STONEBRIDGE

CONSTRUCTION METHOD STATEMENT

CHAPELGARTH, SUNDERLAND

Produced by: C. Ogg

Date: 15.04.24

Version: 4

V4 – Temporary sales cabin included within appendix

Planning Condition Requirements

1. Procedures for maintaining good public relations including complaint management, public consultation and liaison – **see Section 3.0**

2. Arrangements for liaison with the Council's Pollution Prevention and Regulatory Services – **please contact Customer Services team on 0191 520 5555**

3. Mitigation measures as defined in BS 5528: parts 1 and 2: 2009 Noise and Vibration Control on Construction and Open Sites shall be used to minimise noise disturbance from construction works; **See Noise and Vibration Assessment at Appendix 3**

4. Hours of construction, including deliveries; **see Section 4.1**

5. Control measures for dust and other air-borne pollutants; **see Section 5.1**

6. Siting and set up/establishment of site compound area; **see Construction Management Plan at Appendix 2**

7. Measures for controlling the use of site lighting whether required for safe working or for security purposes; **see Section 5.4**

8. Erection and maintenance of security hoarding; **see Construction Management Plan in Appendix 2**

9. Operation, loading and unloading of plant and materials; **see Section 5.6**

10. Storage of plant and materials used in constructing the development; **see Section 4 & 5 and Construction Management Plan in Appendix 2**

11. Wheel washing facilities; **see Section 5.7 and Construction Management Plan at Appendix 2**

12. Parking of vehicles of site operatives, delivery vehicles and visitors. **see Construction Management Plan at Appendix 2**

13. Location and containment of redistributed earth mounds. **see Construction Management Plan at Appendix 2**

14. Location of site sales office. **see Construction Management Plan at Appendix 2**

1.0 Description of Project

The site is located to the southwest of Sunderland and is serviced off Weymouth Road. The land to the east of the site is being developed by other housebuilders, with the rest of the site bordered by woodland and arable land.

2.0 Scope of Works & Programme

2.1 Scope of Works

The scheme involves the construction of 88 residential plots along with all associated access roads, sewers and other necessary infrastructure along with house build superstructures.

Stonebridge are to agree terms and exchange contracts by the end of September 2023. The contract will include obligations associated with completing and delivering key stages of the site, including the

energising of the substation to serve phases 4 & 5. Once contracts are exchanged between SCC and the developer of phase 4 and we're made aware of their contractual obligations with regards the timing of service connections and surplus material removal, the CEMP will be updated to outline our intention and strategy to ensure coordination with both Duchy Homes and Phase 4.

See APPENDIX 1 for Site Layout depicting the full extent of the works.

2.2 Duration of project

The anticipated duration of the project is 24-30 months, taking the site to an approximate completion in Q2 of 2026. This is subject to change dependent on various commercial and production factors and anticipated sales rates.

2.3 Build route & Phasing plan

Stonebridge Homes have developed a Construction Management Plan to illustrate the proposed Build Route of plots and the phasing of the construction of roads and sewers (see APPENDIX 2).

3.0 Communication

Technical Contact:	**Adam Patterson** (Head of Technical) apatterson@stonebridgehomes.co.uk
Production Contact:	**Stewart Loben** (Construction Director) sloben@stonebridgehomes.co.uk
Planning Contact:	**Emma Wadsworth** (Head of Design & Planning) ewadsworth@stonebridgehomes.co.uk

Letter drops to be used throughout the construction period to inform properties within proximity of the site of works being carried out and timescales involved.

Local residents to be informed in writing prior to the commence of the development works indicating head office address and contact telephone numbers (as listed above) to raise any concerns with regard to the works. Updated information will be issued informing residents of any high impact works, including duration.

4.0 Security & Safety

4.1 Site Rules

Stonebridge Homes is committed to ensuring that the general public is at no risk whatsoever when in the vicinity of the site, alongside the well-being of any visitors and anyone working on the site and therefore enforce the following site rules:

1. Working hours are Monday to Friday 0800-1800hrs, Saturday 0800-1300hrs.
2. Deliveries & Construction Traffic only permitted to access site between 0800-1630hrs - Mon-Fri and 0900-1300hrs – Saturdays.
3. No machinery or radios to be operated before 0800hrs each day.
4. Radios are to be always kept to a reasonable noise level and are not to disturb the neighbours or affect the H&S on site. Site operatives must show extra caution when entering & leaving site to limit disturbances.
5. All personnel must have a site induction before starting on site.
6. Operatives must sign in and out every day.
7. Any work permits must be issued to site operatives before works start (i.e. hot, dig etc.).
8. PPE is to be worn at all times (No matter where the operative is working (i.e. at height etc.).
9. Toilets to be used where provided and kept clean (not in plots).
10. Only qualified (unsupervised to a minimum part 1) scaffolders are allowed to adjust scaffold on site.
11. All works are to be carried out in accordance with Stonebridge Homes' H&S policies.
12. All works areas are to be left clean and tidy on completion of task and/or at the end of each working day.
13. No operative will be permitted access to the site if found to be under the influence of drugs or alcohol – the company operates a Zero Tolerance policy and anyone found to be under the influence, will immediately be dismissed from site.
14. Any accident or incident on-site, which requires medical treatment or time-off, should be reported immediately to the Site Manager.
15. If any operative fails to comply with any of the site rules they will be asked to leave the site.

4.2 Segregation

A plan has been produced to outline the position of security fencing (APPENDIX 2). This will be Heras fencing fixed onto timber posts or scaffold rails (to be agreed).

4.3 Signage

Appropriate H&S signage will be put in place to create awareness and minimise risk of injury. Traffic guidance signage will be utilised to support Stonebridge Homes' construction traffic management plan (e.g. at main junctions).

On site signage will be used when required to warn of any hazards (e.g. 'Keep out' or 'Danger') or to instruct (e.g. 'one way system').

Any restrictions to the general public such as road/ path closures will be signed correctly and give plenty of warning of upcoming hazards.

4.4 Control of working conditions

Construction work shall only be carried out between the hours stated in Section **4.1**. Site operatives and suppliers will be advised of the site rules.

4.5 Deliveries

All deliveries, including those by means of HGV's will be programmed where feasible to fall within hours stated in Section **4.1**. Suppliers will be advised of the site rules although, this cannot be strictly enforced by

Stonebridge Homes. No waiting of delivery vehicles will be permitted outside the perimeter of the site. A suitable on site hardstanding area is to be constructed as soon as possible after site commencement. Alternative arrangements will need to be made if delivery drivers need to wait on the public highway.

All deliveries will strictly follow the traffic management plan (outlined in Section **6.1**). Any deviation from this route may cause significant disruption due to narrow roads, tight junctions and parked vehicles. All delivery drivers will be requested to adhere to all construction signage placed on the route and while on site.

4.6 Site facilities

APPENDIX 2 indicates the position of all site facilities (Sales Area inc. parking, Compound, Contractor Parking, Materials Store and Wheel Cleaning Facility). APPEXNDIX 5 indicates the position of a temporary sales cabin which is anticipated to be used until September 2024 – this is an approximate timeframe and could be subject to change depending on site progression.

Adequate parking provisions have been allocated to prevent any off-site parking, avoiding disruption for surrounding residents. Parking for interested parties and visitors to the sales centre is to be provided.

The wheel cleaning facility is to be installed as per the CMP plan (APPENDIX 2) and has been positioned in such a way so as to prevent the tracking of mud onto the public highway. Cleanliness of the roads will be inspected regularly. Road sweeping will be introduced if the on-site wheel cleaning is not sufficiently keeping mud off the public highway.

Compound to be powered by generator until mains services installed and made live to development. The generator is located within a silencing housing to mitigate noise generation and is only in use during working hours. Outside of working hours the generator is powered down and the drying room switches to battery power.

5.0 Site Procedures

5.1 Controlling Dust

- Display the name and contact details of the person accountable for air quality on an information board fixed to the site boundary.
- Site to record all dust and air quality complaints, identify cause and take appropriate measures to reduce emissions and carry out any rectification measures, as necessary, in a timely manner. Appropriate measures may include but not be restricted to; low impact actions i.e. increase frequency of damping down and road sweeping.
- Plan site operations in order that machinery and dust causing activities are located away from residential properties as far as possible.
- Dust netting to be installed on boundaries adjacent to existing residential properties.
- Stockpiles of earth to be kept to a minimum and surplus materials removed from site as soon as possible. Where stockpiles are required they should be damped down to prevent the emissions of dust in the short term or seeded for the longer term.
- Ensure an adequate site water supply is available for effective dust suppression.
- Water bowsers will be utilised to dampen down dust, frequency of use will increase in hot and dry weather conditions.

