

**Outline method statement for undertaking boundary ground gas monitoring in the western area of built development at Nutfield Green Park using continuous gas monitoring systems**

**Introduction**

- S1.1.** An outline planning application for the proposed development of Nutfield Green Park for residential and commercial land use was submitted to Tandridge District Council in October 2023 (planning application reference 2023/1281). A technical report entitled “A site investigation of land at the former Laporte Works site at Nutfield Green Park, Nutfield Road, Nutfield, Surrey” reference HGH/NU/JRC/20064/01F was provided as part of the submission of information to support the application. The 2023 site investigation report provided preliminary information on the ground conditions at the site. The report concluded that the site investigations have not identified any significant contamination in the area of proposed residential and commercial development which it is considered cannot be remediated as part of the development. As is the accepted normal practice for developing sites with historical industrial uses further site investigation work will be carried out pursuant to planning conditions and a remediation strategy, to the extent that it is necessary, would be put in place to achieve ground conditions and a development which is protective of human health and the environment in accordance with appropriate standards.
- S1.2.** The 2023 site investigation report considered the potential of ground gas migration at the site. The Gore Meadow/North Cockley Landfill is nearby to the western area of the site and is evidenced to produce high concentrations of methane and carbon dioxide albeit with low gas flow rates recorded. The elevation of the landfill makes it unlikely for a significant pathway for gas to migrate onto areas of proposed built development at the site. A copy of the cross sections (Figure 8 – drawing reference HGH/NU/05-23/23740) presented in the 2023 site investigation report are provided at Annex A to the method statement for ease of reference together with a plan showing the locations of the lines of section (Figure 4 – drawing reference HGH/NU/04-23/23672). Cross sections A, B and C are through the western area of the site the subject of this method statement. Gas monitoring works undertaken at the site show that where methane and carbon dioxide were recorded they were at low concentrations generally across the site including at the boundary next to the

landfill. While it is concluded that precautionary gas protection measures should be incorporated into building design in proximity to the Gore Meadow/North Cockley Landfill it is also stated that the detailed design should be informed by further monitoring.

- S1.3.** It is concluded in the 2023 site investigation report that further gas monitoring will be needed at the site to confirm ground gas conditions in the vicinity of the historical landfill to the north and west of the western area of the site to help inform the suitable design of gas mitigation measures as part of the engineering design and construction of buildings which may be close to the historical landfill site.
- S1.4.** This method statement provides an outline of the further gas monitoring that should be used to determine, if necessary, gas protection measures that should be incorporated into building design in proximity to the Gore Meadow/North Cockley Landfill. The method statement has been prepared in discussion with the pollution control officer at Tandridge District Council. The works outlined in the method statement will comprise part of the further site investigation works pursuant to planning conditions to confirm ground conditions and to inform a design for the development which is protective of human health and the environment in accordance with appropriate standards.

#### **Outline method statement**

- S1.5.** It is proposed that ground gas monitoring is carried out in the existing and proposed monitoring boreholes round the northern and western limits of the western area of Nutfield Green Park between the proposed built development and Gore Meadow/North Cockley Landfill. The existing monitoring boreholes comprise BH1006 and BH1009 in the north with proposed monitoring boreholes BH2017 and BH2018 in the west of the western area of Nutfield Green Park. In addition, it is proposed that ground gas monitoring is carried out in existing monitoring borehole BH1001 in the south west of the western area of Nutfield Green Park between the proposed built development and the historical Nutfield Priory Landfill Site located approximately 10m from the south western boundary of the site on the opposite side of Nutfield Road (A25) from the site. Proposed monitoring boreholes BH2017 and BH2018 will be drilled and installed with monitoring facilities at a maximum depth of 5m. The proposed ground gas monitoring locations are listed in Table 1 below. The

locations of the existing and proposed monitoring boreholes are shown on Figure 1 (drawing reference HGH/NU/02-24/24240).

