

# **Appendix 11.1: Sloy Pumped Hydro Storage Scheme: 2010 Ground Investigation Records**



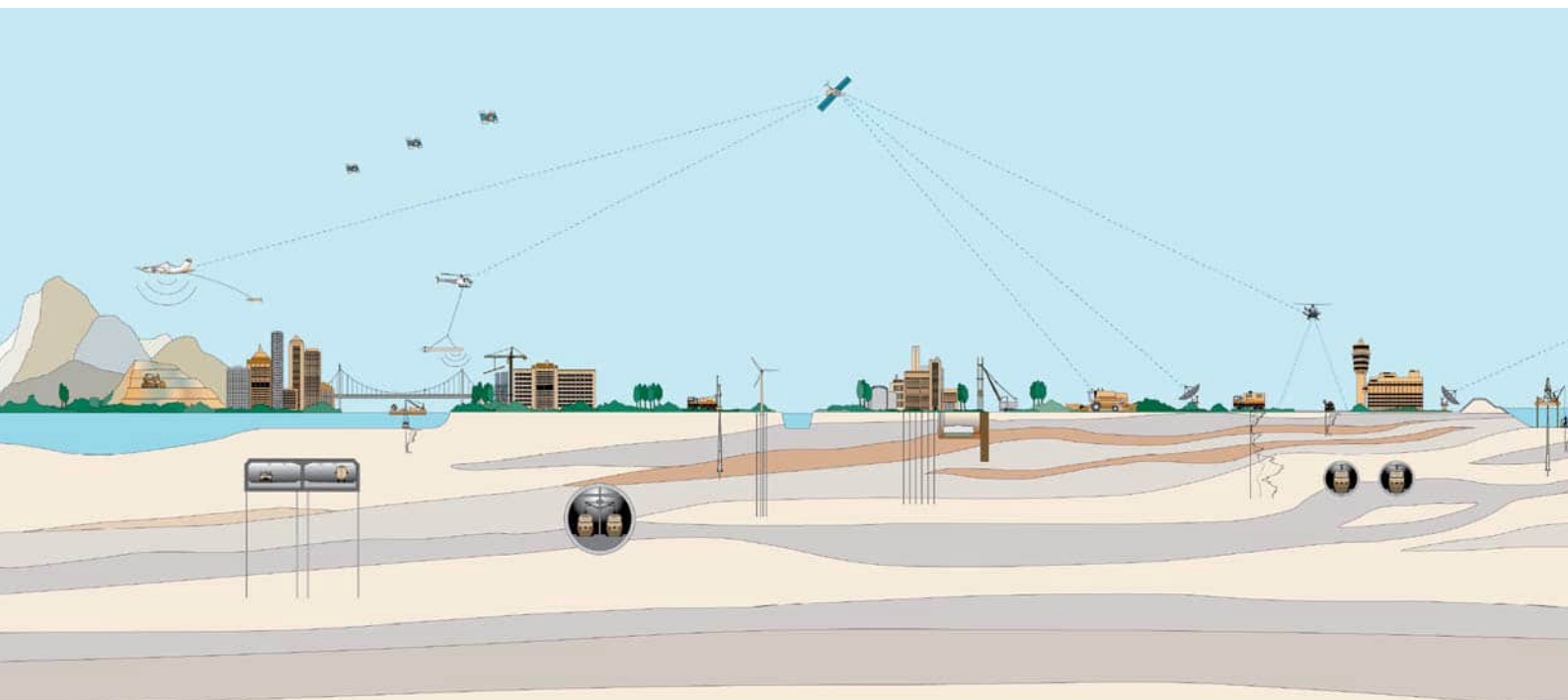
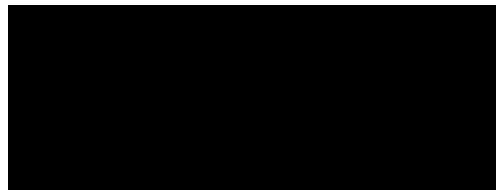
**SCOTTISH & SOUTHERN ENERGY**

**SLOY PUMPING STATION**

**FACTUAL REPORT ON  
GROUND INVESTIGATION**

**CONTRACT NO : CON103001**

**DATE : MAY 2010**





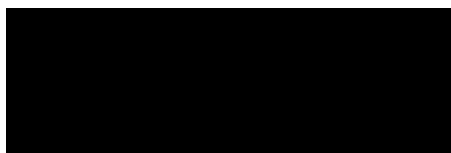
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**REPORT ISSUE STATUS**

| Issue                   | Date     | Description   | Prepared                  | Checked | Approved (Printed) | Approved (Signature) |
|-------------------------|----------|---------------|---------------------------|---------|--------------------|----------------------|
| 1                       | 12/04/10 | Draft Factual |                           |         |                    |                      |
| 2                       | 11/05/10 | Final Factual |                           |         |                    |                      |
|                         |          |               |                           |         |                    |                      |
|                         |          |               |                           |         |                    |                      |
| <b>PROJECT ENGINEER</b> |          |               | <b>PRINCIPAL ENGINEER</b> |         |                    |                      |

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## **1. INTRODUCTION**

On the instructions and under the supervision of Jacobs Engineering (UK) Limited (the Engineer), acting on behalf of Scottish & Southern Energy (the Employer), a site investigation has been carried out by Fugro Engineering Services Limited (FES) at Sloy Power Station, Argyll and Bute.

The objective of the investigation was to determine the ground conditions at the site and to provide information that would assist the Engineer in the geotechnical appraisal of the site. The scope of the investigation was determined by the Engineer.

A factual report was requested including exploratory hole and field testing records, laboratory test results and a site plan. The exploratory hole and laboratory test data have also been provided as digital data to AGS format. Photographs of the rock core and trial pits are presented separately in the Addendum.

The site work, which comprised eleven light cable tool percussion boreholes with rotary cored follow-on and three rotary open hole boreholes with rotary cored follow-on, to a maximum depth of 35.00 m, seven machine dug trial pits, twenty seven hand dug trial pits with Mackintosh probes, concrete coring and geophysical surveying (acoustic/optical televiewer and crosshole geophysics), was carried out between the 18<sup>th</sup> January and the 17<sup>th</sup> March 2010.

## **2. THE SITE AND GEOLOGY**

### **2.1 SITE LOCATION AND DESCRIPTION**

The site is located within the existing Sloy Power Station site boundary in the village of Inveruglas, approximately four miles north of Tarbet and adjacent to Loch Lomond, Argyll and Bute. The approximate National Grid reference of the site is NN 321 098.

At the time of the investigation the site comprised a grassed area and tarmac access road immediately north east of the existing power station building. The site is bound to the north west and north east by woodland, to the immediate east by the A82 and Loch Lomond beyond and to the south and west by the existing turbine hall and substation.

### **2.2 GEOLOGY**

The records of the British Geological Survey (Sheet 38W – Ben Lomond - of the 1:50,000 Series Geological Map, Solid (1987) Edition) indicate that the site is underlain by Quartz Mica Schist of the Beinn Bheula Formation. Drift deposits are not shown to be present at the site.

Further background research such as a desk study was not required within the terms of reference for the work.

### **3. METHOD OF INVESTIGATION**

#### **3.1 GENERAL**

A Cable Avoidance Tool (CAT) survey was undertaken at each of the exploratory hole locations. Prior to the sinking of the boreholes and Mackintosh probeholes, inspection pits were dug by hand at each location in order to identify the presence of any services. Services were not encountered.

Details of the in-situ sampling and testing carried out, together with the descriptions of the strata encountered, are given on the various exploratory hole records. An explanation of the symbols and abbreviations used on all the exploratory hole records, together with the method of strata description utilised, is given in the Notes on Exploratory Hole Records (Figures KS/01 to KS/06) in Appendix A. The investigation was generally carried out in accordance with BS 5930:1999<sup>i</sup>, BS EN ISO 14688-1:2002<sup>ii</sup> and BS EN ISO 14689-1:2003<sup>iii</sup> as appropriate. The borehole records are given in Figures FR1 to FR14, the concrete corehole record is given in Figure FR15 and the trial pit records are given in Figures FR16 to FR49 in Appendix A.

All geotechnical samples were transported to the laboratories and offices of FES in Consett for examination and testing as scheduled by the Engineer. Contamination samples taken during the investigation were sent directly to the contamination testing laboratory.

During the course of the investigation three Vibrock 2000 vibration monitors were placed inside the turbine hall and within the high voltage compound in order to monitor peak vibration. The digital data has been reported separately.

#### **3.2 CABLE PERCUSSION BORING**

Eleven, 150 mm minimum diameter, boreholes (BH1 to BH11) were sunk to depths below ground level (bgl) of between 1.20 m (BH5) and 6.60 m (BH3) using light cable tool percussion boring techniques. The borehole records are given in Figures FR1 to FR11 in Appendix A.

Disturbed samples were taken at each change in soil type and at regular vertical intervals during boring in order to identify and give a record of the strata encountered.

Standard penetration tests (SPT) using a split spoon (S) or a solid 60° cone (C) were carried out in the Made Ground and granular deposits. The results are shown as S(N) and C(N) values on the borehole records at the relevant depths in Appendix A.

During the course of boring attention was given to recording any evidence of water inflow in order that the groundwater level beneath the site could be established. Water levels at breaks in boring were recorded where appropriate. Where water was added to facilitate penetration of the soil strata, this is noted on the borehole records.

### **3.3 ROTARY DRILLING**

Eleven boreholes (BH1 to BH11) were extended by rotary core drilling techniques and three boreholes were sunk by rotary open hole and core drilling techniques (BH5A, BH8A and BH12) to depths below ground level of between 3.40 m (BH5) and 35.00 m (BH2, BH3, BH4, BH6 and BH12) using a truck mounted Massenza drill. The coring was carried out using a Geobore S size wireline core barrel and rigid coreliner with impregnated diamond set bits and water flush. Open hole drilling was carried out using 150 mm tricone roller bits and the Symmetrix drill and case system.

During the course of drilling attention was given to recording any evidence of water inflow in order that the groundwater level beneath the site could be established. Water levels at breaks in boring were recorded where appropriate.

The cores were logged by a geotechnical engineer from FES and photographed on site. The Solid Core Recovery (SCR) and Rock Quality Designation (RQD) have been determined using the modified proposal as given in Norbury et al<sup>iv</sup>, that a "solid cylinder" should be defined as having a full diameter (but not necessarily a full circumference) without discontinuities and should be measured axially along the core. In a number of instances the logging geologist assessed that some core from one run was recovered with the core from the next run. In these cases the TCR, SCR and RQD have been determined assuming that the core had been recovered from the core run in which it had first been drilled.

The borehole records are given in Figures FR1 to FR14 in Appendix A. The core photographs are given in the Addendum.

### **3.4 CONCRETE COREHOLE**

A single concrete corehole was drilled in the tailrace retaining wall as instructed by the Engineer. The record is given in Figure FR15 in Appendix A and photographs are given in the Addendum.

### **3.5 TRIAL PITS**

Twenty seven trial pits were excavated by hand (MP1 to MP26 and TP1) and seven trial pits were excavated by machine (TP2 to TP7 and TP2A) using a JCB 3CX to depths of between 0.50 m (TP2) and 3.70 m (TP6) below ground level. The trial pits were logged by a geotechnical engineer from FES who took samples and carried out in-situ testing as shown on the trial pit records (Figures FR16 to FR49 in Appendix A). Notes on



excavation stability and any groundwater encountered are also given on the records. Photographs of the trial pits were also taken by the engineer from FES and these are reproduced in the Addendum.

During the course of excavation attention was given to recording any evidence of water inflow in order that the groundwater level beneath the site could be established. The depth at which water seepage or ingress was encountered has been noted on the trial pit records.

On completion of excavating the hand dug trial pits hand held Mackintosh probes were carried out from the base of each excavation to refusal. The results of the probing are given in Figure MP1 in Appendix B.

### **3.6 INSTRUMENTATION AND MONITORING**

On completion of boring, a total of three 19 mm Casagrande type piezometers and two 50 mm slotted standpipes were installed in the exploratory holes. Details of the installations are given on the relevant borehole records.

Observations of the water level in the standpipes were made both during and after the fieldwork period. Water level observations are given in Figures GM1 to GM5 in Appendix B.

### **3.7 DOWNHOLE TELEVIEWER SURVEY**

On completion of boring, downhole optical and acoustic televiewer surveys were carried out and the results are given in Appendix C.

### **3.8 CROSS HOLE TOMOGRAPHY SURVEY**

On completion of boring a shallow seismic cross hole tomography survey was carried out between five boreholes (BH2, BH3, BH4, BH6 and BH12). The survey was carried out for FES by Fugro Aperio Limited and the results are given in their report reference 3525 given in Appendix D.

### **3.9 FIELD TESTING**

Eleven variable head permeability tests were carried out in accordance with BS5930:1999 in seven boreholes (BH1 to BH4, BH6, BH11 and BH12) during the course of boring. The results are given in Figures FT1 to FT11 in Appendix B. Caution should be exercised when using these test results to derive parameters for design purposes. Such determinations in boreholes test only a small volume of soil which may have been disturbed by the boring process. Falling head tests are also very prone to silting up. The permeability value of the soil mass as a whole may be significantly different from the values derived from these tests.

Eighteen packer permeability tests were undertaken in accordance with BS5930:1999 in seven boreholes (BH1 to BH4, BH6, BH11 and BH12) during the course of boring. The results are given in Figures FT12 to FT29 in Appendix B. Very low flow was recorded at each pressure stage during the tests and therefore Lugeon values have not been calculated.

### **3.10 SURVEY**

The positions of the exploratory holes were set out by reference to features shown on the site plan under the supervision of the Engineers site representative.

The ground levels and grid co-ordinates at the exploratory hole positions were related to survey station information presented on the site survey drawing supplied by the Engineer. A Trimble GPS system was used to determine the investigation locations relative to this survey control. The ground levels have been quoted to the nearest 0.05 m on the records and the grid co-ordinates are given to the nearest 1.00 m.

## **4. RESULTS OF EXPLORATORY HOLES**

### **4.1 GENERAL**

Borehole records (Figures FR1 to FR14), concrete corehole record (Figure FR15) and trial pit records (Figures FR16 to FR49) giving details of the strata encountered are provided in Appendix A. A site plan showing the approximate positions of the exploratory holes is presented in Figure LP1 in Appendix G.

The strata descriptions given in the borehole records, unless otherwise noted, are compiled from an examination of the disturbed and core samples only, together with the results of any field and laboratory testing. Relative density descriptions are based on the results of the SPT and have not been amended to take into account any overburden effects. The consistency of cohesive strata is based on visual assessment together with any available laboratory test results. Where there is a degree of uncertainty regarding the relative density or consistency of the soil, the terms "probably" or "possibly" have been used and the descriptions should be treated with caution.

### **4.2 LIMITATIONS AND USE OF DATA**

The scope of the investigation was determined by the Engineer for the particular project requirements set out in the Specification for the Contract. A factual report only was required, without interpretation of the data from the present investigation or consideration of data from other sources, except where noted. The data presented in this report reflects the site conditions encountered at the time the investigation was performed. The investigation has disclosed evidence of conditions at point locations across the site which provides information about discrete volumes of soil or rock. Accordingly, there may be ground conditions at the site which may not have been

revealed by the investigation, and the passage of time may give rise to changes in the conditions encountered. Any interpolation or extrapolation of strata from the exploratory holes is subject to the interpretation of the reader. *Any cross - sections or plots are generalised by necessity and have been based on information found at the exploratory holes and depths sampled and tested.* The records should be read in conjunction with the Notes on Exploratory Hole Records in Appendix A. ***Particular attention is drawn to the comments made on groundwater and interpretation which are given in these Notes.***

The investigation has been carried out by Fugro Engineering Services Limited and the report has been prepared for the sole internal use of Scottish & Southern Energy. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Fugro Engineering Services Limited. If an unauthorised third party comes into possession of this report they rely upon it at their peril and the authors owe them no duty of care and skill.

It is Fugro Engineering Services Limited's understanding that this report is to be used for the purposes as described in the Specification for the investigation and as summarised in the text of the report. Should the purpose for which the report is used or the proposed use of the site change, this report may no longer be valid. Any further use or reliance upon the report in these circumstances by Scottish & Southern Energy without further review by and advice from Fugro Engineering Services Limited shall be at their sole and own risk.

#### 4.3 STRATA ENCOUNTERED

The exploratory holes encountered the following general succession of strata which, apart from the Made Ground, concurs with that anticipated from published geological records.

TOPSOIL / MADE GROUND  
Sandy GRAVEL and COBBLES  
Quartz mica SCHIST

The hand dug trial pits encountered the following general succession of strata, which concurs with that anticipated from published geological records.

Organic TOPSOIL / PEAT  
Sandy GRAVEL and COBBLES

#### 4.4 GROUNDWATER

Groundwater was encountered in TP07 at 0.50 m, MP02 at 0.40 m, MP05 at 0.35 m, MP06 at 0.55 m, MP08 at 0.50 m, MP09 at 0.20 m, MP10 at 0.40 m, MP11 at 0.40 m,

MP12 at 0.35 m, MP14 at 0.40 m, MP15 at 0.35 m, MP16 at 0.40 m, MP21 at 0.20 m, MP22 at 0.50 m and in MP25 at 0.55 m.

It should be noted that the method of drilling may obscure groundwater strikes. Readings of groundwater levels in the standpipes are given in Figures GM1 to GM5 in Appendix B.

## 5. GEOTECHNICAL LABORATORY TESTING

### 5.1 INTRODUCTION

The following laboratory tests were scheduled by the Engineer and carried out by FES in accordance with BS1377:1990<sup>v</sup> where applicable. The results are given in Appendix E. ***Attention is drawn to the comments on interpretation of the results of the investigation on page KS/01 of the Notes on Exploratory Hole Records.*** General Notes on Laboratory Test Results (Figure LKS/01) also precede the laboratory test results in Appendix E.

All tests with the exception of the chemical analyses, seismic velocity tests and aggregate tests were carried out in the Fugro in-house laboratory at Consett and the tests for which the laboratory have UKAS accreditation are detailed on the Schedules preceding the laboratory test results in Appendix E.

The chemical analyses were undertaken by Derwentside Environmental Testing Services Limited (DETS), the seismic velocity tests were carried out by Reading University and the aggregate tests were carried out by Environmental Services Group Limited, whose laboratories are accredited for the tests undertaken.

### 5.2 INDEX PROPERTIES

Natural moisture content determinations were made on four samples of the granular soils and liquid and plastic limit determinations were made on a single sample of the cohesive soils in order to classify the plasticity of the materials and the results are given on the Summary of Classification Tests (Figure LT1/1 in Appendix E).

### 5.3 PARTICLE SIZE ANALYSES

Particle size analyses were undertaken on a total of twenty samples in order to classify the materials in respect to their grain size. The particle size analyses were carried out by sieving and continued by sedimentation. The results are given as particle size distribution curves (Figures LT2/1 to LT2/20 in Appendix E).

## **5.4 ROCK TESTS**

The slake durability of three samples of rock core was determined and the results are given on the Summary of Rock Classification Tests in Figure LT8/1 in Appendix E.

The point load index using the methods outlined by the ISRM Commission on Testing Methods, 1985, was determined for one hundred and thirty specimens taken from samples of rock core. The results are given in Figures LT8/2 to LT8/16 in Appendix E.

The Unconfined Compressive Strength (UCS) of thirty two samples of rock core was determined using the method outlined in ISRM Suggested Methods 1981<sup>vi</sup>. The results are given in Figures LT8/17 to LT8/23 in Appendix E.

The Brazilian tensile strength of eight samples of rock core was determined using the method outlined in ISRM Suggested Methods 1981<sup>vii</sup>. The results are given in Figures LT8/17 to LT8/23 in Appendix E.

Six hoek shear tests were carried out on specimens taken from samples of rock core. The results are given in Figures LT8/24 to LT8/41 in Appendix E.

The Aggregate Crushing Value, Aggregate Impact Value, LA Abrasion and Magnesium Sulphate Soundness was determined for ten specimens taken from samples of rock core in accordance with BS EN 1097:1998<sup>viii</sup> and BS812:1990<sup>ix</sup>. The tests were carried out for FES by Environmental Services Group Limited and the results are presented as their test certificates in Appendix E.

The seismic velocity of six samples of rock core were determined. The tests were carried out for FES by Reading University and the results are presented in their test certificate at the end of Appendix E.

Chemical analyses were made on eleven samples of rock in order to determine their pH value and total sulphate content. The tests were carried out for FES by DETS and the results are given in their Certificate of Analysis number 10-36994 at the end of Appendix E.

## **6. CONTAMINATION TESTING**

### **6.1 INTRODUCTION**

The following laboratory tests were scheduled by the Engineer and carried out for FES by Derwentside Environmental Testing Services (DETS) whose laboratory is accredited by UKAS, and details of their current accreditation may be obtained from them.

## 6.2 CHEMICAL ANALYSES ON SOIL SAMPLES

A total of thirteen soil samples from the exploratory holes were analysed for some or all of the following suite of determinands:

- Arsenic (total)
- Cadmium (total)
- Chromium (total)
- Lead (total)
- Mercury (total)
- Selenium (total)
- Copper (total)
- Nickel (total)
- Zinc (total)
- Boron (water soluble)
- pH
- Sulphate (total)
- Sulphide
- Cyanide (total / complex / free)
- Phenols (speciated)
- Total Petroleum Hydrocarbons (TPH – by gas chromatography)
- Polychlorinated Biphenyls (PCB - as Aroclors, screen)
- Semi-volatile organic compounds (SVOCs)
- Asbestos screen

In addition, the pH value and water soluble sulphate content was determined for eight samples of soil and the organic content of two samples of soil were determined.

The results are given in DETS Certificate of Analysis reference numbers 10-35469, 10-36315, 10-36951 and 10-37631 in Appendix F.

## REFERENCES

- 
- <sup>i</sup> BS 5930:1999, Code of practice for site investigations. British Standards Institution.
- <sup>ii</sup> BS EN ISO 14688-1:2002 Geotechnical investigation and testing – Identification and classification of soil – Part 1 Identification and description. British Standards Institution.
- <sup>iii</sup> BS EN ISO 14689-1:2003 Geotechnical investigation and testing – Identification and classification of rock – Part 1 Identification and description. British Standards Institution.
- <sup>iv</sup> Norbury, D.R., Child, G.H., and Spink, T.W., 'A critical review of Sections 8 (BS 5930:1981), Soil and rock descriptions, Geological Society Engineering Geology Special Publication No 2, Proceedings of 20th Regional Meeting of the Engineering Group, Guildford, 1986.
- <sup>v</sup> BS 1377:1990, Methods of tests for soils for civil engineering purposes. British Standards Institution
- <sup>vi</sup> ISRM Suggested Methods - Rock Characterization, Testing and Monitoring - Editor E. T. Brown, International Society of Rock Mechanics, 1981.
- <sup>vii</sup> ISRM Suggested Methods - Rock Characterization, Testing and Monitoring - Editor E. T. Brown, International Society of Rock Mechanics, 1981.
- <sup>viii</sup> BS EN 1097:1998 Tests for Mechanical and Physical Properties of Aggregates. British Standards Institution.
- <sup>ix</sup> BS 812:1990 Testing Aggregates. British Standards Institution.

**APPENDIX A Exploratory Hole Records**

Notes and Key Sheets on Exploratory Hole Records  
Borehole Records  
Concrete Corehole Records  
Trial Pit Records

Figures KS/01 to KS/06  
Figures FR1 to FR14  
Figure FR15  
Figures FR16 to FR49



## **NOTES ON EXPLORATORY HOLE RECORDS**

### **GENERAL NOTES**

#### **1 OPERATING PROCEDURES**

The procedure used for cable percussion boring, rotary drilling, trial pitting, sampling, in situ and laboratory testing and sample descriptions are generally in accordance with BS5930:1999 'Code of practice for site investigations', BS EN ISO 14688-1:2002 'Geotechnical investigation and testing – Identification and classification of soil – Part 1 Identification and description', BS EN ISO 14689-1:2003 'Geotechnical investigation and testing – Identification and classification of rock – Part 1 Identification and description' as appropriate, and BS1377:1990 'Methods of test for soils for civil engineering purposes', unless stated otherwise.

#### **2 GROUNDWATER**

Exploratory hole water levels are recorded together with the depths at which seepages or inflows of water are detected. These observations are noted on the Records, but may be misleading for the following reasons:

- a) The exploratory hole is rarely left open at the relevant depth for a sufficient time for the water level to reach equilibrium.
- b) A permeable stratum may have been sealed off by the borehole casing.
- c) Water may have been added to the borehole to facilitate progress.
- d) The permeability may have been altered by the excavation/boring/drilling process.

Standpipes or piezometers should be installed when an accurate record of groundwater level is required, however, it should be noted that groundwater levels may vary significantly due to seasonal, climatic or man made effects. Water levels recorded during the investigation and any advice or comment made accordingly may, therefore, not be appropriate to particular foundation, geotechnical design, or temporary works solutions. Long term monitoring of standpipes or piezometers is always recommended when water levels are likely to have a significant effect on design.

#### **3 CHISELLING**

The remarks in the Borehole Records contain information on the time spent advancing the borehole by 'Chiselling Techniques', and the depth of borehole over which it was required. Such information may be affected by a wide range of variable factors, unrelated to the geotechnical properties of the strata. Such factors include, but are not restricted to: plant, equipment and operator. The data should, therefore, only be used subjectively and with extreme caution.

#### **4 IDENTIFICATION AND DESCRIPTION OF SOILS - SEE SEPARATE SHEET**

The identification system follows the Company's Engineering: Geotechnical Procedures Manual which is based on BS EN ISO 14688-1:2002 and appropriate clarifications in the National Foreword, BS 5930:1999 and BS EN ISO 14689-1:2003

Relative density terms are given where supported by SPT N values, with the exception of Made Ground. The field assessment of compactness or relative density for coarse grained soils is only given on trial pit records where appropriate assessment of the soils has been undertaken.

Where the terms 'soft to firm', 'firm to stiff' etc. are used they indicate a strength which is close to the borderline between the two terms and cannot be precisely defined by inspection only, and/or which is indicated as borderline or ranging between the two terms after consideration also of in situ and laboratory test results. Consistencies may have been amended in the light of test results

Where 'to' links two terms, as in 'slightly sandy to sandy' this again represents a borderline case or a range, where the precise proportions cannot be determined as outlined previously.

The name of the geological formation is only given where this has been requested and can be determined with confidence (see Clause 41.5 of BS 5930:1999).

#### **5 INTERPRETATION OF THE RESULTS OF THE INVESTIGATION**

The description of ground conditions encountered and any engineering interpretation included in the report are based on the results of the boreholes and trial pits and the field and laboratory testing carried out. There may be ground conditions at the site which have not been revealed by the investigation and consequently have not been taken into account.

Any interpolation or extrapolation of strata between exploratory holes shown on any cross sections or site plans is an estimate only of the likely stratification based on general experience of the ground conditions and is subject to the interpretation of the reader.

The term "TOPSOIL" is used in this report to describe the surface, usually organic rich, layer including turf, subsoil and weathered material with roots. The use of this term may not imply that the soil satisfies the requirements of Clause 3 of BS 3882:1994, 'Specification for topsoil', or is suitable for general horticultural and agricultural purposes.

Laboratory test results in this report give the soil properties of individual specimens tested under specified conditions. Individual results or groups of results may not be appropriate for use as design parameters for some geotechnical analyses. The samples may be non-representative, disturbed internally, or prepared and tested under conditions suited for different geotechnical applications. Unless the selection of design parameters is discussed in this report, it is recommended that the advice of a Geotechnical Specialist is sought.

**SCOTTISH & SOUTHERN ENERGY  
SLOY PUMPING STATION**

**NOTES ON EXPLORATORY HOLE RECORDS**

**IN SITU TESTING AND SAMPLING**

**STANDARD PENETRATION TESTS**

S( ) Standard Penetration Test (SPT). A 50mm diameter split barrel sampler is driven 450mm into the soil using a 63.6kg hammer with a 760mm drop. The penetration resistance (also known as the 'N' value) is expressed as the number of blows required to obtain 300mm penetration below an initial seating drive of 150mm which is taken through any ground which may be disturbed at the base of the borehole. The test is usually completed when the number of blows recorded during the test drive only reaches 50 in soils or 100 in weak rock. If a sample is not recovered in the sampler, a disturbed sample is taken on completion of the test and given the same depth as the top of the Standard Penetration Test drive.

C( ) Standard Penetration Test carried out with a 60 degree cone. The test is usually conducted in coarse granular soils or weak rock using the same procedure as for the SPT, but with a 50mm diameter, 60 degree apex, solid cone fitted to the split barrel. A bulk disturbed sample is taken and given the same depth as the top of the test drive.

The depth on the borehole record at the left hand side of the 'depth' column is that at the start of the normal 450mm penetration. Where the full penetration of 300mm for the test drive is obtained, the penetration resistance ('N' value) is reported in the 'SPT Blows/N' column. If the full penetration of 300mm in the test drive is not obtained, then the length of drive (test length in mm) and the penetration resistance (number of blows) are both reported. Blows through the initial seating drive (normally 150mm) are not reported.

\* in the 'Test Length' column denotes that the blows and penetration were all in the initial Seating Drive section.

**OTHER IN SITU TESTS**

The following in situ tests are reported on the **Exploratory Hole Records**, in the 'Test' or 'Type' and 'Results' columns where appropriate.

k In situ Permeability Test - refer to detailed test results for permeability values

PMT Pressuremeter Test - refer to detailed test results for modulus values, etc.

VN/R( ) Borehole Shear Vane Test (undrained shear strength -  $c_u$  - in kPa) - refer also to detailed test results, N - 'Natural' or peak shear strength, R - Remoulded shear strength

VN/R( ) Hand Shear Vane Test (Direct reading of undrained shear strength in kPa). 'N' and 'R' as above. The values are indicative and should not be taken as being equivalent to laboratory test results. The Pilcon vane results have a factor varying from about a sixth for the 33mm vane to a third for the 19mm vane which reduces the BS1377 shear vane value. The values presented are therefore approximate and should be treated with great caution if used for design purposes

PP( ) Pocket Penetrometer. Unconfined Strength (UCS) reported in kg/cm<sup>2</sup> to the nearest 0.25 kg/cm<sup>2</sup> or kPa with the same accuracy. Equivalent  $c_u$  in kPa is very approximately UCS x 50. Pocket Penetrometers are an aid to logging of cohesive soils, the results are indicative and should not be relied upon. The equipment used is not calibrated

CBR( ) California Bearing Ratio Test (CBR%) - refer also to detailed test results

PID( ) Photo-Ionisation Detector Readings in headspace of small disturbed chemical samples. Result given in ppm by volume

**SAMPLES**

U General purpose open tube sample. Sample normally taken with open tube sampler approximately 0.1m diameter and 0.45m long and driven with 80kg sinker bar and 56kg sliding hammer, unless noted otherwise. "XX" in U100 blows column denotes the number of hammer blows. The height of hammer drop can be variable depending on operator technique. Depths are given to the top of the sample if full penetration and recovery are achieved, otherwise actual lengths of penetration and recovery are given in the appropriate columns.

U(X) General purpose open tube sample (X) mm diameter

TW(X) Thin wall (push) sample (X) mm diameter

P(X) Piston sample (X) mm diameter

CBR Sample taken in CBR Mould

D Small disturbed sample (plastic tub or jar with air tight lid)

B Bulk disturbed sample (polythene bag, tied at neck - size dependent on purpose)

W Water sample

# Sample not recovered

C Core sample (CS – short core, generally about 100mm; CL – long core, generally 200mm to 300mm)

|    |   |   |  |
|----|---|---|--|
| CD | Sample for chemical analysis in a plastic tub | K | Sample for chemical analysis in an amber glass jar |
|----|---|---|--|

|   |  |      |   |
|---|--|------|---|
| V | Sample for chemical analysis in a glass vial | CDKV | Set of samples for chemical analysis as above |
|---|--|------|---|

WAC Sample for Waste Acceptance Criteria

|    |                      |    |                            |
|----|----------------------|----|----------------------------|
| ES | Environmental Sample | EW | Environmental Water Sample |
|----|----------------------|----|----------------------------|

**SCOTTISH & SOUTHERN ENERGY  
SLOY PUMPING STATION**

**NOTES ON EXPLORATORY HOLE RECORDS**

**KEY TO BOREHOLE AND TRIAL PIT RECORDS**

**Soil Types**

**Coarse grained, Non cohesive**



Boulders



Cobbles

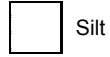


Gravel



Sand

**Fine grained, Cohesive**



Silt



Clay

Note: Composite soil types may be signified by combined symbols.

**Other Soil Types**



Topsoil



Peat



Made Ground

**Rock Types**

**Sedimentary**



Sandstone



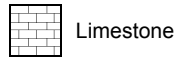
Siltstone



Conglomerate



Chalk



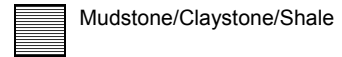
Limestone



Breccia



Coal

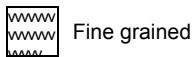


Mudstone/Claystone/Shale

**Metamorphic**

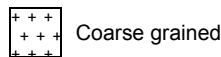


Coarse/Medium grained

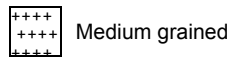


Fine grained

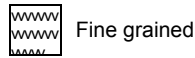
**Igneous**



Coarse grained

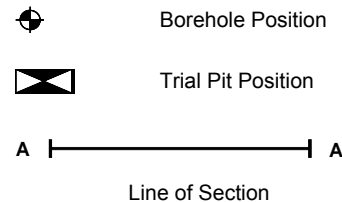
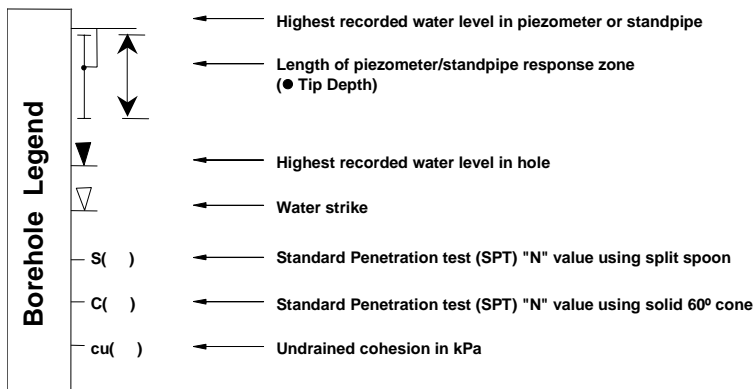


Medium grained



Fine grained

**KEY TO SITE PLANS AND CROSS SECTIONS**



**SCOTTISH & SOUTHERN ENERGY  
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**NOTES ON EXPLORATORY HOLE RECORDS**

**DESCRIPTION OF ROCK CORES**

**DESCRIPTIVE ORDER**

Strength, Structure, Colour, Texture, Grain Size, ROCK NAME. Minor constituents and additional information. (Geological formation - see comments under identification and description of soils). Mass characteristics - factual description of weathering state (if appropriate) and description of discontinuities and fracture state (if appropriate).

| Term             | Field identification  | Strength (MPa) |
|------------------|---|----------------|
| Extremely weak   | Can be indented by thumbnail. Gravel sized lumps crush between finger and thumb.                                  | <1.0           |
| Very weak        | Crumbles under firm blows with point of geological hammer. Can be peeled by a pocket knife.                       | 1 – 5          |
| Weak             | Peeled by a pocket knife with difficulty. Shallow indentations made by firm blow with point of geological hammer. | 5 – 25         |
| Medium strong    | Cannot be scraped with pocket knife. Can be fractured with a single firm blow of geological hammer.               | 25 – 50        |
| Strong           | Requires more than one blow of geological hammer to fracture.   | 50 – 100       |
| Very strong      | Requires many blows of geological hammer to fracture.   | 100 – 250      |
| Extremely strong | Can only be chipped with geological hammer.   | > 250          |

**DISCONTINUITIES**

| Bedding Spacing & Planar Structures *                              | Spacing (mm)    | Discontinuity Spacing    |
|--|-----------------|--------------------------|
|  | >6000           | Extremely widely spaced  |
| Very thickly bedded  | >2000 2000-6000 | Very widely spaced       |
| Thickly bedded   | 600 - 2000      | Widely spaced            |
| Medium bedded  | 200 - 600       | Medium spaced            |
| Thinly bedded  | 60 - 200        | Closely spaced           |
| Very thinly bedded   | 20 - 60         | Very closely spaced      |
| Thickly laminated (Sedimentary) narrow (Metamorphic & Igneous)     | 6 – 20 <20      | Extremely closely spaced |
| Thinly laminated (Sedimentary) Very narrow (Metamorphic & Igneous) | <6              |                          |

\* For igneous and metamorphic rocks the appropriate descriptive term for planar structure should be used e.g. medium foliated gneiss, very narrowly cleaved slate, very thickly flow banded diorite.

**WEATHERING**

Standard descriptions of weathered rocks for engineering purposes should always include comments on the degree, extent and nature of any weathering effects at material or mass scales. This may allow subsequent classification and provide information for separating rock into zones of like character. Indications of weathering include

- changes in colour
- changes in fracture state
- reduction in strength
- presence, character and extent of weathering products

If a systematic classification following the guidelines given in the Standard can be applied unambiguously, this is described in the text of the report. Otherwise, the rocks are not classified in terms of weathering beyond the approach described above.

Weathering terms that may be used for description of rock material and these terms may be qualified or combined.

- Discoloured      The degree and type of colour change from original is described, and if for mass or particular mineral constituents
- Disintegrated      Fragmentation by physical weathering, bonding lost but material fabric is intact. Material friable, not decomposed
- Decomposed      Chemical alteration of mineral grains so material fabric is intact but some or all grains are decomposed

For rock mass weathering the following terms may be used

- Slightly weathered      Discolouration on surfaces and / or of material
  - Moderately      Less than half of mass decomposed/disintegrated. Fresh/discoloured rock as continuous material or corestones
  - Highly      More than half decomposed/disintegrated. Fresh/discoloured rock as discontinuous framework or corestones
  - Completely      All rock material decomposed and/or disintegrated. Original mass structure largely intact
  - Residual Soil      All material converted to soil, structure and fabric destroyed, may be volume change but material not moved
- The term 'Fresh' is used to indicate that there is no visible weathering or alteration, except possibly slight discolouration on major surfaces.

**SCOTTISH & SOUTHERN ENERGY  
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**NOTES ON EXPLORATORY HOLE RECORDS**

**ROCK CORES**

**ROCK CORE SIZES**

The core barrels commonly used by the Company in site investigations are as follows:

| Core Barrel Type              | Borehole Diameter (mm) | Standard Core Size (mm) | Core Size using Rigid Plastic Liner (mm) | Casing Size or Type | Casing O.D (mm) | Casing I.D (mm) |
|-------------------------------|------------------------|-------------------------|--|---------------------|-----------------|-----------------|
| <b>STANDARD BRITISH SIZES</b> |                        |                         |  |                     |                 |                 |
| NWM                           | 75.7                   | 54.7                    | 51                                       | NX                  | 88.9            | 76.2            |
| HWF                           | 98.8                   | 76.2                    | 72                                       | HX                  | 114.3           | 100.0           |
| HWAF                          | 99.5                   | 70.9                    | -  | HX                  | 114.3           | 100.0           |
| PWF                           | 120.0                  | 92.1                    | 87                                       | PX                  | 139.7           | 122.3           |
| SWF                           | 145.4                  | 112.8                   | 107                                      | SX                  | 168.3           | 147.7           |
| UWF                           | 173.7                  | 139.8                   | 132                                      | UX                  | 193.7           | 176.2           |
| <b>WIRELINE SIZES</b>         |                        |                         |  |                     |                 |                 |
| BQ                            | 59.9                   | 36.4                    | 35                                       |                     |                 |                 |
| NQ                            | 75.7                   | 47.6                    | 45                                       |                     |                 |                 |
| HQ                            | 96.1                   | 63.5                    | 61                                       |                     |                 |                 |
| PQ                            | 122.7                  | 85.0                    | 82                                       |                     |                 |                 |
| GEOBORE S                     | 146.0                  | 102.0                   | 102                                      | SX                  | 168.3           | 147.7           |
| <b>THINWALL SIZES</b>         |                        |                         |  |                     |                 |                 |
| TNX                           | 75.7                   | 60.8                    | -  | NX                  | 88.9            | 76.2            |
| T2 66                         | 66.1                   | 51.9                    | -  | 74                  | 74.3            | 67.3            |
| T2 76                         | 76.1                   | 61.9                    | -  | 84                  | 84.3            | 77.3            |
| T2 86                         | 86.1                   | 71.9                    | 68                                       | 98                  | 98.0            | 89.0            |
| T2 101                        | 101.1                  | 83.9                    | 80                                       | 113                 | 113.0           | 104.0           |
| T6 116                        | 116.1                  | 92.9                    | 89                                       | 128                 | 128.0           | 118.0           |
| T6 131                        | 131.1                  | 107.9                   | 104                                      | 143                 | 143.0           | 133.3           |
| <b>NON STANDARD BARRELS</b>   |                        |                         |  |                     |                 |                 |
| 4.12F                         | 105.2                  | 74.7                    | 72                                       | PX                  | 139.7           | 122.3           |
| TRIEFUS                       |                        |                         |  |                     |                 |                 |
| 5.5x4C                        | 139.7                  | 101.6                   | -  | SX                  | 168.3           | 147.7           |
| SINGLE TUBE                   |                        |                         |  |                     |                 |                 |
| B116                          | 116                    | 102                     | -  | PX                  | 139.7           | 122.3           |
| B146                          | 146                    | 132                     | -  | SX                  | 168.3           | 147.7           |

Note: Core diameters may vary when different lining systems are in use.

**ROCK CORE CHARACTERISTICS**

**TCR Total Core Recovery.** The length of the total amount of core sample recovered, expressed as a percentage of the length of the core run.

**SCR Solid Core Recovery.** The length of solid core recovered, expressed as a percentage of the length of the core run.

Solid core is defined as that length of core which has a full diameter, but not necessarily a full circumference. Only natural fractures are considered. Drilling or handling induced fractures are ignored.

**RQD Rock Quality Designation.** The length of solid core recovered in pieces each more than 100mm long as a percentage of the core run length.

**I<sub>f</sub> Fracture Index.** The number of discontinuities expressed as 'fractures per metre', measured over any convenient length of consistent fracture characteristics.

Zones of atypical fracturing of restricted extent which occur within a rock unit of uniform fracture characteristics are identified within the Description of Strata.