- All hard paved surfaces, including internal roads, are regularly swept with a water assisted road sweeper to prevent the accumulation of dust.
-

5.2 Controlling 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.
- 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.
- Machines or vehicles in intermittent use will be shut down or throttled down to a minimum during waiting periods.
- All operatives must show consideration to the sensitive receptors, including residential neighbours, and must not generate unnecessary noise when walking to and from the site.

5.3 Controlling Vibration

- Vibration will always be within tolerable levels in accordance with British Standards.
- Construction will not involve penetrative piling

5.4 Controlling Lighting

- Adequate site lighting to be provided to ensure safe working conditions for all site operatives
- Construction site lighting to be directed away from existing properties to prevent impact on residential amenity

5.5 Controlling Earthworks

- Stockpiles not to exceed 2 metres in height and located away from boundaries adjacent to residential gardens.
- Stockpiles of earth to be kept to a minimum and surplus materials removed from site as soon as possible. Where stockpiles are required they should be damped down to prevent the emissions of dust in the short term or seeded for the longer term.
- If a stockpile is disturbed only remove the cover in small areas and the area should be re sealed immediately.
- Road gully guards will be used to prevent silt and spoil entering gullies and highway soakaway on site. The maintenance of the aforementioned gully guards will be carried out by the site team.

5.6 Controlling Construction Materials

- All contractors shall be provided with an appropriate site induction and ongoing briefings (toolbox talks) regarding the management of environmental issues.
- Mortar for construction works to be produced from on site silos or delivered pre mixed in tubs.
- Ensure sand or other aggregates are stored in bunded areas and are not allowed to dry out.
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust. Empty bags to be disposed of in an appropriate manner.

5.7 Controlling Mud on Highways

- A running layer of hardstanding to be installed at site entrance as well as an area of hard standing within the site as a holding area for vehicles servicing the construction of the initial 30m of the access road. Appropriate Highway Licenses are to be applied for and approved prior to commencement.
- After completion of the initial 30m of access road up to binder course level the on site infrastructure works are to commence.
- All vehicles leaving site are to be stopped on the access road and inspected for mud and appropriate actions taken prior to accessing the adopted highway (manual removal/jet wash). Measures are to be installed to prevent surface water from the jet wash contaminating the general site area.

5.8 Recycling of Construction Waste

- Stonebridge Homes only contract with Registered Waste Carriers who undertake audited waste recycling procedures. The registered carrier is to be determined.
- The site team will be responsible for separating the waste which is then transported to a separate waste management plant.
- Stonebridge Homes will incur charges for any cross-contaminated waste.

5.9 Pest Control

Preventative measures will be implemented to reduce the risk of pests on site. These include regular rubbish collections and storing items in safe and enclosed containers. Temporary facilities will be correctly managed to prevent any potential leaks and odours which may attract unwanted pests.

5.10 Protecting Utilities

Stonebridge Homes is aware of the location of the existing infrastructure within and surrounding the site, as well as appropriate easements. These will be protected or diverted as agreed with the utilities providers.

5.11 Protecting Heritage

Archaeologists have undertaken the necessary investigative works on site and it has been established that no archaeological remains require protection.

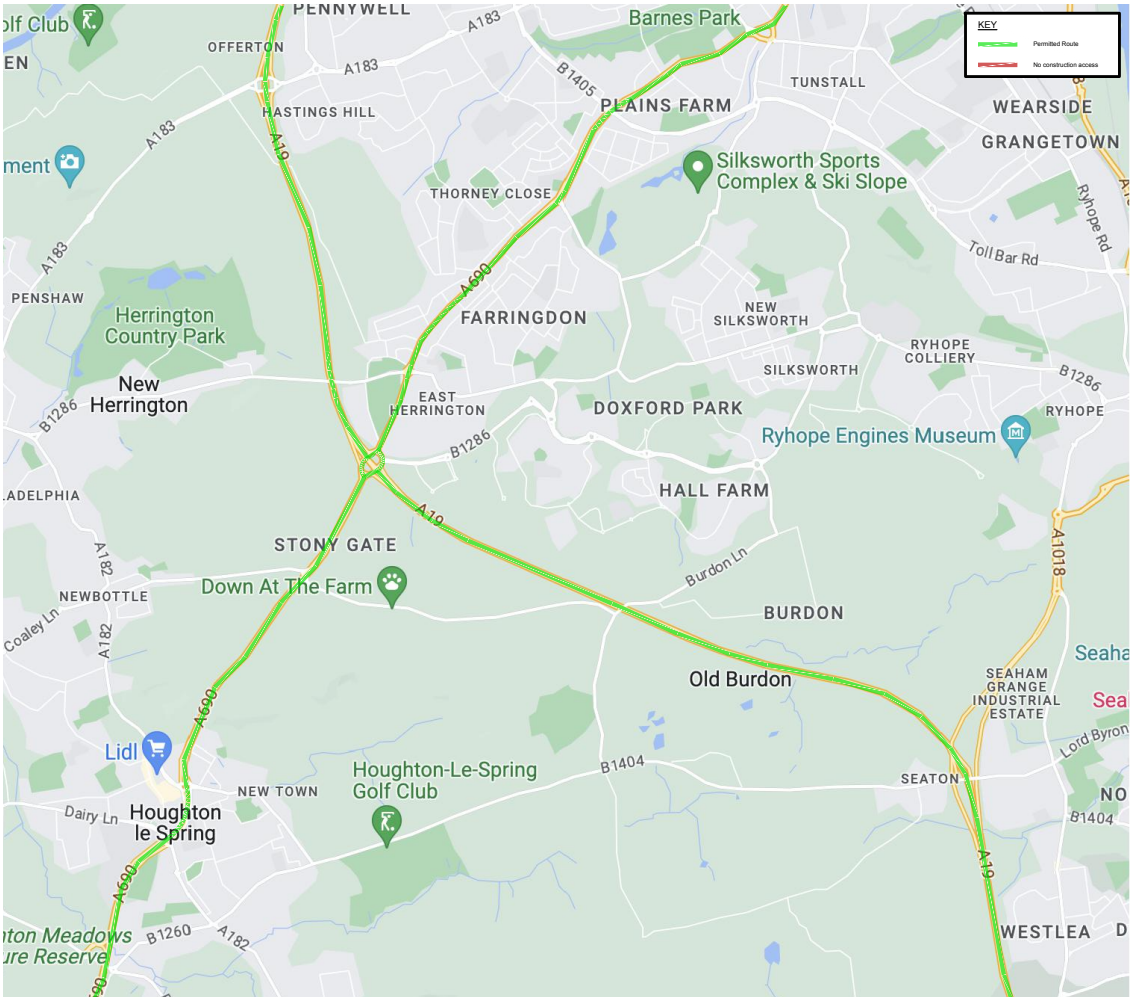
5.12 Biodiversity Plan

Information regarding construction of the site without impacting on important ecological features can be found within the Biodiversity Plan Ref. ER-6781-05 (APPENDIX 4)