**Table 1 – Proposed ground gas monitoring locations**

<b>Borehole</b>	<b>Location</b>
<b>Existing monitoring borehole</b>	
BH1001	In the south west of the western area of the site between the proposed built development and the historical Nutfield Priory Landfill Site to the south west.
BH1006	In the north of the western area of the site between the proposed built development and Gore Meadow/North Cockley Landfill
BH1009	
<b>Proposed monitoring borehole</b>	
BH2017	In the west of the western area of the site between the proposed built development and Gore Meadow/North Cockley Landfill
BH2018	

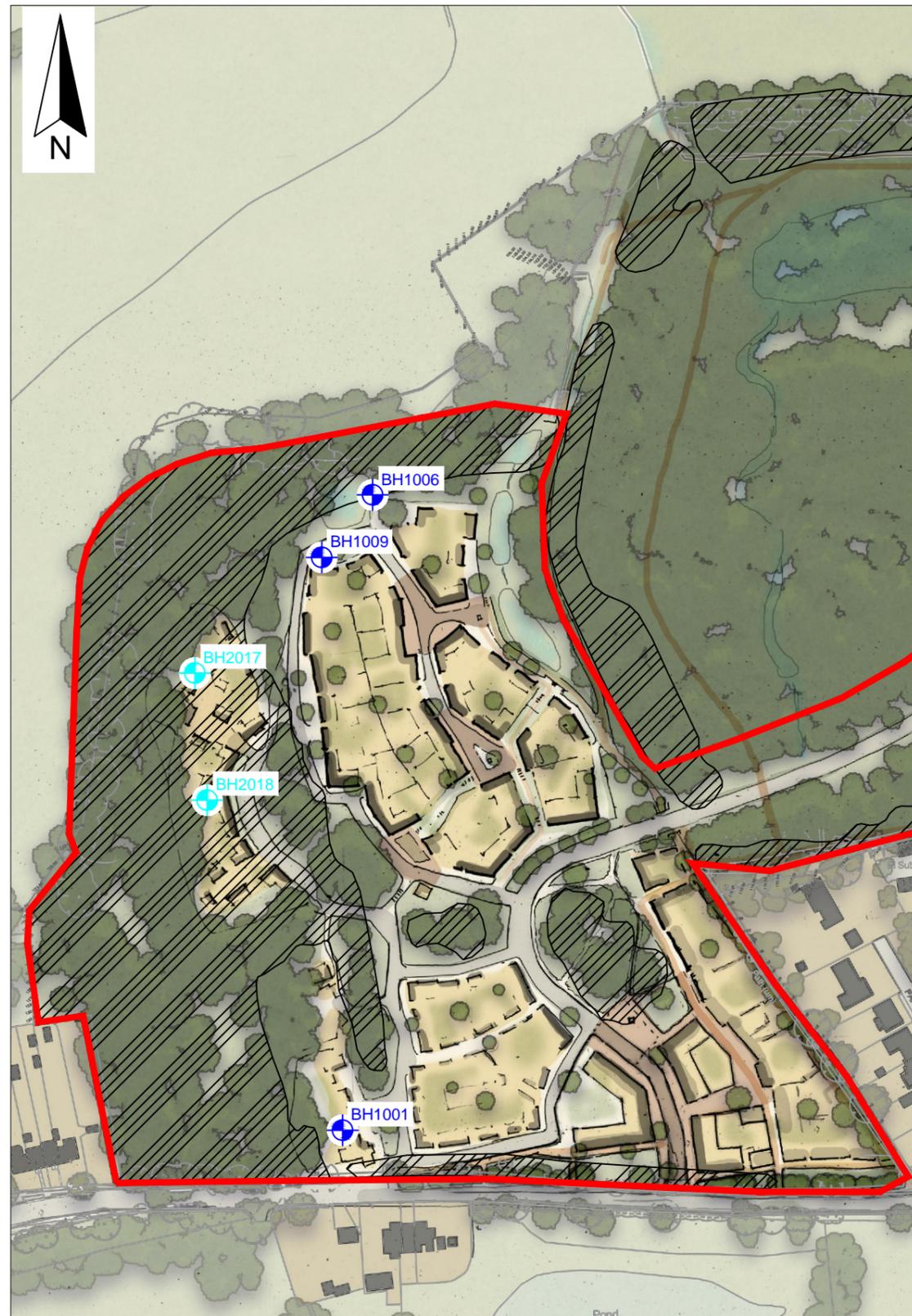
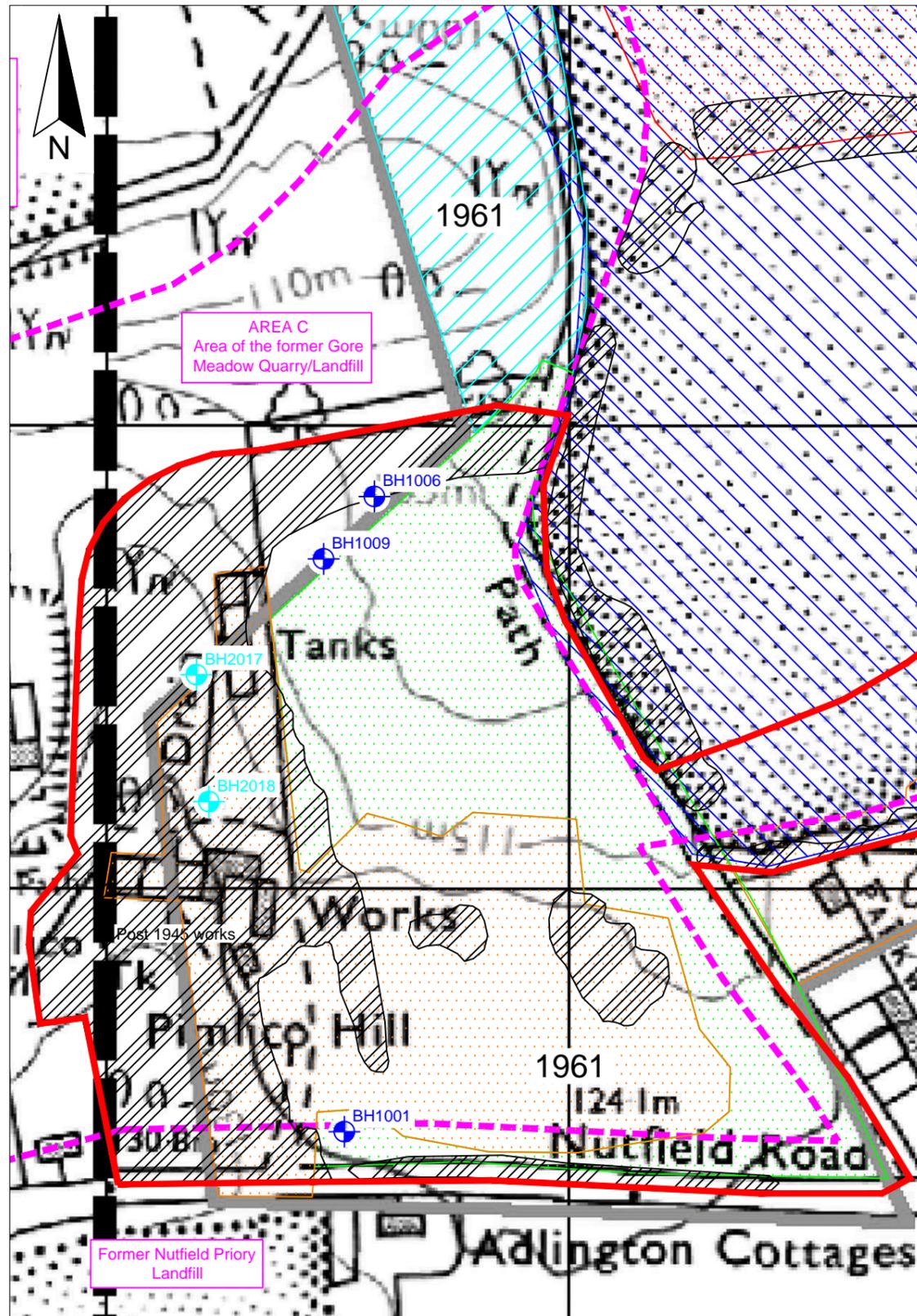
**S1.6.** Consistent with guidance on ground gas monitoring <sup>1</sup>, it is proposed that continuous gas monitoring systems are installed in the boreholes. Consistent with guidance it is proposed that the concentrations of ground gas are monitored in the boreholes together with gas flow and atmospheric pressure for a period of at least eight weeks such that a minimum of two cycles of appropriate changing atmospheric conditions are monitored. It is proposed that, if the continuous gas monitoring includes a telemetry system, the monitoring period may be reduced provided a minimum of two cycles of appropriate changing atmospheric conditions have been monitored.

