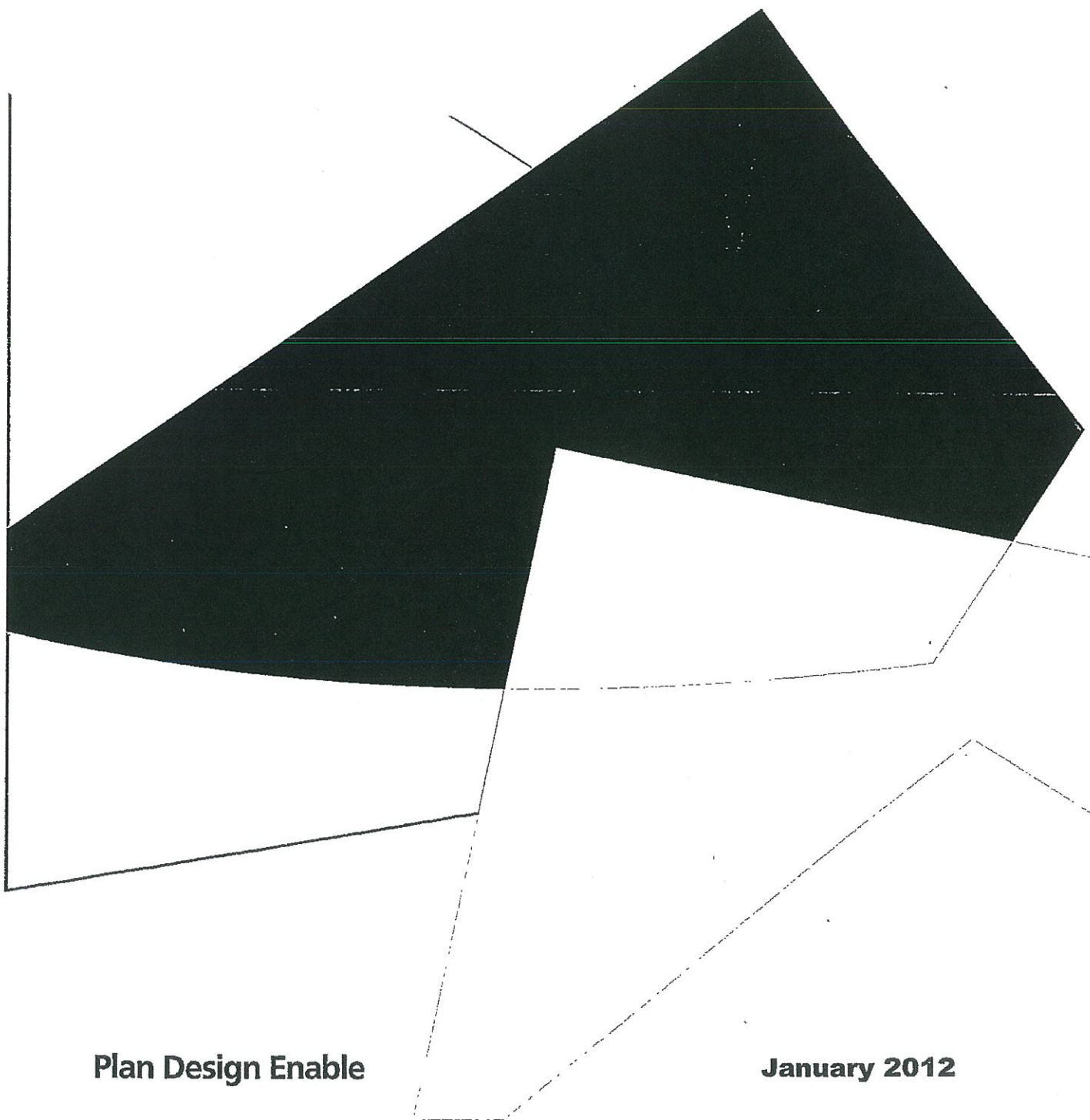


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Huntly Flood Alleviation Scheme, Huntly, Aberdeenshire

Noise Assessment



Plan Design Enable

January 2012

Planning Application for Huntly Flood Alleviation Scheme, Huntly, Aberdeenshire

Noise Assessment

On behalf of
Aberdeenshire Council

January 2012

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Document History

JOB NUMBER: 5097730.530			DOCUMENT REF: 5097730/NA			
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date
4	Final	DT	IM	IM	CMacD	16/01/12
3	Following Client Comments	DT				05/01/12
2	Client Review	DT	AC	WM	IE	29/12/11
1	Draft	DT	BM	IE	IE	01/12/11