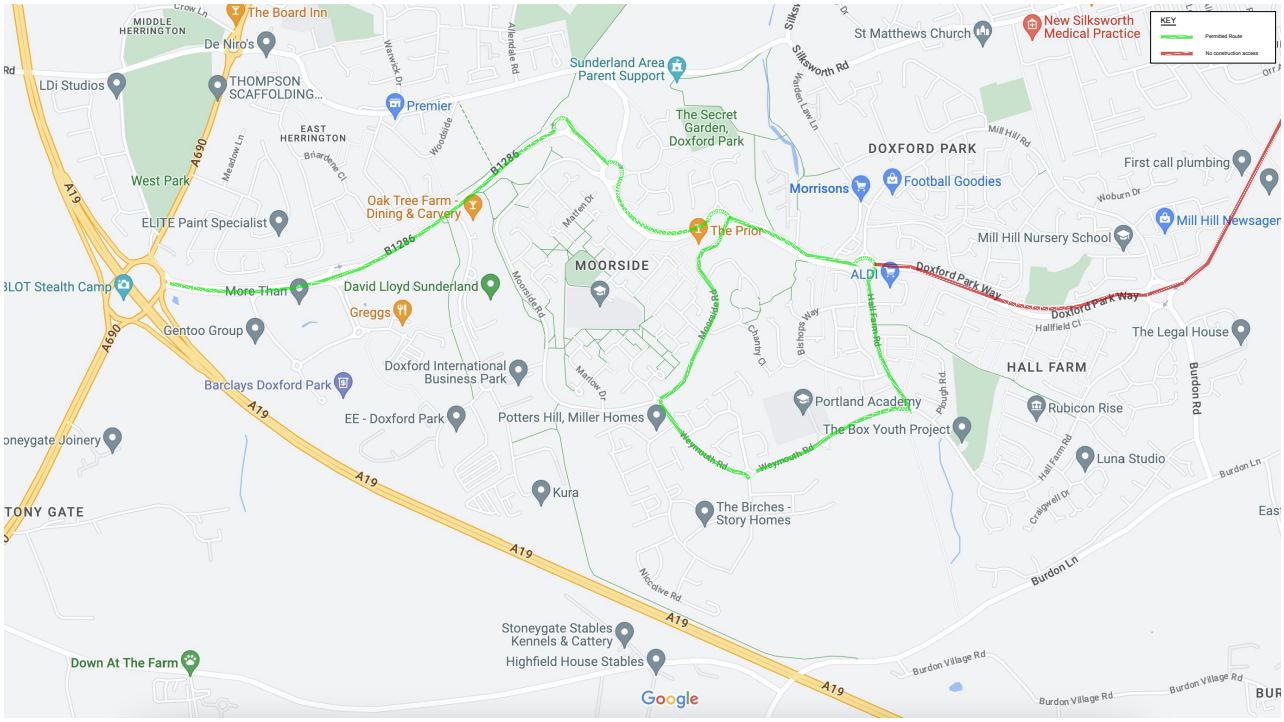
6.0 Traffic Management Strategy

6.1 Access to site

Access to site can be gained via the following routes and will be strictly adhered to:



All construction traffic (from both north & south) should be routed via either the A19 or A690, utilising the Herrington Interchange to access the B1286.



From the Herrington Interchange, construction traffic should utilise the B1286 to access the site either via Moorside Road or Hall Farm Road.

6.2 Notable risks

Due to the proposed route as outlined above, the notable risks associated with the traffic route has been significantly mitigated as routes through pedestrianised areas have been avoided where at all possible.

Appendix 1 - Site Layout

SK01 SOA

Chapelgarth, Phase 5				02.11.23		
House Type	**Bed No**	**Type**	**Parking**	**No. Units**	**%**	**Sq.ft**
Open Market						
Hamilton	4B	Det	DSG	4	5%	1439
Pinehurst	4B	Det	INT	2	2%	1464
Oakland	4B	Det	DSG	10	12%	1519
Merion	4B	Det	INT	5	6%	1520
Sunningdale	4B	Det	DSG	12	14%	1573
Belfry	4B	Det	INT	6	7%	1671
Ganton	4B	Det	DSG	12	14%	1726
Sandringham	4B	Det	INT	5	6%	1820
Turnberry	5B	Det	INT	5	6%	1908
Carnoustie	4B	Det	HO	6	7%	2545
Aston	5B	Det	INT	6	7%	2155
Birkdale	5B	Det	INT	8	10%	2577
Wentworth	5B	Det	INT	2	2%	2347
Oakmont	5B	Det	HO	1	1%	3044

Total	**84**	**100%**
Site Total	**84**	

Gross Area	12.76 acres 5.16 ha
Nett Area	10.2 acres 4.12 ha
Nett Coverage	15322 **sq.ft/acre**
Nett Density	20 **dph**

POS Area (approx)	**2.56 acres (approx)** **1.03 ha (approx)**

KEY:

- 1800mm BRICK WALL
- 1800mm TIMBER FENCE
- RETAINING WALL (SEE EXTERNAL WORKS DWG)
- POST AND RAIL FENCE
- 25m OFFSET DISTANCE FROM WOODLAND
- 10m OFFSET DISTANCE FROM HEDGEROW
- OPPOSITE HANDED PLOT
- BIN STORE PRIVATE
- BCP BIN COLLECTION POINT
- 1400mm A FRAME CYCLE BARRIER

118.9m

RH

Issue	Date	Detail
C	08.11.23	VP positions amended to north, shared surface amended to east.
B	02.11.23	Cycle barriers and VP's added to layout, use of basin track amended
A	05.09.23	Plot 41 amended to suit vis splay

Scale (A1 Sheet): 1:500	Drawn By: EW
Date 22.08.23	Drawing Number: PA-SGM-02

Project:
CHAPELGARTH, SUNDERLAND

Drawing:
PLANNING LAYOUT

STONEBRIDGE

FEATHERBANK COURT,
HORSFORTH, LEEDS, LS18 4QF
0113 357 1100
WWW.STONEBRIDGEHOMES.CO.UK

10m 20m
1:500 SCALE

CHAPELGARTH, SUNDERLAND

Appendix 2 - Construction Management Plan (Build Route & Compound)

CMP Key:

- Compound Area
- Contractor Parking
- Materials Storage
- Spoil Storage
- Wheel Wash Area
- Silos Base
- Sales Area
- Haul Road
- Construction Traffic Route
- Build route (incl superstructures)
- 1 Build route number

Build Sequence:

	No. Plots	Cumulative No. Plots		No. Plots	Cumulative No. Plots		No. Plots	Cumulative No. Plots
1	3	3	11	2	41	21	3	77
2	5	8	12	4	45	22	3	80
3	2	10	13	4	49	23	2	82
4	5	15	14	2	51	24	2	84
5	4	19	15	2	53			
6	2	21	16	2	55			
7	5	26	17	6	61			
8	2	28	18	5	66			
9	5	33	19	4	70			
10	6	39	20	4	74			

ATTENUATION BASIN
DESIGNED BY OTHERS

Standard Compound

Material Storage

Silo Base

Contractor Parking

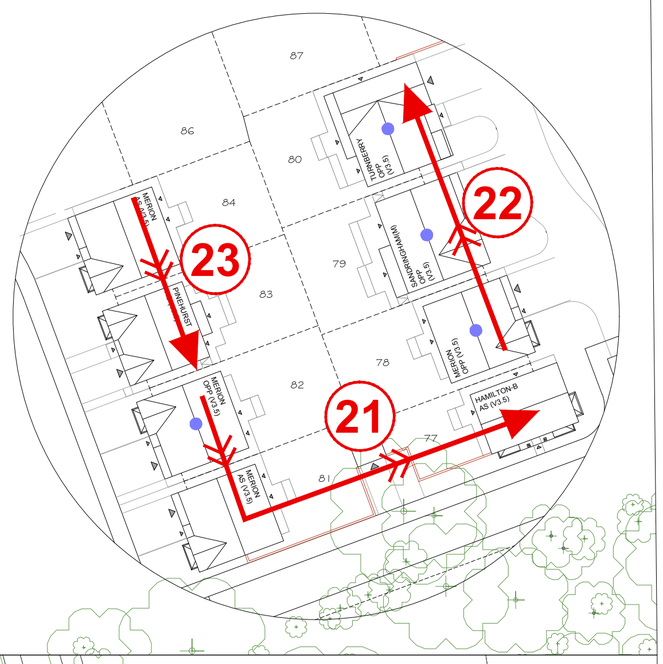
Sales Area

Additional Material Storage if Required

Spoil Storage

LOCAL AREA OF PLAY

Plots Beneath Compound



118.9m

RH

48

CHAPELGARTH, SUNDERLAND

10m 20m
1:500 SCALE

Issue	Date	Detail
A	03.10.2023	OVERFLOW MATERIAL STORE & SPOIL STORAGE INDICATED
B	07.11.2023	BUILD ROUTE UPDATED TO REFLECT NEW SALES AREA LOCATION

Scale (A1 Sheet): 1:500	Drawn By: CO
Date 26.07.23	Drawing Number: PA-SGM-CMP

Project:
CHAPELGARTH, SUNDERLAND

Drawing:
CMP

STONEBRIDGE

FEATHERBANK COURT,
HORSFORTH, LEEDS, LS18 4QF
0113 357 1100
WWW.STONEBRIDGEHOMES.CO.UK

Appendix 3 – Noise and Vibration Assessment

Phase 5, Chapelgarth, Sunderland

Construction noise and vibration assessment

11280.1

8th November 2023

Revision A

Phase 5, Chapelgarth, Sunderland

Construction noise and vibration assessment

11280.1

Revision	Description	Issued by	Date
A	First issue	JH	8th November 2023

Prepared for

Stonebridge Homes

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1 Contents

2 Summary

2.1 This report relates to the Reserved Matters Application 23/01968/REM for the construction of up to 84 dwellings at Chapelgarth, South of Weymouth Road, Sunderland.

