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**VISTRY MERSEYSIDE AND CHESHIRE WEST
ON BEHALF OF NUVU DEVELOPMENT LIMITED**

SUPPLEMENTARY MINE WORKINGS AND MINE SHAFT TREATMENT REPORT

MAY 2025

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**VISTRY MERSEYSIDE AND CHESHIRE WEST
ON BEHALF OF NUVU DEVELOPMENT LIMITED**

SUPPLEMENTARY MINE WORKINGS AND MINE SHAFT TREATMENT REPORT

MAY 2025

PREPARED BY:

Shannon Connell Geologist



REVIEWED AND APPROVED BY:

Douglas Brownjohn Technical Director



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DRAWINGS	TITLE	SCALE
GM13232-012	As Built Drilling & Grouting Layout	A0 @ 1:500
GM13232-013	As Built Drilling & Grouting Layout	A3 @ 1:200
GM13232-014	As Built Drilling & Grouting Layout	A3 @ 1:200
GM11373-010	Shaft Cap Design for Shaft 347390-002	NTS
GM11373-012	General Arrangement & Reinforcement Details for Shaft Cap (Shaft UR M/S 5 [M7])	NTS
GM11373-015	Shaft Cap Design for Shaft UR M/S 17 (AA5)	NTS
GM11373-016	General Arrangement & Reinforcement Details for Shaft Cap (Shaft UR M/S 18 [AK 47])	NTS

1 INTRODUCTION

1.1 Instruction

- 1.1.1 Wardell Armstrong LLP (WA) were commissioned by Vistry Mersyside and Cheshire West (Vistry), on behalf of Nuvu Development Limited, (the Client) to design, supervise, and report on the investigation and treatment of shallow abandoned coal mine workings on the Halsnead Garden Village site (hereafter referred to as “the Site”). Additionally, WA were requested to supervise the capping of four mine entries within the Phase 1 area of the Site and searching for one mine entry.
- 1.1.2 The Site is located off Lickers Lane, Whiston, L35 3PW (National Grid Reference for area entrance: SJ 47364 90558) and comprises one parcel of land which is bordered by Lickers Lane to the north, and pastoral land to the east, south, and west. The Phase 1 area of the Site is indicated on WA Drawing Number GM13232-012.

1.2 Background

- 1.2.1 Desk based research indicated that the Site consists of superficial glacial deposits which overlay a bedrock composed of the Pennine Middle Coal Measures (MCM) formation. The MCM within the Site were indicated to contain four coal seams (Yard Mine, Earthy Delph, Upper Florida and Lower Florida) that subcrop directly beneath the Site.
- 1.2.2 Desk based research indicated the primary method of mineral extraction within the Site area was by pillar and room methods. Boreholes drilled during previous coal prospecting indicated the presence of a number of historic mine workings directly beneath the Site. The findings of the investigations concluded that there was a strong potential for shallow mine workings to be present within all of the seams beneath the Site, and that the workings posed a significant risk to ground stability within the Site area.
- 1.2.3 The findings of the desk based research concluded that there was a potential for shallow mine workings to be present within the Fiery Mine, Yard Mine, Earthy Delph, Upper Florida and Lower Florida coal seams, and recommendations were made to conduct treatment work to consolidate any workings found beneath the proposed building plots by a process of rotary drilling and pressure grouting.
- 1.2.4 The majority of the Site has previously been treated by drilling and pressure grouting in 2022, and these works are reported on within the ‘Mine Workings and Mine Shaft

Treatment Report' (Ref: GM11373-002 V2.0) dated 07 November 2023, prepared by WA. Due to access limitations and changes to the proposed housing layout two small areas of the site, as identified on Drawings GM13232-012, GM13232-013 and GM13232-014, were not able to be treated in 2022. Shaft 347390-005 was only partially searched for in 2022 due to the presence of overhead cables. Treatment of the two small areas of the site, and completion of the search area for shaft 347390-005 was therefore undertaken in 2025, and the works undertaken are detailed within this supplementary report.

- 1.2.5 In addition, four mineshafts within the Phase 1 area of the site, MS 347390-002, UR M/S 5 (M7), UR M/S 17 (AA5), and UR M/S 18 (AK47) were previously located and treated by drilling and pressure grouting in 2022. However, at that stage they were not capped with reinforced concrete, and the capping of these four shafts was undertaken in 2025. The capping works to these four mine shafts are also detailed within this supplementary report.

1.3 Scope of Works

- 1.3.1 The WA 'Mine Workings and Mine Shaft Treatment Report', dated November 2023, summarises the mine workings drilling and pressure grouting works, together with the drilling and pressure grouting of located mine entries, that previously took place on site in 2022. This report covers a supplementary set of drilling and grouting works that were completed in areas of the Site that were either earlier inaccessible in 2022 or are additional due to layout changes; these areas are displayed on Drawing Number's GM13232-013 and GM13232-014, together with the capping works to four shafts within the Phase 1 area of the site.
- 1.3.2 The mine workings treatment works comprised the drilling of rotary boreholes on a 6.0m centred (4.24m) grid beneath the proposed development (buildings and roadways) to locate the presence of the shallow coal seams and the pressure grouting of any associated voids and broken ground.
- 1.3.3 Completion of the search area for mine shaft 347390-005 was undertaken using a long reach excavator to strip the surface deposits and expose natural superficial deposits. A visual inspection of the stripped area was then undertaken to determine the presence of any mine entry feature.
- 1.3.4 During drilling of the treatment grid boreholes, two unrecorded features were encountered, both of which were considered to be shafts. These features were probed on a 1.0m grid to delineate their extent and pressure grouted in stages, from their bases, to fill the associated voids and broken ground.
- 1.3.5 The drilling and pressure grouting work, for both the mine workings and the mine shafts, was undertaken by M&J Drilling between 03 February 2025 and 05 March 2025. The work was supervised on a full-time basis by WA and was carried out under Permits (Reference No: 28333 and 29640.2) issued by The Mining Remediation Authority (attached at Appendix A), which granted Vistry permission to carry out the treatment of shallow mine workings by drilling and pressure grouting, and treatment of the two unrecorded mine entries by drilling and pressure grouting.
- 1.3.6 The four mine shafts that were found on site during the previous drilling and grouting works were capped by reinforced concrete to a design prepared by WA and approved by the Mining Remediation Authority (previously known as the Coal Authority). The cap details for each of the shafts are attached as Appendix B, and the capping works were undertaken by M V Kelly, and supervised by WA, under Permit No. 28333.

-
- 1.3.7 Completion of the search for mine shaft 347390-005 was undertaken by WA, utilising an excavator supplied by M V Kelly, under Permit No. 28333.
- 1.3.8 This report describes the treatment work carried out to locate and consolidate the zones of potential instability associated with coal seams and the unrecorded mine shafts beneath the site, the searching for mine shaft 347390-005, and the capping of the four mine shafts.

2 SITE LOCATION AND DESCRIPTION

2.1 Site Location and Description

2.1.1 The Site is located on land off Lickers Lane, Whiston approximately 1.0km to the south of Whiston centre. The Site area covers approximately 23 acres, is generally linear in shape, and is bordered to the north by Lickers Lane and to the east, south and west by pastoral land (as shown on Drawing No. GM13232-012).

2.2 Geology

2.2.1 The following summary of the geological conditions present beneath the Site have been obtained from BGS data, Coal Commission plans, county geology sheets and abandonment plans.

Superficial Geology

2.2.2 The published geology indicates that the Site is underlain by Devensian Glacial Till. Superficial deposits of boulder clay were encountered during drilling.

Solid Geology

2.2.3 The solid geology encountered comprised of the Pennine Middle Coal Measures consisting of interbedded mudstone, sandstone, and coal. Solid geology was generally encountered at depths greater than 3mbgl.

2.2.4 Brief descriptions of the solid geology encountered based on flush returns and drill depths are as follows:

- Mudstone – generally observed as grey to black.
- Sandstone – Generally observed as a yellow sand.
- Coal seams – Five coal seams are generally observed across the site area, all separated by a locally expansive mudstone. All the seams are observed as dark black in colour, ranging in thickness between 0.5m to 2.8m at varying depths.

3 DESIGN

3.1 Methodology

- 3.1.1 The works were carried out in accordance with WA's Specification entitled 'Mine Working Stabilisation Specification' for the drilling and grouting of abandoned mine workings and shafts based on principles developed over a number of years including guidance detailed within The Construction Industry Research and Information Association (CIRIA) Publication C758D "Abandoned Mine Workings Manual".
- 3.1.2 The general procedure to investigate and treat loose ground, potential cavities, and broken ground associated with mine workings within the coal seams involves drilling boreholes on a regular grid pattern (6.0m centred (4.24m)) to such depths that they intersect the cavity, broken ground, or coal seams in accordance with the 'Mine Working Stabilisation Specification' attached at Appendix B. The originally proposed grid and borehole layouts are indicated on Drawing No. GM13232-013 and GM13232-014.
- 3.1.3 A grout consisting Pulverised Fuel Ash (PFA), Ordinary Portland Cement (OPC) with or without sand is then injected into the boreholes to infill any cavities or broken ground. The sequence of operations, the drilling depth, pattern, and grouting of the boreholes were instructed and supervised by WA.
- 3.1.4 The design of the shaft caps was undertaken generally in accordance with guidance detailed within The Construction Industry Research and Information Association (CIRIA) Publication C758D "Abandoned Mine Workings Manual" and in accordance with BS EN 1992—1:2004+A1:2014.

3.2 Outline Drilling Procedure

Mine Workings

- 3.2.1 The aim of the investigation and stabilisation works beneath the site is to ensure that the coal seams / workings (Fiery Mine, Yard Mine, Earthy Delph, Higher and Lower Florida) and any unrecorded mine shafts that are within influencing distance of proposed properties and roads are adequately investigated and stabilised in order to reduce the risk they pose to a minimum.
- 3.2.2 The boreholes drilled to investigate and stabilise this area, including any broken / voided ground encountered comprised:

- Primary boreholes drilled on a 6.0m centred (4.24m) grid.

No secondary or tertiary treatment boreholes were required to be drilled.

3.2.3 Initially drilling works were undertaken in the pumping station area (Drawing No. GM13232-013). Borehole logs from the 2022 drilling and grouting works showed that the deepest worked coal seam in this area was recorded at depths of up to 40mbgl. On this basis, the initial investigation boreholes were drilled to a minimum of 40m. Drilling generally began in the southwest and progressed up dip to the northeast.

3.2.4 On completion of the drilling and grouting in the pumping station area, works commenced in the south of the Site nearest the caravan park (Drawing No. GM13232-014).

3.2.5 All boreholes were cased through any superficial deposits with the casing socketed into rock before drilling progressed through the solid strata.

3.2.6 Drilling in all areas was undertaken utilising both vertical and angled boreholes to reach the target locations shown on WA Drawing Number GM13232-013 and GM13232-014. Drillers logs for all the boreholes drilled are in attached at Appendix C.

Previously Located Mine Shafts

3.2.7 In order to effectively cap the previously located mineshafts 347390-002, M/S 5, M/S 17, and M/S 18, they were initially relocated by either excavation or probe holes were drilled to determine confirm their locations and sizes. Due to the inconsistency in exposed strata at shafts M/S 5, M/S 17, and M/S 18, probe drilling was undertaken on a closely spaced grid (1.0m) until 'soft' drilling below rockhead level was recorded. It is considered that this soft drilling recorded below the anticipated rockhead depth was indicative of the infilled mine entry location.

Unrecorded Mine Shafts

3.2.8 Where unrecorded mine shafts were located on the treatment grid, probe drilling was undertaken to determine the extents of the unrecorded mine shafts. Once the mine shaft locations were proven, a primary borehole was drilled down the centre of the mine shaft to its base, with 'hard' drilling indicating the solid rock strata beneath the mine shaft proven by at least 5.0m. Additional boreholes were also drilled in the mine shaft to its base to facilitate the pressure grouting of the fill materials within the mine shaft. Drillers logs for all the unrecorded shaft boreholes drilled are in attached at Appendix C.

3.3 Outline Grouting Procedure

Mine Workings

- 3.3.1 Grouting was undertaken alongside drilling works. Once a treatment borehole was drilled to depth the drill rods were removed and a 50mm plastic tremie pipe was inserted into the borehole to the depth of the coal seam or mine workings for grout injection using a 9:1 grout mix (pfa:cement). Grouting under pressure was continued via the tremie pipe until grout emerged out of the top of the casing. The tremie pipe was then withdrawn and grout injected under pressure via a T-connection pipe attached to the top of the casing to ensure sufficient grouting of the mine workings had been achieved. Upon completion, the casing was removed and the borehole topped-up with grout.
- 3.3.2 Due to the low grout takes recorded in all boreholes no secondary or tertiary treatment boreholes were required.
- 3.3.3 Grout logs for all the treatment boreholes are in attached at Appendix C.

Mine Shafts

- 3.3.4 Mine Shaft treatment used a modified approach of the grouting procedure outlined above used during the grouting of the main workings. The primary mine shaft treatment borehole was pressure grouted in 2.0 metre stages from the base of the mine shaft to the surface. The grout injected into the primary treatment borehole was then allowed to cure for a minimum of 24 hours, following which a secondary treatment borehole was drilled 0.5m away from the primary borehole. The secondary borehole was drilled and grouted using the same procedure as the primary treatment hole to test the efficacy of the primary treatment hole.
- 3.3.5 Grout logs for all the shaft boreholes drilled are in attached at Appendix C.

Testing

- 3.3.6 To ensure the quality of the grout mix being injected into the mine workings and the mine shaft met the requirements of the Specification, testing was carried out throughout the grouting works. All laboratory strength testing results are attached at Appendix D. The results of the grout testing confirm that all grout quality was generally in accordance with the requirements of the Specification.

4 TREATMENT OF MINE WORKINGS AND RESULTS OF GROUND STABILISATION

4.1 Primary Boreholes

- 4.1.1 52 primary boreholes were drilled to depths up to 47mbgl across the two areas of the site treated during 2025, with 34 drilled in the west near the pumping station and 18 drilled in the south near the caravan park, 11 of these were angled holes. The primary boreholes were drilled on a 6-metre centred (4.24m) grid with a target depth of 2.0m past the base of any suspected workings or coal seams encountered. Where angled holes were required, the offset from the primary grid was used to determine the angle to drill to reach the target depth.
- 4.1.2 A grouting mix of 9:1 (Pulverised Fuel Ash (PFA): Ordinary Portland Cement (OPC)) was utilised throughout the works.
- 4.1.3 A total of approximately 9.8 tonnes of grout was pumped into primary holes. None of the 52 holes accepted more than 5 tonnes of grout, and the drilling of secondary nor tertiary boreholes was not considered necessary as grout takes were low.

5 TREATMENT OF MINE SHAFTS

5.1 Drilling and Pressure Grouting of the Unrecorded Mine Shafts

- 5.1.1 During the drilling works, two suspected unrecorded mine shafts were encountered on the treatment grid (at positions F6 and M1 on Drawing GM13232-013). The shafts were identified by soft drilling being recorded below expected rockhead level at each location. To confirm the presence of an unrecorded mine shaft the features were further probed on a 1.0m grid to delineate their extents and subsequently treated.
- 5.1.2 A grouting mix of 9:1 (Pulverised Fuel Ash (PFA): Ordinary Portland Cement (OPC)) was used.
- 5.1.3 The treatment of these unrecorded shafts is detailed in Table 2 below:

Table 2: Summary of Unrecorded Mine Shafts Treatment			
Shaft Reference Number	Investigation/ Treatment Holes (No.)	Maximum Depth (m)	Primary Grout Take (T)
M/S 20 (F6)	2	29	2.2
M/S 19 (M1)	2	29	1.9

5.2 Capping of Previously Treated Mine Shafts

- 5.2.1 The design of the caps was undertaken in accordance with CIRIA Publication C758D “Abandoned Mine Workings Manual” and BS EN 1992—1:2004+A1:2014. The designs were submitted to and agreed with the Coal Authority prior to works being undertaken.
- 5.2.2 Capping of the shafts was subcontracted to the earthworks contractor M V Kelly and the works undertaken under Permit No. 28333. The caps were constructed in accordance with the WA cap designs shown on Drawing No’s GM11383-10 (Rev B), GM11383-012 (Rev B), GM11373-015 (Rev B) and GM11383-016 (Rev B).
- 5.2.3 Following excavation to the required capping level for each shaft, blinding concrete was poured (Gen 1) followed by the placement of the steel reinforcement cage, which was constructed to the side of the excavation and lifted in when complete. A permanent shuttering formwork was then constructed to the specified dimensions of the cap and concrete (RC40 with maximum aggregate size of 20mm) poured.

5.3 Search for Mine Shaft 347390-005

- 5.3.1 The search location of mine shaft 347390-005 has been undertaken by excavation down to natural superficial deposits to a radius of 10.0m from the 'best plot' location, as shown on Drawing No. GM13232-014. No evidence of the shaft was observed within the search area and therefore the shaft is considered not to be present within this area.

6 SUMMARY OF GROUND STABILISATION FINDINGS IN WORKINGS

6.1 Broken Ground

6.1.1 During the drilling works, voided/broken ground was recorded by the driller's logs across the site. However, due to the rotary drilling technique used (and the specific ground conditions) it can be difficult to distinguish between voided, broken ground and soft ground making it problematic to identify these features consistently. A signature of the drilling that does identify either voided, soft or broken ground is loss of the drilling flush. Within the rock strata, loss of flush occurs when the drilling flush is "lost" during drilling and the circulation flush does not return to the top of the borehole but runs into a void / broken / soft ground or a particularly permeable zone at some depth below the surface. Loss of flush generally occurs due to broken, fractured or soft ground within the borehole, which allows migration of the flush into the surrounding geology, this can indicate the presence of voids and dissolution. Loss of flush can also occur within granular superficial deposits where these have not been cased off.

6.1.2 Whilst 32 of the boreholes across the Site experienced poor coal returns, a loss of flush was only encountered in two boreholes. All loss of flush / broken ground encountered during the drilling works is detailed in the drilling logs attached at Appendix C.

6.2 Grout Takes

6.2.1 During the drilling and grouting works, grout takes on the treatment grid were all less than 1 tonne, ranging from grout takes of 0.1 tonnes to 0.5 tonnes. WA Drawing Numbers GM13232-013 and GM13232-014 show the distribution of grout takes. In general, most of the boreholes were located in areas that proved firm drilling with little to no evidence of broken ground.

6.2.2 Detailed grouting records are attached at Appendix C.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

- 7.1.1 The geology and mine workings beneath the site have been investigated in accordance with accepted practices. Broken ground attributed to legacy coal mining was encountered across the site as presented in the drilling logs attached at Appendix C.
- 7.1.2 In summary, the works involved the drilling of 52 boreholes which resulted in 1,859 metres of drilling, and 9.8 tonnes of grout injected. The ground stabilisation works were completed in accordance with the WA Specification entitled 'Mine Workings Stabilisation Specification' and all reasonable steps have been taken to protect and stabilise the ground beneath the site, as shown on WA Drawing Number GM13232-012.
- 7.1.3 It was deemed that the treatment of mine workings within this area was still sufficient as grout takes were relatively low across the Site.
- 7.1.4 Mine shafts 347390-002, M/S 5, M/S 17, and M/S 18 that were previously located and treated by pressure grouting in 2022 were capped with reinforced concrete in accordance with the WA designs.
- 7.1.5 The location of a further two unrecorded mine shafts (M/S 19 (M1) and M/S 20 (F6)) have been proven by probe drilling. These were subsequently stabilised by pressure grouting. The location of the mine shafts is shown on WA Drawing Number GM13232-013.
- 7.1.6 All works were undertaken in accordance with industry guidance (CIRIA C758) and under cover of Coal Authority Permits.

