Environmental Noise Solutions Limited

Suite 24
Doncaster Business Innovation Centre
Ten Pound Walk
Doncaster
DN4 5HX

Proposed Pet Cremator
Strawbridges Garden Centre, Doncaster Road, Darfield, Barnsley

Noise Impact Assessment

For:
White Agus Partnership

5th September 2023

Ref: NIA-11024-23-11222-v1 Pet Cremator, Darfield
Author: S. Jefferson BSc, MIOA

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1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned White Agus Partnership to carry out a noise impact assessment in relation to the proposed pet cremator plant at Strawbridges Garden Centre, Doncaster Road, Darfield, Barnsley (hereafter referred to as 'the site').

The objectives of the noise impact assessment were to:

- Determine the noise level associated with the proposed pet cremator at the nearest noise sensitive receptors
- Determine the existing background noise levels at the nearest noise sensitive receptors during representative time periods
- Assess the potential impact of the proposed development on the nearest noise sensitive receptors with reference to pertinent guidelines
- As appropriate, provide recommendations for a scheme of noise attenuation.

This report details the methodology and results of the noise assessment. It has been prepared to accompany a planning application to be submitted to Barnsley Metropolitan Borough Council.

The report has been prepared for White Agus Partnership for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult White Agus Partnership and ENS as to the extent to which the findings may be appropriate for their use.

A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

1.2 Site Description and Development Proposals

The site is located at the existing Strawbridges Garden Centre, Darfield (see Figure 1.1 below for location).

Figure 1.1: Location of Site

The existing noise climate at the site is characterised by road traffic on the A635 Saltersbrook Road, Barnsley Road and the surrounding road network.

Development proposals are for the installation of an Addfield Mini AB Pet Cremator in the grounds of the garden centre, located within a pergola. The unit is relatively small with dimensions not exceeding 3.7 metres in height, and 2.6 metres width.

The nearest existing noise sensitive receptors (NSRs) to the site are dwellings on Belvedere Drive to the south of the site, separated by Barnsley Road, with Nos. 29–37 set back at least 85 metres (NSR1) and Nos. 17–27 set back at least 170 metres (NSR2).

2 Assessment Guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)[1] was updated in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.

Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 174 where it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of…..noise pollution'.

Paragraph 185 advises that:

'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should…..mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life'.

The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

2.2 Noise Policy Statement for England

The Noise Policy Statement for England[2] (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision is supported by the following aims:

- Avoid significant adverse impacts on health and quality of life
- Mitigate and minimise adverse impacts on health and quality of life
- Where possible, contribute to the improvement of health and quality of life

The NPSE describes the following levels at which noise impacts may be identified:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur

According to the explanatory notes in the statement, where a noise level falls between the lowest observable adverse effect level (LOAEL) and a level which represents a significant observable adverse effect level (SOAEL):

'….all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.'

1 National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2021)
2 Government Department for Environment, Food and Rural Affairs. Noise Policy Statement for England (2010)

2.3 Planning Practice Guidance on Noise

Planning Practice Guidance[3] (PPG) is an online resource providing additional guidance and elaboration on the NPPF. It advises that 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
- Whether or not a good standard of amenity can be achieved

In line with the Explanatory Note of the NPSE, the PPG references 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'.*

Table 2.1 summarises the PPG noise exposure hierarchy.

Table 2.1: PPG Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

3 Planning Practice Guidance on Noise: http://planningguidance.planningportal.gov.uk/blog/guidance/noise/

2.4 British Standard BS 4142:2014+A1:2019

BS 4142:2014+A1-2019 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS 4142)[4] describes methods for determining, at the outside of a building, noise levels from factories or industrial premises and a method for assessing whether the noise is likely to give rise to adverse impacts, and states:

'*The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. Typically, the greater this difference, the greater the magnitude of the impact. For example:*

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'

The rating level is described as the specific sound level (the equivalent continuous A-weighted sound pressure level at the assessment position (NSR) produced by the specific sound source over the given reference time interval) plus any adjustment for the characteristic features of the sound. The character correction relates to whether and to what degree the specific sound is assessed to have an element of tonality, impulsivity and/or characteristics that are readily distinctive against the residual acoustic environment.