2.2 This report has been prepared to support the discharge of Planning Condition 22 of Application Ref. 20/02265/VA4.

2.3 Condition 22 requires a construction noise and vibration assessment be undertaken to assess the noise and vibration impact on nearby residents during the construction phase of the development. The assessment is carried out in accordance with BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014.

2.4 Existing ambient noise levels has been measured at locations considered representative of the identified noise sensitive receptors.

2.5 The major plant items, site activities, working hours and duration have been provided by the client.

2.6 **Noise**

2.7 Noise propagation has been calculated with proprietary software Cadna/A based on typical source noise levels for the identified plant items taken from BS 5228-1.

2.8 The noise propagation is calculated for a worst-case scenario with all major plant items operating simultaneously close to the site boundary towards the identified noise sensitive receptors.

2.9 It is calculated for the worst-case scenario the noise impact from site activities is below the assessment criteria. It is therefore considered that for typical operational activities throughout construction phases noise levels will be lower than this and that specific noise mitigation measures are not required for reduction below these limits. Residual risks can be minimised through best practicable means of mitigation, including a construction management plan.

2.10 **Vibration**

2.11 It is understood no piling works are planned at the site, and for typical site activities the vibration levels from the site are unlikely to be perceptible at the receptors.

2.12 **Best practicable means and complaint procedure**

2.13 To minimise potential negative impacts, information on best practices, including monitoring, strategies for controlling noise, proactive communication with affected residents, and a process for handling any complaints that may arise, is provided.

3 Introduction

3.1 Apex Acoustics has been appointed to undertake a noise and vibration assessment for the construction of a residential development at Chapelgarth, Sunderland in support of Planning Condition 22. The scope of the assessment is for the Phase 5 Section of the site for the construction of up to 84 dwellings.

3.2 The scope of our instruction includes:

- Measure the existing ambient noise levels at up to 3 positions representative of the nearest noise sensitive receptors
- Determine criteria for noise and vibration impacts according to BS 5228-1 and BS 5228-2, References 1 and 2.
- Calculate noise impact from typical site activities
- Provide information on best practices for the control of noise and vibration impacts

3.3 The site location, measurement positions and identified noise sensitive receptors are shown in Figure 2.

4 Planning Condition

4.1 Planning Condition 22 associated with Application Ref. 20/02265/VA4 is shown in Figure 1.

> 22. No development within each reserved matters area shall be undertaken until a detailed construction noise and vibration assessment has been submitted to and approved in writing by the Local Planning Authority. For the avoidance of doubt the assessment shall identify construction methodologies likely to generate the highest levels of vibration (e.g.piling). Reasons : In order to protect the amenities of the area and ensure a satisfactory form of development and to comply with CSDP policy HS1 and HS2.

Figure 1: Planning Condition 22 of Application Ref 20/02265/VA4

Figure 2: Site location, measurement positions and identified noise sensitive receptors

5 Existing noise environment

5.1 Measurements of the existing noise environment were made between 17:00 and 17:40 hours on Tuesday 31st October 2023.

5.2 The measurement location is shown in Figure 2.

5.3 The microphone was located at 1.5 m above ground level, away from other reflecting surfaces, such that the measurements are considered to be free-field.

5.4 The equipment used is listed in Table 1.

Equipment	Model	Serial no.
Sound Level Meter	NTi XL2	A2A-12479-E0
Calibrator	Larson Davis CAL 200	13405

Table 1: Equipment used

5.5 All sound level meters and calibrators used meet the technical specifications of BS 7445 and have current calibration certificates traceable to national standards. The equipment was field-calibrated before and after the measurement with no significant drift in sensitivity noted.

5.6 Weather conditions were dry with wind speeds below 5 m/s.

5.7 The most significant noise source affecting the proposed development during the daytime was road traffic and based on a review of the site, the measurement positions are considered representative of the identified noise sensitive receptors.

5.8 It is understood that all site activities will occur during the daytime period only and the measurement period is considered representative of typical levels throughout the proposed operating period.

5.9 **Results**

5.10 The measured daytime and night-time noise levels are shown in Table 2.

Position	Start Time	Duration	Measured $L_{Aeq, 30\text{-}min}$						
			dB(A)	Octave band centre frequency, Hz					
				125	250	500	1k	2k	4k
MP1	18:14	30 mins	**62**	39	47	52	60	54	44
MP2	17:38		**63**	41	49	53	60	56	45
MP3	17:00		**61**	39	45	50	60	53	42

Table 2: Measured free-field noise levels

6 Assessment criteria

6.1 **Noise**

6.2 Table E.1 of BS 5228-1 (reproduced as Table 3, below) provides a methodology for determining the potential significance of noise effects due to construction activities, based on the periods of construction (daytime, evening and night-time) and the baseline ambient noise levels at the receptors.

6.3 The baseline ambient noise levels are rounded to the nearest 5 dB and then allocated into a threshold category (i.e. A to C). The predicted construction noise levels are then assessed against the corresponding noise threshold value. If the noise threshold value is exceeded, a potential adverse impact may be considered to occur.

6.4 The standard then states that the assessor needs to consider other project specific factors, such as the duration and character of the impact, to determine the noise impact.

Assessment category and threshold value period	Threshold value in dB $L_{Aeq,T}$		
	Category A[1]	Category B[2]	Category C[3]
Night-time (23:00-07:00)	45	50	55
Evenings and weekends (19:00-23:00 weekdays, 13:00-23:00 Saturdays, and 07:00-23:00 Sundays)	55	60	65
Daytime (07:00 – 19:00) and Saturdays (07:00 to 13:00)	65	70	75

[1]Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.
[2]Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values
[3]Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values

Table 3: Threshold of Potential Major Construction Noise Impact at Dwellings

6.5 BS 5228 Note 1 describes that *"A potential significant effect is indicated if the $L_{Aeq,\ T}$ noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level".*

6.6 Based on the measured ambient noise levels, the noise assessment criteria are shown in Table 4.

Assessment category and threshold value period	Threshold value in dB $L_{Aeq,T}$
Daytime (07:00 – 19:00) and Saturdays (07:00 to 13:00)	65

Table 4: Threshold of Potential Major Construction Noise Impact at Dwellings

6.7 **Vibration**

6.8 During construction activities, vibrations can result in negative impacts on nearby areas. The intensity of ground-borne vibrations depends on the ground between the source and receiver and the type of activity taking place. To control vibrations on construction and open sites, BS 5228-2, Reference 2, provides guidance on the effects of vibration levels in terms of peak particle velocity (PPV), as shown in Table 9.

6.9 Based on this guidance, it is recommended that the maximum peak particle velocity, when measured at the internal areas of the identified sensitive receivers is 1 $mm.s^{-1}$.

Vibration level	Effect
0.14 $mm.s^{-1}$	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 $mm.s^{-1}$	Vibration might be just perceptible in residential environments.
1 $mm.s^{-1}$	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10 $mm.s^{-1}$	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

Table 5: Guidance on effects of vibration levels (Source: BS 5228 Table B.1)

7 Noise sources

7.1 Plant and noise levels

7.2 It is understood that the plant as shown in Table 6 is envisaged in this project.

Plant	Manufacturer	Model	Quantity	Sound power level dB(A)	Source of acoustic data
21 tonne excavator	-	-	1	111	Table C.2 Item 3 of BS 5228-1
13 ton excavator	-	-	2	106	Table C.4 Item 56 of BS 5228-1
6 ton dumper	-	-	3	107	Table C.4 item 6 of BS 5228-1
Forklift	-	-	1	99	Table C.2 item 35 of BS 5228-1
Chainsaw	Stihl	-	1	109	TS 420, Reference 4
Roller	Bomag	120	1	106	Reference 3

Table 6: Plant envisaged in the project

7.3 Working hours

7.4 The Construction Method Statement, Reference 5, states working hours are 08:00 -18:00 hours Monday to Friday and 08:00 – 13:00 hours on Saturday. Deliveries & Construction Traffic are permitted to access the site between 08:00 – 16:30 hours Monday to Friday and 09:00 – 13:00 hours on Saturdays.

