TECHNICAL NOTE

Our Ref: J10-14990A-10-R03-D01 28 January 2025

For: Environment Agency National Permitting Team

Permitting Support Centre
Environment Agency
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

SUBJECT: RESPONSE TO SCHEDULE 5 NOTICE FOR INFORMATION FOR THE CANFORD ENERGY FROM WASTE COMBINED HEAT AND POWER FACILITY (APPLICATION REF. EPR/SP3127SF/A001)

1 Introduction

An application for an environmental permit to operate the Canford Energy from Waste Combined Heat and Power Facility (the 'EfW CHP Facility') was submitted by MVV Environment Limited ("MVV") to the Environment Agency ('EA') on 3 June 2024. As part of the determination of this application, the EA has requested further information in a notice under Schedule 5 of the Environmental Permitting (England and Wales) Regulations 2016, dated 13 January 2025. This note has been prepared to provide a response to the Schedule 5 further information request from the EA.

Within this response, the original request from the EA is provided in bold italic text, with the response provided in normal body text.

2 Response

2.1 Energy generation

1. Provide a justification for the proposed steam conditions of 380°C and 45 Bar. Note: The BAT conclusions state high steam conditions are above 400°C and 45 Bar.

Response: MVV's long term experience in energy from waste boilers indicates that, generally, there is a direct correlation between higher steam conditions and boiler corrosion. Consequently, to ensure high availability and minimise maintenance downtime, MVV's initial technical specifications were based on conservative steam conditions of 380°C and 45 Bar.

However, being aware of the efficiency improvements possible with higher steam parameters, MVV has been in detailed discussions with technology suppliers to find technical solutions that will minimise these boiler corrosion risks. As a result, the final design parameters for the boiler have been revised to 420°C and 63.5 bara.

2. The CHP assessment considered opportunities within 1.5 km of the proposed installation rather than 15 km. Please provide extra explanation for considering opportunities within 1.5 km to include:

a) Confirm how much heat could be supplied to heat loads within 1.5 km. Note: The CHP report states 'One of the potential main users is Magna Business Park which is located 0.6 km south-east of the EfW CHP Facility Site and the Proposed Development includes a CHP Connection to this business park. On this basis the assessment has been based on the supply of heat to this potential user which has an average annual heat demand of 4.4MWth' but the report also states 'The peak heat demand of Magna Business Park is estimated to 532kWth, with an estimated annual heat demand of 807 MWh per annum'

Response: We can clarify the estimated heat demand of Magna Business Park is 532 kWth, whereas the stated heat demand of 4.4 MWth relates to the combined demand of the Magna Business Park and all other heat consumers within 1.5 km based on the outputs of the THERMOS software.

The initial design of the EfW CHP Facility allows for up to 5 MWth export of hot water, which includes additional allowance/contingency for potential further increase in demand in the future. It would not currently be feasible/applicable to increase export beyond 5 MWth as this would exceed the available demand and assumed contingency. However, as explained in the application documents, the EfW CHP Facility does have the capability to export significantly more than 5 MWth and MVV will continuously review developments in this area to identify whether a future heat consumer would make export above 5 MWth more viable.

b) The CBA showed that supply of 5 MWth would not be economically viable but supply of 25 MWth would be. Provide information as to whether supply of 25 MWth could be achieved within the 1.5 km search radius. [Note :The CHP ready assessment states that the plant has capacity to supply more than 5 MW of heat and could be economically viable if 25 MW was supplied].

Response: As identified above, the estimated maximum heat demand within 1.5 km is 4.4 MWth, so export of 25 MWth within 1.5 km is not viable as there is no demand for this level of heat export.

c) If 25 MWth cannot be supplied within 1.5 km justify whether it would be economically viable or feasible to supply heat to other users beyond 1.5 km and within 15 km of the installation. Note The CHP report states 'Appendix B and paragraph 5.1.2 show there is a potential heat demand substantially exceeding 25MWth within a wider 15 km area in line with the Energy Efficiency Directive guidance'. However Appendix B does not appear to show data beyond 1.5 km.