The background noise level is the A–weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 percent of a given time interval, T, measured using time weighting 'F' and quoted to the nearest whole number of decibels.

The reference time interval of the specific sound is 1 hour during the daytime.

4 British Standard 4142:2014+A1-2019 Methods for rating and assessing industrial and commercial sound, BSI (2014)

3 Noise Survey

3.1 Overview

In order to establish ambient and background noise levels in the vicinity of the site, baseline noise measurements were undertaken during the daytime on Friday 7th July 2023.

For the purpose of the assessment, the following noise monitoring positions were adopted (see Appendix 2 for the approximate monitoring positions):

- MP1 was located in the vicinity of NSR1
- MP2 was located in the vicinity of NSR2

Noise measurements were undertaken in free field conditions at 1.5 metres above ground level using Bruel & Kjaer 2250 Type 1 integrating sound level meters. Each meter was connected to a windshield covered microphone positioned at the locations detailed above.

The measurement system calibration was verified immediately before and after the survey period using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration levels greater than 0.5 dB was noted. The noted weather conditions during the survey were dry with wind speeds < 5 m/s. Weather conditions were therefore considered appropriate for noise monitoring.

Measurements consisted of A–weighted broadband parameters including L_{Aeq} and L_{A90}, together with linear 1/3rd octave band data.

3.2 Baseline Summary

Table 3.1 below presents a summary of the noise data for each measurement session, at each measurement position, rounded to the nearest decibel (Appendix 3 contains the full raw data).

Table 3.1: Summary of Noise Measurement Data

Position	Date	Time	$L_{Aeq,\,T}$ (dB)	$L_{A90\,(15\,min)}$ (dB)	
				Range	Typical
MP1	07/07/23	1130–1615	55	42–45	43
MP2	07/07/23	1215–1615	42	37–39	38

The existing noise climate in the vicinity of the site is characterised by local and distant road traffic on the surrounding road network.

The typical (most commonly occurring) background noise levels at MP1 (NSR1) and MP2 (NSR2) were **43 dB $L_{A90\,(15\,min)}$** and **38 dB $L_{A90\,(15\,min)}$** respectively.

4 Noise Assessment

Manufacturer's noise data for the plant provides a sound pressure level of 57 dB(A) at 5 metres.

In order to derive the worst-case plant noise levels at the nearest NSRs, the following formula may be used:

$SPL_{REC} = SPL_{SOURCE} - DA - SA$

where:

- SPL_{REC} is the free field sound pressure level at the receiver (dB L_{Aeq})
- SPL_{SOURCE} is the sound pressure level at source (dB L_{Aeq})
- DA is the distance attenuation of noise
- SA is the screening attenuation of noise

Distance attenuation (DA) is calculated as follows:

$DA = 20 \times \log (D_{source} / D_{rec})$ where,

- D_{SOURCE} = distance to source (5 metres in this case); and
- D_{REC} = distance to receiver.

It is robustly assumed that the plant is unscreened from the nearest receptors and therefore no screening attenuation is applied.

On the basis of the above, the worst-case resultant plant noise levels at the nearest NSRs are set out in Table 5.1.

Table 5.1 – Calculated Resultant Plant Noise Levels at Nearest Receptors

Receptor	Noise Level at Source (5 metres)	Distance Attenuation	Screening Attenuation	Resultant Noise Level at NSR
NSR1	57 dB $L_{Aeq, T}$	–25 dB [= 20*log(5 / 85)]	0 dB	32 dB $L_{Aeq, T}$
NSR2	57 dB $L_{Aeq, T}$	–31 dB [= 20*log(5 / 170)]	0 dB	26 dB $L_{Aeq, T}$

BS 4142 requires that an adjustment can be made for the characteristic features of the sound. However, the resultant noise levels above are significantly (at least 11 dB) below the existing background noise levels in the vicinity of the nearest NSRs. Inaudibility is a subjective matter, but it is commonly accepted that it is approached when the source noise level is at least 10 dB below the background noise level. As noise from the plant is likely to be wholly inaudible at the nearest receptors, no character penalty is warranted.