8 Calculation and assessment

8.1 **Noise**

8.2 Noise transmission and propagation is modelled using proprietary software, CadnaA. This models noise propagation outdoors according to ISO 9613. The parameters used, source of data and details are described in Appendix A.

8.3 The calculated highest noise levels at the identified noise sensitive receptors are shown in Table 7. The calculate noise level contours are shown in Appendix B.

Position	Calculated $L_{Aeq,T}$	Criteria
NSR1	61	65
NSR2	48	65

Table 7: Noise impact assessment summary

8.4 Based on the modelled worst-case scenario with regards to plant operation, with all envisaged plant operating continuously at the site boundary closest to the nearest noise sensitive receptor, the criteria is met.

8.5 It is therefore considered that for typical operating cases through the construction period the criteria will also be met, with levels likely lower than the calculated values in Table 7. A specific scheme of mitigation is therefore not required to reduce levels below the upper 65 dB(A) limit level. Best Practical Means of mitigation is discussed in the next section, to manage and mitigate residual risks throughout construction.

8.6 **Vibration**

8.7 The methodology for predicting levels of vibration from demolition activities included in BS 5228-2 relates to vibratory rolling and piling only. It is understood that no piling activities are anticipated as part of the site works.

8.8 For typical site activities, Table 8 details the distances at which certain activities are likely to give rise to vibration levels which may be just perceptible. On the basis the distance from the site boundary to the nearest receptor is approximately 100 m it is not considered likely that vibration will be perceptible for the site activities to be undertaken.

Activity	Distances at which vibration may be just perceptible
Heavy vehicles	5 to 10 metres
Earth moving	20 to 30 metres
Note: distances for perceptibility are dependent on several factors and may be greater than indicated. The principal factors are dependent on the radial distance between source and receiver, source energy per blow or per cycle, ground conditions, underlying geology and upon the foundations construction of the building itself.	

Table 8: Distances at which vibration caused by construction activities may be just perceptible

9 Best practice measures

9.1 Section 5.2 of the Construction Method Statement, Reference 5, provides detail on proposed methods for controlling noise. Further details and guidance on best practice measures are detailed here.

9.2 **Control measures**

9.3 Best practice measures which can be taken may include the following:

- Application of the principle of Best Practical Means (BPM) as defined in Section 72 of the Control of Pollution Act 1974, carrying out all work in such a manner as to reduce any disturbance from noise and vibration to a minimum;
- Identification and use of low noise techniques - e.g. where plant is known to generate significant levels of noise then it is to be used sparingly and the construction activity closely monitored to minimise noise levels;
- All equipment brought to the site should comply with the relevant EU/UK noise limits applicable to that equipment or should not be noisier than expected based on the noise levels quoted in BS 5228. The equipment should be properly maintained and operated in accordance with the manufacturer's recommendations;
- Where feasible, all stationary equipment should be located so that the noise at NSPs is minimised and, if practicable, every item of static equipment, when in operation, should be attenuated using methods based on the guidance and advice given in BS 5228 (e.g. local screening);
- Items of equipment operating intermittently should be shut down in the intervening periods between use;
- Implementation of a Traffic Management Plan to pre-plan and manage traffic associated with the works to minimise disturbance to NSP.

9.4 For construction work in noise-sensitive areas, BS 5228 offers detailed advice on the application of acoustic screens. The use of screens is not required to meet the proposed criteria but if screens are employed the guidance in BS 5228 should be used as follows:

- The barrier should be placed as close as possible to either the noise source or the receiving positions for maximum effectiveness;
- The barrier material should have a mass per unit of surface area greater than 7 kg/$m^{2,}$ and there should be no gaps at the joints or in the material.
- The length of a barrier should typically be at least five times greater than its height; shorter barriers can be angled around the noise source for maximum screening.
- If possible, the barriers should be tall enough that no part of the noise source is visible from the receiving point.

9.5 **Communicating with residents**

9.6 Ensuring the involvement of affected residents is crucial in formulating a noise management plan, especially since the construction site is in close proximity to some existing homes. It is recommended to appoint a dedicated site contact to address any concerns from the public throughout the duration of the project.

9.7 Before any work begins, a notice should be distributed to all potentially affected properties. This notice should provide contact information and briefly explain the nature of the upcoming work. Additionally, it should include the date and duration of the anticipated construction. Further information may be regularly provided to all neighbours with an update on the progress of the works if the working programme has changed or delayed.

9.8 Residents who are most affected by noisy processes or machinery should receive additional notices. The proposed timing of the specific works should be communicated to the residents, especially if there are any vulnerable individuals like senior citizens or children. Special attention should be given to minimising the impact on these people, and if required, individual meetings can be arranged to discuss potential solutions.

9.9 **Complaints procedure**

9.10 The following procedure should be followed for all noise and vibration complaints:

- All noise and vibration complaints should be immediately directed to the project complaints contact.
- As soon as the complaint is received, it will be recorded. An example of a complaint recording form is shown in Table 9.
- Depending on the nature of the complaint the initial response could be to immediately cease the activity pending investigation, or to replace an item of equipment. However, in some cases it might not be practicable to provide immediate relief. The complainant will be informed of actions taken.
- Undertake a site inspection as soon as possible after receipt of a complaint. Note all noise producing activities taking place and the noise mitigation methods that are being employed. If possible, implement any remedial action necessary.
- As soon as possible visit the area from where the complaint originated to ascertain if noise and/or vibration is still a problem.
- File the noise complaint form on the complaint register for the project.

- Notify the Project Manager as soon as practicable that a complaint has been received and what the findings of the investigation were and any remedial measures taken.
- Inform works on site of the complaint and what the findings of the investigation were and any remedial measures taken.

Complaint details	
Date and time	
Complainants information	Name Phone number Address
Noise nature	Intermittent Continuously Noise source recognisable First time occurring or repeated Regularly or at specific time
Inspection	
Site contact's info	Name Phone number
Immediate response	
Further inspection undertaken	Location of the noise source Whether the noise mitigation implemented properly Whether the machinery operate properly Other issues
Further remedial actions undertaken	If so, inform the residents what remedial works has been undertaken and the potential improvement
Visit to the area when the complaint originated, if necessary	
Notify the project manager	
File the whole process	

Table 9: Complaints register form

10 Conclusion

10.1 Noise levels at the identified noise sensitive receptors have been calculated using proprietary noise modelling software.

10.2 The noise impact assessment results indicate that calculate site noise levels are below the BS 5228 assessment criteria and specific noise mitigation measures are not required. Information on best practices and strategies to minimise additional risks are outlined.

10.3 It is understood no piling works are planned at the site, and for typical site activities the vibration levels from the site are unlikely to be perceptible at the receptors.

11 References

1 BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.

2 BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.

3 Transport Scotland, A9 Dualing Project, Appendix A17.1, Typical Construction Plant and Noise Levels

4 https://www.stihl.co.uk/en/p/cut-off-machines-ts-410-petrol-cut-off-machine-1339.

5 Stonebridge, Construction Method Statement, Chapelgarth, Sunderland, Version 2, 6th October 2023.

6 Stonebridge PA-CG5-01 Location Plan, September 2023.

Appendix A Noise model

Parameter	Details
Implemented standard	ISO 9613-2
Software	Cadna/A
Site location and layout	Contractor's drawings, Reference 6
Topography	DEFRA DTM 2022 1m x 1m
Building heights	Google street view
Receptor positions	At 4 m above ground to represent first floor window height.
Building and barrier absorption coefficient	0.21 to represent a reflection loss of 1 dB
G, Ground factor	G = 0.8, primarily soft ground
Max. order of reflections	Three

Table 10: Modelling parameters and assumptions

A.1 The sound power levels detailed in Table 6 have been ascribed to point sources representing each plant item.

