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[redacted]

The Devils Kitchen,
Q Park,
Woodchester,
Stroud
GL5 5HT

13 May 2021

Dear Barry,

Re: DEVILS KITCHEN PROPOSED EXTENSION

Hoare Lea were appointed by Devils Kitchen Ltd to undertake an assessment of noise from a food processing facility at the Q-Park site in South Woodchester, near Stroud. Hoare Lea previously undertook an assessment of temporary food processing equipment installed at the same site: the consent from Stroud Council for this equipment (planning reference S.18/1412/FUL) refers to the following noise limits:

- For residential receptors adjacent to A46 (Station House, the Little Britain Farm complex and Broadmead), noise emissions attributable to the development shall not exceed the following Noise Rating Levels: 43 dB during the daytime period of 07:00 to 23:00; and 31 dB during the night period of 23:00 to 07:00 as measured or determined at the facade of those receptors.
- For any other residential receptors, noise emissions attributable to the development shall not exceed the following Noise Rating Levels: 37 dB during the daytime period of 07:00 to 23:00; and 31 dB during the night period of 23:00 to 07:00 as measured or determined at the facade of those receptors.
- Noise Rating Levels shall be determined in accordance with the methodology set out in BS4142:2014 Methods for rating and assessing industrial and commercial sound.

These noise limits are based on background noise levels previously measured[1] by Hoare Lea at the site. These same noise limits could therefore apply to the noise sources associated with this new proposed facility. The present letter therefore sets out a predictive assessment of propose mechanical plant items against these noise limits.

Proposed equipment

The location of the proposed equipment likely to generate environmental noise to the surrounding environment is highlighted on the plan of Figure 1 (at the end of this letter). It is listed as follows:

- Starfrost Spiral Freezer: manufacturer information indicates a noise level of 80 dBA at 3 m for the unit, although this does not include the effect of the enclosure around the plant: a reduction of 10 dB(A) has been conservatively assumed to account for this. This equates to an estimated sound power of 88 dB L_{wA}. Although located externally, the plant is proposed to be located within a walled area which will screen the line of sight from this plant to properties such as Broadmead, located on the other side from the A46. This unit would only operate during working hours for the facility, in the daytime.
- Cooling FX Refrigeration Plant: this serves the Spiral Freezer and is located adjacent to it in the same enclosed area and operates during the same hours. Manufacturer information indicates a sound power of 84 dB L_{wA}.
- Condenser units: three double units are likely to be required on the southern elevation of the proposed building. Noise emissions have been based on manufacturer information for the Danfoss Optyma NG

[1] Hoare Lea report reference REP-1007046-MMC-20180326-Q Park - Noise planning Assessment-Rev 3, dated 26/03/2018.

LPQM215LLP00E Condenser unit, with a sound power of 78 dB L_{wA}. The units would however be screened from most of the nearest noise-sensitive receptors by existing or proposed buildings.

- **Refrigerated 40ft Container:** one of the 40 ft containers north of the proposed facility includes refrigeration equipment which may operate 24/7. Manufacturer information indicates a sound power of 80 dB L_{wA}. This source is screened from the nearest property, Station House (to the north), by existing temporary welfare/office cabins. If these are removed in the future, the operator could install a solid screen by this source if required, therefore this source has been assumed as acoustically screened from Station House.
- **Blast freezer**: one such unit (Thermoking 924) is currently installed as part of the temporary facility at the Q-Park site. Measurements previously undertaken 1 m from the main outlet of a refrigeration unit in operation determined levels of 80 dB L_{Aeq} when operating at high duty, which equates to an estimated worst-case sound power of 88 dB L_{wA}, reducing to 56 dB L_{Aeq} when operating on standby (64 dB L_{wA}). This unit will be repurposed into a raw material chiller unit, with less demanding temperature requirements (0 to 5 degrees instead of -30 degrees previously), and running with half of the fans operating, but which may operate 24/7. High duty operation would only be for very short periods (less than 1 minute typically) and during warmer periods. Overall, an effective sound power of 74 dB L_{wA} was therefore assumed. The fans will point north and therefore be screened from the nearest neighbouring properties by the static container units.

The above units are considered unlikely to produce noise with specific character (tonal or impulsive) based on experience of similar units such as those currently installed at the site.

