Technical Report: CKE/CEL/0814/A

Date: 1 August 2014

Additional Noise Assessment in Relation to a Planning Application for a Recycling Site at Rondin Road, Ardwick, Manchester with Limited Hours of Operation.

Submitted to: **P Casey Enviro Ltd**
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1. Introduction

1.1 The professional officers employed by Manchester City Council have scrutinised the information on potential noise levels associated with the proposals. They were satisfied that waste operations as described could be undertaken without causing levels of noise at the closest sensitive receptor locations that would be likely to give rise to justifiable complaints. However, despite the recommendations of their professional officers, it is understood that elected members of the Council have misgivings regarding the potential noise impacts from the proposed development.

1.2 As a consequence the proposals have been amended in relation to the proposed hours of operation such that:

- There would be no night time deliveries of waste;
- Vehicular access to the site would be limited to between the hours of 07.30 and 18.00 on weekdays and 07.30 and 13.00 on Saturdays;
- Processing of wastes on site would only take place between the hours of 08.00 and 17.00 on weekdays and 08.00 and 12.00 on Saturdays;
- There would be no operations on site on Sundays or Bank Holidays.

1.3 The supplementary noise assessment dated 13 May 2014 dealt with the requests made by the officers of the City Council for additional noise assessment information based upon the absolute worst case operating conditions. The sections of that report which would be relevant to the new proposal are included in sections 2 and 3 below.

2. Residential Receptors

2.1 Armitage Court, Kniverton Road

2.1.1 In order to provide an absolute worst case scenario it has been assumed that during the normal day time operating hours all plant would be in use on site for 100% of the time and only in the case of the loading shovels and dump trucks has a small allowance (-5dB) been made for barrier attenuation as these would be operating at ground level behind stockpiles for most of the time. Despite the character of the noise being similar to that produced by other sites in the surrounding areas a character correction of +5dB has been made.

2.1.2 In reality the likelihood of all the equipment on site being used at the same time for the full one hour BS4142 assessment period is very low.

Haul Road: Distance 550 metres, 14 vehicles per hour, speed 10kph, PWL 104dBA.

Predicted level = 45.1dBA.

Crusher: Distance 520 metres, PWL 113.4dBA.

Predicted level = 51dBA.

Loading Shovels (x3): Distance 520 metres, PWL 104dBA. Barrier attenuation -5dBA.

Predicted level = 41.5dBA.

360^{o} Excavators (x3): Distance 520 metres, PWL 99dBA.

Predicted level = 41.5dBA.

Dump Trucks (x3): Distance 520 metres, PWL 104dBA. Barrier attenuation -5dBA.

Predicted level = 41.5dBA.

Powerscreen: Distance 520 metres, PWL 114dBA.

Predicted level = 51.7dBA.

The total predicted noise level from all sources = 55 $L_{Aeq\ (60min)}$

Background level = 54 $L_{A90\ (15min)}$

Specific noise level = 55$L_{Aeq\ (60\ min)}$

Acoustic feature correction is +5dB

Rating level (55 + 5)dB = 60 $L_{Aeq\ (60\ min)}$

Excess of rating over background = +6dB

2.1.3 The assessment indicates that the increase is just above that to be considered to be of marginal significance.

2.2 Flats on Ashton Old Road

2.2.1 In order to provide an absolute worst case scenario it has been assumed that during the normal day time operating hours all plant would be in use on site for 100% of the time. The elevated railway line provides acoustic screening from all activities on the site and a conservative allowance of -10dBA has been taken.

2.2.2 In reality the likelihood of all the equipment on site being used at the same time for the full one hour BS4142 assessment period is very low.

Haul Road: Distance 220 metres, 14 vehicles per hour, speed 10kph, PWL 104dBA. Barrier attenuation -10dBA.

Predicted level = 39.1dBA.

Crusher: Distance 250 metres, PWL 113.4dBA. Barrier attenuation -10dBA.

Predicted level = 47.4dBA.

Loading Shovels (x3): Distance 520 metres, PWL 104dBA. Barrier attenuation -10dBA.

Predicted level = 43.4dBA.

360^{o} Excavators (x3): Distance 520 metres, PWL 99dBA. Barrier attenuation -10dBA.

Predicted level = 38.4dBA.

Dump Trucks (x3): Distance 520 metres, PWL 104dBA. Barrier attenuation -10dBA.

Predicted level = 43.4dBA.

Powerscreen: Distance 520 metres, PWL 114dBA. Barrier attenuation -10dBA.

Predicted level = 48.6dBA.

The total predicted noise level from all sources = 53 $L_{Aeq\ (60min)}$

Background level = 61 $L_{A90\ (15min)}$

Specific noise level = 53$L_{Aeq\ (60\ min)}$

Acoustic feature correction is +5dB

Rating level (53 + 5)dB = 58 $L_{Aeq\ (60\ min)}$

Excess of rating over background = -3dB

2.2.3 The assessment indicates that the rating level is 3dB below the existing background level and is well below the level that would be considered to be of marginal significance and getting down towards the level at which there is a positive indication that complaints are unlikely.

2.3 Maximum Noise Levels

2.3.1 Maximum noise levels on waste recycling plants are usually associated with impact noise from dropping loads, the banging of loader buckets or scraping of buckets on the ground.

