| Geotechnical Hazards | |
|---|---|
| No. | Hazard |
| 1 | Unexpected ground conditions |
| 2 | High groundwater level |
| 3 | Compressible soils |
| 4 | Presence of pyrite |
| 5 | Faulted/ fractured zones |
| 6 | Lack of ground information |
| 7 | Potential for high permeability zones |
| 8 | Potential for encountering artesian groundwater conditions |
| 9 | Squeezing ground and spalling |
| 10 | Ground gas i.e., methane, hydrogen sulfide, radon |
| 11 | Adverse impacts on third party assets |
| 12 | Encountering hard strata |
| 13 | Changes in regional groundwater flow |
| 14 | Unexploded ordnance |
| 15 | Drawdown of external groundwater levels |
| 16 | Presence of buried obstructions at excavation locations (either natural or man-made) |
| 17 | Instability of temporarily unsupported open excavations |
| Notes | |
| To be read in conjunction with C0233-ACM-GHS-UX-RG-Z-0001 Tunnel Designers Risk Register, C0233-ACM-GHS-AX-RG-Z-0001 Garth Designers Risk Register and C0233-ACM-GHS-IX-RG-Z-0001 Cilfor Designers Risk Register | |

0 20 40 60 80 100 120 140 160 180 200m

SCALE 1:2000

PLAN VIEW - SATELLITE IMAGERY

SCALE 1:2000

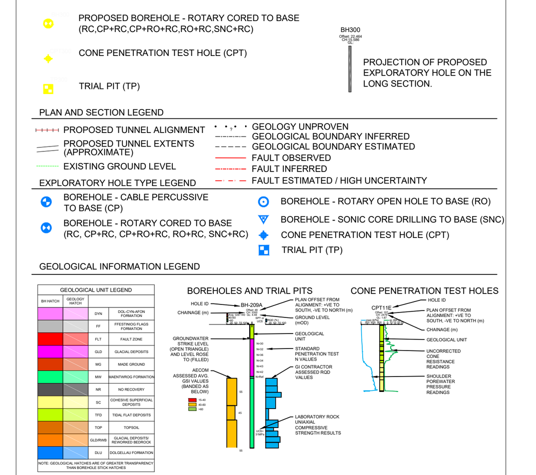
| PROPOSED HOLE ID | TYPE OF DRILLING/EXCAVATION (PROVISIONAL) | DEPTHS (PROVISONAL) (m bgl) | EASTINGS (m) | NORTHINGS (m) | DIP/ AZIMUTH | LOCATION (APPROX.) |
|---|---|---|---|---|---|---|
| BH300 | CP+RC | 20 | 259428 | 338710 | VERTICAL | GARTH |
| BH301 | RC | 50 | 259859 | 338705 | VERTICAL | 0+490 |
| BH302 | RC | 68 | 259960 | 338700 | 60 / 120 | 0+580 |
| BH303 | RC | 85 | 260620 | 338375 | TBC | 1+320 |
| BH304 | RC | 56 | 260648 | 338305 | VERTICAL | 1+370 |
| BH305 | CP+RC | 60 | 260809 | 338335 | VERTICAL | 1+510 |
| BH306 | SNC+RC | 90 | 261835 | 337819 | 55 / 290 | 2+655 |
| BH307 | SNC+RC | 74 | 261830 | 337800 | VERTICAL | 2+660 |
| BH308 | CP+RC | 74 | 262009 | 337699 | VERTICAL | 2+840 |
| BH309 | CP+RC | 75 | 262311 | 337791 | VERTICAL | 3+120 |
| BH310 | CP+RC | 75 | 262474 | 337964 | VERTICAL | CILFOR |
| CPT300 | CPT | REFUSAL | 259398 | 338693 | VERTICAL | GARTH |
| CPT301 | CPT | REFUSAL | 259445 | 338683 | VERTICAL | GARTH |
| CPT302 | CPT | REFUSAL | 262353 | 337815 | VERTICAL | 3+170 |
| CPT303 | CPT | REFUSAL | 262420 | 337886 | VERTICAL | 3+260 |
| CPT304 | CPT | REFUSAL | 262490 | 337927 | VERTICAL | CILFOR |
| CPT305 | CPT | REFUSAL | 262512 | 337947 | VERTICAL | CILFOR |
| TP300 | TP | 1.500 | 259393 | 338692 | VERTICAL | GARTH |
| TP301 | TP | 1.500 | 259426 | 338707 | VERTICAL | GARTH |
| TP302 | TP | 1.500 | 259406 | 338673 | VERTICAL | GARTH |
| TP303 | TP | 1.500 | 259435 | 338689 | VERTICAL | GARTH |
| TP304 | TP | 1.500 | 262473 | 337953 | VERTICAL | CILFOR |
| TP305 | TP | 1.500 | 262498 | 337965 | VERTICAL | CILFOR |
| TP306 | TP | 1.500 | 262499 | 337926 | VERTICAL | CILFOR |
| TP307 | TP | 1.500 | 262517 | 337939 | VERTICAL | CILFOR |