Response: The table below presents the outputs of the BEIS UK CHP Development Map[1] for heat consumers within 15 km from the centre of the EfW CHP Facility.

Table 1: Heat consumers within 15 km of the EfW CHP Facility

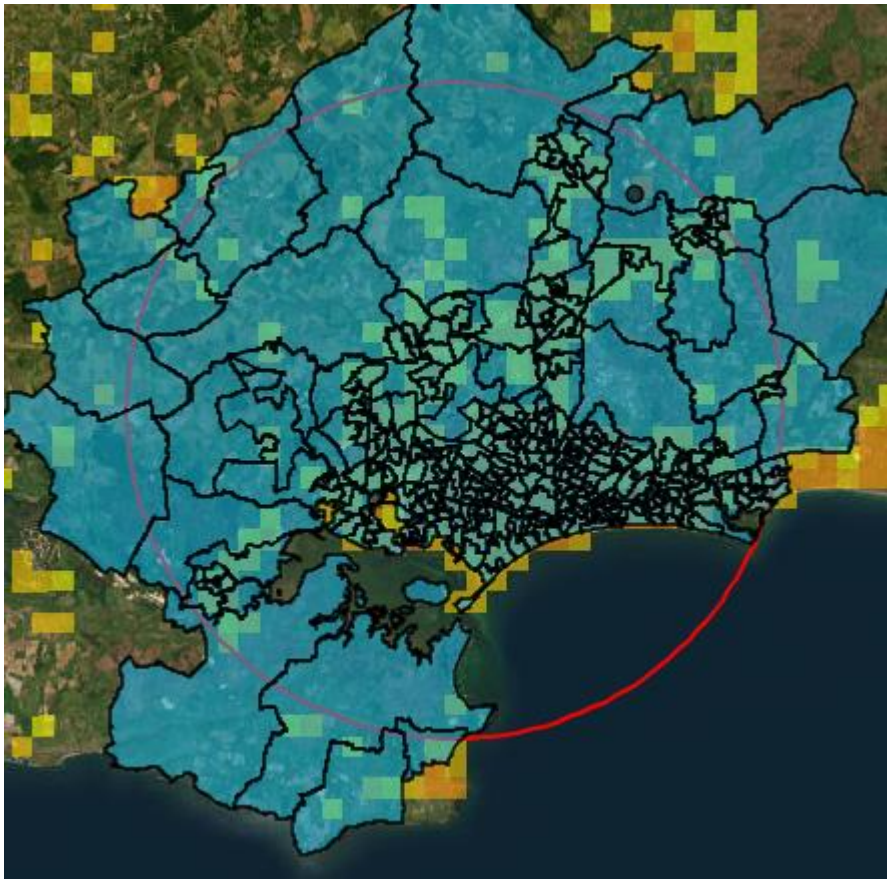
Sector	Share of total demand	Demand (MWh)
Communications and Transport	0.14%	3,586
Commercial Offices	0.75%	19,877
Domestic	86.37%	2,285,964
Education	1.83%	48,338
Government Buildings	0.22%	5,728
Hotels	0.79%	20,898
Large Industrial	2.03%	53,635
Health	0.32%	8,385
Other	0.18%	4,783
Small Industrial	5.97%	157,870
Prisons	0%	0
Retail	0.83%	22,037
Sport and Leisure	0.33%	8,846
Warehouses	0.25%	6,663

[1] https://chptools.decc.gov.uk/developmentmap

Sector	Share of total demand	Demand (MWh)
District Heating	0%	0

Table 1 demonstrates that the estimated total heat demand within 15 km is ~302 MWth. However, it is evident from this table and the subsequent map (Figure 1) that the majority of this demand is accounted for by a large number of small loads dispersed across a wide area, with more than 86% of the total demand accounted for by individual domestic properties. It is not technically nor commercially viable to establish such a large geographic network for multiple consumers for the level of available heat produced by the EfW CHP Facility.