7.2 Recommendations

- 7.2.1 Due to the location of unrecorded mine shaft M/S 19 (M1) it is recommended that replanning of the layout in the vicinity of this shaft is undertaken to avoid built development directly over the shaft. Depending on the revised layout the installation a reinforced shaft cap to this shaft may need to be considered. Any cap should be designed by a suitably qualified Structural Engineer experienced in the design of mine shaft caps to best practice standards.
- 7.2.2 Unrecorded mine shaft M/S 20 (F6) is located adjacent to the proposed pumping station. Due to the design of the pumping station, it was considered that it was not

practical to install a reinforced concrete cap due to the depth it would need to be installed. The pumping station well closest to shaft M/S 20 (F6) is 5.0m deep and will be founded within rock with a reinforced concrete slab. The mine shaft has been stabilised through drilling and grouting and therefore the risk of catastrophic collapse affecting the pumping station well is considered to be low, and no further remediation of the mine shaft is required. However, it is recommended that during construction of the pumping station that the mine shaft is marked, and construction traffic or materials are excluded from the area of the mine shaft column. Following completion of the pumping station construction fencing, or a suitable deterrent, to prevent access to the mine shaft should be constructed.

- 7.2.3 Shaft 347390-005 has been searched for and not located. It is considered that this shaft is not present within the area searched and is not present beneath the site. However, as the shaft is unlikely to be removed from the Mining Remediation Authority (formerly the Coal Authority) records then development within the vicinity of the shaft should be avoided if possible. The development layout has been revised within the area of shaft, and no housing being constructed within the vicinity of the shaft.
- 7.2.4 The shafts identified in the within the 'Mine Workings and Mine Shaft Treatment Report' (Ref: GM11373-002 V2.0) dated 07 November 2023 within the Phase 2 area of the site that are still to be capped will need the capping to be undertaken prior to any development proceeding. The caps should be designed by a suitably qualified Structural Engineer experienced in the design of mine shaft caps to best practice standards. The remaining shafts proposed to be capped, based on the current layout, are listed below.
- AA39/UR M/S 3
 - M8/UR M/S 13
 - V7/UR M/S 14
- 7.2.5 Based on the work undertaken, it is considered that the historical mining situation within Halsnead Garden Village Site has been satisfactorily investigated and treated in accordance with accepted practices and guidelines.

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- 7.2.6 WA is satisfied that development site can now proceed within the treated zones without further regard to the risk of future collapse or settlement of shallow abandoned mine workings within the seams investigated.
- 7.2.7 If any future development on the Site, outside the areas investigated and treated, are proposed then advice from an Engineer experienced in mining issues should be sought to establish the requirement for additional investigation of the potential shallow mining situation.
- 7.2.8 The above recommendations are based on the interpretation of the treatment work beneath the Halsnead Garden Village site area. Due to the investigative nature of the work undertaken, there may be mining issues that have not been identified to date, and which might be contrary to the findings of this report. Should any such issues come to light which required WA's further advice then this should be brought to our attention without delay.
- 7.2.9 The potential for additional unrecorded shafts/crown holes to be present cannot be discounted and there is a need for a careful watching brief during any excavation works. If any anomalies or suspect features are encountered, then advice and guidance from a suitably qualified Engineer should be sought.
- 7.2.10 Any future works to investigate and treat coal seams or shafts will require a Mining Remediation Authority Permit.

APPENDICES

Appendix A

The Mining Remediation Authority Permission No. 28333 and No. 29640.2 to Enter or Disturb Mining Remediation Authority Mining Interests



The Coal
Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 28333

Name and Address of Permit Holder:

Vistry Partnerships North West, Warrington
301 Bridgwater Place
Birchwood Park
Warrington
WA3 6XF

Site Location:

Lickers Lane
Whiston
Prescot
L35 3PW

This certificate hereby grants the above named Permit Holder a Permit to carry out:-

***Treatment of shallow mine workings by drilling and grouting to 50m on a 6m grid,
,treatment of five mine entries***

within the Authority's interests at the identified site location above as shown on the Grant Permit Boundary (overleaf) for the period of **12 months** from the granted date shown below. *The granting of this Permit does not constitute advice given by the Authority in relation to the proposed operations. It is the Permit Holder's responsibility to obtain appropriate health, safety, environmental, technical and legal advice.*

Conditions:

- Manned entry (i.e.) into mine entries/workings) is strictly prohibited.
- Water flush
- Gas Monitoring CO, CH₄, CO₂, O₂, H₂S at borehole and rig
- Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works
- Appropriate borehole sealing without delay and to withstand site level changes

Signed: Helen Day Granted Date: 21 September 2024

For and on behalf of The Coal Authority

Nominated Representative: Helen Day, Permitting Manager;

The Coal Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG

Tel: 01623 637450; E-Mail: permissions@coal.gov.uk

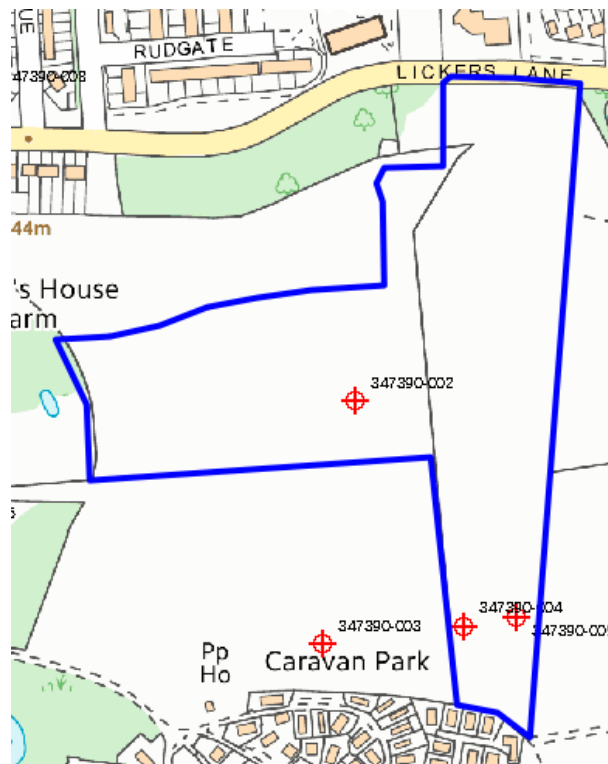


The Coal
Authority

Granted Permit Boundary

Permit Ref: 28333

Permit Boundary:



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Mining
Remediation
Authority

Permit to Enter or Disturb Mining Remediation Authority Interests

Permit 29640.2

Name and Address of Permit Holder:

*Vistry Merseyside and Cheshire West,
Warrington
301 Bridgewater Place
Birchwood Park
Warrington
WA3 6XG*

Site Location:

*Site off Lickers Lane
Whiston
Prescot
L35 3PW*

This certificate hereby grants the above named Permit Holder a Permit to carry out:-

Drill & grout of two unrecorded mine entries

within the Authority's interests at the identified site location above as shown on the Grant Permit Boundary (overleaf) for the period of **12 months** from the granted date shown below. *The granting of this Permit does not constitute advice given by the Authority in relation to the proposed operations. It is the Permit Holder's responsibility to obtain appropriate health, safety, environmental, technical and legal advice.*

Conditions:

- *Manned entry (i.e.) into mine entries/workings) is strictly prohibited.*
- *Water flush*
- *Gas Monitoring CO, CH₄, CO₂, O₂, H₂S at borehole and rig*
- *Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works*
- *Appropriate borehole sealing without delay and to withstand site level changes*
- *Following the grouting of the mine entries, you are required provide the authority with the proposed specification for any further treatment or capping, for comments and approval, prior to works commencing.*

Signed: Helen Day Granted Date: 27 February 2025

For and on behalf of the Mining Remediation Authority

Nominated Representative: Helen Day, Permitting Manager;

Mining Remediation Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG

Tel: 01623 637450; E-Mail: permissions@coal.gov.uk

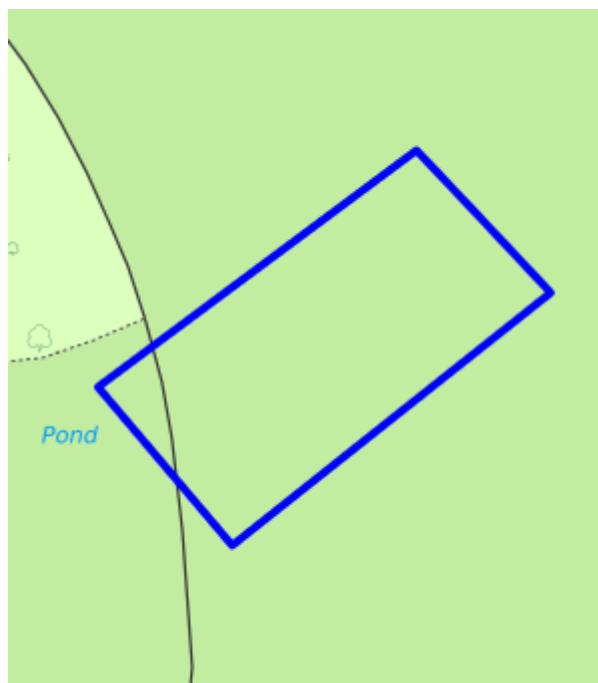


Mining
Remediation
Authority

Granted Permit Boundary

Permit Ref: 29640.2

Permit Boundary:



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The Mining Remediation Authority is the trading name of the Coal Authority ('TCA') established pursuant to Section 1 of the Coal Industry Act 1994, of 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG. The Coal Authority remains the legal name of the Authority

Appendix B

Mine Working Stabilisation Specification

Our ref: MF/GM11373/001
Your ref:

Date: 25th March 2021



YOUR HOUSING GROUP

COAL WORKING STABILISATION WORKS AT LICKERS LANE, WHISTON

SPECIFICATION

	The land off Lickers Lane is located approximately 16.0 km east of Liverpool city centre and approximately 1.5 km south of Prescott town centre (centred at National Grid Reference SJ 472 903)
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APPENDICES

Appendix A	Services
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DRAWINGS

DRAWING NO.	TITLE	SCALE
GM11373-002	Mining Setting	1: 2500
GM11373-003	Proposed Drilling and Grouting Layout (Sheet 1 to 6)	1: 250
GM11373-004	General Arrangement	1:2000
GM11373-005	Typical shaft capping details	1: 2000

1 MINE WORKING STABILISATION TREATMENT SPECIFICATION

1.1 Description of Project

The site under investigation is situated approximately 16 km east of Liverpool city centre and approximately 1.5 km south of Prescott town centre, centred at National Grid Reference SJ 472 903 (site location detailed in Figure 1 below).

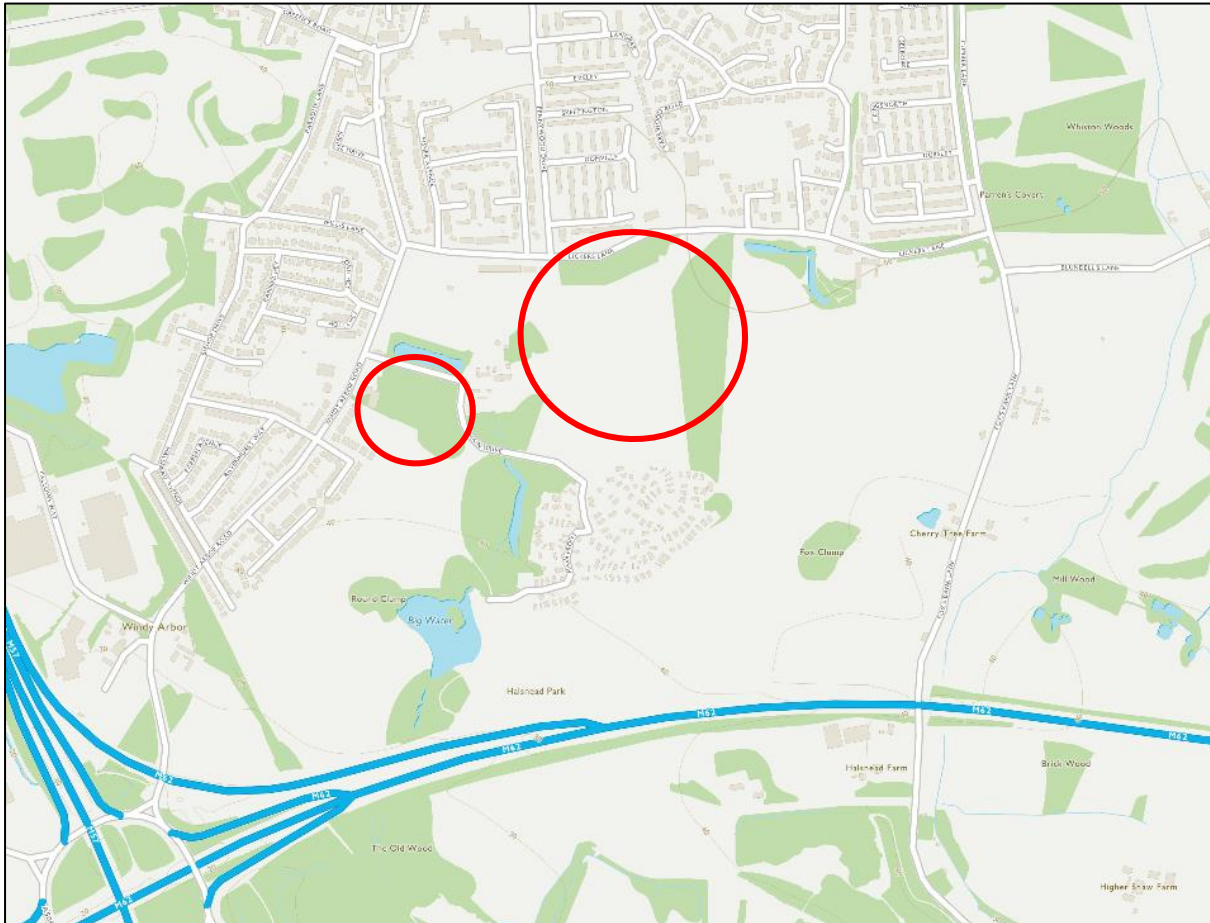


Figure 1: Screenshot of site location, red circles denote site areas.

Research and historic site investigations have verified the presence of historic surface and subsurface coal workings and mine shafts beneath the site area which present a substantial risk to ground stability within the housing development site.

The works will comprise treatment and grouting of abandoned coal workings, 5 mine shafts beneath the footprint of the future site.

1.2 Scope of Works

The scope of the works will generally comprise:

- Drilling and pressure grouting of the coal mine workings to a depth not anticipated to exceed 45.0m on a 6.0m grid with centre boreholes (4.24m grid), with secondary, tertiary and check boreholes to be drilled as directed by the Engineer.
- Shaft searching (up to 5 shafts) by rotary probe drilling carried out on a 1.0m spiral grid of boreholes drilled to rockhead, from the 'best plot' location of the recorded shaft position to a radius of up to 10m. Should a shaft not be located within a 10.0m radius of the 'best plot' location a review would be undertaken to confirm the 'best plot' location. Following this review further searching beyond the 10.0m radius of the initial 'best plot' position may be required to confirm the location of the shaft. Additionally, the works programme to investigate the mine shafts is designed in a way that modifications and refinement to the best plot locations would take place during the works when positions are proven.
- Dependant on the proven location of the mine entry, and its potential influence on the footprint of the future site, treatment of the shaft by drilling, pressure grouting and capping may be required. This will be confirmed once the mine entry location is proven.

The layout of the site and arrangement of the works is shown on Wardell Armstrong LLP (WA) Drawing Number GM11373-002 Mining Situation and WA Drawing Number GM11373-004 General Arrangement.

If significant voided old workings, or unrecorded shafts, are encountered or the dip of the strata is shallower than anticipated then additional drilling and grouting may be undertaken at the discretion of the Engineer.

The Principal Contractor will be responsible for setting out the shaft 'best plot' position, the corners of the shaft searching grid, and control boreholes on the drill & grout grid. The Contractor will be responsible for ensuring that the grid markers are maintained for the duration of the drilling and grouting and will be responsible for the setting out of the investigation and grouting grid and all investigation and grouting boreholes.

Boreholes drilled to stabilise any shallow mining horizon and the mine shaft are to be grouted at a nominal 9:1 (PFA:OPC) mix.

The proposed works shall be undertaken in accordance with this Specification, WA Drawings GM11373-002 and GM11373-004 and with regard to guidance given in CIRIA C758D – Abandoned Mine Workings Manual, 2019.

2 GENERAL ITEMS

2.1 Provision and Maintenance of Materials and Labour

In order to enable the works to proceed without delay the Contractor shall:

- Provide all plant, equipment and materials required in connection with the Works;
- Erect and maintain such plant and equipment as require erection and remove on completion of the Works;
- Provide adequate storage facilities for all material, plant and equipment necessary for the Works; and,
- Provide all labour for the Works.

2.2 Materials

Goods and materials used in the execution of this Contract shall, where possible, have been produced in the United Kingdom, the British Commonwealth or the European Union. Where a specification issued by the British Standards Institute is current at the date of the tender and is appropriate, goods and materials used in the execution of this Contract shall be in accordance with the specification.

2.3 Personnel and Relevant Experience

Prior to commencement of the Works, the Contractor shall provide a list of key personnel he proposes to employ together with a resume of their experience and qualification. The list of key personnel shall include the name of the full-time Contractors Agent.

2.4 Contractor's Superintendence

The Contractor shall give or provide all necessary superintendence during the execution of the Works and as long thereafter as the Engineer may consider necessary. Such superintendence shall be given by sufficient persons having adequate knowledge of the operations to be carried out (including the methods and techniques required the hazards likely to be encountered and the methods of preventing accidents) as may be requisite for the satisfactory construction of the Works.

2.5 Contractor's Agent

The Contractor or a competent and authorised agent or representative approved of in writing by the Engineer (which approval may at any time be withdrawn) is to be constantly on the Works and shall give his whole time to the superintendence of the same. Such authorised

agent or representative shall be in full charge of the Works and shall receive on behalf of the Contractor directions and instructions from the Engineer. The Contractor or such authorised agent or representative shall be responsible for the safety of all operations.

2.6 Site Facilities

All buildings, sheds and other temporary structures that the Contractor may erect for his own or the Engineers purpose shall in respect of location, design and sanitary arrangements meet with the approval of the Engineer. Immediately on completion of the Works, or at such other times as the Engineer may determine that they are no longer required, all temporary buildings, offices, sheds, huts, stores and other accommodations put up by the Contractor shall be removed by him.

2.7 Site Cleanliness and Making Good Working Areas

The Contractor shall confine his operations to the minimum area of ground required for proper execution of the works and access thereto. The Contractor shall at all times keep the working area and area surrounding all site temporary buildings clean and tidy. The Contractor shall be responsible for the disposal of all mud, water, chippings, soil or other waste products resulting directly or indirectly from the works. The Contractor shall take all precautions necessary to prevent pollution or contamination of streams, waterways and watercourses. Upon instructions from the Engineer, when the works have been satisfactorily completed, the Contractor shall leave the working area and the access thereto in a clean and tidy condition. The Contractor shall repair any damage he may have caused whether in the vicinity of the works or on the access route thereto to the satisfaction of the Employer/Engineer. The Contractor shall indemnify and keep indemnified the Employer against all claims arising from any such pollution, contamination, loss or damage.

2.8 Site Electricity Supply

The Contractor shall be required to provide an electricity supply to suit their requirements.

2.9 Site Water Supply

The Contractor shall be responsible for locating a suitable water supply and for providing and paying for all temporary plumbing and connection of the water supply to site. Where a suitable water supply is not available in the locality, the Contractor shall make arrangements for carrying and storing water in quantities as necessary for the Works. All costs incurred in this respect shall be borne by the Contractor. The Contractor is responsible for its sensible use and for the care and the maintenance of his pipework from the supply point.

2.10 The Coal Authority Permission

WA will obtain the consent of The Coal Authority for the intended works, however, the Contractor is required to advise them of any necessary amendments to the permission, once it is in place and shall comply with the agreed method statement and risk assessment. WA, on behalf of the Client, will submit the necessary reports and forms to the Coal Authority on completion of the works.

2.11 Existing Structures and Services

The Contractor shall take every reasonable precaution by way of written enquiries to appropriate Authorities to ensure that the position of any borehole is clear of all known existing underground structures, railways infrastructure, sewers, water and gas pipes, cables etc, and shall indemnify the Employer against any damage caused by his negligence in this respect. Copies of all written replies from appropriate Authorities which relate to the above shall be delivered to the Engineer prior to the commencement of site works. The supply of this information to the Engineer does not absolve the Contractor from their responsibilities under this clause.

2.12 Noise

The Contractor shall ensure that all practicable steps are taken to limit noise to a level compatible with the particular environment

2.13 Naked Lights

The following safety precautions shall apply when drilling.