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Abbreviations

BS5228-1	British Standard 5228-1:2009 'Code of practice for noise and vibration on construction and open sites'.
RTN	Road Traffic Noise

Glossary

Ambient Noise	Totally encompassing sound in a given situation at a given time usually composite of sounds from many sources near and far.
A-weighting, dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Decibel (dB)	A logarithmic scale for comparing the ratios of two quantities, including sound pressure and sound power. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20 μ Pa.
Free – Field	No reflective surfaces, other than the ground, within 3.5 metres of the microphone position.
Facade	A large reflective vertical surface such as the wall of a house, within 3 metres of the microphone position.
$L_{eq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level during the period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.

Summary of Findings

- This Noise Assessment is submitted to accompany the application for Full Planning Permission for the proposed engineering works for the Huntly Flood Alleviation Scheme.
- The existing baseline ambient noise levels have been measured at locations across the site. Noise levels from the main construction activity of earthworks have been predicted based on BS5228-1 guidance and noise measurements from similar construction activity. Significant construction noise effects at several nearby residential properties are predicted, these include Arnhall Cottages (approximately 2 properties), Milton Farm (1 property), Rowan Avenue (approximately 7 properties), Meadow Farm (1 property) and Meadows Care Home.
- Significant effects are only predicted to occur when works are within 60 metres of residential properties. Significant effects are also likely to be limited in duration, however there are large increases in ambient noise levels predicted, due to the low existing baseline noise levels in certain areas of the site.
- Mitigation advice has been provided in accordance with BS5228 and Best Practicable Means, and efforts to reduce significant noise effects should be considered in more detail when the construction programme is being developed.

1. Introduction

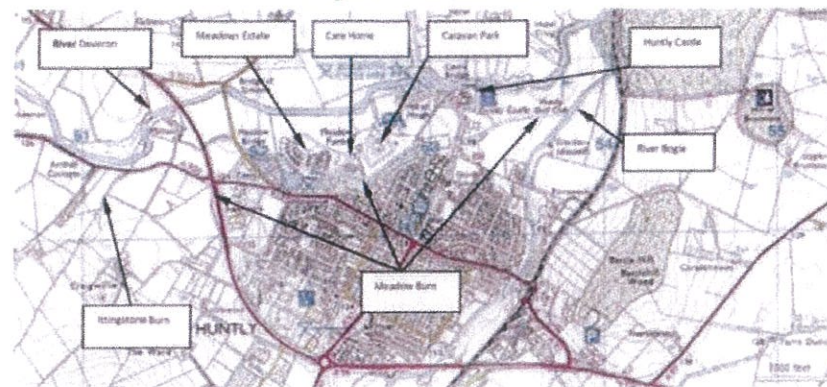
Development Proposals

- 1.1 This noise assessment is submitted to accompany the application for Full Planning Permission for the proposed engineering works for Huntly Flood Alleviation Scheme (FAS). The proposal is approximately 9.9ha, and as such is deemed a 'major' development under the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009.
- 1.2 The proposed FAS will be developed under the processes of the Water Environment (Controlled Activities) Regulations 2005 and Flood Risk Management (Scotland) Act 2009.
- 1.3 The proposed operations are along sections of the River Deveron, Ittingstone Burn and Meadow Burn, on lands to the north of Huntly. Aberdeenshire Council considers that the operations will substantially reduce flood risk to residential and commercial properties within the area known as the Meadows.

Site Context

- 1.4 The proposed site which the application relates to ('the Site') is located on lands north and west of Huntly, Aberdeenshire. Refer to Figure 1 below. The town of Huntly is situated approximately 65 kilometres north-west of Aberdeen on the main A96 Aberdeen to Inverness Trunk Road.
- 1.5 The origins of the town date back to a settlement serving Huntly Castle. The Castle is located to the north of the town centre on the banks of the River Deveron. The River Deveron flows west-east, forming the northern boundary of the town.
- 1.6 The majority of the town is located on high ground to the south of the Castle. However between the town centre and the River Deveron there is a flat low-lying area called "The Meadows". In the more recent past this area has been developed for housing and leisure purposes, (Meadows Housing estate, a care home, a caravan park and the Nordic Ski centre). There are also two special needs housing units located within the estate.
- 1.7 A number of main rivers and burns are confluent in the vicinity of the town. As well as the River Deveron these include the River Bogie, the Ittingstone Burn and the Meadow Burn.
- 1.8 The Ittingstone Burn joins the River Deveron in the Milton area to the west of the town. The River Bogie has its confluence with the River Deveron about 1km downstream of Huntly Castle and the Meadows Burn flows through 'the Meadows' to a confluence with the River Bogie to the north east of the town.
- 1.9 The Meadows has experienced several significant flood events within living memory, and damage has been caused to many residential and commercial properties. The area was flooded in September 1995, April 2000, October and November 2002, and most recently September and November 2009.
- 1.10 The A96(T) and the A920 are also affected by flooding causing significant disruption to transportation links in the area.
- 1.11 Following the 1995 event, a raised flood defence was built to the north and west of the Meadows Estate. This affords protection against direct inundation from the Deveron. However the flooding mechanisms in the area are complex, with overland flow from the Deveron, the Meadow Burn and from the Ittingstone Burn still posing a significant risk to the Meadows Estate.