GEOLOGICAL LONG SECTION

SCALE 1:2000(H) 3 x Vertical Exaggeration

NOTES :

1. DO NOT SCALE FROM THIS DRAWING.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE RELEVANT GEOTECHNICAL REPORTS: GARTH SHAFT GEOTECHNICAL ASSESSMENT REPORT (GAR): C0233-ACM-PGT-AS-RP-Y-0001; CILFOR SHAFT GAR: C0233-ACM-PGT-IS-RP-Y-0001; TUNNEL SHAFT GAR: C0233-ACM-PGT-UX-RP-Y-0001 AND THE GI SPECIFICATION C0233-ACM-PGT-ZZ-SP-Y-0001 (DECEMBER 2022).
3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH TUNNEL ALIGNMENT DRAWINGS C0233-ACM-PCX-UX-DR-C-0001 TO C0233-ACM-PCX-UX-DR-C-0004 INCLUSIVE.
4. ANY DISCREPANCIES IN DIMENSIONS OR DETAILS ON THIS DRAWING SHOULD BE DIRECTED TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
5. ALL DIMENSIONS IN METRES (m) AND ALL ELEVATIONS/LEVELS IN METRES RELATIVE TO ORDNANCE DATUM (mOD) UNLESS NOTED OTHERWISE.
6. THE BACKGROUND AERIAL IMAGERY IS PROVIDED BY MICROSOFT CORPORATION ©2022, MAXAR©CNES(2022) DISTRIBUTION AIRBUS DS. ACCURACY +/- 20M.
7. THE CENTRELINE ALIGNMENT OF THE TUNNEL IS BASED ON DRAWINGS C0233-ACM-PCX-UX-DR-C-0001 TO C0233-ACM-PCX-UX-DR-C-0004 INCLUSIVE.
8. THE TUNNEL PLAN AND VERTICAL ALIGNMENT OUTLINE ON THE SECTION HAS BEEN DERIVED USING THE ALIGNMENT MODEL FILE AND FOR THE PROPOSED TUNNEL DIMENSIONS (3.5m INTERNAL DIAMETER AND 250mm LINING THICKNESS).
9. THE EXISTING GROUND LEVEL LINE SHOWN ON THE LONGITUDINAL SECTION IS FROM TOPOGRAPHICAL SURVEY EXISTING GROUND MODEL.
10. THE EXPLORATORY HOLE INFORMATION SHOWN IS FROM DIGITAL AGS DATA FILES PROVIDED BY NATIONAL GRID AS PART OF THE CONTRACT INFORMATION, REFER TO REPORT C0233-ACM-PGT-ZZ-RP-Y-0001 FOR DETAILS. BOREHOLE COORDINATES AND LEVELS ARE TAKEN FROM THE GI CONTRACTOR'S AS BUILT COORDINATES SUBMITTED WITH THE AGS DATA.
11. SOME EXPLORATORY HOLES HAVE BEEN OMITTED FROM THE LONGITUDINAL SECTION FOR CLARITY. THIS INCLUDE THOSE WHICH CLASH WITH OTHER HOLES AND PROVIDE MORE LIMITED GEOLOGICAL INFORMATION OR WHICH TERMINATE AT SHALLOWER DEPTHS COMPARED TO ADJACENT HOLES. THE HOLES OMITTED FROM LOW TO HIGH CHAINAGE ARE: TP100-A, BH-200A, BH101, BH108, CPT18E, CPT02E, CPT03E, CPT21E, CPT16E, CPT23E, CPT15E, CPT14E, CPT08E, CPT10E, CPT12E, TP105, CPT112, CPT113, TP106, TP107, BH-209.
12. THE EXPLORATORY HOLE STICKS ON THE LONGITUDINAL SECTION SHOW THE INTERPRETED GEOLOGICAL UNIT ALONGSIDE THE GROUNDWATER STRIKE LEVELS, CORING INFORMATION (RQD), IN SITU TEST DATA (SPT, CPT) AND ROCK STRENGTH DATA (UCS, GSI). THIS DATA HAS BEEN TAKEN FROM THE AGS DATA PROVIDED BY NATIONAL GRID.
13. THE GEOLOGICAL UNITS AND INFERRED BOUNDARIES SHOWN ON THE LONGITUDINAL SECTION HAVE BEEN ASSESSED BASED ON THE INVESTIGATION INFORMATION AVAILABLE TO DATE. DUE TO THE OFFSET OF THE EXPLORATORY HOLES FROM THE ALIGNMENT, THE GEOLOGICAL BOUNDARIES SHOWN WILL NOT ALWAYS CORRELATE TO THE BOREHOLE STICKS PROJECTED ONTO THE LONGITUDINAL SECTION.
14. THERE IS SIGNIFICANT UNCERTAINTY ABOUT THE PRESENCE AND EXTENT OF GEOLOGICAL UNITS AND DISCONTINUITIES (I.E. FAULTS) AT THE TUNNEL SHAFT LOCATIONS AND ALONG THE TUNNEL ALIGNMENT. THIS UNCERTAINTY IS TO BE ADDRESSED THROUGH TARGETED SITE INVESTIGATION AT THE NEXT PROJECT STAGE. THE INFERRED BOUNDARIES WILL BE UPDATED WHEN THIS ADDITIONAL INFORMATION IS AVAILABLE.
15. FAULT AND FAULT ZONE DIP ANGLES AND WIDTHS/EXTENTS ARE INDICATIVE.
16. THE PROPOSED EXPLORATORY HOLES SHOWN IN THE LONG SECTION ARE PROJECTIONS OF THESE HOLE LOCATIONS ON THE ALIGNMENT. HENCE, THEIR LOCATION AND INCLINATION SHOWN IN THE LONG SECTION IS APPARENT.
17. PROPOSED EXPLORATORY HOLE DETAILS SHOULD BE READ FROM THE GI SPECIFICATION C0233-ACM-PGT-ZZ-SP-Y-0001 (DECEMBER 2022). ANY DISCREPANCIES SHOULD BE DIRECTED TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION AND THE INFORMATION PROVIDED IN THE GI SPECIFICATION SHALL BE USED.
18. CPT TERMINATION DEPTHS SHOWN IN THE LONG SECTION ARE INDICATIVE. REFER TO THE GI SPECIFICATION C0233-ACM-PGT-ZZ-SP-Y-0001 (DECEMBER 2022).
19. TP LOCATIONS ARE NOT SHOWN ON LONG SECTION FOR CLARITY.