- a) Naked lights shall not be permitted within 15 metres of any borehole.
- b) If the hole is to be cased, screw jointed pipes shall be used.
- c) The Contractor shall maintain on site apparatus for checking the presence of methane in the atmosphere and shall record any emissions of gas from boreholes.

2.14 Setting Out

The Contractor is responsible for setting out the treatment borehole locations. The Contractor will be responsible for ensuring that markers are maintained for the duration of the treatment works, to enable the accurate setting out of all boreholes.

The actual position and level of all boreholes must be captured to OS Grid and Datum and shared with The Coal Authority. This can be achieved by surveying certain points on a wider spaced grid and use existing survey data to determine levels for remainder of boreholes.

2.15 Ground Gas Monitoring

During drilling and grouting, it will be necessary to ensure that there is continuous gas monitoring at each borehole. Monitoring for methane, carbon monoxide, carbon dioxide, hydrogen sulphide and oxygen should be continuously undertaken and results routinely recorded. In the event that an alarm is triggered then the Contractor shall cease work and notify the Engineer accordingly and record results.

In the event that a completed borehole is to remain open overnight then a gas tight cap with valve will be screwed onto the casing. The borehole will be tested for gas the following morning and the levels recorded along with atmospheric conditions.

2.16 Control of Surface Water and Groundwater

The Contractor/Employer shall take all measures necessary to collect, control, and discharge groundwater and surface waters during the course of the works. The Contractor/Employer is responsible for organising all temporary discharge consents with the regulatory authorities during the course of the works.

The Contractor/Employer shall develop a surface water and groundwater control management strategy for the works and put measures in place to prevent any contamination from entering the watercourses present within the site due to surface water run-off.

The Contractor/Employer shall provide, operate and maintain all pumping plant and equipment to facilitate the discharge of surface water and groundwater from the works. The location and design of any temporary storage tanks / settlement ponds shall be agreed with the Engineer.

2.17 Fencing

The Contractor shall maintain existing fencing and provide, erect and maintain any additional temporary fencing required to prevent access by unauthorised persons and to maintain safe areas, as necessary to all site areas.

The Contractor is required to provide, erect and maintain until completion of the works temporary fences around any temporary feature, such as settlement ponds, mineshafts and excavations.

2.18 Access Roads and Haul Routes, Trafficking and Storage of Plant

Access to the sites will be from Lickers Lane. It will be the Contractors responsibility to ensure that the site access roads are maintained in a clean and safe state throughout the duration of the works.

The provision and maintenance of temporary access and haul routes within the site will be the responsibility of the Contractor. The Contractor shall agree the location of these routes with the Engineer and Principal Contractor.

Under no circumstances shall the Contractor traffic or store any items of plant, machinery or materials over completed areas of work, without the prior approval of the Engineer or the Principal Contractor.

2.19 Possession of the Site

Access to all areas of the site will be available from the date of the commencement of the works. It should be noted that other Contractors may be working on the site therefore liaison with the Principal Contractor and Principle Designer will be necessary to establish a safe access route and site traffic management plan.

2.20 Programme of Works

The Contractor shall submit a Programme of Works prior to the commencement of the Works to the Employer and Engineer. A revised Programme shall be submitted by the Contractor on a two weekly basis during the course of the work to reflect the progress of the works.

The Contractor shall ensure that all surveys, monitoring data, relevant manufacturers' certificates, materials tests, weigh bridge tickets and any additional information to be supplied to the Engineer are made available to the Engineer by the completion date for each relevant section of the works.

2.21 Contractors Site Offices, Services and Facilities for Employees, Stores, Workshops etc

The Contractor/Employer shall be responsible for the provision of all necessary services, including an adequate water supply, for the duration of the works.

The Contractor/Employer shall be responsible for maintaining the site and access roads in a state of cleanliness and shall include for all necessary road sweepers and/or wheel wash facilities.

2.22 Engineers Site Offices, Services and Facilities

The Contractor shall provide services and suitable facilities for the Engineer.

2.23 Japanese Knotweed

This has been identified on site. See Appendix E for details

3 DRILLING AND PRESSURE GROUTING PROCEDURE – GROUND STABILISATION WORKS

Abandoned mine workings are a potential hazard and the filling and surrounding ground may collapse at any time without warning. The extent of such collapses is unpredictable. Also, mine workings often contain accumulations of noxious or dangerous gases. Any works undertaken in the vicinity of abandoned mine workings must be planned and executed therefore to have proper regard to their instability and to safeguard employees of Contractors or any other person against the effects of gas.

Smoking or the use of naked flame shall not be permitted in the vicinity of any of the open boreholes and signs to this effect shall be displayed.

The Contractor shall make such tests as are necessary in the vicinity of treatment boreholes to detect the presence of noxious and/or explosive gases. Meters for their determination shall be kept at each working site.

Before the commencement of operations, the Contractor shall establish that an adequate supply of fill material is available immediately in the event of a collapse.

3.1 Boreholes

The boreholes shall be drilled by rotary or rotary percussive methods employing water flush techniques unless otherwise agreed by the Engineer. Drilling will then continue to a depth as instructed by the Engineer. If necessary, treatment should follow soon after the drilling of the boreholes.

The minimum diameter of borings shall be 50 mm. Where an exploratory hole is to be of such depth that boring to the full depth at the minimum diameter is likely to be impossible, or where obstructions are expected the Contractor shall begin boring at such greater diameter as they may choose. Should any boring prove abortive because of the Contractor's failure to begin with a sufficiently large diameter boring, the Contractor shall carry out any necessary re-drilling and provide and install any necessary casing at his own expense.

When each borehole has been drilled to rockhead, drilling shall not continue further until a metal casing of appropriate diameter has been securely placed into the rockhead to prevent the loss of flush and grout into the materials above rockhead during subsequent drilling and

grouting operations. Drilling shall subsequently proceed to the final depth of the borehole, which will be specified by the Engineer.

During the drilling the Contractor shall carry out regular checks and any necessary adjustments to the drilling rig to ensure that the drill is vertical or at the correct specified angle.

If a cavity is located within any of the boreholes the Engineer may require it to be infilled with pea gravel, in which case the Contractor will be required to insert casing of minimum 100mm diameter to the upper limit of the cavity to facilitate the placing of pea gravel into the cavity. The casing must then remain in place until the base of the cavity/workings is proved by the drilling.

Primary boreholes are to be drilled on a 4.2m square pattern (6.0m with centres), secondary boreholes drilled on a 3.0m square pattern; and Tertiary boreholes drilled on a 1.5m square pattern. Check boreholes may also be instructed by the Engineer.

3.2 Grouting

Immediately prior to grouting any borehole the Contractor shall check by plumbing or by other approved techniques that no collapse has occurred within the borehole after the drill rods have been withdrawn and that the hole is open to the depth specified by the Engineer.

Grouting shall commence via flexible tubing (tremie pipe) or a series of metal rods having a minimum internal diameter of 25 mm placed to the base of the borehole or at such other depth specified by the Engineer. Where it is realised that the tubing or rods cannot be placed to the specified depth, the tubing or rods must be withdrawn and the obstruction removed by re-drilling to the specified depth with casing, if necessary. The costs of any such extra drilling shall be borne by the Contractor, who shall indemnify the Employer against any such claims.

Grouting of the boreholes will be carried out via the tremie pipe, or metal rods, and will be injected under pressure until the whole of the borehole is pressurised up to the level of the casing. The casing will then be sealed and grout injected under pressure until the entire borehole is pressurised up to existing ground level. A triple outlet, T-connection pipe will be attached to the top of the drill string, via a coupling of approved design. The connection pipe will be of such design that a free outlet is available to check the flow of grout and that a pressure meter, calibrated up to at least 1,050 kN/m² (150 psi) but not exceeding 2100 kN/m²

(300 p.s.i.) must be permanently attached at the inlet during the grouting operations. In order to prevent any heave to the track, we have limited the grouting pressures to half of overburden pressure. Maximum grouting pressures depending on depth of borehole are detailed in Table 1.

Table 1: Grouting Pressures			
Depth (metres below ground level)	Max Pressure* (kN/m ²)	Depth (metres below ground level)	Max Pressure* (kN/m ²)
1	10	13	130
2	20	14	140
3	30	15	150
4	40	16	160
5	50	17	170
6	60	18	180
7	70	19	190
8	80	20	200
9	90	21	210
10	100	22	220
11	110	23	230
12	120	24	240
13	130	25	250

* The pressures are calculated as half overburden pressure in order to reduce the risk of heave.

Grout Mix

The grout mix to be injected into each borehole shall be at the discretion of the Engineer, but normally shall have an initial composition by weight of not less than 1 part cement to 9 parts pulverised fuel ash (P.F.A.) Should the acceptance of such grout exceed 5 tonnes the Contractor may be required to continue injection with a revised mix which may include sand of proportions as specified by the Engineer. The grain size and consistency of any materials used for grouting must be approved by the Engineer.

The minimum amount of water shall be added to the dry grout mix to render it of a workable consistency and of a slump nature approved by the Engineer. The consistency and slump nature of the mix must be approved by the Engineer.

Grout Materials

1. The cement shall consist of Ordinary Portland Cement complying with B.S EN 197-1:2011.
2. The sand shall comply with BS EN 12620:2002. It shall be of a size and grading approved by the Engineer, suitable for use with the Contractor's plant.

3. The pulverised fuel ash shall be obtained from a supplier approved by the Engineer and be of a type suitable for use as a constituent of grout.
4. The water used in mixing the grout shall be that supplied by the Local Water Authority or from some other source approved by the Engineer.
5. Pea gravel shall comply with BS EN 12620 2002. It shall be of a size and grading approved by the Engineer.

Storage of Materials

1. Cement shall be stored on a raised platform and shall be protected by a waterproof covering.
2. Pulverised Fuel Ash, sand and pea gravel shall be kept free from contact with deleterious matter. All materials shall be stored in stock piles adequately separated from each other.

Grouting Equipment and Pressure

The injection equipment shall be capable of operating at pressures of 1050 kN/m² (150 p.s.i.). The operating pressures shall be varied at the discretion of the Engineer. Grout shall be mixed in approved plant and continuously agitated, until injected into the boreholes by a double acting long stroke reciprocating pump or other approved pump. The Contractor must specify in writing the method of controlling, metering and pumping the materials to be used.

Grouting Procedure

1. The specified grout mix shall be injected under the aforementioned conditions until either grout overflow occurs at the surface or the specified pressure is recorded on the pressure meter attached to the T-connection pipe. When this pressure is reached the outlet tap shall be temporarily opened to ensure that pressure has not been incurred by line blockage.
2. If during the operation described above grout overflows at the surface (via the temporary casing), at a similar rate to that being injected, the flexible tube or metal rods shall be withdrawn completely, and the borehole pressurised as described in para (5).
3. If alternatively, the stipulated pressure is reached on the pressure gauge attached to the T-connection pipe, and this is not caused by line blockage and no further materials can be injected at this pressure, the injection pipe/tube shall be partially withdrawn until the pressure falls and grout injection shall be recommenced. If the stipulated pressure is again realised this procedure of gradual withdrawal of the grout pipe/tube is to be repeated (hereafter referred to as stage grouting) until grout returns to the surface via the casing. Only when grout appears at the surface in similar quantities to

that being injected shall the grout pipe/tube be completely withdrawn from the borehole and the pressurisation process specified in para (5) carried out.

4. Should it become apparent that any grout injection pipe/tube has become blocked (indicated by a constant back pressure on the pressure gauge attached to the T-connection pipe, and zero flow of grout) the grout injection pipe/tube shall be removed and only replaced when the blockage has been cleared. The costs attached to the removal and/or replacement of any such grout pipes/tubes shall be borne by the Contractor. No claims shall be entertained for any equipment grouted into the boreholes and the Contractor is to indemnify the Employer against any such claims.
5. Immediately the grout pipes/tubes are withdrawn the T-connection shall be attached to the top of the metal casing originally inserted into the borehole to rockhead and further grout shall be injected until the specified pressure is recorded on the pressure meter attached to the T-connection pipe/tube. When this second pressure is reached the outlet pipe shall again be temporarily opened to ensure line blockage has not occurred. When the specified pressure has been maintained for a period to be specified by the Engineer and the Engineer is satisfied that no further grout can be injected at that pressure, the T - connection pipe shall be removed and the metal casing immediately withdrawn. If on disconnecting the T - connection pipe, an appreciable back flow of grout occurs, a cap shall be screwed onto the casing until sufficient setting time has elapsed for the grout flow to cease and yet allow the casing to be withdrawn.

Abandoned Casing

The Contractor shall make every attempt to recover all casing used in the drilling operations. However, if this becomes impractical then any abandoned casings must be filled with P.F.A./cement grout and cut at least 2 metres below ground level. Should it not be possible to cut abandoned casing at least 2 metres below ground level then it should either be driven in or cut as deep as possible below existing ground level. The positions of such abandoned casings must be recorded and the information relating to them passed to the Engineer.

Drilling and Grouting Sequence

The boreholes shall be drilled in a sequence and to depths/lengths and angles specified by the Engineer. Grout will be injected into the boreholes in an order and with grout mixes as specified by the Engineer. Other than the possibility of the Engineer requiring a series of initial or final random test holes the majority of the boreholes will be drilled and grouted in a systematic manner. However, if deemed necessary by the Engineer the Contractor may be required to return to specific areas intermittently to drill secondary injection boreholes or to continue grouting primary or secondary boreholes. No claim will be entertained for any

inconvenience to the Contractor by such moving of drilling and/or grouting plant and it shall be necessary to indemnify the Employer against any such claims.

Boreholes to be Grouted

Unless otherwise directed by the Engineer the Contractor shall attempt to inject grout into each borehole irrespective of whether or not a cavity or old mine working is suspected. Care shall be taken to ensure that the grout is not injected into pipes, drains, cable ducts, etc.

Grout Properties and Testing

- Water to cement and PFA ratios shall generally be in the range 0.40 to 0.45 (including the moisture in the aggregates), the mixes envisaged should produce pumpable grout with lucidity readings of 300 to 600 mm when measured in a flow meter of the 'Colcrete' type. One flow meter test per day should be undertaken.
- Bleed capacity shall be measured in a clear plastic or glass graduated cylinder which has an internal diameter not less than 50 mm, with a volume of 1000 ml. After placing the grout, a cover shall be placed over the cylinder to avoid evaporation. Bleed capacity shall be read after 2 hours and one bleed test should be undertaken per day. High bleed grouts shall be avoided, and the bleed capacity shall be limited to 5% maximum.
- For strength testing, the Contractor shall make 3 cubes per week of an agreed size and taken from the grouting, at surface position. The cubes shall be marked, handled, stored and tested in accordance with BS 1881-122:2011 to confirm the projected 28 day strengths of the grout. The mixes shall produce cubes with crushing strengths of not less than 1.0 N/mm² (1 MPa) at 28 days.
- Grout viscosity at the time of injection shall be such as to achieve full penetration of all voids encountered, subject to achieving a satisfactory gel with minimum bleeding and shrinkage within three hours of injection.

3.3 Recovery of Materials

The Contractor is expected to recover from each borehole, metal rods, tremie pipes, connections and casings used in the operations, and it will then be necessary for the Contractor to indemnify the Employer against any claims for loss of such items.

3.4 Records

The Contractor shall keep an accurate and up-to-date record of the works as they proceed. This record shall be available at the site of the work at all times during working hours. The

following information shall be included on the records, where applicable.

The Daily Drilling Record shall record the following information:

- Job name and location.
- Borehole reference number.
- Date.
- Contractor's name.
- Plant in use, crew members, and hours worked.
- Method of drilling and flushing medium.
- Type of bit used.
- Diameter and depths of all casing used.
- Depth and diameter of borehole at beginning and end of each working day or shift.
- Depth to each change of stratum.
- Description of each stratum.
- Depths at which groundwater is encountered.
- Details of any loose ground or voids penetrated.
- Details of any loss of flushing medium.
- Details of time spent in overcoming obstructions.
- Details of services or drains located.
- Details of any emission of gas, water, foul air, etc.
- Details of any settlement or ground heave adjacent to boreholes.
- Daily and cumulative quantities of drilling.

The Daily Grouting Record shall record the following information:

- Job name and location.
- Borehole reference number.
- Date.
- Contractor's name.
- Plant in use, crew members and hours worked.
- Details of plumbing of the depth of borehole.
- Details of quantity of grout constituents injected into each borehole at each depth and location.
- Details of the quantity of grout injected into a shaft at each depth.
- Total daily and cumulative quantities of each constituent of grout mixes.
- Details of the grouting pressures recorded, and corresponding depths.

- Details of casing abandoned in boreholes with appropriate reference numbers.
- Details of grouting materials delivered to site on a daily and cumulative basis.
- Grout cubes taken.
- Results of bleed and flow tests.

Particular attention shall be paid to recording the depths of cavities and to recording the loss of water or air during drilling.

The daily review of all the findings / results of drilling and grouting works would be undertaken by the Consultant Site supervisor and will allow for dynamic changes of the scope should it be necessary. Weekly Progress reports will be prepared by the Engineer and any changes to the scope will be provided.

4 SPECIAL REQUIREMENTS WHEN WORKING IN THE VICINITY OF ABANDONED MINE SHAFTS

- a) Abandoned mine shafts are a potential hazard and the filling and surrounding ground may collapse at any time without warning. The extent of such collapses is unpredictable. Also mine shafts often contain accumulations of noxious or dangerous gases. Any works undertaken in the vicinity of abandoned mine shafts must be planned and executed therefore to have proper regard to their instability and also to safeguard employees of Contractors or any other person against the effects of gas.
- b) During site clearance and the removal of overburden necessary to locate shafts or other mine entries which are not visible at the surface all plant and staff shall be kept as far away as possible from the immediate zone of influence and working area.
- c) All persons should, where possible, remain outside the immediate zone of influence of the shaft or mine entry. All personnel working over and in the vicinity of shafts or other mine entries shall wear approved safety harnesses anchored to suitable safe points.
- d) Smoking or the use of naked flame shall not be permitted in the vicinity of known or suspected shafts or other mine entries and signs to this effect shall be displayed.
- e) The Contractor shall make such tests as are necessary in the vicinity of shafts and other mine entries to detect the presence of noxious and/or explosive gases. Meters for their determination shall be kept at each working site.
- f) Before the commencement of operations the Contractor shall establish that an adequate supply of fill material is available immediately in the event of a collapse.
- g) At the Project Manager/Supervisor's instruction, the area containing any of the shafts shall be fenced. The fencing shall consist of steel herras fencing. The extent of the fencing shall include the boundaries of the shaft and a distance of 4 metres around it. Notices shall be placed around the fenced area

warning of the presence of a mine shaft. If at any time the shaft is to be left unattended, the fencing shall be secured to prevent the access of unauthorised persons to the shaft location.

5 EXCAVATION PROCEDURE TO LOCATE MINE SHAFTS

5.1 Machines or Personnel Falling into the Void

Machines or personnel falling in the void caused by either a sudden collapse of materials above rock head into the shaft can have potentially severe consequences. Any uncontrolled or unexpected machine movement has the potential to inflict severe injuries to operators and others in the area. A significant risk would arise when a machine dislodges or destroys a shaft cap or other covering material, beneath which is an unfilled shaft or void.

5.2 Safe System of Work

The following should be adhered to:

- Shaft searching must be carried out under the supervision of competent staff who will ensure unauthorised persons are kept at a safe distance from the operations;
- The best plot position of the shaft should be pegged out together with control pegs to allow re-establishment if required.
- Proposed search area to be delineated;
- Always ensure that the excavator is safely positioned on stable ground that has been investigated and work towards the best plot position;
- Use excavators which have low ground loading, maximum stability and long-reach characteristics;
- Initial excavations within the search area shall be carried out with care and at the maximum reach of the excavator;
- Never stand on, or close to, the suspected or established position of a shaft or void unless
 - It is obviously safe;
 - A safe distance has been assessed; and
 - Unless wearing a safety harness attached to an object of unquestionable strength which will prevent the wearer from falling.