Figure 1 Location Plan



Need for the Scheme

- 1.12 Despite the construction of raised defences to the north and west of the Meadow Estate, the area is still at risk from overland flow paths which develop from the west. See Figure 2 below.
- 1.13 Flood waters from the River Deveron overtop the banks in the area of Milton Farm. Overland flow paths develop over the A920 and enter the catchment of the Meadow Burn.
- 1.14 Flows in the Meadow Burn are dramatically increased. It has been estimated that during the November 2009 event, the flow in the Burn was 24 cumecs. Without a contribution from the River Deveron we would normally expect a 0.5% (1 in 200) annual chance event in the Burn to be in the order of 3 cumecs.
- 1.15 The conveyance available within the channel and existing culverts systems on the Meadow Burn are not even capable of containing the flows generated from within its own catchment.
- 1.16 Flood waters spill from the burn inundating properties within the Meadows Estate, the care home, the special needs units and the Caravan Park.
- 1.17 Based on detailed modelling studies carried out by our consultants we have concluded that the flood risks to the community are as follows:
- Overtopping of the banks of the River Deveron in the area of Milton Farm commences at a 20% (1 in 5) annual chance event;
 - The A920 and the A96(T) are affected by flood events greater than the 20% (1 in 5) annual chance event;
 - Property flooding within the Meadows estate commences at the 10% (1 in 10) annual chance event;
 - The care home and caravan park start to be effected at the 10% (1 in 10) annual chance event; and
 - A total of 50 properties are affected during a 0.5% (1 in 200) annual flood event.

Figure 2 SEPA Flood Outline



Source: SEPA <http://go.mappoint.net/sepa/>

Design Process

Options Appraisal

- 1.18 As part of the optioneering undertaken during the design process and in response to comments received from consultees, various flood defence approaches were considered. Furthermore, different forms of construction of the flood defence were considered and other high-level design options. These options included:
- Sheet piled walls – Dismissed: Due to cost, environmental concerns on potential impact of construction noise and vibration, hydrological impact of working within the watercourse, impact on ground water flow and aesthetic appearance and in consideration for the Water Framework Directive (WFD) parameters and objectives for Scottish Water bodies (physico-chemistry, biological elements, specific pollutants, hydromorphology).
 - Concrete walls – Dismissed: Due to cost, environmental concerns on potential water quality impacts due to possible increased sedimentation; ground water flow impacts, aesthetic appearance, and in consideration of the WFD.
 - Storage – Dismissed: No areas were available and the volume of storage required was not feasible.
 - Retreat – Dismissed: Economically unviable nor socially feasible, or practical.
 - Earth embankments – Progressed: The most cost-effective preference of all of the options with the least environmental impact. The simplest method of construction.

Detailed Design

- 1.19 Following on from the preliminary options appraisal, Atkins has progressed the FAS from concept design, by taking into account the environmental, physical, legislative, practical and

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socio-economic feasibility of various flood alleviation options, to detailed design. We have also taken cognisance of comments received from statutory and non-statutory consultees, and the local community, during the 12 week pre-application consultation period referred to above.