NI - Not Intact

NR - No Recovery

NA - Not Applicable

**I<sub>s</sub> Corrected Point Load Strength Index** I<sub>s(50)</sub> which is given in MPa

**SCOTTISH & SOUTHERN ENERGY  
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**NOTES ON EXPLORATORY HOLE RECORDS**

**IDENTIFICATION AND DESCRIPTION OF SOILS**

|   | Basic Soil Type   | Particle Size (mm)   | Visual Identification  | Composite Soil Types (Mixtures of basic soil types)  |   |  | Density / Consistency / Peat Condition   |  |   |            |  |
|---|---|--|--|--|---|--|--|--|---|------------|--|
| VERY COARSE SOILS   | BOULDERS  | 200  | Large Boulders >630mm. These soils only seen complete in pits or exposures. Often difficult to recover from boreholes.   | Scale of secondary constituents with coarse and very coarse soils. Term before, description after principal  |   |  | For very coarse soils qualitative description by inspection of voids and particle packaging. |  |   |            |  |
|   | COBBLES   |  |  | Term before (term in '[]' may be used for 2 <sup>nd</sup> ry parts, matrix etc)  | Principal Soil Type   | Description after  | Approx % 2 <sup>nd</sup> ry soil type  | Standard Penetration Test in Boreholes for Coarse Soils              |   |            |  |
| COARSE SOILS (Typically over 65% Sand and Gravel Sizes)   | GRAVEL  | coarse   | Easily visible to naked eye; particle shape can be described, grading can be described. Well graded: wide range of grain sizes, well distributed. Poorly graded: not well graded. (May be uniform: size of most particles lies between narrow limits; or gap graded; an intermediate size of particle is markedly under represented).  | Slightly (sandy*) [occasional / little]  | Used to describe components of secondary constituents. e.g. Gravel is fine and medium subangular fine sandstone and mudstone. | <5   | No of blows  | Relative Density   |   |            |  |
|   |   | medium   |  | --(sandy*) [some]  |   | 5 - 20   | 4-10   | Very Loose   |   |            |  |
|   |   | fine   |  | Very (sandy*) [much / many]  |   | 20 to 40†  | 10-30  | Medium Dense   |   |            |  |
|   | SAND  | coarse   | Visible to naked eye; no cohesion when dry; grading can be described. Well graded and poorly graded: as above  | --   | and (sand*) or and (cobbles+)   | 50†  | 30-50  | Dense  |   |            |  |
|   |   | medium   |  | * Fine or coarse soil type as appropriate  |   | >50  | Very Dense   |  |   |            |  |
|   |   | fine   |  | † Very coarse soil type – see Notes  |   | Slightly cemented  |  | Visual Examination: pick removes soil in lumps which can be abraded. |   |            |  |
|   |   |  | ‡ described as fine soil depending on behaviour  |  |   |  |  |  |   |            |  |
|   | FINE SOILS (Typically over 35% Silt and Clay Sizes)   | SILT   | coarse   | Only coarse silt visible with hand lens; exhibits little plasticity and marked dilatancy; slightly granular or silky to touch. Disintegrates in water; lumps dry quickly; possesses cohesion but powders easily between fingers.     | Term before   | Principal Soil Type  | Description after  | Approx % 2 <sup>nd</sup> ry soil type                                | Silty CLAY or clayey SILT – use prefix only when secondary constituent has significant affect on material characteristics. Terms 'slightly' or 'very' not applicable. |            |  |
|   |   |  | medium   |  | Slightly (sandy*)   |  |  |  | <35   | Very soft  | Finger easily pushed in up to 25mm. Exudes between fingers |
|   |   |  | fine   |  | -- (sandy*)   |  |  |  | 35 to 65†   | Soft       | Finger pushed in up to 10mm. Moulded by fingers            |
| CLAY  |   | 0.002  | Term "SILT" or "CLAY" must be used, "SILT/CLAY" not allowed.   |  | CLAY or SILT  | Used to describe components of secondary constituents e.g. gravelly sandy CLAY. Gravel is coarse rounded quartzite | >65†   | Firm   | Thumb makes impression easily. Rolls to thread  |            |  |
|   |   |  | Dry lumps can be broken but not powdered between the fingers; they also disintegrate under water but more slowly than silt; smooth to the touch; exhibits plasticity but no dilatancy; sticks to the fingers and dries slowly; shrinks appreciably on drying usually showing cracks. Intermediate and high plasticity clays show these properties to a moderate and high degree, respectively. |  |   |  |  | * Coarse soil type as appropriate                                    |   | Stiff      | Can be indented slightly by thumb. Crumbles if rolled      |
|   |   |  |  |  |   |  |  | † or described as coarse soil depending on mass behaviour            |   | Very Stiff |  |
|   |   | EXAMPLES OF COMPOSITE TYPES (indicating preferred order for description)                           |  |  |   | Hard   |  | Can be scratched by thumb nail                                       |   |            |  |
|   |   | Loose brown very sandy subangular coarse GRAVEL with many pockets (<5mm across) of soft grey clay. |  |  |   | Firm Peat  |  | Fibres compressed together   |   |            |  |
|   |   | Firm thinly interlaminated brown SILT and CLAY.  |  |  |   | Spongy Peat  |  | Very compressible, open  |   |            |  |
|   |   | Dense light brown clayey fine and medium SAND.   |  |  |   | Plastic Peat   |  | Moulded in hand, smears  |   |            |  |
| <b>ORGANIC SOILS</b>  |   |  |  |  |   |  |  |  |   |            |  |
|   | ORGANIC CLAY, SILT or SAND  | Varies   | Contains varying amounts of organic vegetable matter - defined by colour: grey - slightly organic; dark grey – organic; black – very organic.  |  |   |  |  |  |   |            |  |
| <b>Structure</b>  |   |  |  |  |   |  |  |  |   |            |  |
| Term  | Field Identification  |  |  | Interval Scales  |   |  | Particle Nature  |  |   |            |  |
| Homo-geneous  | Deposit consists essentially of one type  |  |  | Scale of Bedding Spacing   | Mean Spacing (mm)   | Scale of Spacing of Other Discontinuities / [Blocks]   | Particle Shape & Form  |  |   |            |  |
| Interbedded or interlaminated   | Alternating layers of varying types. Pre-qualified by thickness term if in equal proportions. Otherwise thickness of, and spacing between, subordinate layers defined |  |  | Very thickly bedded  | over 2000   | Very widely spaced / [Very large]  | Very angular (Sub) angular (Sub) rounded Well rounded  |  |   |            |  |
| Hetero-geneous  | A mixture of types  |  |  | Thickly bedded   | 2000-600  | Widely spaced / [Large]  | Low Sphericity Flat or Elongate  |  |   |            |  |
| Weathered (granular)  | Particles may be weakened and may show concentric layering  |  |  | Medium bedded  | 600-200   | Medium spaced / [Medium]   |  |  |   |            |  |
| Weathered (cohesive)  | Usually has crumb or columnar structure   |  |  | Thinly bedded  | 200-60  | Closely spaced / [Small]   | High Sphericity Cubic  |  |   |            |  |
| Fissured  | Breaks into blocks along unpolished discontinuities   |  |  | Very thinly bedded   | 60-20   | Very closely / [Very small]  |  |  |   |            |  |
| Sheared   | Breaks into blocks along polished discontinuities   |  |  | Thickly laminated  | 20-6  | Extremely closely spaced   |  |  |   |            |  |
| Intact  | No fissures   |  |  | Thinly laminated   | under 6   |  |  |  |   |            |  |
| Fibrous Peat  | Plant remains recognisable and retain some strength. When squeezed only water, no solids  |  |  | Spacing terms may also be used for distance between partings, isolated beds or laminae, desiccation cracks, rootlets etc. Terms such as partings or dustings may be used for laminae less than 2mm and less than 0.6mm respectively. |   |  | Particle Surface Texture   |  |   |            |  |
| Pseudo-fibrous Peat   | Plant remains recognisable, strength lost. Partial decomposition. Turbid water when squeezed, <50% solids   |  |  |  |   |  | Rough  |  |   |            |  |
| Amorphous Peat  | Recognisable plant remains absent, full decomposition. When squeezed only paste with >50% solids  |  |  | Discontinuity Shape (See Standard for Persistence/Openness)  |   |  | Smooth   |  |   |            |  |
| Gytja   | Decomposed plant & animal remains, maybe inorganic constituents   |  |  | Small scale (mm's) rough, smooth   |   |  | Polished   |  |   |            |  |
| Humus   | Plant remains, living organisms & inorganic constituents in topsoil   |  |  | Medium scale (cm's) planar, stepped, undulating  |   |  |  |  |   |            |  |
|   |   |  | Large scale (m's) wavy, curved, straight   |  |   |  |  |  |   |            |  |
| <b>NOTES</b> Identification and descriptive method, and descriptions, generally in accordance with BS5930:1999 Section 6 clauses 41 and 43 and BS EN ISO 14688-1:2002   |   |  |  |  |   |  |  |  |   |            |  |
| Additional notes relating to BS EN ISO 14688-2:2004 – modified terms for content of secondary fraction given in Annex B Table B1 are not comparable to 5930 and are not to be used.   |   |  |  |  |   |  |  |  |   |            |  |
| <b>Organic Content</b> :- Low – 2 to 6%; Medium - 6 to 20%; High - >20%. Terms not used on borehole records   |   |  |  |  |   |  |  |  |   |            |  |
| <b>Carbonate content</b> :- Only noted if field test with dilute HCl undertaken – Carbonate free if no effervescence; Calcareous if slight effervescence; Highly calcareous if strong reaction  |   |  |  |  |   |  |  |  |   |            |  |
| <b>Undrained shear strength</b> :- terms from laboratory or in situ tests not given on borehole records.  |   |  |  |  |   |  |  |  |   |            |  |
| <b>Very Coarse Soils</b> – described by initially removing very coarse materials and describing residue before adding back the very coarse soils. If residue is cohesive then described as '.....(COBBLES / BOULDERS) with low (cobble / boulder) content with (some / much etc) matrix of .....'. If residue is granular then described as ' with matrix of ' or as a coarse soil. |   |  |  |  |   |  |  |  |   |            |  |
| <b>Cobbles</b> :- <10% - low cobble content; 10 to 20% - medium content; >20% - high content; <b>Boulders</b> <5% - low boulder content; 5 to 20% - medium content; >20% - high content   |   |  |  |  |   |  |  |  |   |            |  |


|  |  |   |  |   |  |  |  |
|--|--|---|--|---|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 5.60m<br>140mm to 20.00m |  | <b>Casing Diameter</b><br>200mm to 5.60m<br>140mm to 20.00m |  | <b>BOREHOLE No.</b> BH1  |  |
| <b>Equipment</b><br>Dando 2000<br>Knebel         |  | <b>Logged by</b> [REDACTED]                                   |  | <b>Compiled by</b> [REDACTED]                               |  | <b>Coordinates (Local Grid)</b><br>232110 E<br>709828 N<br>Ground Level 11.74 m OD |  |
| <b>Drill Crew</b> [REDACTED]                     |  | <b>Dates Drilled</b><br>Start 26/01/2010<br>End 03/02/2010    |  | <b>Approved by</b> [REDACTED]                               |  |  |  |

| Date & Time | Casing Depth (m) | Depth to Water (m) | Sample Details                 |             |             | SPT<br>Blows/N<br>Drive<br>mm | U100<br>Blows/<br>Recovery<br>mm | Description of Strata   | Depth (Thickness) (m)  | Level                   | Legend |
|-------------|------------------|--------------------|--------------------------------|-------------|-------------|-------------------------------|----------------------------------|---|--|-------------------------|--------|
|             |                  |                    | Depth (m)<br>From              | To          | Type        |                               |                                  |   |  |                         |        |
| 26/01       |                  |                    | 0.50-1.20                      | B           | 1           |                               |                                  | Grass over TOPSOIL.<br><br>MADE GROUND: Composed of brown grey sandy angular to subangular fine to coarse gravel of mica schist with many subangular cobbles. Sand is medium to coarse.<br><br>MADE GROUND: Mica schist boulder.<br><br>MADE GROUND: Composed of medium dense grey brown angular and subangular fine to coarse gravel of mica schist with occasional subangular boulders. Between 0.50m and 1.20m: Frequent roots. Below 0.90m: Decreasing organic content. | (0.10)<br>0.10<br>(0.20)<br>0.30<br>(0.20)<br>0.50<br>(0.70) | 11.64<br>11.44<br>11.24 |        |
| 26/01       |                  | DRY                |                                |             |             |                               |                                  |   | 1.20   | 10.54                   |        |
| 27/01       |                  |                    | 1.20-1.65<br>1.20-1.70         | C<br>B      | 2           | C32                           |                                  | Possible MADE GROUND: Composed of dense dark brown organic sandy angular to subangular fine to coarse gravel of mica schist and quartz with many angular cobbles and occasional subangular boulders >150mm. Sand is fine to coarse.   |  |                         |        |
|             | 1.90             | DRY                | 2.00<br>2.00<br>2.00-2.50      | C<br>D<br>B | 3<br>4      | C50/<br>95                    |                                  | At 2.00m: Becoming very dense.  |  |                         |        |
|             | 2.90             | DRY                | 2.70<br>3.00-3.45<br>3.00-3.50 | D<br>C<br>B | 5<br>6      | C50/<br>180                   |                                  |   | (4.40)   |                         |        |
|             | 3.90             | DRY                | 3.70<br>4.00-4.45<br>4.00-4.50 | D<br>C<br>B | 7<br>8<br>9 | C50/<br>105                   |                                  |   |  |                         |        |
|             | 4.90             | DRY                | 4.70<br>5.00-5.45              | D<br>C      |             | C50/                          |                                  |   |  |                         |        |

**Remarks**

- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- Rotary coring was carried out using Geobore drilling techniques.
- The borehole was advanced by cable percussive drilling to 5.60m and then progressed by rotary coring means to 20.00m.
- An amount of water was added to facilitate boring in granular strata.
- Borehole advanced by chiselling from 2.30m to 2.60m (60 mins); from 4.30m to 4.70m (45 mins); from 5.50m to 5.60m (45 mins).

Scale 1:25

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR1 (1 of 4) |

|   |   |   |  |
|---|---|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 5.60m<br>140mm to 20.00m | <b>Casing Diameter</b><br>200mm to 5.60m<br>140mm to 20.00m | <b>BOREHOLE No.</b> BH1                              |
| <b>Equipment</b> Dando 2000<br>Knebel                   |   |   | <b>Coordinates (Local Grid)</b> 232110 E<br>709828 N |
| <b>Drill Fluid</b> Water                                |   |   | <b>Ground Level</b> 11.74 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                   | <b>Compiled by</b> [REDACTED]                               |  |
| <b>Dates Drilled</b> Start 26/01/2010<br>End 03/02/2010 | 02/02/2010  | 29/03/2010  | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |      |     | SPT Blows /N | Result or U100 Blows/ Rec. mm or Fracture Index | Description of Strata   | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|------|-----|--------------|---|---|-----------------------|-------|--------|
|             |                  |                                  | Depth (m) From To    | Type | No. |              |   |   |                       |       |        |
| 27/01       |                  | DRY                              | 5.00-5.50            | B    | 10  |              |   |   |                       |       |        |
| 28/01       |                  | 1.90 (0)                         | 5.60                 | C    |     | C75/85*      |   | 5.60  | 6.14                  |       |        |
|             |                  | (100)                            | 5.60-5.60            | NA   | NA  |              |   |   |                       |       |        |
|             |                  |                                  | 5.60-5.85            | 100  | 80  | 48           |   |   |                       |       |        |
|             |                  | (100)                            | 5.85-7.35            | 100  | 97  | 39           | 0   | Between 6.45m and 7.35m: Induced fractures, closely spaced inclined horizontal undulating rough moderately open clean.  |                       |       |        |
|             |                  |                                  |                      |      |     |              | 3   | Between 7.32m and 7.54m: Fine to medium sand.<br>Between 7.35m and 8.35m: Closely spaced inclined horizontal fractures planar smooth and rough. Locally infilled <5mm.  |                       |       |        |
|             |                  | (100)                            | 7.35-8.85            | 100  | 100 | 57           | 10  |   | (5.25)                |       |        |
| 28/01       | 8.85             | DRY                              |                      |      |     |              |   | Between 8.70m and 10.35m: Frequent quartzite bands.<br>Between 8.85m and 9.50m: Closely spaced horizontal and subhorizontal stepped smooth and occasional rough locally stained yellow and local quartzite veining on surfaces. |                       |       |        |
| 29/01       | 8.85             | 4.90                             |                      |      |     |              | AZCL  |   |                       |       |        |
|             |                  | (100)                            | 8.85-9.90            | 97   | 4   | 3            | 5   |   |                       |       |        |
|             |                  |                                  |                      |      |     |              | NI  | Between 9.90m and 10.35m: Closely spaced horizontal stepped smooth and planar rough open clean.   |                       |       |        |

**Remarks 6** (See notes & keysheets) Groundwater was not apparent during boring.



|   |   |   |  |
|---|---|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 5.60m<br>140mm to 20.00m | <b>Casing Diameter</b><br>200mm to 5.60m<br>140mm to 20.00m | <b>BOREHOLE No.</b> BH1                              |
| <b>Equipment</b> Dando 2000<br>Knebel                   |   |   | <b>Coordinates (Local Grid)</b> 232110 E<br>709828 N |
| <b>Drill Fluid</b> Water                                |   |   | <b>Ground Level</b> 11.74 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                   | <b>Compiled by</b> [REDACTED]                               | <b>Approved by</b> [REDACTED]                        |
| <b>Dates Drilled</b> Start 26/01/2010<br>End 03/02/2010 | 02/02/2010  | 29/03/2010  | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |    |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|----|-------|-------|-------|--|--------------------------------|--|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |    | Type  |       | No.   |  |                                |  |                       |                       |       |        |
|             |                  |                                     | From                 | To | TCR % | SCR % | RQD % |  |                                |  |                       |                       |       |        |
|             |                  | (100)                               | 9.90-10.35           |    | 100   | 89    | 22    |  | 7                              | Between 10.35m and 10.85m: Very closely spaced horizontal and subhorizontal planar smooth moderately open clean. Probably drilling induced   |                       |                       |       |        |
|             |                  | (100)                               | 10.35-11.85          |    | 100   | 100   | 39    |  | 2                              | Strong fractured foliated dark and light grey quartz mica SCHIST. Slightly weathered. Fractures are subhorizontal to subvertical very closely to medium spaced planar smooth and undulating smooth and frequently cemented with quartz. Between 10.85m and 11.85m: Closely spaced fractures subhorizontal to inclined 15 degrees planar rough moderately open to open, locally infilled grey fine silty sand <2mm. | 10.85                 | 0.89                  |       |        |
|             |                  | (100)                               | 11.85-13.35          |    | 100   | 100   | 61    |  |                                | Between 12.30m and 13.35m: Induced fractures closely spaced subhorizontal to inclined 15 degrees planar smooth and striated moderately open clean.   |                       |                       |       |        |
|             |                  | (100)                               | 13.35-14.85          |    | 100   | 97    | 37    |  | 6                              | Between 13.35m and 14.85m: Possibly induced fractures closely spaced undulating striated and planar smooth moderately open to open clean.  |                       |                       |       |        |
| 29/01       | 14.85            | DRY                                 |                      |    |       |       |       |  |                                | Between 14.85m and 15.15m: Closely spaced fracture subhorizontal to inclined 25 degrees planar smooth open to very open slightly infilled grey silt on surfaces <2mm thick.  |                       |                       |       |        |
| 03/02       | 14.85            | 4.10                                |                      |    |       |       |       |  | AZCL                           |  |                       |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |  |   |  |   |  |  |  |
|--|--|---|--|---|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 5.60m<br>140mm to 20.00m |  | <b>Casing Diameter</b><br>200mm to 5.60m<br>140mm to 20.00m |  | <b>BOREHOLE No.</b> BH1                              |  |
| <b>Equipment</b> Dando 2000<br>Knebel            |  | <b>Logged by</b> [REDACTED]                                   |  | <b>Compiled by</b> [REDACTED]                               |  | <b>Coordinates (Local Grid)</b> 232110 E<br>709828 N |  |
| <b>Drill Fluid</b> Water                         |  | <b>Approved by</b> [REDACTED]                                 |  | <b>Ground Level</b> 11.74 m OD                              |  |  |  |
| <b>Drill Crew</b> [REDACTED]                     |  | <b>Start</b> 26/01/2010                                       |  | <b>End</b> 03/02/2010                                       |  |  |  |

| Date & Time     | Casing Depth (m) | Water Depth (m)<br>(Flush Return %) | Sample/Core Recovery |       |       | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata | Depth (Thickness) (m)  | Level  | Legend |     |
|-----------------|------------------|-------------------------------------|----------------------|-------|-------|--------------------------------|--------------------------|-----------------------|--|--------|--------|-----|
|                 |                  |                                     | Depth (m)            |       | Type  |                                |                          |                       |  |        |        | No. |
|                 |                  |                                     | From                 | To    | TCR % | SCR %                          | RQD %                    |                       |  |        |        |     |
|                 |                  | (100)                               | 14.85                | 16.35 | 98    | 94                             | 29                       | 3                     | At 15.66m: Fracture inclined 20 degrees stepped rough very open infilled light grey silt <3mm thick.<br>Between 15.75m and 16.35m: Closely spaced fractures subhorizontal to inclined 85 degrees.<br>Between 15.75m and 15.93m: Planar smooth moderately open locally infilled with light grey silt <2mm thick.  | (9.15) |        |     |
|                 |                  | (100)                               | 16.35                | 17.85 | 100   | 94                             | 71                       | 2                     | At 16.67m: Fracture subhorizontal slightly undulating smooth moderately open slight yellow staining penetrating <2mm some quartzite veining.<br>At 16.78m: Induced fracture horizontal planar smooth tight clean.<br>At 16.87m: Fracture inclined 10 degrees undulating smooth open clean.<br><br>At 17.55m: Induced fracture inclined horizontal undulating striated tight to moderately open clean.<br><br>Between 17.85m and 18.85m: Closely spaced fractures subhorizontal to inclined 10 degrees undulating smooth and planar smooth moderately open to open locally with infilling <2mm. |        |        |     |
|                 |                  | (100)                               | 17.85                | 19.35 | 100   | 92                             | 21                       | 6                     | Between 18.85m and 19.35m: Closely spaced fractures horizontal and vertical stepped smooth open and very open infilled light grey silt <2mm.   |        |        |     |
|                 |                  | (100)                               | 19.35                | 20.00 | 100   | 82                             | 0                        | >20<br>14             | Between 19.35m and 20.00m: Closely spaced fractures subhorizontal to inclined 30 degrees planar rough moderately open and open locally infilled with light grey silt <2mm.   |        |        |     |
| 03/02           | 20.00            | DRY                                 |                      |       |       |                                |                          |                       |  | 20.00  | -8.26  |     |
| End of Borehole |                  |                                     |                      |       |       |                                |                          |                       |  |        |        |     |

**Remarks**  
(See notes & keysheets)


|   |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        |  | <b>Borehole Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m |  | <b>BOREHOLE No.</b> BH2                              |  |
| <b>Equipment</b> Dando 2000<br>Knebel                   |  | <b>Logged by</b> [REDACTED]                                    |  | <b>Compiled by</b> [REDACTED]                                |  | <b>Coordinates (Local Grid)</b> 232144 E<br>709839 N |  |
| <b>Drill Fluid</b> Water/Polymer                        |  | <b>Approved by</b> [REDACTED]                                  |  | <b>Ground Level</b> 11.97 m OD                               |  |  |  |
| <b>Drill Crew</b> [REDACTED]                            |  | 27/01/2010   |  | 29/01/2010   |  | 12/04/2010   |  |
| <b>Dates Drilled</b> Start 25/01/2010<br>End 10/02/2010 |  |  |  |  |  |  |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return %) | Sample/Core Recovery   |    |        |               |       |              | SPT Blows /N<br>Core Size (mm) | Result or U100 Blows/ Rec. mm or Fracture Index   | Description of Strata  | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|------------------------|----|--------|---------------|-------|--------------|--------------------------------|---|------------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)              |    | Type   | No.           | RQD % | SPT Blows /N |                                |   |                        |                       |       |        |
|             |                  |                                     | From                   | To | TCR %  | SCR %         |       |              |                                |   |                        |                       |       |        |
| 25/01       |                  |                                     |                        |    |        |               |       |              |                                | TOPSOIL: Composed of dark brown organic sandy subrounded fine to medium gravel of mica schist and quartz with frequent roots. Sand is fine to coarse.   | (0.50)                 |                       |       |        |
|             |                  |                                     | 0.60-1.20              |    | B      | 1             |       |              |                                | MADE GROUND: Composed of dark brown fine to coarse sand and angular to subangular fine to coarse gravel of mica schist with occasional quartz and rare angular to subangular cobbles <100mm of mica schist. Rare angular fine to medium coal fragments. Rare organic / leaf material noted. | 0.50<br>(0.10)<br>0.60 | 11.47<br>11.37        |       |        |
| 25/01       | 1.20             | DRY                                 |                        |    |        |               |       |              |                                | MADE GROUND: Composed of medium dense dark brown sandy angular to subangular cobbles and boulders of mica schist and occasional quartz. Sand is fine to coarse.   | (1.10)                 |                       |       |        |
| 26/01       | 1.20<br>1.90     | DRY                                 | 1.20-1.70<br>1.20-1.65 |    | B<br>C | 2             |       | C42          |                                | Probably MADE GROUND: Composed of dense dark brown fine to coarse SAND and angular to subangular fine to coarse gravel of mica schist with occasional subangular cobbles <120mm.  | 1.70                   | 10.27                 |       |        |
|             |                  |                                     | 2.00-2.45              |    | C      |               |       | C50/20       |                                |   |                        |                       |       |        |
|             |                  |                                     | 2.00<br>2.00-2.50      |    | D<br>B | 3<br>4        |       |              |                                |   |                        |                       |       |        |
|             |                  |                                     | 2.80                   |    | D      | 5             |       |              |                                |   | (2.30)                 |                       |       |        |
|             | 2.90             | DRY                                 | 3.00<br>3.00-3.50      |    | C<br>B | 6             |       | C75/20*      |                                |   |                        |                       |       |        |
|             |                  |                                     | 3.80                   |    | D      | 7             |       |              |                                |   |                        |                       |       |        |
|             | 3.90             | DRY                                 | 4.00<br>4.00-4.03      |    | C      |               |       | C75/30*      |                                | Probably medium strong fractured dark grey mica SCHIST recovered as angular fragments.  | 4.00<br>(0.30)         | 7.97                  |       |        |
| 26/01       | 4.30             | DRY                                 |                        |    |        |               |       |              |                                |   | 4.30                   | 7.67                  |       |        |
| 04/02       | 4.30             | (0)                                 | 4.30                   |    | C      | 8             |       | C0/0         | AZCL                           | Strong horizontally and vertically foliated interbedded quartz mica SCHIST. Slightly weathered. Between 4.50m and 6.43m: Orange staining on fracture surfaces penetrating <5mm.   |                        |                       |       |        |
|             |                  | (70)                                | 4.30-5.55              |    |        | 98<br>48<br>0 |       |              |                                |   |                        |                       |       |        |

**Remarks** (See notes & keysheets)

- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- Rotary coring was carried out using Geobore drilling techniques.
- The borehole was advanced by cable percussion means to 4.30m and then progressed by rotary coring means to 35.00m.
- An amount of water was added to facilitate boring in granular strata.
- Borehole advanced by chiselling from 1.80m to 2.00m (60 mins); from 2.30m to 2.70m (45 mins); from 2.80m to 3.00m (30 mins); from 3.00m to 3.30m (15 mins); from 3.50m to 3.70m (30 mins); from 4.10m to 4.30m (45 mins).

Scale 1:25

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR2 (1 of 8) |

|  |  |  |  |  |  |   |  |
|--|--|--|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary           |  | <b>Borehole Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m |  | <b>BOREHOLE No.</b> BH2                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Knebel                   |  |  |  |  |  | <b>Coordinates (Local Grid)</b><br>232144 E<br>709839 N |  |
| <b>Drill Fluid</b><br>Water/Polymer                        |  |  |  |  |  | <b>Ground Level</b><br>11.97 m OD                       |  |
| <b>Drill Crew</b><br>[REDACTED]                            |  |  |  |  |  |   |  |
| <b>Dates Drilled</b><br>Start 25/01/2010<br>End 10/02/2010 |  | <b>Logged by</b><br>[REDACTED]                                 |  | <b>Compiled by</b><br>[REDACTED]                             |  | <b>Approved by</b><br>[REDACTED]                        |  |
|  |  | 27/01/2010   |  | 29/01/2010   |  | 12/04/2010  |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return)<br>% | Sample/Core Recovery |    |       |       |       |       | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata   | Depth (Thickness) (m) | Level | Legend |       |
|-------------|------------------|--|----------------------|----|-------|-------|-------|-------|--------------------------------|--------------------------|---|-----------------------|-------|--------|-------|
|             |                  |  | Depth (m)            |    | Type  |       | No.   |       |                                |                          |   |                       |       |        | RQD % |
|             |                  |  | From                 | To | TCR % | SCR % | SCR % | SCR % |                                |                          |   |                       |       |        |       |
|             |                  |  |                      |    |       |       |       |       |                                | >20                      |   |                       |       |        |       |
|             | (60)             |  | 5.55-6.00            |    | 100   | 53    | 22    |       |                                |                          |   |                       |       |        |       |
|             | (60)             |  | 6.00-6.60            |    | 100   | 63    | 17    |       |                                | NI                       |   |                       |       |        |       |
|             | (100)            |  | 6.60-7.50            |    | 100   | 78    | 0     |       |                                | 9                        | Between 6.60m and 7.50m: Very closely spaced horizontal and undulating smooth subvertical open with quartz bands and mica crystals <3mm clean.  |                       |       |        |       |
|             |                  |  |                      |    |       |       |       |       |                                | AZCL                     | Between 7.50m and 10.50m: Fractures are closely spaced horizontal and subvertical undulating stepped rough open stained yellow on surfaces with fine to medium sand infilling locally <3mm. | (6.20)                |       |        |       |
|             | (100)            |  | 7.50-9.00            |    | 97    | 79    | 34    |       |                                | 6                        |   |                       |       |        |       |
|             |                  |  |                      |    |       |       |       |       |                                | 15                       |   |                       |       |        |       |
|             | (100)            |  | 9.00-10.50           |    | 100   | 92    | 23    |       |                                | 5                        |   |                       |       |        |       |

**Remarks** 6 See installation details on final sheet.  
 (See notes & keysheets) 7 Groundwater was not apparent during boring.

|   |  |  |  |
|---|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m | <b>Casing Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m | <b>BOREHOLE No.</b> BH2                              |
| <b>Equipment</b> Dando 2000<br>Knebel                   |  |  | <b>Coordinates (Local Grid)</b> 232144 E<br>709839 N |
| <b>Drill Fluid</b> Water/Polymer                        |  |  | <b>Ground Level</b> 11.97 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                    | <b>Compiled by</b> [REDACTED]                                | <b>Approved by</b> [REDACTED]                        |
| <b>Dates Drilled</b> Start 25/01/2010<br>End 10/02/2010 | 27/01/2010   | 29/01/2010   | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |               |              | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata   | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|---------------|--------------|--------------------------------|--------------------------|---|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)<br>From To | Type<br>TCR % | No.<br>SCR % |                                |                          |   |                       |       |        |
| 04/02       | 12.00            | DRY                                 |                      |               |              |                                | 8                        |   |                       |       |        |
|             |                  | (100)                               | 10.50-12.00          | 100           | 93           | 57                             | 4                        | Very strong fractured highly foliated dark and light grey mica SCHIST interbedded with quartz. Fresh. Fractures widely spaced horizontal and subhorizontal planar rough moderately open clean.<br>Between 10.50m and 10.82m: Closely spaced fractures inclined 10 degrees planar stepped smooth open clean.<br>Between 10.95m and 11.22m: Closely spaced fractures inclined undulating rough open clean.<br>At 11.72m: Fracture horizontal stepped to undulating smooth to rough open clean.<br>At 11.78m: Induced fracture stepped smooth moderately open clean. | 10.50                 | 1.47  |        |
| 05/02       | 12.00            |                                     |                      |               |              |                                | 0                        | Between 12.19m and 12.26m: Very closely spaced fractures inclined 10 to 45 degrees undulating smooth open clean.<br>Between 12.34m and 12.85m: Closely spaced fractures inclined 70 degrees and 30 degrees planar undulating rough open clean.  |                       |       |        |
|             |                  | (90)                                | 12.00-13.35          | 100           | 91           | 38                             | 6                        |   |                       |       |        |
|             |                  |                                     |                      |               |              |                                | >20                      |   |                       |       |        |
|             |                  |                                     |                      |               |              |                                | 0                        |   |                       |       |        |
|             |                  | (70)                                | 13.35-15.00          | 100           | 98           | 39                             | 5                        | Between 14.00m and 14.35m: Closely spaced fractures inclined 45 degrees stepped smooth moderately open clean.<br>Between 14.50m and 15.00m: Closely spaced subhorizontal fractures undulating rough open clean.   |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |  |  |  |  |  |   |  |
|--|--|--|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary           |  | <b>Borehole Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m |  | <b>BOREHOLE No.</b> BH2                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Knebel                   |  |  |  |  |  | <b>Coordinates (Local Grid)</b><br>232144 E<br>709839 N |  |
| <b>Drill Fluid</b><br>Water/Polymer                        |  |  |  |  |  | <b>Ground Level</b><br>11.97 m OD                       |  |
| <b>Drill Crew</b><br>[REDACTED]                            |  |  |  |  |  |   |  |
| <b>Dates Drilled</b><br>Start 25/01/2010<br>End 10/02/2010 |  | <b>Logged by</b><br>[REDACTED]                                 |  | <b>Compiled by</b><br>[REDACTED]                             |  | <b>Approved by</b><br>[REDACTED]                        |  |
|  |  | 27/01/2010   |  | 29/01/2010   |  | 12/04/2010  |  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |    |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|----|-------|-------|-------|--|--------------------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |                                  | Depth (m)            |    | Type  | No.   |       |  |                                |   |                       |                       |       |        |
|             |                  |                                  | From                 | To | TCR % | SCR % | RQD % |  |                                |   |                       |                       |       |        |
| 05/02       | 16.50            | DRY                              |                      |    |       |       |       |  | NI                             | Between 15.29m and 15.32m: Open fracture zone.  |                       |                       |       |        |
|             |                  | (100)                            | 15.00-16.50          |    | 100   | 85    | 55    |  | 2                              | Between 15.55m and 16.28m: Closely spaced horizontal undulating rough open locally sand infilled <2mm.  |                       |                       |       |        |
|             |                  |                                  |                      |    |       |       |       |  | 16                             |   |                       |                       |       |        |
| 08/02       | 16.50            |                                  |                      |    |       |       |       |  | 0                              |   | (12.00)               |                       |       |        |
|             |                  | (100)                            | 16.50-18.00          |    | 100   | 97    | 79    |  | >20                            | At 17.15m: Fracture inclined 15 degrees stepped undulating rough open clean<br>At 17.15m: Fracture inclined 15 degrees stepped undulating rough open clean.                       |                       |                       |       |        |
|             |                  |                                  |                      |    |       |       |       |  | 2                              | Between 17.90m and 17.93m: Horizontal fracture planar rough open clean.   |                       |                       |       |        |
|             |                  | (100)                            | 18.00-19.50          |    | 100   | 95    | 59    |  | NI                             | Between 18.34m and 18.41m: Subvertical to inclined open clean.  |                       |                       |       |        |
|             |                  |                                  |                      |    |       |       |       |  | 1                              |   |                       |                       |       |        |
|             |                  |                                  |                      |    |       |       |       |  | AZCL                           | At 19.60m: Induced fracture inclined 10 degrees stepped smooth moderately open clean.<br>At 19.80m: Induced fracture inclined 10 degrees undulating smooth moderately open clean. |                       |                       |       |        |

**Remarks**  
(See notes & keysheets)

|   |  |  |  |
|---|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m | <b>Casing Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m | <b>BOREHOLE No.</b> BH2                              |
| <b>Equipment</b> Dando 2000<br>Knebel                   |  |  | <b>Coordinates (Local Grid)</b> 232144 E<br>709839 N |
| <b>Drill Fluid</b> Water/Polymer                        |  |  | <b>Ground Level</b> 11.97 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                    | <b>Compiled by</b> [REDACTED]                                |  |
| <b>Dates Drilled</b> Start 25/01/2010<br>End 10/02/2010 | 27/01/2010   | 29/01/2010   | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |            |           | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata  | Depth (Thickness) (m) | Level  | Legend |
|-------------|------------------|----------------------------------|----------------------|------------|-----------|--------------------------------|--------------------------|--|-----------------------|--------|--------|
|             |                  |                                  | Depth (m) From To    | Type TCR % | No. SCR % |                                |                          |  |                       |        |        |
|             |                  | (100)                            | 19.50-21.00          | 98         | 98        | 89                             | 0                        | At 20.36m: Induced fracture inclined 15 degrees stepped smooth moderately open clean.  |                       |        |        |
|             |                  | (100)                            | 21.00-21.70          | 93         | 93        | 93                             | AZCL<br>0                | At 21.15m: Induced fracture inclined 15 degrees planar smooth tight clean.<br><br>Between 21.47m and 21.70m: Strong green fine crystalline possibly igneous intrusive. |                       |        |        |
|             |                  | (100)                            | 21.70-22.10          | 100        | 75        | 33                             | NI                       | At 21.86m: Fracture inclined 30 degrees undulating smooth clean.<br>Between 21.95m and 22.06m: Fracture subvertical to inclined open clean.                            |                       |        |        |
|             |                  | (100)                            | 22.10-22.50          | 100        | 100       | 85                             |                          | At 22.25m: Induced fracture inclined 10 degrees clean smooth planar moderately open.   | 22.50                 | -10.53 |        |
|             |                  | (100)                            | 22.50-24.00          | 100        | 97        | 93                             | 2                        | Strong fractured foliated light grey SCHIST. Moderately weathered stained light brown yellow.  |                       |        |        |
| 08/02       | 24.00            | DRY                              |                      |            |           |                                |                          |  |                       |        |        |
| 09/02       | 24.00            | 3.90                             |                      |            |           |                                | AZCL                     |  |                       |        |        |
| 10/02       | 24.00            |                                  |                      |            |           |                                |                          |  |                       |        |        |
|             |                  | (100)                            | 24.00-25.50          | 91         | 88        | 81                             |                          | At 24.49m: Induced fracture horizontal planar rough moderately open clean.   |                       |        |        |

**Remarks**  
(See notes & keysheets)

|   |  |  |  |
|---|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m | <b>Casing Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m | <b>BOREHOLE No.</b> BH2                              |
| <b>Equipment</b> Dando 2000<br>Knebel                   |  |  | <b>Coordinates (Local Grid)</b> 232144 E<br>709839 N |
| <b>Drill Fluid</b> Water/Polymer                        |  |  | <b>Ground Level</b> 11.97 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                    | <b>Compiled by</b> [REDACTED]                                | <b>Approved by</b> [REDACTED]                        |
| <b>Dates Drilled</b> Start 25/01/2010<br>End 10/02/2010 | 27/01/2010   | 29/01/2010   | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return %) | Sample/Core Recovery |       |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|-------|-------|-------|-------|--|--------------------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |       | Type  |       | No.   |  |                                |   |                       |                       |       |        |
|             |                  |                                     | From                 | To    | TCR % | SCR % | RQD % |  |                                |   |                       |                       |       |        |
|             |                  | (100)                               | 25.50                | 27.00 | 100   | 100   | 100   |  | 1                              | At 26.60m: Induced fracture inclined 15 degrees undulating rough tight clean.   | (6.00)                |                       |       |        |
|             |                  | (100)                               | 27.00                | 28.50 | 100   | 100   | 100   |  |                                | Between 27.06m and 27.10m: Induced fracture inclined horizontal (80%) and 85 degrees (20%) stepped smooth very open clean.<br><br>At 27.48m: Induced fracture inclined 20 degrees undulating smooth tight clean surfaces.   |                       |                       |       |        |
|             |                  | (100)                               | 28.50                | 30.00 | 95    | 92    | 86    |  | 0                              | Strong fractured foliated dark and light grey quartz mica SCHIST. slightly weathered to fresh. Fractures are subhorizontal to subvertical closely to medium spaced planar rough and undulating rough locally cemented with quartz. Between 28.68m and 28.75m: Fractures inclined 15 degrees planar smooth moderately open to open slight yellowish staining on surfaces.<br>At 29.02m: Fracture subhorizontal undulating smooth moderately open slightly yellow staining on surfaces. | 28.50                 | -16.53                |       |        |

**Remarks**  
(See notes & keysheets)



|  |  |  |  |  |  |   |  |
|--|--|--|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m |  | <b>BOREHOLE No.</b> BH2                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Knebel         |  | <b>Logged by</b><br>█  |  | <b>Compiled by</b><br>█                                      |  | <b>Coordinates (Local Grid)</b><br>232144 E<br>709839 N |  |
| <b>Drill Fluid</b><br>Water/Polymer              |  | <b>Approved by</b><br>█  |  | <b>Ground Level</b><br>11.97 m OD                            |  |   |  |
| <b>Drill Crew</b><br>█                           |  | <b>Start</b> 25/01/2010  |  | <b>End</b> 10/02/2010  |  |   |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return %) | Sample/Core Recovery |       |       |       |       |       | SPT Blows /N<br>Core Size (mm)  | Result or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level  | Legend |       |
|-------------|------------------|-------------------------------------|----------------------|-------|-------|-------|-------|-------|---|---|-----------------------|-----------------------|--------|--------|-------|
|             |                  |                                     | Depth (m)            |       | Type  |       | No.   |       |   |   |                       |                       |        |        | RQD % |
|             |                  |                                     | From                 | To    | TCR % | SCR % | SCR % | SCR % |   |   |                       |                       |        |        |       |
|             |                  | (100)                               | 30.00                | 31.50 | 100   | 96    | 62    | 5     | <p>At 30.08m: Fracture subhorizontal undulating smooth open clean.</p> <p>At 30.28m: Induced fracture inclined 45 degrees planar smooth moderately open clean.</p> <p>At 30.40m: Induced fracture 35 degrees planar smooth open clean.</p> <p>Between 30.72m and 31.50m: Closely spaced horizontal and subhorizontal planar rough locally infilled with fine to medium sand &lt;3mm thick.</p> <p>Between 31.23m and 31.39m: Quartz band.</p> <p>Between 31.50m and 32.50m: Quartzite bands ranging from 40mm to 180mm thick.<br/>Between 31.50m and 31.70m: Non intact.</p> <p>At 31.90m: Induced fracture inclined 40 degrees stepped smooth tight clean.</p> | (6.50)  |                       |                       |        |        |       |
|             |                  | (100)                               | 31.50                | 33.00 | 100   | 93    | 86    | 1     | NI  |   |                       |                       |        |        |       |
|             |                  | (100)                               | 33.00                | 34.60 | 99    | 97    | 61    | 3     | AZCL  | Between 33.00m and 35.00m: Closely spaced fractures horizontal and subhorizontal undulating stepped smooth open to very open with quartzite veins <10mm thick on surfaces and slight yellow brown staining. |                       |                       |        |        |       |
|             |                  | (100)                               | 34.60                | 35.00 | 90    | 90    | 68    | 2     | AZCL  |   |                       |                       |        |        |       |
| 10/02       | 35.00            | 3.60                                |                      |       |       |       |       |       |   |   | End of Borehole       | 35.00                 | -23.03 |        |       |

**Remarks**  
(See notes & keysheets)


|  |  |  |
|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary           | <b>Borehole Diameter</b><br>200mm to 12.00m<br>140mm to 35.00m | <b>BOREHOLE No.</b> BH2  |
| <b>Equipment</b><br>Dando 2000<br>Knebel<br>Water/Polymer  |  | <b>Coordinates (Local Grid)</b><br>232144 E<br>709839 N<br><b>Ground Level</b><br>11.97 m OD |
| <b>Drill Crew</b><br>[REDACTED]                            | <b>Logged by</b> [REDACTED]                                    | <b>Compiled by</b> [REDACTED]  |
| <b>Dates Drilled</b><br>Start 25/01/2010<br>End 10/02/2010 | 27/01/2010   | 29/01/2010   |
|  |  | 12/04/2010   |

| Installation Details  |                 | Installation Depth (m) | Level m OD | Water Strikes | Strata Depth (m) | Strata Details                                |
|---|-----------------|------------------------|------------|---------------|------------------|---|
| Instrumentation:<br>19mm standpipe<br>piezometer tip<br>at 10.00m | Bentonite Grout |                        |            |               | 0.50             | TOPSOIL                                       |
|   |                 |                        |            |               |                  | MADE GROUND                                   |
|   |                 |                        |            |               | 4.00             |   |
|   | Bentonite Seal  | 5.00                   | 6.97       |               |                  |   |
|   | Gravel Filter   | 6.00                   | 5.97       |               |                  |   |
|   |                 | 10.00                  | 1.97       |               |                  | Coarse/Medium grained<br>Metamorphic (SCHIST) |
|   | Bentonite Seal  | 11.00                  | 0.97       |               |                  |   |
| Bentonite Grout   |                 |                        |            |               |                  |   |
|   |                 | 35.00                  | -23.03     |               | 35.00            | Base of Hole                                  |

**Remarks**  
(See notes & keysheets)

Water Strike  
 Water Rise

Upstanding cover.  
Not to Scale Pipe diameter 19mm to 10.00m.

|  |   |                                |
|--|---|--------------------------------|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|  |   | <b>Figure No.</b> FR2 (8 of 8) |


|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 6.60m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 6.60m<br>150mm to 6.60m |  | <b>BOREHOLE No.</b> BH3   |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6   |  | <b>Logged by</b> [REDACTED]                                   |  | <b>Compiled by</b> [REDACTED]                              |  | <b>Coordinates (Local Grid)</b><br>232162 E<br>709840 N<br>12.04 m OD |  |
| <b>Drill Crew</b><br>[REDACTED]                  |  | <b>Dates Drilled</b><br>Start 21/01/2010<br>End 10/02/2010    |  | <b>Approved by</b> [REDACTED]                              |  |   |  |

| Date & Time | Casing Depth (m) | Depth to Water (m) | Sample Details    |    |             | SPT<br>Blows/N<br>Drive<br>mm<br>Test | U100<br>Blows/<br>Recovery<br>mm<br>Result | Description of Strata   | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|--------------------|-------------------|----|-------------|---------------------------------------|--|---|-----------------------|-------|--------|
|             |                  |                    | Depth (m)<br>From | To | Type        |                                       |  |   |                       |       |        |
| 21/01       |                  |                    | 0.50-0.80         | B  | 1           | C31                                   |  | Grass over sandy gravelly TOPSOIL.  | (0.10)                | 11.94 |        |
|             |                  |                    |                   |    |             |                                       |  | MADE GROUND: Tarmacadam   | (0.10)                |       |        |
|             |                  |                    |                   |    |             |                                       |  | MADE GROUND: Type 1 fill.   | (0.15)                |       |        |
|             |                  |                    |                   |    |             |                                       |  | MADE GROUND: Composed of sandy gravelly subangular cobbles and boulders of schist. Gravel is subangular fine to coarse mica schist. Sand is medium to coarse. | (0.35)                |       |        |
| 21/01       | 1.70             | DRY                | 0.80              | D  | 2           |                                       |  |   |                       | 11.84 |        |
|             |                  |                    |                   |    |             |                                       |  |   |                       |       |        |
| 22/01       | 1.70             | DRY                | 1.20-1.65         | C  | 4           | C31                                   |  |   |                       | 10.34 |        |
|             |                  |                    |                   |    |             |                                       |  |   |                       |       |        |
| 2.90        | DRY              | 1.90-2.10          | C                 | 5  | C40/<br>105 |                                       |  |   |                       | 10.04 |        |
|             |                  |                    |                   |    |             |                                       |  |   |                       |       |        |
| 4.80        | DRY              | 2.00-2.50          | B                 | 6  |             |                                       |  |   |                       |       |        |
|             |                  |                    |                   |    |             |                                       |  |   |                       |       |        |
|             |                  |                    | 3.00-3.50         | B  | 7           |                                       |  |   |                       |       |        |
|             |                  |                    |                   |    |             |                                       |  |   |                       |       |        |
|             |                  |                    | 4.00              | C  | 9           | C50/<br>70                            |  |   |                       |       |        |
|             |                  |                    |                   |    |             |                                       |  |   |                       |       |        |
|             |                  |                    | 4.70              | D  | 10          |                                       |  |   |                       |       |        |
|             |                  |                    |                   |    |             |                                       |  |   |                       |       |        |