Although the proposed food processing facility will also include other items of plant within the building, noise from these units and other internal operations is considered likely to be effectively contained within the building based on experience of the current temporary facility at the site. These are therefore not considered any further.

Predictions

Based on the above noise emission levels, simplified predictions are made on a conservative basis based on distance to the relevant noise-sensitive locations and likely screening provided by the proposed building, walls or other surrounding structures (on a conservative basis, *i.e.* actual reductions may be higher in practice). Furthermore, account was taken of the relevant assessment periods of 1 hour and 15 minutes respectively for day-time and night-time periods prescribed in BS 4142:2014 and equipment operation times.

The predictions were made on a conservative basis, neglecting other propagation factors such as atmospheric absorption. This would compensate for uncertainties in the data and measurements. Each residential property or group of properties is considered in turn in the tables presented overleaf.

Broadmead, east of A46

Day-time

Noise levels, dB(A)	Cooling plant	Spiral Freezer	Condensers (3)	Refrigerated Container	Blast freezer
Noise levels at source (L_w)	84	88	78	80	74
Distance from receiver (m)	110	110	130	80	80
Distance attenuation	-49	-49	-50	-46	-46
Screening correction	-5	-5	-15	-10	-5
Number of units correction	+0	+0	+5	+0	+0
Total noise level	30	34	17	24	23
Combined noise level	36				
Noise limit	43				
Margin with noise limit	-7				

Night-time

Noise levels, dB(A)	Cooling plant	Spiral Freezer	Blast freezer
Noise levels at source (L_w)	78	80	74
Distance from receiver (m)	130	80	80
Distance attenuation	-50	-46	-46
Screening correction	-15	-10	-5
Number of units correction	+5	+0	+0
Total noise level	17	24	23
Combined noise level	27		
Noise limit	31		
Margin with noise limit	-4		

Station House

Day-time

Noise levels, dB(A)	Cooling plant	Spiral Freezer	Condensers (3)	Refrigerated Container	Blast freezer
Noise levels at source (L_W)	84	88	78	80	74
Distance from receiver (m)	75	75	100	40	50
Distance attenuation	-46	-46	-48	-40	-42
Screening correction	-10	-10	-15	-10	-10
Number of units correction	0	0	+5	+0	+0
Total noise level	28	32	20	30	22
Combined noise level	37				
Noise limit	43				
Margin with noise limit	-6				

Night-time

Noise levels, dB(A)	Cooling plant	Spiral Freezer	Blast freezer
Noise levels at source (L_W)	78	80	74
Distance from receiver (m)	100	40	50
Distance attenuation	-48	-40	-42
Screening correction	-15	-10	-10
Number of units correction	+5	+0	+0
Total noise level	20	30	22
Combined noise level	31		
Noise limit	31		
Margin with noise limit	0		

The Limes (corner of High St and Station Road)

Day-time

Noise levels, dB(A)	Cooling plant	Spiral Freezer	Condensers (3)	Refrigerated Container	Blast freezer
Noise levels at source (L_w)	84	88	78	80	74
Distance from receiver (m)	130	130	140	130	130
Distance attenuation	-50	-50	-51	-50	-50
Screening correction	-15	-15	-10	-5	-5
Number of units correction	0	0	+5	+0	+0
Total noise level	18	22	22	25	18
Combined noise level	29				
Noise limit	37				
Margin with noise limit	-8				

Night-time

Noise levels, dB(A)	Cooling plant	Spiral Freezer	Blast freezer
Noise levels at source (L_w)	78	80	74
Distance from receiver (m)	140	130	130
Distance attenuation	-51	-50	-50
Screening correction	-10	-5	-5
Number of units correction	+5	+0	+0
Total noise level	22	25	18
Combined noise level	27		
Noise limit	31		
Margin with noise limit	-4		

Other dwellings

There are other dwellings on Frogmarsh Lane to the south-west of the site, but these are at further distance from the plant and substantially screened by larger existing buildings, therefore would experience lower levels of noise from the scheme.

Conclusions

It is concluded, based on a robust predictive analysis, that the plant proposed as part of the proposed food processing facility is likely to be able to comply with noise limits previously determined in line with BS 4142. These same noise limits were previously applied to the consent for temporary equipment currently in operation at the site, and similar planning conditions could secure the same level of protection for plant operating at the new proposed facility. There is therefore no reason to object to this proposal on grounds of noise.