- 1.20 The scheme being taken forward considers the 0.5% annual exceedance probability (1:200 year) event including an allowance for climate change, which was determined through hydraulic modelling developed at concept design stage together with collated topographic information, hydrological modelling of rainfall and available gauging data from SEPA. This has allowed us to determine flood levels for the area.
- 1.21 The works comprise: constructing new raised defences; raising and strengthening existing defences; replacing or increasing the size of existing culverts; creation of local storage areas; associated accommodation works; and, ecological and landscape enhancements.
- 1.22 It is proposed to reinforce the riverbanks on the right hand side of the Deveron at Arnhall Cottages and to replace the existing Ittingstone Burn flap valve. No further works on the river bank are proposed, nor the construction of any other instream or bankside structures.
- 1.23 With the exception of the replacement flap valve at the Ittingstone Burn culvert, there will be no work directly within any watercourse and no change to the river regime.
- 1.24 The design does not include any perched / hanging structures, nor are there any Irish Pipe Bridges.

Consideration of Environmental Aspects

- 1.25 At the western edge of the scheme adjacent to the A920, two sub options were considered regarding the position of the flood defence.
1. place the embankment on the river bank; or,
 2. set back the defence at Milton Farm.
- Due to WFD compliance the set back option was taken forward.
- 1.26 The flood defence was not extended past the Hill of Haugh due to constraints associated with the scheduled area of Huntly Castle. Embankments to the north side of Meadow Burn were removed to avoid potential noise and vibration impact and due to potential construction difficulties and possible degradation to the Meadow Burn.
- 1.27 Atkins has received a Screening Opinion under the Environmental Impact Assessment (Scotland) Regulations 1999 (as amended) that the Huntly FAS is not considered to be an EIA development and, therefore, that an Environmental Statement is not required to be submitted with the planning application.
- 1.28 In respect of this Screening Opinion outcome Atkins has agreed with the Planning Officer at Aberdeenshire Council (Ms. Aude Chaiban) to prepare a number of tailored environmental assessments as appendices to the Supporting Planning Statement, which will accompany the planning application.

2. Appraisal Methodology

Construction Noise Assessment

- 2.1 The noise survey, assessment and conclusion have been undertaken with reference to the specific guidance detailed in BS 5228-1:2009 'Code of practice for noise and vibration on construction and open sites'. This British Standards includes guidance on noise monitoring, noise level prediction from construction activity, noise propagation and methods for assessing the significance of noise effects.
- 2.2 Example Method 2 '5dB change' has been adopted as the preferred method for assessing the significance of predicted noise effects due to the construction of the development proposals, as this method reflects the conventional approach within EIA methodologies. This method states that noise levels generated by construction activities are deemed to be significant if the 'total noise' (pre-construction ambient plus construction noise) exceeds the pre-construction ambient noise by 5dB or more, subject to lower cut-off values of 65 dB, 55 dB and 45 dB LAeq, period, from construction noise alone, for the daytime (07:00-19:00), evening (19:00-23:00) and night-time (23:00-07:00) periods, respectively. There is understood to be only day time construction activity proposed.
- 2.3 This method and the other aspects of the approach to the construction noise appraisal have been approved by the local authority following a consultation on 2nd November 2011 with the senior environmental health officer in the Huntley area office, Infrastructure Services department.

3. Appraisal

Baseline Conditions

- 3.1 A baseline noise survey was undertaken at various positions around the site on 15th & 16th November 2011. The measurement positions were chosen to be representative of the nearest noise sensitive residential receptors. The aims of the baseline noise survey were: to measure the existing ambient noise levels at the nearest noise sensitive locations to the development proposals, to make observations on the site and determine the nature of the existing noise climate.
- 3.2 The noise climate around the site is dominated by road traffic noise (RTN). The main source of RTN is the A96, particularly at locations to the west and northwest of Huntly. RTN on local through roads and access roads, as well as local noise sources such as grass cutting, people walking dogs and trees rustling, also contribute to the overall noise climate at many of the positions considered.
- 3.3 The details of the site visit and baseline noise survey are presented below.

Baseline Measurement Methodology

- 3.4 The guidance of BS 5228-1, Annex G – Noise Monitoring, has been taken in to account when undertaking noise level measurements on site.
- 3.5 Noise levels were obtained by several sample measurements of 15 minutes undertaken at each measurement position. At each position the microphone was located approximately 1.5 metres above ground in a free-field position and the necessary information was recorded during each measurement i.e. influencing noise sources, weather conditions, distances from buildings and noise sources and any other relevant information.

Baseline Measurement Positions

- 3.6 The nearest noise sensitive locations were identified and nine noise measurement positions were selected to represent noise levels at these locations. The approximate locations of these measurement positions are shown in the figure below.