**Further work**

**S1.7.** The results of the continuous gas monitoring will be used to confirm ground gas conditions in the vicinity of the historical landfills to the north, west and south west of the western area of the site. The results will be used to determine, if necessary, the suitable design of gas mitigation measures as part of the engineering design and construction of buildings which may be close to the historical landfill sites.

<sup>1</sup> Contaminated Land: Applications in Real Environments (CL:AIRE), 2019. Continuous Ground Gas Monitoring and the Lines of Evidence Approach to Risk Assessment. Copyright CL:AIRE, GGS Limited and AGB Card & Partners. Reference TB 18, January 2019.

FIGURE



### Key / Notes

- Approximate boundary of the 2023 site investigation works
- Approximate areas of the parcels of land referred to in the 2013 site investigation reports
- Undisturbed areas
- Areas of industrial works
- Area of excavation or possible excavation works
- EA historic landfill
- Local Authority recorded landfill site
- Potentially infilled land (non-water)
- 1961 Estimated date of infilling
- 1914 works Estimated date of works
- Environmental constraints
- BH1008 Approximate location of a monitoring borehole drilled in 2003
- BH2017 Approximate location of a proposed monitoring borehole

Notes:  
 Base maps 1:10,000 scale 1970 to 1979.  
 Envirocheck report 225041022\_1\_1 dated 14 November 2019 and Adam Architecture drawing reference SK 23 dated October 2023.

The grey boundary is the boundary recorded on the historical map search and does not depict the site boundary.

Rev	Status	Drn	App	Chk	Date
	Final	KR	JCO	CJG	02/04/24

Site  
**NUTFIELD GREEN PARK**  
 Client  
 Nutfield Park (Developments) Ltd  
 Title  
 Proposed gas monitoring locations

Figure 1 Scale 1:2,500@A3

Drawing Ref  
**HGH/NU/02-24/24240**  
 Reproduced scale mapping by permission of Ordnance Survey on behalf of The Controller of His Majesty's Stationery Office. © Crown copyright 2023. All rights reserved Licence number 100017818.

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**ANNEX A**

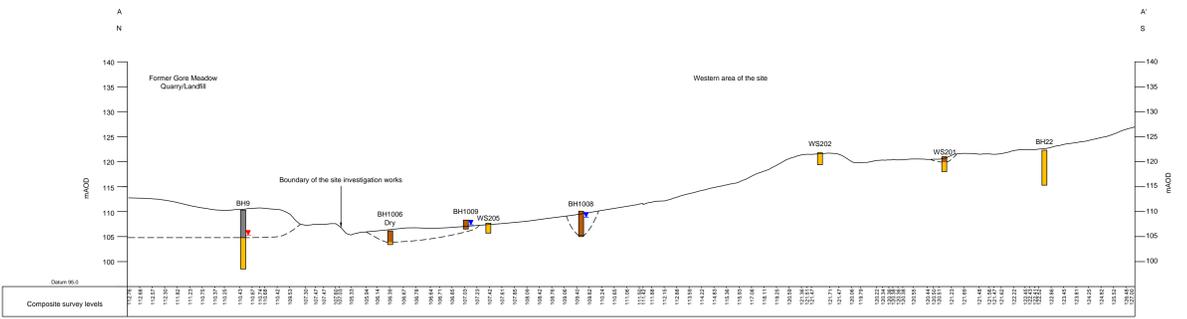
**COPY OF FIGURE 4 (DRAWING REFERENCE HGH/NU/04-23/23672) AND FIGURE 8  
(DRAWING REFERENCE HGH/NU/05-23/23740) OF THE 2023 SITE INVESTIGATION  
REPORT**



