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10 December 2020

Paul Snelling TJX Europe 50 Clarendon Road Watford Hertfordshire WD17 1TX

Dear Paul,

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Re: TK MAXX CAMDEN - REVISED PLANT PROPOSALS - UPDATED NOISE ASSESSMENT

Further to receipt of the revised proposals for building services plant serving the TK Maxx Store at 128-138 Camden High Street, we have undertaken an assessment to determine whether the proposals comply with the noise emission limits derived as part of the original noise impact assessment (REP-1012001-5A-TH-20200730-Noise Impact Assessment-Rev01).

We are pleased to confirm that the proposed mitigation (acoustic packages to condensers units 01 and 02 in addition to the silencers on the air handling unit intake and exhaust air paths) are sufficient to provide noise emissions in compliance with the noise emission limits.

Full details of the assessment are attached to this letter and should be read in conjunction with the original noise impact assessment.

I hope the above is clear, but should you have any queries then please do not hesitate to contact myself.

Yours sincerely,

AMU

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Ref: LET-1012001-2F-TH-20201210-TK Maxx Camden - Revised Plant Proposals - Updated Noise Assessment

Building services plant.

The revised proposals include the installation of three condenser units within a palisade fence to the rear of the store as well as an internal air handling unit (within the store room) with connections to the façade within the plant zone. The two larger condenser units are provided with an acoustic package manufactured by Mitsubishi and the air handling unit is provided with a 600mm long cylindrical silencer on the air intake and exhaust air paths. An image showing the proposed plant layout is shown in Figure 1 below.



Figure 1: Indicative plant layout.

As before, the resultant sound pressure level one metre from the nearest window of the residential dwelling at 14 Greenland Street (approximately 18m from the nearest part of the proposed plant zone) has been calculated using the principles of ISO 9613-2 and compared to the defined building services noise emission limits.

The following table summarises the manufacturers stated sound pressure level at one metre and the predicted sound power level for each of the newly proposed condenser units.

Condenser unit reference	Model	Manufacturers sound pressure level at 1m dB(A)	Predicted sound power level L _{wA} dB
CU-01 & 02	PURY-P350YSNW-A	63	79
CU-03	PUZ-ZM35VKA	46	60

Table 1: Condenser units - predicted sound power levels.

The sound power levels for the proposed air handling unit remain as previously proposed, however these are replicated below for ease of reference.

АНЦ	Sound power level per octave band frequency in Hz dB							L _{wA}
7.110	125	250	500	1000	2000	4000	8000	dB
Supply - Inlet	58	62	61	52	47	38	35	60
Extract - Outlet	67	69	68	70	66	62	57	73

Table 2: Air Handling Unit (AHU) - sound power levels.

The methodology used to determine noise emissions at the nearest noise sensitive receptor for each item of plant are as follows:

1. Apply a distance correction to the sound power level $(L_{w(man)})$ for the distance to the noise sensitive receptor (r) assuming hemispherical sound propagation:

Distance Correction = $20 \log_{10} r + 8$

1. Derive L_p at receiver location based on the manufacturers sound power level ($L_{w(man)}$) using following equation:

$L_{p(receiver)} = L_{w(man)} - Distance Correction$

2. Predict sound pressure level for all units in operation.

Condenser unit reference	Estimated L _{wA} dB	Distance correction dB	Acoustic package reduction dB	Predicted sound pressure level dB(A)
CU-01 & 02	79	-33	-8	41*
CU-03	60	-33	-	27
Pre	41			

Table 3: Predicted noise level from condensers at 14 Greenland Street.

Note *: Predicted sound pressure level using multiple units i.e. all units with san	ne L _{wA} .
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AHU reference	L _{wA} dB	Attenuation dB	Distance correction dB	Directivity factor (based on louvre area)	Predicted sound pressure level dB(A)
Supply – Inlet	60	-13	-33	+8	22
Extract – Outlet	73	-18	-33	+8	30
	31				

Table 4: Predicted noise level from AHU at 14 Greenland Street.

*Note *: Directivity factor derived from guidance provided within "Fläkt Woods Practical Guide to Noise Control".*

From Tables 3 and 4 it can be seen that the predicted sound pressure level contributions at Greenland Street is 41 dB(A) from the condenser units and 31 dB(A) from the air handling unit (AHU). Combining these predictions results in a total noise level of 41 dB(A). Comparison with the proposed external noise limits is presented in Table 5 overleaf.

Period	Plant noise limit L _{Ar,Tr} dB	Predicted plant noise level L _{Aeq,T} dB	
Monday to Saturday (0800 to 2000)	4.1	41	
Sunday (1100 to 1900)	41		

Table 5: Plant noise limit and predicted noise level – 14 Greenland Street.

From Table 5 it is evident that the combined noise emissions achieve the defined noise emission limits and therefore the proposed mitigation measures are suitable.

Noise levels receptors located at further distances from the proposed plant zone would be lower than those predicted above and therefore acceptable in terms of their noise exposure.

It should be noted that the assessment provided within this Section is considered worst case as it assumes that all plant is operating at maximum duty. In reality, this is extremely unlikely and therefore noise levels are likely to be significantly lower during most periods of the working day.