Figure 3 Noise Measurement Positions



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- 3.7 The measurement positions corresponded to acoustic free-field conditions and were situated at the following locations:
- A. **Arnhall Cottages**, on the grass opposite 1 & 2 Arnhall Cottages, approximately 30 metres from the A920.
 - B. **Milton Farm**, on the grass southwest of the property near the gate to the field.
 - C. **Rowan Avenue**, in the field adjacent to 25 Rowan Avenue, in line with the rear facade.
 - D. **Sycamore Place**, on the grass behind 9 Sycamore Place, approximately 8 metres from the garden fence.
 - E. **Caravan Park**, northern side of the caravan park, in the field near the turning circle.
 - F. **Meadow Avenue**, on grass verge opposite 1 Meadow Avenue, overlooking Burnside Road.
 - G. **Castle Grounds**, near the stone bridge and river on the edge of the castle grounds.
 - H. **Milton Road**, in the cemetery adjacent to properties on Milton Road, approximately 30 metres from the main road.
 - I. **Meadow Farm Cottage & Meadows Care Home**, in the field behind the care home car park, 40 metres from Burnside Road.

Baseline Measurement Equipment

- 3.8 The table below details the equipment used for both noise surveys.

Table 3.1 Equipment Used For Noise Survey

Item	Make and Model	Serial Number
Sound Level Metre	Norsonic 118	13653
Microphone	Norsonic 1225	59992
Calibrator	Norsonic 1251	31228

- 3.9 All equipment was calibrated before and after the each of the surveys. No significant drift in calibration was observed. All equipment had been calibrated by a recognised UKAS accredited laboratory within the last two years.

Meteorological Conditions

- 3.10 The conditions were overcast on both days and the temperature was around 9 degrees Celcius during the day. There were a couple of very light showers for which the noise survey was delayed slightly. The wind was generally insignificant (below 1 m/s), apart from Tuesday 15th in the afternoon when south- westerly winds of up to 5 m/s were recorded. The conditions did not overly influence the noise levels measured and were generally considered suitable for noise measurements.

Baseline Noise Level Results

3.11 The measured noise levels at each position are presented in Table 3.2 below.

Table 3.2 Noise Level Results

Position	Description	Date	Start Time	L _{Aeq,15mins} (dB)	L _{A,Max} (dB)	Average Typical Ambient L _{Aeq,15min} (dB)
A	Arnhall Cottages	15/11/2011	12:54:00	51.4	66.8	52
		16/11/2011	09:07:00	51.5	67.4	
		16/11/2011	11:32:00	51.6	68.2	
B	Milton Farm	15/11/2011	13:27:00	54.5	65.2	54
		16/11/2011	09:26:00	53.9	63.7	
		16/11/2011	11:52:00	54.1	62.3	
C	Rowan Avenue	15/11/2011	13:56:00	42.7	59.7	42
		16/11/2011	09:50:00	41.9	61.5	
		16/11/2011	13:26:00	40.1	53.6	
D	Sycamore Place	15/11/2011	14:16:00	41.3	62.8	41
		16/11/2011	10:10:00	41.6	56.2	
		16/11/2011	13:50:00	48.9*	73.2	
E	Caravan Park	15/11/2011	14:44:00	42.8	65.6	43
		15/11/2011	15:50:00	43	55	
		16/11/2011	10:47:00	43.3	53.5	
F	Meadow Avenue	15/11/2011	15:19:00	45.2	67.6	46
		16/11/2011	11:10:00	53.7*	78.2	
		16/11/2011	14:16:00	47.3	67.6	
G	Castle Grounds	15/11/2011	16:12:00	52.2	59.3	52
H	Milton Road	16/11/2011	15:02:00	53	67.6	53
		16/11/2011	16:04:00	53.4	67.6	
I	Meadow Farm Cottage & Meadow Care Home	16/11/2011	14:40:00	42.7	56.9	43
		16/11/2011	15:37:00	43.3	56.1	

*The noise measurement result has been omitted from the reported average due to atypical noise events affecting the measurement.

Potential Impacts

3.12 The specific construction details such as plant lists, number of vehicles accessing the site, duration of construction, detailed construction methods, are not known at this time. Assumptions have been made based on previous similar assessment and the guidance provided in BS5228-1.

3.13 The potential impacts have been determined based on the following;

- Predicted construction noise levels;
- Distance correction over shortest distance between the receptor and the development proposal;
- An additional attenuation for soft intervening ground, and;
- The measured baseline ambient noise levels as reported above.

Predicted Construction Noise Levels

3.14 The assumption made is that a tracked excavator, dozer and roller are all operating together at the same time and are working 75% of the time over any given timeframe.