Figure 1: Heat demand within 15 km



Large point source heat load consumers are generally more viable as it allows a single length of pipe work and trenching to be installed between the producer and consumer. However, Figure 1 demonstrates that there is only a single large heat load within 15 km (dark green dot). This is located approximately 14 km to the north-east of the EfW CHP Facility and is described by the BEIS CHP tool as an "Unknown Operator" with an estimated heat demand of ~6 MWth.

Further inspection of this location indicates it may relate to Veolia's Chatsworth Blue Haze Landfill. It is unclear why a landfill would require a heat demand of 6 MWth. Veolia recently submitted an application to introduce a temporary incinerator bottom ash (IBA) processing facility at this location but, again, it is unclear whether an IBA processing facility would have a heat demand of 6 MWth.

Notwithstanding the above, installation of a heat network to provide 6 MWth of heat at a distance of 14 km would not be economically viable. The cost-benefit analysis supporting the CHP-R assessment submitted with the application

demonstrated a negative NPV for a 5 MWth heat network within 1.5 km. Costs for additional trenching and pipe work alone would be expected to be an order of magnitude greater for a distance approaching 15 km and this would be expected to make the NPV even more negative despite the slightly increased heat sales.

Consequently, it is not considered feasible to supply heat to consumers beyond 1.5 km and up to 15 km from the EfW CHP Facility.

2.2 Waste types

3. We cannot include 99 codes in the permit unless you can show that you can justify what those wastes would be and why cannot be coded under another EWC code.

Response: The EWC codes included with the application represent the same list of waste types contained within the recently issued environmental permit for the MVV's similar facility in Wisbech i.e., the Medworth Energy from Waste CHP Facility, and contained within the permits for its other operational facilities. MVV has reviewed waste acceptance records at its other operational facilities and confirms that the only waste type accepted under 20 01 99 is municipal offensive wastes from care homes. This waste type is coded to 20 01 99 under Environment Agency guidance[2].

2.3 Installation boundary

4. Reed beds are shown outside the installation boundary. Please clarify what the reed beds serve.

Response: The reed beds are an existing feature used for the treatment of discharges from the landfill site to the west of the proposed EfW CHP Facility. They are neither introduced by this application, nor associated with the sole use of regulated activities to be performed at the EfW CHP Facility. Consequently, it is not considered appropriate to include the reed beds within the installation boundary of the EfW CHP Facility.

Due to the existing presence of the reed beds, MVV identified an opportunity to route uncontaminated run-off from the EfW CHP Facility through this feature as an added benefit. However, the reed beds are not necessary to meet any discharge consent or permit limit since the only discharge through this feature from the EfW CHP Facility will be uncontaminated surface run-off.

2.4 Noise impact

5. Provide an assessment of the unweighted noise levels produced by the installation at the boundary of Dorset Heathlands SPA (adjacent to the installation boundary) and their potential to cause disturbance of the SPA designated features. Note : The receptor location used to assess noise as part of the BS4142 noise impact assessment (R22) is some way into the SPA and as such will not be conservative of impacts in the nearest area of habitat.

Response: Predictions of both the unweighted (dBZ) and A-weighted (dBA) noise rating levels at a series of receptors along the edge of the SPA adjacent to the installation boundary are provided in the table below. Noise contours are also presented in Figure 3 through Figure 6. These predictions have been made using the latest calculation methodology in the 2024 version of ISO 9613-2.

As explained in the noise assessment, non-residential receptors are normally considered beyond the scope of BS 4142.