2.3.2 When loading lorries the first bucket of material generally produces the maximum noise level as the material hits the trailer. Subsequent bucket loads are dropping onto existing material from a lower height and the noise emission is lower. It is also much quieter to load soils and fine aggregates than materials that contain larger heavier elements. The maximum level in Measurement 4 in Appendix 2 of the original report was due to the first load of demolition rubble being dropped into a lorry at a distance of 10 metres from the monitoring point. This equates to a maximum sound power level of 126dBA and with distance attenuation alone would result in maximum levels at Armitage Court of 64dBA. Measured maximum levels measured at this location were between 75 and 85dBA. The loading of lorries would generally take place close to storage areas for finished product and it would be expected that there would be some additional attenuation as a consequence of intervening stockpiles. At Ashton Old Road the maximum level associated with this activity would be 61dBA compared to measured maximum levels of 81 to 84dBA. Given 14 HGV movements per hour the maximum frequency that such levels could be produced would be 7 times.

2.3.3 The drop height for material being loaded into the screener or crusher is generally lower and there is less impact noise than that associated with loading of lorries. Measurement 5 in Appendix 2 indicates that the maximum level whilst a crusher was being loaded was equivalent to a sound power level of 115dBA. At Armitage Court this would equate to a maximum level of 53dBA and at Ashton Old Road of 50dBA. Potentially these could occur several times a minute but as the predicted levels are below the existing background levels they are unlikely to be noticed.

2.3.4 The banging or scraping of loader buckets is not something that occurs every time the loader is used. Banging of the bucket against a lorry is normally accidental if the bucket needs to be shaken to dislodge a its contents and it is therefore difficult to accurately assess a frequency for such an occurrence, other than to say that it would not happen on a regular basis. Measurements at another waste recycling facility whilst the bucket of a loader banging against a skip gave a maximum level equivalent to a sound power level of 125dBA. The maximum level as a consequence of this occurring on the application site would be maximum levels of 63dBA at Armitage Court and 60dBA at Ashton Old Road. Measurement 1 in Appendix 2 records the maximum level due to the scraping of a loader bucket on the ground at a distance of 10 metres. This is equivalent to a sound power level of 120dBA which would equate to levels at Armitage Court of 58dBA and at Ashton Old Road of 55dBA. These levels are close to the existing background noise levels without making any allowance for additional barrier attenuation due to the proximity of the source to the ground and the materials stockpiles.

2.3.5 From the above it can be seen that any impact noises produced on site as a consequence of normal activities would not give rise to maximum noise levels at

residential properties at levels that are likely to give any cause for concern. There are also not likely to be many such events taking place during the operational hours of the site.

3. Commercial and Industrial Receptors

3.1 The neighbouring businesses to the north of the site are hidden by the railway which runs on the embankment that forms the northern boundary of the site. To the north west the adjoining site appears to be occupied by a waste recycling business, whilst to the west adjoining the site entrance is a large warehouse with the façade facing the site having no openings for doors or windows. South of the site entrance there is a large industrial building in which trains are repaired. Further to the south lie other industrial premises separated from the site by railway sidings and protected from direct views into the site by the elevation of the railway.

3.2 When considering the potential impact of noise from the proposed site the main industrial/commercial receptor locations would seem to be the two premises to the west and south of the site close to the entrance off Rondin Road.

3.3 Warehouse West of Site

3.3.1 The eastern façade of this building is some 5 metres from the western boundary of the site. The proposal for the area nearest to this building is car parking and some product storage. A future proposed dry recycling building would be built in this area. The access road into the site would be some 55 metres distant. The crusher would be at a distance of 110 metres and the screener some 155 metres away. Both the screener and the crusher would be operating behind stockpiles of materials that would act as acoustic barriers.

3.3.2 The noise climate close to the site entrance is dominated by industrial activity and HGV movements along Rondin Road.

3.3.3 Assuming that the crusher and screener were operating 100% of the time and conservatively assuming a 10dBA reduction due to the acoustic screening afforded by the stockpiles the predicted noise level at the warehouse would be $57L_{Aeq\ (60\ mins)}$. All other sources would be in excess of 10dBA lower and would not therefore contribute to the overall level.

3.3.4 As the façade of the building facing the site has no opening in it the expected attenuation would result in internal noise levels at least 15dBA lower than outside. At 42dBA this would be equivalent to a □quiet office□environment.

3.4 Railway Maintenance Depot

3.4.1 The northern façade of this building lies some 7.5 metres from the site boundary for a distance of 70 metres from the site entrance towards the east. There is car parking along this façade which is mainly metal clad with full height glazed areas. The eastern end of the building provides access for trains where railway lines run from the sidings into the building. Full length roller shutter doors are maintained closed except for when access is required.

3.4.2 As above it was assumed that the crusher and screener would be operating for 100% of the time at distances of 55 metres and 100 metres respectively. Again both stockpiles would afford additional attenuation from both pieces of equipment. The predicted noise level at the nearest point of the maintenance depot would be $61L_{Aeq\ (60\ mins)}$. Allowing for 15dBA attenuation due to the construction of the building internal noise levels would be 46dBA.

3.4.3 The above demonstrates that noise from activities on the proposed site would be at acceptable levels within the adjoining industrial buildings.

4. Conclusion

4.1 The proposed amendments to the hours of operation means that only day time assessments of the potential noise impacts are necessary as there are no proposals to operate the site during the night time.

4.2 The assessments were carried out using the guidance contained in British Standard 4142 and with the absolute worst case scenario where every piece of equipment on the site would be operating for 100% of the daytime assessment period of one hour. In reality this scenario is very unlikely to occur.

4.3 At the nearest residential receptors the noise levels are predicted to be □of marginal significance□at Armitage Court and below existing background noise levels at Ashton Old Road mid-way between being of marginal significance and that considered not likely to give rise to complaints.

4.4 Noise levels at the nearest commercial premises are shown to be such that internally they would be equivalent to the noise levels expected in a □quiet office□and are consequently not likely to give rise to complaints.

5.5 The above indicates that the proposed activities can be carried out on the application site without causing noise levels that are likely to be detrimental to the amenity of the neighbouring residential receptors.