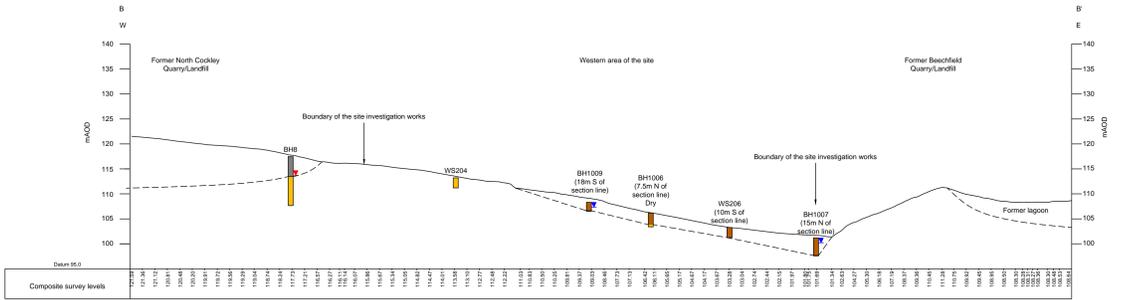
**Key / Notes**

- Soils
- Landfill waste
- Made ground
- Natural ground
- Inferred boundary between made ground and natural ground
- Leachate level recorded in April 2023 (BH8 recorded in June 2023 as could not be located in April 2023)
- Water level recorded in April 2023 (BH45 recorded in June 2023 as inaccessible in April 2023)

