Rookery RRF

Noise Control Design & Impact Assessment

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Operation of Rookery RRF

- EfW plant runs 24/7
- Deliveries:
  - Monday - Saturday: 5 am – 11 pm (mainly 8 pm – 5 pm)
  - No Sundays or Christmas, New Year and Easter Days
- MRF
  - Weekdays: 7 am – 6 pm
  - Saturday: 7 am – 2 pm
  - Sunday: closed
Rookery RRF Noise

Sources of Noise

- Construction
- Operation
- Vehicles (construction & operation)
Noise Assessment Standards and Guidance

Planning Policy Guidance 24 (PPG 24)

- **Construction Noise**
  - BS 5228 (Code of practice for noise and vibration control on construction and open sites)
    - Absolute Noise Levels
    - Significance Threshold $65 \text{ dB } L_{Aeq}$

- **Operational Noise**
  - BS 4142 (Method for Rating industrial noise affecting mixed residential and industrial areas)
    - Relative Noise Levels (subject to lower limits)
    - For Planning use with Other Guidance (eg BS 8233)

- **Vehicle Noise**
  - Relative Change (eg Design Manual for Roads and Bridges)
Significance of Impacts

The significance of each aspect of noise is assessed differently:

- Construction Noise
  - BS 5288 absolute thresholds based on ambient noise
- Operational Noise
  - Considers sensitivity of receptor and change
- Traffic
  - Relative change in traffic noise
# Significance of Operational Noise

## Receptor Sensitivity

<table>
<thead>
<tr>
<th>Sensitivity</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very High</td>
<td>Site of international importance</td>
<td>World heritage site.</td>
</tr>
<tr>
<td>High</td>
<td>Receptors where people or operations are particularly susceptible to noise</td>
<td>Dwellings, schools, hospitals, quiet recreation areas.</td>
</tr>
<tr>
<td>Medium</td>
<td>Receptors moderately sensitive to noise, where it may cause some distraction or disturbance</td>
<td>Offices, restaurants</td>
</tr>
<tr>
<td>Low</td>
<td>Receptors where distraction or disturbance from noise is minimal</td>
<td>Residences and other buildings not occupied during working hours.</td>
</tr>
<tr>
<td>Non Sensitive</td>
<td>Receptors not sensitive to noise.</td>
<td>Factories and working environments with existing high noise levels.</td>
</tr>
</tbody>
</table>
## Significance of Operational Noise

### Magnitude of Impact

<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Change compared with baseline or guideline level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>&lt;3dB</td>
<td>Generally not perceptible to human ear.</td>
</tr>
<tr>
<td>Low</td>
<td>&gt;3 - 5 dB</td>
<td>Just perceptible change.</td>
</tr>
<tr>
<td>Medium</td>
<td>&gt;5 - 10 dB</td>
<td>Up to a doubling/halving of loudness.</td>
</tr>
<tr>
<td>High</td>
<td>&gt;10dB</td>
<td>Over a doubling/halving of loudness.</td>
</tr>
<tr>
<td>Magnitude</td>
<td>Change compared with baseline or guideline level</td>
<td>Description</td>
</tr>
</tbody>
</table>
# Significance of Operational Noise

<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non sensitive</td>
<td>Low</td>
</tr>
<tr>
<td>Minimal</td>
<td>Negligible</td>
</tr>
<tr>
<td>Low</td>
<td>Negligible</td>
</tr>
<tr>
<td>Medium</td>
<td>Minor</td>
</tr>
<tr>
<td>High</td>
<td>Minor</td>
</tr>
</tbody>
</table>
Study Area and Baseline Monitoring Locations
Key Residential Receptors
Predicted Construction Noise Levels

ROOKERY SOUTH: Typical Predicted Construction Noise Levels

- South Pillinge Farm
- Marston Moretaine
- Stewartby
- How End

Time Scale of Activities, months

- Access Road
- Site Prep
- Secant Piling for Buildings
- Tipping Hall: ramp, piers and deck
- Superstructure - steel works & flue gas treatment
- Landscaping
- Concrete - boiler & tipping
- Suspended Slabs
- Waste & Ash Bunkers - piling & concreting
Daytime Operational Noise (16 Hour $L_{Aeq}$)