Yours sincerely,

[redacted]

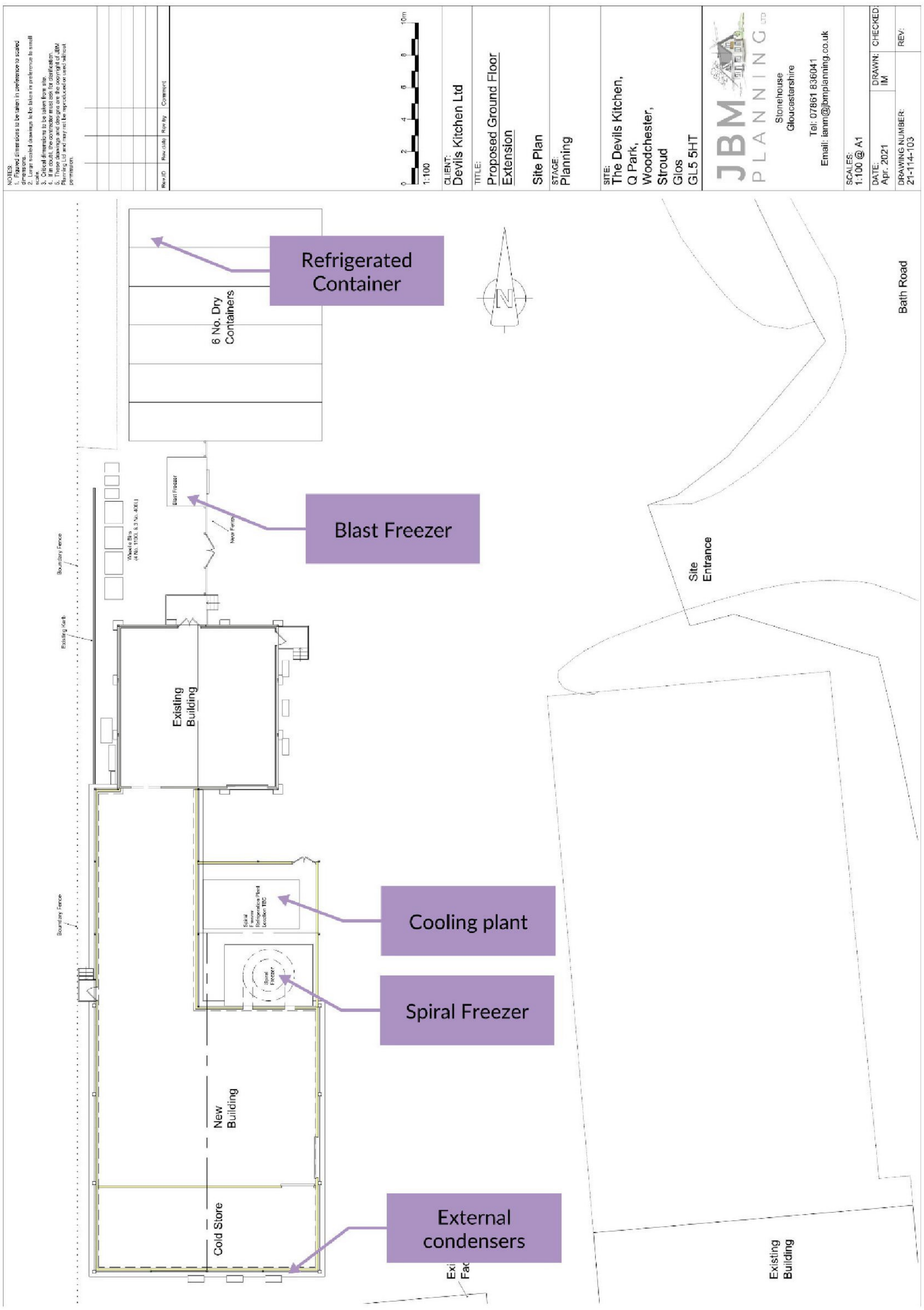

Figure 1 - Proposed development site drawing showing the location of the proposed externally located plant.