For the purpose of the assessment, it is robustly assumed that the plant will operate for 100% of the assessment period.

On the basis of the above, Table 5.2 contains a BS 4142 assessment at the nearest NSRs for operations at the site.

Table 5.2 – BS 4142 Assessment

Results	Receptor		Comment
	NSR1	NSR2	
Resultant sound level	32 dB $L_{Aeq, T}$	26 dB $L_{Aeq, T}$	Worst-case plant noise level at NSRs
Specific sound level	32 dB $L_{Aeq (1 hour)}$	26 dB $L_{Aeq (1 hour)}$	Plant noise robustly assumed to occur for 100% of assessment period
Acoustic feature correction	0 dB	0 dB	Plant noise likely to be subjectively inaudible
Rating level	32 dB $L_{Ar (1 hour)}$	26 dB $L_{Ar (1 hour)}$	Rating level
Background sound level	43 dB $L_{A90 (15 min)}$	38 dB $L_{A90 (15 min)}$	Daytime background noise level
Excess of rating over background sound level	-11 dB	-12 dB	Indication of low impact subject to context

The plant noise rating levels are at least 11 dB below the existing background noise levels at the nearest receptors. In accordance with BS 4142, this is an indication of a low impact, subject to context.

In relation to context, it should be noted that noise rating levels of **32 dB $L_{Ar (1 hour)}$** are very low in absolute terms. For reference, the World Health Organisation (WHO) Guidelines for Community noise considers that few people are moderately annoyed where daytime external noise levels do not exceed **50 dB $L_{Aeq (0700–2300)}$.**

In terms of the NPPF, noise associated with the development is considered to represent a No Observed Effect Level (NOEL), in that there is no effect. The noise impact is therefore considered to be negligible, with no specific mitigation measures required.

5 Summary and Conclusions

A noise survey and assessment has been performed in relation to a proposed pet cremator plant at Strawbridges Garden Centre, Doncaster Road, Darfield, Barnsley.

Baseline noise monitoring was carried out on Friday 7th July 2023 to determine prevailing ambient and background noise levels in the vicinity of the nearest receptors.

Rating levels associated with the development are at least 11 dB below existing background noise levels at the nearest NSRs. In accordance with BS 4142, this is an indication of a low impact, subject to context.

In terms of the NPPF, noise associated with the development is considered to represent a No Observed Effect Level (NOEL), in that there is no effect. The noise impact is therefore considered to be negligible, with no specific mitigation measures required.

Appendix 1 – Abbreviations and Definitions

Sound Pressure Level (L_p)
The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$L_p = 20 \log_{10}(p/p_o)$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_o = reference sound pressure (20 μPa).

A-weighting
A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$
The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$
The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