A.2 Specific details as to operation times and locations throughout each construction phase is not known. To represent a worse case all plant is modelled as operating continuously at the site boundary closest to NSR1.

Appendix B Noise contours

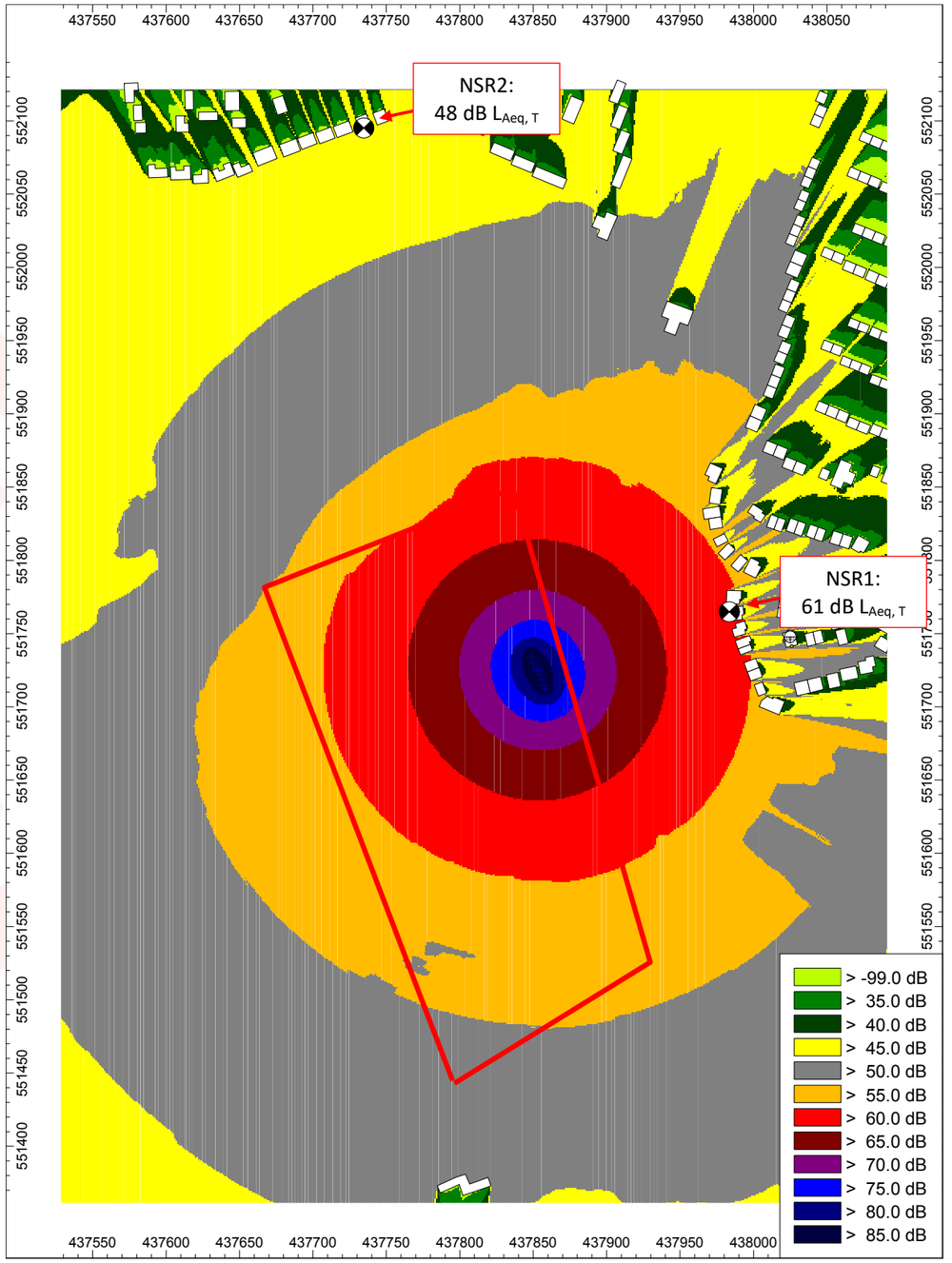

Figure 3: Calculated $L_{Aeq, T}$ noise contours at 4 m above ground for the worst-case construction scenario

Appendix 4 – Biodiversity Plan

Construction Environment Management Plan

CEMP (Biodiversity)

Chapelgarth Phase 5, Doxford Park, Sunderland

Stonebridge Homes

Report Ref. ER-6781-05

Report Reference:	ER-6781-05 CEMP (Biodiversity)
Written by:	David Lovett MBiolSci (Hons) ACIEEM Ecologist
Technical review:	Micah Duckworth BA MSC MCIEMM CSJK Biodiversity Manager
QA	Jon Roberts BSc Biodiversity Technician
Approved for issue:	Christopher Shaw BSc (Hons) MCIEEM Principal Ecologist
Date:	27.11.2023

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Introduction

This document is produced to show how the proposed development can be built out without impacting on important ecological features.

This document is produced with reference to British Standard 42020 Clause 10.2 Construction Environment Management Plan (CEMP).

The purpose of a CEMP (Biodiversity) is to identify risks to biodiversity during the construction phase, evaluate the level of risk, and supply methods for the management of these.

It is produced to aid in the discharge of a Planning Consultation Response, received from the Sunderland City Council ecology team:

> No development shall take place (including demolition, ground works, vegetation clearance) until a construction environmental management plan (CEMP: Biodiversity) has been submitted to and approved in writing by the local planning authority. The CEMP (Biodiversity) shall include the following.
>
> a. Risk assessment of potentially damaging construction activities.
>
> b. Identification of "biodiversity protection zones".
>
> c. Practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts during construction (may be provided as a set of method statements).
>
> d. The location and timing of sensitive works to avoid harm to biodiversity features.
>
> e. The times during construction when specialist ecologists need to be present on site to oversee works.
>
> f. Responsible persons and lines of communication.
>
> g. The role and responsibilities on site of an ecological clerk of works (ECoW) or similarly competent person.
>
> h. Use of protective fences, exclusion barriers and warning signs.
>
> The approved CEMP shall be adhered to and implemented throughout the construction period strictly in accordance with the approved details.

In producing this plan, the following information sources are referred to:

- Brooks Ecological Preliminary Ecological Appraisal Chapelgarth, Doxford Park, Sunderland ER-6781-01A. May 2023.
- Brooks Ecological Bat Activity Survey Chapelgarth Phase 5, Doxford Park, Sunderland ER-6781-03. November 2023.

The key recommendations from Brooks Ecological's PEA are summarised below.

A Construction Environmental Management Plan (CEMP: Biodiversity) should be produced, detailing:

- How construction activities will be carried out in a way which minimizes impacts on adjacent habitats.
- A strategy for the site clearance which reduces the risk of disturbance or destruction of bird nests.

The report also details the need for pre-construction badger survey, recognising that the Site is bordered to the north, east, and south by suitable badger habitat.

Responsible Persons & Lines of Communication

An Ecological Clerk of Works (ECoW) will be appointed by Stonebridge Homes prior to any activity commencing on-Site.

Stonebridge Homes will formalise lines of communication with the ECoW, establishing who within their operation is responsible for actions on-Site prior to any work commencing. These links will be maintained until such a time as a Site Manager is appointed and assumes this responsibility.

Stonebridge Homes is responsible for maintenance of protection and exclusion fencing. The ECoW will check fencing on each visit and immediately bring issues to the attention of the Project Manager or Site Manager.

Stonebridge Homes is responsible for compliance with regulations, legal consents, planning conditions, environmental procedures, and contractual agreements, and the issuing of periodic reports on success and compliance. These periodic reports will feedback into the CEMP for the subsequent phase/s, and Stonebridge Homes will ensure the results of this review are effectively communicated to on-Site staff.

The Role of an Ecological Clerk of Works

The ECoW will be a suitably trained and experienced professional ecologist who is a member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

The ECoW will carry out all ecological surveys and watching briefs.

The ECoW will deliver a toolbox talk to Site workers prior to any clearance commencing.

The ECoW will make periodic monitoring visits to check the integrity of any fencing and monitor site activities (pollution control). On each visit to the Site, the ECoW will monitor the activities and assess for compliance with this CEMP (Biodiversity).