6 DRILLING AND PRESSURE GROUTING PROCEDURE FOR ABANDONED MINE SHAFTS

6.1 Boreholes

The boreholes shall be drilled by rotary methods employing air flush techniques. Initially, a vertical borehole of not less than 72mm diameter shall be drilled in the centre of the shaft. Drilling shall be carried out to a depth of 5m into solid strata below the base of the shaft. Where infilling of cavities with pea gravel is required, a casing of minimum 100mm diameter shall be provided to the upper limit of the cavity, which shall remain in place until the base of the shaft is proved.

6.2 Grouting Procedure

Where instructed by the Employer, cavities within the shaft shall be infilled with pea gravel before commencement of grouting.

Grouting of the shaft shall be carried out via the drill string. The minimum internal diameter of the drill string shall be not less than 35mm. A triple outlet, T-connection pipe shall be attached to the top of the drill string. A free outlet shall be provided to check the flow of grout and a pressure meter, calibrated up to not less than 1,725 kN/m² (250 p.s.i.) shall permanently attached at the inlet location.

Injection of grout shall commence with the drill string at the base of the borehole. Grout shall be injected until the grouting pressure instructed by the Employer has been recorded and maintained, or until grout overflow at the surface occurs. The drill string shall then be withdrawn in increments of not more than 3 metres, and the above injection procedure shall be repeated for each increment, until the ground surface is reached.

6.3 Grout Mix

The grout mix shall consist of 9 parts pulverised fuel ash to 1 part cement by weight, and where so instructed by the Employer, may also include sand. The minimum quantity of water shall be used so as to render the grout workable. The mix proportions and consistency shall be agreed with the Employer. The mixing and pumping plant used shall be such that constant agitation of the grout is possible and the Contractor must specify in writing the method of controlling, metering and pumping the amount of material to be used, such method to be approved by the Employer before commencement of grouting operations.

6.4 Drilling Platform

The Contractor's particular attention is drawn to the possibility of the collapse of fill material into the shaft, or of the shaft itself whilst drilling and/or grouting operation are being carried out. During the drilling and treatment of the shaft, the drilling equipment shall be supported on and secured to a suitable platform such that in the event of a collapse the drilling rig remains supported over the shaft. When assessing the platform requirements, the Contractor shall consider whether the platform itself could become dislodged by a collapse and in such a case shall make provision for the platform to be secured to suitable anchorages so as to prevent such an occurrence. Details of the platform shall be submitted to the Employer for approval before commencement of drilling operations. All personnel involved in the drilling and treatment of a shaft shall wear appropriate safety harnesses secured at a safe distance from the shaft.

6.5 Records

The Contractor shall provide daily drilling records and daily grouting records, in a form approved by the Employer.

The Daily Drilling Record shall be as required for boreholes drilled to locate shafts, with the addition of the following information:

- a) Details of any settlement or ground heave adjacent to the boreholes;
- b) Cumulative quantities of drilling.

The Daily Grouting Record shall contain the following information:

- a) Job name and Location.
- b) Borehole reference number.
- c) Date.
- d) Contractor's name.
- e) Plant in use, crew members and hours worked.
- f) Details of plumbing of the depth of the borehole.
- g) Details and quantity of grout constituents injected into each borehole;
- h) Daily cumulative quantities of each grout constituent;
- i) Details of the grout pressures recorded, and corresponding depths;
- j) Details of casing abandoned in boreholes with borehole reference numbers;
- k) Details of grouting materials delivered to site on a daily and cumulative basis.

Particular attention shall also be paid to recording the depths of cavities and to recording loss of flush during drilling.

7 CONSTRUCTION OF SHAFT CAPS

The position and size of the shaft cap and requirements for structural concrete and reinforcement shall be as shown on the Drawings.

The Contractor shall keep a record of the work as it proceeds, which shall include the following information, as applicable:

- a) Job, name and location.
- b) Date.
- c) Contractor's name.
- d) Type of plant and names of operators.
- e) Details of plumbing indicating levels of shaft fill.
- f) Details of gas testing indicating times of readings.
- g) Daily quantities of material excavated and removed.
- h) Details of time spent overcoming obstructions.
- i) Details of any services or drains located.
- j) Details of any visible settlement of the shaft filling.
- k) Details of any pumping carried out.
- l) Details of any shoring installed.

The daily review of all the findings / results of the shaft searching works would be undertaken by the Consultant Site supervisor and will allow for dynamic changes of the scope should it be necessary. Weekly Progress reports will be prepared by the Engineer and any changes to the scope will be provided.

8 ENVIRONMENTAL PROTECTION

8.1 General

The Contractor shall take all practical measures to minimise any environmental impacts and prevent nuisance in the form of noise, dust and water from occurring as a result of the Works. The Contractor shall indemnify and keep indemnified the Employer against all claims arising from any such pollution, contamination, loss or damage. The Contractor shall have due regard to all legislation relating to environmental matters. The following environmental protection measures and those included in General Requirements of the Specification are in addition to any obligations imposed on the Contractor by statute. Where discrepancies arise between this specification and the agreed working plan of the Principal Contractor, the agreed working plan is to take precedence.

8.2 Noise and Vibration

Noise Control Measures

The Contractor shall employ the best practical means to minimise noise and vibration produced by his operations and shall organise his operations with regard to the positioning of plant and movement of vehicles so as to minimise noise at adjacent properties.

Site generated noise levels measured as 1 hour LAeq values (free field) at any adjacent noise sensitive building shall not exceed:

Weekdays (Mondays - Fridays)	TBC.
Weekends and Bank Holidays	TBC.
Night Time	TBC.

(free field means at least 3.5 metres from any reflecting surface other than the ground (BS4142:1997).

8.3 Dust

Control of Dust

The Contractor shall employ the best practicable means to minimise dust arising from his operations and to prevent damage, loss, injury or nuisance caused by dust in the execution of the Works.

Without prejudice to the generality of the Contractor's obligations under the preceding paragraph, the Contractor shall comply with the following requirements.

8.4 Vehicles and Highways

- The Contractor shall ensure that all highways, tracks and accesses used for the Works or for the transport of plant, labour and materials are kept free from mud, rubble, dust or spillages of any sort, and are not damaged in any way.
- In the event of highways, tracks and accesses becoming thus dirtied or damaged, the Contractor shall, at his own expense, take all necessary steps to immediately clean and/or repair them. Regular sweeping of metalled roads shall be required at the end of each working day and such other times as may be necessary to keep them clean. The Contractor must make provision for the supply, maintenance and operation of suitable plant for such sweeping.

The Contractor shall ensure that the wheels or tracks of any vehicles or other plant leaving the Site, or travelling between parts of the Site, are thoroughly cleaned so that no dirt is deposited on the highway. Tracked vehicles will not be allowed to traffic directly on public highways in this instance.

For any boreholes located within the highway and/ or footpath, the Contractor should reinstate to an agreed standard with the Local Authority. The Contractor should provide details of this to the designer.

The Contractor shall ensure that all lorries entering or leaving the site are properly sheeted except where the nature of the material carried cannot give rise to dust release.

8.5 Drilling flush

The drilling fluid shall be clean water.

8.6 Burning

Control Measures

The Contractor shall take all necessary measures to prevent loss, damage, injury or nuisance caused by smoke in the execution of the Works.

No burning of surplus materials shall take place on Site.

8.7 Water Pollution

Pollution Control Measures

The Contractor shall take all necessary measures to secure the protection of all watercourses, including water in underground strata, against silting, erosion and/or pollution of the water. Such protection shall not adversely affect the quality of, appearance thereof or cause injury or death to animal, aquatic or plant life and/or damage to property and land.

Without prejudice to the generality of the Contractor's obligations under the preceding paragraph, the Contractor shall comply with the following requirements:

8.8 Discharges

No potentially polluting materials shall be stored near a watercourse or in such a situation that these can fall or be carried into a watercourse. Any drainage arising from the storage of such materials shall not enter a watercourse.

Direct discharges of any water during the project shall be discussed with the Environment Agency (EA), and the appropriate consent applications and discharge fees paid if required.

Tools, equipment and plant shall not be washed in watercourses or used water allowed to drain to any surface drainage system.

Silted or discoloured water from the Works and/or the cleaning of vehicles shall be treated or settled in a lagoon prior to disposal off site or, by agreement with the Local Authority, disposal to drainage.

8.9 Fuels and Oils

All fuel or lubricating oil stored in bulk on the Site shall be located as far as reasonably possible from any watercourse and such stores shall be contained by an effective bund.

The bund shall be capable of containing 110% of all the full contents of the store and all such stores shall be kept locked or otherwise secured when not in use. All fuel and oil deliveries are to be supervised by a competent person. Plant nappies should be used during all refuelling operations.

8.10 Abstraction

No unauthorised abstraction and/or drawing of water for any reason from any watercourse (surface or underground) requiring a licence shall be undertaken. Existing abstraction

arrangements whether licensed or not shall be protected together with any private domestic abstractions exempt from such licensing requirements but licensed with the Local Authority.

8.11 Contaminated Sites

Drill flushing water arising from the construction of boreholes shall not be allowed to directly discharge into the drainage system without prior consent from the appropriate authorities.

Water purged during sampling shall not be allowed to directly enter watercourses.

9 HEALTH & SAFETY

The Construction (Design and Management) Regulations 2015 are applicable to this Contract.

No work shall commence on the Site until such time as the Contractor has provided to the Engineer an adequate, relevant and dated written Safety Policy including the organisation and management arrangements for health and safety in the Contractor's organisation and in relation to the site.

Furthermore, before commencing any element of the work the Contractor shall demonstrate that they have carried out an appropriate risk assessment as required by the management of Health and Safety at Work Regulations 1999. The risk assessment will relate to the conditions and features of the site to be worked on and the techniques to be used. This risk assessment must include a description of the supervisory arrangement for the works and the experience/suitability of such supervision. If appropriate this risk assessment shall include an appropriate COSHH assessment for all potentially hazardous substances used in the works or anticipated on site.

If required by the Engineer, any risk assessments and/or COSHH statements for any element of the work shall be submitted to the Engineer for approval prior to that element of the works being commenced on site.

The provisions of the above clauses shall also apply to any sub-contractors. The Contractor shall provide to the Engineer each sub-contractor's Safety Policy and other documentation as required.

Principal Contractors will be required to keep records of all site related information which could be relevant to or affect the health and safety of any person who may be affected by the site or the works should any future site work take place. Accordingly, the Contractor is required to furnish the Principal Contractor with any such relevant information upon completion of the works.

During the drilling and grouting of mine workings the Contractor shall ensure that continuous gas monitoring is undertaken at each borehole location. Monitoring shall encompass methane, carbon monoxide, carbon dioxide and oxygen, as a minimum requirement. In the event that any gas alarm is triggered, or unusually elevated concentrations are detected, the Contractor shall immediately cease work and notify the Engineer.

In the event that completed boreholes are to remain open overnight, then a screw threaded gas tight cap, with valve assembly, shall be fitted to the casing. The borehole shall be tested for gas at the start of the next shift, with concentrations recorded along with atmospheric pressure conditions. Concentrations shall be expressed as either '% by volume' or 'ppm'. Atmospheric pressure shall be expressed in millibars (mb).

Appendix C

Drilling and Grouting Records

BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
G9	GL	2.7		FILL/CLAY				
	2.7	10-	4m	MUDSTONE				
	10-	11.7		COAL/MUDSTONE BAND				
	11.7	21.5		MUDSTONE				
	21.5	22.5		COAL				
	22.5	29.3		MUDSTONE				
	29.3	31.7		WEAK DRILLING POOR COAL RETURNS				
	31.7	40		MUDSTONE				
I9	GL	2.6		FILL/CLAY				
	2.6	8	4m	MUDSTONE				
	8-	10.7		WEAK DRILLING POOR COAL RETURNS				
	10.7	20		MUDSTONE				
	20	22		WEAK DRILLING POOR RETURNS				
	22	30		FIRM DRILLING				
	30	31.3		WEAK DRILLING				
	31.3	40		FIRM DRILLING				
G7	GL	3-		FILL/CLAY				
	3-	7.5	4m	MUDSTONE				
	7.5	10.5		WEAK DRILLING POOR COAL/MUDSTONE RETURNS				
	10.5	20.7		MUDSTONE				
	20.7	21.6		COAL				
	21.6	29.5		MUDSTONE				
	29.5	31.5		COAL				
	31.5	40		MUDSTONE				

REMARKS:	GAS MONITORING		
	CH ₄ : 0	% LEL	H ₂ S : 0 PPM
	CO : 0	PPM	O ₂ : 20.9 %
	CO ₂ : 0	%	
..... R.E./SUPERVISOR			

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS CANE	DAY / DATE	THURSDAY 6-2-2025	DRILLER	M SMITH
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[illegible]

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.9 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

D4

DAILY SITE RECORD

SITE / JOB No.	LICKERS LANE	DAY / DATE	FRIDAY 7-2-2025	DRILLER	M SMITH
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BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
H4	5.2	2.7		FILL/CLAY				
3m	2.7	6	4m	MUDSTONE				
chert	6-	8.5		WEAK DRILLING POOR COAL/MUDSTONE RETURNS				
	8.5	17-		MUDSTONE				
	17-	18.5		WEAK DRILLING POOR RETURNS				
	18.5	28-		FIRM DRILLING				
	28-	29-		WEAK DRILLING				
	29-	38.5		FIRM DRILLING				
	38.5	39.5		WEAK DRILLING				
	39.5	41		FIRM DRILLING				
H6	5.6	2.7		FILL/CLAY				
3m	2.7	6.4	4m	MUDSTONE				
chert	6.4	9.5		WEAK DRILLING POOR RETURNS				
	9.5	17.5		FIRM DRILLING				
	17.5	20-		WEAK DRILLING				
	20-	29-		FIRM DRILLING				
	29-	29.8		WEAK DRILLING				
	29.8	39.2		FIRM DRILLING				
	39.2	39.8		WEAK DRILLING				
	39.8	41		FIRM DRILLING				

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S: 0 PPM
	CO: 0 PPM	O ₂ : 20.9 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

DELIVERY	TICKET No.	QUANTITY
O.P.C.	F81250	3.7m ³

DAILY SITE RECORD

SITE / JOB No.	LICKERS LANE HALSNEAD	DAY / DATE	MONDAY 10-2-2025	DRILLER	M SMITH
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BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
58	GL	3.3		FILL/CLAY				
	3.3	6.5	4m	MUDSTONE				
	6.5	8-		WEAK DRILLING POOR COAL/MUDSTONE RETURNS				
	8-	18-		MUDSTONE				
	18-	19.5		COAL				
	19.5	28.7		MUDSTONE				
	28.5	29.2		COAL				
	29.2	39-		MUDSTONE				
	39-	39.6		COAL				
	39.6	41		MUDSTONE				
56	GL	3-		FILL/CLAY				
	3-	6.5	4m	MUDSTONE				
	6.5	8-		WEAK DRILLING POOR COAL/MUDSTONE RETURNS				
	8-	17-		MUDSTONE				
	17	17.8		COAL				
	17.8	26		MUDSTONE				
	26-	28.5		COAL				
	28.5	37.5		MUDSTONE				
	37.5	38.2		COAL				
	38.2	40		MUDSTONE				

REMARKS:	GAS MONITORING		
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM	
	CO : 0 PPM	O ₂ : 20.9 %	
	CO ₂ : 0 %		
..... R.E./SUPERVISOR			

[illegible]

DAILY SITE RECORD

SITE / JOB No.	WICKERS LAKE HALSNEAD	DAY / DATE	Monday 10-2-2025	DRILLER	M. SMITH
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BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
H8	GL	2.6		FILL/CLAY				
	2.6	8.5	4m	MUDSTONE				
	8.5	10.5		WEAK DRILLING POOR COAL/MUDSTONE RETURNS				
	10.5	20.5		MUDSTONE				
	20.5	21-		COAL				
	21-	29.8		MUDSTONE				
	29.8	30.5		COAL				
	30.5	39.7		MUDSTONE				
	39.7	40.4		COAL				
	40.4	42-		MUDSTONE				
K7	GL	3-		FILL/CLAY				
	3-	5	4m	MUDSTONE				
	5-	7.5		WEAK DRILLING POOR COAL/MUDSTONE RETURNS				
	7.5	16-8		MUDSTONE				
	16-8	18.5		WEAK DRILLING LOST FLUSH				
	18.5	27.5		FIRM DRILLING				
	27.5	28.5		WEAK DRILLING				
	28.5	37.5		FIRM DRILLING				
	37.5	38-		WEAK DRILLING				
	38	40		FIRM DRILLING				

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.9 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

OC 4.1/7C

[illegible]

M&J DRILLING SERVICES LTD.
Tel: 01902 885241

DAILY SITE RECORD

SITE / JOB No.	LICKERS CANYE HALSNEAD	DAY / DATE	Tuesday 11-2-2025	DRILLER	M. Smith
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[illegible]

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.9 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

OC 4.1/7C

[illegible]

QC 4.1/7C

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LAKE HALSTAD	DAY / DATE	WEDNESDAY 19-2-2025	DRILLER	M SMITH
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BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
G3	GL	2.7		FILL/CLAY				
	2.7	8	4m	MUDSTONE				
	8	9.7		CLAY				
	9.7	15.5		MUDSTONE				
	15.5	16.5		CLAY				
	16.5	42		MUDSTONE/SANDSTONE				
	42	47		SLIGHTLY BROKEN GROUND (Run out off Rock)				
G9	GL	2.7		FILL/CLAY				
	2.7	4.5	4m	MUDSTONE				
	4.5	5.2		CLAY				
	5.2	14		MUDSTONE				
	14	15.5		CLAY				
	15.5	20		MUDSTONE				
	20	21.3		CLAY				
	21.3	47		MUDSTONE/SANDSTONE				

REMARKS:	GAS MONITORING	
ALL WORK AS INSTRUCTED BY ENGINEER MOVED ALL GROUT GEAR TO NEW AREA.	CH_4 : 0 % LEL	H_2S : 0 PPM
	CO : 0 PPM	O_2 : 26.9 %
	CO_2 : 0 %	
..... R.E./SUPERVISOR		

[illegible]

QC 4.1/7C

[illegible]

M&J

Tel: 01902 885241

DAILY SITE RECORD

[illegible]

DAILY SITE RECORD

SITE / JOB NO.	WICKES LANE HALSBOAD	DAY / DATE	THURSDAY 20-2-2025	DRILLER	W. SMITH
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[illegible][illegible][illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LANE HALSNEAD	DAY / DATE	TUESDAY 4-3-2025	DRILLER	M. SMITH
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BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
I9	GL	2.7		FILL/CLAY				
6m	2.7	4.5	4m	MUDSTONE				
drat	4.5	6-		WEAK DRILLING POOR COAL RETURNS				
	6-	12-		MUDSTONE				
	12-	13.5		COAL				
	13.5	18.3		MUDSTONE				
	18.3	19-		COAL				
	19-	25		MUDSTONE				
H8	GL	2.7		FILL/CLAY				
3m	2.7	3.7	3m	MUDSTONE				
drat	3.7	7-		WEAK DRILLING POOR COAL RETURNS				
	7-	12.5		MUDSTONE				
	12.5	13.7		COAL				
	13.7	18.5		MUDSTONE				
	18.5	19.7		COAL				
	19.7	25-		MUDSTONE				
H10	GL	2.4		FILL/CLAY				
6m	2.4	5.7	3m	MUDSTONE				
drat	5.7	7-		COAL				
	7-	15-		MUDSTONE				
	15-	16.3		COAL				
	16.3	20.3		MUDSTONE				
	20.3	22-		COAL				
	22-	25-		MUDSTONE				

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.9 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

QC 4.1/7C

[illegible]

QC 4.1/7C

[illegible]

SITE / JOB No.	LICKERS LAKE	DAY / DATE	THURSDAY 6-2-2025	DRILLER	M SMITH
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[illegible]

62



Tel: 01902 885241

DAILY SITE RECORD

SITE / JOB No.	LICKORS LANE HALSNORD	DAY / DATE	MONDAY 10-2-2025	DRILLER	M SMITH
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BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
				GROUTING OPC				
				ALL BOREHOLES PRESSURISED TO 2 BAR				
		I7		0.2T TOPPED OUT ✓				
		I5		0.2T ~ ~				
		I3		0.2T ~ ~				
		H4		0.2T ~ ~				
		H8		0.2T ~ ~				
		H6		0.2T ~ ~				
				TOTAL 1.2 TON				

[illegible][illegible]