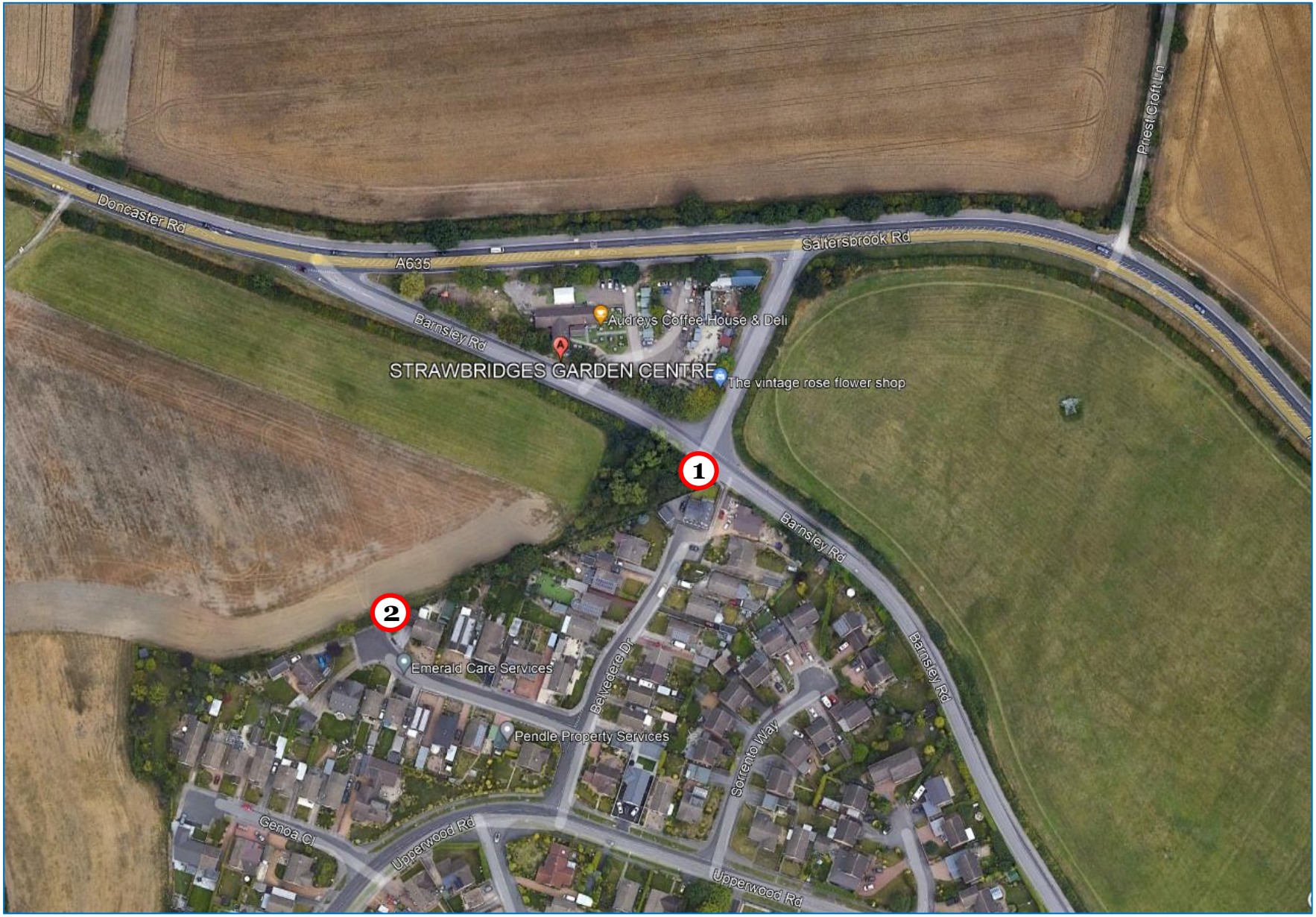
$L_{A90, T}$
The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF\ max}$
The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Single Event Level / Sound Exposure Level (SEL or L_{AE})
The energy produced by a discrete noise event averaged over one second, regardless of the event duration. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_W)
Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_W is used to characterise the insulation of a material or product that has been measured in a laboratory).

Appendix 2 – Noise Measurement Positions



Appendix 3 – Baseline Noise Measurement Data

Location	Date	Time	L_{Aeq} (dB)	L_{A90} (dB)
MP1	10/08/2023	1130–1145	54	43
		1145–1200	55	45
		1200–1215	54	44
		1215–1230	54	43
		1230–1245	53	43
		1245–1300	54	44
		1300–1315	54	43
		1315–1330	54	42
		1330–1345	56	42
		1345–1400	54	42
		1400–1415	53	42
		1415–1430	56	45
		1430–1445	54	45
		1445–1500	54	44
		1500–1515	54	44
		1515–1530	54	44
		1530–1545	55	45
		1545–1600	56	44
		1600–1615	56	44
MP2	10/08/2023	1215–1230	40	38
		1230–1245	41	38
		1245–1300	42	38
		1300–1315	41	38
		1315–1330	41	37
		1330–1345	42	37
		1345–1400	45	38
		1400–1415	40	37
		1415–1430	43	39
		1430–1445	42	38
		1445–1500	45	38
		1500–1515	45	38
		1515–1530	40	38
		1530–1545	41	38
		1545–1600	42	39
		1600–1615	43	38