**Remarks**

- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- Rotary coring was carried out using a core barrel 131mm in diameter.
- The borehole was advanced by cable percussion means to 6.60m and then progressed by rotary coring means to 35.00m.
- An amount of water was added to facilitate boring in granular strata.
- Borehole advanced by chiselling from 2.20m to 2.60m (45 mins); from 2.70m to 3.00m (30 mins); from 3.00m to 3.40m (45 mins); from 3.80m to 4.00m (30 mins); from 4.20m to 4.60m (45 mins); from 5.20m to 5.60m (45 mins);

Scale 1:25

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR3 (1 of 8) |

|   |   |  |  |
|---|---|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 6.60m<br>131mm to 35.00m | <b>Casing Diameter</b><br>200mm to 6.60m<br>150mm to 6.60m | <b>BOREHOLE No.</b> BH3                              |
| <b>Equipment</b> Dando 2000<br>Massenza MI6             |   |  | <b>Coordinates (Local Grid)</b> 232162 E<br>709840 N |
| <b>Drill Fluid</b> Water                                |   |  | <b>Ground Level</b> 12.04 m OD                       |
| <b>Drill Crew</b> ██████████                            | <b>Logged by</b> ██████████                                   | <b>Compiled by</b> ██████████                              |  |
| <b>Dates Drilled</b> Start 21/01/2010<br>End 10/02/2010 | 25/01/2010  | 29/01/2010   | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |    |       |       |       | SPT Blows /N<br>Core Size (mm) | Result or U100 Blows/ Rec. mm or Fracture Index   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|----|-------|-------|-------|--------------------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |    | Type  | No.   | RQD % |                                |   |                       |                       |       |        |
|             |                  |                                     | From                 | To | TCR % | SCR % |       |                                |   |                       |                       |       |        |
|             |                  |                                     | 5.00-5.50            |    | B     | 11    |       | 10                             |   |                       |                       |       |        |
|             |                  |                                     | 5.70                 |    | D     | 12    |       |                                |   |                       |                       |       |        |
|             | 5.90             | DRY                                 | 6.00                 |    | C     |       |       | C50/125                        |   |                       |                       |       |        |
|             |                  |                                     | 6.00-6.50            |    | B     | 13    |       |                                |   |                       |                       |       |        |
| 22/01       | 5.90             | DRY                                 |                      |    |       |       |       |                                |   |                       |                       |       |        |
| 25/01       | 5.90             |                                     |                      |    |       |       |       |                                |   | 6.50                  | 5.54                  |       |        |
| 25/01       | 6.60             | 4.00                                |                      |    |       |       |       |                                | Possibly medium strong mica SCHIST recovered as angular fine to coarse gravel and cobble sized fragments. | (0.10)                | 5.44                  |       |        |
| 05/02       | 6.60             | (0)                                 | 6.60                 |    | C     | 14    |       | C50/10                         | AZCL  |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |                                | Very strong fractured thinly foliated light and dark grey mica SCHIST with bands of quartz.               |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |                                | 3   |                       |                       |       |        |
|             |                  | (100)                               | 6.60-8.60            |    | 93    | 92    | 68    |                                |   |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |                                |   |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |                                |   |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |                                |   |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |                                |   |                       |                       |       |        |
|             |                  | (100)                               | 8.60-11.40           |    | 100   | 100   | 85    |                                |   |                       |                       |       |        |

**Remarks** (See notes & keysheets) 6  
7 from 5.80m to 6.00m (30 mins); from 6.50m to 6.60m (45 mins).  
See installation details on final sheet.  
Groundwater was not apparent during boring.

|   |   |  |  |
|---|---|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 6.60m<br>131mm to 35.00m | <b>Casing Diameter</b><br>200mm to 6.60m<br>150mm to 6.60m | <b>BOREHOLE No.</b> BH3                              |
| <b>Equipment</b> Dando 2000<br>Massenza MI6             |   |  | <b>Coordinates (Local Grid)</b> 232162 E<br>709840 N |
| <b>Drill Fluid</b> Water                                |   |  | <b>Ground Level</b> 12.04 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                   | <b>Compiled by</b> [REDACTED]                              | <b>Approved by</b> [REDACTED]                        |
| <b>Dates Drilled</b> Start 21/01/2010<br>End 10/02/2010 | 25/01/2010  | 29/01/2010   | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |               |              | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|---------------|--------------|--------------------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)<br>From To | Type<br>TCR % | No.<br>SCR % |                                |   |                       |                       |       |        |
| 05/02       | 6.60             | 1.00                                | 11.40-12.00          | 100           | 100          | 33                             | 1<br>At 10.17m: Induced fracture inclined 60 degrees slightly undulating slightly rough moderately open clean.<br><br>At 10.79m: Induced fracture inclined 10 degrees undulating striated moderately open clean.<br><br>At 11.28m: Quartz band (30mm).<br><br>At 11.40m: Fracture inclined 35 degrees undulating rough open infilled with clayey sand <5mm.<br>At 11.53m: Induced fracture inclined 40 degrees planar smooth moderately open with quartzite veins penetrating <5mm. | (8.80)                |                       |       |        |
| 09/02       | 6.60             |                                     |                      |               |              |                                | AZCL<br>At 12.17m: Fracture inclined 45 degrees slightly stepped rough open infilled with clayey sand <3mm.<br><br>At 13.08m: Induced fracture inclined 30 degrees undulating rough moderately open clean.<br><br>1<br>At 13.75m: Induced fracture inclined 45 degrees undulating slightly rough tight to moderately open clean.<br>At 13.92m: Induced fracture inclined 30 degrees stepped smooth moderately open clean.   |                       |                       |       |        |
|             |                  | (80)                                | 12.00-14.50          | 97            | 96           | 74                             |   |                       |                       |       |        |

**Remarks**  
(See notes & keysheets)

|   |   |  |  |
|---|---|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 6.60m<br>131mm to 35.00m | <b>Casing Diameter</b><br>200mm to 6.60m<br>150mm to 6.60m | <b>BOREHOLE No.</b> BH3                              |
| <b>Equipment</b> Dando 2000<br>Massenza MI6             |   |  | <b>Coordinates (Local Grid)</b> 232162 E<br>709840 N |
| <b>Drill Fluid</b> Water                                |   |  | <b>Ground Level</b> 12.04 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                   | <b>Compiled by</b> [REDACTED]                              |  |
| <b>Dates Drilled</b> Start 21/01/2010<br>End 10/02/2010 | 25/01/2010  | 29/01/2010   | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |       |       | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata | Depth (Thickness) (m)  | Level | Legend |     |
|-------------|------------------|-------------------------------------|----------------------|-------|-------|--------------------------------|--------------------------|-----------------------|--|-------|--------|-----|
|             |                  |                                     | Depth (m)            |       | Type  |                                |                          |                       |  |       |        | No. |
|             |                  |                                     | From                 | To    | TCR % | SCR %                          | RQD %                    |                       |  |       |        |     |
|             |                  | (80)                                | 14.50                | 17.50 | 100   | 98                             | 35                       | 10                    | <p>Strong fractured thinly foliated dark and light grey quartz mica SCHIST with frequent 20mm to 50mm bands of quartzite. Slightly weathered to fresh. Fractures are subhorizontal to subvertical closely to medium spaced planar smooth and undulating smooth locally cemented with quartz and rarely infilled with clayey gravel.</p> <p>At 16.00m: Closely spaced fractures inclined 15 degrees to 70 degrees planar smooth and stepped very open some light grey silt infill &lt;2mm.</p> <p>At 16.70m: Induced fracture inclined 15 degrees undulating rough tight clean.</p> <p>At 17.25m: Fracture inclined 45 degrees planar smooth very open infilled &lt;100mm with gravel.</p> <p>At 17.78m: Fracture inclined 15 degrees slightly stepped smooth open clean.</p> | 15.40 | -3.36  |     |
|             |                  | (80)                                | 17.50                | 20.50 | 100   | 96                             | 65                       | 12                    | <p>At 19.65m: Fracture inclined 90 degrees planar rough open clean.</p> <p>At 19.65m: Induced fracture inclined 30 degrees planar striated tight clean.</p>  |       |        |     |

**Remarks**  
(See notes & keysheets)

|  |   |  |   |
|--|---|--|---|
| <b>Drilling Method</b> Cable Percussion & Rotary           | <b>Borehole Diameter</b><br>200mm to 6.60m<br>131mm to 35.00m | <b>Casing Diameter</b><br>200mm to 6.60m<br>150mm to 6.60m | <b>BOREHOLE No.</b> BH3                                 |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6             |   |  | <b>Coordinates (Local Grid)</b><br>232162 E<br>709840 N |
| <b>Drill Fluid</b><br>Water                                |   |  | <b>Ground Level</b><br>12.04 m OD                       |
| <b>Drill Crew</b><br>[REDACTED]                            | <b>Logged by</b><br>[REDACTED]                                | <b>Compiled by</b><br>[REDACTED]                           | <b>Approved by</b><br>[REDACTED]                        |
| <b>Dates Drilled</b><br>Start 21/01/2010<br>End 10/02/2010 | 25/01/2010  | 29/01/2010   | 12/04/2010  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |      |     | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata  | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|------|-----|--------------------------------|--------------------------|--|-----------------------|-------|--------|
|             |                  |                                  | Depth (m) From To    | Type | No. |                                |                          |  |                       |       |        |
| 09/02       | 6.60             | 1.40                             |                      |      |     |                                |                          |  |                       |       |        |
| 10/02       | 6.60             |                                  |                      |      |     |                                |                          |  |                       |       |        |
|             |                  | (90)                             | 20.50-22.50          | 93   | 69  | 30                             | AZCL                     | At 20.30m: Quartz vein.<br>At 20.32m: Closely spaced fractures inclined 30 degrees to 40 degrees planar and stepped rough.<br>At 20.43m: Induced fracture inclined 10 degrees to 15 degrees undulating striated moderately open clean. |                       |       |        |
|             |                  |                                  |                      |      |     |                                | 3                        |  |                       |       |        |
|             |                  |                                  |                      |      |     |                                | NI                       | Between 21.04m and 21.44m: Inclined to subvertical fracture open 5mm and infilled with sandy clay.   |                       |       |        |
|             |                  |                                  |                      |      |     |                                | 2                        |  |                       |       |        |
|             |                  |                                  |                      |      |     |                                | NI                       |  |                       |       |        |
|             |                  | (90)                             | 22.50-23.90          | 100  | 100 | 84                             |                          |  |                       |       |        |
|             |                  |                                  |                      |      |     |                                | 0                        | At 23.80m: Induced fracture inclined 40 degrees planar slightly rough clean.   |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |  |   |  |  |  |  |  |
|--|--|---|--|--|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 6.60m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 6.60m<br>150mm to 6.60m |  | <b>BOREHOLE No.</b> BH3                              |  |
| <b>Equipment</b> Dando 2000<br>Massenza MI6      |  | <b>Logged by</b> [REDACTED]                                   |  | <b>Compiled by</b> [REDACTED]                              |  | <b>Coordinates (Local Grid)</b> 232162 E<br>709840 N |  |
| <b>Drill Fluid</b> Water                         |  | <b>Dates Drilled</b> Start 21/01/2010<br>End 10/02/2010       |  | <b>Approved by</b> [REDACTED]                              |  | <b>Ground Level</b> 12.04 m OD                       |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |    |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|----|-------|-------|-------|--|--------------------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |    | Type  | No.   |       |  |                                |   |                       |                       |       |        |
|             |                  |                                     | From                 | To | TCR % | SCR % | RQD % |  |                                |   |                       |                       |       |        |
|             |                  | (90)                                | 23.90-27.00          |    | 100   | 100   | 93    |  |                                | At 25.20m: Induced fracture inclined 20 degrees undulating rough tight clean. | (19.60)               |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |  |                                | At 25.65m: Induced fracture inclined 30 degrees planar rough tight clean.     |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |  |                                | At 26.65m: Induced fracture inclined 30 degrees planar smooth tight clean.    |                       |                       |       |        |
|             |                  | (90)                                | 27.00-30.00          |    | 100   | 95    | 86    |  | 2                              | At 29.10m: Fracture inclined 30 degrees planar smooth tight clean             |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |  |                                | At 29.46m: Fracture inclined 20 degrees planar smooth open clean.             |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |  |                                | At 29.68m: Fracture inclined 20 degrees undulating smooth tight clean.        |                       |                       |       |        |


**Remarks**  
(See notes & keysheets)



|  |  |   |  |  |  |  |  |
|--|--|---|--|--|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 6.60m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 6.60m<br>150mm to 6.60m |  | <b>BOREHOLE No.</b> BH3                              |  |
| <b>Equipment</b> Dando 2000<br>Massenza MI6      |  | <b>Logged by</b> [REDACTED]                                   |  | <b>Compiled by</b> [REDACTED]                              |  | <b>Coordinates (Local Grid)</b> 232162 E<br>709840 N |  |
| <b>Drill Fluid</b> Water                         |  | <b>Approved by</b> [REDACTED]                                 |  | <b>Ground Level</b> 12.04 m OD                             |  |  |  |
| <b>Drill Crew</b> [REDACTED]                     |  | <b>Dates Drilled</b> Start 21/01/2010<br>End 10/02/2010       |  |  |  |  |  |

| Date & Time     | Casing Depth (m) | Water Depth (m)<br>(Flush Return)<br>% | Sample/Core Recovery |    |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-----------------|------------------|--|----------------------|----|-------|-------|-------|--|--------------------------------|---|-----------------------|-----------------------|-------|--------|
|                 |                  |  | Depth (m)            |    | Type  | No.   |       |  |                                |   |                       |                       |       |        |
|                 |                  |  | From                 | To | TCR % | SCR % | RQD % |  |                                |   |                       |                       |       |        |
|                 |                  |  |                      |    |       |       |       |  | 0                              |   |                       |                       |       |        |
|                 |                  | (90)                                   | 30.00-31.50          |    | 96    | 86    | 68    |  |                                | At 31.37m: Quartz band (40mm).  |                       |                       |       |        |
|                 |                  | (90)                                   | 31.50-33.00          |    | 100   | 100   | 89    |  | 1                              | At 31.77m: Induced fracture inclined 20 degrees smooth planar open clean.<br><br>At 32.30m: Induced fracture inclined 25 degrees planar slightly rough moderately open clean. |                       |                       |       |        |
|                 |                  |  |                      |    |       |       |       |  | AZCL                           |   |                       |                       |       |        |
|                 |                  | (90)                                   | 33.00-34.50          |    | 99    | 93    | 82    |  | 1                              |   |                       |                       |       |        |
|                 |                  |  |                      |    |       |       |       |  | AZCL                           |   |                       |                       |       |        |
|                 |                  | (90)                                   | 34.50-35.00          |    | 90    | 90    | 54    |  | 0                              | Between 34.72m and 34.85m: Quartz band.   |                       |                       |       |        |
| 10/02           | 6.60             | 1.40                                   |                      |    |       |       |       |  |                                |   |                       |                       |       |        |
| End of Borehole |                  |  |                      |    |       |       |       |  |                                |   | 35.00                 | -22.96                |       |        |

**Remarks**  
(See notes & keysheets)

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR3 (7 of 8) |


|  |   |  |
|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary           | <b>Borehole Diameter</b><br>200mm to 6.60m<br>131mm to 35.00m                           | <b>BOREHOLE No.</b> <b>BH3</b>   |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6<br>Water    |   | <b>Coordinates (Local Grid)</b><br>232162 E<br>709840 N<br>Ground Level 12.04 m OD |
| <b>Drill Crew</b><br>[REDACTED]                            | <b>Logged by</b> [REDACTED] <b>Compiled by</b> [REDACTED] <b>Approved by</b> [REDACTED] |  |
| <b>Dates Drilled</b><br>Start 21/01/2010<br>End 10/02/2010 | 25/01/2010 29/01/2010 12/04/2010  |  |

| Installation Details  |                 | Installation Depth (m) | Level m OD | Water Strikes | Strata Depth (m) | Strata Details                             |
|---|-----------------|------------------------|------------|---------------|------------------|--|
| Instrumentation:<br>50mm slotted section from 2.00 to 4.76m | Bentonite Grout |                        |            |               |                  | MADE GROUND                                |
|   | Gravel Filter   | 2.00                   | 10.04      |               |                  |  |
|   | Bentonite Grout | 4.76                   | 7.28       |               |                  |  |
|   |                 |                        |            |               | 6.50             | Coarse/Medium grained Metamorphic (SCHIST) |
|   |                 | 35.00                  | -22.96     |               | 35.00            | Base of Hole                               |

**Remarks**  
(See notes & keysheets)

Water Strike  
 Water Rise

Upstanding cover.  
Not to Scale Pipe diameter 50mm to 4.76m.


|  |   |                                |
|--|---|--------------------------------|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|  |   | <b>Figure No.</b> FR3 (8 of 8) |

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 3.50m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.90m<br>150mm to 5.50m |  | <b>BOREHOLE No.</b> BH4                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6   |  | <b>Logged by</b><br>██████████                                |  | <b>Compiled by</b><br>██████████                           |  | <b>Coordinates (Local Grid)</b><br>232158 E<br>709854 N |  |
| <b>Drill Fluid</b><br>Water                      |  | <b>Approved by</b><br>██████████                              |  | <b>Ground Level</b><br>13.15 m OD                          |  |   |  |
| <b>Drill Crew</b><br>██████████                  |  | <b>Start</b> 21/01/2010                                       |  | <b>End</b> 04/02/2010                                      |  |   |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return %) | Sample/Core Recovery |    |       |            |     |  | SPT Blows /N<br>Core Size (mm) | Result or U100 Blows/ Rec. mm or Fracture Index | Description of Strata  | Depth (Thickness) (m) | Level | Legend   |             |       |  |            |       |  |                  |      |  |        |      |  |
|-------------|------------------|-------------------------------------|----------------------|----|-------|------------|-----|--|--------------------------------|---|--|-----------------------|-------|--|-------------|-------|--|------------|-------|--|------------------|------|--|--------|------|--|
|             |                  |                                     | Depth (m)            |    | Type  |            | No. | RQD %  |                                |   |  |                       |       |  |             |       |  |            |       |  |                  |      |  |        |      |  |
|             |                  |                                     | From                 | To | TCR % | SCR %      |     |  |                                |   |  |                       |       |  |             |       |  |            |       |  |                  |      |  |        |      |  |
| 21/01       | 1.90             | Dry                                 | 1.20-1.65            |    | C     |            |     |  | C50/<br>160                    |   | <p>TOPSOIL: Composed of dark brown organic sandy angular to subrounded fine to medium gravel of mica schist with frequent roots. Sand is medium to coarse with frequent mica.</p> <p>MADE GROUND: Composed of sandy gravelly subangular cobbles of mica schist. Gravel is subangular fine to coarse mica schist. Sand is micaceous medium to coarse.</p> <p>MADE GROUND: Composed of dark brown locally clayey sandy gravelly angular cobbles and boulders of mica schist. Gravel is angular to subangular fine to coarse mica schist. Sand is medium to coarse.</p>   | (0.10)<br>0.10        | 13.05 |  |             |       |  |            |       |  |                  |      |  |        |      |  |
|             |                  |                                     | 1.20-1.70            |    | B     | 1          |     |  |                                |   |  | (0.30)                |       |  |             |       |  |            |       |  |                  |      |  |        |      |  |
|             |                  |                                     | 2.00-2.45            |    | C     |            |     |  |                                |   |  | C17                   |       | <p>MADE GROUND: Composed of brown sandy angular to subangular fine to coarse gravel of mica schist and occasional quartz with many angular to subangular cobbles of mica schist up to 130mm. Sand is fine to coarse.</p> | 0.40        | 12.75 |  |            |       |  |                  |      |  |        |      |  |
|             |                  |                                     | 2.00-2.50            |    | D     | 3          |     |  |                                |   |  |                       |       |  | (1.80)      |       |  |            |       |  |                  |      |  |        |      |  |
|             |                  |                                     | 2.00-2.50            |    | B     | 2          |     |  |                                |   |  |                       |       |  | C72/<br>125 |       | <p>MADE GROUND: Composed of brown sandy angular to subangular fine to coarse gravel of mica schist and occasional quartz with many angular to subangular cobbles of mica schist up to 130mm. Sand is fine to coarse.</p> |            | 10.95 |  |                  |      |  |        |      |  |
|             |                  |                                     | 2.70                 |    | D     | 4          |     |  |                                |   |  |                       |       |  |             |       |  | (2.20)     |       |  |                  |      |  |        |      |  |
|             |                  |                                     | 3.00-3.45            |    | C     |            |     |  |                                |   |  |                       |       |  |             |       |  | C50/<br>10 |       | <p>Possibly medium strong mica SCHIST recovered as angular fragments.</p> <p>Strong to very strong fractured grey and dark grey quartz mica SCHIST. Moderately weathered. Fractures are closely spaced inclined with orange staining on surfaces penetrating &lt;5mm. Occasional quartz bands 20mm to 40mm thick.</p> <p>Between 3.60m and 5.90m: Fractures are predominantly subvertical to vertical closely to medium spaced and cemented with quartz.</p> <p>At 4.40m: Subvertical open fracture with clay infill 5mm to 10mm.</p> <p>At 5.03m: Subvertical fracture open with clayey infill up to 5mm.</p> |                  | 9.65 |  |        |      |  |
|             |                  |                                     | 3.00-3.50            |    | B     | 5          |     |  |                                |   |  |                       |       |  |             |       |  |            |       |  | (3.50)<br>(0.10) |      |  |        |      |  |
|             |                  |                                     | 3.10-3.60            |    | C     |            |     |  |                                |   |  |                       |       |  |             |       |  |            |       |  | C50/<br>10       |      | <p>Possibly medium strong mica SCHIST recovered as angular fragments.</p> <p>Strong to very strong fractured grey and dark grey quartz mica SCHIST. Moderately weathered. Fractures are closely spaced inclined with orange staining on surfaces penetrating &lt;5mm. Occasional quartz bands 20mm to 40mm thick.</p> <p>Between 3.60m and 5.90m: Fractures are predominantly subvertical to vertical closely to medium spaced and cemented with quartz.</p> <p>At 4.40m: Subvertical open fracture with clay infill 5mm to 10mm.</p> <p>At 5.03m: Subvertical fracture open with clayey infill up to 5mm.</p> |        | 9.55 |  |
|             |                  |                                     | 3.60-3.64            |    |       |            |     |  |                                |   |  |                       |       |  |             |       |  |            |       |  |                  |      |  | (3.60) |      |  |
| 3.60-5.90   |                  |                                     |                      |    |       | C50/<br>10 |     | <p>Possibly medium strong mica SCHIST recovered as angular fragments.</p> <p>Strong to very strong fractured grey and dark grey quartz mica SCHIST. Moderately weathered. Fractures are closely spaced inclined with orange staining on surfaces penetrating &lt;5mm. Occasional quartz bands 20mm to 40mm thick.</p> <p>Between 3.60m and 5.90m: Fractures are predominantly subvertical to vertical closely to medium spaced and cemented with quartz.</p> <p>At 4.40m: Subvertical open fracture with clay infill 5mm to 10mm.</p> <p>At 5.03m: Subvertical fracture open with clayey infill up to 5mm.</p> |                                | (2.30)  |  |                       |       |  |             |       |  |            |       |  |                  |      |  |        |      |  |
| (0)         |                  |                                     |                      |    |       |            |     |  | (80)                           |   |  |                       |       |  |             |       |  |            |       |  |                  |      |  |        |      |  |
| 3.60-5.90   |                  |                                     |                      |    |       |            |     |  | C50/<br>10                     |   | <p>Possibly medium strong mica SCHIST recovered as angular fragments.</p> <p>Strong to very strong fractured grey and dark grey quartz mica SCHIST. Moderately weathered. Fractures are closely spaced inclined with orange staining on surfaces penetrating &lt;5mm. Occasional quartz bands 20mm to 40mm thick.</p> <p>Between 3.60m and 5.90m: Fractures are predominantly subvertical to vertical closely to medium spaced and cemented with quartz.</p> <p>At 4.40m: Subvertical open fracture with clay infill 5mm to 10mm.</p> <p>At 5.03m: Subvertical fracture open with clayey infill up to 5mm.</p> | 81                    | 68    | 35   |             |       |  |            |       |  |                  |      |  |        |      |  |
| (80)        |                  |                                     |                      |    |       |            |     |  |                                |   |  |                       |       |  |             |       |  |            |       |  |                  |      |  |        |      |  |

**Remarks** (See notes & keysheets)

- 1 A hydraulic breaker was used to break out hard strata at ground level.
- 2 Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- 3 Rotary coring was carried out using a core barrel 131mm in diameter.
- 4 The borehole was advanced by cable percussion means to 3.60m and then progressed by rotary coring means to 35.00m.
- 5 An amount of water was added to facilitate boring in granular strata.
- 6 Borehole advanced by chiselling from 1.60m to 1.90m (60 mins); from 3.50m to 3.60m (60 mins).

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR4 (1 of 8) |

|  |  |   |  |  |  |  |  |
|--|--|---|--|--|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 3.50m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.90m<br>150mm to 5.50m |  | <b>BOREHOLE No.</b> BH4                              |  |
| <b>Equipment</b> Dando 2000<br>Massenza MI6      |  | <b>Logged by</b> [REDACTED]                                   |  | <b>Compiled by</b> [REDACTED]                              |  | <b>Coordinates (Local Grid)</b> 232158 E<br>709854 N |  |
| <b>Drill Fluid</b> Water                         |  | <b>Approved by</b> [REDACTED]                                 |  | <b>Ground Level</b> 13.15 m OD                             |  |  |  |
| <b>Drill Crew</b> [REDACTED]                     |  | <b>Start</b> 21/01/2010                                       |  | <b>End</b> 04/02/2010                                      |  |  |  |


| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |            |           | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata  | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|------------|-----------|--------------------------------|--------------------------|--|-----------------------|-------|--------|
|             |                  |                                  | Depth (m) From To    | Type TCR % | No. SCR % |                                |                          |  |                       |       |        |
|             |                  |                                  |                      |            |           |                                | 4                        | At 5.27m: Slightly weathered subvertical fracture open with clay infill up to 5mm.   |                       |       |        |
|             |                  | (100)                            | 5.90-7.00            | 92         | 63        | 30                             | AZCL<br>1                | Strong to very strong fractured grey and dark grey quartz mica SCHIST. Moderately to slightly weathered. Fractures are closely to medium spaced inclined with some orange staining on surfaces penetrating <2mm. Occasional quartz bands 20mm to 40mm thick. Between 5.90m and 6.40m: Fractures are drilling induced predominantly subvertical to vertical medium to widely spaced and cemented with quartz. | 5.90                  | 7.25  |        |
| 22/01       | 5.50             | 1.50                             |                      |            |           |                                |                          |  |                       |       |        |
| 25/01       | 5.50             | (100)                            | 7.00-8.80            | 100        | 100       | 81                             | 10                       | Between 7.55m and 7.56m: Induced fracture inclined 10 degrees planar rough moderately open clean.<br>Between 7.80m and 7.85m: Quartzite vein.  |                       |       |        |
|             |                  |                                  |                      |            |           |                                | 10                       | Between 8.15m and 8.18m: Fractures inclined 20 degrees stepped smooth open clean.<br>Between 8.46m and 8.54m: Fractures inclined 65 degrees stepped rough open with micaceous crystals <3mm.   |                       |       |        |
|             |                  | (100)                            | 8.80-11.10           | 100        | 100       | 88                             |                          | Between 9.47m and 9.49m: Induced fracture inclined 30 degrees undulating smooth moderately open clean.   |                       |       |        |

**Remarks** 7 See installation details on final sheet.  
 (See notes & keysheets) 8 Groundwater was not apparent during boring.

|   |   |  |  |
|---|---|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 3.50m<br>131mm to 35.00m | <b>Casing Diameter</b><br>200mm to 2.90m<br>150mm to 5.50m | <b>BOREHOLE No.</b> BH4                              |
| <b>Equipment</b> Dando 2000<br>Massenza MI6             |   |  | <b>Coordinates (Local Grid)</b> 232158 E<br>709854 N |
| <b>Drill Fluid</b> Water                                |   |  | <b>Ground Level</b> 13.15 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                   | <b>Compiled by</b> [REDACTED]                              | <b>Approved by</b> [REDACTED]                        |
| <b>Dates Drilled</b> Start 21/01/2010<br>End 04/02/2010 | 27/01/2010  | 29/01/2010   | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |     |       |       |       |    | SPT Blows /N<br>Core Size (mm)  | Result or Fracture Index   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|-----|-------|-------|-------|----|---|--|-----------------------|-----------------------|-------|--------|
|             |                  |                                  | Depth (m)            |     | Type  | No.   |       |    |   |  |                       |                       |       |        |
|             |                  |                                  | From                 | To  | TCR % | SCR % | RQD % |    |   |  |                       |                       |       |        |
| 25/01       | 5.50             | 1.00                             |                      |     |       |       |       |    |   | Between 10.23m and 10.25m: Fracture inclined horizontal undulating rough open clean. |                       |                       |       |        |
| 26/01       | 5.50             | (100)                            | 11.10-12.00          | 100 | 96    | 87    |       | 1  | Between 10.38m and 10.43m: Fracture inclined 45 degrees undulating clean moderately open.   |  |                       |                       |       |        |
|             |                  | (100)                            | 12.00-15.00          | 100 | 100   | 73    |       |    | Between 12.50m and 12.75m: Incipient fracture inclined 85 degrees stepped rough tight to moderately open intersecting induced fracture clean. At 12.68m: Induced fracture horizontal planar rough clean.  | (14.60)  |                       |                       |       |        |
|             |                  |                                  |                      |     |       |       |       | 15 | Between 14.10m and 14.12m: Induced fracture inclined 15 degrees undulating rough.   |  |                       |                       |       |        |
|             |                  |                                  |                      |     |       |       |       |    | Between 14.37m and 14.39m: Induced fracture.<br>Between 14.48m and 14.80m: Fracture subhorizontal undulating smooth open clean with quartz on surfaces <3mm.<br>Between 14.70m and 14.74m: Fracture inclined 25 degrees stepped smooth clean with quartz veining on surfaces. |  |                       |                       |       |        |

**Remarks**  
(See notes & keysheets)

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR4 (3 of 8) |

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 3.50m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.90m<br>150mm to 5.50m |  | <b>BOREHOLE No.</b> BH4                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6   |  | <b>Logged by</b> [REDACTED]                                   |  | <b>Compiled by</b> [REDACTED]                              |  | <b>Coordinates (Local Grid)</b><br>232158 E<br>709854 N |  |
| <b>Drill Fluid</b><br>Water                      |  | <b>Approved by</b> [REDACTED]                                 |  | <b>Ground Level</b><br>13.15 m OD                          |  |   |  |
| <b>Drill Crew</b><br>[REDACTED]                  |  | <b>Dates Drilled</b><br>Start 21/01/2010<br>End 04/02/2010    |  | <b>27/01/2010</b>  |  | <b>29/01/2010</b>                                       |  |


| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |       |       |       |     |       | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|-------|-------|-------|-----|-------|--------------------------------|--|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |       | Type  |       | No. | RQD % |                                |  |                       |                       |       |        |
|             |                  |                                     | From                 | To    | TCR % | SCR % |     |       |                                |  |                       |                       |       |        |
| 26/01       | 5.50             | 1.30                                | 15.00                | 18.00 | 100   | 98    | 74  |       | 1                              | <p>Between 16.20m and 16.24m: Fracture inclined 20 degrees stepped rough open clean abundant quartz crystals.</p> <p>Between 16.20m and 16.24m: Fracture inclined 45 degrees stepped smooth moderately open clean.</p> <p>Between 16.28m and 16.31m: Induced fracture.</p> <p>Between 16.75m and 16.84m: Fracture inclined 75 degrees stepped rough moderately open clean.</p> <p>Between 16.75m and 17.05m: Fracture inclined 85 degrees undulating smooth clean.</p> <p>Between 17.05m and 17.10m: Fracture inclined 45 degrees undulating smooth clean.</p> |                       |                       |       |        |
| 27/01       | 5.50             |                                     |                      |       |       |       |     |       | AZCL                           | <p>Between 17.88m and 18.15m: Dark grey structureless psammite layer. Quartz veining abundant.</p> <p>Between 18.03m and 18.08m: Fracture subvertical inclined 20 degrees stepped rough to smooth clean.</p> <p>Between 18.85m and 19.93m: Fracture inclined 45 degrees undulating smooth with quartz on surfaces clean.</p>   |                       |                       |       |        |
|             |                  | (100)                               | 18.00                | 20.50 | 96    | 96    | 64  |       | 1                              |  |                       |                       |       |        |

**Remarks**  
(See notes & keysheets)

|   |   |  |  |
|---|---|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 3.50m<br>131mm to 35.00m | <b>Casing Diameter</b><br>200mm to 2.90m<br>150mm to 5.50m | <b>BOREHOLE No.</b> BH4                              |
| <b>Equipment</b> Dando 2000<br>Massenza MI6             |   |  | <b>Coordinates (Local Grid)</b> 232158 E<br>709854 N |
| <b>Drill Fluid</b> Water                                |   |  | <b>Ground Level</b> 13.15 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                   | <b>Compiled by</b> [REDACTED]                              | <b>Approved by</b> [REDACTED]                        |
| <b>Dates Drilled</b> Start 21/01/2010<br>End 04/02/2010 | 27/01/2010  | 29/01/2010   | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |      |     | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata   | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|------|-----|--------------------------------|--------------------------|---|-----------------------|-------|--------|
|             |                  |                                  | Depth (m) From To    | Type | No. |                                |                          |   |                       |       |        |
| 27/01       | 5.50             | 1.30                             |                      |      |     |                                |                          |   |                       |       |        |
| 29/01       | 5.50             | 1.40                             |                      |      |     |                                | AZCL                     | <p>At 20.10m: Induced fracture.</p> <p>At 20.23m: Inclined 80 degrees (75%) and inclined 10 degrees (25%) undulating smooth clean.</p> <p>Very strong fractured grey green quartz mica SCHIST. Slightly weathered. Fractures are medium spaced inclined planar rough to planar smooth.</p> <p>Between 21.22m and 21.25m: Induced fracture inclined 16 degrees undulating rough clean.</p> <p>Between 21.75m and 21.80m: Induced fracture inclined 75 degrees undulating open rough clean.</p> <p>Between 22.12m and 22.17m: Induced fracture inclined 70 degrees (25%) and inclined 15 degrees (75%) undulating rough tight clean.</p> <p>Between 22.67m and 22.70m: Incipient fracture inclined 80 degrees undulating smooth tight clean and horizontal fracture intersecting undulating rough clean.</p> <p>Between 22.85m and 24.05m: Quartz vein.</p> | 20.50                 | -7.35 |        |
|             |                  | (80)                             | 20.50-23.25          | 99   | 99  | 59                             |                          |   |                       |       |        |
| 29/01       | 5.50             | 1.40                             |                      |      |     |                                | 1                        |   |                       |       |        |
| 04/02       | 5.50             |                                  |                      |      |     |                                |                          | <p>Between 23.65m and 23.69m: Fracture inclined 10 degrees stepped rough moderately open clean.</p> <p>Between 24.30m and 24.84m: Quartz vein with assimilated schist. Highly fractured on content with schist at the base. All fractures are cemented.</p> <p>Between 24.70m and 25.50m: Fractures inclined 45 degrees undulating smooth open slightly weathered.</p>  |                       |       |        |
|             |                  | (80)                             | 23.25-25.10          | 100  | 100 | 81                             |                          |   |                       |       |        |

**Remarks**  
(See notes & keysheets)

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR4 (5 of 8) |

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 3.50m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.90m<br>150mm to 5.50m |  | <b>BOREHOLE No.</b> BH4                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6   |  | <b>Logged by</b><br>[REDACTED]                                |  | <b>Compiled by</b><br>[REDACTED]                           |  | <b>Coordinates (Local Grid)</b><br>232158 E<br>709854 N |  |
| <b>Drill Fluid</b><br>Water                      |  | <b>Dates Drilled</b><br>Start 21/01/2010<br>End 04/02/2010    |  | <b>Approved by</b><br>[REDACTED]                           |  | <b>Ground Level</b><br>13.15 m OD                       |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return %) | Sample/Core Recovery |               |              | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata   | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|---------------|--------------|--------------------------------|--------------------------|---|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)<br>From To | Type<br>TCR % | No.<br>SCR % |                                |                          |   |                       |       |        |
|             |                  | (80)                                | 25.10-26.45          | 100           | 96           | 63                             | 6                        | <p>Between 25.54m and 27.00m: Quartz vein with cemented fractures.</p> <p>Between 25.90m and 25.92m: Induced fracture horizontal undulating rough tight clean.</p> <p>Between 26.10m and 27.45m: Quartzite band.</p> <p>Between 26.20m and 26.21m: Fracture horizontal undulating smooth open along schistose vein and pyrite &lt;5mm.</p> <p>Between 26.37m and 26.47m: Fracture inclined horizontal 30 degrees undulating to stepped smooth rough clean.</p>  |                       |       |        |
|             |                  | (80)                                | 26.45-27.45          | 100           | 98           | 89                             |                          |   |                       |       |        |
|             |                  | (80)                                | 27.45-30.60          | 100           | 96           | 83                             |                          | <p>Between 27.82m and 27.84m: Induced fracture inclined 80 degrees and 30 degrees undulating smooth tight clean.</p> <p>Between 27.92m and 27.93m: Fracture horizontal undulating rough and smooth open clean with abundant mica &lt;3mm.</p> <p>Between 28.36m and 28.41m: Induced fracture inclined 45 degrees planar rough moderately open with abundant mica &lt;3mm.</p> <p>Between 29.09m and 29.12m: Induced fracture inclined 25 degrees undulating rough tight with frequent mica crystals.</p> <p>Between 29.38m and 29.39m: Induced fracture inclined 15 degrees planar smooth clean.</p> <p>Between 29.91m and 29.94m: Induced fracture 45 degrees undulating rough open clean.</p> | (14.50)               |       |        |


**Remarks**  
(See notes & keysheets)



|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 3.50m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.90m<br>150mm to 5.50m |  | <b>BOREHOLE No.</b> BH4                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6   |  | <b>Logged by</b><br>█   |  | <b>Compiled by</b><br>█                                    |  | <b>Coordinates (Local Grid)</b><br>232158 E<br>709854 N |  |
| <b>Drill Fluid</b><br>Water                      |  | <b>Approved by</b><br>█                                       |  | <b>Ground Level</b><br>13.15 m OD                          |  |   |  |
| <b>Drill Crew</b><br>█                           |  | <b>Start</b> 21/01/2010                                       |  | <b>End</b> 04/02/2010                                      |  |   |  |

| Date & Time     | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |               |              | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata   | Depth (Thickness) (m) | Level  | Legend |
|-----------------|------------------|-------------------------------------|----------------------|---------------|--------------|--------------------------------|--------------------------|---|-----------------------|--------|--------|
|                 |                  |                                     | Depth (m)<br>From To | Type<br>TCR % | No.<br>SCR % |                                |                          |   |                       |        |        |
|                 |                  |                                     |                      |               |              |                                | 1                        |   |                       |        |        |
|                 |                  | (80)                                | 30.60-33.35          | 100           | 94           | 79                             |                          | <p>Between 31.00m and 31.18m: Induced fractures inclined between 30 and 45 degrees smooth planar open clean.</p> <p>Between 31.43m and 31.47m: Induced fracture inclined 30 degrees undulating smooth moderately open clean.</p> <p>Between 32.04m and 32.20m: Induced fractures inclined 15 degrees undulating smooth open to very open clean.</p> <p>Between 32.75m and 32.77m: Induced fracture inclined 15 degrees undulating smooth open clean.</p> <p>Between 33.23m and 33.16m: Induced fracture inclined 20 degrees stepped smooth moderately open clean.<br/>Between 33.23m and 33.31m: Fracture inclined 45 degrees undulating smooth open clean.</p> <p>Between 33.74m and 33.79m: Fracture inclined 20 degrees (70%) and 65 degrees (30%) smooth planar clean.</p> <p>At 34.10m: Induced fracture inclined 15 degrees undulating rough tight clean.</p> |                       |        |        |
| 04/02           | 5.50             | 1.10                                |                      |               |              |                                |                          |   | 35.00                 | -21.85 |        |
| End of Borehole |                  |                                     |                      |               |              |                                |                          |   |                       |        |        |

**Remarks**  
(See notes & keysheets)

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR4 (7 of 8) |


|   |   |  |
|---|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 3.50m<br>131mm to 35.00m                           | <b>BOREHOLE No.</b> <b>BH4</b>   |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6<br>Water | <b>Logged by</b> [Redacted] <b>Compiled by</b> [Redacted] <b>Approved by</b> [Redacted] | <b>Coordinates (Local Grid)</b><br>232158 E<br>709854 N<br><b>Ground Level</b><br>13.15 m OD |
| <b>Drill Crew</b><br>[Redacted]                         | <b>Dates Drilled</b><br><b>Start</b> 21/01/2010<br><b>End</b> 04/02/2010                |  |

| Installation Details  |                 | Installation Depth (m) | Level m OD | Water Strikes | Strata Depth (m) | Strata Details                             |
|---|-----------------|------------------------|------------|---------------|------------------|--|
| Instrumentation:<br>50mm slotted section from 2.00 to 4.00m | Bentonite Grout |                        |            |               |                  | Coarse/Medium grained Metamorphic (SCHIST) |
|   | Gravel Filter   | 2.00                   | 11.15      |               |                  |  |
|   | Bentonite Grout | 4.00                   | 9.15       |               |                  |  |
|   |                 | 35.00                  | -21.85     |               | 35.00            | Base of Hole                               |


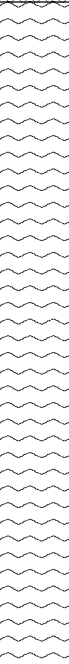
**Remarks**  
(See notes & keysheets)

Water Strike  
 Water Rise

Upstanding cover.  
Not to Scale Pipe diameter 50mm to 4.00m.

|  |   |                                   |
|--|---|-----------------------------------|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b><br>CON103001  |
|  |   | <b>Figure No.</b><br>FR4 (8 of 8) |


|   |  |  |  |
|---|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 1.30m<br>131mm to 3.40m | <b>Casing Diameter</b><br>200mm to 1.30m<br>150mm to 3.20m | <b>BOREHOLE No.</b> BH5                              |
| <b>Equipment</b> Dando 2000<br>Massenza MI6             |  |  | <b>Coordinates (Local Grid)</b> 232127 E<br>709854 N |
| <b>Drill Fluid</b> Water                                |  |  | <b>Ground Level</b> 12.10 m OD                       |
| <b>Drill Crew</b> ██████████                            | <b>Logged by</b> ██████                                      | <b>Compiled by</b> ██████                                  |  |
| <b>Dates Drilled</b> Start 27/01/2010<br>End 23/02/2010 | 02/02/2010   | 29/03/2010   | 12/04/2010   |

| Date & Time    | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |       |       |       | SPT Blows /N | Core Size (mm)   | Description of Strata | Depth (Thickness) (m) | Level  | Legend |
|----------------|------------------|----------------------------------|----------------------|-------|-------|-------|--------------|--|-----------------------|-----------------------|--|--------|
|                |                  |                                  | Depth (m)            |       | Type  | No.   |              |  |                       |                       |  |        |
|                |                  | From To                          |                      | TCR % | SCR % | RQD % |              |  |                       |                       |  |        |
| 27/01          |                  |                                  |                      |       |       |       |              | MADE GROUND: Composed of brown organic sandy angular to subrounded fine to coarse gravel of mica schist and quartz. Sand is fine to coarse. Frequent roots.  | (0.10) 0.10           | 12.00                 |   |        |
|                |                  |                                  | 0.60-1.20            | B     | 1     |       |              | MADE GROUND: Composed of grey and dark brown organic medium to coarse sand and angular to subangular fine to coarse gravel of concrete, coal, schist, wood and quartz with many angular cobbles of schist. Occasional roots. | (1.10)                |                       |  |        |
| 27/01          | 1.20             | DRY                              |                      |       |       |       |              |  | 1.20                  | 10.90                 |  |        |
| 28/01<br>28/01 | 1.20<br>1.30     | DRY                              | 1.20                 | C     |       |       | C75/<br>10*  | Possibly medium strong weathered mica SCHIST recovered as angular to subangular cobble sized fragments.  |                       |                       |  |        |
| 23/02          | 1.30             |                                  |                      |       |       |       |              |  | (2.20)                |                       |  |        |
| 23/02          | 3.40             | (40)<br>2.80                     | 3.20-3.40            |       |       |       |              | At 3.40m: Possible obstruction.  |                       |                       |  |        |
|                |                  |                                  |                      |       |       |       |              | End of Borehole  | 3.40                  | 8.70                  |  |        |

**Remarks** (See notes & keysheets)

- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- On completion the borehole was grouted up to ground level.
- Possible metal obstruction encountered at 3.40m. Borehole abandoned and redrilled as BH5A.
- The borehole was advanced from ground level to 1.30m by cable percussive techniques; to 3.20m by rotary open hole drilling and from 3.20m to 3.40m by rotary symmetric drilling.
- Rotary coring was carried out using a core barrel 131mm in diameter.
- An amount of water was added to facilitate boring in granular strata.