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- 3.15 Noise levels from these types of vehicles operating simultaneously have been measured on site during a different project and a noise level of 76 $L_{Aeq,15mins}$ was derived at a distance of 10 metres.
- 3.16 By using the noise level data and calculation methods from BS5228-1, an activity noise level of 81 $L_{Aeq,T}$ at 10 metres has been derived.
- 3.17 The higher of these two noise levels, 81 $L_{Aeq,T}$ dB, has been adopted as the construction source noise level for the purpose of this assessment.
- 3.18 Table 3.3 below shows how construction noise levels are expected to attenuate over distance and soft ground.

Table 3.3 Construction Noise Level Distance Attenuation

Distance (metres)	Construction Noise Level $L_{Aeq,T}$ dB
10	81
20	75
30	71
40	68
50	66
60	64
70	62
80	60
90	59
100	58
200	50
300	46

Predicted Noise Effects and Significance

- 3.19 The table below details the results of the daytime (07:00-19:00) construction noise assessment, considering impacts over the shortest distance between the development proposals and the noise sensitive properties considered.
- 3.20 The noise level threshold for 'significant' effects according to the BS5228-1 method is where the construction noise level [Y] is 65 $L_{Aeq,T}$ dB or greater, and the total noise level [X+Y] is 5dB or more, above the baseline ambient noise level [X].

Table 3.4 Construction Noise Assessment

Position	Description	Baseline $L_{Aeq,15min}$ (dB) [X]	Shortest distance to Proposed Development works (metres)	Predicted Noise level $L_{Aeq,T}$ from Construction at Position (dB) [Y]	Total Noise level $L_{Aeq,T}$ at Position (dB) [X+Y]	BS5228 Significance
A	Arnhall Cottages	52	50	66	66	YES
B	Milton Farm	54	50	66	66	YES
C	Rowan Avenue	42	35	69	69	YES

Position	Description	Baseline $L_{Aeq,15min}$ (dB) [X]	Shortest distance to Proposed Development works (metres)	Predicted Noise level $L_{Aeq,T}$ from Construction at Position (dB) [Y]	Total Noise level $L_{Aeq,T}$ at Position (dB) [X+Y]	BS5228 Significance
D	Sycamore Place	41	170	52	53	NO
E	Caravan Park	43	90	59	59	NO
F	Meadow Avenue	46	85	60	60	NO
G	Castle Grounds	52	300	46	53	No
H	Milton Road	53	200	51	55	No
I	Meadow Farm Cottage	43	50	66	66	YES
I	The Meadows Care Home	43	35	69	69	YES

- 3.21 In this initial assessment there are predicted to be significant noise effects at Arnhall Cottages (approx 2 properties), Milton Farm (1 property), Rowan Avenue (Approx.7 properties), Meadow Farm (1 property) and Meadows Care Home.
- 3.22 The earthworks required as part of the development proposals in the vicinity of Meadow Farm and Meadows Care Home, are much smaller in scale than the rest of the development proposals. There may be scope to reduce the source noise level from construction plant, once the plant list and construction programme are finalised.
- 3.23 The remaining significant effects from construction noise are marginally over the 65 $L_{Aeq,T}$ dB threshold limit and only when construction activity is within 60 metres of the affected properties. Beyond 60 metres the construction noise levels are predicted to be below the 65 $L_{Aeq,T}$ dB significance threshold limit (See Table 3.3).
- 3.24 As the construction work is expected to be continuously moving along the extents of the development proposals, it is not likely that the construction work would take place within 60 metres of any property for an extended period of time. Any predicted significant noise impacts therefore, are only likely to be of a limited duration.
- 3.25 Due to the low existing baseline ambient noise levels around the site there are large increases in noise predicted, the worst of which being a potential increase in ambient noise of 27 dB at the rear of Rowan Avenue.
- 3.26 Consideration should be given towards reducing construction noise levels at the locations where the potential for temporary significant noise impacts has been predicted.
- Traffic Noise Impacts**
- 3.27 No information regarding the likely number of vehicles accessing the site, the access locations or haul routes on site has been provided at this stage.
- 3.28 Site access points and site compounds should be located away from the sensitive receptors as possible.