- Marston Moretaine
- Stewartby Way
- S Pillinge Farm
- How End

Noise Level $L_{Aeq,16h}$ in dB

- < 20
- 20 <= < 25
- 25 <= < 30
- 30 <= < 35
- 35 <= < 40
- 40 <= < 45
- 45 <= < 50
- 50 <= < 55
- 55 <= < 60
- 60 <=

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## Daytime Operational Noise

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing Ambient $L_{Aeq}$</th>
<th>Existing Background $L_{A90}$</th>
<th>Predicted Specific Noise Level</th>
<th>Background – Specific $L_{A_{90}}$</th>
<th>Combined Ambient Noise Level $L_{Aeq} + L_{A_{90}}$</th>
<th>Increase in Ambient $L_{Aeq}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillinge Farm Cottages</td>
<td>50.0</td>
<td>42.0</td>
<td>29.7</td>
<td>-12.3</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>South Pillinge Farm</td>
<td>48.0</td>
<td>34.0</td>
<td>34.9</td>
<td>0.9</td>
<td>48.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Marston Moretaine</td>
<td>50.0</td>
<td>48.0</td>
<td>24.4</td>
<td>-23.6</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Stewartby Way</td>
<td>53.0</td>
<td>36.0</td>
<td>27.7</td>
<td>-8.3</td>
<td>53.0</td>
<td>0.0</td>
</tr>
<tr>
<td>How End</td>
<td>53.0</td>
<td>48.0</td>
<td>23.2</td>
<td>-24.8</td>
<td>53.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Forest Centre</td>
<td>49.0</td>
<td>43.0</td>
<td>37.1</td>
<td>-5.9</td>
<td>49.3</td>
<td>0.3</td>
</tr>
</tbody>
</table>
Night-time Operational Noise (8 Hour $L_{Aeq}$)

Marston Moretaine

Stewartby Way

How End

S Pillinge Farm

Cottages

Noise Level

$L_{Aeq,16h}$
in dB

< 20

20 $<=$

25 $<=$

30 $<=$

35 $<=$

40 $<=$

45 $<=$

50 $<=$

55 $<=$

60 $<=$

THE ENGLISH COGGER
partnership
## Night-Time Operational Noise

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing Ambient $L_{Aeq}$</th>
<th>Existing Background $L_{A90}$</th>
<th>Predicted Specific Noise Level</th>
<th>Background – Specific $L_{ArTr} - L_{A90}$</th>
<th>Combined Ambient Noise Level $L_{Aeq} + L_{ArTr}$</th>
<th>Increase in Ambient $L_{Aeq}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillinge Farm Cottages</td>
<td>45.0</td>
<td>28.0</td>
<td>26.8</td>
<td>-1.2</td>
<td>45.1</td>
<td>0.1</td>
</tr>
<tr>
<td>South Pillinge Farm</td>
<td>42.0</td>
<td>31.0</td>
<td>31.1</td>
<td>0.1</td>
<td>42.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Marston Moretaine</td>
<td>49.0</td>
<td>42.0</td>
<td>23.1</td>
<td>-18.9</td>
<td>49.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Stewartby Way</td>
<td>42.0</td>
<td>30.0</td>
<td>27.3</td>
<td>-2.7</td>
<td>42.1</td>
<td>0.1</td>
</tr>
<tr>
<td>How End</td>
<td>52.0</td>
<td>41.0</td>
<td>21.7</td>
<td>-19.3</td>
<td>52.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Daytime Delivery Vehicle Noise (16 Hour $L_{Aeq}$)
## Daytime Vehicles on Access Road