Scale 1:25

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR5 (1 of 2) |

|  |   |  |  |
|--|---|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary | <b>Borehole Diameter</b><br>200mm to 1.30m<br>131mm to 3.40m                            | <b>Casing Diameter</b><br>200mm to 1.30m<br>150mm to 3.20m | <b>BOREHOLE No.</b> BH5                              |
| <b>Equipment</b> Dando 2000<br>Massenza MI6      | <b>Logged by</b> [redacted] <b>Compiled by</b> [redacted] <b>Approved by</b> [redacted] |  | <b>Coordinates (Local Grid)</b> 232127 E<br>709854 N |
| <b>Drill Fluid</b> Water                         | <b>Dates Drilled</b> Start 27/01/2010<br>End 23/02/2010                                 |  | <b>Ground Level</b> 12.10 m OD                       |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |    |       |       |       | SPT Blows /N<br>Core Size (mm) | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|----|-------|-------|-------|--------------------------------|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |    | Type  | No.   | RQD % |                                |                       |                       |       |        |
|             |                  |                                     | From                 | To | TCR % | SCR % |       |                                |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |                                |                       |                       |       |        |

**Remarks** 7 Borehole advanced by chiselling from 1.20m to 1.20m (20 mins); from 1.20m to 1.30m (20 mins).  
 (See notes & keysheets) 8 Groundwater was not apparent during boring.

|  |  |  |  |
|--|--|--|--|
| <b>Drilling Method</b> Rotary Open Hole/Coring             | <b>Borehole Diameter</b><br>131mm to 6.20m | <b>Casing Diameter</b><br>150mm to 3.70m | <b>BOREHOLE No.</b> BH5A   |
| <b>Equipment</b> Massenza MI6                              |  |  | <b>Coordinates (Local Grid)</b><br>232135 E<br>709856 N<br>Ground Level 12.10 m OD |
| <b>Drill Fluid</b> Water                                   | <b>Logged by</b>                           | <b>Compiled by</b>                       | <b>Approved by</b>   |
| <b>Drill Crew</b>  | 01/03/2010                                 | 04/03/2010                               | 12/04/2010   |
| <b>Dates Drilled</b><br>Start 23/02/2010<br>End 23/02/2010 |  |  |  |

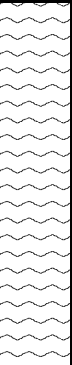
| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |               |              | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result | Description of Strata   | Depth (Thickness) (m)   | Level  | Legend |       |
|-------------|------------------|-------------------------------------|----------------------|---------------|--------------|--------------------------------|--------------------------|---|---|--------|--------|-------|
|             |                  |                                     | Depth (m)<br>From To | Type<br>TCR % | No.<br>SCR % |                                |                          |   |   |        |        | RQD % |
| 23/02       |                  |                                     |                      |               |              |                                |                          | Grass over MADE GROUND (drillers description)   | (1.20)  |        |        |       |
|             |                  |                                     |                      |               |              |                                |                          | MADE GROUND: Composed of gravel with cobbles and boulders (drillers description).                               | 1.20  | 10.90  |        |       |
|             |                  |                                     |                      |               |              |                                |                          |   |   | (2.50) |        |       |
|             |                  |                                     | (0)                  | 3.70-3.90     | 100          | 100                            | 0                        |   | Medium strong fractured thinly foliated light grey green grey and dark grey quartz mica SCHIST. Slightly weathered. Fractures are very closely spaced subvertical open and infilled with fine gravel of mica schist. Locally with orange staining on fracture surfaces. | 3.70   |        | 8.40  |
|             |                  |                                     | (90)                 | 3.90-4.90     | 100          | 100                            | 13                       | >20   |   |        |        |       |
|             |                  |                                     |                      |               |              |                                |                          | Between 4.75m and 6.20m: Fractures are subhorizontal to subvertical closely spaced predominantly planar smooth. | (2.50)  |        |        |       |

**Remarks** (See notes & keysheets)

- 1 Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- 2 On completion the borehole was grouted up to ground level.
- 3 Rotary coring was carried out using a core barrel 131mm in diameter.
- 4 The borehole was advanced by open hole (symmetrix) means to 3.70m and rotary coring to 6.20m.
- 5 Groundwater was not apparent during boring.

|            |  |   |                                |
|------------|--|---|--------------------------------|
| Scale 1:25 |  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|            |  |   | <b>Figure No.</b> FR6 (1 of 2) |

|  |  |  |  |
|--|--|--|--|
| <b>Drilling Method</b> Rotary Open Hole/Coring             | <b>Borehole Diameter</b><br>131mm to 6.20m | <b>Casing Diameter</b><br>150mm to 3.70m | <b>BOREHOLE No.</b> BH5A                             |
| <b>Equipment</b> Massenza MI6                              |  |  | <b>Coordinates (Local Grid)</b> 232135 E<br>709856 N |
| <b>Drill Fluid</b> Water                                   |  |  | <b>Ground Level</b> 12.10 m OD                       |
| <b>Drill Crew</b> ██████████                               | <b>Logged by</b> ██████████                | <b>Compiled by</b> ██████████            |  |
| <b>Dates Drilled</b><br>Start 23/02/2010<br>End 23/02/2010 | 01/03/2010                                 | 04/03/2010                               | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |      |       |       |       |                | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result                                  | Description of Strata | Depth (Thickness) (m) | Level   | Legend |
|-------------|------------------|-------------------------------------|----------------------|------|-------|-------|-------|----------------|--------------------------------|---|-----------------------|-----------------------|---|--------|
|             |                  |                                     | Depth (m)            |      | Type  | No.   | RQD % | Core Size (mm) |                                |   |                       |                       |   |        |
|             |                  |                                     | From                 | To   | TCR % | SCR % |       |                |                                |   |                       |                       |   |        |
| 23/02       | 3.70             | 0.90                                | 4.90                 | 6.20 | 100   | 94    | 76    |                | 2                              | Between 5.90m and 6.18m: Dark grey fine crystalline band. | 6.20                  | 5.90                  |  |        |
|             |                  |                                     |                      |      |       |       |       |                |                                | End of Borehole   |                       |                       |   |        |


**Remarks**  
(See notes & keysheets)

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 2.40m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.40m<br>150mm to 6.20m |  | <b>BOREHOLE No.</b> BH6                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6   |  | <b>Logged by</b><br>[REDACTED]                                |  | <b>Compiled by</b><br>[REDACTED]                           |  | <b>Coordinates (Local Grid)</b><br>232138 E<br>709856 N |  |
| <b>Drill Fluid</b><br>[REDACTED]                 |  | <b>Approved by</b><br>[REDACTED]                              |  | <b>Ground Level</b><br>12.33 m OD                          |  |   |  |
| <b>Drill Crew</b><br>[REDACTED]                  |  | <b>Start</b> 28/01/2010                                       |  | <b>End</b> 23/02/2010                                      |  |   |  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |    |       |       |     |          | SPT Blows /N<br>Core Size (mm) | Result or U100 Blows/ Rec. mm or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level | Legend |       |
|-------------|------------------|----------------------------------|----------------------|----|-------|-------|-----|----------|--------------------------------|--|-----------------------|-----------------------|-------|--------|-------|
|             |                  |                                  | Depth (m)            |    | Type  |       | No. |          |                                |  |                       |                       |       |        | RQD % |
|             |                  |                                  | From                 | To | TCR % | SCR % | 1   | 2        |                                |  |                       |                       |       |        |       |
| 28/01       |                  |                                  |                      |    |       |       |     |          |                                | Grass over dark brown organic sandy gravelly TOPSOIL.  | (0.10)<br>0.10        | 12.23                 |       |        |       |
|             | 1.10             | 0.90                             | 1.20-1.65            | C  |       | 1     |     |          |                                | MADE GROUND: Composed of brown organic sandy subangular to subrounded fine to coarse gravel of schist and quartz with many angular to subangular cobbles and occasional boulders. Sand is fine to coarse.<br>Between 0.30m and 0.50m: Schist boulder. Decreasing organic content with depth.   | (2.30)                |                       |       |        |       |
|             |                  | 0.90                             | 1.20-1.70            | B  |       | 2     |     | C50/175  |                                |  |                       |                       |       |        |       |
|             |                  |                                  | 1.80                 | D  |       | 3     |     |          |                                |  |                       |                       |       |        |       |
|             | 1.90             |                                  | 2.00                 | C  |       | 4     |     | C75/110* |                                |  |                       |                       |       |        |       |
| 28/01       | 2.40             | 0.90                             |                      |    |       |       |     |          |                                |  |                       |                       |       |        |       |
| 15/02       | 2.40             | (0)                              | 2.40                 | C  |       |       |     | C75/30*  | 4                              | Medium strong to strong light grey and locally dark grey thinly foliated quartz mica SCHIST. Slightly to moderately weathered. Fractures are medium, locally closely spaced, inclined 30 degrees planar rough. Surfaces stained orange brown penetrating <5mm. Fractures locally infilled with quartz mineralisation.                  | 2.40                  | 9.93                  |       |        |       |
|             |                  | (60)                             | 2.40-4.00            |    | 75    | 50    | 44  |          | NI                             | Between 3.10m and 3.80m: Non intact. Locally reduced to weak. Surfaces stained dark brown.   | (1.40)                |                       |       |        |       |
|             |                  |                                  |                      |    |       |       |     |          | 5                              | Strong fractured foliated light grey mica SCHIST interbedded with quartzite. Slightly weathered. Fractures medium spaced subhorizontal and subvertical planar rough moderately open tight grey sandy silt infill <2mm.<br>Between 4.00m and 4.75m: Surfaces locally stained brown penetrating <2mm with clayey sand infill <3mm thick. | 3.80                  | 8.53                  |       |        |       |
|             |                  | (70)                             | 4.00-4.75            |    | 100   | 100   | 100 |          |                                |  |                       |                       |       |        |       |

**Remarks** (See notes & keysheets)

- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- Rotary coring was carried out using a core barrel 131mm in diameter.
- The borehole was advanced by cable percussion means to 2.40m and then progressed by rotary coring means to 35.00m.
- An amount of water was added to facilitate boring in granular strata.
- Borehole advanced by chiselling from 2.20m to 2.40m (60 mins).
- See installation details on final sheet.

|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR7 (1 of 8) |

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary           |  | <b>Borehole Diameter</b><br>200mm to 2.40m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.40m<br>150mm to 6.20m |  | <b>BOREHOLE No.</b> BH6                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6             |  | <b>Logged by</b><br>█   |  | <b>Compiled by</b><br>█                                    |  | <b>Coordinates (Local Grid)</b><br>232138 E<br>709856 N |  |
| <b>Drill Fluid</b><br>█                                    |  | <b>Approved by</b><br>█                                       |  | <b>Ground Level</b><br>12.33 m OD                          |  |   |  |
| <b>Dates Drilled</b><br>Start 28/01/2010<br>End 23/02/2010 |  | 29/01/2010  |  | 02/02/2010   |  | 12/04/2010  |  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |            |           | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata   | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|------------|-----------|--------------------------------|--------------------------|---|-----------------------|-------|--------|
|             |                  |                                  | Depth (m) From To    | Type TCR % | No. SCR % |                                |                          |   |                       |       |        |
|             |                  | (70)                             | 4.75-6.30            | 100        | 100       | 100                            | 8                        | Between 5.60m and 6.30m: Fractures locally closely spaced subhorizontal and subvertical. Some to many randomly orientated quartz veins 5mm to 10mm thick. |                       |       |        |
| 15/02       | 6.20             | 0.40                             |                      |            |           |                                |                          |   |                       |       |        |
| 16/02       | 6.20             | (100)                            | 6.30-7.30            | 100        | 90        | 80                             | 0                        | Between 7.20m and 7.40m: Non intact, probably drilling induced.   |                       |       |        |
| 16/02       | 6.20             | 0.20                             |                      |            |           |                                | NI                       | Between 7.40m and 7.60m: Subvertical fracture along core axis open 10mm to 20mm and infilled with soft grey sandy clay <20mm.                             |                       |       |        |
| 17/02       | 6.20             | (100)                            | 7.30-8.80            | 100        | 100       | 66                             | 4                        | Below 8.80m: Fractures become medium to widely spaced subhorizontal and inclined 20 to 30 degrees planar rough.   | (8.60)                |       |        |
|             |                  | (100)                            | 8.80-10.40           | 100        | 100       | 100                            | 3                        |   |                       |       |        |

**Remarks** 7 Groundwater was not apparent during boring.  
(See notes & keysheets)



|  |  |  |                                  |
|--|--|--|----------------------------------|
| <b>Drilling Method</b> Cable Percussion & Rotary | <b>Borehole Diameter</b><br>200mm to 2.40m<br>131mm to 35.00m                      | <b>Casing Diameter</b><br>200mm to 2.40m<br>150mm to 6.20m | <b>BOREHOLE No.</b> BH6          |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6   | <b>Coordinates (Local Grid)</b><br>232138 E<br>709856 N<br>Ground Level 12.33 m OD |  |                                  |
| <b>Drill Fluid</b><br>[REDACTED]                 | <b>Logged by</b><br>[REDACTED]   | <b>Compiled by</b><br>[REDACTED]                           | <b>Approved by</b><br>[REDACTED] |
| <b>Drill Crew</b><br>[REDACTED]                  | <b>Dates Drilled</b><br>Start 28/01/2010<br>End 23/02/2010                         | 29/01/2010   | 02/02/2010                       |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |      |     | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata   | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|------|-----|--------------------------------|--------------------------|---|-----------------------|-------|--------|
|             |                  |                                  | Depth (m) From To    | Type | No. |                                |                          |   |                       |       |        |
|             |                  |                                  |                      |      |     |                                |                          |   |                       |       |        |
|             |                  | (100)                            | 10.40-11.80          | 100  | 100 | 100                            | 4                        | Between 10.40m and 10.70m: Inclined fracture 70 to 80 degrees infilled 20mm to 30mm with soft grey sandy clay.  |                       |       |        |
|             |                  | (60)                             | 11.80-13.40          | 100  | 100 | 100                            | 2                        | Strong thinly foliated light grey quartz mica SCHIST. Slightly weathered. Fractures are generally medium spaced subhorizontal to inclined 30 degrees planar rough locally planar smooth.  | 12.40                 | -0.07 |        |
| 17/02       | 6.20             | 0.50                             |                      |      |     |                                |                          | Between 13.15m and 14.00m: Subvertical fractures 80 to 90 degrees open 30mm to 50mm infilled with sandy clay and schist fragments. Some blue grey staining of surfaces penetrating <2mm. Below 13.50m becomes closed and clean. |                       |       |        |
| 18/02       | 6.20             |                                  |                      |      |     |                                |                          |   |                       |       |        |
|             |                  | (100)                            | 13.40-15.00          | 100  | 100 | 100                            |                          |   |                       |       |        |
|             |                  |                                  |                      |      |     |                                | 6                        | Between 14.40m and 14.60m: Quartzite band closely fractured, probably drilling induced.<br><br>At 14.70m: Inclined fracture 40 to 50 degrees open 10mm to 20mm and infilled with firm sandy clay.                               |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 2.40m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.40m<br>150mm to 6.20m |  | <b>BOREHOLE No.</b> BH6                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6   |  | <b>Logged by</b><br>█   |  | <b>Compiled by</b><br>█                                    |  | <b>Coordinates (Local Grid)</b><br>232138 E<br>709856 N |  |
| <b>Drill Fluid</b><br>█                          |  | <b>Approved by</b><br>█                                       |  | <b>Ground Level</b><br>12.33 m OD                          |  |   |  |
| <b>Drill Crew</b><br>█                           |  | <b>Start</b> 28/01/2010                                       |  | <b>End</b> 23/02/2010                                      |  |   |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return)<br>% | Sample/Core Recovery |       |       |       |     |       | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|--|----------------------|-------|-------|-------|-----|-------|--------------------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |  | Depth (m)            |       | Type  | No.   |     | RQD % |                                |   |                       |                       |       |        |
|             |                  |  | From                 | To    | TCR % | SCR % |     |       |                                |   |                       |                       |       |        |
|             |                  | (100)                                  | 15.00                | 16.60 | 100   | 100   | 100 |       | 3                              |   |                       |                       |       |        |
|             |                  | (100)                                  | 16.60                | 18.10 | 100   | 100   | 100 |       | 4                              | <p>At 16.88m: Fracture inclined 65 degrees planar smooth moderately open grey silt infill &lt;2mm on subfracture surfaces.</p> <p>At 17.22m: Induced fracture subhorizontal planar smooth moderately open clean.</p> <p>At 17.62m: Induced fracture subhorizontal undulating smooth moderately open clean.</p> <p>At 17.93m: Induced fracture inclined 60 degrees stepped smooth moderately open clean.</p> |                       |                       |       |        |
|             |                  | (90)                                   | 18.10                | 19.70 | 100   | 100   | 100 |       |                                |   |                       |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |   |  |                                   |
|--|---|--|-----------------------------------|
| <b>Drilling Method</b> Cable Percussion & Rotary | <b>Borehole Diameter</b><br>200mm to 2.40m<br>131mm to 35.00m | <b>Casing Diameter</b><br>200mm to 2.40m<br>150mm to 6.20m | <b>BOREHOLE No.</b> BH6           |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6   | <b>Coordinates (Local Grid)</b><br>232138 E<br>709856 N       |  | <b>Ground Level</b><br>12.33 m OD |
| <b>Drill Fluid</b><br>[REDACTED]                 | <b>Logged by</b><br>[REDACTED]                                | <b>Compiled by</b><br>[REDACTED]                           | <b>Approved by</b><br>[REDACTED]  |
| <b>Drill Crew</b><br>[REDACTED]                  | <b>Dates Drilled</b><br>Start 28/01/2010<br>End 23/02/2010    | 29/01/2010   | 02/02/2010<br>12/04/2010          |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return)<br>% | Sample/Core Recovery |             |       |       |       |     | SPT<br>Blows /N<br>Core Size (mm) | Result or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|--|----------------------|-------------|-------|-------|-------|-----|-----------------------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |  | Depth (m)            |             | Type  |       | No.   |     |                                   |   |                       |                       |       |        |
|             |                  |  | From                 | To          | TCR % | SCR % | RQD % |     |                                   |   |                       |                       |       |        |
| 18/02       | 6.20             | 1.00                                   | (90)                 | 19.70-21.25 |       | 100   | 100   | 95  |                                   |   |                       |                       |       |        |
| 19/02       | 6.20             |  | (90)                 | 21.25-22.80 |       | 100   | 100   | 100 | 0                                 |   |                       |                       |       |        |
|             |                  |  | (90)                 | 22.80-24.35 |       | 100   | 100   | 100 |                                   | At 23.76m: Induced fracture inclined 30 degrees planar smooth moderately open clean.<br>At 24.00m: Induced fracture inclined 15 degrees undulating planar smooth moderately open clean.<br>At 24.14m: Induced fracture inclined 40 degrees and 20 degrees planar smooth tight clean.<br><br>Between 24.85m and 24.70m: Fracture inclined 75 degrees planar rough moderately open clean.<br>At 24.85m: Induced fracture inclined 10 degrees stepped smooth open clean. | (22.60)               |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary           |  | <b>Borehole Diameter</b><br>200mm to 2.40m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.40m<br>150mm to 6.20m |  | <b>BOREHOLE No.</b> BH6                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6             |  | <b>Logged by</b><br>█   |  | <b>Compiled by</b><br>█                                    |  | <b>Coordinates (Local Grid)</b><br>232138 E<br>709856 N |  |
| <b>Drill Fluid</b><br>█                                    |  | <b>Approved by</b><br>█                                       |  | <b>Ground Level</b><br>12.33 m OD                          |  |   |  |
| <b>Dates Drilled</b><br>Start 28/01/2010<br>End 23/02/2010 |  | 29/01/2010  |  | 02/02/2010   |  | 12/04/2010  |  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |       |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|-------|-------|-------|-------|--|--------------------------------|--|-----------------------|-----------------------|-------|--------|
|             |                  |                                  | Depth (m)            |       | Type  | No.   |       |  |                                |  |                       |                       |       |        |
|             |                  |                                  | From                 | To    | TCR % | SCR % | RQD % |  |                                |  |                       |                       |       |        |
|             |                  | (90)                             | 24.35                | 25.95 | 100   | 96    | 38    |  |                                | Between 25.30m and 25.70m: Very closely spaced fracture inclined 70 degrees planar smooth moderately open to tight locally infilled with grey angular gravel of schist <10mm.<br><br>At 25.87m: Induced fracture inclined 60 degrees undulating rough moderately open clean. |                       |                       |       |        |
|             |                  | (90)                             | 25.95                | 27.55 | 97    | 97    | 73    |  | AZCL<br>0                      | Between 26.65m and 26.70m: Quartzite vein.<br>Between 26.72m and 26.89m: Very closely spaced induced fractures inclined 60 degrees planar rough tight clean.   |                       |                       |       |        |
|             |                  | (85)                             | 27.55                | 29.10 | 100   | 100   | 88    |  | 3                              |  |                       |                       |       |        |
| 19/02       | 6.20             | 1.00                             |                      |       |       |       |       |  |                                |  |                       |                       |       |        |
| 22/02       | 6.20             |                                  |                      |       |       |       |       |  |                                | At 28.99m: Induced fracture inclined 40 degrees undulating rough tight clean.<br>At 29.04m: Induced fracture inclined 35 degrees planar smooth tight clean.  |                       |                       |       |        |
|             |                  | (80)                             | 29.10                | 30.70 | 100   | 100   | 60    |  | 0                              | At 29.60m: Induced fracture inclined 20 degrees planar rough tight clean.<br>At 29.79m: Induced fracture inclined 10 degrees undulating smooth moderately open clean.<br>At 29.85m: Induced fracture inclined 70 degrees undulating smooth tight to moderately open clean.   |                       |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary           |  | <b>Borehole Diameter</b><br>200mm to 2.40m<br>131mm to 35.00m |  | <b>Casing Diameter</b><br>200mm to 2.40m<br>150mm to 6.20m |  | <b>BOREHOLE No.</b> BH6                                 |  |
| <b>Equipment</b><br>Dando 2000<br>Massenza MI6             |  | <b>Logged by</b><br>█   |  | <b>Compiled by</b><br>█                                    |  | <b>Coordinates (Local Grid)</b><br>232138 E<br>709856 N |  |
| <b>Drill Fluid</b><br>█                                    |  | <b>Approved by</b><br>█                                       |  | <b>Ground Level</b><br>12.33 m OD                          |  |   |  |
| <b>Dates Drilled</b><br>Start 28/01/2010<br>End 23/02/2010 |  | 29/01/2010  |  | 02/02/2010   |  | 12/04/2010  |  |

| Date & Time     | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |             |       |       |       |    | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-----------------|------------------|----------------------------------|----------------------|-------------|-------|-------|-------|----|--------------------------------|--|-----------------------|-----------------------|-------|--------|
|                 |                  |                                  | Depth (m)            |             | Type  | No.   |       |    |                                |  |                       |                       |       |        |
|                 |                  |                                  | From                 | To          | TCR % | SCR % | RQD % |    |                                |  |                       |                       |       |        |
| 22/02           | 6.20             | 1.00                             | (80)                 | 30.70-32.30 |       | 100   | 100   | 77 | 2                              | At 30.26m: Fracture inclined 30 degrees stepped smooth open clean.<br><br>Between 30.86m and 31.04m: Fracture inclined 70 degrees stepped smooth very open 10 to 20mm.<br><br>At 31.59m: Induced fracture inclined 35 degrees clean stepped smooth moderately open clean.<br>At 31.74m: Induced fracture inclined 15 degrees undulating smooth moderately open clean.  |                       |                       |       |        |
| 23/02           | 6.20             |                                  | (80)                 | 32.30-33.90 |       | 100   | 100   | 76 | 1                              | At 32.33m: Fracture inclined 20 degrees stepped rough moderately open clean.<br><br>Between 32.55m and 32.73m: Induced fracture inclined 70 degrees stepped striated moderately open to very open quartzite on fracture surfaces.<br><br>At 33.25m: Induced fracture inclined 25 degrees stepped striated tight clean.<br>At 33.42m: Induced fracture inclined 25 degrees stepped striated moderately open clean.<br>Between 33.55m and 33.68m: Fractures inclined 40 to 60 degrees planar rough open clean.<br>At 33.65m: Fracture inclined 15 degrees planar smooth moderately open to open clean.<br><br>At 34.05m: Induced fracture inclined 20 degrees undulating striated tight clean. |                       |                       |       |        |
| 23/02           | 6.20             | 1.00                             | (80)                 | 33.90-35.00 |       | 100   | 95    | 91 |                                | At 34.70m: Induced fracture inclined 30 degrees undulating smooth tight clean.   |                       |                       |       |        |
| End of Borehole |                  |                                  |                      |             |       |       |       |    |                                |  | 35.00                 | -22.67                |       |        |

**Remarks**  
(See notes & keysheets)


|   |   |  |
|---|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 2.40m<br>131mm to 35.00m | <b>BOREHOLE No.</b> <b>BH6</b>   |
| <b>Equipment</b> Dando 2000<br>Massenza MI6             |   | <b>Coordinates (Local Grid)</b> 232138 E<br>709856 N<br><b>Ground Level</b> 12.33 m OD |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                   | <b>Compiled by</b> [REDACTED]  |
| <b>Dates Drilled</b> Start 28/01/2010<br>End 23/02/2010 | 29/01/2010  | 02/02/2010 12/04/2010  |

| Installation Details  |                 | Installation Depth (m) | Level m OD | Water Strikes | Strata Depth (m) | Strata Details                                |
|---|-----------------|------------------------|------------|---------------|------------------|---|
| Instrumentation:<br>19mm standpipe<br>piezometer tip<br>at 19.50m | Bentonite Grout |                        |            |               |                  | Coarse/Medium grained<br>Metamorphic (SCHIST) |
|   | Bentonite Seal  | 9.00                   | 3.33       |               |                  |   |
|   | Sand Filter     | 10.00                  | 2.33       |               |                  |   |
|   | Bentonite Seal  | 20.00                  | -7.67      |               |                  |   |
|   | Bentonite Grout | 21.00                  | -8.67      |               |                  |   |
|   |                 | 35.00                  | -22.67     |               | 35.00            | Base of Hole                                  |

**Remarks**  
(See notes & keysheets)

Water Strike  
 Water Rise

Upstanding cover.  
Not to Scale Pipe diameter 19mm to 20.00m.

|  |   |                                |
|--|---|--------------------------------|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|  |   | <b>Figure No.</b> FR7 (8 of 8) |

|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 1.20m<br>150mm to 8.00m |  | <b>Casing Diameter</b><br>200mm to 1.20m |  | <b>BOREHOLE No.</b> BH7  |  |
| <b>Equipment</b><br>Dando 2000<br>Knebel         |  | <b>Logged by</b><br>█  |  | <b>Compiled by</b><br>█                  |  | <b>Coordinates (National Grid)</b><br>232148 E<br>709867 N<br>13.66 m OD |  |
| <b>Drill Fluid</b><br>█                          |  | <b>Dates Drilled</b><br>Start 25/01/2010<br>End 25/01/2010   |  | <b>Approved by</b><br>█                  |  |  |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return %) | Sample/Core Recovery |    |      |           | SPT<br>Blows /N<br>Core Size (mm) | Result or Fracture Index  | Description of Strata  | Depth (Thickness) (m)   | Level | Legend |                |
|-------------|------------------|-------------------------------------|----------------------|----|------|-----------|-----------------------------------|---|--|---|-------|--------|----------------|
|             |                  |                                     | Depth (m)            |    | Type | No.       |                                   |   |  |   |       |        | RQD %          |
|             |                  |                                     | From                 | To |      |           |                                   |   |  |   |       |        |                |
| 25/01       |                  | (0)                                 | 0.30-0.60            |    | B    | 1         |                                   |   | MADE GROUND: Tarmacadam.   | (0.10)  | 13.56 |        |                |
|             |                  |                                     |                      |    |      |           |                                   |   | MADE GROUND: Composed of grey angular coarse gravel of dolomite.     | 0.10<br>(0.20)  |       |        |                |
|             |                  |                                     |                      |    |      |           |                                   |   |  | MADE GROUND: Composed of grey roadstone (Driller's description).  |       |        | 0.30<br>(0.10) |
|             |                  |                                     |                      |    |      |           |                                   |   |  | MADE GROUND: Composed of grey and brown sandy gravelly angular cobbles of mica schist. Gravel is angular to subangular fine to coarse mica schist. Sand is medium to coarse.                                    |       |        | 0.40<br>(0.20) |
|             |                  |                                     |                      |    |      |           |                                   |   |  | MADE GROUND: Composed of grey brown clayey sandy angular and subangular fine to coarse gravel of schist. Sand is fine to coarse.  |       |        | 0.60<br>(0.60) |
|             |                  |                                     |                      |    |      |           |                                   |   |  | MADE GROUND: Composed of brown and grey brown silty sandy angular to subrounded fine to coarse gravel of schist and quartz with many subangular cobbles and occasional boulders >200mm. Sand is fine to coarse. |       |        | 1.20<br>(0.50) |
|             |                  |                                     |                      |    |      | 0.00-2.80 |                                   | 91  | 82   | 73  |       |        |                |
|             |                  | (90)                                |                      |    |      |           |                                   | Medium strong fractured thinly foliated grey and locally grey brown quartz mica SCHIST. Slightly to moderately weathered. Fractures are closely to medium spaced inclined 20 to 30 degrees planar rough. Surfaces stained dark brown and orange brown penetrating 10mm to 20mm. | 1.70<br>(1.10)   | 11.96   |       |        |                |
|             |                  |                                     |                      |    |      |           |                                   | At 2.70m: Inclined fracture surfaces stained dark grey brown penetrating 60mm to 80mm.  | 2.80   |   |       |        |                |
|             |                  | (90)                                | 2.80-4.30            |    | 100  | 100       | 93                                | Strong locally medium strong fractured foliated light grey quartz mica SCHIST. Slightly weathered. Fractures are medium spaced inclined 20 to 30 degrees planar rough. Surfaces locally stained light brown penetrating <5mm.   |  |   |       |        |                |
|             |                  | (90)                                | 4.30-4.50            |    | 100  | 100       | 100                               |   |  |   |       |        |                |
|             |                  |                                     |                      |    |      |           |                                   |   |  |   |       |        |                |
|             |                  |                                     |                      |    |      |           |                                   |   | Below 5.00m: With occasional irregular quartzite bands 20mm to 50mm. |   |       |        |                |

**Remarks** (See notes & keysheets)

- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- The borehole was advanced by chiselling methods from 1.60m to 1.70m for one hour.
- Rotary coring was carried out using a core barrel 131mm in diameter.
- The borehole was advanced by cable percussion means to 1.70m and then progressed by rotary coring means to 8.00m.
- An amount of water was added to facilitate boring in granular strata.
- Groundwater was not apparent during boring.

Scale 1:25

|  |   |                                |
|--|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|  |   | <b>Figure No.</b> FR8 (1 of 2) |

|  |  |  |   |
|--|--|--|---|
| <b>Drilling Method</b> Cable Percussion & Rotary | <b>Borehole Diameter</b><br>200mm to 1.20m<br>150mm to 8.00m | <b>Casing Diameter</b><br>200mm to 1.20m | <b>BOREHOLE No.</b> BH7   |
| <b>Equipment</b><br>Dando 2000<br>Knebel         |  |  | <b>Coordinates (National Grid)</b><br>232148 E<br>709867 N<br><b>Ground Level</b><br>13.66 m OD |
| <b>Drill Fluid</b><br>[REDACTED]                 | <b>Logged by</b><br>[REDACTED]                               | <b>Compiled by</b><br>[REDACTED]         | <b>Approved by</b><br>[REDACTED]  |
| <b>Drill Crew</b><br>[REDACTED]                  | <b>Dates Drilled</b><br>Start 25/01/2010<br>End 25/01/2010   | 02/02/2010 25/02/2010                    | 12/04/2010  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |     |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|-----|-------|-------|-------|--|--------------------------------|--|-----------------------|-----------------------|-------|--------|
|             |                  |                                  | Depth (m)            |     | Type  | No.   |       |  |                                |  |                       |                       |       |        |
|             |                  |                                  | From                 | To  | TCR % | SCR % | RQD % |  |                                |  |                       |                       |       |        |
| 25/01       |                  | (90)                             | 4.50-6.00            | 100 | 100   | 93    |       |  | 4                              | Below 6.00m: Becoming green grey.<br><br>Between 6.65m and 6.75m: Quartz band. | (5.20)                | 5.66                  |       |        |
|             |                  | (90)                             | 6.00-7.50            | 100 | 100   | 100   |       |  |                                |  |                       |                       |       |        |
|             |                  | (90)                             | 7.50-8.00            | 100 | 100   | 100   |       |  |                                |  |                       |                       |       |        |
|             |                  | DRY                              |                      |     |       |       |       |  |                                | End of Borehole  | 8.00                  |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |   |                                |
|--|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|  |   | <b>Figure No.</b> FR8 (2 of 2) |




|  |  |  |  |  |  |   |  |
|--|--|--|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 1.60m<br>150mm to 4.50m |  | <b>Casing Diameter</b><br>200mm to 1.60m<br>150mm to 2.00m |  | <b>BOREHOLE No.</b> BH8                                 |  |
| <b>Equipment</b> Dando 2000<br>Knebel            |  | <b>Logged by</b> [REDACTED]                                  |  | <b>Compiled by</b> [REDACTED]                              |  | <b>Coordinates (National Grid)</b> 232124 E<br>709876 N |  |
| <b>Drill Fluid</b> Water                         |  | <b>Approved by</b> [REDACTED]                                |  | <b>Ground Level</b> 15.14 m OD                             |  |   |  |
| <b>Drill Crew</b> [REDACTED]                     |  | <b>Start</b> 29/01/2010                                      |  | <b>End</b> 12/02/2010                                      |  |   |  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |      |     | SPT Blows /N | Core Size (mm) | Description of Strata   | Depth (Thickness) (m) | Level  | Legend |
|-------------|------------------|----------------------------------|----------------------|------|-----|--------------|----------------|---|-----------------------|--------|--------|
|             |                  |                                  | Depth (m) From To    | Type | No. |              |                |   |                       |        |        |
| 29/01       | 0.00             | DRY                              |                      |      |     |              |                | MADE GROUND: Tarmacadam.  | (0.10)                | 15.04  |        |
|             |                  |                                  | 0.50-0.80            | B    | 1   |              |                | MADE GROUND: Composed of medium dense grey becoming brown clayey sandy gravelly angular cobbles of mica schist with occasional angular boulders. Gravel is angular to subangular fine to coarse schist. Sand is medium to coarse. | (0.90)                |        |        |
|             |                  |                                  | 0.90-1.20            | B    | 2   |              |                |   |                       |        |        |
|             |                  | DRY                              | 1.20                 | C    |     |              | C50/160        | MADE GROUND: Composed of light brown silty fine to coarse sand and subangular to subrounded fine to coarse gravel of schist and quartz with occasional angular to subangular cobbles.   | 1.00 (0.30)           | 14.14  |        |
|             |                  |                                  | 1.20-1.60            | B    | 3   |              |                |   |                       | 13.84  |        |
| 29/01       | 1.60             | DRY                              | 1.60                 | C    |     |              | C75/30*150     | MADE GROUND: Composed of grey sandy quartz mica schist boulders (Driller's description).  |                       |        |        |
| 11/02       | 1.60             | DRY                              | 1.60-3.10            | NA   | NA  | NA           |                |   |                       | (3.10) |        |
|             |                  |                                  | 3.10-4.50            | NA   | NA  | NA           |                |   |                       |        |        |
| 11/02       | 2.00             | DRY                              |                      |      |     |              |                | Possibly quartz mica SCHIST (Driller's Description).  | 4.40 (0.10)           | 10.74  |        |
| 12/02       | 2.00             | DRY                              |                      |      |     |              |                | End of Borehole   | 4.50                  | 10.64  |        |

**Remarks** (See notes & keysheets)

- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- The borehole was advanced by rotary open hole means from 1.60m to 4.50m.
- The borehole was advanced by cable percussion means to 1.60m and then progressed by rotary open hole means to 4.50m.
- An amount of water was added to facilitate boring in granular strata.
- Borehole advanced by chiselling using CH from 1.50m to 1.60m (60 mins).
- Groundwater was not apparent during boring.


|   |   |                                |
|---|---|--------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001  |
|   |   | <b>Figure No.</b> FR9 (1 of 1) |

|  |  |  |   |
|--|--|--|---|
| <b>Drilling Method</b> Rotary Open Hole/Coring             | <b>Borehole Diameter</b><br>131mm to 8.50m | <b>Casing Diameter</b><br>150mm to 5.30m | <b>BOREHOLE No.</b> BH8A                                |
| <b>Equipment</b><br>Dando 2000<br>Knebel                   |  |  | <b>Coordinates (Local Grid)</b><br>232127 E<br>709877 N |
| <b>Drill Fluid</b><br>Water                                |  |  | <b>Ground Level</b><br>15.16 m OD                       |
| <b>Drill Crew</b><br>[REDACTED]                            | <b>Logged by</b><br>[REDACTED]             | <b>Compiled by</b><br>[REDACTED]         | <b>Approved by</b><br>[REDACTED]                        |
| <b>Dates Drilled</b><br>Start 24/02/2010<br>End 24/02/2010 | 01/03/2010                                 | 04/03/2010                               | 12/04/2010  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |       |       | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result | Description of Strata   | Depth (Thickness) (m) | Level | Legend                  |
|-------------|------------------|-------------------------------------|----------------------|-------|-------|--------------------------------|--------------------------|---|-----------------------|-------|-------------------------|
|             |                  |                                     | Depth (m)            |       | Type  |                                |                          |   |                       |       |                         |
|             |                  | From To                             |                      | TCR % | SCR % |                                |                          |   |                       |       |                         |
| 24/02       |                  |                                     |                      |       |       |                                |                          | MADE GROUND: Tarmacadam.<br><br>MADE GROUND: Composed of cobbles and boulders (Drillers description). | (0.10)<br>0.10        | 15.06 | [Cross-hatched pattern] |
|             |                  |                                     |                      |       |       |                                |                          |   | (5.40)                |       | [Cross-hatched pattern] |

**Remarks** (See notes & keysheets)

- 1 Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- 2 On completion the borehole was grouted up to ground level.
- 3 Rotary coring was carried out using symmetrix drilling techniques.
- 4 The borehole was advanced by rotary open hole means to 5.50m and progressed by rotary coring means to 8.50m.
- 5 Groundwater was not apparent during boring.

|   |   |                                 |
|---|---|---------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001   |
|   |   | <b>Figure No.</b> FR10 (1 of 2) |

304/03

|  |  |   |  |                                   |
|--|--|---|--|-----------------------------------|
| <b>Drilling Method</b> Rotary Open Hole/Coring |  | <b>Borehole Diameter</b><br>131mm to 8.50m              | <b>Casing Diameter</b><br>150mm to 5.30m | <b>BOREHOLE No.</b> BH8A          |
| <b>Equipment</b><br>Dando 2000<br>Knebel       | <b>Drill Fluid</b><br>Water                                | <b>Coordinates (Local Grid)</b><br>232127 E<br>709877 N |  | <b>Ground Level</b><br>15.16 m OD |
| <b>Drill Crew</b><br>[REDACTED]                | <b>Dates Drilled</b><br>Start 24/02/2010<br>End 24/02/2010 | <b>Logged by</b><br>[REDACTED]                          | <b>Compiled by</b><br>[REDACTED]         | <b>Approved by</b><br>[REDACTED]  |
|  |  | 01/03/2010  | 04/03/2010                               | 12/04/2010                        |


| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |    |       | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result | Description of Strata  | Depth (Thickness) (m)   | Level  | Legend |
|-------------|------------------|-------------------------------------|----------------------|----|-------|--------------------------------|--------------------------|--|---|--------|--------|
|             |                  |                                     | Depth (m)            |    | Type  |                                |                          |  |   |        |        |
|             |                  |                                     | From                 | To | TCR % | SCR %                          | RQD %                    |  |   |        |        |
| 24/02       | 5.30             | (100)                               | 5.50-7.10            | 75 | 69    | 11                             | AZCL                     | Medium strong fractured thinly foliated light grey green, grey and dark grey quartz mica SCHIST. Fractures are subhorizontal to subvertical very closely to closely spaced planar rough and infilled with a fine gravel of schist with a greenish clay matrix.<br>Between 5.50m and 5.75m: Fracture inclined 70 degrees undulating rough open clean some quartz veining penetrating <10mm.<br>At 5.82m: Induced fracture horizontal undulating rough tight clean.<br>At 6.04m: Closely spaced fractures inclined 30 to 40 degrees planar smooth clean. | 5.50  | 9.66   |        |
|             |                  |                                     |                      |    |       |                                |                          | 6  | Between 7.10m and 7.70m: Closely spaced fractures inclined 70 degrees undulating slightly rough some gravel infill of schist.   | (3.00) |        |
|             |                  |                                     |                      |    |       |                                |                          | 1  | Between 7.72m and 8.10m: Fracture inclined 85 degrees planar slightly rough very open with angular fine gravel infill of schist in a silty matrix.                                |        |        |
|             |                  |                                     |                      |    |       |                                |                          | 1  | At 8.34m: Induced fracture inclined 15 degrees undulating striated tight clean.<br>Between 8.44m and 8.59m: Fracture inclined 85 degrees and 45 degrees stepped rough open clean. | 8.50   |        |
|             |                  |                                     |                      |    |       |                                | End of Borehole          |  |   |        |        |