M&J DRILLING SERVICES LTD.
Tel: 01902 885241

SITE / JOB No.	LICKERS LANE HALSHEAD	DAY / DATE	THURSDAY 13-2-2025	DRILLER	M SMITH
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REMARKS:	GAS MONITORING			
	CH ₄ :	% LEL	H ₂ S :	PPM
	CO :	PPM	O ₂ :	%
	CO ₂ :	%		
R.E./SUPERVISOR				

[illegible]

QC 4.1/7C

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LAKE HALSNEAD	DAY / DATE	TUESDAY 4-3-2025	DRILLER	M SMITH
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BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
				GROUTING OPC				
				ALL BOREHOLES PRESSURISED TO 2 BAR				
		I9		0.1 TOPPED OUT				
		H8		0.2 " "				
		H10		0.1 " "				
		F10		0.1 " "				
				TOTAL	0.5T			

[illegible][illegible]

[illegible]

REMARKS:	GAS MONITORING		
WAITING FOR AREA TO BE CLEARED ALL WORK CARRIED OUT AS INSTRUCTED BY ENGINEER	CH ₄ :	0 % LEL	H ₂ S : 0 PPM
	CO :	0 PPM	O ₂ : 20.9 %
	CO ₂ :	0 %	
..... R.E./SUPERVISOR			

[illegible]

P2



Tel: 01902 885241

DAILY SITE RECORD

SITE / JOB No.	LICKERS LAKE HALSBROOK	DAY / DATE	TUESDAY 4-2-2025	DRILLER	M SMITH
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[illegible]

REMARKS:	GAS MONITORING		
ALL WORK CARRIED OUT AS INSTRUCTED BY ENGINEER	CH ₄ :	0 % LEL	H ₂ S : 0 PPM
	CO :	0 PPM	O ₂ : 20.9 %
	CO ₂ :	0 %	
8 ANGLE HOLLS INTO BANK			
..... R.E./SUPERVISOR			

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LANE	DAY / DATE	THURSDAY 6-2-2025	DRILLER	M. Smith
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BH	DEPTH		CASING	FORMATION FEATURE	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
				ALL PROB HOLES AT 1m CENTRES				
				4 HOLES TO 10m INTO FEATURE				
	GL	10		SOFT DRILLING				
	10	-		STILL GOING				
				9 HOLES TO 3-7m				
	GL	2.7		SOFT DRILLING				
	2.7	3.7		INTO SOLID				
				7 HOLES AT 0.5m CENTRES				
				TO 10m INTO FEATURE				
	GL	10		SOFT DRILLING				
	10	-		STILL GOING				
				8 HOLES AT 0.5m CENTRES TO 3.7				
	GL	2.7		SOFT DRILLING				
	2.7	3.7		INTO SOLID				
				1 HOLE INTO CENTRE OF SHAFT TO 25m				
	GL	24		SOFT DRILLING				
	24	25		INTO SOLID				

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.9 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

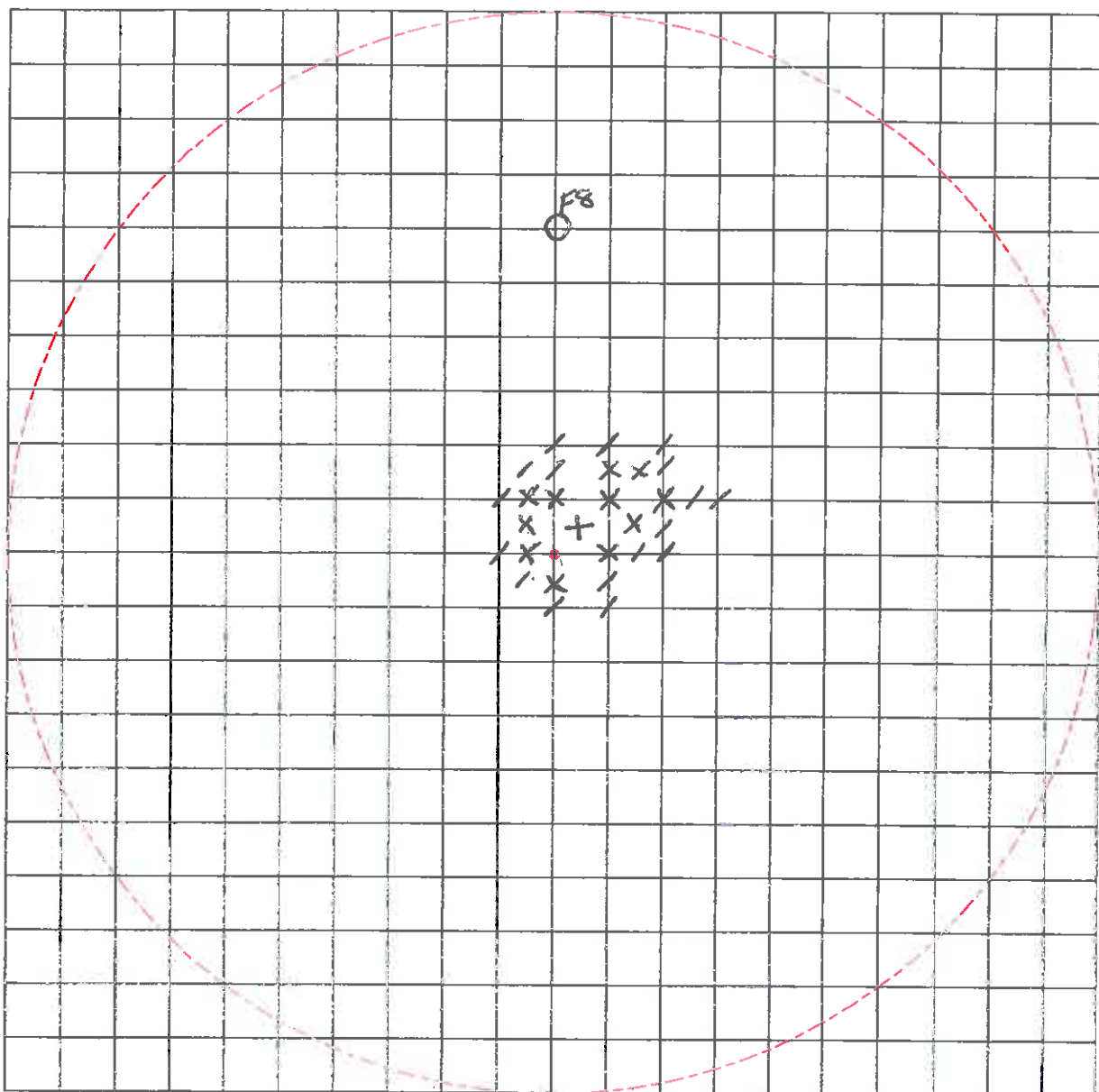
94

5CM

SCALE WITH CAUTION AS DISTORTION CAN OCCUR

DRG FRAME REF QC 1.1/2

5CM



LEGEND

- F6
- ⊕ F8
- / OUT
- X IN
- + CENTRE

M & J Drilling Services Ltd - Probing Record

Job No.

Drilled By

Scale

Job Title

Date

MSMTH

1:125

LICKERS LAWE

6-2-2025

MI.

SITE / JOB No.	LICKERS LAKE HALSROAD	DAY / DATE	TUESDAY 11-2-2025	DRILLER	M SMITH
-------------------	--------------------------	---------------	----------------------	---------	---------

[illegible]

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.9 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

86

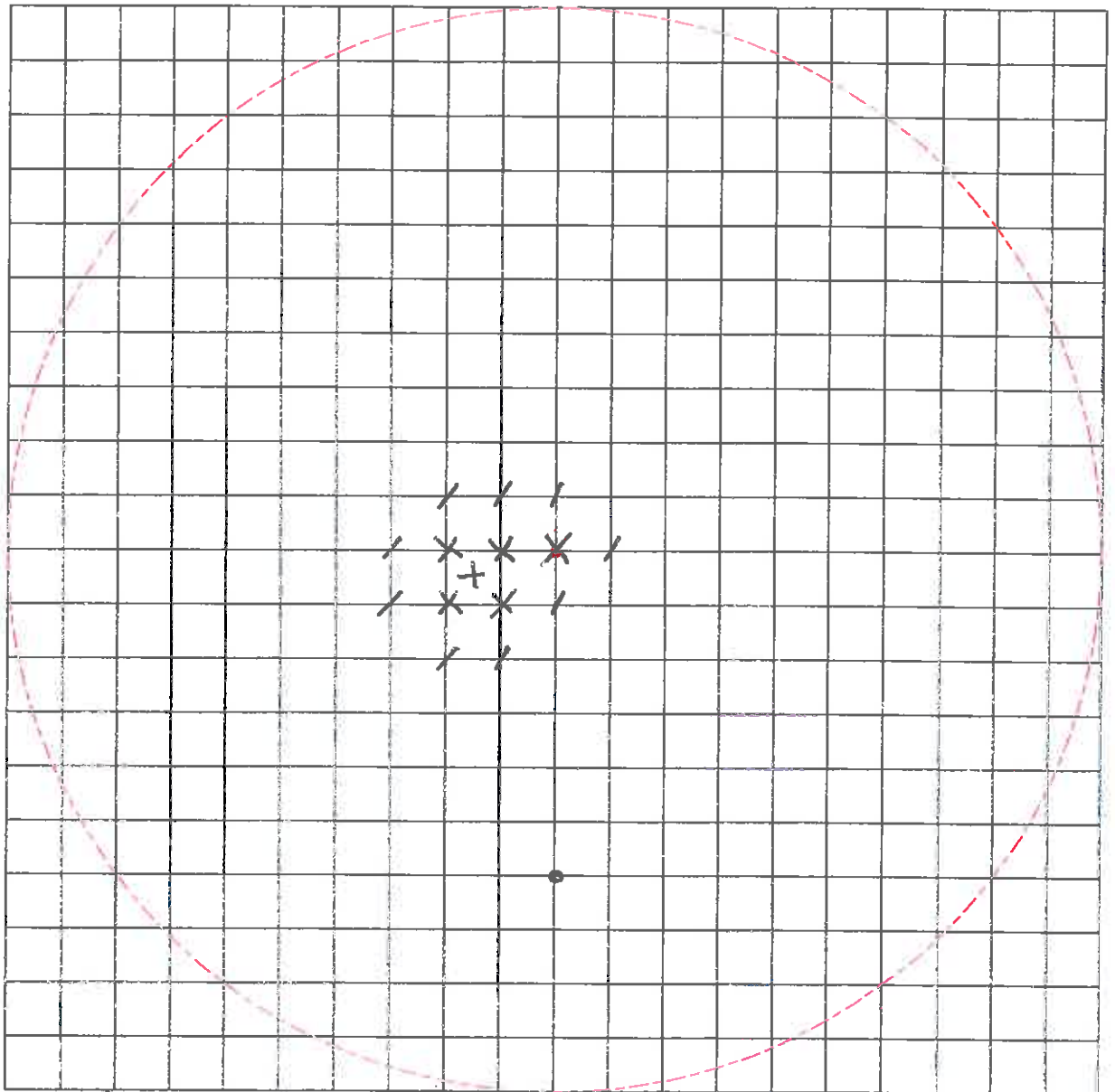
5CM

SCALE WITH CAUTION AS DISTORTION CAN OCCUR

DWG FRAME REF OC 1.1/E

M1

5CM



LEGEND

X M1

+ M3

X INTO SHAFT

/ OUT OF SHAFT

+ CENTRE OF SHAFT

M & J Drilling Services Ltd - Probing Record

Job No.

M1

Drilled By

MSMTH

Scale

1:125

Job Title

LICKERS LANE
HALSNEAD

Date

11-2-2025

DAILY SITE RECORD

SITE / JOB No.	LICKERS LANE HALSLEAD	DAY / DATE	FRIDAY 14-2-2025	DRILLER	M SMITH
-------------------	--------------------------	---------------	---------------------	---------	---------

BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
				M S 5 PROBING				
				ALL HOLES AT 1m CENTRES				
				1 HOLE TO 27m				
	GL	26		SOFT DRILLING				
	26	27		INTO SOLID				
				2 HOLES TO 25m				
	GL	24		SOFT DRILLING				
	24	25		INTO SOLID				
				1 HOLE TO 12m				
	GL	12		SOFT DRILLING				
	12			OBSTRUCTION				
				2 HOLES TO 10m				
	GL	10		SOFT DRILLING				
	10	-		STILL GOING				
				8 HOLES TO 5m				
	GL	5		SOFT DRILLING				
	5	6		INTO SOLID				
					TOTAL HOLES	16		
					TOTAL METRES	155		
				2 HOLES TO 5m				
	GL	4-		SOFT DRILLING				
	4	5		INTO SOLID				

REMARKS:	GAS MONITORING		
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM	
	CO : 0 PPM	O ₂ : 20.9%	
	CO ₂ :	%	
			R.E./SUPERVISOR

[illegible]

P8

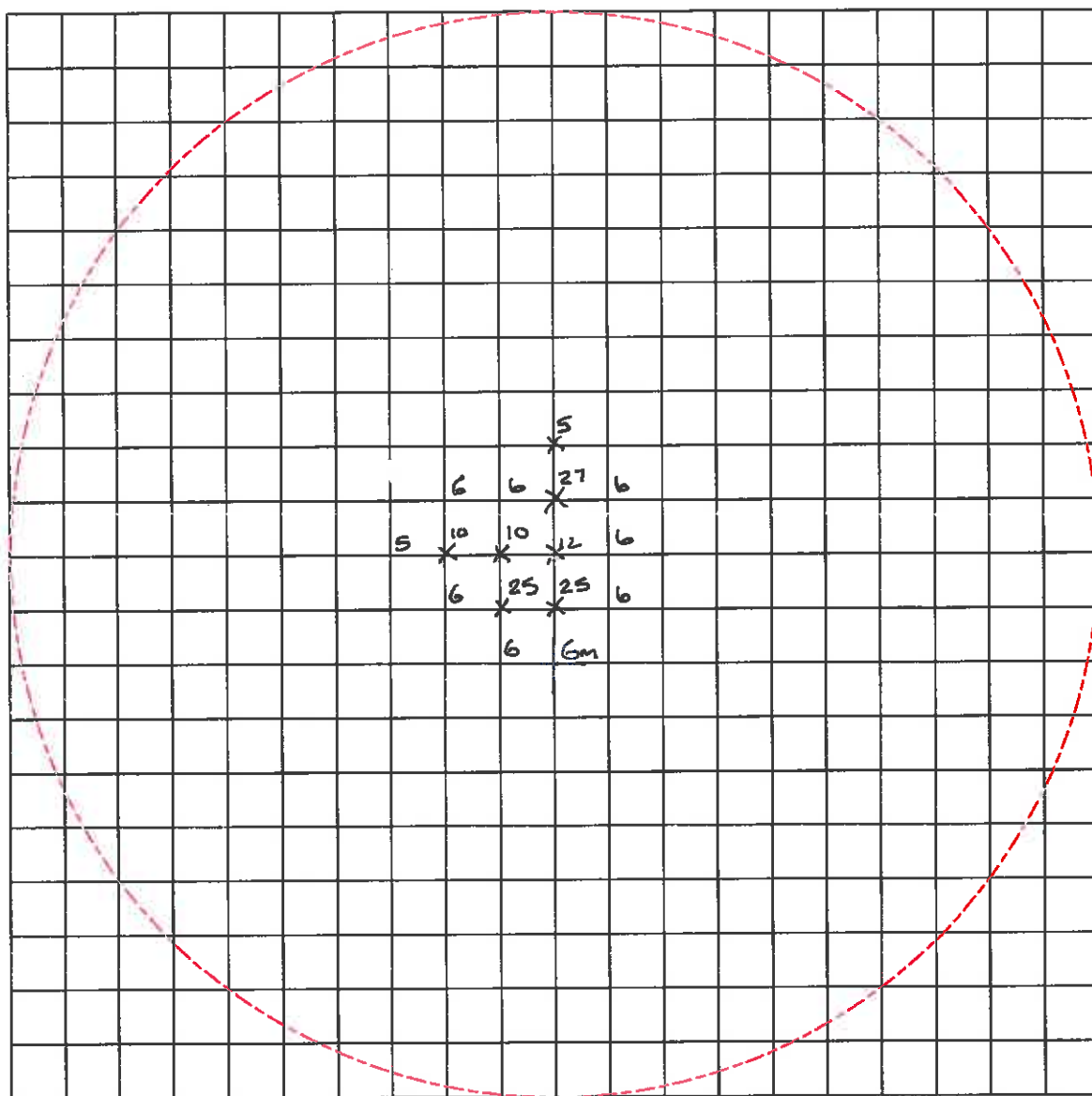
5CM

SCALE WITH CAUTION AS DISTORTION CAN OCCUR

DWG FRAME REF DC 1.1/5A

MS 5

5CM



LEGEND

X INTO SHAFT

M & J Drilling Services Ltd - Probing Record

Job No.

Drilled By

M SM/M

Scale

1:125

Job Title

LICKORS UAWF
HALSNGAD

Date

14-2-2025

DAILY SITE RECORD

SHOT 1

SITE / JOB No.	WICKER LANE HALSNEAD	DAY / DATE	MONDAY 17-2-2025	DRILLER	M. SMITH
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BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
				AK 47				
				ALL PROB HOLES AT 1m CENTRES				
				1 HOLE INTO CENTRE OF SHAFT TO 32m				
	GL 31	31 32		SOFT DRILLING INTO SOLID				
				7 HOLES TO 11m				
	GL 10	10 11		SOFT DRILLING INTO SOLID				
				'19' HOLES TO 10m STILL GOING				
	GL 10	10 -		SOFT DRILLING STILL GOING				
				2 HOLES TO 10m				
	GL 9	9 10		SOFT DRILLING INTO SOLID				

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.1 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

SHEET 2.

BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
				AKC 47				
				ALL PROBS HOLES AT 1m CENTRES				
				4 HOLES TO 9m				
	GL 8	8 9		SOFT DRILLING INTO SOLID				
				17 HOLES TO 7m				
	GL 6	6- 7		SOFT DRILLING INTO SOLID				
				3 HOLES TO 6m				
	GL 5	5- 6		SOFT DRILLING INTO SOLID				
				9 HOLES TO 4m				
	GL 3	3 4		SOFT DRILLING INTO SOLID				
				TOTAL HOLES 62				
				TOTAL METRES 528				

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.7 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

P11

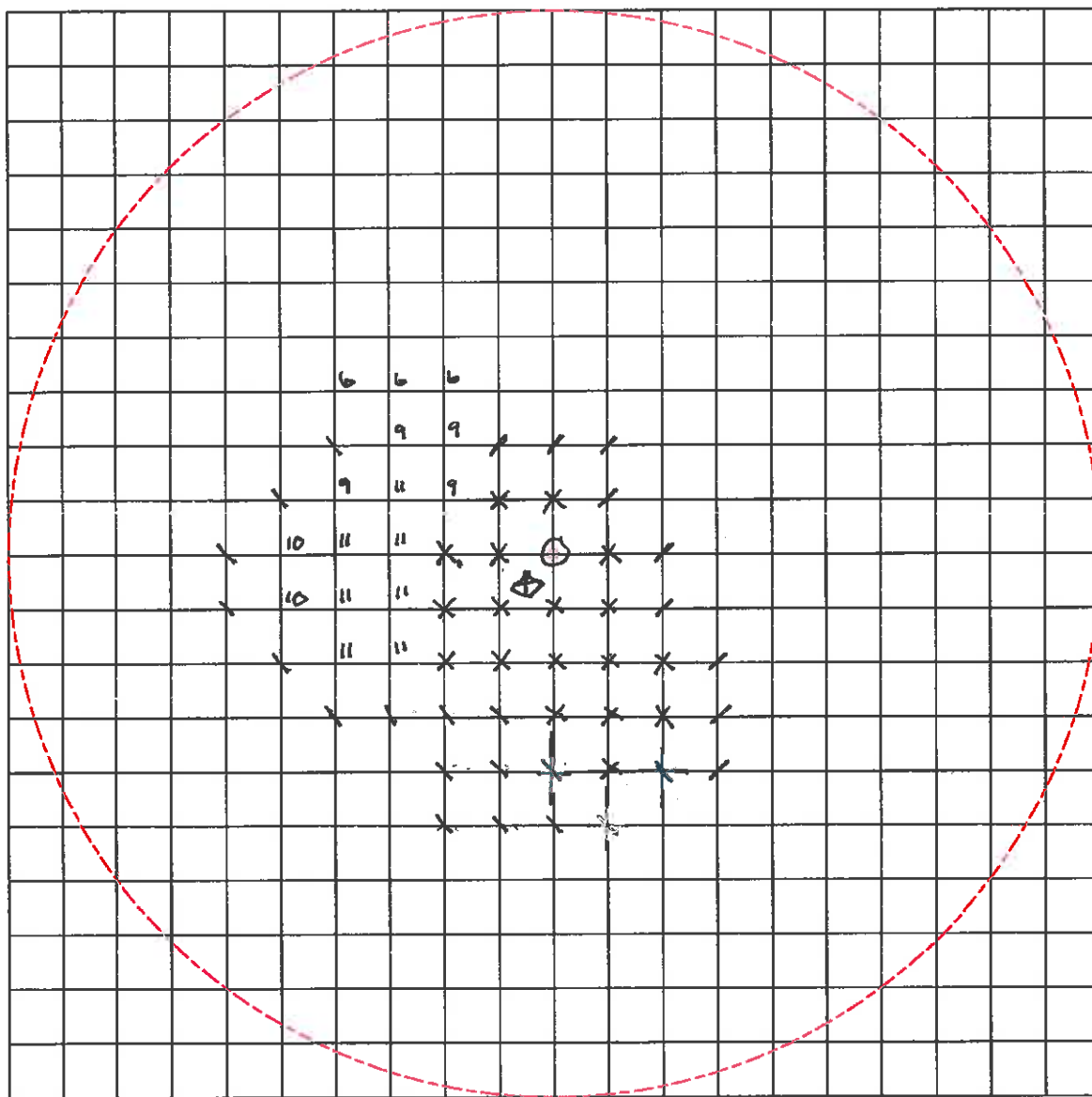
5CM

SCALE WITH CAUTION AS DISTORTION CAN OCCUR

DRG FRAME REF OC 1.1/5A

AK47

5CM



LEGEND

- ⊕ PEG
- ⊕ CENTRE
- X 10m PLUS
- \ 7m
- / 4m

M & J Drilling Services Ltd - Probing Record			Job No.
Drilled By MSMITH	Scale 1:125	Job Title LICKERS LAKE HALSHEAD	Date 17-2-2025

QC 4.1/7C

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LANE HALSNDAD	DAY / DATE	TUESDAY 18-2-2025	DRILLER	M SMITH
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[illegible]

REMARKS:	GAS MONITORING	
	CH ₄ : % LEL	H ₂ S : PPM
	CO : PPM	O ₂ : %
	CO ₂ : %	
..... R.E./SUPERVISOR		

[illegible]

SITE / JOB No.	WICKERS LAKE HALSBRAD	DAY / DATE	FRIDAY 21-2-2025	DRILLER	M SMITH
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[illegible][illegible]

DAILY SITE RECORD

SITE / JOB NO.	LICKORS LAKE HALSWOOD	DAY / DATE	MONDAY 24-2-2025	DRILLER	M SMITH
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[illegible]

REMARKS:	GAS MONITORING			
	CH₄ :	% LEL	H₂S :	PPM
	CO :	PPM	O₂ :	%
	CO₂ :	%		
..... R.E./SUPERVISOR				

[illegible]

M&J DRILLING SERVICES LTD.
Tel: 01902 885241

DAILY SITE RECORD

SITE / JOB No.	LIICKERS LANE HALSNEAD	DAY / DATE	TUESDAY 25-2-2025	DRILLER	M SMITH
-------------------	---------------------------	---------------	----------------------	---------	---------

[illegible][illegible][illegible]

QC 4.1/7C

[illegible]



DRILLING SERVICES LTD.

Tel: 01902 885241

OC 4.1/7C

DAILY SITE RECORD

SITE / JOB No.	LICKERS LANE HALSBEAD	DAY / DATE	THURSDAY 27-2-2025	DRILLER	M. SMITH
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[illegible]

REMARKS:	GAS MONITORING		
MOVED PLATFORM	CH ₄ : 0	% LEL	H ₂ S : 0 PPM
OVER SHAFT.	CO : 0	PPM	O ₂ : 20.9 %
MOVED DRILLING	CO ₂ : 0	%	
RIG + GROUT GEAR FROM DRILL & GROUT AREA, AND SET UP RIG OVER SHAFT			
SET UP GROUT GEAR.			
..... R.E./SUPERVISOR			

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LAWE HALSHEAD	DAY / DATE	FRIDAY 28-2-2025	DRILLER	M. SMITH
-------------------	--------------------------	---------------	---------------------	---------	----------

BH	DEPTH		CASING	FORMATION	GROUTING			
	FROM	TO			PFA	CEMENT	SAND	OTHER
				SHAFT M1				
				GROUTING OPC				
	29			PRESSURISED TO 2BAR	0.1			
	27			"	0.1			
	25			"	0.2			
	23			"	0.3			
	21			"	0.3			
	19			"	0.2			
	17			"	0.3			
	15			"	0.4		TOPPED OUT	
				TOTAL 1.9T				

REMARKS:	GAS MONITORING			
	CH₄ :	% LEL	H₂S :	PPM
	CO :	PPM	O₂ :	%
	CO₂ :	%		
..... R.E./SUPERVISOR				

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LIQUORS LANE HALSNORD	DAY / DATE	FRIDAY 28-2-2025	DRILLER	M. SMITH
-------------------	--------------------------	---------------	---------------------	---------	----------

[illegible]

REMARKS:	GAS MONITORING		
MV KELLY MOVED	CH ₄ : 0 % LEL	H ₂ S: 0	PPM
PLATFORM INTO	CO : 0 PPM	O ₂ : 20.9	%
POSITION DUE TO	CO ₂ : 0 %		
FLOODED WORK AREA.			
SET RIG UP OVER CENTRE OF SHAFT			
..... R.E./SUPERVISOR			

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LANE HAUSDAD	DAY / DATE	MONDAY 3-3-2025	DRILLER	M. SMITH
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[illegible]

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.9 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LAKE HALENEAD	DAY / DATE	MONDAY 3-3-2025	DRILLER	M SMITH
-------------------	--------------------------	---------------	--------------------	---------	---------

[illegible]

REMARKS:	GAS MONITORING	
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM
	CO : 0 PPM	O ₂ : 20.7 %
	CO ₂ : 0 %	
..... R.E./SUPERVISOR		

[illegible]

M&J

Tel: 01902 885241

DAILY SITE RECORD

SITE / JOB No.	WICKERS LANE HALSNEAD	DAY / DATE	MONDAY 3-3-2025	DRILLER	M SMITH
-------------------	--------------------------	---------------	--------------------	---------	---------

[illegible]

REMARKS:	GAS MONITORING		
	CH ₄ : 0 % LEL	H ₂ S : 0 PPM	
	CO : 0 PPM	O ₂ : 20.9 %	
	CO ₂ :	%	
			R.E./SUPERVISOR

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LANE HALSNEAD	DAY / DATE	MONDAY 3-3-2025	DRILLER	M SMITH
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[illegible]

REMARKS:	GAS MONITORING			
	CH₄ :	% LEL	H₂S :	PPM
	CO :	PPM	O₂ :	%
	CO₂ :	%		
..... R.E./SUPERVISOR				

[illegible]

[illegible]

DAILY SITE RECORD

SITE / JOB No.	LICKERS LAKE HALSNEAD	DAY / DATE	TUESDAY 4-3-2025	DRILLER	M SMITH
-------------------	--------------------------	---------------	---------------------	---------	---------

[illegible][illegible][illegible]

Appendix D

Grout Laboratory Testing Records



29124



Alpha Testing Services Ltd

Alpha Testing Services Ltd
Unit 3B, Silver End Industrial Estate,
Wedgbury Way,
Brierley Hill,
West Midlands.
DY5 3LA
Tel +44 (0) 138 426 5626
Email: office@alphatestingservices.co.uk

TEST CERTIFICATE - Grout Cubes

Tested to BS EN 12390-3: 2019

Client Name: M&J Drilling Services Limited For the attention of: Contracts Manager			Client Address: Unit 44 , Coneygree Industrial Estate, Tipton, DY4 8XP				Order Number: 02/06056		
Name of Project:			Position of Concrete in Project:		Name of Concrete Supplier:		Report Reference: ATS23/ 1273-6		
Lickers Lane (Halsnead)			-		-				
Specification & Consistency of Concrete:			Measured Slump:	Air Content:	Date Made:	Time Made:			
C: OPC			-	-	12.02.2025	-	20.02.2025		
Client Cube Reference.	ATS Cube Reference	Test Date	Test Age (Days)	Density (saturated) (kg/m³)	Designated Sizes (mm)	Max. Load (kN)	Comp. Strength (N/mm²)	Specified Strength at 28 days (N/mm²)	Comments
5	Y506-1	26.02.2025	14	1900	148x149x150	657.5	29.8	1.0	
6									

All cubes are tested as received

Condition of Cubes when Received:	Dry	Rate of Loading 0.2 to 0.6 N/mm² /sec	Making Certificate Available:	Yes
Laboratory Curing Range:	18°-22°C		Cube Made By:	Client
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	Dimensions		Concrete Failure:	Satisfactory

Making certificate will be provided if requested.

Date of Issue: 26 February 2025

Certified that curing in the laboratory and testing carried out in accordance with BS EN 12390-2:2019 and 12390-7:2019 and 12390-3:2019. This test report shall not be reproduced, except in full, without the written approval of Alpha Testing Services Limited. These results relate only to the items tested.

Page 1 of 1.

Authorised By.....

A. Clews (Managing Director)



29124



Alpha Testing Services Ltd

Alpha Testing Services Ltd
Unit 3B, Silver End Industrial Estate,
Wedgbury Way,
Brierley Hill,
West Midlands.
DY5 3LA
Tel +44 (0) 138 426 5626
Email: office@alphatestingservices.co.uk

TEST CERTIFICATE - Grout Cubes

Tested to BS EN 12390-3: 2019

Client Name: M&J Drilling Services Limited For the attention of: Contracts Manager			Client Address: Unit 44 , Coneygree Industrial Estate, Tipton, DY4 8XP				Order Number: 02/06056		
Name of Project:			Position of Concrete in Project:		Name of Concrete Supplier:		Report Reference: ATS23/ 1273-7		
Lickers Lane (Halshead)			-		-				
Specification & Consistency of Concrete:			Measured Slump:	Air Content:	Date Made:	Time Made:			
C: OPC			-	-	13.02.2025	-	20.02.2025		
Client Cube Reference.	ATS Cube Reference	Test Date	Test Age (Days)	Density (saturated) (kg/m³)	Designated Sizes (mm)	Max. Load (kN)	Comp. Strength (N/mm²)	Specified Strength at 28 days (N/mm²)	Comments
7	Y507-1	27.02.2025	14	1900	150x149x150	537.3	24.0	1.0	
8									

All cubes are tested as received

Condition of Cubes when Received:	Dry	Rate of Loading 0.2 to 0.6 N/mm² /sec	Making Certificate Available:	Yes
Laboratory Curing Range:	18°-22°C		Cube Made By:	Client
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	Dimensions		Concrete Failure:	Satisfactory

Making certificate will be provided if requested.

Date of Issue: 27 February 2025

Certified that curing in the laboratory and testing carried out in accordance with BS EN 12390-2:2019 and 12390-7:2019 and 12390-3:2019. This test report shall not be reproduced, except in full, without the written approval of Alpha Testing Services Limited. These results relate only to the items tested.

Page 1 of 1.

Authorised By.....

A. Clews (Managing Director)



29124



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DY5 3LA
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TEST CERTIFICATE - Grout Cubes

Tested to BS EN 12390-3: 2019

Client Name: M&J Drilling Services Limited For the attention of: Contracts Manager			Client Address: Unit 44 , Coneygree Industrial Estate, Tipton, DY4 8XP				Order Number: 02/06101		
Name of Project:			Position of Concrete in Project:		Name of Concrete Supplier:		Report Reference: ATS23/ 1315-13		
Lickers Lane, Halsnead			-		-				
Specification & Consistency of Concrete:			Measured Slump:	Air Content:	Date Made:	Time Made:			
C: OPC			-	-	21.02.2025	-	05.03.2025		
Client Cube Reference.	ATS Cube Reference	Test Date	Test Age (Days)	Density (saturated) (kg/m³)	Designated Sizes (mm)	Max. Load (kN)	Comp. Strength (N/mm²)	Specified Strength at 28 days (N/mm²)	Comments
9	P118-1	07.03.2025	14	1900	150x150x150	765.5	34.0	1.0	
10									

All cubes are tested as received

Condition of Cubes when Received:	Dry	Rate of Loading 0.2 to 0.6 N/mm² /sec	Making Certificate Available:	Yes
Laboratory Curing Range:	18°-22°C		Cube Made By:	Client
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	Dimensions		Concrete Failure:	Satisfactory

Making certificate will be provided if requested.

Date of Issue: 07 March 2025

Certified that curing in the laboratory and testing carried out in accordance with BS EN 12390-2:2019 and 12390-7:2019 and 12390-3:2019. This test report shall not be reproduced, except in full, without the written approval of Alpha Testing Services Limited. These results relate only to the items tested.

Page 1 of 1.

Authorised By.....

A. Clews (Managing Director)



29124



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TEST CERTIFICATE - Grout Cubes

Tested to BS EN 12390-3: 2019

Client Name: M&J Drilling Services Limited For the attention of: Contracts Manager			Client Address: Unit 44 , Coneygree Industrial Estate, Tipton, DY4 8XP				Order Number: 02/06056		
Name of Project:			Position of Concrete in Project:		Name of Concrete Supplier:		Report Reference: ATS23/ 1273-4		
Lickers Lane (Halsnead)			-		-				
Specification & Consistency of Concrete:			Measured Slump:	Air Content:	Date Made:	Time Made:			
C: OPC			-	-	06.02.2025	-	20.02.2025		
Client Cube Reference.	ATS Cube Reference	Test Date	Test Age (Days)	Density (saturated) (kg/m³)	Designated Sizes (mm)	Max. Load (kN)	Comp. Strength (N/mm²)	Specified Strength at 28 days (N/mm²)	Comments
1	Y504-1	20.02.2025	14	1920	144x150x150	584.8	27.0	1.0	
2	504-2	06.03.2025	28	1910	147x150x149	707.8	32.1	1.0	

All cubes are tested as received

Condition of Cubes when Received:	Dry	Rate of Loading 0.2 to 0.6 N/mm² /sec	Making Certificate Available:	Yes
Laboratory Curing Range:	18°-22°C		Cube Made By:	Client
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	Dimensions		Concrete Failure:	Satisfactory

Making certificate will be provided if requested.

Date of Issue: 06 March 2025

Certified that curing in the laboratory and testing carried out in accordance with BS EN 12390-2:2019 and 12390-7:2019 and 12390-3:2019. This test report shall not be reproduced, except in full, without the written approval of Alpha Testing Services Limited. These results relate only to the items tested.

Page 1 of 1.

Authorised By.....

A. Clews (Managing Director)



29124



Alpha Testing Services Ltd

Alpha Testing Services Ltd
Unit 3B, Silver End Industrial Estate,
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West Midlands.
DY5 3LA
Tel +44 (0) 138 426 5626
Email: office@alphatestingservices.co.uk

TEST CERTIFICATE - Grout Cubes

Tested to BS EN 12390-3: 2019

Client Name: M&J Drilling Services Limited For the attention of: Contracts Manager			Client Address: Unit 44 , Coneygree Industrial Estate, Tipton, DY4 8XP				Order Number: 02/06056		
Name of Project:			Position of Concrete in Project:		Name of Concrete Supplier:		Report Reference: ATS23/ 1273-5		
Lickers Lane (Halsnead)			-		-				
Specification & Consistency of Concrete:			Measured Slump:	Air Content:	Date Made:	Time Made:			
C: OPC			-	-	10.02.2025	-	20.02.2025		
Client Cube Reference.	ATS Cube Reference	Test Date	Test Age (Days)	Density (saturated) (kg/m³)	Designated Sizes (mm)	Max. Load (kN)	Comp. Strength (N/mm²)	Specified Strength at 28 days (N/mm²)	Comments
3	Y505-1	24.02.2025	14	1950	145x149x150	723.2	33.4	1.0	
4	505-2	10.03.2025	28	1900	145x150x150	794.1	36.5	1.0	

All cubes are tested as received

Condition of Cubes when Received:	Dry	Rate of Loading 0.2 to 0.6 N/mm² /sec	Making Certificate Available:	Yes
Laboratory Curing Range:	18°-22°C		Cube Made By:	Client
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	Dimensions		Concrete Failure:	Satisfactory

Making certificate will be provided if requested.

Date of Issue: 10 March 2025

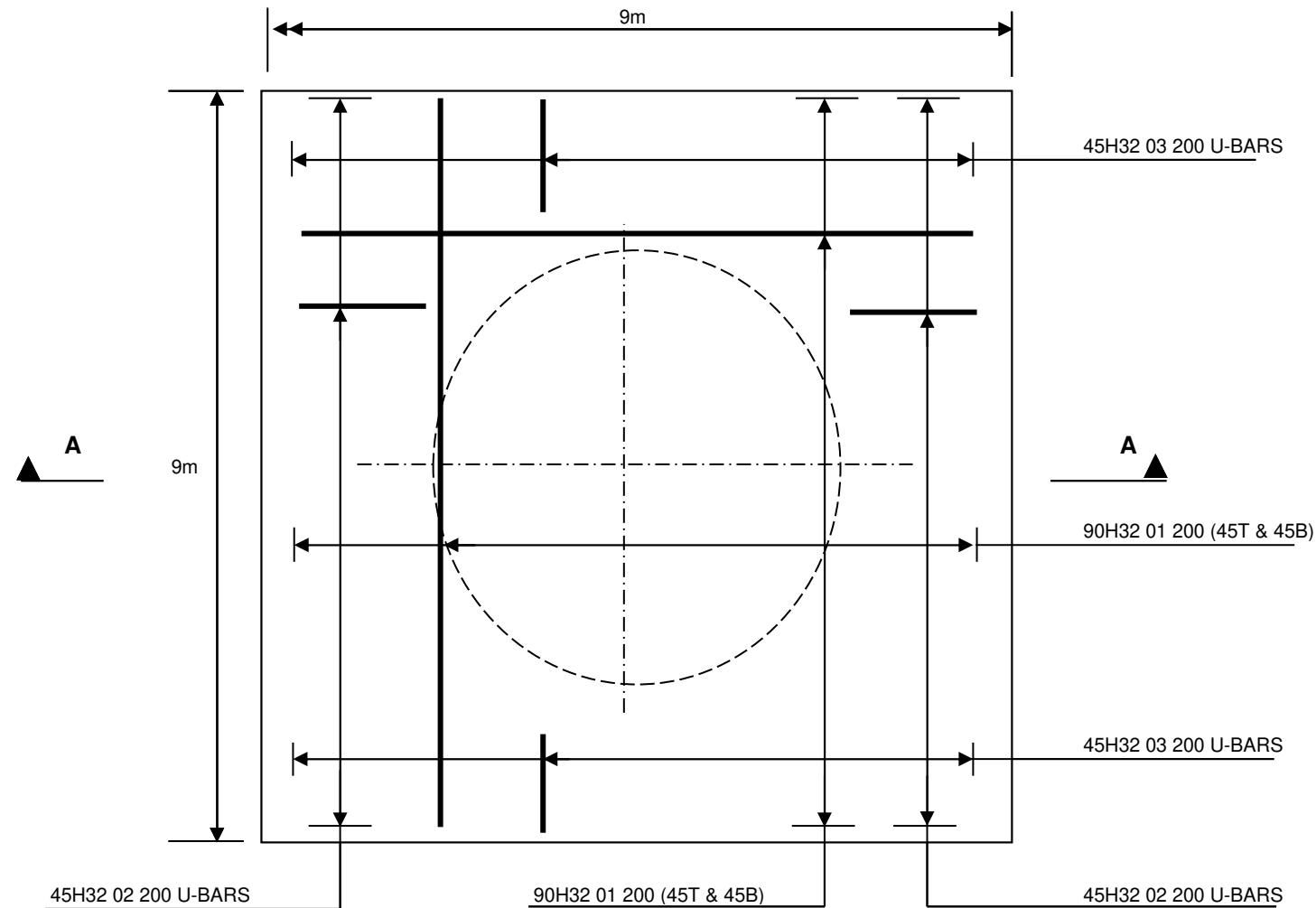
Certified that curing in the laboratory and testing carried out in accordance with BS EN 12390-2:2019 and 12390-7:2019 and 12390-3:2019. This test report shall not be reproduced, except in full, without the written approval of Alpha Testing Services Limited. These results relate only to the items tested.