A Site Inspection Certificate will be issued to Stonebridge Homes following this with any recommendations highlighted. Stonebridge Homes will take all measures necessary to comply with the recommendations. ECoW visits will be carried out according to Site conditions. The Site Manager will call the ECoW to site as soon as any of the following emergency events occur:

<u>Encountering protected species</u>

Should any protected species (or nesting birds) be encountered during any phase, the ECoW will be consulted. Any advice provided to ensure that wildlife offences are not committed will be followed. This could include curtailing works in part or all the Site until appropriate species mitigation, licensing, or agreed avoidance measures can be secured.

<u>Damage to retained habitats</u>

The Site manager will follow the advice of the ECoW to ensure that the careful like-for-like restoration of habitats damaged is enacted in the first available season. This may include replanting, re-seeding, and appropriate establishment management.

<u>Spillage of chemicals</u>

The Site Manager will follow the CEMS produced for the Site.

Figure 1 Landscape plan.

Constraints

A Preliminary Ecological Appraisal Report, undertaken in May 2023 by Brooks Ecological, assessed the Site as containing few ecological constraints. The walkover survey, undertaken during the optimal period, found the Site to contain only a limited range of common low-value habitats, including recently created landscaping areas, part of the wider Chapelgarth development.

This report concluded that seasonal bat activity survey should be carried out at the appropriate time of year to confirm assumptions made regarding bat activity at the Site.

Standard precaution was recommended within regard to nesting birds during initial Site preparation and protection of retained boundary habitats (hedgerows and woodland), as per best practice.

Blakeney Wood is present to the north and east of the Site, with another unnamed wood to the south. There is potential for both to be adversely impacted by development activities.

Table 1 Ecological constraints

Habitat/Feature	Protected/Notable species
Woodland (off-Site)	Badgers
Hedgerows (off-Site)	Nesting birds
Grassland (on-Site)	Bats
Lighting (on- and off-Site)	

Impacts

Impacts on biodiversity features and associated fauna fall into the following broad categories:

- Vegetation clearance
- Soil stripping
- Re-spreading soil and stored materials
- Noise generation and disturbance

Construction Stages

i) Site clearance and soil stripping

Trees and woody vegetation are usually removed by a forestry or arboricultural contractor using either a large driven mulching machine which chops arisings and incorporates with the soil, or locally by hand machinery with material being chipped and spread, piled, or removed.

Large excavators scrape back soil to create clear development platforms. Topsoil is taken by dumper to soil stores on-Site, where it can be left for many months before being reused on-Site.

Boundary hedgerows (north)

This phase presents the greatest risk to nesting birds and the health of retained hedgerows and trees.

ii) Installing drainage

Creating drainage will require localised vegetation clearance away from the development platforms. Machinery will excavate trenches for pipes and the trenches will be backfilled and seeded. This process is anticipated to be completed within one month of commencing.

iii) Installing roads and sewers

This is normally completed by a contractor digging into the cleared development platforms as the first construction activity.

iv) Building out cleared plots

Creation of show home/s, then phased construction of plots according to market demand in approximately 2-3 years.

Typical activities which require Ecological Clerk of Works (ECoW) overseeing are likely to include clearing any remaining bird nesting habitat, and clearance of soil stores (which could have been used by fauna such as badger/fox).

Risk Assessment of Potentially Damaging Development

Low Risk

Interfering with a badger sett contrary to the Protection of Badgers Act (1992)

Although no evidence of badger setts was found by Brooks Ecological in their surveys to support the planning application, it was recognised that adjacent areas provide suitable habitat for this species. Badgers are a mobile species and can move into an area in a short period of time, so a pre-clearance survey was recommended.

Control 1: Survey and supervision

Survey: Prior to Site clearance work commencing, the area identified opposite will be subject to a badger survey. If a badger sett is found it will be marked out on the ground by the ECoW using temporary barrier fencing and pins, and notices will be erected advising of a No Works Area.

Stonebridge Homes will follow all advice supplied by the ECoW in terms of the need for and approaches to licensing or supervision of works in proximity to any identified sett.

Supervision: In areas where vegetation is too dense to allow the ECoW to conclude likely absence of a sett, the ECoW will supervise vegetation clearance.

Only handheld brush cutters will be used in these areas.

The ECoW will direct cutting until such a time that they are happy that no badger sett is present.

Risk Assessment of Potentially Damaging Development

Moderate Risk

Destroying bird nests

Works which require the removal of trees and scrub, and rough grassland, present a moderate risk of affecting nesting birds contrary to the Wildlife and Countryside Act (1981). The whole Site has potential for nesting birds to be present.

Control 2: Timing and Survey

The Site will be cleared in the period September-February, which is outside of the bird nesting season.

Control 3: Survey

Where this is not possible, or sections have been missed and need to be cleared in the period March-August inclusive, the ECoW will carry out nesting surveys of the vegetation to be affected. The area shaded red opposite is subject to this control.

If nests are found these will be demarcated on the ground and works will avoid them until birds have fledged or abandoned the nest. An ecologist inspection report will be produced before works continue.

In areas where vegetation is too dense to allow the ECoW to conclude likely absence of a nest, the ECoW will supervise vegetation clearance. Only handheld brush cutters will be used in these areas. The ECoW will direct cutting until such a time that they are happy that no nests are present.

Risk Assessment of Potentially Damaging Development

High Risk

Unnecessary damage to Retained Habitats (Biodiversity Protection Zone)

Without protection in place, construction works pose a high risk of affecting retained and adjacent habitats. The areas of grassland and individual trees present within the Site, as well as adjacent hedgerows and woodland, constitute a Biodiversity Protection Zone that requires protection throughout the constructions phase.

Control 4: Fencing

Fencing according to the Site's Tree Protection Plan will be followed. The figure opposite is based on Drawing AIA TPP Revision C produced by AllAboutTrees Ltd.

Fencing will be installed prior to Site clearance, following the plan in the Arboricultural Impact Assessment.

Fencing position will be checked by the ECoW prior to Site soil stripping.

Risk Assessment of Potentially Damaging Development

Moderate Risk

Pollution from airborne dust and particulates

Site operations risk spreading airborne dust and other pollutants into retained and marginal habitats.

Control 5: Dust management

The Site will be kept clean and tidy at all times and will accord with any statutory requirements. Dust suppression measures will be employed as and when required, and particularly during dry spells of weather, as set out below:

1. Haul roads, hardcore areas, and unsurfaced areas will be continually monitored and damped down/sprayed as required using a towed bowser fitted with a spray mechanism to prevent dust becoming airborne.
2. Vehicle wheels will be checked for cleanliness prior to exiting the Site, with wheel cleaning facilities deployed at the exit to ensure no debris migrates on to the public highway.
3. Vehicles delivering and removing materials of a dusty nature will be sheeted over.
4. All cutting equipment will use water as a suppressant where possible.
5. Fine material are to be stored in enclosures/delivered in a contained form.
6. Vehicles on-Site awaiting entry must not be left idling; engines are to be turned off.
7. Site Roads to be regularly brushed and/or damped down to minimise dust.
8. No burning will be allowed on-Site at any time.
9. External Carpark Areas and Concrete Yards, where possible, will be surfaced as early as possible.
10. Weather forecasts to be continually reviewed by Site Management. Potentially affected works are planned accordingly or delayed to avoid environmental issues. Consideration will be made on the likely seasonal conditions which will change as the project progresses.

Risk Assessment of Potentially Damaging Development

Moderate Risk

Disturbance to Nocturnal Fauna

Without precautionary controls in place, artificial lighting used during works poses a moderate risk of causing disturbance to bats and other nocturnal animals which are present in peripheral off-Site habitat areas. In particular, woodland edges and a hedgerow to the north, east, and south, are of value to bat species as foraging and commuting areas. Adverse lighting could reduce the value of these habitats to bats and other species.