4. Mitigation Proposals

Construction Noise Mitigation

- 4.1 Construction works will be of a relatively limited duration and any nuisance caused should be minimised by the application of Best Practicable Means (BPM) in working practices, as defined in section 72 of the Control of Pollution Act 1974 (COPA) or Part III of the Environmental Protection Act 1990 and BS 5228-1:2009.
- 4.2 Additionally, the contractor's attention should be drawn to Sections 60 and 61 of COPA: Section 60 empowers local authorities to impose conditions on noise levels, methods of working (including machinery to be used) and permissible working hours for construction operations. Section 61 of the Act allows contractors or other responsible persons to apply for consent to local authorities for construction works. Within this application they must detail hours of operation, methods of working and the plant and equipment that will be used to undertake the works. The local authority may grant such a Section 61 application with or without conditions. The agreement formed then becomes binding on both parties.
- 4.3 The construction activities considered in this assessment are predicted to have the potential to result in significant noise effects at nearby residential receptors. The selection of plant and methods of construction should be planned to minimise the noise generation, and mitigation should be included to protect the nearby properties.
- 4.4 At properties nearest to the works it is possible that mitigation could be achieved by the use of acoustic screening, which would provide up to 10dB(A) attenuation at these properties.
- 4.5 Temporary, and ideally mobile, acoustic screens should be fabricated out of impervious boards which have a surface mass of not less than 7 kg/m² minimum - 15mm plywood would meet this requirement.
- 4.6 All screens should extend to a height of 2m or more.
- 4.7 Subject to safety and access considerations, all screens should be positioned as close to the works as possible. The contractor should ensure that the screen obstructs the direct line of sight between the works and the nearest properties.
- 4.8 Subject to safety considerations, the screens may be mounted on wheels to facilitate on-site relocation. Any gaps between the ground and the bottom of the panel should be less than 100mm.
- 4.9 It is recommended that any noise barriers should be erected at an early stage in the construction works to provide acoustic screening of all subsequent construction activities.
- 4.10 The impact of the construction activities can be minimised by the use of noise and vibration control measures, as suggested by BS5228. General principles for the control of noise and vibration during the construction works could include:
- The use of BPM during construction works;
 - Switching off plant, equipment and vehicles when they are not in use for longer periods of time;
 - Establishment of agreed site working hours for "normal" construction activities;
 - Establishment of agreed criteria whilst undertaking significantly noisy or vibration-causing operations near to sensitive locations;
 - Programming works such that the requirement for working outside of normal working hours is minimised;
 - Ensuring that all staff and operatives are briefed on the requirement to minimise nuisance from site activities;

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- Use of temporary noise screens or partial enclosures around particularly noisy activities, for example pneumatic breakers used in close proximity to dwellings;
 - Use of silenced compressors, generators and fans at site locations, and;
 - Regular plant maintenance.
- 4.11 The impact of the construction works would usually be discussed with the Local Authority before commencement of the project. The Local Authority may require detailed construction noise and vibration level predictions once final selection of plant, equipment, processes and dates have been made. These predictions may then be used to agree a set of criteria for the project, which could either be set against absolute noise or vibration level limits, increases above existing levels, or a combination of both.
- 4.12 It is recommended that a Construction Method Statement be prepared for agreement with the Local Authority Environmental Health Department. This should provide an indication of the methods to be employed to minimise the noise and vibration impact of the operations, and show that the assessment of that impact is ongoing through the construction process.
- 4.13 The method statement should indicate the range of plant and equipment to be used in construction, together with the phasing of the works and the monitoring methodology and frequency to be employed to ensure that the impact of the works is being minimised as far as is reasonably practicable.
- 4.14 An important element of the pro-active approach to limiting the potential impact of such works is to ensure that the public are kept fully informed over the scale and nature of the works, when they are to take place, and who to contact if they are disturbed. It is therefore suggested that a letter be sent to all the potentially affected residents to ensure that they know of the construction works and why they are required.