Page 1 of 1.

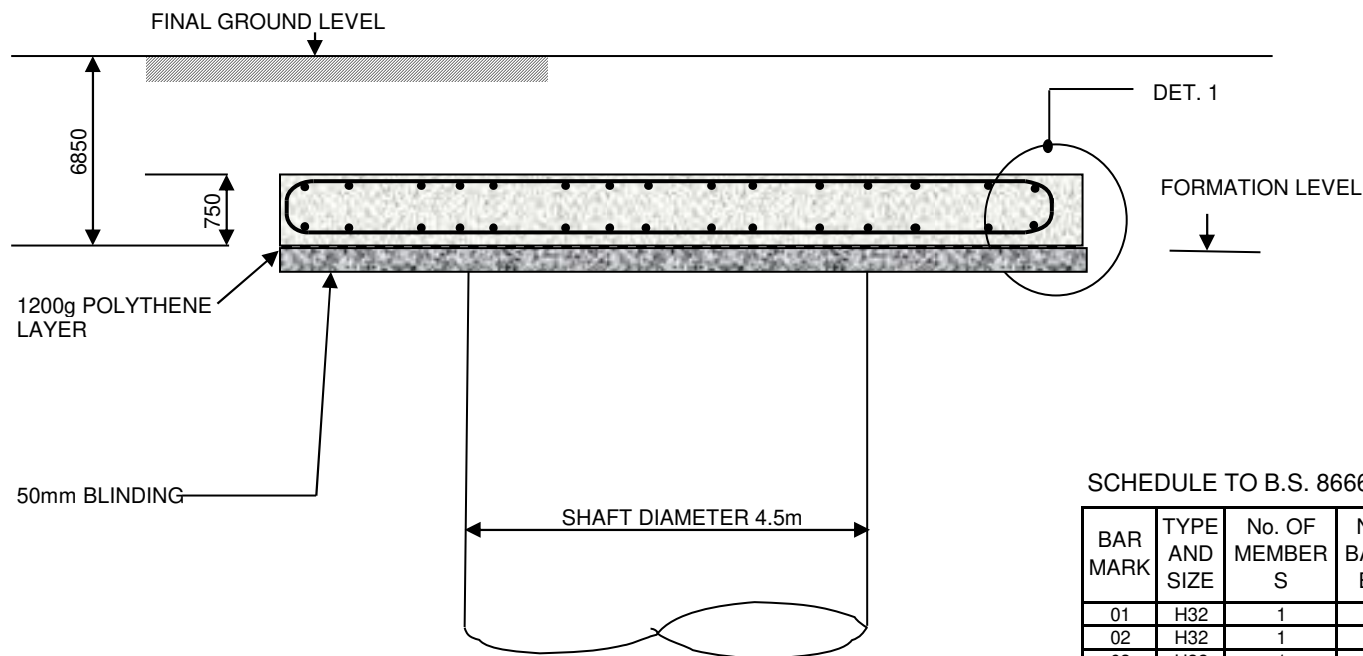
Authorised By.....

A. Clews (Managing Director)

DRAWINGS



PLAN ON SHAFT CAP
N.T.S.

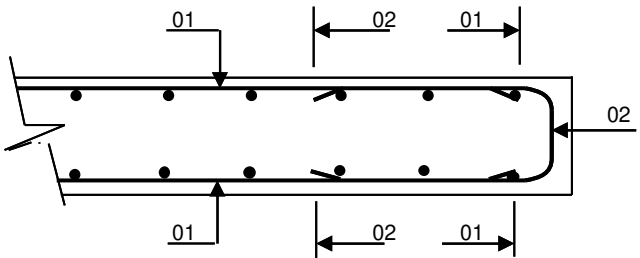


SECTION A-A
N.T.S.

SCHEDULE TO B.S. 8666:2000

BAR SCHEDULE REFERENCE: 01

BAR MARK	TYPE AND SIZE	No. OF MEMBER S	No.OF BARS IN EACH	TOTAL No.	LENGTH OF EACH BAR (mm)	SHAPE CODE	A (mm)	B (mm)	C (mm)	D (mm)	E/r (mm)
01	H32	1	180	180	8825	00					
02	H32	1	90	90	3200	21	1380	600			
03	H32	1	90	90	3150	21	1380	535			



DETAIL 1
N.T.S.

NOTES.

- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
- SHAFT CAP HAS BEEN DESIGNED AS A SIMPLY SUPPORTED TWO WAY SPANNING SLAB BASED ON THE FOLLOWING CRITERIA:
 - SHAFT DIAMETER = 4.5m
 - MAX DEPTH OF OVERBURDEN = 6.1m
 - MAX SUPERIMPOSED LOAD = 33kN/sq.m
 - BULK DENSITY OF OVERBURDEN = 18kN/cu.m
- FORMATION LEVEL HAS BEEN ASSUMED TO BE ON ROCKHEAD WITH A SAFE BEARING CAPACITY OF 300kN/sq.m
- SHAFT DIAMETER, NATURE OF STRATA AT FORMATION AND DEPTH TO FORMATION LEVEL TO BE CONFIRMED ON SITE PRIOR TO PLACEMENT OF REINFORCEMENT.
- NO WORK TO BE CARRIED OUT UNTIL IT IS CONFIRMED THAT THE SHAFT HAS BEEN TESTED AND IT IS FREE FROM GAS.
- ALL EXCAVATIONS TO BE CARRIED OUT AT SAFE SLOPE BATTERS AND WITH OVERALL REGARD TO THE DEPTH OF EXCAVATION AND NATURE OF THE MATERIALS TO BE EXCAVATED.
- FORMATION LEVEL TO BE INSPECTED BY THE ENGINEER PRIOR TO CONCRETING. SOFT SPOTS TO BE REMOVED AND REPLACED WITH SUITABLE COMPACTED GRANULAR MATERIAL.
- SERVICES NOT TO PASS THROUGH SHAFT CAP UNLESS OTHERWISE AGREED WITH THE ENGINEER.
- THE REQUIREMENT FOR FORMWORK IS DEPENDENT ON GROUND CONDITIONS.
- CONCRETE TO BE DESIGNATED MIX RC40, NOMINAL MAXIMUM AGGREGATE SIZE 20mm. BLINDING CONCRETE TO BE MIX GEN1.
- MINIMUM COVER TO REINFORCEMENT TO BE 75mm TO BOTTOM, TOP AND SIDES
MINIMUM LAP TO REINFORCEMENT:

H12	480	mm
H16	640	mm
H20	800	mm
H25	1000	mm
H32	1280	mm
FABRIC	400	mm
- EXCAVATION NOT TO BE BACKFILLED UNTIL AT LEAST 7 DAYS AFTER CONCRETE IS CAST UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

B	TOP COVER CHANGED TO 75MM	Sept 24			
REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

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PROJECT

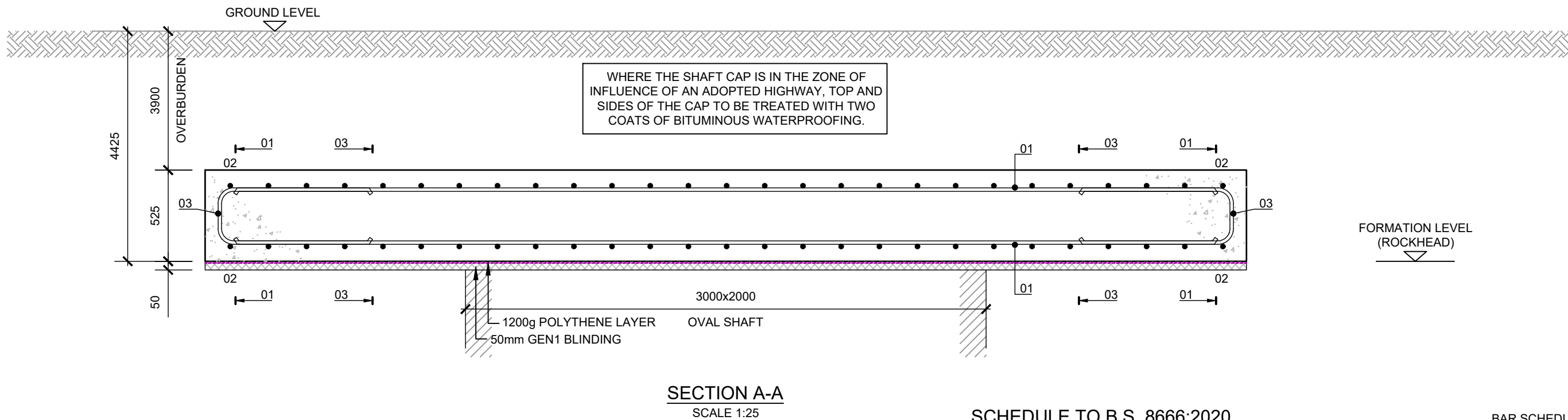
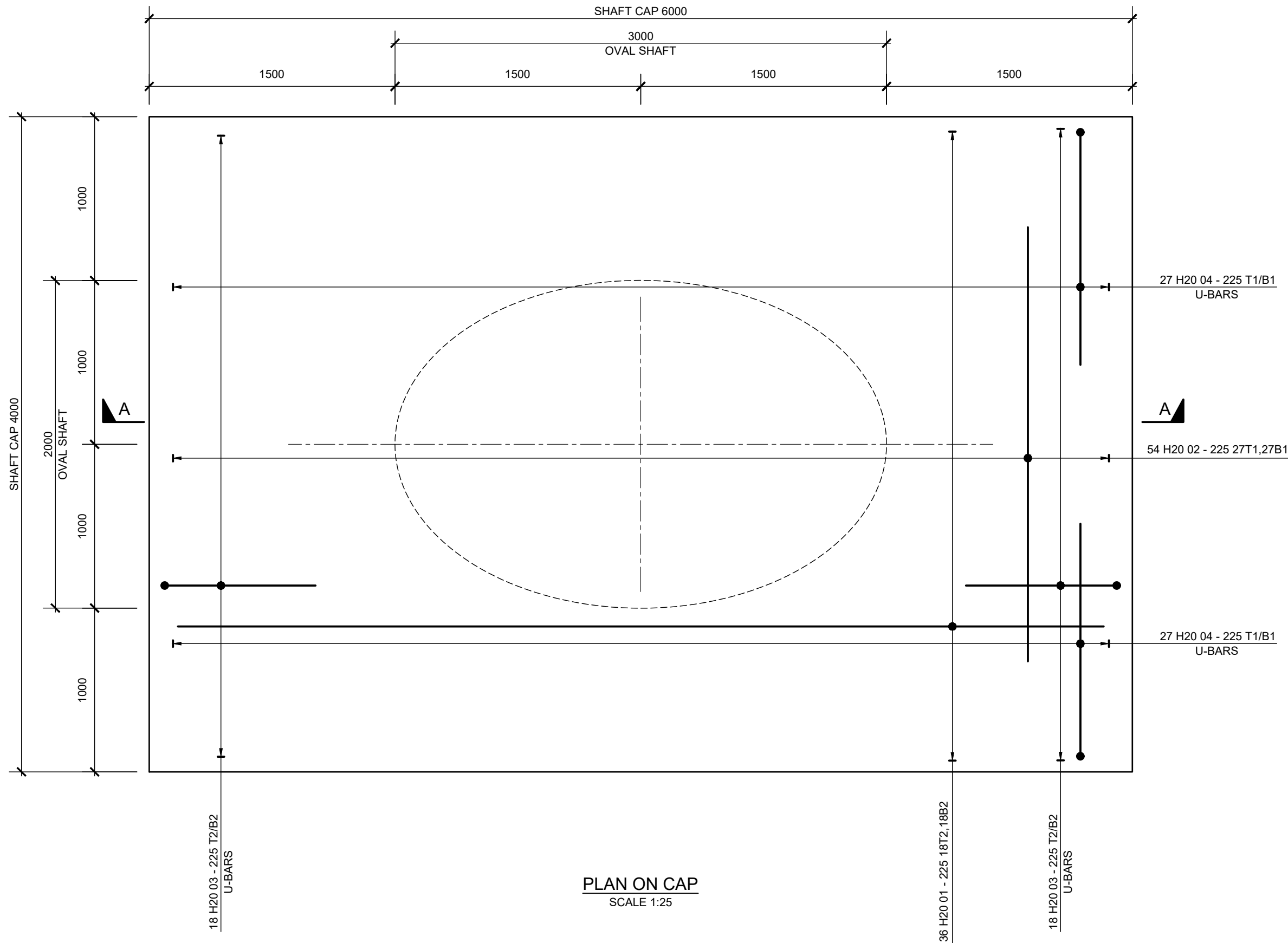
LAND OFF LICKERS LANE

DRAWING TITLE

SHAFT CAP DESIGN FOR SHAFT
347390-002

DWG No.	SCALE	DATE
GM11373/10	N.T.S.	Jun-23
DRAWN BY	CHECKED BY	APPROVED BY
JK	AW	AW





SCHEDULE TO B.S. 8666:2020

BAR SCHEDULE REFERENCE GM11373-BBS-012-01

Member	Bar Mark	Type and Size	No of Mbrs	No of bars in each	Total No	Length of each bar** (mm)	Shape Code	A * (mm)	B * (mm)	C * (mm)	D * (mm)	E * (mm)	F * (mm)	R * (mm)	Weight (kg)	Rev
	01	H20	1	36	36	5675	00	STR							504	
	02	H20	1	54	54	3675	00	STR							490	
	03	H20	1	36	36	2025	21	900	325	(900)					180	
	04	H20	1	54	54	2075	21	900	370	(900)					277	

DO NOT SCALE FROM THIS DRAWING

NOTES

- ALL DIMENSIONS IN MILLIMETERS UNLESS NOTES OTHERWISE.
- SHAFT CAP HAS BEEN DESIGNED AS A SIMPLY SUPPORTED ONE WAY SPANNING SLAB ON THE FOLLOWING CRITERIA:
 - OVAL SHAFT SIZE = 2m x 3m
 - MAX DEPTH OF OVERBURDEN = 3.9m
 - MAX SUPERIMPOSED LOAD = 33kN/m²
 - BULK DENSITY OF OVERBURDEN = 18kN/m³
- FORMATION LEVEL HAS BEEN ASSUMED TO BE AT ROCKHEAD WITH A MINIMUM SAFE BEARING CAPACITY OF 250kN/m²
- MINE SHAFT DIMENSIONS, NATURE OF STRATA AT FORMATION AND DEPTH TO FORMATION LEVEL TO BE CONFIRMED ON SITE PRIOR TO PLACEMENT OF REINFORCEMENT.
- NO WORK TO BE CARRIED OUT UNTIL IT IS CONFIRMED THAT THE MINING ANOMALY HAS BEEN TASTED AND IT IS FREE OF GAS.
- ALL EXCAVATIONS TO BE CARRIED OUT AT SAFE LOPE BATTERS AND WITH THE OVERALL REGARD TO THE DEPTH OF THE EXCAVATION AND NATURE OF THE MATERIALS TO BE EXCAVATED.
- FORMATION LEVEL TO BE INSPECTED BY THE ENGINEER PRIOR TO CONCRETING. SOFT SPOTS TO BE REMOVED AND REPLACED WITH SUITABLE COMPACTED GRANULAR MATERIAL.
- SERVICES ARE NOT TO PASS THROUGH CAP UNLESS OTHERWISE AGREED WITH THE ENGINEER.
- THE REQUIREMENT FOR FORMWORK IS DEPENDENT ON GROUND CONDITIONS.
- CONCRETE TO BE DESIGNATED MIX RC40, NOMINAL MAXIMUM AGGREGATE SIZE 20mm. BLINDING CONCRETE TO BE MIX GEN1.
- MINIMUM COVER TO REINFORCEMENT TO BE 75mm TO ALL FACES.
- MINIMUM LAP TO REINFORCEMENT FOR SCHEDULED DIAMETER BARS AS FOLLOWS
H20 - 800mm
- EXCAVATION MUST NOT BE BACKFILLED UNTIL AT LEAST 7 DAYS AFTER CONCRETE IS CAST UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

B	INCREASED TOP COVER, LOWERED SLAB SOFFIT. UPDATED NOTE 11 TO SUIT.	04/09/24	DG	SRB	AMW
A	FIRST ISSUE	26-06-23	DG	SRB	AMW
REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

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PROJECT

LAND OFF LICKERS LANE

DRAWING TITLE

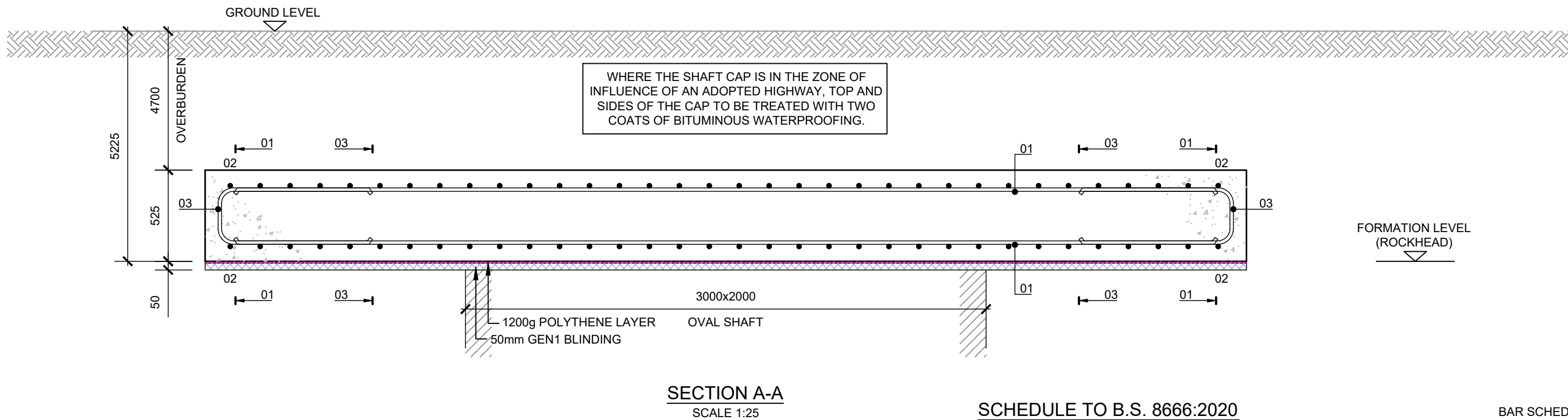
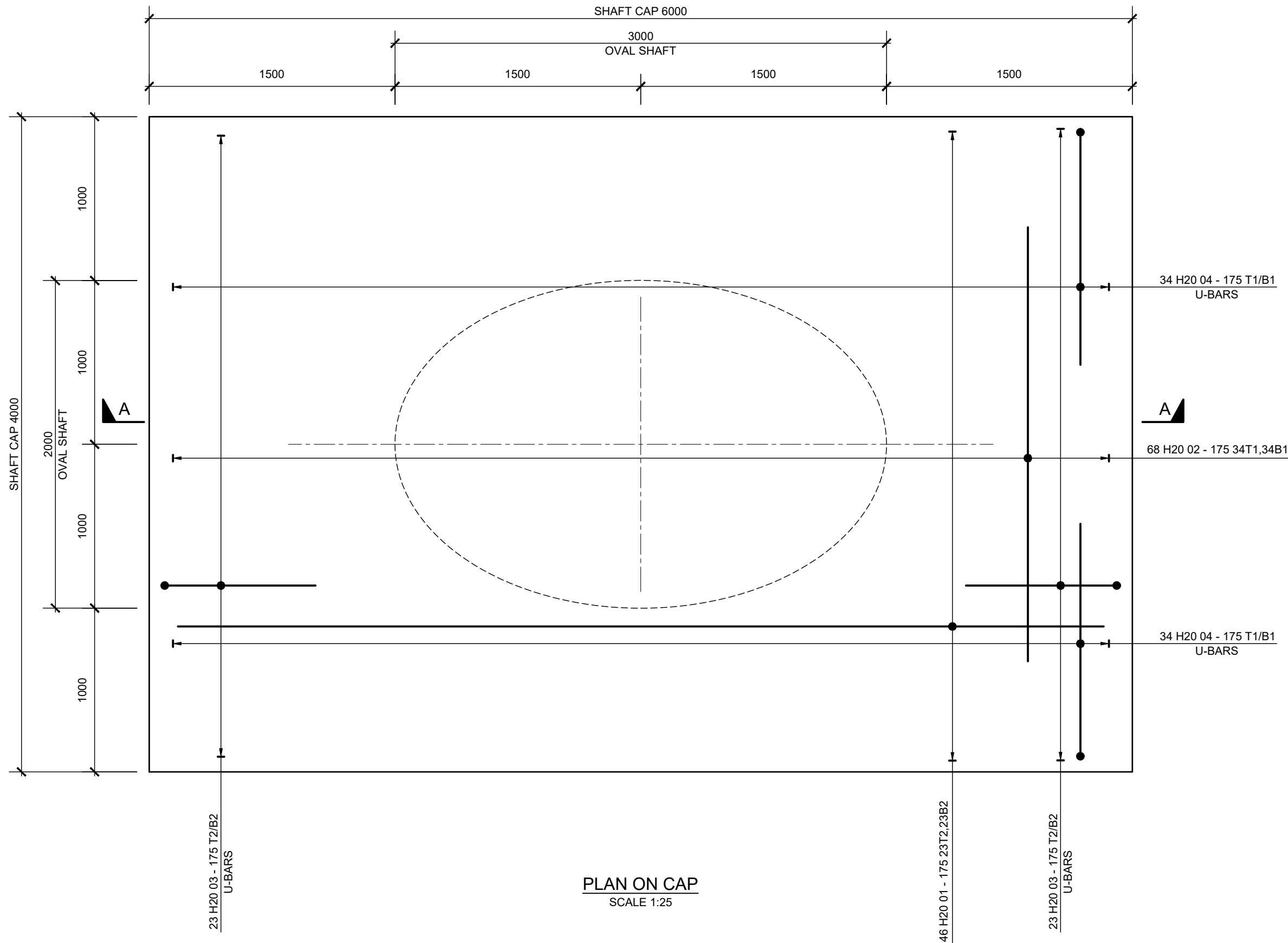
GENERAL ARRANGEMENT & REINFORCEMENT DETAILS FOR SHAFT CAP (SHAFT UR M/S 5 [M7])