[2] https://www.gov.uk/how-to-classify-different-types-of-waste/healthcare-and-related-wastes

Table 2: Noise rating levels at boundary of SPA

Receptor	Normal operation (dBA)		Bypass operation (dBA)		Normal operation (dBZ)		Bypass operation (dBZ)	
	Day	Night	Day	Night	Day	Night	Day	Night
R22	26	21	26	21	39	37	39	37
R22a	29	28	30	29	44	44	45	44
R22b	32	30	32	31	47	47	47	47
R22c	27	25	27	25	45	45	45	45
R22d	32	27	32	27	43	39	43	39
R22e	46	43	46	43	50	44	50	44
R22f	39	31	39	31	49	37	49	37

Figure 2: Model visualisation of the location of modelled noise sources and receptors along the SPA

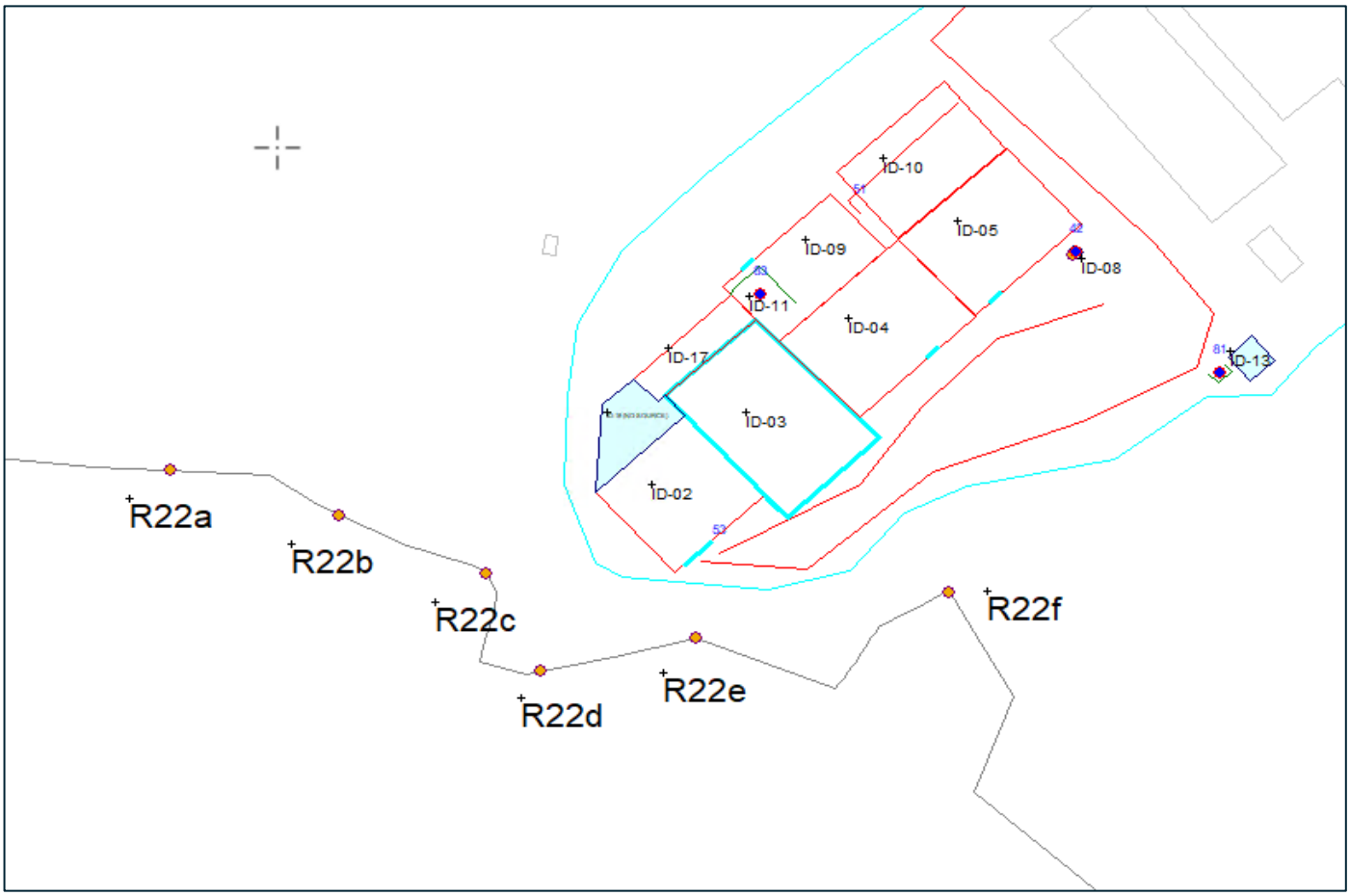


Figure 3: Unweighted daytime noise contours (normal operation)

