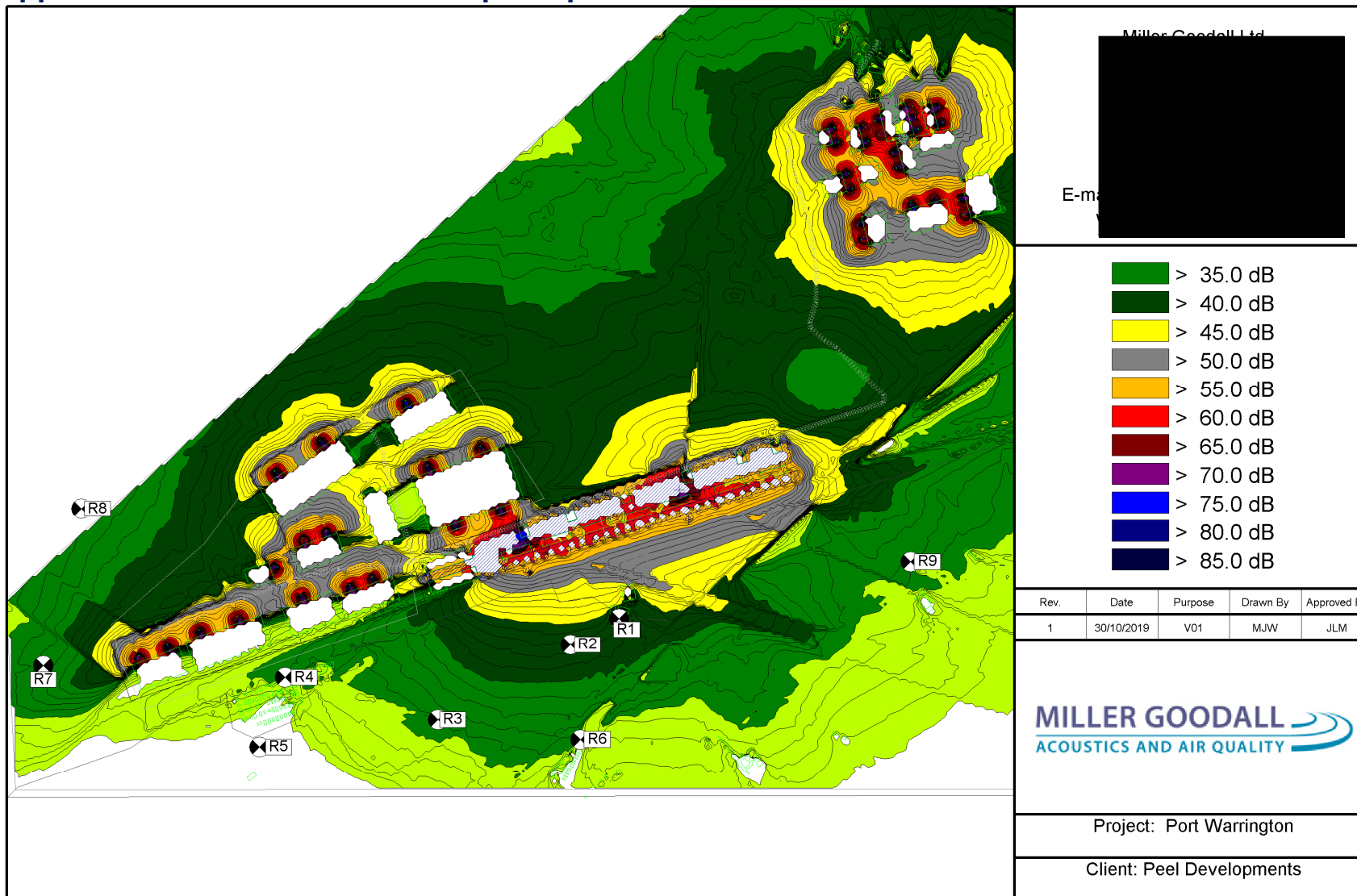
7.3 A full assessment of the impact of the development in terms of noise from; transport, new infrastructure, construction noise and commercial and retail sources would need to be assessed as part of the planning submission for the application site. Good acoustic design should be considered as part of the development of the masterplan to protect existing noise sensitive receptors.

APPENDICES

Appendix 1: Site Outline and Noise Sensitive Receptors



Appendix 2: Noise contours from port operations



Glossary of Terms

- Decibel (dB)** The unit used to quantify sound pressure levels; it is derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μPa , the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is usually only perceptible under controlled conditions.
- dB L_A** Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB L_A broadly agree with an individual's assessment of loudness. A change of 3 dB L_A is the minimum perceptible under normal conditions, and a change of 10 dB L_A corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB L_A ; normal conversation about 60 dB L_A at 1 meter; heavy road traffic about 80 dB L_A at 10 meters; the level near a pneumatic drill about 100 dB L_A .
- $L_{A90,T}$** The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 1997 it is used to define background noise level.
- $L_{Aeq,T}$** The equivalent continuous sound level. The sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.
- L_{Amax}** The highest A weighted noise level recorded during the time period. It is usually used to describe the highest noise level that occurred during the event.
- NOEL** No observed effect level: the level of noise exposure below which no effect at all on health or quality of life can be detected.
- LOAEL** Lowest observed adverse effect level: the level of noise exposure above which adverse effects on health or quality of life can be detected.
- SOAEL** Significant observed adverse effect level: the level of noise exposure above which significant adverse effects on health or quality of life can be detected.

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