5. Concluding Statement

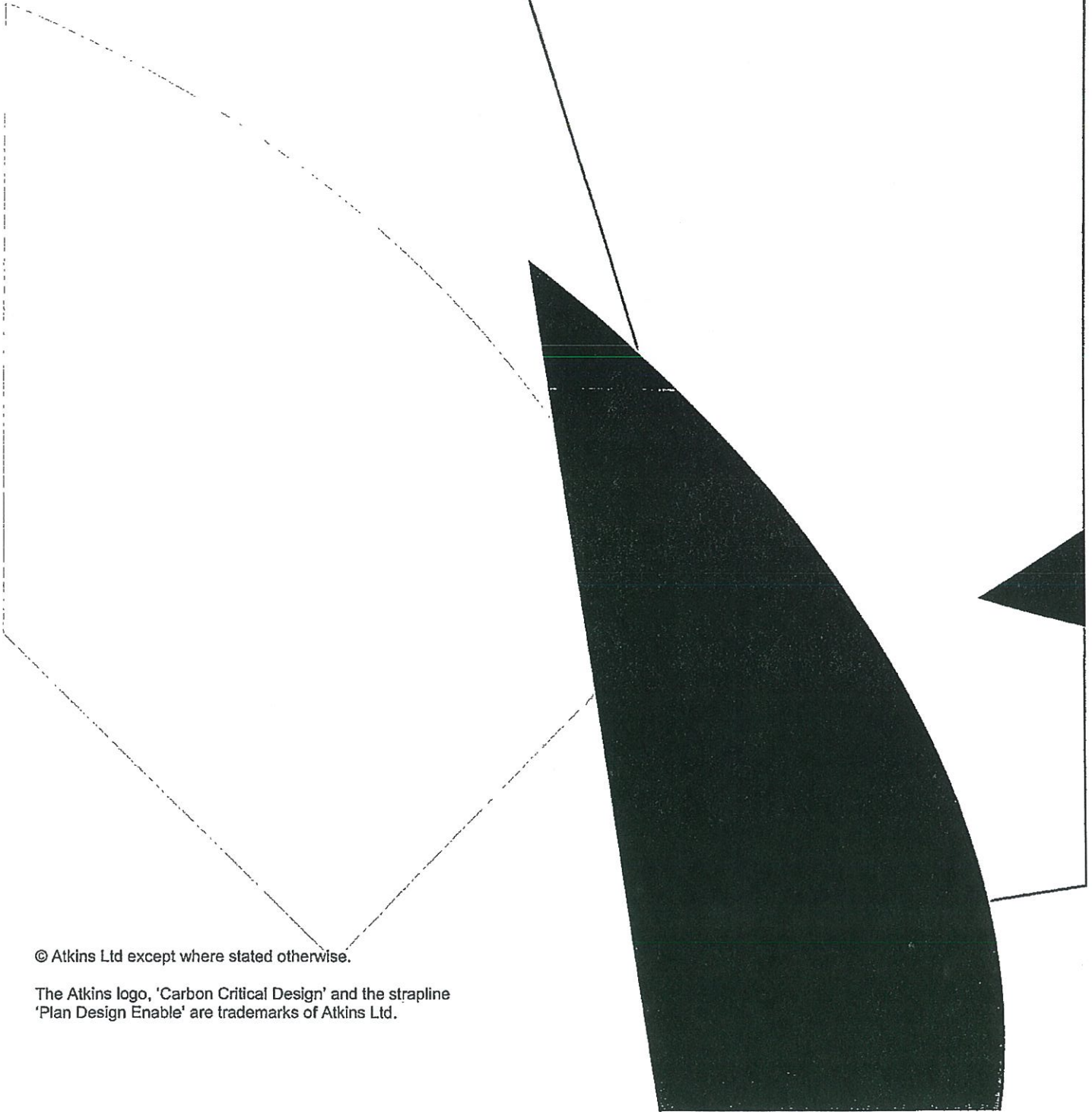
- 5.1 Significant construction noise effects are predict at several nearby residential properties, these include Arnhall Cottages (approximately 2 properties), Milton Farm (1 property), Rowan Avenue (approximately 7 properties), Meadow Farm (1 property) and Meadows Care Home.
- 5.2 Significant effects are only predicted to occur when works are within 60 metres of residential properties. It is expected that these significant effects, occurring when works are within 60 metres, are likely to be limited in duration, and the construction programme should be developed to ensure that this is the case. Despite this there are large increases in ambient noise levels predicted from works both, within 60 metres and at distances beyond 60 metres, due to the low existing baseline noise levels in certain areas of the site.
- 5.3 Location of the construction site compound and haul routes for heavy goods vehicles should be located as far as is practicable for the existing noise sensitive receptors.
- 5.4 Mitigation advice has been provided in accordance with BS5228 and Best Practicable Means, and efforts to reduce significant noise effects should be considered in more detail when the construction programme is being developed.
- 5.5 When the construction programme, methods and plant are finalised, the appointed contractor should liaise with the Local Authority to agree work arrangements and construction noise limits, as appropriate. It should be noted that this can be done formally as part of a Section 61 prior consent application, or more informally via construction method statements.

Atkins Limited
200 Broomielaw
Glasgow
G1 4RU

T: 0141 220 2000

F: 0141 220 2001

www.atkinsglobal.com



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