

Noise and Vibration strategy
CEMP
Site between Victoria st and Shelone rd.

Choice of methodology/technique for noisy operations will be considered in order to eliminate or reduce noise

- Each item of plant used will comply with the noise limits quoted in the relevant European Commission Directive 2000/14/EC/United Kingdom Statutory Instrument (SI) 2001/1701;
- Equipment will be well-maintained and will be used in the mode of operation that minimises noise;
- Noisy plant will be kept as far away as possible from sensitive areas;
- Equipment will be shut down when not in use;
- Equipment fitted with enclosures shall be operated with such enclosures in place at all times.
- Employees must show consideration to the sensitive receptors, including residential neighbours and must not generate unnecessary noise when walking to and from the site, or when leaving and arriving at the works. This will be communicated through the site induction briefings and toolbox talks.

Tools to be used on site for demolition phase

Item	at source	@40m	%use
2 operatives	60dB each (conversational)	42dB	30
Generator	82dB	63dB	20
Angle grinder	100dB	82dB	20
Sledge hammer	75dB	56dB	20

Mitigation measures

- *minimize drop height of materials*
- *All materials will be handled in a manner that minimises noise;*
- *As there are several garages existing on the site that are to taken down one by one. The site would benefit from having several pre existing acoustic barriers already in that location. Therefore, for the majority of the demolition the existing garage on either side of the garage being taken down would act as a acoustic barrier.*
- *Control of working hours Monday-Friday 8am – 4:30pm*
- *The Contractor shall comply with based on the recommendations set out in BS5228:2009.*
- *Distance – noise levels drop significantly with distance. Position stationary noise sources as far as possible from workers and amenity.*
- *Limiting vehicle reversing on-site (reversing alarms add to the total noise on a site)*

Assumed plant machinery to be used on site for levelling land

Item	At Source	
Dozer	80dB	60
Dumper truck	84dB	40
2 operatives	60dB each (conversational)	10

Mitigation measures

- *When a site is in a residential environment, lorries should not arrive at or depart from the site at a time inconvenient to residents.*
- *Machines and vehicles in intermittent use will be shut down or throttled down to a minimum during waiting periods;*
- *start up plant and vehicles sequentially rather than all together.*
- *Control of working hours Monday-Friday 8am – 4:30pm*
- *The Contractor shall comply with based on the recommendations set out in BS5228:2009.*
- *Vehicles and mechanical plant employed for any activity associated with the construction works will, where reasonably practicable, be fitted with effective exhaust silencers and shall be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable;*
- *Distance – noise levels drop significantly with distance. Position stationary noise sources as far as possible from workers and amenity. The area of a surface around a point sound source increases with the square of the distance from the source. This means that the same sound energy from the source is distributed over a larger area and the energy intensity reduces with the square of the distance from the source (Inverse Square Law). For every doubling of distance, the sound level reduces by 6 [decibels](#) (dB), (e.g. moving from 10 to 20 metres away from a sound source). But the next 6dB reduction means moving from 20 to 40 metres, then from 40 to 80 metres for a further 6dB reduction.*
- *The closest that any building work will take place to a property either on Shelone Rd, or Victoria St is approximately 25meters. Realistically as a percentage of the work, only about 20% of the works will take place within this 25-meter area. Most likely the moratory of the work will be within the mid 2/3 of the site and be the furthest away from amenity, greatly reducing the amount of noise that will travel.*
- *Therefore, the basing calculations on the inverse square law, it can be assumed that a concrete saw creating 100dB at source would be about 73dB at 40 meters away from source and only 66dB at 80 meters away from amenity. Obviously not all plant or tools would be as loud as that, we have merely selected that item for worst case.*
- *Limiting vehicle reversing on-site (reversing alarms add to the total noise on a site)*

Tools to be used on site during construction phase

Item	@Source	@40m	% use
2 operatives	60dB each (conversational)		30
Cement mixer	50dB		50
Generator	82dB		50
Concrete Saw	100dB	82dB	5
Circular saw	100dB	82dB	5
Impact driver	90dB		10

Plant machinery during construction phase

Delivery of materials – HiAb
Concrete lorry

Mitigation measures

- *Control of working hours Monday-Friday 8am – 4:30pm*
- *With a small workforce we have been able to reduce the amount of noise created.*
- *When dealing with Concrete mixers, in particular the Cleaning of it. Workers are not to hammer the drum. But instead use a hose to clean the inside. Therefore reducing the noise impact.*
- *All materials will be handled in a manner that minimises noise;
No plant or material will be delivered or loaded during night-time;*
- *avoid unnecessary revving of engines and switch off equipment a) when not required;*
- *Stacks of certain materials such as bricks, aggregate, timber or top soil can be strategically placed to provide a barrier.*
- *The distance from NSPS is often the most effective method of controlling noise. this might not be possible when work takes place on a restricted site or fixed structures, e.g. railway tracks. the effect of distance on noise attenuation is explained in annex*
Stationary plant such as compressors and generators should be located away from any noise-sensitive area.
- *When a site is in a residential environment, lorries should not arrive at or depart from the site at a time inconvenient to residents.*
- *The Contractor shall comply with based on the recommendations set out in BS5228:2009.*
- *Where possible, such as the saw to cut concrete the concrete saw will be placed near to the materials on site – namely tonne sand bags on sand and concrete blocks to create an acoustic barrier.*
- *Limiting vehicle reversing on-site (reversing alarms add to the total noise on a site)*

Vibration

It is not anticipated that there will be any significant effects upon noise and vibration levels as a result of the scheme, provided that the mitigation measures presented and Best Practicable Means are implemented on site during the construction activities.

However, should the neighbouring residents complain about significant levels of vibration during any of the construction phases of the project, we recommend that vibration levels are monitored using PPV monitoring equipment set-up with real time alarms to site management.

Summary

The assessment of construction noise and vibration impacts from the proposed works at land between Shelone road and Victoria St, Briton Ferry, has shown that:

- In terms of government policy, based on the ABC Method set out in BS 5228-1:2009 the proposed works will exceed the 75 dB(A) daytime SOAEL threshold, without mitigation. These will occur at the residential receptors on Shelone rd and Victoria St.
- In terms of environmental impact, the calculated noise changes, based on HD213/11 magnitude and significance criteria will result in a Large Impact during the same activities exceeding the SOAEL above, without mitigation. However, these activities are likely to be of temporary duration only.

It is anticipated that with Best Practicable Means implemented on site during the construction activities, the works should be capable of being undertaken without the need to recourse to Noise Insulation or Temporary Rehousing measures.

Due to the schedule and duration of the proposed construction activities to be only during day time and weekdays, the impact is deemed to be of temporary duration.