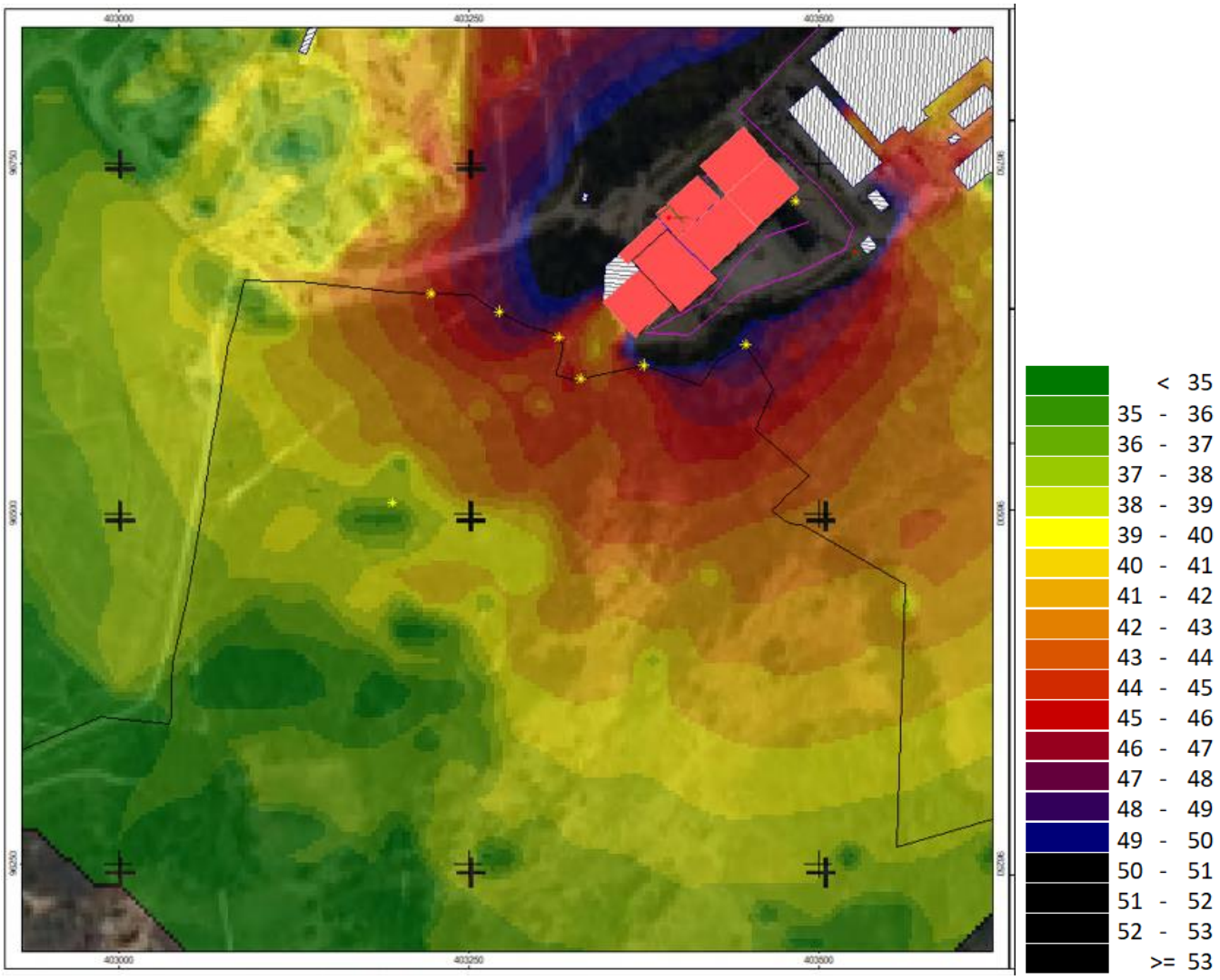


Figure 4: Unweighted night-time noise contours (normal operation)