NOTE: GEOLOGICAL HATCHES ARE OF GREATER TRANSPARENCY THAN BOREHOLE STICK HATCHES

| PROJECTWISE STATUS | |
|---|---|
| PROJECTWISE REVISION VER: | P01 |
| WORKFLOW STATE: | INTERNAL SHARED |
| MINOR VERSION COMMENT: | |
| SUITABILITY CODE: | S3 |
| PURPOSE OF ISSUE: | ISSUED FOR REVIEW AND COMMENT |

NATIONAL GRID REVISION HISTORY

| | | | | |
|---|---|---|---|---|
| A | VM | APG | AZ | 13/12/22 |
| REV | DRAWN | CHECKED | APPROVED | DATE |

| | | | |
|---|---|---|---|
| Issue | P01 | NG Investment No. | |
| Drawn | VM | Remarks | FIRST ISSUE |
| Checked | MS/APG | | |
| Approved | AZ | Date | 13/12/22 |



HOCHTIEF AECOM

nationalgrid

National Grid plc, Warwick Technology Park, Gallows Hill, Warwick, CV 34 6DA

Drawing Title :

GEOLOGICAL PLAN AND LONG SECTION DRAWING WITH PROPOSED GI

Project & Location : SNOWDONIA VIP - PROJECT WIDE

Drawing Size : A0 Ex

Originator Drawing Number : C0233-ACM-PGT-UX-DR-Y-0006

Document : CAD

NG Drawing Number :

Sheet No. : 1

Total No. Of Sheets : 1

NG Issue :

Scale @ A1 : 1:2000