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing Ambient $L_{Aeq}$ (dB)</th>
<th>Predicted Vehicle Noise Level ($L_{Aeq}$)</th>
<th>Existing $L_{Aeq}$ + Vehicle Noise Level ($L_{Aeq}$)</th>
<th>Predicted Increase in Ambient $L_{Aeq}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillinge Farm Cottages</td>
<td>50.0</td>
<td>23.6</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>South Pillinge Farm</td>
<td>48.0</td>
<td>26.9</td>
<td>48.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Marston Moretaine</td>
<td>50.0</td>
<td>23.4</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Stewartby Way</td>
<td>53.0</td>
<td>37.8</td>
<td>53.1</td>
<td>0.1</td>
</tr>
<tr>
<td>How End</td>
<td>53.0</td>
<td>18.1</td>
<td>53.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Forest Centre</td>
<td>49.0</td>
<td>40.0</td>
<td>49.6</td>
<td>0.6</td>
</tr>
</tbody>
</table>
Delivery Vehicle Noise: 5 – 6 am (1 Hour $L_{Aeq}$)

Stewartby Way

Marston Moretaine

Cottages

S Pillinge Farm

How End

Noise Level $L_{Aeq,16h}$ in dB:
- $< 20$
- $20 <=$
- $25 <=$
- $30 <=$
- $35 <=$
- $40 <=$
- $45 <=$
- $50 <=$
- $55 <=$
- $60 <=$
### Vehicles on Access Road: 5 – 6 am

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing Ambient $L_{Aeq}$ (dB)</th>
<th>Predicted Vehicle Noise Level ($L_{Aeq}$)</th>
<th>Existing $L_{Aeq}$ + Vehicle Noise Level ($L_{Aeq}$)</th>
<th>Predicted Increase in Ambient $L_{Aeq}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillinge Farm Cottages</td>
<td>50.0*</td>
<td>20.9</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>South Pillinge Farm</td>
<td>42.0</td>
<td>21.6</td>
<td>42.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Marston Moretaine</td>
<td>49.0</td>
<td>18.4</td>
<td>49.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Stewartby Way</td>
<td>42.0</td>
<td>31.0</td>
<td>42.3</td>
<td>0.3</td>
</tr>
<tr>
<td>How End</td>
<td>52.0</td>
<td>13.8</td>
<td>52.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Delivery Vehicle Noise: 6 – 7 am (1 Hour $L_{Aeq}$)
## Vehicles on Access Road: 6 – 7 am

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing Ambient $L_{Aeq}$ (dB)</th>
<th>Predicted Vehicle Noise Level ($L_{Aeq}$)</th>
<th>Existing $L_{Aeq}$ + Vehicle Noise Level ($L_{Aeq}$)</th>
<th>Predicted Increase in Ambient $L_{Aeq}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillinge Farm Cottages</td>
<td>50.0</td>
<td>25.9</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>South Pillinge Farm</td>
<td>45.2</td>
<td>28.9</td>
<td>45.3</td>
<td>0.1</td>
</tr>
<tr>
<td>Marston Moretaine</td>
<td>50.0</td>
<td>25.7</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Stewartby Way</td>
<td>44.0</td>
<td>38.4</td>
<td>45.1</td>
<td>1.1</td>
</tr>
<tr>
<td>How End</td>
<td>52.0</td>
<td>21.2</td>
<td>52.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Vehicles on Highway Network

- All main road routes have been studied
- Increases in traffic volumes are relatively small – resulting in imperceptible increases in noise
- Green Lane is the one exception where noise will increase by 3.9 dB, but the absolute noise level from Green Lane is below the ambient noise at the nearest houses.
Noise Mitigation

Noise Mitigation is by Design

- **Construction**
  - Selection of quiet methods (e.g., augur piling)
  - Control of working hours

- **Operation**
  - Optimised layout
  - Quiet ACC Fans
  - Increased building sound insulation
  - Acoustic louvres on building ventilation openings
  - Noise monitoring
  - CLP
Conclusions

- Established baseline noise levels
- Established noise targets based on standards and guidance
- Construction noise will be below BS 5228 threshold
- Operational noise impact will be negligible
- Increases in road traffic noise will be negligible