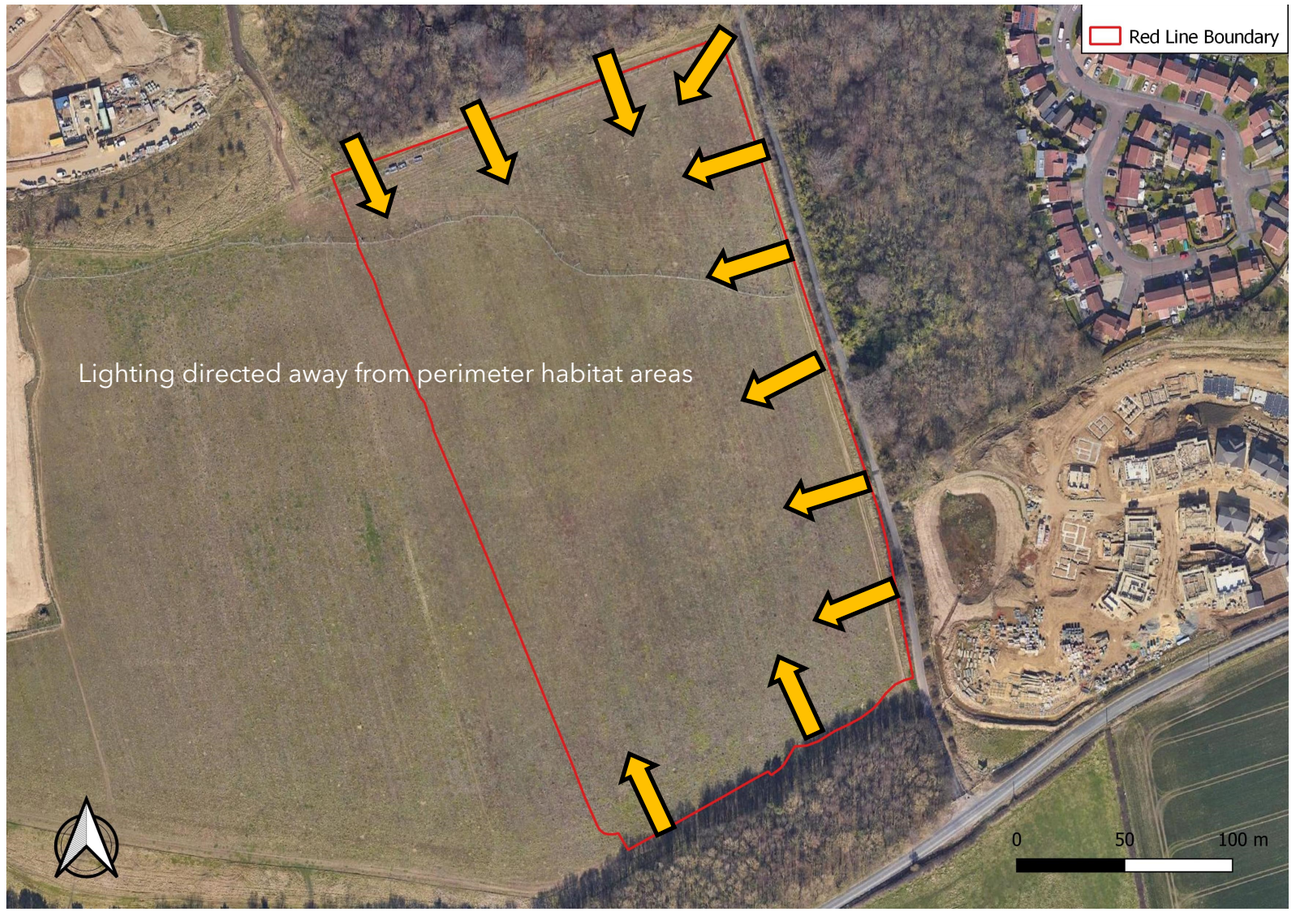
Control 6: Lighting plan

A strategic plan to control artificial lighting will provide measures to remove light spill into the zones indicated in the plan right, and maintain these as protected dark zones. Lighting can be controlled through a variety of mechanisms which control the location, height, direction, intensity, duration, frequency, and beam of light sources.

If the Site is to be trafficked at night or used for operations such as welding at night, perimeter fencing adjacent to the dark zone should incorporate light screening material construction to prevent headlight illumination, or arc lighting.

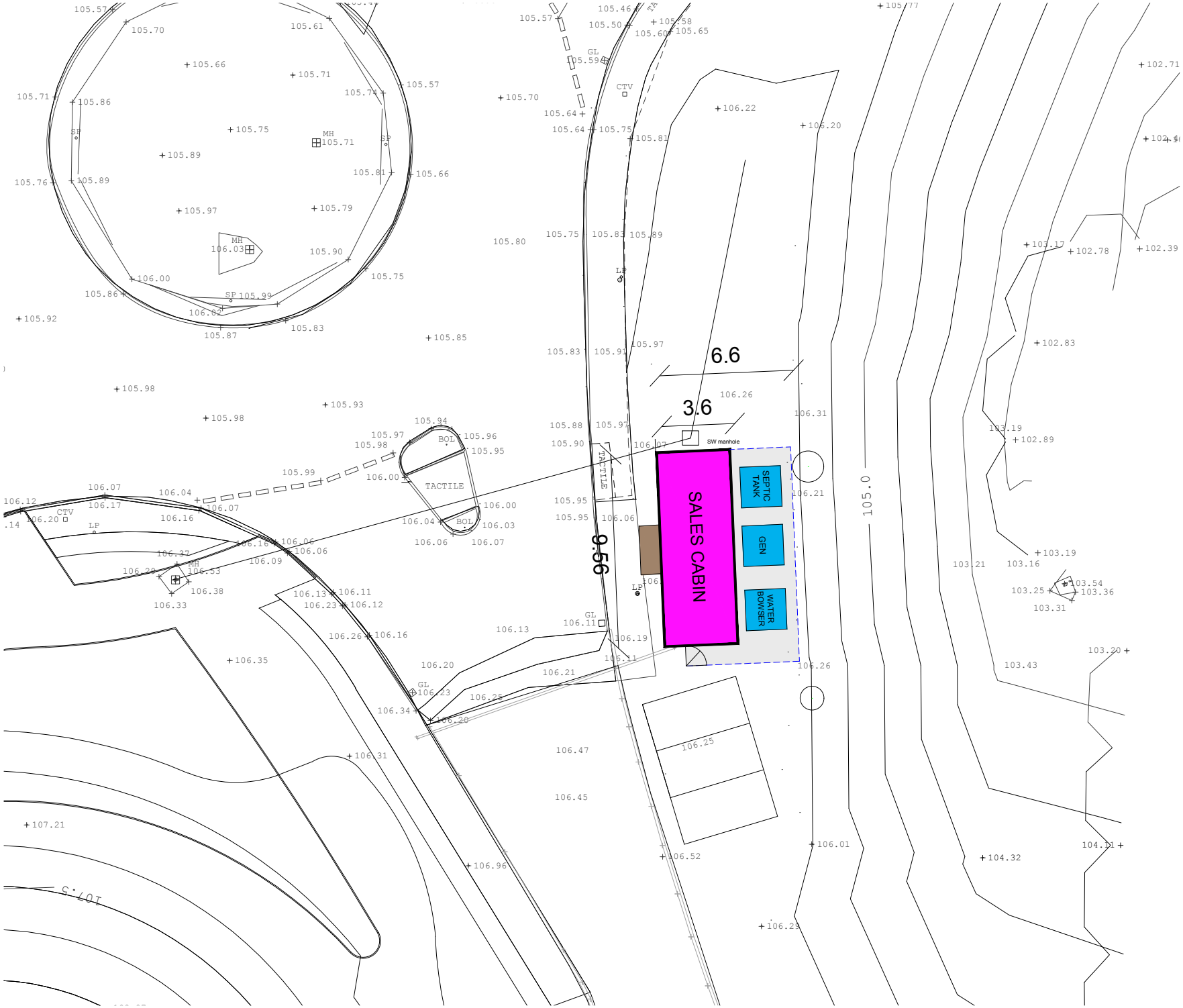
On-Site construction lighting to be directed away from the protected dark zones throughout the construction phase through considered placement of lighting towers and use of directional lighting baffles.

The Site's Lighting Strategy will demonstrate the avoidance of impacts to these areas during operation, as seen in the figure opposite.



Illustrative example of directed lighting.

Appendix 5 – Temporary Sales Cabin



REGENCY PLACE, CHAPELGARTH (TEMP SALES CABIN)

Issue	Date	Detail

Scale (A4 Sheet): 1:250	Drawn By: CO
Date 19.01.2024	Drawing Number: RP-TEMP SALES AREA

Project:
REGENCY PLACE, CHAPELGARTH

Drawing:
TEMP SALES AREA LAYOUT

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