**Remarks**  
(See notes & keysheets)

|  |  |  |  |  |  |   |  |
|--|--|--|--|--|--|---|--|
| <b>Drilling Method</b> Cable Percussion & Rotary           |  | <b>Borehole Diameter</b><br>200mm to 3.60m<br>150mm to 7.50m |  | <b>Casing Diameter</b><br>200mm to 3.60m |  | <b>BOREHOLE No.</b> BH9   |  |
| <b>Equipment</b><br>Dando 2000<br>Knebel                   |  | <b>Logged by</b><br>█  |  | <b>Compiled by</b><br>█                  |  | <b>Coordinates (Local Grid)</b><br>232103 E<br>709874 N<br>15.66 m OD |  |
| <b>Drill Fluid</b><br>█                                    |  | <b>Approved by</b><br>█                                      |  | <b>Ground Level</b>                      |  |   |  |
| <b>Dates Drilled</b><br>Start 01/02/2010<br>End 04/02/2010 |  | 01/02/2010   |  | 04/02/2010                               |  | 12/04/2010  |  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |      |     | SPT Blows /N | Result or U100 Blows/ Rec. mm or Fracture Index | Description of Strata   | Depth (Thickness) (m)  | Level | Legend |                |
|-------------|------------------|----------------------------------|----------------------|------|-----|--------------|---|---|--|-------|--------|----------------|
|             |                  |                                  | Depth (m) From To    | Type | No. |              |   |   |  |       |        | TCR %          |
| 01/02       | 1.90             | DRY                              | 0.12-0.12            |      |     |              |   | MADE GROUND: Tarmacadam.  | (0.12)<br>0.12   | 15.54 |        |                |
|             |                  |                                  | 0.12-0.28            |      |     |              |   | MADE GROUND: Composed of dark grey slightly sandy gravelly angular cobbles of dolerite. Sand is coarse. | (0.28)   |       |        |                |
|             |                  |                                  | 0.28-0.40            | B    | 1   |              |   |   | MADE GROUND: Composed of light brown silty sandy gravelly angular cobbles and boulders of mica schist. Gravel is angular to subangular fine to coarse mica schist. Sand is medium to coarse. |       |        | 0.40<br>(0.40) |
|             |                  |                                  | 0.40-0.80            |      |     |              |   |   | MADE GROUND: Composed of dense brown grey sandy angular fine to coarse gravel of mica schist and quartz with many angular cobbles. Sand is medium to coarse.                                 |       |        | 0.80<br>(0.80) |
|             |                  |                                  | 1.20-1.65            | C    | 2   |              |   |   |  |       |        |                |
|             |                  |                                  | 1.65-1.70            | B    |     |              |   |   |  |       |        |                |
| 01/02       | 2.90             | DRY                              | 1.90-2.00            | D    | 3   |              |   | C33   | (2.00)   |       |        |                |
|             |                  |                                  | 2.00-2.45            | C    |     |              |   |   |  |       |        |                |
|             |                  |                                  | 2.45-2.50            | B    | 4   |              |   |   |  |       |        |                |
|             |                  |                                  | 2.50-2.80            |      |     |              |   |   |  |       |        |                |
| 03/02       | 3.50             | DRY                              | 2.80-3.00            | D    | 5   |              | C50/<br>190                                     | 2.80<br>(0.80)  | 12.86  |       |        |                |
|             |                  |                                  | 3.00-3.50            | C    |     |              |   |   |  |       |        |                |
|             |                  |                                  | 3.50-3.60            | B    | 6   |              |   |   |  |       |        |                |
| 01/02       | 3.50             | DRY                              | 3.60-3.66            |      |     |              | C75/<br>55*                                     | 3.60<br>(0.80)  | 12.06  |       |        |                |
| 03/02       | 3.50             | (0)<br>(0)                       | 3.60-3.90            |      |     |              | C75/<br>55*                                     | 3.90-3.90<br>(0.30)   | 12.06  |       |        |                |
|             |                  |                                  | 3.90-4.50            | 73   | 60  | 0            |   |   |  |       |        |                |
| 03/02       | 4.50             | 3.00                             | 3.90-4.50            | 63   | 63  | 0            |   |   |  |       |        |                |
|             |                  |                                  | 4.50-4.50            |      |     |              |   |   |  |       |        |                |
| 04/02       | 4.50             |                                  |                      |      |     |              |   | (2.70)  |  |       |        |                |

**Remarks** 1 Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.  
2 Rotary coring was carried out using Geobore drilling techniques.  
3 The borehole was advanced by cable percussion means to 3.60m and then progressed by rotary coring means to 7.20m.  
4 An amount of water was added to facilitate boring in granular strata.  
5 Borehole advanced by chiselling from 2.40m to 2.70m (45 mins); from 2.80m to 2.90m (45 mins); from 3.50m to 3.60m (60 mins).

|   |   |                                 |
|---|---|---------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001   |
|   |   | <b>Figure No.</b> FR11 (1 of 2) |




|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 4.40m<br>150mm to 7.30m |  | <b>Casing Diameter</b><br>200mm to 4.30m<br>150mm to 5.86m |  | <b>BOREHOLE No.</b> BH10   |  |
| <b>Equipment</b> Dando 2000<br>Massenza MI6      |  | Logged by [REDACTED]   |  | Compiled by [REDACTED]                                     |  | Coordinates (Local Grid) 232087 E<br>709872 N<br>Ground Level 16.16 m OD |  |
| <b>Drill Fluid</b> Water                         |  | Approved by [REDACTED]                                       |  | 21/01/2010   |  | 22/01/2010   |  |
| <b>Drill Crew</b> [REDACTED]                     |  | Start  |  | 20/01/2010   |  | End  |  |
| <b>Dates Drilled</b>                             |  | End  |  | 21/01/2010   |  | 12/04/2010   |  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |      |     | SPT Blows /N | Result or U100 Blows/ Rec. mm or Fracture Index  | Description of Strata  | Depth (Thickness) (m) | Level          | Legend                |        |
|-------------|------------------|----------------------------------|----------------------|------|-----|--------------|--|--|-----------------------|----------------|-----------------------|--------|
|             |                  |                                  | Depth (m) From To    | Type | No. |              |  |  |                       |                |                       | TCR %  |
| 20/01       | 1.90             | DRY                              | 1.20                 | B    | 1   |              | S10  | MADE GROUND: Tarmacadam.   | (0.10)                | 16.06          | [Cross-hatch pattern] |        |
|             |                  |                                  | 1.20-1.65            | C    | 2   |              |  | MADE GROUND: Composed of dark grey angular to subangular cobbles of schist.  | 0.10                  |                |                       |        |
|             |                  |                                  | 1.20-1.70            | B    | 3   |              |  |  | (0.40)                |                |                       |        |
|             | 1.90             | DRY                              | 2.00-2.45            | C    |     |              | C40/245  | Possibly MADE GROUND: Composed of light brown becoming dark brown medium to coarse sand and subangular to subrounded fine to coarse gravel of mica schist with occasional subrounded cobbles. At 0.70m: Mica schist boulder. | 0.50                  | 15.66          | [Cross-hatch pattern] |        |
|             |                  |                                  | 2.00                 | D    | 4   |              |  |  |                       |                |                       |        |
|             |                  |                                  | 2.00-2.50            | B    | 5   |              |  |  |                       |                |                       | (3.70) |
|             | 2.90             | DRY                              | 2.80                 | D    | 6   |              | C50/125  |  |                       |                |                       |        |
|             |                  |                                  | 3.00                 | C    |     |              |  |  |                       |                |                       |        |
|             |                  |                                  | 3.00-3.50            | B    | 7   |              |  |  |                       |                |                       |        |
|             | 3.40             | DRY                              | 3.50-3.95            | C    |     |              | C48/235  |  |                       |                |                       |        |
| 3.50-4.00   |                  |                                  | B                    | 8    |     |              |  |  |                       |                |                       |        |
| 4.20        |                  |                                  | D                    | 9    |     |              |  |  | 4.20                  |                |                       |        |
| 20/01       | 4.30             | DRY                              |                      |      |     |              | Probably medium strong dark grey mica SCHIST recovered as angular fine to coarse gravel sized fragments. | (0.20)   | 11.96                 | [Wavy pattern] |                       |        |
| 21/01       | 4.30             |                                  | 4.40                 | C    |     | C50/115      | Probably medium strong dark grey mica SCHIST recovered as angular cobbles.                               | 4.40   | 11.76                 | [Wavy pattern] |                       |        |

**Remarks** (See notes & keysheets)


- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- On completion the borehole was grouted up to ground level.
- The borehole was advanced by cable percussive drilling to 4.40m and progressed with rotary coring to 7.30m.
- Rotary coring was carried out using a core barrel 140mm in diameter.
- An amount of water was added to facilitate boring in granular strata.
- Borehole advanced by chiselling from 2.40m to 2.80m (30 mins); from 3.20m to 3.50m (45 mins); from 4.20m to 4.40m (45 mins).

|   |   |                          |
|---|---|--------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | Contract No. CON103001   |
|   |   | Figure No. FR12 (1 of 2) |

|   |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        |  | <b>Borehole Diameter</b><br>200mm to 4.40m<br>150mm to 7.30m |  | <b>Casing Diameter</b><br>200mm to 4.30m<br>150mm to 5.86m |  | <b>BOREHOLE No.</b> BH10                             |  |
| <b>Equipment</b> Dando 2000<br>Massenza MI6             |  |  |  |  |  | <b>Coordinates (Local Grid)</b> 232087 E<br>709872 N |  |
| <b>Drill Fluid</b> Water                                |  |  |  |  |  | <b>Ground Level</b> 16.16 m OD                       |  |
| <b>Drill Crew</b> [REDACTED]                            |  |  |  |  |  |  |  |
| <b>Dates Drilled</b> Start 20/01/2010<br>End 21/01/2010 |  | <b>Logged by</b> [REDACTED]                                  |  | <b>Compiled by</b> [REDACTED]                              |  | <b>Approved by</b> [REDACTED]                        |  |
|   |  | 21/01/2010   |  | 22/01/2010   |  | 12/04/2010   |  |

| Date & Time | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |      |       |       |       |                | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|----------------------------------|----------------------|------|-------|-------|-------|----------------|--------------------------------|--|-----------------------|-----------------------|-------|--------|
|             |                  |                                  | Depth (m)            |      | Type  | No.   | RQD % | Core Size (mm) |                                |  |                       |                       |       |        |
|             |                  |                                  | From                 | To   | TCR % | SCR % |       |                |                                |  |                       |                       |       |        |
|             |                  | (0)                              | 4.40                 | 5.80 | NA    | NA    | NA    |                |                                |  | (1.40)                |                       |       |        |
|             |                  | (100)                            | 5.80                 | 7.30 | 100   | 97    | 20    |                | 6                              | Weak to medium strong grey fractured and foliated quartz mica SCHIST. Moderately to slightly weathered. Fractures are subvertical to vertical closely spaced undulating rough and predominantly infilled with gravel in a clayey matrix. Surfaces locally stained orange brown and cemented with quartz. | (1.50)                | 10.36                 |       |        |
| 21/01       | 5.86             | DRY                              |                      |      |       |       |       |                |                                | End of Borehole  | 7.30                  | 8.86                  |       |        |

**Remarks** 7 Groundwater was not apparent during boring.  
(See notes & keysheets)

|   |   |                                 |
|---|---|---------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001   |
|   |   | <b>Figure No.</b> FR12 (2 of 2) |


|  |  |   |  |  |  |  |  |
|--|--|---|--|--|--|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary |  | <b>Borehole Diameter</b><br>200mm to 3.60m<br>131mm to 10.00m |  | <b>Casing Diameter</b><br>200mm to 3.60m<br>151mm to 7.00m |  | <b>BOREHOLE No.</b> BH11                             |  |
| <b>Equipment</b> Dando 2000<br>Massenza MI6      |  | <b>Logged by</b> [ ]  |  | <b>Compiled by</b> [ ]                                     |  | <b>Coordinates (Local Grid)</b> 232170 E<br>709841 N |  |
| <b>Drill Fluid</b> Water                         |  | <b>Approved by</b> [ ]  |  | <b>Ground Level</b> 12.05 m OD                             |  |  |  |
| <b>Drill Crew</b> [ ]                            |  | <b>Start</b> 01/02/2010                                       |  | <b>End</b> 01/03/2010                                      |  |  |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return %) | Sample/Core Recovery |               |              | SPT Blows /N<br>Core Size (mm) | Result or U100 Blows/ Rec. mm or Fracture Index  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|---------------|--------------|--------------------------------|--|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)<br>From To | Type<br>TCR % | No.<br>SCR % |                                |  |                       |                       |       |        |
| 01/02       |                  |                                     | 0.50-1.00            | B             | 1            |                                | Grass over gravelly TOPSOIL with many rootlets.<br><br>MADE GROUND: Composed of grey brown silty sandy gravelly angular cobbles of mica schist with occasional angular boulders. Gravel is angular to subangular fine to coarse mica schist. Sand is fine to coarse. | (0.10)<br>0.10        | 11.95                 |       |        |
| 01/02       | 1.20             | DRY                                 |                      |               |              |                                |  | (1.30)                |                       |       |        |
| 02/02       | 1.20             |                                     | 2.00                 | B             | 2            |                                | MADE GROUND: Composed of brown becoming grey silty sandy angular to subangular fine to coarse gravel of mica schist with many subangular cobbles and occasional boulders. Sand is medium to coarse.  | 1.40                  | 10.65                 |       |        |
|             |                  |                                     | 3.00                 | B             | 3            |                                |  | (2.10)                |                       |       |        |
| 02/02       | 3.60             | DRY                                 |                      |               |              |                                | Possibly MADE GROUND: Composed of gravel, cobbles and boulders (Driller's description).  | 3.50                  | 8.55                  |       |        |
| 01/03       | 3.60             |                                     |                      |               |              |                                |  | (2.90)                |                       |       |        |

**Remarks** (See notes & keysheets)

- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- On completion the borehole was grouted up to ground level.
- Rotary coring was carried out using symmetrex coring techniques.
- The borehole was advanced by cable percussion means to 3.60m and then progressed by rotary open hole means to 7.00m and rotary coring to 10.00m.
- An amount of water was added to facilitate boring in granular strata.
- Groundwater was encountered at 5.20m during boring.

Scale 1:25

|   |   |                                 |
|---|---|---------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001   |
|   |   | <b>Figure No.</b> FR13 (1 of 2) |



|   |   |  |  |
|---|---|--|--|
| <b>Drilling Method</b> Cable Percussion & Rotary        | <b>Borehole Diameter</b><br>200mm to 3.60m<br>131mm to 10.00m | <b>Casing Diameter</b><br>200mm to 3.60m<br>151mm to 7.00m | <b>BOREHOLE No.</b> BH11                             |
| <b>Equipment</b> Dando 2000<br>Massenza MI6             |   |  | <b>Coordinates (Local Grid)</b> 232170 E<br>709841 N |
| <b>Drill Fluid</b> Water                                |   |  | <b>Ground Level</b> 12.05 m OD                       |
| <b>Drill Crew</b> [REDACTED]                            | <b>Logged by</b> [REDACTED]                                   | <b>Compiled by</b> [REDACTED]                              | <b>Approved by</b> [REDACTED]                        |
| <b>Dates Drilled</b> Start 01/02/2010<br>End 01/03/2010 | 02/02/2010  | 04/02/2010   | 12/04/2010   |

| Date & Time     | Casing Depth (m) | Water Depth (m) (Flush Return) % | Sample/Core Recovery |      |     | SPT Blows /N<br>Core Size (mm) | Result or Fracture Index | Description of Strata  | Depth (Thickness) (m) | Level | Legend |
|-----------------|------------------|----------------------------------|----------------------|------|-----|--------------------------------|--------------------------|--|-----------------------|-------|--------|
|                 |                  |                                  | Depth (m) From To    | Type | No. |                                |                          |  |                       |       |        |
|                 |                  | (70)                             | 3.60-8.50            | 91   | 81  | 52                             |                          |  |                       |       |        |
|                 |                  |                                  |                      |      |     |                                | AZCL                     | Medium strong fractured thinly foliated light grey and dark grey quartz mica SCHIST. Slightly weathered. Fractures are closely to medium spaced subvertical to subhorizontal planar smooth locally infilled with fine gravel of schist. Surfaces locally stained orange brown. | 6.40                  | 5.65  |        |
|                 |                  |                                  |                      |      |     |                                | 3                        | Between 7.45m and 7.49m: Fine gravel infilled fracture.<br>Between 7.60m and 7.62m: Fine gravel infilled fracture.   |                       |       |        |
|                 |                  |                                  |                      |      |     |                                | 15                       |  |                       |       |        |
|                 |                  |                                  |                      |      |     |                                | AZCL                     |  |                       |       |        |
|                 |                  |                                  |                      |      |     |                                | 13                       |  |                       |       |        |
|                 |                  | (70)                             | 8.50-10.00           | 83   | 55  | 17                             | NI                       | Between 9.07m and 9.36m: Orange stained highly fractured zone.   | (3.60)                |       |        |
|                 |                  |                                  |                      |      |     |                                | >20                      |  |                       |       |        |
|                 |                  |                                  |                      |      |     |                                | 1                        |  |                       |       |        |
| 01/03           | 7.00             | 1.00                             |                      |      |     |                                |                          |  |                       |       |        |
| End of Borehole |                  |                                  |                      |      |     |                                |                          |  | 10.00                 | 2.05  |        |

**Remarks** 7 Borehole advanced by chiselling from 3.20m to 3.50m (45 mins); from 3.50m to 3.60m (60 mins); from 3.60m to 3.60m (30 mins).

Scale 1:25



SLOY PUMPING STATION  
Scottish and Southern Energy  
Jacobs Engineering UK Ltd

**Contract No.** CON103001

**Figure No.** FR13 (2 of 2)


|  |  |  |                                 |
|--|--|--|---------------------------------|
| <b>Drilling Method</b> Rotary Open Hole/Coring   | <b>Borehole Diameter</b><br>150mm to 35.00m  | <b>Casing Diameter</b><br>150mm to 3.80m | <b>BOREHOLE No.</b> <b>BH12</b> |
| <b>Equipment</b> Massenza MI6  | <b>Coordinates (Local Grid)</b> 232152 E<br>709847 N<br><b>Ground Level</b> 12.38 m OD |  |                                 |
| <b>Drill Fluid</b><br><b>Drill Crew</b><br><b>Dates Drilled</b> Start 02/03/2010<br>End 04/03/2010 | <b>Logged by</b> [Redacted]  | <b>Compiled by</b> [Redacted]            | <b>Approved by</b> [Redacted]   |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |    |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|----|-------|-------|-------|--|--------------------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |    | Type  | No.   |       |  |                                |   |                       |                       |       |        |
|             |                  |                                     | From                 | To | TCR % | SCR % | RQD % |  |                                |   |                       |                       |       |        |
| 02/03       |                  |                                     |                      |    |       |       |       |  |                                | Grass over MADE GROUND: Composed of gravel, cobbles and boulders (Drillers description)   | (3.60)                |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |  |                                | Medium strong to strong fractured thinly foliated light grey and dark grey quartz mica SCHIST. Slightly weathered. Fractures are closely to medium spaced subhorizontal to subvertical stepped smooth and planar smooth locally infilled up to 8mm with quartz. | 3.60                  | 8.78                  |       |        |
|             |                  | (100)                               | 4.00-5.85            | 95 | 91    | 75    |       |  |                                |   |                       |                       |       |        |

**Remarks** (See notes & keysheets)

- 1 Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- 2 Rotary coring was carried out using a core barrel 131mm in diameter.
- 3 The borehole was advanced by rotary open hole means to 4.00m and then progressed by rotary coring means to 35.00m.
- 4 Flush loss in overburden at base of symmetrix casing.
- 5 See installation details on final sheet.
- 6 Groundwater was not apparent during boring.

Scale 1:25

|   |   |  |
|---|---|--|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><br><b>Figure No.</b> FR14 (1 of 8) |
|---|---|--|

|  |   |  |   |
|--|---|--|---|
| <b>Drilling Method</b> Rotary Open Hole/Coring             | <b>Borehole Diameter</b><br>150mm to 35.00m | <b>Casing Diameter</b><br>150mm to 3.80m | <b>BOREHOLE No.</b> BH12                                |
| <b>Equipment</b> Massenza MI6                              |   |  | <b>Coordinates (Local Grid)</b><br>232152 E<br>709847 N |
| <b>Drill Fluid</b>   |   |  | <b>Ground Level</b><br>12.38 m OD                       |
| <b>Drill Crew</b>  | <b>Logged by</b>                            | <b>Compiled by</b>                       | <b>Approved by</b>                                      |
| <b>Dates Drilled</b><br>Start 02/03/2010<br>End 04/03/2010 | 04/03/2010                                  | 05/03/2010                               | 12/04/2010  |


| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return)<br>% | Sample/Core Recovery |               |              | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result | Description of Strata  | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|--|----------------------|---------------|--------------|--------------------------------|--------------------------|--|-----------------------|-------|--------|
|             |                  |  | Depth (m)<br>From To | Type<br>TCR % | No.<br>SCR % |                                |                          |  |                       |       |        |
|             |                  |  |                      |               |              |                                | 0                        |  |                       |       |        |
|             |                  | (70)                                   | 5.85-8.05            | 100           | 97           | 85                             | 3                        | <p>Between 7.45m and 7.55m: Quartz bands up to 40mm thick.</p> <p>At 7.67m: Induced fracture inclined 45 degrees undulating smooth moderately open clean.</p> <p>Between 7.72m and 7.74m: Quartz band.</p> |                       |       |        |
|             |                  | (0)                                    | 8.05-9.55            | 100           | 99           | 69                             | 0                        | <p>At 8.75m: Induced fracture inclined 45 degrees undulating smooth moderately open clean.</p> <p>At 9.10m: Fracture inclined 45 degrees undulating smooth moderately open clean.</p>                      |                       |       |        |
|             |                  |  |                      |               |              |                                |                          | At 9.77m: Induced fracture inclined 60 degrees undulating slightly rough tight clean.  |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |  |  |                          |
|--|--|--|--------------------------|
| <b>Drilling Method</b> Rotary Open Hole/Coring             | <b>Borehole Diameter</b><br>150mm to 35.00m          | <b>Casing Diameter</b><br>150mm to 3.80m | <b>BOREHOLE No.</b> BH12 |
| <b>Equipment</b> Massenza MI6                              | <b>Coordinates (Local Grid)</b> 232152 E<br>709847 N |  |                          |
| <b>Drill Fluid</b>   | <b>Ground Level</b> 12.38 m OD                       |  |                          |
| <b>Drill Crew</b>  | <b>Logged by</b>                                     | <b>Compiled by</b>                       | <b>Approved by</b>       |
| <b>Dates Drilled</b><br>Start 02/03/2010<br>End 04/03/2010 | 04/03/2010   | 05/03/2010                               | 12/04/2010               |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |             |       |       |       |   | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|-------------|-------|-------|-------|---|--------------------------------|--|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |             | Type  |       | No.   |   |                                |  |                       |                       |       |        |
|             |                  |                                     | From                 | To          | TCR % | SCR % | RQD % |   |                                |  |                       |                       |       |        |
| 02/03       | 4.00             | 4.20                                | (0)                  | 9.55-12.00  | 100   | 96    | 61    |   |                                | At 10.20m: Induced fracture inclined 10 degrees slightly undulating smooth tight clean.<br><br>Between 11.00m and 11.19m: Fracture inclined 70 degrees and 30 degrees undulating striated very open some quartz veins on surfaces.<br><br>At 11.40m: Fracture inclined 60 degrees undulating rough open stained orange brown on surfaces penetrating <2mm.<br>Between 11.55m and 11.60m: Fractures inclined 25 degrees undulating smooth open stained orange and infilled with grey silt <5mm.<br>Between 11.68m and 11.82m: Fracture inclined 60 degrees undulating smooth very open locally stained orange.<br>Between 11.91m and 11.92m: Quartz band.<br>Between 12.04m and 12.18m: Induced fractures inclined 60 degrees planar smooth open clean.<br><br>Between 12.43m and 12.74m: Induced fractures inclined 45 degrees planar smooth moderately open clean.<br><br>At 12.98m: Induced fracture inclined 15 degrees planar slightly undulating smooth open clean.<br><br>At 13.77m: Induced fracture inclined 25 degrees slightly undulating smooth moderately open clean.<br><br>At 14.10m: Induced fracture inclined 40 degrees undulating smooth open some angular gravel infill <10mm of schist and quartz.<br><br>At 14.47m: Induced fracture inclined 30 degrees slightly undulating slightly rough tight clean.<br>Between 14.66m and 14.95m: Fractures inclined 30 and 80 degrees stepped rough very open quartz veins on surfaces.<br><br>At 15.00m: Induced fracture inclined 20 degrees slightly stepped smooth tight to |                       |                       |       |        |
| 03/03       | 4.00             |                                     | (0)                  | 12.00-15.15 | 100   | 98    | 67    | 3 |                                |  |                       |                       |       |        |


**Remarks**  
(See notes & keysheets)

|                   |  |  |
|-------------------|--|--|
| <b>Scale</b> 1:25 |  <p>SLOY PUMPING STATION<br/>Scottish and Southern Energy<br/>Jacobs Engineering UK Ltd</p> | <b>Contract No.</b> CON103001<br><br><b>Figure No.</b> FR14 (3 of 8) |
|-------------------|--|--|

|  |   |  |  |
|--|---|--|--|
| <b>Drilling Method</b> Rotary Open Hole/Coring             | <b>Borehole Diameter</b><br>150mm to 35.00m | <b>Casing Diameter</b><br>150mm to 3.80m | <b>BOREHOLE No.</b> BH12                             |
| <b>Equipment</b> Massenza MI6                              |   |  | <b>Coordinates (Local Grid)</b> 232152 E<br>709847 N |
| <b>Drill Fluid</b>   |   |  | <b>Ground Level</b> 12.38 m OD                       |
| <b>Drill Crew</b>  | <b>Logged by</b>                            | <b>Compiled by</b>                       | <b>Approved by</b>                                   |
| <b>Dates Drilled</b><br>Start 02/03/2010<br>End 04/03/2010 | 04/03/2010                                  | 05/03/2010                               | 12/04/2010   |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return)<br>% | Sample/Core Recovery |    |       |       | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result   | Description of Strata | Depth (Thickness) (m) | Level | Legend |       |
|-------------|------------------|--|----------------------|----|-------|-------|--------------------------------|--|-----------------------|-----------------------|-------|--------|-------|
|             |                  |  | Depth (m)            |    | Type  | No.   |                                |  |                       |                       |       |        | RQD % |
|             |                  |  | From                 | To | TCR % | SCR % |                                |  |                       |                       |       |        |       |
|             |                  | (0)                                    | 15.15-18.15          |    | 100   | 100   | 95                             |  |                       |                       |       |        |       |
|             |                  |  |                      |    |       |       |                                | <p>moderately open clean.<br/>Between 15.15m and 16.75m: Quartz bands up to 2mm thick.</p> <p>At 15.70m: Induced fracture inclined 60 degrees stepped smooth moderately open clean.</p> <p>At 17.40m: Induced fracture inclined 30 degrees undulating rough tight clean.</p> <p>At 17.74m: Induced fracture inclined 30 degrees planar smooth moderately open clean.</p> <p>At 19.36m: Induced fracture inclined 60 degrees planar smooth tight clean.</p> <p>At 19.50m: Green crystalline band (250mm thick).</p> | (31.40)               |                       |       |        |       |
|             |                  | (0)                                    | 18.15-21.15          |    | 100   | 100   | 90                             |  |                       |                       |       |        |       |

**Remarks**  
(See notes & keysheets)

|   |   |                                 |
|---|---|---------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001   |
|   |   | <b>Figure No.</b> FR14 (4 of 8) |

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Rotary Open Hole/Coring             |  | <b>Borehole Diameter</b><br>150mm to 35.00m |  | <b>Casing Diameter</b><br>150mm to 3.80m |  | <b>BOREHOLE No.</b> BH12                                |  |
| <b>Equipment</b> Massenza MI6                              |  |   |  |  |  | <b>Coordinates (Local Grid)</b><br>232152 E<br>709847 N |  |
| <b>Drill Fluid</b>   |  |   |  |  |  | <b>Ground Level</b><br>12.38 m OD                       |  |
| <b>Drill Crew</b>  |  |   |  |  |  |   |  |
| <b>Dates Drilled</b><br>Start 02/03/2010<br>End 04/03/2010 |  | <b>Logged by</b><br>04/03/2010              |  | <b>Compiled by</b><br>05/03/2010         |  | <b>Approved by</b><br>12/04/2010                        |  |

| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |    |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|----|-------|-------|-------|--|--------------------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |    | Type  | No.   |       |  |                                |   |                       |                       |       |        |
|             |                  |                                     | From                 | To | TCR % | SCR % | RQD % |  |                                |   |                       |                       |       |        |
|             |                  |                                     |                      |    |       |       |       |  | 1                              | <p>At 20.35m: Induced fracture inclined 10 degrees undulating smooth tight clean.</p> <p>At 20.44m: Induced fracture inclined 35 degrees planar striated.</p> <p>At 20.45m: Induced fracture subhorizontal planar smooth open some gravel infill of schist &lt;20mm.</p> <p>At 20.75m: Two induced fractures inclined 30 degrees planar smooth clean.</p> |                       |                       |       |        |
|             |                  | (0)                                 | 21.15-24.15          |    | 100   | 100   | 79    |  |                                | <p>At 22.30m: Induced fracture inclined 15 degrees slightly undulating rough tight clean.</p> <p>At 22.98m: Induced fracture inclined 60 degrees stepped smooth moderately open clean.</p> <p>At 23.80m: Induced fracture inclined 25 degrees undulating smooth tight clean.</p> <p>Between 24.50m and 24.70m: Quartz band.</p>                           |                       |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |  |   |  |  |  |   |  |
|--|--|---|--|--|--|---|--|
| <b>Drilling Method</b> Rotary Open Hole/Coring             |  | <b>Borehole Diameter</b><br>150mm to 35.00m |  | <b>Casing Diameter</b><br>150mm to 3.80m |  | <b>BOREHOLE No.</b> BH12                                |  |
| <b>Equipment</b> Massenza MI6                              |  |   |  |  |  | <b>Coordinates (Local Grid)</b><br>232152 E<br>709847 N |  |
| <b>Drill Fluid</b>   |  |   |  |  |  | <b>Ground Level</b><br>12.38 m OD                       |  |
| <b>Drill Crew</b>  |  |   |  |  |  |   |  |
| <b>Dates Drilled</b><br>Start 02/03/2010<br>End 04/03/2010 |  | <b>Logged by</b><br>04/03/2010              |  | <b>Compiled by</b><br>05/03/2010         |  | <b>Approved by</b><br>12/04/2010                        |  |


| Date & Time | Casing Depth (m) | Water Depth (m)<br>(Flush Return %) | Sample/Core Recovery |             |       |       |       |  | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result   | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|-------------------------------------|----------------------|-------------|-------|-------|-------|--|--------------------------------|--|-----------------------|-----------------------|-------|--------|
|             |                  |                                     | Depth (m)            |             | Type  | No.   |       |  |                                |  |                       |                       |       |        |
|             |                  |                                     | From                 | To          | TCR % | SCR % | RQD % |  |                                |  |                       |                       |       |        |
| 03/03       | 4.00             | 1.80                                | (0)                  | 24.15-27.15 | 100   | 97    | 88    |  |                                | At 25.40m: Induced fracture inclined 30 degrees stepped rough tight clean.<br><br>Between 25.85m and 25.96m: Quartz band.<br><br>At 26.85m: Fracture inclined 30 degrees planar smooth locally infilled brown fine to medium sand <2mm.                                    |                       |                       |       |        |
| 04/03       | 4.00             |                                     | (0)                  | 27.15-28.65 | 100   | 96    | 63    |  | 2                              | At 27.30m: Fracture inclined 30 degrees stepped to undulating smooth open clean.<br><br>Between 27.46m and 27.65m: Fracture inclined 70 degrees stepped smooth tight clean.<br><br>At 27.89m: Induced fracture inclined 30 degrees undulating rough moderately open clean. |                       |                       |       |        |
|             |                  |                                     | (0)                  | 28.65-30.15 | 99    | 91    | 67    |  | 2                              | AZCL<br>At 28.83m: Fractures subhorizontal stepped striated open clean.<br>At 29.00m: Induced fracture subhorizontal planar striated tight clean.  |                       |                       |       |        |
|             |                  |                                     |                      |             |       |       |       |  |                                | Between 30.05m and 30.15m: Highly fractured zone.  |                       |                       |       |        |

**Remarks**  
(See notes & keysheets)

|  |   |  |  |
|--|---|--|--|
| <b>Drilling Method</b> Rotary Open Hole/Coring             | <b>Borehole Diameter</b><br>150mm to 35.00m | <b>Casing Diameter</b><br>150mm to 3.80m | <b>BOREHOLE No.</b> BH12   |
| <b>Equipment</b> Massenza MI6                              |   |  | <b>Coordinates (Local Grid)</b><br>232152 E<br>709847 N<br><b>Ground Level</b><br>12.38 m OD |
| <b>Drill Fluid</b>   | <b>Logged by</b>                            | <b>Compiled by</b>                       | <b>Approved by</b>   |
| <b>Drill Crew</b>  | 04/03/2010                                  | 05/03/2010                               | 12/04/2010   |
| <b>Dates Drilled</b><br>Start 02/03/2010<br>End 04/03/2010 |   |  |  |

| Date & Time     | Casing Depth (m) | Water Depth (m)<br>(Flush Return) % | Sample/Core Recovery |               |              | SPT Blows /N<br>Core Size (mm) | Fracture Index or Result | Description of Strata  | Depth (Thickness) (m) | Level  | Legend |
|-----------------|------------------|-------------------------------------|----------------------|---------------|--------------|--------------------------------|--------------------------|--|-----------------------|--------|--------|
|                 |                  |                                     | Depth (m)<br>From To | Type<br>TCR % | No.<br>SCR % |                                |                          |  |                       |        |        |
|                 |                  |                                     |                      |               |              |                                | NI                       |  |                       |        |        |
|                 |                  |                                     |                      |               |              |                                | 1                        | At 30.29m: Fracture inclined 10 degrees undulating smooth open clean.<br><br>At 30.58m: Fracture horizontal stepped rough open clean.                    |                       |        |        |
|                 |                  | (0)                                 | 30.15-33.15          | 100           | 96           | 84                             |                          | At 31.25m: Induced fracture inclined 20 degrees slightly undulating smooth moderately open clean.  |                       |        |        |
|                 |                  |                                     |                      |               |              |                                | 1                        | At 32.85m: Quartz band 5mm thick.<br><br>At 33.00m: Induced fracture inclined 25 degrees undulating slightly rough tight clean.                          |                       |        |        |
|                 |                  |                                     |                      |               |              |                                |                          | At 33.56m: Induced fracture inclined 30 degrees planar smooth moderately open clean.   |                       |        |        |
|                 |                  | (0)                                 | 33.15-35.00          | 100           | 100          | 98                             |                          | At 33.96m: Induced fracture inclined 28 degrees planar smooth tight clean.<br><br>At 34.40m: Induced fracture subhorizontal undulating rough open clean. |                       |        |        |
| 04/03           | 4.00             | 4.10                                |                      |               |              |                                |                          | At 34.92m: Induced fracture inclined 10 degrees planar rough tight clean.  | 35.00                 | -22.62 |        |
| End of Borehole |                  |                                     |                      |               |              |                                |                          |  |                       |        |        |

**Remarks**  
(See notes & keysheets)

|   |   |                                 |
|---|---|---------------------------------|
|  | SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001   |
|   |   | <b>Figure No.</b> FR14 (7 of 8) |




|  |   |  |
|--|---|--|
| <b>Drilling Method</b> Rotary Open Hole/Coring             | <b>Borehole Diameter</b><br>150mm to 35.00m | <b>BOREHOLE No.</b> <b>BH12</b>  |
| <b>Equipment</b> Massenza MI6                              |   | <b>Coordinates (Local Grid)</b><br>232152 E<br>709847 N<br><b>Ground Level</b><br>12.38 m OD |
| <b>Drill Crew</b> [REDACTED]                               | <b>Logged by</b> [REDACTED]                 | <b>Compiled by</b> [REDACTED]  |
| <b>Dates Drilled</b><br>Start 02/03/2010<br>End 04/03/2010 | 04/03/2010                                  | 05/03/2010 12/04/2010  |

| Installation Details  |                 | Installation Depth (m) | Level m OD | Water Strikes | Strata Depth (m) | Strata Details                                |
|---|-----------------|------------------------|------------|---------------|------------------|---|
| Instrumentation:<br>19mm standpipe<br>piezometer tip<br>at 29.50m | Bentonite Grout |                        |            |               |                  | Coarse/Medium grained<br>Metamorphic (SCHIST) |
|   |                 | 22.00                  | -9.62      |               |                  |   |
|   | Bentonite Seal  | 23.00                  | -10.62     |               |                  |   |
|   | Gravel Filter   |                        |            |               |                  |   |
|   |                 | 30.00                  | -17.62     |               |                  |   |
|   | Bentonite Seal  | 31.00                  | -18.62     |               |                  |   |
|   | Bentonite Grout |                        |            |               |                  |   |
|   |                 | 35.00                  | -22.62     |               | 35.00            | Base of Hole                                  |

**Remarks**  
(See notes & keysheets)

Water Strike  
 Water Rise

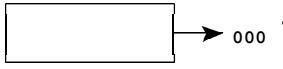



Upstanding cover.  
Not to Scale Pipe diameter 19mm to 30.00m.


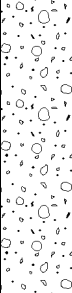
|  |   |                                 |
|--|---|---------------------------------|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001   |
|  |   | <b>Figure No.</b> FR14 (8 of 8) |

|                               |  |                   |  |                 |  |  |  |
|-------------------------------|--|-------------------|--|-----------------|--|--|--|
| Drilling Method Concrete Core |  | Borehole Diameter |  | Casing Diameter |  | BOREHOLE No. CH01  |  |
| Equipment Concrete Corer      |  | Logged by         |  | Compiled by     |  | Coordinates (Local Grid) 232141 E<br>709825 N<br>Ground Level 10.98 m OD |  |
| Drill Crew                    |  | 15/03/2010        |  | 30/03/2010      |  | 12/04/2010   |  |
| Dates Drilled                 |  | Start             |  | End             |  |  |  |

| Date & Time | Casing Depth (m) | Depth to Water (m) | Sample Details |    |      | SPT Blows/N Drive mm | U100 Blows/Recovery mm  | Description of Strata | Depth (Thickness) (m) | Level | Legend |
|-------------|------------------|--------------------|----------------|----|------|----------------------|---|-----------------------|-----------------------|-------|--------|
|             |                  |                    | Depth (m) From | To | Type |                      |   |                       |                       |       |        |
|             |                  |                    |                |    |      |                      |   | (0.95)                |                       |       |        |
|             |                  |                    |                |    |      |                      | Medium strong grey CONCRETE composed of 60-80% angular to subrounded fine to medium aggregate of mixed lithology with a fine to coarse sand and cement matrix. <1-5% voids upto 3mm.<br>At 1.10m: Orange yellow mineralisation. Origin unknown. | 0.95                  | 10.03                 |       |        |
|             |                  |                    |                |    |      |                      |   | (2.33)                |                       |       |        |
|             |                  |                    |                |    |      |                      | End of Borehole   | 3.28                  | 7.70                  |       |        |


Remarks 1 Trial pit excavated to 0.95m to expose concrete foundation. Coring commenced from base of pit.  
 (See notes 2 Groundwater was not apparent during boring.  
 & keysheets)

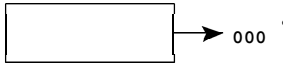



|   |  |   |
|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 08/03/2010<br>End 08/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No.</b> MP01<br><hr/> <b>Coordinates (Local Grid)</b> 232215 E<br>710127 N<br><b>Ground Level</b> 32.86 m OD |
| <b>Logged by</b> <br>08/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010        |


| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        |           |      |     | Dark grey organic silty gravelly fine to coarse SAND with occasional subangular cobbles and abundant organic fragments, wood and roots. Gravel is subangular to subrounded fine to medium of schist. | (0.15)<br>0.15        | 32.71 |  |
|                 |      |        |           |      |     | Light brown yellow and orange sandy subangular fine to coarse GRAVEL of schist with many angular to subangular cobbles and occasional boulders. Sand is medium to coarse.                            | (1.05)                |       |  |
|                 |      |        |           |      |     | End of Trial Pit   | 1.20                  | 31.66 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was not apparent during excavation.


|   |   |  |
|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR16 (1 of 1) |
|---|---|--|

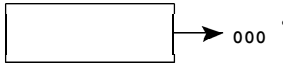



|   |  |   |
|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 08/03/2010<br>End 08/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No.</b> MP02<br><hr/> <b>Coordinates (Local Grid)</b> 232231 E<br>710120 N<br><b>Ground Level</b> 28.74 m OD |
| <b>Logged by</b> <br>08/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010        |



| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        |           |      |     | Dark brown fibrous to pseudofibrous spongy PEAT with occasional subrounded schist cobbles.<br><br><div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: 20px;">             At 0.70m: Cobble/boulder obstruction.           </div><br>End of Trial Pit | (0.70)<br><br>0.70    | 28.04 |  |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 0.70m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Cobbles/ boulders encountered at 0.70m.
- 5 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 6 Groundwater was encountered at 0.40m during excavation.


|   |   |  |
|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR17 (1 of 1) |
|---|---|--|

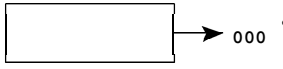



|   |  |   |
|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 08/03/2010<br>End 08/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No.</b> MP03<br><b>Coordinates (Local Grid)</b> 232240 E<br>710114 N<br><b>Ground Level</b> 28.81 m OD |
| <b>Logged by</b> <br>08/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010  |


| In-situ Testing  |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|------------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)        | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                  |      |        |           |      |     | Dark brown organic gravelly medium to coarse SAND with frequent roots and organic fragments. Gravel is subrounded fine to medium schist.               | (0.30)                | 28.51 |  |
|                  |      |        |           |      |     | Brown grey silty medium to coarse SAND and subangular to subrounded fine to medium GRAVEL of schist with many subrounded cobbles and occasional roots. | (0.40)                |       |   |
|                  |      |        |           |      |     | Light brown gravelly medium to coarse SAND with rare subrounded cobbles. Gravel is subangular to subrounded fine to medium schist.                     | (0.20)                | 28.11 |  |
|                  |      |        |           |      |     |  | (0.90)                | 27.91 |   |
| End of Trial Pit |      |        |           |      |     |  |                       |       |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 0.90m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.40m during excavation .


|   |   |  |
|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><b>Figure No.</b> FR18 (1 of 1) |
|---|---|--|

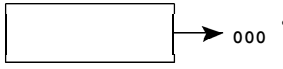



|   |  |   |
|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 08/03/2010<br>End 08/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No.</b> MP04<br><b>Coordinates (Local Grid)</b> 232211 E<br>710110 N<br><b>Ground Level</b> 30.06 m OD |
| <b>Logged by</b> <br>08/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010  |


| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        |           |      |     | Dark grey to grey organic silty gravelly medium to coarse SAND with frequent roots and organic fragments. Gravel is subangular to subrounded fine to medium schist. | (0.30)                | 29.76 |  |
|                 |      |        |           |      |     | Yellow brown silty gravelly medium to coarse SAND. Gravel is subrounded fine to medium schist.  | 0.30                  |       |   |
|                 |      |        |           |      |     |   | (0.90)                |       |   |
|                 |      |        |           |      |     | End of Trial Pit  | 1.20                  | 28.86 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was not apparent during excavation.


|   |   |  |
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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR19 (1 of 1) |
|---|---|--|

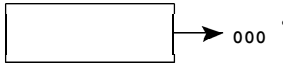



|   |  |   |
|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 08/03/2010<br>End 08/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No.</b> MP05<br><hr/> <b>Coordinates (Local Grid)</b> 232224 E<br>710103 N<br><b>Ground Level</b> 29.56 m OD |
| <b>Logged by</b> <br>08/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010        |

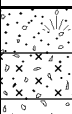

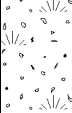

| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        |           |      |     | Dark brown pseudofibrous spongy PEAT with occasional schist cobbles. Moderate organic odour. | (1.20)                |       |  |
|                 |      |        |           |      |     | End of Trial Pit   | 1.20                  | 28.36 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.35m during excavation .


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR20 (1 of 1) |
|---|---|--|

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|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 08/03/2010<br>End 08/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No.</b> MP06<br><b>Coordinates (Local Grid)</b> 232239 E<br>710097 N<br><b>Ground Level</b> 29.20 m OD |
| <b>Logged by</b> <br>08/03/2010                             | <b>Compiled by</b> <br>08/03/2010 | <b>Approved by</b> <br>12/04/2010  |

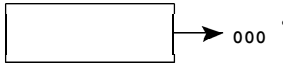



| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m)            | Level          | Legend  |
|-----------------|------|--------|-----------|------|-----|--|----------------------------------|----------------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                                  |                |   |
|                 |      |        |           |      |     | Dark brown organic silty gravelly medium to coarse SAND with frequent organic fragments, wood and roots. Gravel is subangular to subrounded fine to coarse schist. | (0.15)<br>0.15<br>(0.15)<br>0.30 | 29.05<br>28.90 |  |
|                 |      |        |           |      |     | Light brown and grey slightly sandy gravelly SILT. Gravel is subrounded fine to medium schist. Sand is medium to coarse.   |                                  |                |  |
|                 |      |        |           |      |     | Dark brown organic subrounded fine to medium GRAVEL of schist.   | (0.65)                           |                |  |
|                 |      |        |           |      |     | End of Trial Pit   | 0.95                             | 28.25          |  |




**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 0.95m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.55m during excavation .