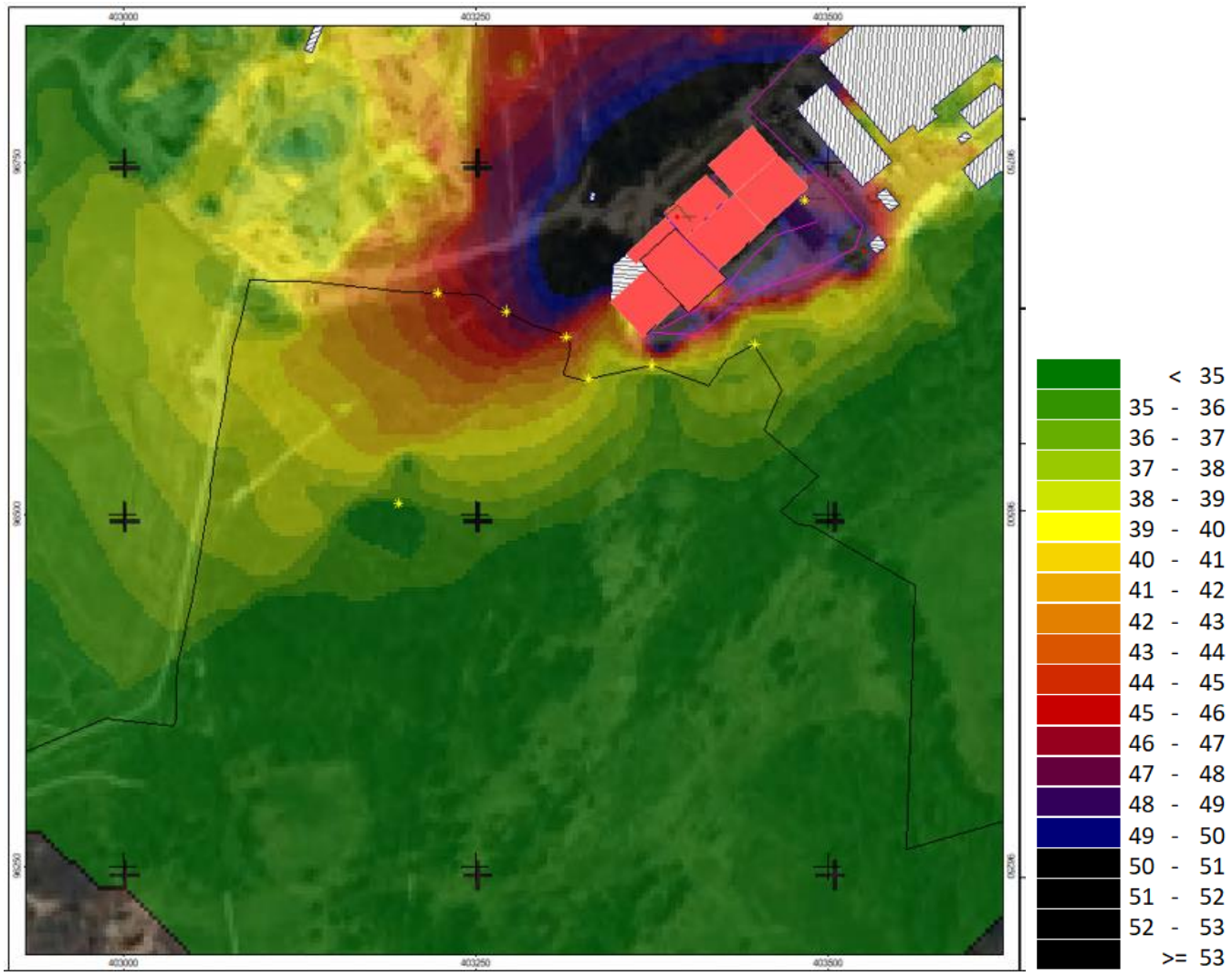


Figure 5: Unweighted daytime noise contours (bypass operation)