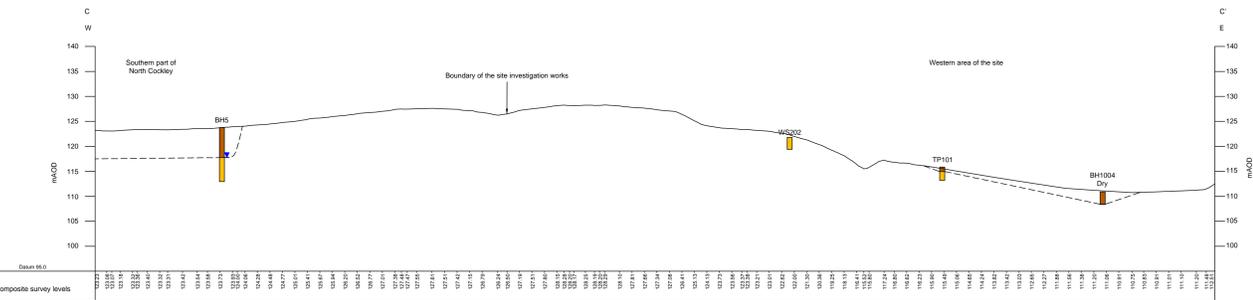
**Section A-A'**



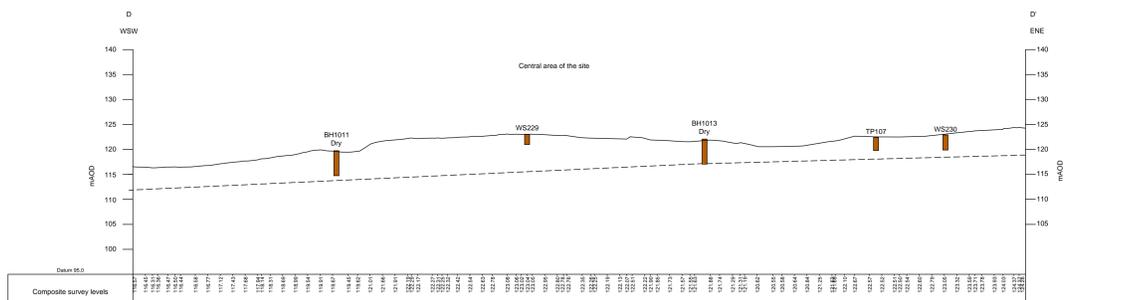
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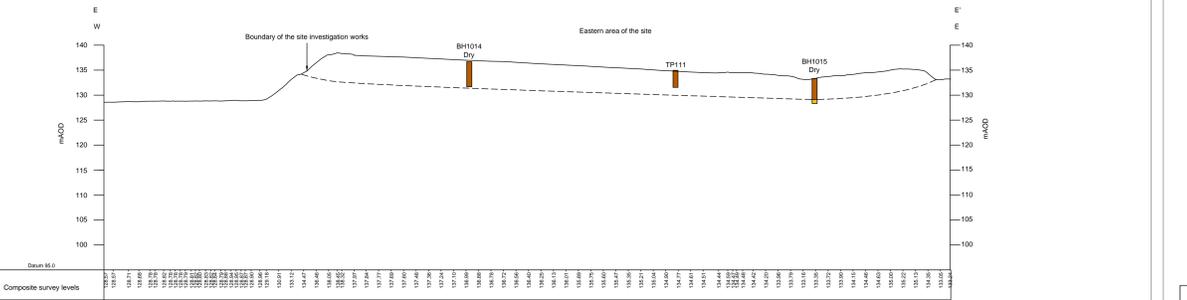
**Section C-C'**



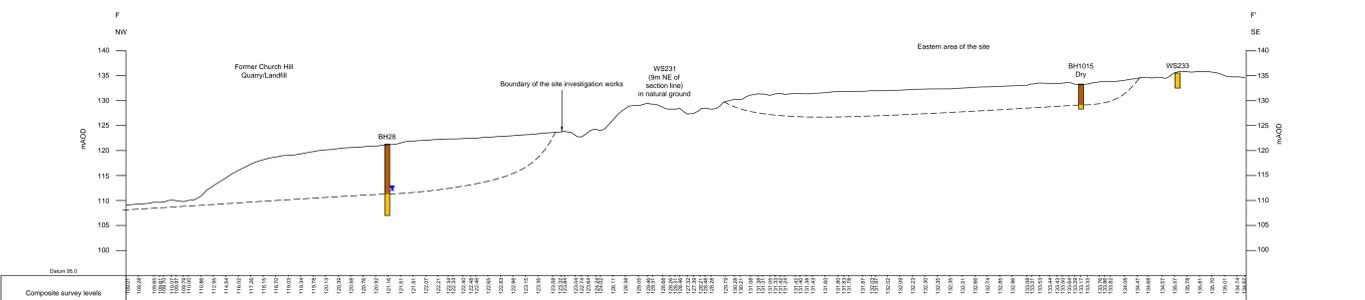
**Section D-D'**



**Section E-E'**



**Section F-F'**



Notes:  
 Based on LSS model reference NGP-NU-15593.LSS  
 Location of cross sections shown on drawing reference HQH/NU04-23/2672

Final	KR	JCC/JRC	10/10/23
Status	Dr	App/Chk	Date

Site:  
 NUTFIELD GREEN PARK  
 Nutfield Park (Developments) Limited  
 Schematic cross sections through the site

Figure 8  
 Scale: 1:1,000  
 1,500m (BA0)

Drawn by:  
 HQH/NU05-23/2740

MICA  
 Technical services for environmental teams