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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><b>Figure No.</b> FR21 (1 of 1) |
|---|---|--|




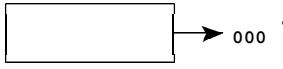



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|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 08/03/2010<br>End 08/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No.</b> MP07<br><hr/> <b>Coordinates (Local Grid)</b> 232205 E<br>710094 N<br><b>Ground Level</b> 31.59 m OD |
| <b>Logged by</b> <br>08/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010        |



| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m)  | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|------------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                        |       |   |
|                 |      |        |           |      |     | Dark brown organic silty medium to coarse SAND with frequent roots and leaves.   | (0.10)                 | 31.49 |  |
|                 |      |        |           |      |     | Light grey silty gravelly medium to coarse SAND. Gravel is subrounded fine to medium schist.   | 0.10<br>(0.05)<br>0.15 | 31.44 |  |
|                 |      |        |           |      |     | Brown orange and yellow gravelly medium to coarse SAND with many subangular cobbles. Gravel is subangular to subrounded fine to medium schist. | (0.90)                 |       |  |
|                 |      |        |           |      |     | End of Trial Pit   | 1.05                   | 30.54 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.05m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was not apparent during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR22 (1 of 1) |
|---|---|--|

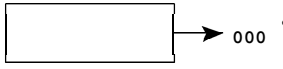



|   |   |   |
|---|---|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 08/03/2010<br>End 09/03/2010   | <b>Plan</b><br> | <b>TRIAL PIT No.</b> MP08<br><hr/> <b>Coordinates (Local Grid)</b> 232214 E<br>710087 N<br><b>Ground Level</b> 30.07 m OD |
| <b>Logged by</b>  <b>Compiled by</b>  <b>Approved by</b> <br>08/03/2010 10/03/2010 12/04/2010 |   |   |



| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        |           |      |     | Dark brown fibrous spongy PEAT with occasional cobbles. Slight organic odour.   | (0.45)                |       |  |
|                 |      |        |           |      |     | Light grey silty gravelly medium to coarse SAND with many subangular cobbles. Gravel is subangular to subrounded fine to coarse schist. | 0.45<br>(0.65)        | 29.62 |  |
|                 |      |        |           |      |     | End of Trial Pit  | 1.10                  | 28.97 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.10m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.50m during excavation.


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|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR23 (1 of 1) |
|---|---|--|

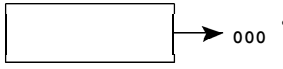



|  |   |   |
|--|---|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 08/03/2010<br>End 08/03/2010  | <b>Plan</b><br> | <b>TRIAL PIT No. MP09</b><br><b>Coordinates (Local Grid)</b> 232235 E<br>710082 N<br><b>Ground Level</b> 29.41 m OD |
| <b>Logged by</b>  08/03/2010<br><b>Compiled by</b>  10/03/2010<br><b>Approved by</b>  12/04/2010 |   |   |




| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        |           |      |     | Dark brown organic silty gravelly medium to coarse SAND with frequent roots, wood and organic fragments. Gravel is subrounded fine to medium schist.           | (0.20)<br>0.20        | 29.21 |  |
|                 |      |        |           |      |     | Dark brown organic sandy subangular to subrounded fine to medium GRAVEL of schist with many subangular cobbles and occasional roots. Sand is medium to coarse. | (0.70)                |       |  |
|                 |      |        |           |      |     | End of Trial Pit   | 0.90                  | 28.51 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 0.9m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at a depth of 0.20m during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><b>Figure No.</b> FR24 (1 of 1) |
|---|---|--|

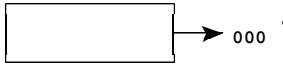



|   |  |   |
|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 04/03/2010<br>End 04/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No.</b> MP10<br><hr/> <b>Coordinates (Local Grid)</b> 232194 E<br>710077 N<br><b>Ground Level</b> 33.25 m OD |
| <b>Logged by</b> <br>08/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010        |


| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m)    | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|--------------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                          |       |   |
|                 |      |        |           |      |     | Dark brown organic silty fine to coarse SAND with frequent roots, wood and organic fragments.  | (0.20)<br>0.20<br>(0.15) | 33.05 |  |
|                 |      |        |           |      |     | Grey mottled orange brown silty gravelly fine to coarse SAND with occasional subrounded cobbles. Gravel is subangular to subrounded fine to coarse schist. | 0.35                     | 32.90 |  |
|                 |      |        |           |      |     | Grey fine to coarse SAND and subrounded fine to coarse GRAVEL of schist with many subrounded cobbles and rare schist boulders.                             | (0.70)                   |       |  |
|                 |      |        |           |      |     | End of Trial Pit   | 1.05                     | 32.20 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.05m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at a depth of 0.40m during excavation.


|   |   |  |
|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR25 (1 of 1) |
|---|---|--|

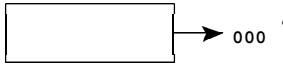



|   |  |   |
|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 09/03/2010<br>End 09/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No. MP11</b><br><hr/> <b>Coordinates (Local Grid)</b> 232205 E<br>710067 N<br><b>Ground Level</b> 30.41 m OD |
| <b>Logged by</b> <br>09/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010        |



| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        |           |      |     | Soft dark brown pseudofibrous PEAT with slight organic odour. | (0.85)                |       |  |
|                 |      |        |           |      |     | At 0.60m: 2 No. boulders encountered.                         |                       |       |   |
|                 |      |        |           |      |     | End of Trial Pit  | 0.85                  | 29.56 |   |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable to a depth of 0.85m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at a depth of 0.40m during excavation.


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|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR26 (1 of 1) |
|---|---|--|

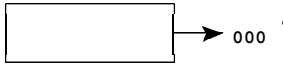



|   |  |   |
|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 09/03/2010<br>End 09/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No. MP12</b><br><b>Coordinates (Local Grid)</b> 232225 E<br>710058 N<br><b>Ground Level</b> 31.34 m OD |
| <b>Logged by</b> <br>09/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010  |


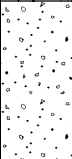
| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        |           |      |     | Dark brown fibrous spongy PEAT with moderate organic odour.   | (0.35)                |       |  |
|                 |      |        |           |      |     | Grey and brown clayey gravelly medium to coarse SAND with many angular to subangular cobbles and frequent wood and organic fragments. Gravel is subangular to subrounded fine to coarse schist. | 0.35<br>(0.55)        | 30.99 |  |
|                 |      |        |           |      |     | End of Trial Pit  | 0.90                  | 30.44 |   |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable to a depth of 0.90m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.45m during excavation.


|   |   |  |
|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><b>Figure No.</b> FR27 (1 of 1) |
|---|---|--|

|  |   |   |
|--|---|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 09/03/2010<br>End 09/03/2010  | <b>Plan</b><br> | <b>TRIAL PIT No. MP13</b><br><b>Coordinates (Local Grid)</b> 232181 E<br>710058 N<br><b>Ground Level</b> 33.57 m OD |
| <b>Logged by</b>  09/03/2010<br><b>Compiled by</b>  10/03/2010<br><b>Approved by</b>  12/04/2010 |   |   |


| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        |           |      |     | Dark brown organic silty medium to coarse SAND with frequent plant remains and roots.  | (0.20)<br>0.20        | 33.37 |  |
|                 |      |        |           |      |     | Dark brown orange sandy subangular to subrounded fine to coarse GRAVEL of schist with occasional subrounded cobbles and roots. | (0.55)                |       |  |
|                 |      |        |           |      |     | At 0.75m: Schist boulder/ bedrock.   | 0.75                  | 32.82 |   |
|                 |      |        |           |      |     | End of Trial Pit   |                       |       |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 0.75m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was not apparent during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><b>Figure No.</b> FR28 (1 of 1) |
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| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 09/03/2010<br>End 09/03/2010 | <b>Plan</b><br><br><div style="border: 1px solid black; width: 80px; height: 30px; margin: 0 auto;"></div> <span style="font-size: 24px; vertical-align: middle;">→</span> 000 ° | <b>TRIAL PIT No. MP14</b><br><b>Coordinates (Local Grid)</b> 232191 E<br>710049 N<br><b>Ground Level</b> 30.64 m OD |
| <b>Logged by</b> <span style="background-color: black; color: black;">██████</span><br>09/03/2010   | <b>Compiled by</b> <span style="background-color: black; color: black;">██████</span><br>10/03/2010  | <b>Approved by</b> <span style="background-color: black; color: black;">██████</span><br>12/04/2010                 |

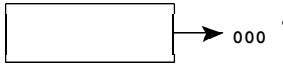



| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        |           |      |     | Dark brown pseudofibrous spongy PEAT with moderate organic odour. | (1.20)                |       |  |
|                 |      |        |           |      |     | End of Trial Pit  | 1.20                  | 29.44 |   |


**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.40m during excavation.

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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><br><b>Figure No.</b> FR29 (1 of 1) |
|---|---|--|




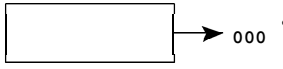



|  |   |   |
|--|---|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 09/03/2010<br>End 09/03/2010  | <b>Plan</b><br> | <b>TRIAL PIT No.</b> MP15<br><hr/> <b>Coordinates (Local Grid)</b> 232196 E<br>710041 N<br><b>Ground Level</b> 30.05 m OD |
| <b>Logged by</b>  09/03/2010<br><b>Compiled by</b>  10/03/2010<br><b>Approved by</b>  12/04/2010 |   |   |

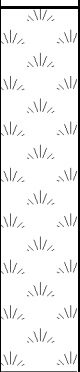
| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        |           |      |     | Dark brown fibrous to pseudofibrous spongy PEAT with strong organic odour. | (1.10)                |       |  |
|                 |      |        |           |      |     | At 1.10m: Schist cobbles and boulders.                                     | 1.10                  | 28.95 |   |
|                 |      |        |           |      |     | End of Trial Pit   |                       |       |   |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable to a depth of 1.10m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.30m during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR30 (1 of 1) |
|---|---|--|

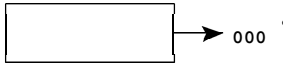



|  |   |   |
|--|---|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 09/03/2010<br>End 09/03/2010  | <b>Plan</b><br> | <b>TRIAL PIT No. MP16</b><br><hr/> <b>Coordinates (Local Grid)</b> 232215 E<br>710040 N<br><b>Ground Level</b> 30.60 m OD |
| <b>Logged by</b>  09/03/2010<br><b>Compiled by</b>  10/03/2010<br><b>Approved by</b>  12/04/2010 |   |   |


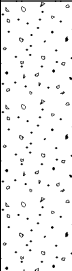
| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        |           |      |     | Dark brown pseudofibrous PEAT with rare subrounded cobbles of schist. Moderate organic odour. | (1.20)                |       |  |
|                 |      |        |           |      |     | End of Trial Pit  | 1.20                  | 29.40 |   |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.40m during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR31 (1 of 1) |
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| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 10/03/2010<br>End 10/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No. MP17</b><br><b>Coordinates (Local Grid)</b> 232167 E<br>710036 N<br><b>Ground Level</b> 31.95 m OD |
| <b>Logged by</b> <br>10/03/2010                             | <b>Compiled by</b> <br>10/03/2010 | <b>Approved by</b> <br>12/04/2010  |


| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        |           |      |     | Dark grey sandy SILT with frequent roots and organic fragments. Sand is fine to coarse.                        | (0.20)                | 31.75 |  |
|                 |      |        |           |      |     | Brown sandy subrounded fine to coarse GRAVEL of schist with many subrounded cobbles. Sand is medium to coarse. | 0.20                  |       |   |
|                 |      |        |           |      |     |  | (0.90)                |       |  |
|                 |      |        |           |      |     | End of Trial Pit   | 1.10                  | 30.85 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.10m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was not apparent during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR32 (1 of 1) |
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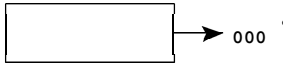



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| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 10/03/2010<br>End 10/03/2010  | <b>Plan</b><br><div style="border: 1px solid black; width: 100px; height: 30px; margin: 0 auto;"></div> | <b>TRIAL PIT No. MP18</b><br><b>Coordinates (Local Grid)</b> 232182 E<br>710034 N<br><b>Ground Level</b> 30.00 m OD |
| <b>Logged by</b> <span style="background-color: black; color: black;">██████</span> 10/03/2010<br><b>Compiled by</b> <span style="background-color: black; color: black;">██████</span> 11/03/2010<br><b>Approved by</b> <span style="background-color: black; color: black;">██████</span> 12/04/2010 |   |   |


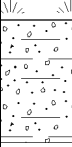
| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        |           |      |     | Dark brown pseudofibrous spongy PEAT with slight organic odour. | (1.20)                |       |  |
|                 |      |        |           |      |     | End of Trial Pit  | 1.20                  | 28.80 |   |

**Remarks** (See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.20m during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR33 (1 of 1) |
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| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 10/03/2010<br>End 10/03/2010  | <b>Plan</b><br> | <b>TRIAL PIT No.</b> MP19<br><hr/> <b>Coordinates (Local Grid)</b> 232193 E<br>710027 N<br><b>Ground Level</b> 30.48 m OD |
| <b>Logged by</b>  10/03/2010<br><b>Compiled by</b>  10/03/2010<br><b>Approved by</b>  12/04/2010 |   |   |


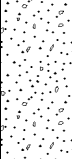
| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        |           |      |     | Dark brown fibrous spongy PEAT.  | (0.60)                |       |  |
|                 |      |        |           |      |     | Soft grey sandy gravelly CLAY with occasional pockets of yellow medium to coarse sand. Gravel is subangular to subrounded fine to medium schist. Sand is fine to coarse. | 0.60<br>(0.40)        | 29.88 |  |
|                 |      |        |           |      |     | End of Trial Pit   | 1.00                  | 29.48 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.00m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.50m during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR34 (1 of 1) |
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| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 09/03/2010<br>End 09/03/2010   | <b>Plan</b><br><div style="border: 1px solid black; width: 50px; height: 20px; margin: 0 auto; position: relative;"> <span style="position: absolute; right: -10px; top: 50%; transform: translateY(-50%); font-size: 10px;">→ 000</span> </div> | <b>TRIAL PIT No. MP20</b><br><hr/> <b>Coordinates (Local Grid)</b> 232159 E<br>710030 N<br><b>Ground Level</b> 31.51 m OD |
| <b>Logged by</b> <span style="display: inline-block; width: 15px; height: 15px; background-color: black; margin-right: 5px;"></span> 09/03/2010<br><b>Compiled by</b> <span style="display: inline-block; width: 15px; height: 15px; background-color: black; margin-right: 5px;"></span> 10/03/2010<br><b>Approved by</b> <span style="display: inline-block; width: 15px; height: 15px; background-color: black; margin-right: 5px;"></span> 12/04/2010 |  |   |


| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        |           |      |     | Dark grey black organic silty slightly gravelly medium to coarse SAND with frequent roots and organic fragments.                    | 0.15                  | 31.36 |  |
|                 |      |        |           |      |     | Orange brown gravelly medium to coarse SAND with many subangular cobbles. Gravel is subangular to subrounded fine to medium schist. | 0.60                  |       |  |
|                 |      |        |           |      |     | End of Trial Pit  | 0.75                  | 30.76 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 0.75m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was not apparent during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR35 (1 of 1) |
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|--|---|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 09/03/2010<br>End 09/03/2010  | <b>Plan</b><br> | <b>TRIAL PIT No.</b> MP21<br><hr/> <b>Coordinates (Local Grid)</b> 232177 E<br>710020 N<br><b>Ground Level</b> 29.54 m OD |
| <b>Logged by</b>  09/03/2010<br><b>Compiled by</b>  10/03/2010<br><b>Approved by</b>  12/04/2010 |   |   |



| In-situ Testing |      |        | Samples   |      |     | Description of Strata          | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--------------------------------|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |                                |                       |       |   |
|                 |      |        |           |      |     | Dark brown pseudofibrous PEAT. | (1.10)                |       |  |
|                 |      |        |           |      |     | End of Trial Pit               | 1.10                  | 28.44 |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.10m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at ground level during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR36 (1 of 1) |
|---|---|--|

|  |  |   |
|--|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 10/03/2010<br>End 10/03/2010  | <b>Plan</b><br><br><div style="border: 1px solid black; width: 50px; height: 20px; margin: 0 auto;"></div> <span style="margin-left: 10px;">→ 000</span> | <b>TRIAL PIT No. MP22</b><br><b>Coordinates (Local Grid)</b> 232176 E<br>710015 N<br><b>Ground Level</b> 29.10 m OD |
| <b>Logged by</b> <span style="background-color: black; color: black;">█</span><br>10/03/2010<br><b>Compiled by</b> <span style="background-color: black; color: black;">█</span><br>11/03/2010<br><b>Approved by</b> <span style="background-color: black; color: black;">█</span><br>12/04/2010 |  |   |

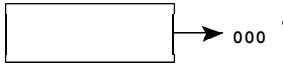



| In-situ Testing |      |        | Samples   |      |     | Description of Strata           | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---------------------------------|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |                                 |                       |       |   |
|                 |      |        |           |      |     | Dark brown fibrous spongy PEAT. | (1.20)                |       |  |
|                 |      |        |           |      |     | At 1.00m: Schist boulder.       |                       |       |  |
|                 |      |        |           |      |     | End of Trial Pit                | 1.20                  | 27.90 |   |


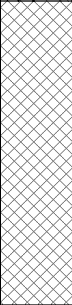
**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.35m during excavation.

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|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><br><b>Figure No.</b> FR37 (1 of 1) |
|---|---|--|




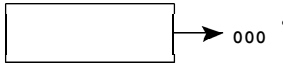



|  |   |   |
|--|---|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 10/03/2010<br>End 10/03/2010  | <b>Plan</b><br> | <b>TRIAL PIT No. MP23</b><br><hr/> <b>Coordinates (Local Grid)</b> 232163 E<br>710003 N<br><b>Ground Level</b> 29.95 m OD |
| <b>Logged by</b>  10/03/2010<br><b>Compiled by</b>  11/03/2010<br><b>Approved by</b>  12/04/2010 |   |   |


| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        |           |      |     | Dark brown organic silty fine to coarse SAND with frequent roots and organic fragments.   | (0.20)<br>0.20        | 29.75 |  |
|                 |      |        |           |      |     | MADE GROUND: Composed of brown micaceous gravelly medium to coarse sand with many angular to subangular cobbles and occasional brick fragments. Gravel is subangular to subrounded fine to coarse schist. | (1.00)                |       |  |
|                 |      |        |           |      |     | End of Trial Pit  | 1.20                  | 28.75 |   |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was not apparent during excavation.


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|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR38 (1 of 1) |
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| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 10/03/2010<br>End 10/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No. MP24</b><br><b>Coordinates (Local Grid)</b> 232165 E<br>709900 N<br><b>Ground Level</b> 28.46 m OD |
| <b>Logged by</b> <br>10/03/2010                             | <b>Compiled by</b> <br>11/03/2010 | <b>Approved by</b> <br>12/04/2010  |

| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m)  | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|------------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                        |       |   |
|                 |      |        |           |      |     | Dark grey black sandy SILT with frequent roots and organic fragments. Sand is medium to coarse.<br><br>Light brown sandy subangular to subrounded fine to coarse GRAVEL of schist with occasional subrounded cobbles. | (0.10)<br>0.10         | 28.36 |  |
|                 |      |        |           |      |     | End of Trial Pit  | (1.10)<br><br><br>1.20 | 27.26 |   |

**Remarks** (See notes & keysheets)

- The walls of the pit were stable to a depth of 1.20m during excavation.
- Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- On completion the trial pit was backfilled with compacted arisings.
- Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- Groundwater was not apparent during excavation.

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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><b>Figure No.</b> FR39 (1 of 1) |
|---|---|--|

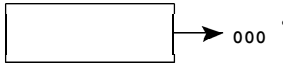



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|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 10/03/2010<br>End 10/03/2010 | <b>Plan</b><br><br><div style="border: 1px solid black; width: 50px; height: 20px; margin: 0 auto;"></div> <span style="margin-left: 10px;">→ 000 °</span> | <b>TRIAL PIT No. MP25</b><br><b>Coordinates (Local Grid)</b> 232167 E<br>709979 N<br><b>Ground Level</b> 28.40 m OD |
| <b>Logged by</b> <span style="background-color: black; color: black;">██████</span><br>10/03/2010   | <b>Compiled by</b> <span style="background-color: black; color: black;">██████</span><br>11/03/2010  | <b>Approved by</b> <span style="background-color: black; color: black;">██████</span><br>12/04/2010                 |


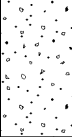

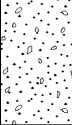
| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|--------|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |        |
|                 |      |        |           |      |     | Dark brown black sandy organic SILT with frequent roots.   | (0.10)<br>0.10        | 28.30 |        |
|                 |      |        |           |      |     | Brown sandy subangular to subrounded fine to coarse GRAVEL of schist with many subangular cobbles. Sand is medium to coarse. | (1.10)                |       |        |
|                 |      |        |           |      |     | End of Trial Pit   | 1.20                  | 27.20 |        |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was encountered at 0.55m during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><br><b>Figure No.</b> FR40 (1 of 1) |
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|---|--|--|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.60m<br><b>Date Excavated</b> Start 10/03/2010<br>End 10/03/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No.</b> <b>MP26</b><br><b>Coordinates (Local Grid)</b> 232174 E<br>709969 N<br><b>Ground Level</b> 28.42 m OD |
| <b>Logged by</b> <br>10/03/2010                             | <b>Compiled by</b> <br>11/03/2010 | <b>Approved by</b> <br>12/04/2010         |

| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m)  | Level          | Legend  |
|-----------------|------|--------|-----------|------|-----|--|------------------------|----------------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                        |                |   |
|                 |      |        |           |      |     | Dark grey black organic sandy SILT with frequent roots. Sand is fine to coarse.  | (0.10)<br>0.10         | 28.32          |  |
|                 |      |        |           |      |     | Brown sandy subangular to subrounded fine to medium GRAVEL of schist with occasional subrounded cobbles and rare boulders.   | (0.55)                 |                |  |
|                 |      |        |           |      |     | Dark brown organic sandy SILT with frequent roots. Sand is fine to coarse.   | 0.65<br>(0.10)<br>0.75 | 27.77<br>27.67 |  |
|                 |      |        |           |      |     | Brown medium to coarse SAND and subangular to subrounded fine to coarse GRAVEL of schist with occasional subrounded cobbles. | (0.45)                 |                |  |
|                 |      |        |           |      |     | End of Trial Pit   | 1.20                   | 27.22          |   |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable to a depth of 1.20m during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Mackintosh probe advanced from the base of the trial pit to refusal. Results presented separately.
- 5 Groundwater was not apparent during excavation.

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|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><b>Figure No.</b> FR41 (1 of 1) |
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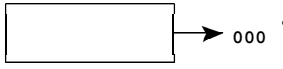



|   |  |   |
|---|--|---|
| <b>Method of Excavation</b> Hand dug<br><b>Surface Dimensions</b> 0.60m x 0.80m<br><b>Date Excavated</b> Start 02/01/2010<br>End 02/01/2010 | <b>Plan</b><br><br><div style="border: 1px solid black; width: 50px; height: 20px; margin: 0 auto;"></div> <span style="font-size: 24px; vertical-align: middle;">→</span> 000 | <b>TRIAL PIT No. TP1</b><br><b>Coordinates (National Grid)</b> 232080 E<br>709866 N<br><b>Ground Level</b> 13.72 m OD |
| <b>Logged by</b> <span style="background-color: black; color: black;">██████</span><br>02/01/1910   | <b>Compiled by</b> <span style="background-color: black; color: black;">██████</span><br>27/04/1910  | <b>Approved by</b> <span style="background-color: black; color: black;">██████</span>                                 |

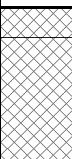
| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|--------|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |        |
|                 |      |        |           |      |     | TOPSOIL  | (0.10)                |       |        |
|                 |      |        | 0.20      | D    | 1   | MADE GROUND: Composed of grey brown gravelly micaceous fine to coarse sand. Gravel is predominantly subangular and subrounded fine, locally fine and medium, of mixed lithologies including brick and sandstone. | 0.10                  | 13.62 |        |
|                 |      |        | 0.60      | D    | 2   |  | (0.60)                |       |        |
|                 |      |        |           |      |     | End of Trial Pit   | 0.70                  | 13.02 |        |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings and reinstated.
- 4 Groundwater was not apparent during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><br><b>Figure No.</b> FR42 (1 of 1) |
|--|---|--|

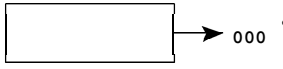



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| <b>Method of Excavation</b> JCB 3CX<br><b>Surface Dimensions</b> 0.60m x 1.20m<br><b>Date Excavated</b> Start 24/02/2010<br>End 24/02/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No. TP2</b><br><hr/> <b>Coordinates (Local Grid)</b> 232128 E<br>709859 N<br><b>Ground Level</b> 12.60 m OD |
| <b>Logged by</b> <br>24/02/2010                            | <b>Compiled by</b> <br>26/02/2010 | <b>Approved by</b> <br>12/04/2010       |




| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        | 0.20-0.40 | B    | 2   | Grass over MADE GROUND: Composed of brown gravelly organic medium and coarse sand with frequent roots.<br><br>MADE GROUND: Composed of light brown slightly gravelly medium and coarse sand with occasional roots. Gravel is subangular fine to coarse of schist.<br>At 0.50m: Concrete plinth.<br><br>End of Trial Pit | (0.10)                | 12.50 |  |
|                 |      |        | 0.20-0.40 | D    | 3   |   | (0.40)                |       |   |
|                 |      |        | 0.40-0.40 | ES   | 1   |   | 0.50                  | 12.10 |   |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 Trial pit terminated at 0.50m on encountering concrete plinth.
- 4 On completion the trial pit was backfilled with compacted arisings.
- 5 Groundwater was not apparent during excavation.


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|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><br><b>Figure No.</b> FR43 (1 of 1) |
|---|---|--|

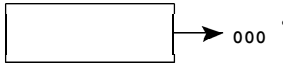



|  |   |   |
|--|---|---|
| <b>Method of Excavation</b> JCB 3CX<br><b>Surface Dimensions</b> 0.60m x 1.50m<br><b>Date Excavated</b> Start 24/02/2010<br>End 24/02/2010   | <b>Plan</b><br> | <b>TRIAL PIT No.</b> TP2A<br><hr/> <b>Coordinates (Local Grid)</b> 232136 E<br>709862 N<br><b>Ground Level</b> 13.09 m OD |
| <b>Logged by</b>  24/02/2010<br><b>Compiled by</b>  26/02/2010<br><b>Approved by</b>  12/04/2010 |   |   |

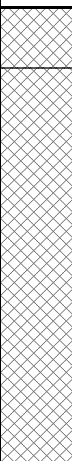
| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |   |
|                 |      |        | 0.00-0.20 | ES   | 1   | Grass over MADE GROUND: Composed of dark brown organic sandy subangular fine to coarse gravel of schist with frequent roots.  | (0.20)                | 12.89 |  |
|                 |      |        | 0.00-0.20 | B    | 2   |   |                       |       |   |
|                 |      |        | 0.00-0.20 | D    | 3   |   |                       |       |   |
|                 |      |        |           |      |     | MADE GROUND: Composed of brown and grey sandy angular to subangular fine to coarse gravel of schist, concrete and brick with many angular cobbles. Sand is fine to coarse.        | (0.40)                | 12.49 |  |
|                 |      |        |           |      |     | MADE GROUND: Composed of grey angular medium to coarse gravel.  | 0.60 (0.20)           |       |   |
|                 |      |        |           |      |     | MADE GROUND: Composed of brown sandy angular to subangular fine to coarse gravel of schist and concrete with many subangular cobbles and occasional boulders. Faint diesel odour. | 0.80                  |       |   |
|                 |      |        | 1.10-1.13 | B    | 4   | End of Trial Pit  | (0.60)                | 11.69 |  |
|                 |      |        | 1.10-1.13 | ES   | 5   |   |                       |       |   |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was not apparent during excavation.


|   |   |  |
|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR44 (1 of 1) |
|---|---|--|

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| <b>Method of Excavation</b> JCB 3CX<br><b>Surface Dimensions</b> 0.60m x 1.50m<br><b>Date Excavated</b> Start 24/02/2010<br>End 24/02/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No. TP3</b><br><hr/> <b>Coordinates (Local Grid)</b> 232159 E<br>709837 N<br><b>Ground Level</b> 12.01 m OD |
| <b>Logged by</b> <br>24/02/2010                            | <b>Compiled by</b> <br>26/02/2010 | <b>Approved by</b> <br>12/04/2010       |

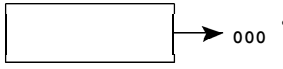



| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        |           |      |     | Grass over MADE GROUND: Composed of dark brown organic sandy angular fine to medium gravel with frequent roots.  | (0.20)<br>0.20        | 11.81 |  |
|                 |      |        |           |      |     | MADE GROUND: Composed of grey and dark brown sandy angular fine to coarse gravel of schist, brick, concrete and wood with many subangular cobbles. Sand is fine to coarse. | (1.30)                |       |   |
|                 |      |        | 1.50      | ES   | 1   | End of Trial Pit   | 1.50                  | 10.51 |   |



**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was not apparent during excavation.

|   |   |  |
|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR45 (1 of 1) |
|---|---|--|



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| <b>Method of Excavation</b> JCB 3CX<br><b>Surface Dimensions</b> 0.60m x 1.50m<br><b>Date Excavated</b> Start 24/02/2010<br>End 24/02/2010 | <b>Plan</b><br>                  | <b>TRIAL PIT No. TP4</b><br><hr/> <b>Coordinates (Local Grid)</b> 232151 E<br>709848 N<br><b>Ground Level</b> 12.38 m OD |
| <b>Logged by</b> <br>24/02/2010                            | <b>Compiled by</b> <br>26/02/2010 | <b>Approved by</b> <br>12/04/2010       |

| In-situ Testing |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend  |
|-----------------|------|--------|-----------|------|-----|--|-----------------------|-------|---|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |  |                       |       |   |
|                 |      |        | 0.30      | ES   | 1   | Grass over MADE GROUND: Composed of dark brown organic sandy angular to subangular fine to coarse gravel with frequent roots.  | 0.30                  | 12.08 |  |
|                 |      |        | 0.30      | B    | 2   |  |                       |       |   |
|                 |      |        | 0.30      | D    | 3   |  |                       |       |   |
|                 |      |        |           |      |     | MADE GROUND: Composed of light brown and dark brown sandy angular to subangular fine to coarse gravel of schist, concrete and unknown cemented construction material with many angular and subangular cobbles and frequent boulders up to 1.00m.<br>At 0.70m: Large boulder (pit extended eastwards).      | (1.40)                |       |   |
|                 |      |        | 1.70      | B    | 4   | MADE GROUND: Composed of light brown gravelly fine to coarse sand with many angular to subangular cobbles and frequent boulders up to 1.20m. Gravel is angular to subrounded fine to coarse schist, concrete, metal, plastic and brick.<br>At 2.00m: Concrete plinth encountered (Pit extended westwards). | 1.70                  | 10.68 |  |
|                 |      |        | 1.70      | ES   | 5   |  |                       |       |   |
|                 |      |        | 1.70      | B    | 6   |  |                       |       |   |
|                 |      |        |           |      |     | End of Trial Pit   | 2.80                  | 9.58  |   |

**Remarks**  
(See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was not apparent during excavation.

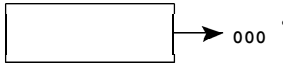
Scale 1:25



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Jacobs Engineering UK Ltd

**Contract No.** CON103001


**Figure No.** FR46 (1 of 1)

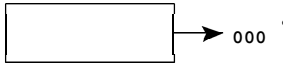
|  |   |  |
|--|---|--|
| <b>Method of Excavation</b> JCB 3CX<br><b>Surface Dimensions</b> 0.60m x 1.50m<br><b>Date Excavated</b> Start 24/02/2010<br>End 24/02/2010 | <b>Plan</b><br> | <b>TRIAL PIT No. TP5</b><br><hr/> <b>Coordinates (Local Grid)</b> 232121 E<br>709858 N<br><b>Ground Level</b> 11.97 m OD |
| <b>Logged by</b> [Redacted] 24/02/2010<br><b>Compiled by</b> [Redacted] 26/02/2010<br><b>Approved by</b> [Redacted] 12/04/2010             |   |  |

| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|--------|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |        |
|                 |      |        |           |      |     | MADE GROUND: Tarmacadam.  | (0.10)                |       |        |
|                 |      |        |           |      |     | MADE GROUND: Composed of grey angular medium to coarse gravel.  | 0.10<br>(0.20)        | 11.87 |        |
|                 |      |        | 0.30      | ES   | 1   | MADE GROUND: Composed of light brown sandy angular to subangular fine to coarse gravel of schist, brick, concrete, wood and metal with many subangular cobbles and occasional boulders.<br>At 0.70m: 2.00m by 0.20m by 0.20 wood. | 0.30                  | 11.67 |        |
|                 |      |        | 0.30      | B    | 2   |   |                       |       |        |
|                 |      |        | 0.30      | D    | 3   |   |                       |       |        |
|                 |      |        |           |      |     | End of Trial Pit  | (0.80)                |       |        |
|                 |      |        |           |      |     |   | 1.10                  | 10.87 |        |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 Trial pit terminated at 1.10m due to possible bedrock.
- 4 On completion the trial pit was backfilled with compacted arisings.
- 5 Groundwater was not apparent during excavation.


|   |   |  |
|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><hr/> <b>Figure No.</b> FR47 (1 of 1) |
|---|---|--|

|  |   |  |
|--|---|--|
| <b>Method of Excavation</b> JCB 3CX<br><b>Surface Dimensions</b> 0.60m x 1.50m<br><b>Date Excavated</b> Start 24/02/2010<br>End 24/02/2010 | <b>Plan</b><br> | <b>TRIAL PIT No. TP6</b><br><b>Coordinates (Local Grid)</b> 232130 E<br>709839 N<br><b>Ground Level</b> 11.80 m OD |
| <b>Logged by</b> [Redacted] <b>Compiled by</b> [Redacted] <b>Approved by</b> [Redacted]<br>24/02/2010    26/02/2010    12/04/2010          |   |  |

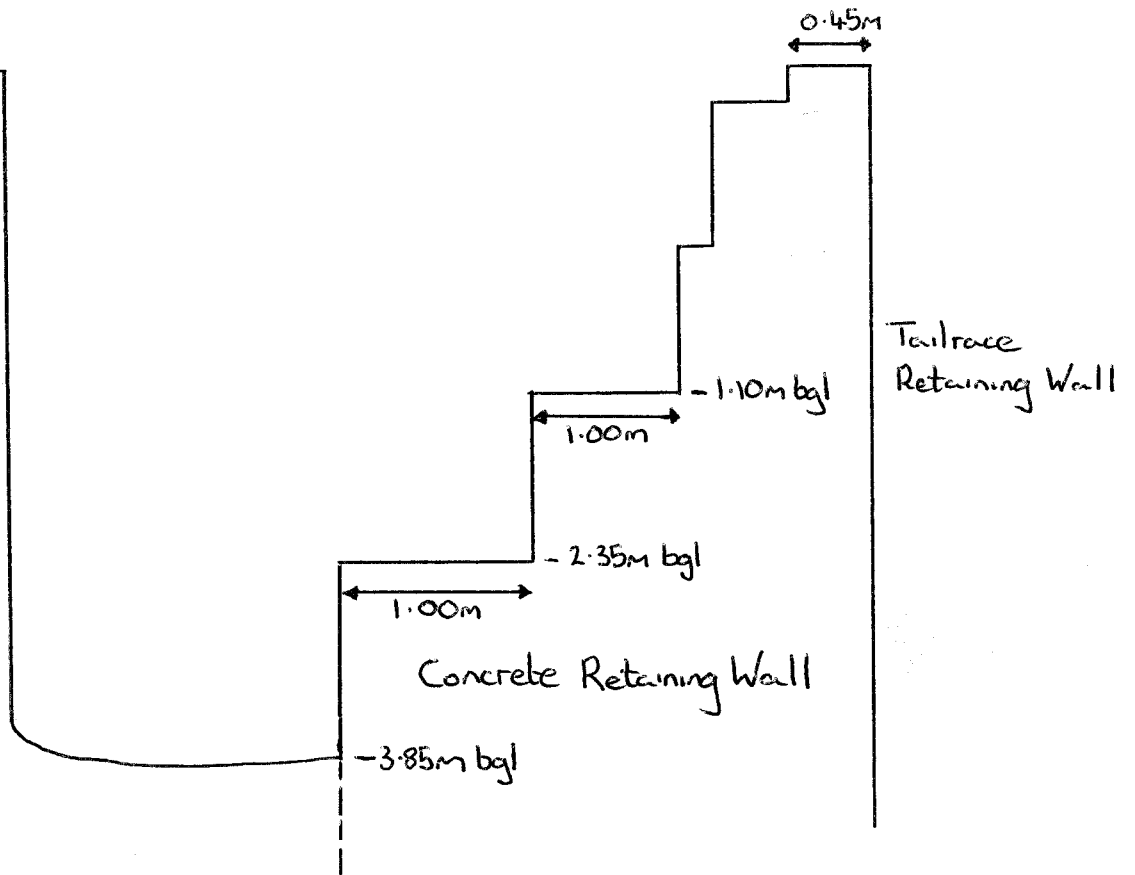
| In-situ Testing  |      |        | Samples   |      |     | Description of Strata  | Depth (Thickness) (m) | Level | Legend |
|------------------|------|--------|-----------|------|-----|--|-----------------------|-------|--------|
| Depth (m)        | Type | Result | Depth (m) | Type | No. |  |                       |       |        |
|                  |      |        | 0.30-0.40 | ES   | 1   | Grass over MADE GROUND: Composed of brown organic sandy angular to subrounded fine to coarse gravel.   | 0.30                  | 11.50 |        |
|                  |      |        | 0.30-0.40 | B    | 2   |  |                       |       |        |
|                  |      |        | 0.30-0.40 | D    | 3   |  |                       |       |        |
|                  |      |        |           |      |     | MADE GROUND: Composed of grey slightly silty sandy angular to subangular fine to coarse gravel of schist, concrete, brick and metal with many angular to subangular cobbles and occasional boulders up to 1.00m. | (1.20)                |       |        |
|                  |      |        | 1.40      | B    | 4   |  |                       |       |        |
|                  |      |        |           |      |     | MADE GROUND: Composed of grey angular cobbles and boulders of schist.  | 1.50                  | 10.30 |        |
|                  |      |        | 2.40-3.40 | B    | 5   |  |                       |       |        |
|                  |      |        |           |      |     |  | 3.70                  | 8.10  |        |
| End of Trial Pit |      |        |           |      |     |  |                       |       |        |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was not apparent during excavation.

|   |   |  |
|---|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><b>Figure No.</b> FR48 (1 of 1) |
|---|---|--|

Ground Level



NOT TO SCALE



Project  
SLOY PUMPING STATION  
Scottish and Southern Energy  
Jacobs Engineering UK Ltd

Contract No. CON103001

Figure No.

|  |  |  |
|--|--|--|
| <b>Method of Excavation</b> JCB 3CX<br><b>Surface Dimensions</b> 0.60m x 1.40m<br><b>Date Excavated</b> Start 24/02/2010<br>End 24/02/2010 | <b>Plan</b><br><br><div style="border: 1px solid black; width: 50px; height: 20px; margin: 0 auto;"></div> <span style="font-size: 24px; vertical-align: middle;">→</span> 000 | <b>TRIAL PIT No. TP7</b><br><hr/> <b>Coordinates (Local Grid)</b> 232159 E<br>709826 N<br><b>Ground Level</b> 11.60 m OD |
| <b>Logged by</b> <span style="background-color: black; color: black;">██████</span><br>24/02/2010  | <b>Compiled by</b> <span style="background-color: black; color: black;">██████</span><br>26/02/2010  | <b>Approved by</b> <span style="background-color: black; color: black;">██████</span><br>12/04/2010                      |

| In-situ Testing |      |        | Samples   |      |     | Description of Strata   | Depth (Thickness) (m) | Level | Legend |
|-----------------|------|--------|-----------|------|-----|---|-----------------------|-------|--------|
| Depth (m)       | Type | Result | Depth (m) | Type | No. |   |                       |       |        |
|                 |      |        | 0.00-0.10 | ES   | 1   | Grass over MADE GROUND: Composed of brown organic sandy angular fine to coarse gravel with many cobbles and frequent roots. Sand is medium to coarse.<br><br>MADE GROUND: Composed of grey and brown silty sandy angular to subangular fine to coarse gravel of schist, wood, concrete, metal sheeting, cloth, plastic and coal fragments with many subangular cobbles and occasional boulders up to 1.20m. | (0.10)                | 11.50 |        |
|                 |      |        | 0.20-0.50 | B    | 2   |   |                       |       |        |
|                 |      |        | 0.20-0.50 | D    | 3   |   |                       |       |        |
|                 |      |        | 0.95      | ES   | 4   | At 0.95m: Moderate diesel odour.  |                       |       |        |
|                 |      |        | 1.50      | B    | 5   | At 1.25m: Corrugated metal roofing and wire rope encountered.   |                       |       |        |
|                 |      |        | 2.50      | B    | 6   | At 2.00m: Reinforced concrete beam encountered with dimensions of 2.00m by 0.20m by 0.20m.  | (3.30)                |       |        |
|                 |      |        | 3.40      | B    | 7   | End of Trial Pit  | 3.40                  | 8.20  |        |

**Remarks**  
(See notes & key sheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was encountered at 0.50m during excavation as a rapid water ingress.

|  |   |  |
|--|---|--|
|  | <b>Project</b><br>SLOY PUMPING STATION<br>Scottish and Southern Energy<br>Jacobs Engineering UK Ltd | <b>Contract No.</b> CON103001<br><br><b>Figure No.</b> FR49 (1 of 1) |
|--|---|--|