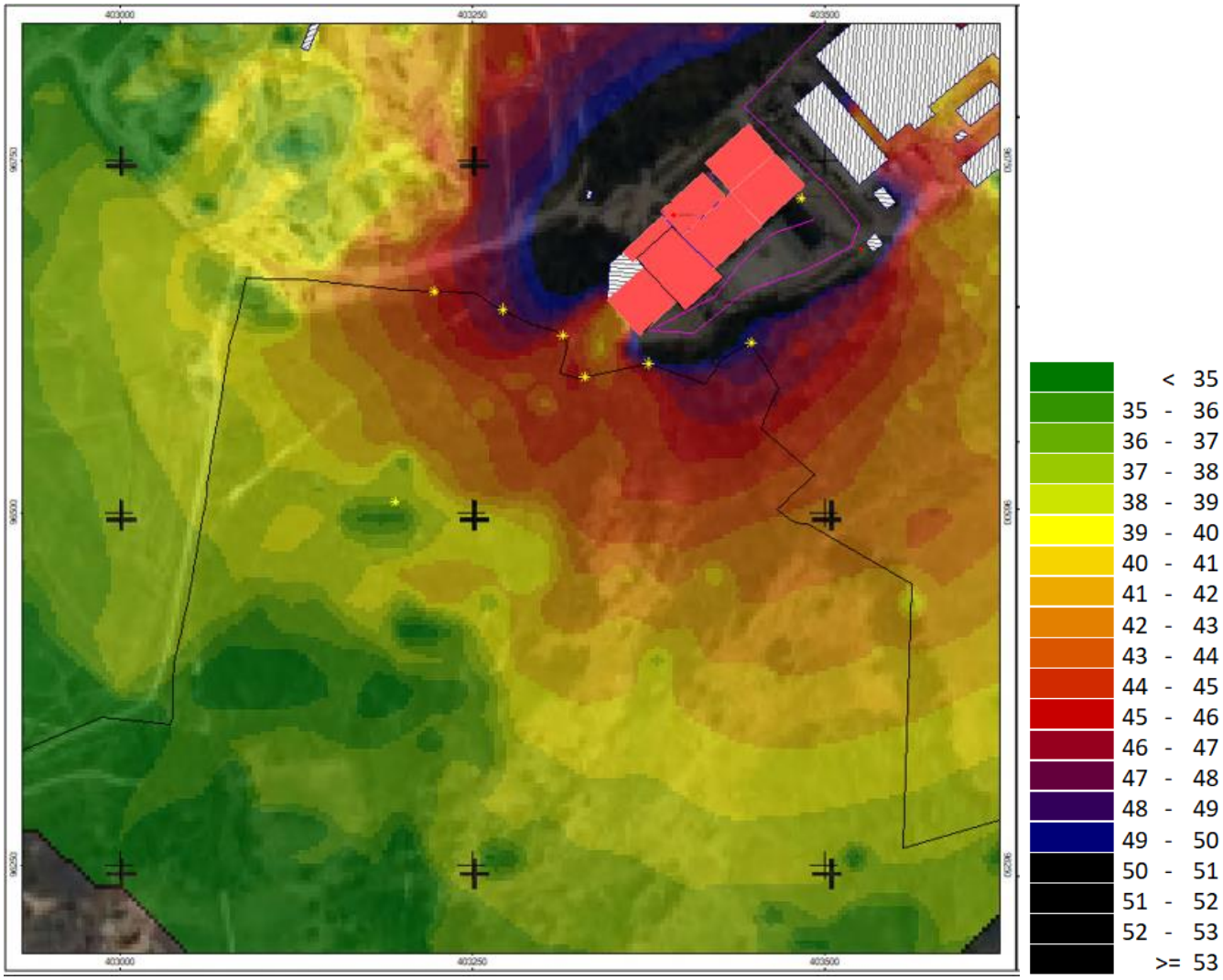
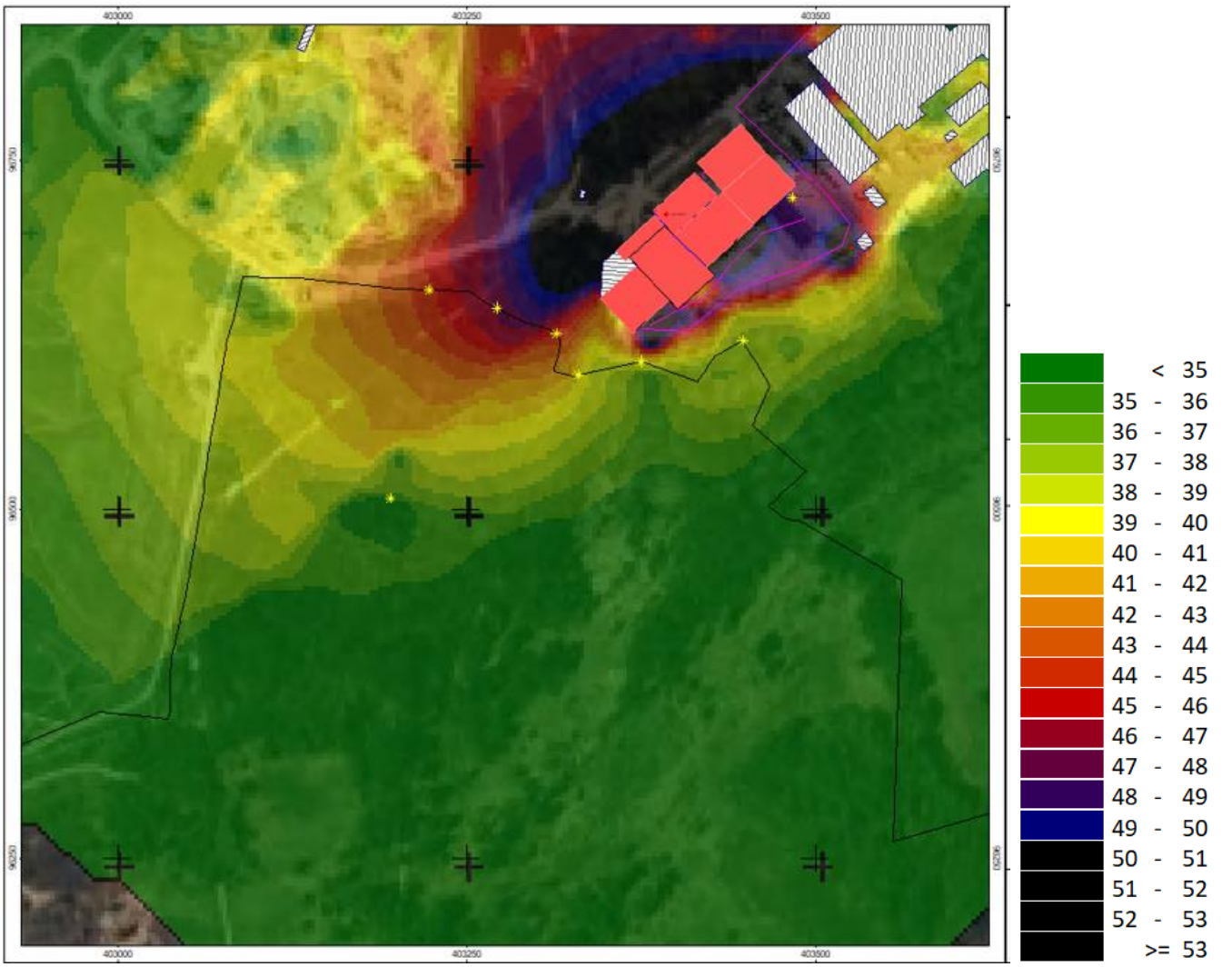


Figure 6: Unweighted night-time noise contours (bypass operation)



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