DRG No.	GM11373-012	REV	B
DRG SIZE	A2	SCALE	1:25
DATE	JUNE 2023	APPROVED BY	AMW
DRAWN BY	DG	CHECKED BY	JK

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SCHEDULE TO B.S. 8666:2020

BAR SCHEDULE REFERENCE GM11373-BBS-016-01

Member	Bar Mark	Type and Size	No of Mbrs	No of bars in each	Total No	Length of each bar** (mm)	Shape Code	A * (mm)	B * (mm)	C * (mm)	D * (mm)	E * (mm)	F * (mm)	R * (mm)	Weight (kg)	Rev
	01	H20	1	46	46	5675	00	STR							644	
	02	H20	1	68	68	3675	00	STR							617	
	03	H20	1	46	46	2025	21	900	325	(900)					230	
	04	H20	1	68	68	2075	21	900	370	(900)					348	

DO NOT SCALE FROM THIS DRAWING

NOTES

- ALL DIMENSIONS IN MILLIMETERS UNLESS NOTES OTHERWISE.
- SHAFT CAP HAS BEEN DESIGNED AS A SIMPLY SUPPORTED ONE WAY SPANNING SLAB ON THE FOLLOWING CRITERIA:
 - OVAL SHAFT SIZE = 2m x 3m
 - MAX DEPTH OF OVERBURDEN = 4.7m
 - MAX SUPERIMPOSED LOAD = 33kN/m²
 - BULK DENSITY OF OVERBURDEN = 18kN/m³
- FORMATION LEVEL HAS BEEN ASSUMED TO BE AT ROCKHEAD WITH A MINIMUM SAFE BEARING CAPACITY OF 250kN/m²
- MINE SHAFT DIMENSIONS, NATURE OF STRATA AT FORMATION AND DEPTH TO FORMATION LEVEL TO BE CONFIRMED ON SITE PRIOR TO PLACEMENT OF REINFORCEMENT.
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- FORMATION LEVEL TO BE INSPECTED BY THE ENGINEER PRIOR TO CONCRETING. SOFT SPOTS TO BE REMOVED AND REPLACED WITH SUITABLE COMPACTED GRANULAR MATERIAL.
- SERVICES ARE NOT TO PASS THROUGH CAP UNLESS OTHERWISE AGREED WITH THE ENGINEER.
- THE REQUIREMENT FOR FORMWORK IS DEPENDENT ON GROUND CONDITIONS.
- CONCRETE TO BE DESIGNATED MIX RC40, NOMINAL MAXIMUM AGGREGATE SIZE 20mm. BLINDING CONCRETE TO BE MIX GEN1.
- MINIMUM COVER TO REINFORCEMENT TO BE 75mm TO ALL FACES.
- MINIMUM LAP TO REINFORCEMENT FOR SCHEDULED DIAMETER BARS AS FOLLOWS
H20 - 800mm
- EXCAVATION MUST NOT BE BACKFILLED UNTIL AT LEAST 7 DAYS AFTER CONCRETE IS CAST UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

B	INCREASED TOP COVER, LOWERED SLAB SOFFIT. UPDATED NOTE 11 TO SUIT.	04/09/24	DG	SRB	AMW
A	FIRST ISSUE	26-06-23	DG	SRB	AMW
REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

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PROJECT

LAND OFF LICKERS LANE

DRAWING TITLE

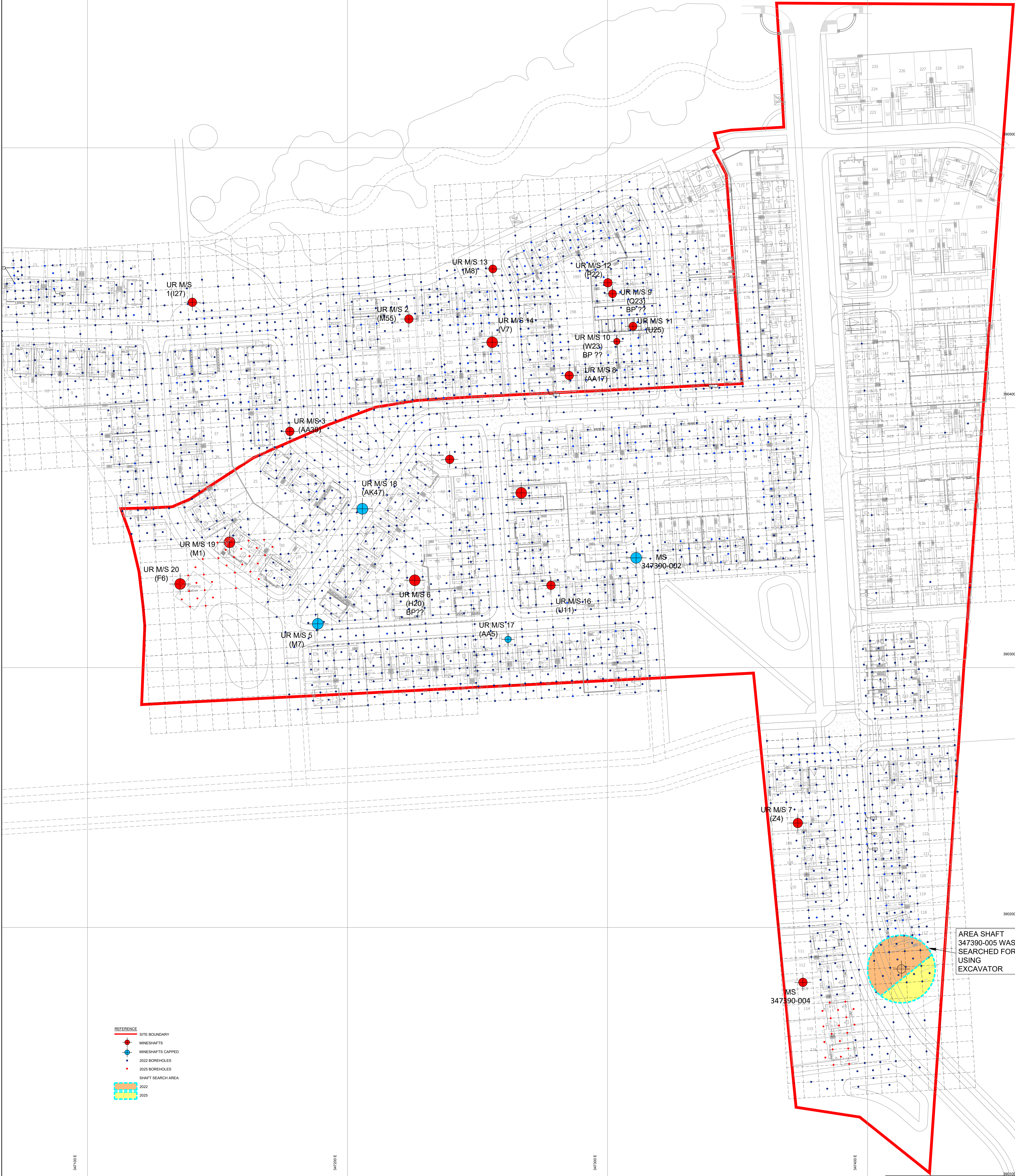
GENERAL ARRANGEMENT & REINFORCEMENT DETAILS FOR SHAFT CAP (SHAFT UR M/S 18 [AK 47])

DRG No.	GM11373-016	REV	B
DRG SIZE	A2	SCALE	1:25
DATE	JUNE 2023	APPROVED BY	AMW
DRAWN BY	DG	CHECKED BY	JK

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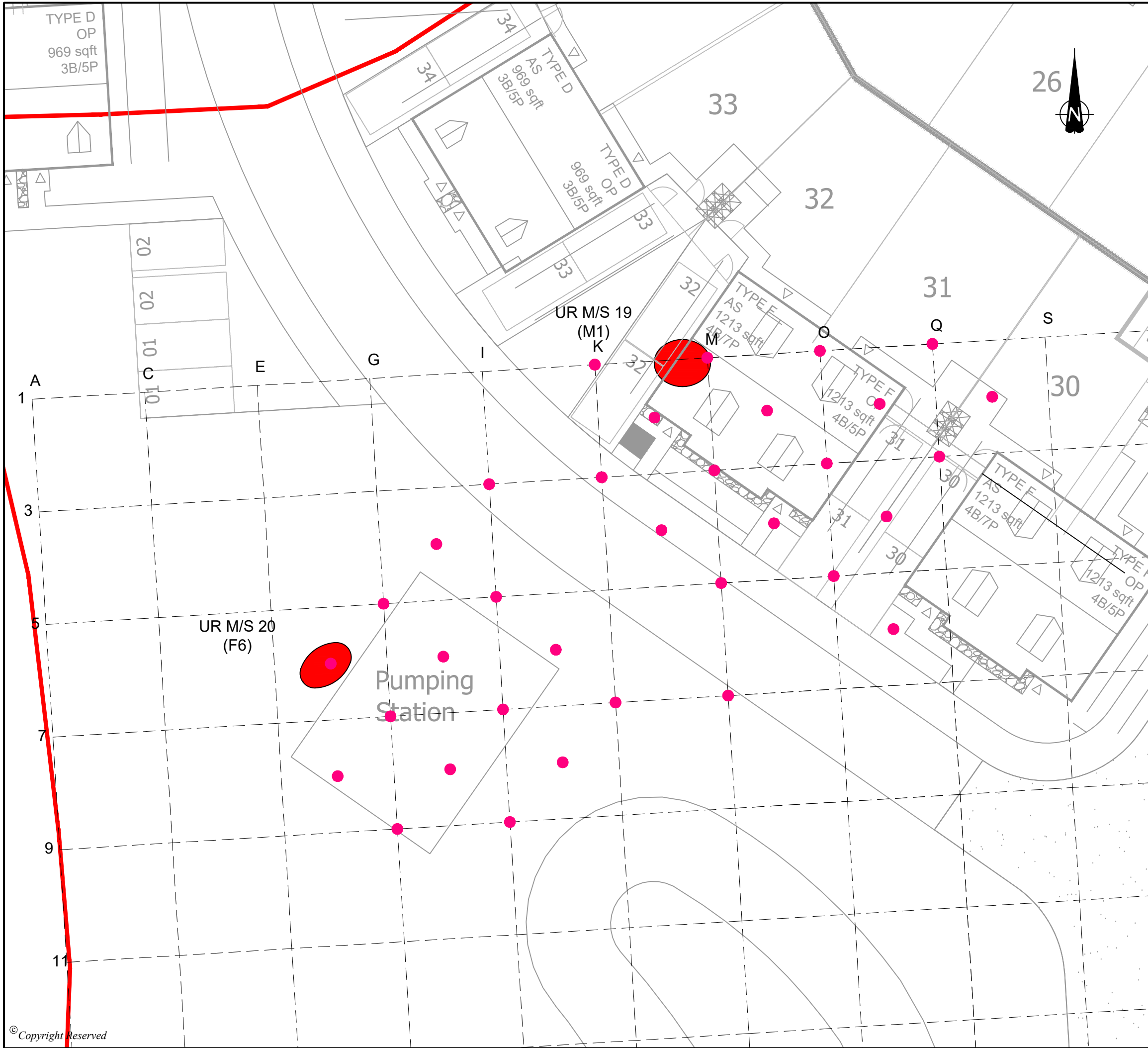


- REFERENCE
- SITE BOUNDARY
 - MINESHAFTS
 - MINESHAFTS CAPPED
 - 2022 BOREHOLES
 - 2025 BOREHOLES
 - SHAFT SEARCH AREA
 - 2022
 - 2025

AREA SHAFT
347390-005 WAS
SEARCHED FOR
USING
EXCAVATOR

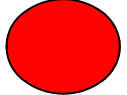
REVISION	DATE	BY	CHKD	APPD
1	07/05/25	DB	DB	DB
CLIENT				
COUNTRYSIDE PARTNERSHIPS MERSEYSIDE AND CHESHIRE WEST				
PROJECT				
HALSNEAD GARDEN VILLAGE				
DRAWING TITLE				
AS BUILT DRILLING & GROUTING LAYOUT				
DRG NO.	GM13232-012	REV	A	DATE CODE
DRG SIZE	A0	SCALE	1:500	DATE
DRAWN BY	SG	CHECKED BY	DB	APPROVED BY
wardell armstrong PART OF SLR				





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REFERENCE

-  SITE BOUNDARY
-  AS BUILT BOREHOLES WITH GROUT TAKE 0 - 0.5T
-  APPROXIMATE EXTENT OF SHAFT

REVISION	DETAILS	DATE	DRN	CHK'D	APP'D
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CLIENT
COUNTRYSIDE PARTNERSHIPS
MERSEYSIDE AND CHESHIRE WEST

PROJECT
HALSNEAD GARDEN VILLAGE

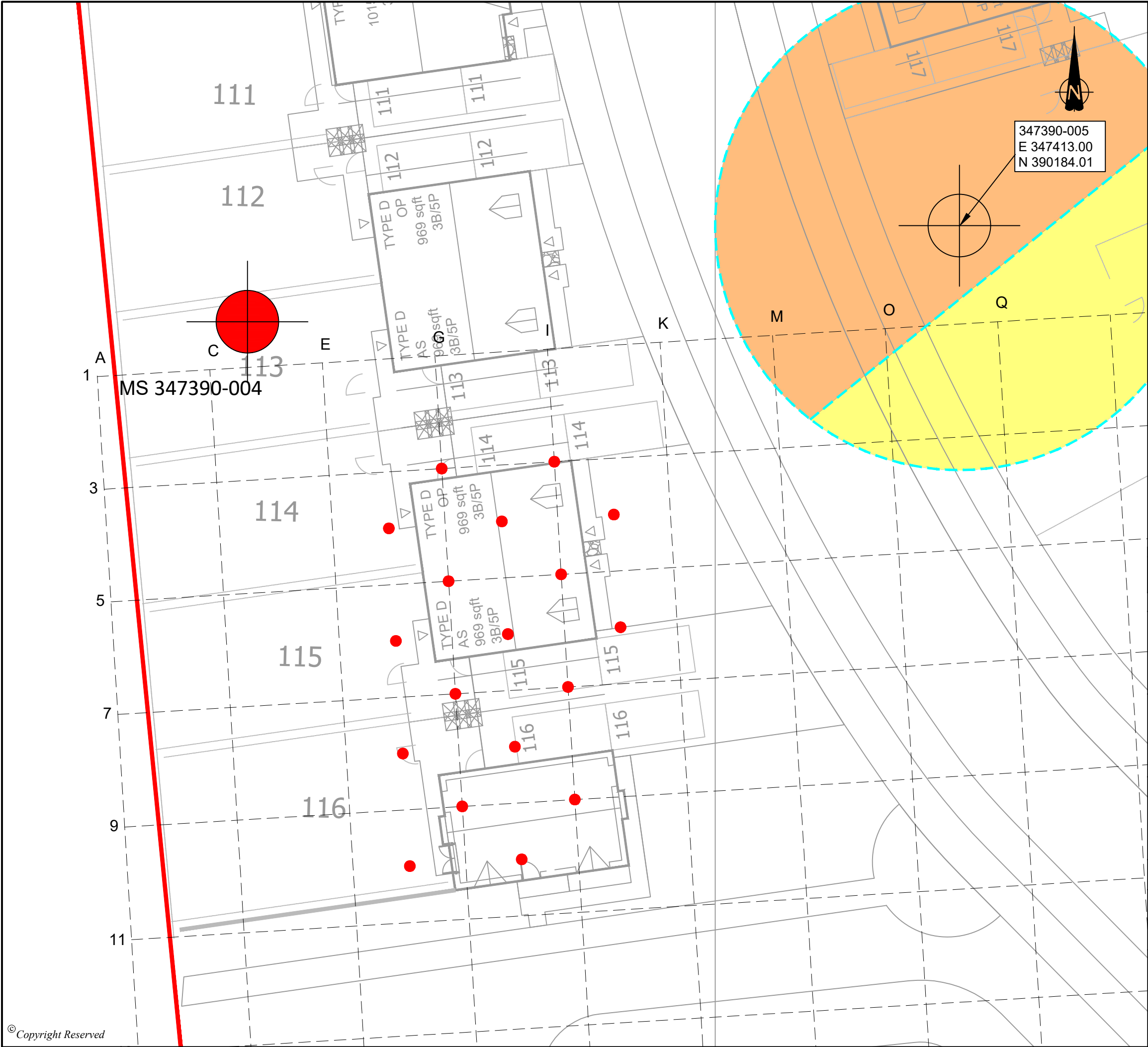
DRAWING TITLE
AS BUILT
DRILLING & GROUTING LAYOUT

DRG No.	GM13232-013	REV	A	SUIT. CODE
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DRG SIZE	A3	SCALE	1:200	DATE	07/05/25
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DRAWN BY	DB	CHECKED BY	DB	APPROVED BY
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DO NOT SCALE FROM THIS DRAWING

REFERENCE

- SITE BOUNDARY
- AS BUILT BOREHOLES WITH GROUT TAKE 0 - 0.5T
- SHAFT SEARCH AREA:
 - 2022
 - 2025

REVISION	DETAILS	DATE	DRN	CHK'D	APP'D
CLIENT					
COUNTRYSIDE PARTNERSHIPS MERSEYSIDE AND CHESHIRE WEST					
PROJECT					
HALSNEAD GARDEN VILLAGE					
DRAWING TITLE					
AS BUILT DRILLING & GROUTING LAYOUT					
DRG No.		GM13232-014		REV	SUIT. CODE
				A	
DRG SIZE	A3	SCALE	1:200	DATE	07/05/25
DRAWN BY	SG	CHECKED BY	DB	APPROVED BY	DB



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