**APPENDIX B Field Test Results**

Variable Head Permeability Test Results

Packer Permeability Test Results

Mackintosh Probe Results

Record of Water Levels in Standpipes

Figures FT1 to FT11

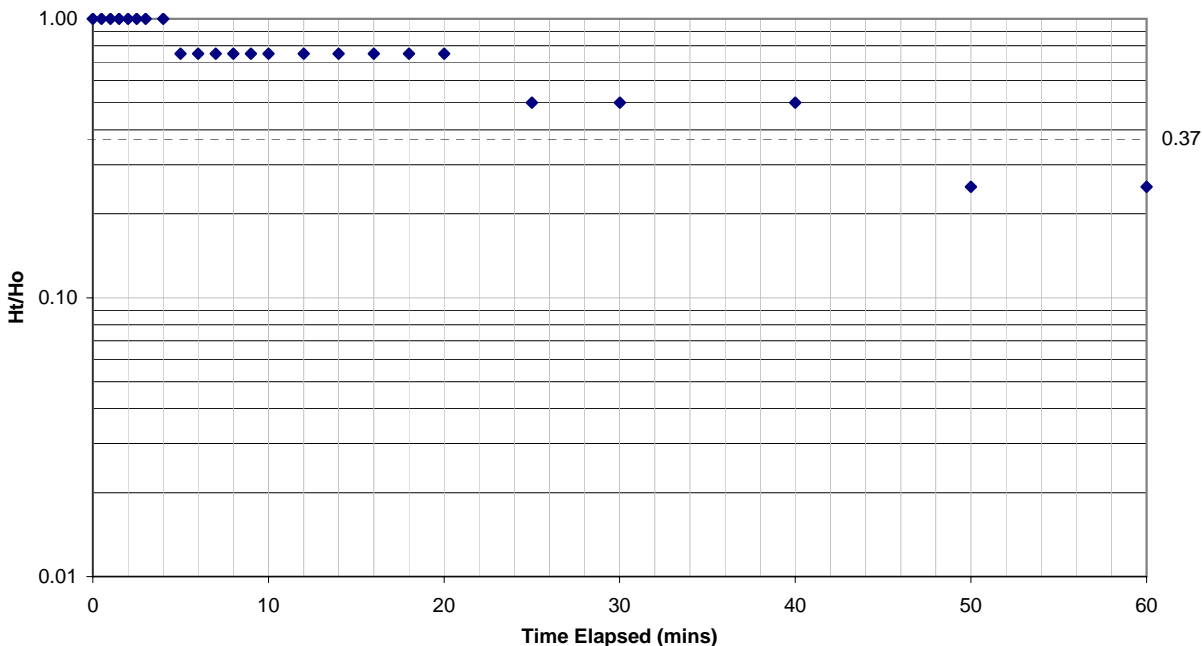
Figures FT12 to FT29

Figure MP1

Figures GM1 to GM5

VARIABLE HEAD PERMEABILITY TEST RECORD

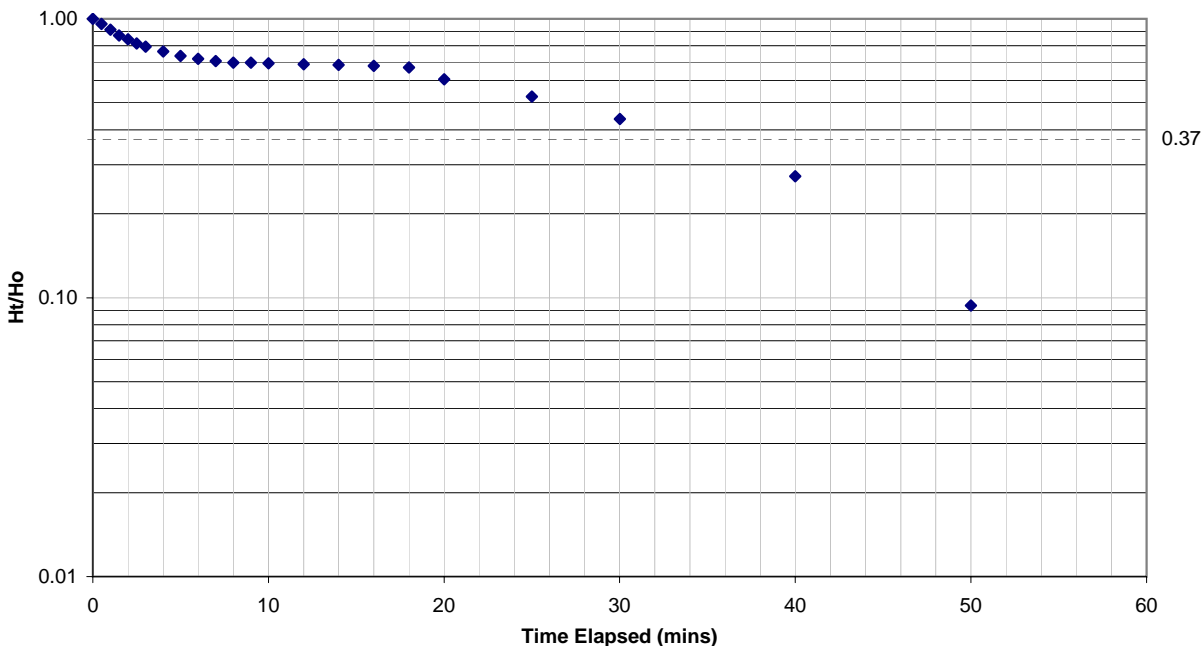
|      |            |          |   |           |             |              |      |
|------|------------|----------|---|-----------|-------------|--------------|------|
| Date | 27/01/2010 | Test No. | 1 | Depth (m) | 1.50 - 2.00 | Borehole No. | BH01 |
|------|------------|----------|---|-----------|-------------|--------------|------|



| Time Elapsed ([d:]hh:mm:ss) | Depth of Water Below Datum (m) | Ht   | Ht/Ho    | Test Details (All water depths were measured below datum)                |
|-----------------------------|--------------------------------|------|----------|--|
| 00:00:00                    | 0.02                           | 0.04 | 1.00     | Test Type Falling Head in Borehole                                       |
| 00:00:30                    | 0.02                           | 0.04 | 1.00     | Depth of Test Section Casing Depth: 1.50 mbgl                            |
| 00:01:00                    | 0.02                           | 0.04 | 1.00     | Borehole Depth: 2.00 mbgl  |
| 00:01:30                    | 0.02                           | 0.04 | 1.00     | Datum Level 0.00 magl  |
| 00:02:00                    | 0.02                           | 0.04 | 1.00     | Depth to Standing Water Level 0.06 mbdl                                  |
| 00:02:30                    | 0.02                           | 0.04 | 1.00     | Depth to Water Start of Test 0.02 mbdl                                   |
| 00:03:00                    | 0.02                           | 0.04 | 1.00     | End of Test 0.05 mbdl  |
| 00:04:00                    | 0.02                           | 0.04 | 1.00     | Diameter of Casing 200 mm  |
| 00:05:00                    | 0.03                           | 0.03 | 0.75     | Response Zone Length (L) = 0.50 m  |
| 00:06:00                    | 0.03                           | 0.03 | 0.75     | Borehole Diameter in Test Section (D) = 200 mm                           |
| 00:07:00                    | 0.03                           | 0.03 | 0.75     | Cross Sectional Area of Borehole (A) = 0.03142 m <sup>2</sup>            |
| 00:08:00                    | 0.03                           | 0.03 | 0.75     | Intake Factor (BS5930, page 50, Figure 6d) (F) = 1.91                    |
| 00:09:00                    | 0.03                           | 0.03 | 0.75     | Basic Time Lag (in secs) (T) = 420 Sec                                   |
| 00:10:00                    | 0.03                           | 0.03 | 0.75     |  |
| 00:12:00                    | 0.03                           | 0.03 | 0.75     | <b>Coefficient of Permeability using</b>                                 |
| 00:14:00                    | 0.03                           | 0.03 | 0.75     | $k = \frac{A}{FT} = 3.9 \times 10^{-5} \text{ m/s}$                      |
| 00:16:00                    | 0.03                           | 0.03 | 0.75     |  |
| 00:18:00                    | 0.03                           | 0.03 | 0.75     |  |
| 00:20:00                    | 0.03                           | 0.03 | 0.75     | Remarks  |
| 00:25:00                    | 0.04                           | 0.02 | 0.50     |  |
| 00:30:00                    | 0.04                           | 0.02 | 0.50     |  |
| 00:40:00                    | 0.04                           | 0.02 | 0.50     |  |
| 00:50:00                    | 0.05                           | 0.01 | 0.25     |  |
| 01:00:00                    | 0.05                           | 0.01 | 0.25     |  |
|                             |                                |      |          | Geology Sandy cobbley GRAVEL with occasional boulders                    |
|                             |                                |      |          | ma/bgl = metres above/below ground level mbdl = metres below datum level |
| Input by                    |                                | Date | 12/02/10 | Checked by   |
|                             |                                | Date |          | Date   |
|                             |                                |      |          | 07/04/10   |

VARIABLE HEAD PERMEABILITY TEST RECORD

|      |            |          |   |           |               |              |      |
|------|------------|----------|---|-----------|---------------|--------------|------|
| Date | 02/02/2010 | Test No. | 2 | Depth (m) | 10.15 - 13.35 | Borehole No. | BH01 |
|------|------------|----------|---|-----------|---------------|--------------|------|



| Time Elapsed ([d:]hh:mm:ss) | Depth of Water Below Datum (m) | Ht   | Ht/Ho    | Test Details (All water depths were measured below datum)                |
|-----------------------------|--------------------------------|------|----------|--|
| 00:00:00                    | 0.62                           | 2.24 | 1.00     | Test Type Falling Head in Borehole                                       |
| 00:00:30                    | 0.71                           | 2.15 | 0.96     | Depth of Test Section Casing Depth: 10.15 mbgl                           |
| 00:01:00                    | 0.81                           | 2.05 | 0.92     | Borehole Depth: 13.35 mbgl   |
| 00:01:30                    | 0.91                           | 1.95 | 0.87     | Datum Level 0.00 magl  |
| 00:02:00                    | 0.97                           | 1.89 | 0.84     | Depth to Standing Water Level 2.86 mbdl                                  |
| 00:02:30                    | 1.03                           | 1.83 | 0.82     | Depth to Water Start of Test 0.62 mbdl                                   |
| 00:03:00                    | 1.08                           | 1.78 | 0.79     | End of Test 2.85 mbdl  |
| 00:04:00                    | 1.15                           | 1.71 | 0.76     | Diameter of Casing 148 mm  |
| 00:05:00                    | 1.21                           | 1.65 | 0.74     | Response Zone Length (L) = 3.20 m  |
| 00:06:00                    | 1.25                           | 1.61 | 0.72     | Borehole Diameter in Test Section (D) = 146 mm                           |
| 00:07:00                    | 1.28                           | 1.58 | 0.71     | Cross Sectional Area of Borehole (A) = 0.01720 m <sup>2</sup>            |
| 00:08:00                    | 1.30                           | 1.56 | 0.70     | Intake Factor (BS5930, page 50, Figure 6d) (F) = 5.32                    |
| 00:09:00                    | 1.30                           | 1.56 | 0.70     | Basic Time Lag (in secs) (T) = 420 Sec                                   |
| 00:10:00                    | 1.31                           | 1.55 | 0.69     |  |
| 00:12:00                    | 1.32                           | 1.54 | 0.69     | <b>Coefficient of Permeability using</b>                                 |
| 00:14:00                    | 1.33                           | 1.53 | 0.68     | $k = \frac{A}{FT} = 7.7 \times 10^{-6} \text{ m/s}$                      |
| 00:16:00                    | 1.34                           | 1.52 | 0.68     |  |
| 00:18:00                    | 1.36                           | 1.50 | 0.67     |  |
| 00:20:00                    | 1.50                           | 1.36 | 0.61     | <b>Remarks</b>   |
| 00:25:00                    | 1.68                           | 1.18 | 0.53     | Hole cleaned by flushing with clean water                                |
| 00:30:00                    | 1.88                           | 0.98 | 0.44     |  |
| 00:40:00                    | 2.25                           | 0.61 | 0.27     |  |
| 00:50:00                    | 2.65                           | 0.21 | 0.09     |  |
| 01:00:00                    | 2.85                           | 0.01 | <0.01    |  |
|                             |                                |      |          | <b>Geology</b> Micaceous SCHIST  |
|                             |                                |      |          | ma/bgl = metres above/below ground level mbdl = metres below datum level |
| Input by                    |                                | Date | 12/02/10 | Checked by   |
|                             |                                | Date |          | Date   |
|                             |                                |      |          | 07/04/10   |



VARIABLE HEAD PERMEABILITY TEST RECORD

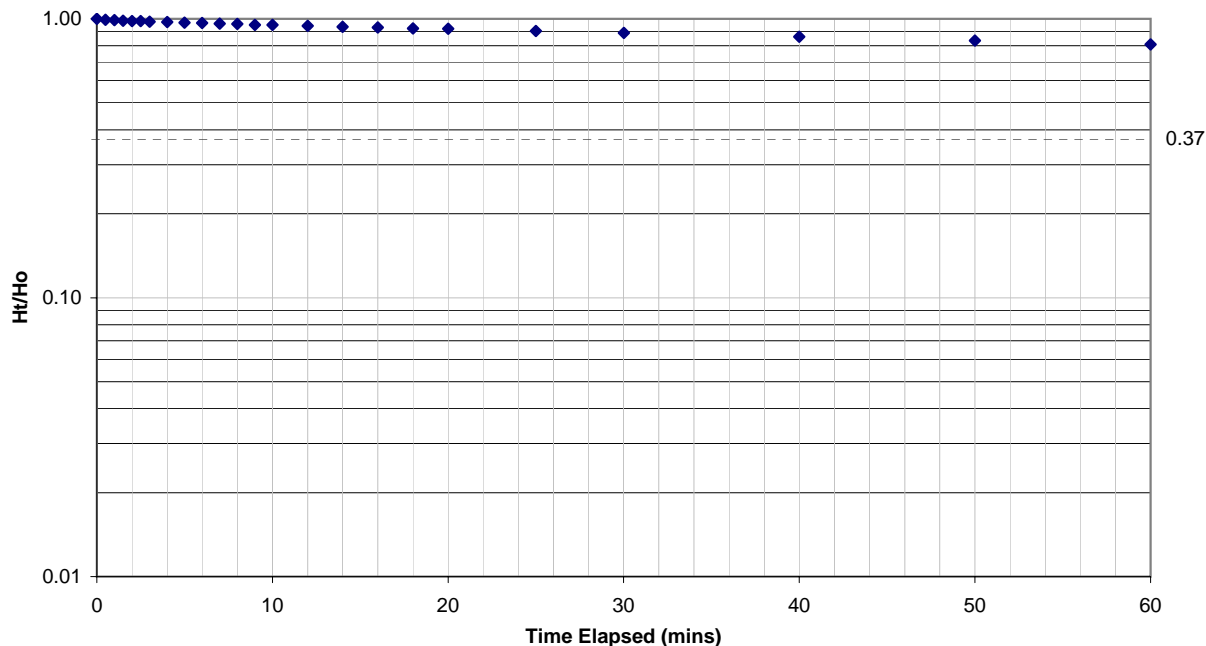
| Date   | 26/01/2010                     | Test No. | 1     | Depth (m)  | 3.00 - 3.40 | Borehole No.  | BH02 |
|--|--------------------------------|----------|-------|--|-------------|---------------|------|
|  |                                |          |       |  |             |               |      |
| Time Elapsed ([d:]hh:mm:ss)  | Depth of Water Below Datum (m) | Ht       | Ht/Ho | Test Details (All water depths were measured below datum)                      |             |               |      |
| 00:00:00   | 0.00                           | 2.23     | 1.00  | Test Type Falling Head in Borehole   |             |               |      |
| 00:00:30   | 0.02                           | 2.21     | 0.99  | Depth of Test Section Casing Depth: 3.00 mbgl                                  |             |               |      |
| 00:01:00   | 0.03                           | 2.20     | 0.99  | Borehole Depth: 3.40 mbgl  |             |               |      |
| 00:01:30   | 0.04                           | 2.19     | 0.98  | Datum Level 0.00 magl  |             |               |      |
| 00:02:00   | 0.04                           | 2.19     | 0.98  | Depth to Standing Water Level 2.23 mbdl  |             |               |      |
| 00:02:30   | 0.06                           | 2.17     | 0.97  | Depth to Water Start of Test 0.00 mbdl   |             |               |      |
| 00:03:00   | 0.07                           | 2.16     | 0.97  | End of Test 0.61 mbdl  |             |               |      |
| 00:04:00   | 0.09                           | 2.14     | 0.96  | Diameter of Casing 200 mm  |             |               |      |
| 00:05:00   | 0.10                           | 2.13     | 0.96  | Response Zone Length (L) = 0.40 m  |             |               |      |
| 00:06:00   | 0.11                           | 2.12     | 0.95  | Borehole Diameter in Test Section (D) = 200 mm                                 |             |               |      |
| 00:07:00   | 0.13                           | 2.10     | 0.94  | Cross Sectional Area of Borehole (A) = 0.03142 m <sup>2</sup>                  |             |               |      |
| 00:08:00   | 0.14                           | 2.09     | 0.94  | Intake Factor (BS5930, page 50, Figure 6d) (F) = 1.74                          |             |               |      |
| 00:09:00   | 0.15                           | 2.08     | 0.93  | General Approach (H1) = 2.23 (t1) = 0 Sec                                      |             |               |      |
| 00:10:00   | 0.17                           | 2.06     | 0.92  | (H2) = 1.62 (t2) = 3600 Sec  |             |               |      |
| 00:12:00   | 0.20                           | 2.03     | 0.91  | <b>Coefficient of Permeability using</b>                                       |             |               |      |
| 00:14:00   | 0.22                           | 2.01     | 0.90  | $k = \frac{A}{F(t2-t1)} \log_e \frac{H1}{H2} = 1.6 \times 10^{-6} \text{ m/s}$ |             |               |      |
| 00:16:00   | 0.24                           | 1.99     | 0.89  | Remarks  |             |               |      |
| 00:18:00   | 0.25                           | 1.98     | 0.89  |  |             |               |      |
| 00:20:00   | 0.28                           | 1.95     | 0.87  |  |             |               |      |
| 00:25:00   | 0.34                           | 1.89     | 0.85  |  |             |               |      |
| 00:30:00   | 0.39                           | 1.84     | 0.83  |  |             |               |      |
| 00:40:00   | 0.46                           | 1.77     | 0.79  |  |             |               |      |
| 00:50:00   | 0.52                           | 1.71     | 0.77  |  |             |               |      |
| 01:00:00   | 0.61                           | 1.62     | 0.73  |  |             |               |      |
|  |                                |          |       | <b>Geology</b> Brown sandy cobbley GRAVEL with frequent boulders.              |             |               |      |
| ma/bgl = metres above/below ground level mbdl = metres below datum level |                                |          |       |  |             |               |      |
| Input by   |                                | Date     |       | 18/03/10   |             | Checked by    |      |
|  |                                |          |       |  |             | Date 07/04/10 |      |

VARIABLE HEAD PERMEABILITY TEST RECORD

| Date   | 05/02/2010                     | Test No. | 2     | Depth (m)  | 14.00 - 16.50 | Borehole No. | BH02 |
|--|--------------------------------|----------|-------|--|---------------|--------------|------|
|  |                                |          |       |  |               |              |      |
| Time Elapsed ([d:]hh:mm:ss)  | Depth of Water Below Datum (m) | Ht       | Ht/Ho | Test Details (All water depths were measured below datum)                            |               |              |      |
| 00:00:00   | 0.50                           | 1.82     | 1.00  | Test Type Falling Head in Borehole   |               |              |      |
| 00:00:30   | 1.42                           | 0.90     | 0.49  | Depth of Test Section Casing Depth: 14.00 mbgl                                       |               |              |      |
| 00:01:00   | 1.70                           | 0.62     | 0.34  | Borehole Depth: 16.50 mbgl   |               |              |      |
| 00:01:30   | 1.82                           | 0.50     | 0.27  | Datum Level 0.00 magl  |               |              |      |
| 00:02:00   | 1.86                           | 0.46     | 0.25  | Depth to Standing Water Level 2.32 mbdl  |               |              |      |
| 00:02:30   | 1.88                           | 0.44     | 0.24  | Depth to Water Start of Test 0.50 mbdl   |               |              |      |
| 00:03:00   | 1.93                           | 0.39     | 0.21  | End of Test 2.31 mbdl  |               |              |      |
| 00:04:00   | 1.97                           | 0.35     | 0.19  | Diameter of Casing 148 mm  |               |              |      |
| 00:05:00   | 2.00                           | 0.32     | 0.18  | Response Zone Length (L) = 2.50 m  |               |              |      |
| 00:06:00   | 2.05                           | 0.27     | 0.15  | Borehole Diameter in Test Section (D) = 146 mm                                       |               |              |      |
| 00:07:00   | 2.05                           | 0.27     | 0.15  | Cross Sectional Area of Borehole (A) = 0.01720 m <sup>2</sup>                        |               |              |      |
| 00:08:00   | 2.07                           | 0.25     | 0.14  | Intake Factor (BS5930, page 50, Figure 6d) (F) = 4.44                                |               |              |      |
| 00:09:00   | 2.08                           | 0.24     | 0.13  | General Approach (H1) = 1.82 (t1) = 0 Sec  |               |              |      |
| 00:10:00   | 2.11                           | 0.21     | 0.12  | (H2) = 0.01 (t2) = 3600 Sec  |               |              |      |
| 00:12:00   | 2.13                           | 0.19     | 0.10  | <b>Coefficient of Permeability using</b>   |               |              |      |
| 00:14:00   | 2.14                           | 0.18     | 0.10  | $k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2} = 5.6 \times 10^{-6} \text{ m/s}$ |               |              |      |
| 00:16:00   | 2.16                           | 0.16     | 0.09  | <b>Remarks</b>   |               |              |      |
| 00:18:00   | 2.17                           | 0.15     | 0.08  | Hole cleaned by flushing with clean water  |               |              |      |
| 00:20:00   | 2.19                           | 0.13     | 0.07  |  |               |              |      |
| 00:25:00   | 2.20                           | 0.12     | 0.07  |  |               |              |      |
| 00:30:00   | 2.23                           | 0.09     | 0.05  |  |               |              |      |
| 00:40:00   | 2.26                           | 0.06     | 0.03  |  |               |              |      |
| 00:50:00   | 2.28                           | 0.04     | 0.02  |  |               |              |      |
| 01:00:00   | 2.31                           | 0.01     | <0.01 |  |               |              |      |
|  |                                |          |       | <b>Geology</b> Quartz mica SCHIST  |               |              |      |
| ma/bgl = metres above/below ground level mbdl = metres below datum level |                                |          |       |  |               |              |      |
| Input by   |                                | Date     |       | 12/02/10   |               | Checked by   |      |
|  |                                | Date     |       | 07/04/10   |               |              |      |

VARIABLE HEAD PERMEABILITY TEST RECORD

|      |            |          |   |           |             |              |      |
|------|------------|----------|---|-----------|-------------|--------------|------|
| Date | 25/01/2010 | Test No. | 1 | Depth (m) | 5.60 - 6.60 | Borehole No. | BH03 |
|------|------------|----------|---|-----------|-------------|--------------|------|



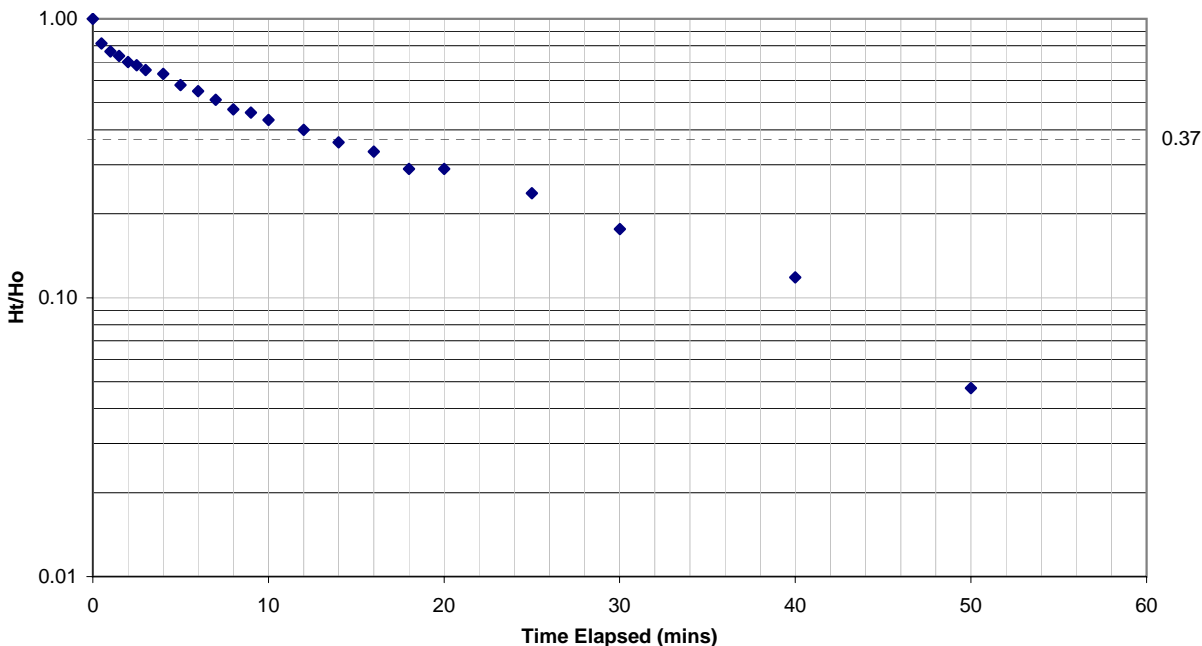
| Time Elapsed ([d:]hh:mm:ss) | Depth of Water Below Datum (m) | Ht   | Ht/Ho    | Test Details (All water depths were measured below datum)                            |
|-----------------------------|--------------------------------|------|----------|--|
| 00:00:00                    | 0.00                           | 2.63 | 1.00     | Test Type Falling Head in Borehole   |
| 00:00:30                    | 0.02                           | 2.61 | 0.99     | Depth of Test Section Casing Depth: 5.60 mbgl  |
| 00:01:00                    | 0.03                           | 2.60 | 0.99     | Borehole Depth: 6.60 mbgl  |
| 00:01:30                    | 0.04                           | 2.59 | 0.98     | Datum Level 0.00 magl  |
| 00:02:00                    | 0.05                           | 2.58 | 0.98     | Depth to Standing Water Level 2.63 mbdl  |
| 00:02:30                    | 0.05                           | 2.58 | 0.98     | Depth to Water Start of Test 0.00 mbdl   |
| 00:03:00                    | 0.06                           | 2.57 | 0.98     | End of Test 0.50 mbdl  |
| 00:04:00                    | 0.07                           | 2.56 | 0.97     | Diameter of Casing 200 mm  |
| 00:05:00                    | 0.08                           | 2.55 | 0.97     | Response Zone Length (L) = 1.00 m  |
| 00:06:00                    | 0.09                           | 2.54 | 0.97     | Borehole Diameter in Test Section (D) = 200 mm                                       |
| 00:07:00                    | 0.10                           | 2.53 | 0.96     | Cross Sectional Area of Borehole (A) = 0.03142 m <sup>2</sup>                        |
| 00:08:00                    | 0.11                           | 2.52 | 0.96     | Intake Factor (BS5930, page 50, Figure 6d) (F) = 2.72                                |
| 00:09:00                    | 0.13                           | 2.50 | 0.95     | General Approach (H1) = 2.63 (t1) = 0 Sec  |
| 00:10:00                    | 0.13                           | 2.50 | 0.95     | (H2) = 2.13 (t2) = 3600 Sec  |
| 00:12:00                    | 0.15                           | 2.48 | 0.94     | <b>Coefficient of Permeability using</b>   |
| 00:14:00                    | 0.17                           | 2.46 | 0.94     | $k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2} = 6.8 \times 10^{-7} \text{ m/s}$ |
| 00:16:00                    | 0.18                           | 2.45 | 0.93     | Remarks  |
| 00:18:00                    | 0.20                           | 2.43 | 0.92     |  |
| 00:20:00                    | 0.21                           | 2.42 | 0.92     |  |
| 00:25:00                    | 0.25                           | 2.38 | 0.90     |  |
| 00:30:00                    | 0.29                           | 2.34 | 0.89     |  |
| 00:40:00                    | 0.36                           | 2.27 | 0.86     |  |
| 00:50:00                    | 0.43                           | 2.20 | 0.84     |  |
| 01:00:00                    | 0.50                           | 2.13 | 0.81     |  |
|                             |                                |      |          | <b>Geology</b> Brown sandy gravelly subangular COBBLES and BOULDERS.                 |
|                             |                                |      |          | ma/bgl = metres above/below ground level mbdl = metres below datum level             |
| Input by                    |                                | Date | 17/03/10 | Checked by   |
|                             |                                | Date |          | Date   |
|                             |                                |      |          | 07/04/10   |

VARIABLE HEAD PERMEABILITY TEST RECORD

| Date   | 10/02/2010                     | Test No.           | 2     | Depth (m)  | 6.60 - 25.50 | Borehole No.    | BH03                   |
|--|--------------------------------|--------------------|-------|--|--------------|-----------------|------------------------|
|  |                                |                    |       |  |              |                 |                        |
| Time Elapsed ([d:]hh:mm:ss)  | Depth of Water Below Datum (m) | Ht                 | Ht/Ho | Test Details (All water depths were measured below datum)                            |              |                 |                        |
| 00:00:00   | 0.23                           | 2.40               | 1.00  | Test Type Falling Head in Borehole   |              |                 |                        |
| 00:00:30   | 0.49                           | 2.14               | 0.89  | Depth of Test Section  |              | Casing Depth:   | 6.60 mbgl              |
| 00:01:00   | 0.59                           | 2.04               | 0.85  |  |              | Borehole Depth: | 25.50 mbgl             |
| 00:01:30   | 0.66                           | 1.97               | 0.82  | Datum Level 0.00 magl  |              |                 |                        |
| 00:02:00   | 0.70                           | 1.93               | 0.80  | Depth to Standing Water Level 2.63 mbdl  |              |                 |                        |
| 00:02:30   | 0.80                           | 1.83               | 0.76  | Depth to Water   |              | Start of Test   | 0.23 mbdl              |
| 00:03:00   | 0.85                           | 1.78               | 0.74  |  |              | End of Test     | 2.62 mbdl              |
| 00:04:00   | 0.99                           | 1.64               | 0.68  | Diameter of Casing 133 mm  |              |                 |                        |
| 00:05:00   | 1.10                           | 1.53               | 0.64  | Response Zone Length   |              | (L) =           | 18.90 m                |
| 00:06:00   | 1.20                           | 1.43               | 0.60  | Borehole Diameter in Test Section  |              | (D) =           | 131 mm                 |
| 00:07:00   | 1.26                           | 1.37               | 0.57  | Cross Sectional Area of Borehole   |              | (A) =           | 0.01389 m <sup>2</sup> |
| 00:08:00   | 1.35                           | 1.28               | 0.53  | Intake Factor (BS5930, page 50, Figure 6d)   |              | (F) =           | 20.96                  |
| 00:09:00   | 1.43                           | 1.20               | 0.50  | General Approach   |              | (H1) = 2.40     | (t1) = 0 Sec           |
| 00:10:00   | 1.50                           | 1.13               | 0.47  |  |              | (H2) = 0.01     | (t2) = 3600 Sec        |
| 00:12:00   | 1.57                           | 1.06               | 0.44  | <b>Coefficient of Permeability using</b>   |              |                 |                        |
| 00:14:00   | 1.69                           | 0.94               | 0.39  | $k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2} = 1.0 \times 10^{-6} \text{ m/s}$ |              |                 |                        |
| 00:16:00   | 1.79                           | 0.84               | 0.35  | <b>Remarks</b>   |              |                 |                        |
| 00:18:00   | 1.87                           | 0.76               | 0.32  | Hole cleaned by flushing with clean water  |              |                 |                        |
| 00:20:00   | 1.92                           | 0.71               | 0.30  |  |              |                 |                        |
| 00:25:00   | 2.12                           | 0.51               | 0.21  |  |              |                 |                        |
| 00:30:00   | 2.20                           | 0.43               | 0.18  |  |              |                 |                        |
| 00:40:00   | 2.34                           | 0.29               | 0.12  |  |              |                 |                        |
| 00:50:00   | 2.43                           | 0.20               | 0.08  |  |              |                 |                        |
| 01:00:00   | 2.62                           | 0.01               | <0.01 |  |              |                 |                        |
| <b>Geology</b>   |                                | Quartz mica SCHIST |       |  |              |                 |                        |
| ma/bgl = metres above/below ground level mbdl = metres below datum level |                                |                    |       |  |              |                 |                        |
| Input by   |                                | Date               |       | 24/02/10   |              | Checked by      |                        |
|  |                                |                    |       |  |              | Date            |                        |
|  |                                |                    |       |  |              | 07/04/10        |                        |

VARIABLE HEAD PERMEABILITY TEST RECORD

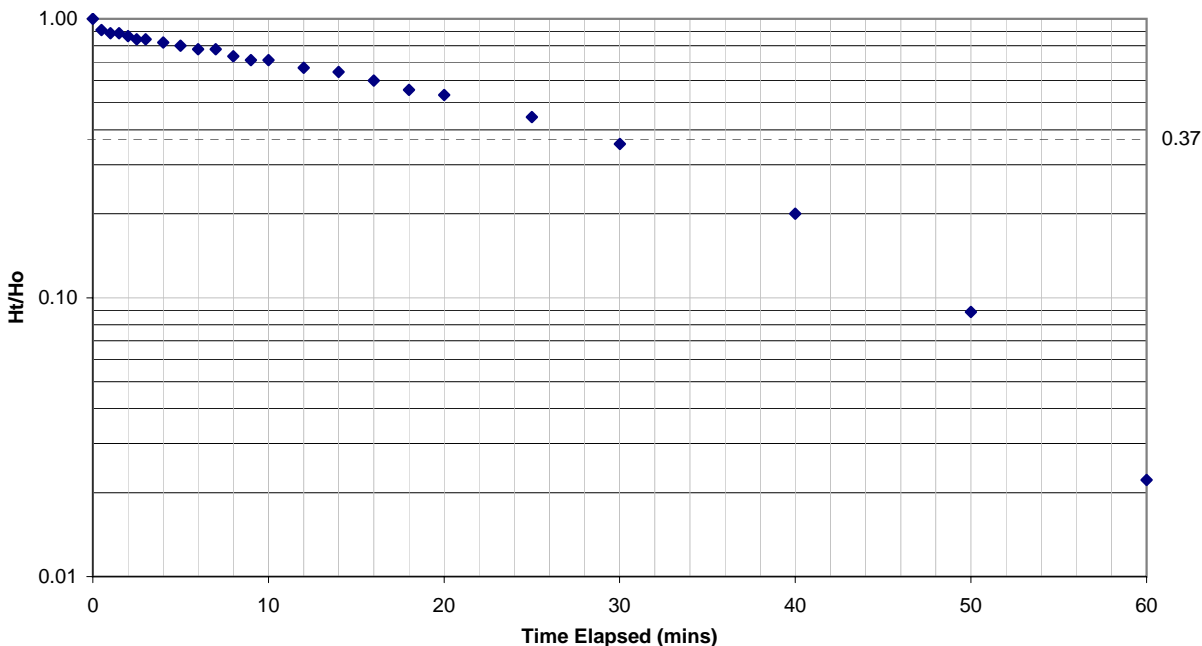
|      |            |          |   |           |              |              |      |
|------|------------|----------|---|-----------|--------------|--------------|------|
| Date | 01/02/2010 | Test No. | 1 | Depth (m) | 5.50 - 25.00 | Borehole No. | BH04 |
|------|------------|----------|---|-----------|--------------|--------------|------|



| Time Elapsed ([d:]hh:mm:ss)  | Depth of Water Below Datum (m) | Ht   | Ht/Ho    | Test Details (All water depths were measured below datum)   |
|--|--------------------------------|------|----------|---|
| 00:00:00   | 5.40                           | 3.80 | 1.00     | Test Type Rising Head in Borehole   |
| 00:00:30   | 4.70                           | 3.10 | 0.82     | Depth of Test Section Casing Depth: 5.50 mbgl   |
| 00:01:00   | 4.50                           | 2.90 | 0.76     | Borehole Depth: 25.00 mbgl  |
| 00:01:30   | 4.40                           | 2.80 | 0.74     | Datum Level 0.00 magl   |
| 00:02:00   | 4.26                           | 2.66 | 0.70     | Depth to Standing Water Level 1.60 mbdl   |
| 00:02:30   | 4.19                           | 2.59 | 0.68     | Depth to Water Start of Test 5.40 mbdl  |
| 00:03:00   | 4.09                           | 2.49 | 0.66     | End of Test 1.63 mbdl   |
| 00:04:00   | 4.01                           | 2.41 | 0.63     | Diameter of Casing 133 mm   |
| 00:05:00   | 3.80                           | 2.20 | 0.58     | Response Zone Length (L) = 19.50 m  |
| 00:06:00   | 3.69                           | 2.09 | 0.55     | Borehole Diameter in Test Section (D) = 131 mm  |
| 00:07:00   | 3.55                           | 1.95 | 0.51     | Cross Sectional Area of Borehole (A) = 0.01389 m <sup>2</sup>   |
| 00:08:00   | 3.40                           | 1.80 | 0.47     | Intake Factor (BS5930, page 50, Figure 6d) (F) = 21.51  |
| 00:09:00   | 3.35                           | 1.75 | 0.46     | General Approach (H1) = 3.80 (t1) = 0 Sec   |
| 00:10:00   | 3.25                           | 1.65 | 0.43     | (H2) = 0.03 (t2) = 3600 Sec   |
| 00:12:00   | 3.12                           | 1.52 | 0.40     | <b>Coefficient of Permeability using</b>  |
| 00:14:00   | 2.97                           | 1.37 | 0.36     | $k = \frac{A}{F(t2-t1)} \log_e \frac{H1}{H2} = 8.7 \times 10^{-7} \text{ m/s}$                          |
| 00:16:00   | 2.87                           | 1.27 | 0.33     | <b>Remarks</b>  |
| 00:18:00   | 2.70                           | 1.10 | 0.29     | Hole cleaned by flushing with clean water. Pump only capable of dewatering to 5.40m below ground level. |
| 00:20:00   | 2.70                           | 1.10 | 0.29     |   |
| 00:25:00   | 2.50                           | 0.90 | 0.24     |   |
| 00:30:00   | 2.27                           | 0.67 | 0.18     |   |
| 00:40:00   | 2.05                           | 0.45 | 0.12     |   |
| 00:50:00   | 1.78                           | 0.18 | 0.05     |   |
| 01:00:00   | 1.63                           | 0.03 | <0.01    |   |
|  |                                |      |          | <b>Geology</b> Quartz mica SCHIST   |
| ma/bgl = metres above/below ground level mbdl = metres below datum level |                                |      |          |   |
| Input by   |                                | Date | 12/02/10 | Checked by  |
|  |                                | Date |          | Date  |
|  |                                |      |          | 07/04/10  |

VARIABLE HEAD PERMEABILITY TEST RECORD

|      |            |          |   |           |              |              |      |
|------|------------|----------|---|-----------|--------------|--------------|------|
| Date | 03/02/2010 | Test No. | 2 | Depth (m) | 5.50 - 30.00 | Borehole No. | BH04 |
|------|------------|----------|---|-----------|--------------|--------------|------|



| Time Elapsed ([d:]hh:mm:ss)  | Depth of Water Below Datum (m) | Ht   | Ht/Ho    | Test Details (All water depths were measured below datum)                      |
|--|--------------------------------|------|----------|--|
| 00:00:00   | 6.18                           | 0.45 | 1.00     | Test Type Rising Head in Borehole  |
| 00:00:30   | 6.14                           | 0.41 | 0.91     | Depth of Test Section Casing Depth: 5.50 mbgl                                  |
| 00:01:00   | 6.13                           | 0.40 | 0.89     | Borehole Depth: 30.00 mbgl   |
| 00:01:30   | 6.13                           | 0.40 | 0.89     | Datum Level 0.00 magl  |
| 00:02:00   | 6.12                           | 0.39 | 0.87     | Depth to Standing Water Level 5.73 mbdl  |
| 00:02:30   | 6.11                           | 0.38 | 0.84     | Depth to Water Start of Test 6.18 mbdl   |
| 00:03:00   | 6.11                           | 0.38 | 0.84     | End of Test 5.72 mbdl  |
| 00:04:00   | 6.10                           | 0.37 | 0.82     | Diameter of Casing 133 mm  |
| 00:05:00   | 6.09                           | 0.36 | 0.80     | Response Zone Length (L) = 24.50 m   |
| 00:06:00   | 6.08                           | 0.35 | 0.78     | Borehole Diameter in Test Section (D) = 131 mm                                 |
| 00:07:00   | 6.08                           | 0.35 | 0.78     | Cross Sectional Area of Borehole (A) = 0.01389 m <sup>2</sup>                  |
| 00:08:00   | 6.06                           | 0.33 | 0.73     | Intake Factor (BS5930, page 50, Figure 6d) (F) = 25.98                         |
| 00:09:00   | 6.05                           | 0.32 | 0.71     | General Approach (H1) = 0.45 (t1) = 0 Sec                                      |
| 00:10:00   | 6.05                           | 0.32 | 0.71     | (H2) = 0.01 (t2) = 3600 Sec  |
| 00:12:00   | 6.03                           | 0.30 | 0.67     | <b>Coefficient of Permeability using</b>                                       |
| 00:14:00   | 6.02                           | 0.29 | 0.64     | $k = \frac{A}{F(t2-t1)} \log_e \frac{H1}{H2} = 5.7 \times 10^{-7} \text{ m/s}$ |
| 00:16:00   | 6.00                           | 0.27 | 0.60     | <b>Remarks</b>   |
| 00:18:00   | 5.98                           | 0.25 | 0.56     | Hole cleaned by flushing with clean water.                                     |
| 00:20:00   | 5.97                           | 0.24 | 0.53     |  |
| 00:25:00   | 5.93                           | 0.20 | 0.44     |  |
| 00:30:00   | 5.89                           | 0.16 | 0.36     |  |
| 00:40:00   | 5.82                           | 0.09 | 0.20     |  |
| 00:50:00   | 5.77                           | 0.04 | 0.09     |  |
| 01:00:00   | 5.72                           | 0.01 | 0.02     |  |
|  |                                |      |          | <b>Geology</b> Quartz mica SCHIST  |
| ma/bgl = metres above/below ground level mbdl = metres below datum level |                                |      |          |  |
| Input by   |                                | Date | 12/02/10 | Checked by   |
|  |                                | Date |          | Date   |
|  |                                |      |          | 07/04/10   |

VARIABLE HEAD PERMEABILITY TEST RECORD

| Date   | 18/02/2010                     | Test No. | 1        | Depth (m)  | 4.50 - 14.90 | Borehole No. | BH06     |
|--|--------------------------------|----------|----------|--|--------------|--------------|----------|
|  |                                |          |          |  |              |              |          |
| Time Elapsed ([d:]hh:mm:ss)  | Depth of Water Below Datum (m) | Ht       | Ht/Ho    | Test Details (All water depths were measured below datum)                            |              |              |          |
| 00:00:00   | 0.32                           | 5.49     | 1.00     | Test Type Falling Head in Borehole   |              |              |          |
| 00:00:30   | 0.45                           | 5.36     | 0.98     | Depth of Test Section Casing Depth: 4.50 mbgl  |              |              |          |
| 00:01:00   | 0.50                           | 5.31     | 0.97     | Borehole Depth: 14.90 mbgl   |              |              |          |
| 00:01:30   | 0.62                           | 5.19     | 0.95     | Datum Level 0.00 magl  |              |              |          |
| 00:02:00   | 0.71                           | 5.10     | 0.93     | Depth to Standing Water Level 5.81 mbdl  |              |              |          |
| 00:02:30   | 0.78                           | 5.03     | 0.92     | Depth to Water Start of Test 0.32 mbdl   |              |              |          |
| 00:03:00   | 0.90                           | 4.91     | 0.89     | End of Test 5.80 mbdl  |              |              |          |
| 00:04:00   | 1.02                           | 4.79     | 0.87     | Diameter of Casing 133 mm  |              |              |          |
| 00:05:00   | 1.15                           | 4.66     | 0.85     | Response Zone Length (L) = 10.40 m   |              |              |          |
| 00:06:00   | 1.30                           | 4.51     | 0.82     | Borehole Diameter in Test Section (D) = 131 mm                                       |              |              |          |
| 00:07:00   | 1.46                           | 4.35     | 0.79     | Cross Sectional Area of Borehole (A) = 0.01389 m <sup>2</sup>                        |              |              |          |
| 00:08:00   | 1.62                           | 4.19     | 0.76     | Intake Factor (BS5930, page 50, Figure 6d) (F) = 12.89                               |              |              |          |
| 00:09:00   | 1.71                           | 4.10     | 0.75     | General Approach (H1) = 5.49 (t1) = 0 Sec  |              |              |          |
| 00:10:00   | 1.86                           | 3.95     | 0.72     | (H2) = 0.01 (t2) = 3600 Sec  |              |              |          |
| 00:12:00   | 2.14                           | 3.67     | 0.67     | <b>Coefficient of Permeability using</b>   |              |              |          |
| 00:14:00   | 2.38                           | 3.43     | 0.62     | $k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2} = 1.9 \times 10^{-6} \text{ m/s}$ |              |              |          |
| 00:16:00   | 2.59                           | 3.22     | 0.59     | <b>Remarks</b>   |              |              |          |
| 00:18:00   | 2.85                           | 2.96     | 0.54     | Hole cleaned by flushing with clean water  |              |              |          |
| 00:20:00   | 3.05                           | 2.76     | 0.50     |  |              |              |          |
| 00:25:00   | 3.52                           | 2.29     | 0.42     |  |              |              |          |
| 00:30:00   | 3.87                           | 1.94     | 0.35     |  |              |              |          |
| 00:40:00   | 4.65                           | 1.16     | 0.21     |  |              |              |          |
| 00:50:00   | 5.27                           | 0.54     | 0.10     |  |              |              |          |
| 01:00:00   | 5.80                           | 0.01     | <0.01    |  |              |              |          |
|  |                                |          |          | <b>Geology</b> Quartz mica SCHIST  |              |              |          |
| ma/bgl = metres above/below ground level mbdl = metres below datum level |                                |          |          |  |              |              |          |
| Input by   |                                | Date     | 24/02/10 | Checked by   |              | Date         | 07/04/10 |

VARIABLE HEAD PERMEABILITY TEST RECORD

| Date   | 19/02/2010                     | Test No. | 2     | Depth (m)  | 4.50 - 25.80 | Borehole No. | BH06 |
|--|--------------------------------|----------|-------|--|--------------|--------------|------|
|  |                                |          |       |  |              |              |      |
| Time Elapsed ([d:]hh:mm:ss)  | Depth of Water Below Datum (m) | Ht       | Ht/Ho | Test Details (All water depths were measured below datum)                      |              |              |      |
| 00:00:00   | 0.78                           | 3.43     | 1.00  | Test Type Falling Head in Borehole   |              |              |      |
| 00:00:30   | 0.78                           | 3.43     | 1.00  | Depth of Test Section Casing Depth: 4.50 mbgl                                  |              |              |      |
| 00:01:00   | 0.79                           | 3.42     | 1.00  | Borehole Depth: 25.80 mbgl   |              |              |      |
| 00:01:30   | 0.79                           | 3.42     | 1.00  | Datum Level 0.00 magl  |              |              |      |
| 00:02:00   | 0.80                           | 3.41     | 0.99  | Depth to Standing Water Level 4.21 mbdl  |              |              |      |
| 00:02:30   | 0.81                           | 3.40     | 0.99  | Depth to Water Start of Test 0.78 mbdl   |              |              |      |
| 00:03:00   | 0.81                           | 3.40     | 0.99  | End of Test 0.88 mbdl  |              |              |      |
| 00:04:00   | 0.82                           | 3.39     | 0.99  | Diameter of Casing 133 mm  |              |              |      |
| 00:05:00   | 0.82                           | 3.39     | 0.99  | Response Zone Length (L) = 21.30 m   |              |              |      |
| 00:06:00   | 0.82                           | 3.39     | 0.99  | Borehole Diameter in Test Section (D) = 131 mm                                 |              |              |      |
| 00:07:00   | 0.82                           | 3.39     | 0.99  | Cross Sectional Area of Borehole (A) = 0.01389 m <sup>2</sup>                  |              |              |      |
| 00:08:00   | 0.82                           | 3.39     | 0.99  | Intake Factor (BS5930, page 50, Figure 6d) (F) = 23.14                         |              |              |      |
| 00:09:00   | 0.82                           | 3.39     | 0.99  | General Approach (H1) = 3.43 (t1) = 0 Sec                                      |              |              |      |
| 00:10:00   | 0.82                           | 3.39     | 0.99  | (H2) = 3.33 (t2) = 3600 Sec  |              |              |      |
| 00:12:00   | 0.82                           | 3.39     | 0.99  | <b>Coefficient of Permeability using</b>                                       |              |              |      |
| 00:14:00   | 0.82                           | 3.39     | 0.99  | $k = \frac{A}{F(t2-t1)} \log_e \frac{H1}{H2} = 4.9 \times 10^{-9} \text{ m/s}$ |              |              |      |
| 00:16:00   | 0.83                           | 3.39     | 0.99  | <b>Remarks</b>   |              |              |      |
| 00:18:00   | 0.83                           | 3.38     | 0.99  | Hole cleaned by flushing with clean water                                      |              |              |      |
| 00:20:00   | 0.83                           | 3.38     | 0.99  |  |              |              |      |
| 00:25:00   | 0.84                           | 3.37     | 0.98  |  |              |              |      |
| 00:30:00   | 0.84                           | 3.37     | 0.98  |  |              |              |      |
| 00:40:00   | 0.86                           | 3.35     | 0.98  |  |              |              |      |
| 00:50:00   | 0.87                           | 3.34     | 0.97  |  |              |              |      |
| 01:00:00   | 0.88                           | 3.33     | 0.97  |  |              |              |      |
|  |                                |          |       | <b>Geology</b> Quartz mica SCHIST  |              |              |      |
| ma/bgl = metres above/below ground level mbdl = metres below datum level |                                |          |       |  |              |              |      |
| Input by   |                                | Date     |       | 24/02/10   |              | Checked by   |      |
|  |                                |          |       |  |              | Date         |      |
|  |                                |          |       |  |              | 07/04/10     |      |



VARIABLE HEAD PERMEABILITY TEST RECORD

| Date   | 01/03/2010                     | Test No.           | 1     | Depth (m)  | 7.00 - 10.00 | Borehole No.    | BH11                   |
|--|--------------------------------|--------------------|-------|--|--------------|-----------------|------------------------|
|  |                                |                    |       |  |              |                 |                        |
| Time Elapsed ([d:]hh:mm:ss)  | Depth of Water Below Datum (m) | Ht                 | Ht/Ho | Test Details (All water depths were measured below datum)                            |              |                 |                        |
| 00:00:00   | 0.10                           | 2.40               | 1.00  | Test Type Falling Head in Borehole   |              |                 |                        |
| 00:00:30   | 1.17                           | 1.33               | 0.55  | Depth of Test Section  |              | Casing Depth:   | 7.00 mbgl              |
| 00:01:00   | 1.53                           | 0.97               | 0.40  |  |              | Borehole Depth: | 10.00 mbgl             |
| 00:01:30   | 1.70                           | 0.80               | 0.33  | Datum Level 0.00 magl  |              |                 |                        |
| 00:02:00   | 1.84                           | 0.66               | 0.28  | Depth to Standing Water Level 2.50 mbdl  |              |                 |                        |
| 00:02:30   | 1.95                           | 0.55               | 0.23  | Depth to Water   |              | Start of Test   | 0.10 mbdl              |
| 00:03:00   | 2.04                           | 0.46               | 0.19  |  |              | End of Test     | 2.48 mbdl              |
| 00:04:00   | 2.13                           | 0.37               | 0.15  | Diameter of Casing 133 mm  |              |                 |                        |
| 00:05:00   | 2.19                           | 0.31               | 0.13  | Response Zone Length   |              | (L) =           | 3.00 m                 |
| 00:06:00   | 2.26                           | 0.24               | 0.10  | Borehole Diameter in Test Section  |              | (D) =           | 131 mm                 |
| 00:07:00   | 2.30                           | 0.20               | 0.08  | Cross Sectional Area of Borehole   |              | (A) =           | 0.01389 m <sup>2</sup> |
| 00:08:00   | 2.31                           | 0.19               | 0.08  | Intake Factor (BS5930, page 50, Figure 6d) (F) = 4.93                                |              |                 |                        |
| 00:09:00   | 2.33                           | 0.17               | 0.07  | General Approach   |              | (H1) = 2.40     | (t1) = 0 Sec           |
| 00:10:00   | 2.36                           | 0.14               | 0.06  |  |              | (H2) = 0.02     | (t2) = 3600 Sec        |
| 00:12:00   | 2.36                           | 0.14               | 0.06  | <b>Coefficient of Permeability using</b>   |              |                 |                        |
| 00:14:00   | 2.36                           | 0.14               | 0.06  | $k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2} = 3.7 \times 10^{-6} \text{ m/s}$ |              |                 |                        |
| 00:16:00   | 2.37                           | 0.13               | 0.05  | <u>Remarks</u>   |              |                 |                        |
| 00:18:00   | 2.37                           | 0.13               | 0.05  | Hole cleaned by flushing with clean water  |              |                 |                        |
| 00:20:00   | 2.37                           | 0.13               | 0.05  |  |              |                 |                        |
| 00:25:00   | 2.38                           | 0.12               | 0.05  |  |              |                 |                        |
| 00:30:00   | 2.39                           | 0.11               | 0.05  |  |              |                 |                        |
| 00:40:00   | 2.43                           | 0.07               | 0.03  |  |              |                 |                        |
| 00:50:00   | 2.44                           | 0.06               | 0.03  |  |              |                 |                        |
| 01:00:00   | 2.48                           | 0.02               | <0.01 |  |              |                 |                        |
| <u>Geology</u>   |                                | Quartz mica SCHIST |       |  |              |                 |                        |
| ma/bgl = metres above/below ground level mbdl = metres below datum level |                                |                    |       |  |              |                 |                        |
| Input by   |                                | Date               |       | 05/03/10   |              | Checked by      |                        |
|  |                                |                    |       |  |              | Date            |                        |
|  |                                |                    |       |  |              | 07/04/10        |                        |



PACKER TEST FIELD RECORDS

|  |                              |                     |
|--|------------------------------|---------------------|
| Test Type: Single Water Injection Packer | Borehole: BH01               | Test No: 1          |
| Depth Below ground Level:                | Date: 02/02/2010             | Start Time: 12:00pm |
| Base of Casing : 10.15                   | Casing Diameter mm 150       |                     |
| Base of Hole : 13.35                     | Section Diameter mm 131      |                     |
| Top of Test Section : 12.35              | Section Length 1.00          |                     |
| Base of Test Section : 13.35             | Rock Type Quartz Mica Schist |                     |
| Initial Groundwater 2.80 m Below Datum   | Water level after test 2.80  |                     |
| Datum Top of Casing                      | Datum Level                  |                     |
| Datum to Bed Level :                     | Site Engineer                |                     |
| Gauge Height Above Datum 0.70            | Gauge used : 77361-2-09      |                     |
| Tank Dimensions N/A                      | Flow meter used : 1281900    |                     |
| Type of Drill Rods 25mm                  | Number of Rods 5             |                     |
| Packer Type / Ref Pneumatic              | Water Quality Potable        |                     |
| Assumed Standing Water Level 2.80 mbdl   |                              |                     |

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 2.85                       |                           | 8.7                | 0                 | 39.185                  |                          |                 |                                  |
|                             |                            |                           | 8.7                | 3                 | 39.185                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 8.7                | 6                 | 39.184                  | -1                       | -0.3            |                                  |
|                             |                            |                           | 8.7                | 9                 | 39.183                  | -1                       | -0.3            |                                  |
|                             |                            |                           | 8.7                | 12                | 39.183                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 8.7                | 15                | 39.183                  | 0                        | 0.0             | 0.3                              |
| 2/200                       | 2.85                       |                           | 17.4               | 0                 | 39.184                  |                          |                 |                                  |
|                             |                            |                           | 17.4               | 3                 | 39.188                  | 4                        | 1.3             |                                  |
|                             |                            |                           | 17.4               | 6                 | 39.194                  | 6                        | 2.0             |                                  |
|                             |                            |                           | 17.4               | 9                 | 39.200                  | 6                        | 2.0             |                                  |
|                             |                            |                           | 17.4               | 12                | 39.204                  | 4                        | 1.3             |                                  |
|                             |                            |                           | 17.4               | 15                | 39.210                  | 6                        | 2.0             | 1.7                              |
| 3/200                       | 2.85                       |                           | 26.1               | 0                 | 39.246                  |                          |                 |                                  |
|                             |                            |                           | 26.1               | 3                 | 39.251                  | 5                        | 1.7             |                                  |
|                             |                            |                           | 26.1               | 5                 | 39.258                  | 7                        | 3.5             |                                  |
|                             |                            |                           | 26.1               | 9                 | 39.265                  | 7                        | 1.7             |                                  |
|                             |                            |                           | 26.1               | 12                | 39.272                  | 7                        | 2.3             |                                  |
|                             |                            |                           | 26.1               | 15                | 39.279                  | 7                        | 2.3             | 2.3                              |
| 4/200                       | 2.85                       |                           | 17.4               | 0                 | 39.282                  |                          |                 |                                  |
|                             |                            |                           | 17.4               | 3                 | 39.283                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 17.4               | 5                 | 39.286                  | 3                        | 1.5             |                                  |
|                             |                            |                           | 17.4               | 9                 | 39.286                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 17.4               | 12                | 39.287                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 17.4               | 15                | 39.287                  | 0                        | 0.0             | 0.4                              |
| 5/200                       | 2.85                       |                           | 8.7                | 0                 | 39.288                  |                          |                 |                                  |
|                             |                            |                           | 8.7                | 3                 | 39.294                  | 6                        | 2.0             |                                  |
|                             |                            |                           | 8.7                | 6                 | 39.297                  | 3                        | 1.0             |                                  |
|                             |                            |                           | 8.7                | 9                 | 39.300                  | 3                        | 1.0             |                                  |
|                             |                            |                           | 8.7                | 12                | 39.302                  | 2                        | 0.7             |                                  |
|                             |                            |                           | 8.7                | 15                | 39.306                  | 4                        | 1.3             | 1                                |

FIGURE FT12





PACKER TEST FIELD RECORDS

Test Type: Single Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 8.80  
 Base of Hole : 12.00  
 Top of Test Section : 10.00  
 Base of Test Section : 12.00  
 Initial Groundwater 3.00 m Below Datum  
 Datum 1.26  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions N/A  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 3.00 mbdl

Borehole: BH02  
 Date: 05/02/2010  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 2.00  
 Rock Type Quartz Mica Schist  
 Water level after test 2.64  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-02-09  
 Flow meter used : 1281900  
 Number of Rods 4  
 Water Quality Potable

Test No: 01  
 Start Time: 12:00

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 2.52                       |                           | 7.3                | 0                 | 39.840                  |                          |                 |                                  |
|                             |                            |                           | 7.3                | 3                 | 39.860                  | 20                       | 6.7             |                                  |
|                             |                            |                           | 7.3                | 6                 | 39.870                  | 10                       | 3.3             |                                  |
|                             |                            |                           | 7.3                | 9                 | 39.879                  | 9                        | 3.0             |                                  |
|                             |                            |                           | 7.3                | 12                | 39.891                  | 12                       | 4.0             |                                  |
|                             |                            |                           | 7.3                | 15                | 39.899                  | 8                        | 2.7             | 3.9                              |
| 2/200                       | 2.52                       |                           | 14.5               | 0                 | 39.900                  |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 39.916                  | 16                       | 5.3             |                                  |
|                             |                            |                           | 14.5               | 6                 | 39.927                  | 11                       | 3.7             |                                  |
|                             |                            |                           | 14.5               | 9                 | 39.935                  | 8                        | 2.7             |                                  |
|                             |                            |                           | 14.5               | 12                | 39.942                  | 7                        | 2.3             |                                  |
|                             |                            |                           | 14.5               | 15                | 39.957                  | 15                       | 5.0             | 3.8                              |
| 3/200                       | 2.52                       |                           | 21.8               | 0                 | 39.959                  |                          |                 |                                  |
|                             |                            |                           | 21.8               | 3                 | 39.961                  | 2                        | 0.7             |                                  |
|                             |                            |                           | 21.8               | 5                 | 39.970                  | 9                        | 4.5             |                                  |
|                             |                            |                           | 21.8               | 9                 | 39.980                  | 10                       | 2.5             |                                  |
|                             |                            |                           | 21.8               | 12                | 39.990                  | 10                       | 3.3             |                                  |
|                             |                            |                           | 21.8               | 15                | 39.998                  | 8                        | 2.7             | 2.7                              |
| 4/200                       | 2.52                       |                           | 14.5               | 0                 | 39.999                  |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 40.004                  | 5                        | 1.7             |                                  |
|                             |                            |                           | 14.5               | 6                 | 40.010                  | 6                        | 2.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 40.012                  | 2                        | 0.7             |                                  |
|                             |                            |                           | 14.5               | 12                | 40.015                  | 3                        | 1.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 40.016                  | 1                        | 0.3             | 1.1                              |
| 5/200                       | 2.52                       |                           | 14.5               | 0                 | 40.015                  |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 40.016                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 14.5               | 6                 | 40.016                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 40.016                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 40.017                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 14.5               | 15                | 40.018                  | 1                        | 0.3             | 0.3                              |



**PACKER TEST CALCULATIONS**

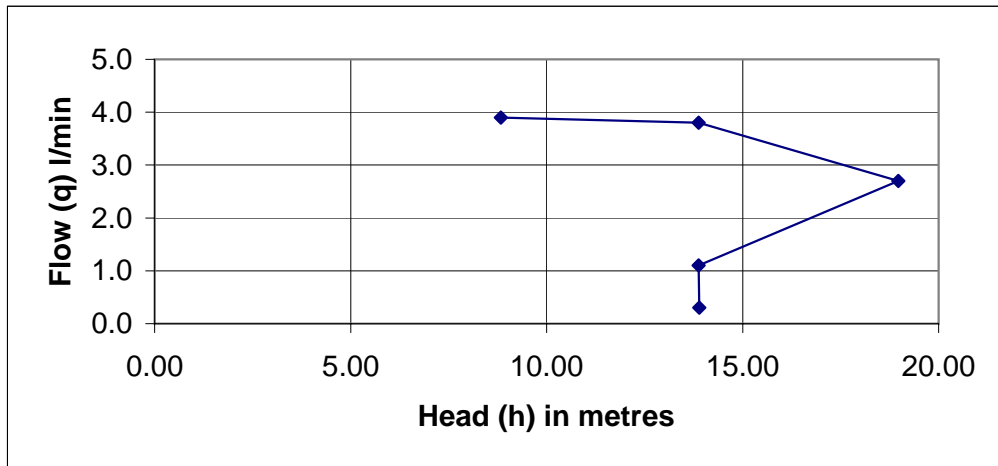
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      10.00  
 Base of Test Section      12.00  
 Test Section Centre      11.00  
 Initial Water Depth      3.00  
 Datum to Ground/Bed      0.00  
 Datum to Gauge          0.70

Borehole: BH02  
 Date: 05/02/2010  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 01  
 Start Time: 12:00  
                      
                      
 Quartz Mica Schist  
 4  
 2.00      (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow l/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | l/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 3.9                     | 7.3                | 5.13                                  | 0.70                      | 3.00                             | 0.00                                     | 0.00                  | 8.83           |
| 2     | 3.8                     | 14.5               | 10.19                                 | 0.70                      | 3.00                             | 0.02                                     | 0.00                  | 13.87          |
| 3     | 2.7                     | 21.8               | 15.33                                 | 0.70                      | 3.00                             | 0.05                                     | 0.00                  | 18.98          |
| 4     | 1.1                     | 14.5               | 10.19                                 | 0.70                      | 3.00                             | 0.02                                     | 0.00                  | 13.87          |
| 5     | 0.3                     | 14.5               | 10.19                                 | 0.70                      | 3.00                             | 0.00                                     | 0.00                  | 13.89          |



Note      mbdl - metres below datum/deck level

            mabl - metres above bed level



PACKER TEST FIELD RECORDS

|  |                              |                     |
|--|------------------------------|---------------------|
| Test Type: Single Water Injection Packer | Borehole: BH02               | Test No: 2          |
| Depth Below ground Level:                | Date: 08/02/2010             | Start Time: 12:00pm |
| Base of Casing : 15.80                   | Casing Diameter mm 150       |                     |
| Base of Hole : 19.50                     | Section Diameter mm 131      |                     |
| Top of Test Section : 17.50              | Section Length 2.00          |                     |
| Base of Test Section : 19.50             | Rock Type Quartz Mica Schist |                     |
| Initial Groundwater 2.19 m Below Datum   | Water level after test 2.15  |                     |
| Datum Top of Casing                      | Datum Level                  |                     |
| Datum to Bed Level :                     | Site Engineer                |                     |
| Gauge Height Above Datum 0.70            | Gauge used : 77361-2-09      |                     |
| Tank Dimensions N/A                      | Flow meter used : 1281900    |                     |
| Type of Drill Rods 25mm                  | Number of Rods 4             |                     |
| Packer Type / Ref Pneumatic              | Water Quality Potable        |                     |
| Assumed Standing Water Level 2.19 m bdl  |                              |                     |

| Stage / Packer Pressure psi | Water Level in Casing m bdl | Water Level in River m a b l | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|-----------------------------|------------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1                           |                             |                              | 14.5               | 0                 | 40.298                  |                          |                 |                                  |
| 200                         |                             |                              | 14.5               | 3                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 14.5               | 6                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 14.5               | 9                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 14.5               | 12                | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 14.5               | 15                | 40.298                  | 0                        | 0.0             | 0                                |
| 2                           |                             |                              | 29.0               | 0                 | 40.298                  |                          |                 |                                  |
| 200                         |                             |                              | 29.0               | 3                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 29.0               | 6                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 29.0               | 9                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 29.0               | 12                | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 29.0               | 15                | 40.298                  | 0                        | 0.0             | 0                                |
| 3                           |                             |                              | 43.5               | 0                 | 40.298                  |                          |                 |                                  |
| 200                         |                             |                              | 43.5               | 3                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 43.5               | 5                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 43.5               | 9                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 43.5               | 12                | 40.298                  | 0                        | 0.0             |                                  |
|                             |                             |                              | 43.5               | 15                | 40.298                  | 0                        | 0.0             | 0                                |
| 4                           |                             |                              | 29.0               | 0                 |                         |                          |                 |                                  |
| 200                         |                             |                              | 29.0               | 3                 |                         | 0                        | 0.0             |                                  |
|                             |                             |                              | 29.0               | 5                 |                         | 0                        | 0.0             |                                  |
|                             |                             |                              | 29.0               | 9                 |                         | 0                        | 0.0             |                                  |
|                             |                             |                              | 29.0               | 12                |                         | 0                        | 0.0             |                                  |
|                             |                             |                              | 29.0               | 15                |                         | 0                        | 0.0             | 0                                |
| 5                           |                             |                              | 14.5               | 0                 |                         |                          |                 |                                  |
| 200                         |                             |                              | 14.5               | 3                 |                         | 0                        | 0.0             |                                  |
|                             |                             |                              | 14.5               | 6                 |                         | 0                        | 0.0             |                                  |
|                             |                             |                              | 14.5               | 9                 |                         | 0                        | 0.0             |                                  |
|                             |                             |                              | 14.5               | 12                |                         | 0                        | 0.0             |                                  |
|                             |                             |                              | 14.5               | 15                |                         | 0                        | 0.0             | 0                                |



**PACKER TEST CALCULATIONS**

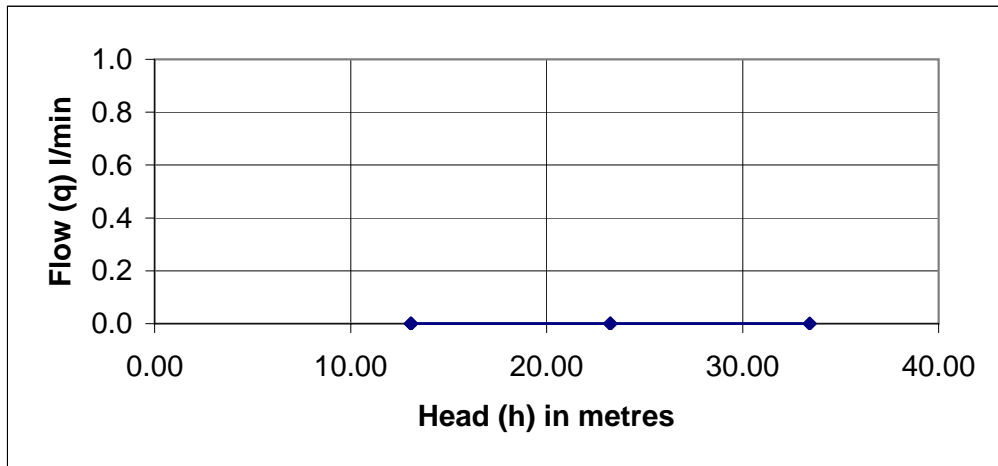
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      17.50  
 Base of Test Section      19.50  
 Test Section Centre      18.50  
 Initial Water Depth      2.19  
 Datum to Ground/Bed      0.00  
 Datum to Gauge          0.70

Borehole: BH02  
 Date: 08/02/2010  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 2  
 Start Time: 12:00pm  
                      
                      
 Quartz Mica Schist  
 4  
 2.00      (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 2.19                             | 0.00                                     | 0.00                  | 13.08          |
| 2     | 0.0                     | 29.0               | 20.39                                 | 0.70                      | 2.19                             | 0.02                                     | 0.00                  | 23.26          |
| 3     | 0.0                     | 43.5               | 30.58                                 | 0.70                      | 2.19                             | 0.05                                     | 0.00                  | 33.42          |
| 4     | 0.0                     | 29.0               | 20.39                                 | 0.70                      | 2.19                             | 0.02                                     | 0.00                  | 23.26          |
| 5     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 2.19                             | 0.00                                     | 0.00                  | 13.08          |



Note      mbdl - metres below datum/deck level      mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Single Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 0.50  
 Base of Hole : 25.50  
 Top of Test Section : 24.00  
 Base of Test Section : 25.50  
 Initial Groundwater 2.60 m Below Datum  
 Datum 1.40  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions N/A  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 2.60 mbdl

Borehole: BH02  
 Date: 09/02/2010  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 1.50  
 Rock Type Quartz Mica Schist  
 Water level after test 2.63  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-02-09  
 Flow meter used : 1281900  
 Number of Rods 4  
 Water Quality Potable

Test No: 03  
 Start Time: 12:00

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 2.60                       |                           | 18.1               | 0                 | 40.330                  |                          |                 |                                  |
|                             |                            |                           | 18.1               | 3                 | 40.340                  | 10                       | 3.3             |                                  |
|                             |                            |                           | 18.1               | 6                 | 40.345                  | 5                        | 1.7             |                                  |
|                             |                            |                           | 18.1               | 9                 | 40.351                  | 6                        | 2.0             |                                  |
|                             |                            |                           | 18.1               | 12                | 40.354                  | 3                        | 1.0             |                                  |
|                             |                            |                           | 18.1               | 15                | 40.357                  | 3                        | 1.0             | 1                                |
| 2/200                       | 2.60                       |                           | 36.2               | 0                 | 40.385                  |                          |                 |                                  |
|                             |                            |                           | 36.2               | 3                 | 40.386                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 36.2               | 6                 | 40.391                  | 5                        | 1.7             |                                  |
|                             |                            |                           | 36.2               | 9                 | 40.392                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 36.2               | 12                | 40.394                  | 2                        | 0.7             |                                  |
|                             |                            |                           | 36.2               | 15                | 40.395                  | 1                        | 0.3             | 0.7                              |
| 3/200                       | 2.60                       |                           | 54.4               | 0                 | 40.397                  |                          |                 |                                  |
|                             |                            |                           | 54.4               | 3                 | 40.402                  | 5                        | 1.7             |                                  |
|                             |                            |                           | 54.4               | 5                 | 40.407                  | 5                        | 2.5             |                                  |
|                             |                            |                           | 54.4               | 9                 | 40.414                  | 7                        | 1.8             |                                  |
|                             |                            |                           | 54.4               | 12                | 40.418                  | 4                        | 1.3             |                                  |
|                             |                            |                           | 54.4               | 15                | 40.420                  | 2                        | 0.7             | 1.6                              |
| 4/200                       | 2.60                       |                           | 36.2               | 0                 | 40.420                  |                          |                 |                                  |
|                             |                            |                           | 36.2               | 3                 | 40.426                  | 6                        | 2.0             |                                  |
|                             |                            |                           | 36.2               | 6                 | 40.423                  | -3                       | -1.0            |                                  |
|                             |                            |                           | 36.2               | 9                 | 40.426                  | 3                        | 1.0             |                                  |
|                             |                            |                           | 36.2               | 12                | 40.429                  | 3                        | 1.0             |                                  |
|                             |                            |                           | 36.2               | 15                | 40.433                  | 4                        | 1.3             | 1.3                              |
| 5/200                       | 2.60                       |                           | 18.1               | 0                 | 40.434                  |                          |                 |                                  |
|                             |                            |                           | 18.1               | 3                 | 40.437                  | 3                        | 1.0             |                                  |
|                             |                            |                           | 18.1               | 6                 | 40.442                  | 5                        | 1.7             |                                  |
|                             |                            |                           | 18.1               | 9                 | 40.443                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 18.1               | 12                | 40.445                  | 2                        | 0.7             |                                  |
|                             |                            |                           | 18.1               | 15                | 40.446                  | 1                        | 0.3             | 1                                |





**PACKER TEST CALCULATIONS**

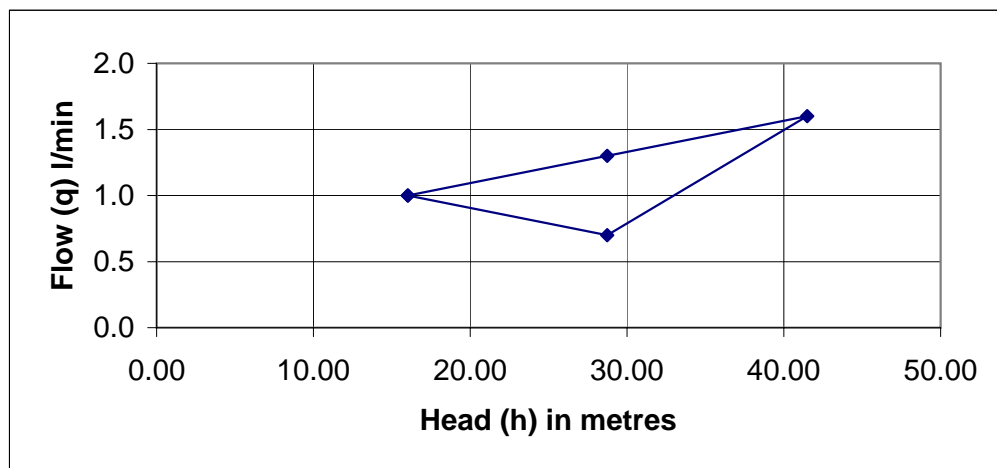
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:   
 Top of Test Section 24.00  
 Base of Test Section 25.50  
 Test Section Centre 24.75  
 Initial Water Depth 2.60  
 Datum to Ground/Bed 0.00  
 Datum to Gauge 0.70

Borehole: BH02  
 Date: 09/02/2010  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 03  
 Start Time: 12:00  
 [Redacted]  
 [Redacted]  
 Quartz Mica Schist  
 4  
 1.50 (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 1.0                     | 18.1               | 12.72                                 | 0.70                      | 2.60                             | 0.00                                     | 0.00                  | 16.02          |
| 2     | 0.7                     | 36.2               | 25.45                                 | 0.70                      | 2.60                             | 0.02                                     | 0.00                  | 28.73          |
| 3     | 1.6                     | 54.4               | 38.24                                 | 0.70                      | 2.60                             | 0.05                                     | 0.00                  | 41.49          |
| 4     | 1.3                     | 36.2               | 25.45                                 | 0.70                      | 2.60                             | 0.02                                     | 0.00                  | 28.73          |
| 5     | 1.0                     | 18.1               | 12.72                                 | 0.70                      | 2.60                             | 0.00                                     | 0.00                  | 16.02          |



Note mdbl - metres below datum/deck level

mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Double Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 4.50  
 Base of Hole : 35.00  
 Top of Test Section : 7.00  
 Base of Test Section : 10.00  
 Initial Groundwater 1.70 m Below Datum  
 Datum 1.16  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 1.70 mbdl

Borehole: BH02  
 Date: 10/02/10  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 3.00  
 Rock Type Quartz Mica Schist  
 Water level after test 2.00  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-2-09  
 Flow meter used : 1281900  
 Number of Rods 3  
 Water Quality Potable

Test No: 4  
 Start Time: 12:00

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 1.70                       |                           | 7.3                | 0                 | 40.701                  |                          |                 |                                  |
|                             |                            |                           | 7.3                | 3                 | 40.702                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 7.3                | 6                 | 40.702                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 9                 | 40.702                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 12                | 40.702                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 15                | 40.702                  | 0                        | 0.0             | 0                                |
| 2/200                       | 1.70                       |                           | 14.5               | 0                 | 40.703                  |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 40.703                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 6                 | 40.703                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 40.703                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 40.703                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 40.703                  | 0                        | 0.0             | 0                                |
| 3/200                       | 1.70                       |                           | 21.8               | 0                 | 40.704                  |                          |                 |                                  |
|                             |                            |                           | 21.8               | 3                 | 40.704                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 21.8               | 5                 | 40.705                  | 1                        | 0.5             |                                  |
|                             |                            |                           | 21.8               | 9                 | 40.705                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 21.8               | 12                | 40.706                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 21.8               | 15                | 40.706                  | 0                        | 0.0             | 0.2                              |
| 4/200                       | 1.70                       |                           | 14.5               | 0                 | 40.706                  |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 40.706                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 6                 | 40.706                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 40.706                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 40.706                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 40.706                  | 0                        | 0.0             | 0                                |
| 5/200                       | 1.70                       |                           | 7.3                | 0                 | 40.706                  |                          |                 |                                  |
|                             |                            |                           | 7.3                | 3                 | 40.706                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 6                 | 40.706                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 9                 | 40.706                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 12                | 40.706                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 15                | 40.706                  | 0                        | 0.0             | 0                                |



**PACKER TEST CALCULATIONS**

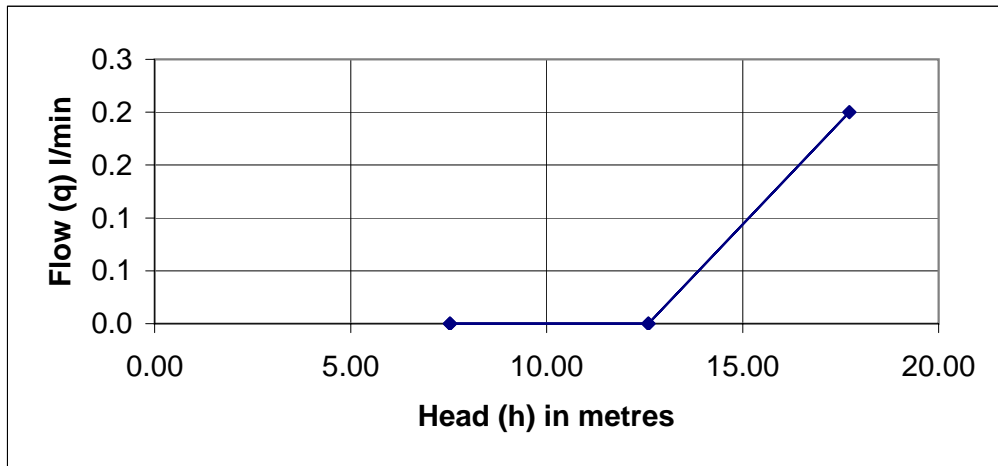
Test Type: Double Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      7.00  
 Base of Test Section     10.00  
 Test Section Centre     8.50  
 Initial Water Depth      1.70  
 Datum to Ground/Bed    0.00  
 Datum to Gauge          0.70

Borehole: BH02  
 Date: 10/02/10  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 4  
 Start Time: 12:00  
                      
                      
 Quartz Mica Schist  
 3  
 3.00 (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow l/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | l/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.0                     | 7.3                | 5.13                                  | 0.70                      | 1.70                             | 0.00                                     | 0.00                  | 7.53           |
| 2     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 1.70                             | 0.00                                     | 0.00                  | 12.59          |
| 3     | 0.2                     | 21.8               | 15.33                                 | 0.70                      | 1.70                             | 0.00                                     | 0.00                  | 17.73          |
| 4     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 1.70                             | 0.00                                     | 0.00                  | 12.59          |
| 5     | 0.0                     | 7.3                | 5.13                                  | 0.70                      | 1.70                             | 0.00                                     | 0.00                  | 7.53           |



Note                      mbdl - metres below datum/deck level                      mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Double Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 4.50  
 Base of Hole : 12.00  
 Top of Test Section : 10.00  
 Base of Test Section : 12.00  
 Initial Groundwater 2.62 m Below Datum  
 Datum 0.92  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 2.62 mbdl

Borehole: BH03  
 Date: 05/02/10  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 2.00  
 Rock Type Quartz Mica Schist  
 Water level after test 2.62  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-2-09  
 Flow meter used : 1281900  
 Number of Rods 5  
 Water Quality Potable

Test No: 1  
 Start Time: 12:00

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 2.62                       |                           | 7.3                | 0                 | 40.298                  |                          |                 |                                  |
|                             |                            |                           | 7.3                | 3                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 6                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 9                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 12                | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 15                | 40.298                  | 0                        | 0.0             | 0                                |
| 2/200                       | 2.62                       |                           | 14.5               | 0                 | 40.298                  |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 6                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 40.298                  | 0                        | 0.0             | 0                                |
| 3/200                       | 2.62                       |                           | 21.3               | 0                 | 40.298                  |                          |                 |                                  |
|                             |                            |                           | 21.3               | 3                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 21.3               | 5                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 21.3               | 9                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 21.3               | 12                | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 21.3               | 15                | 40.298                  | 0                        | 0.0             | 0                                |
| 4/200                       | 2.62                       |                           | 14.5               | 0                 | 40.298                  |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 6                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 40.298                  | 0                        | 0.0             | 0                                |
| 5/200                       | 2.62                       |                           | 7.3                | 0                 | 40.298                  |                          |                 |                                  |
|                             |                            |                           | 7.3                | 3                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 6                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 9                 | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 12                | 40.298                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 7.3                | 15                | 40.298                  | 0                        | 0.0             | 0                                |



**PACKER TEST CALCULATIONS**

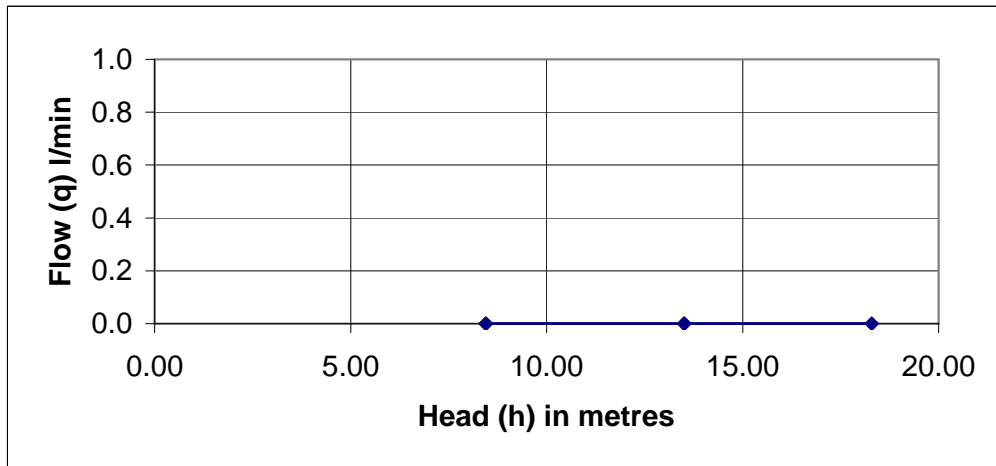
Test Type: Double Water Injection Packer  
 Depth Below Ground/Bed Level: [redacted]  
 Top of Test Section 10.00  
 Base of Test Section 12.00  
 Test Section Centre 11.00  
 Initial Water Depth 2.62  
 Datum to Ground/Bed 0.00  
 Datum to Gauge 0.70

Borehole: BH03  
 Date: 05/02/10  
 Site Engineer [redacted]  
 Calculated By [redacted]  
 Checked By [redacted]  
 Rock Type  
 Number of Rods 5  
 Test Section Length

Test No: 1  
 Start Time: 12:00  
 [redacted]  
 Quartz Mica Schist  
 5  
 2.00 (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.0                     | 7.3                | 5.13                                  | 0.70                      | 2.62                             | 0.00                                     | 0.00                  | 8.45           |
| 2     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 2.62                             | 0.00                                     | 0.00                  | 13.51          |
| 3     | 0.0                     | 21.3               | 14.97                                 | 0.70                      | 2.62                             | 0.00                                     | 0.00                  | 18.29          |
| 4     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 2.62                             | 0.00                                     | 0.00                  | 13.51          |
| 5     | 0.0                     | 7.3                | 5.13                                  | 0.70                      | 2.62                             | 0.00                                     | 0.00                  | 8.45           |



Note mbdl - metres below datum/deck level mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Single Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 4.50  
 Base of Hole : 20.00  
 Top of Test Section : 18.00  
 Base of Test Section : 20.00  
 Initial Groundwater 2.27 m Below Datum  
 Datum 0.25  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 2.27 mbdl

Borehole: BH03  
 Date: 09/02/10  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 2.00  
 Rock Type Quartz Mica Schist  
 Water level after test 2.26  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-2-09  
 Flow meter used : 1281900  
 Number of Rods 6  
 Water Quality Potable

Test No: 2  
 Start Time: 12:00

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 2.27                       |                           | 14.5               | 0                 | 40.472                  |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 40.473                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 14.5               | 6                 | 40.496                  | 23                       | 7.7             |                                  |
|                             |                            |                           | 14.5               | 9                 | 40.502                  | 6                        | 2.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 40.510                  | 8                        | 2.7             |                                  |
|                             |                            |                           | 14.5               | 15                | 40.518                  | 8                        | 2.7             | 3.1                              |
| 2/200                       | 2.27                       |                           | 29.0               | 0                 | 40.521                  |                          |                 |                                  |
|                             |                            |                           | 29.0               | 3                 | 40.529                  | 8                        | 2.7             |                                  |
|                             |                            |                           | 29.0               | 6                 | 40.539                  | 10                       | 3.3             |                                  |
|                             |                            |                           | 29.0               | 9                 | 40.548                  | 9                        | 3.0             |                                  |
|                             |                            |                           | 29.0               | 12                | 40.558                  | 10                       | 3.3             |                                  |
|                             |                            |                           | 29.0               | 15                | 40.564                  | 6                        | 2.0             | 2.8                              |
| 3/200                       | 2.27                       |                           | 56.5               | 0                 | 40.683                  |                          |                 |                                  |
|                             |                            |                           | 56.5               | 3                 | 40.684                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 56.5               | 5                 | 40.686                  | 2                        | 1.0             |                                  |
|                             |                            |                           | 56.5               | 9                 | 40.686                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 56.5               | 12                | 40.687                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 56.5               | 15                | 40.688                  | 1                        | 0.3             | 0.9                              |
| 4/200                       | 2.27                       |                           | 29.0               | 0                 | 40.688                  |                          |                 |                                  |
|                             |                            |                           | 29.0               | 3                 | 40.689                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 29.0               | 6                 | 40.689                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 9                 | 40.690                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 29.0               | 12                | 40.690                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 15                | 40.691                  | 1                        | 0.3             | 0.2                              |
| 5/200                       | 2.27                       |                           | 14.5               | 0                 | 40.691                  |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 40.690                  | -1                       | -0.3            |                                  |
|                             |                            |                           | 14.5               | 6                 | 40.690                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 40.690                  | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 40.691                  | 1                        | 0.3             |                                  |
|                             |                            |                           | 14.5               | 15                | 40.691                  | 0                        | 0.0             | 0                                |



**PACKER TEST CALCULATIONS**

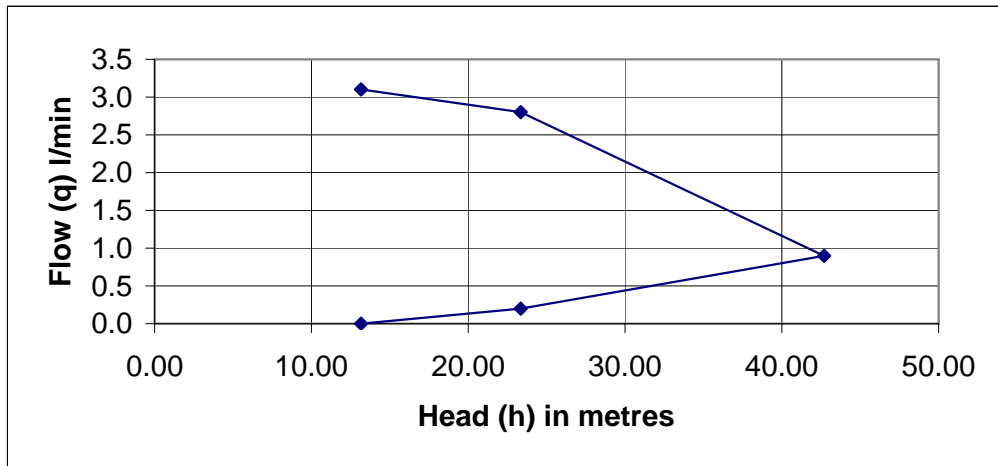
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      18.00  
 Base of Test Section      20.00  
 Test Section Centre      19.00  
 Initial Water Depth      2.27  
 Datum to Ground/Bed      0.00  
 Datum to Gauge          0.70

Borehole: BH03  
 Date: 09/02/10  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type                  Quartz Mica Schist  
 Number of Rods            6  
 Test Section Length      2.00            (L)

Test No: 2  
 Start Time: 12:00

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 3.1                     | 14.5               | 10.19                                 | 0.70                      | 2.27                             | 0.00                                     | 0.00                  | 13.16          |
| 2     | 2.8                     | 29.0               | 20.39                                 | 0.70                      | 2.27                             | 0.00                                     | 0.00                  | 23.36          |
| 3     | 0.9                     | 56.5               | 39.72                                 | 0.70                      | 2.27                             | 0.00                                     | 0.00                  | 42.69          |
| 4     | 0.2                     | 29.0               | 20.39                                 | 0.70                      | 2.27                             | 0.00                                     | 0.00                  | 23.36          |
| 5     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 2.27                             | 0.00                                     | 0.00                  | 13.16          |



Note                      mbdl - metres below datum/deck level                      mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Double Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 6.60  
 Base of Hole : 30.00  
 Top of Test Section : 20.00  
 Base of Test Section : 23.00  
 Initial Groundwater 0.22 m Below Datum  
 Datum 0.90  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 0.22 mbdl

Borehole: BH03  
 Date: 11/02/10  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 3.00  
 Rock Type Quartz Mica Schist  
 Water level after test 0.23  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-2-09  
 Flow meter used : 1281900  
 Number of Rods 7  
 Water Quality Potable

Test No: 3  
 Start Time: 12:00

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 0.22                       |                           | 14.5               | 0                 | 104.849                 |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 6                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 104.849                 | 0                        | 0.0             | 0                                |
| 2/200                       | 0.22                       |                           | 29.0               | 0                 | 104.849                 |                          |                 |                                  |
|                             |                            |                           | 29.0               | 3                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 6                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 9                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 12                | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 15                | 104.849                 | 0                        | 0.0             | 0                                |
| 3/200                       | 0.22                       |                           | 43.5               | 0                 | 104.849                 |                          |                 |                                  |
|                             |                            |                           | 43.5               | 3                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 43.5               | 5                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 43.5               | 9                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 43.5               | 12                | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 43.5               | 15                | 104.849                 | 0                        | 0.0             | 0                                |
| 4/200                       | 0.22                       |                           | 29.0               | 0                 | 104.849                 |                          |                 |                                  |
|                             |                            |                           | 29.0               | 3                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 6                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 9                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 12                | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 15                | 104.849                 | 0                        | 0.0             | 0                                |
| 5/200                       | 0.22                       |                           | 14.5               | 0                 | 104.849                 |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 6                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 104.849                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 104.849                 | 0                        | 0.0             | 0                                |





**PACKER TEST CALCULATIONS**

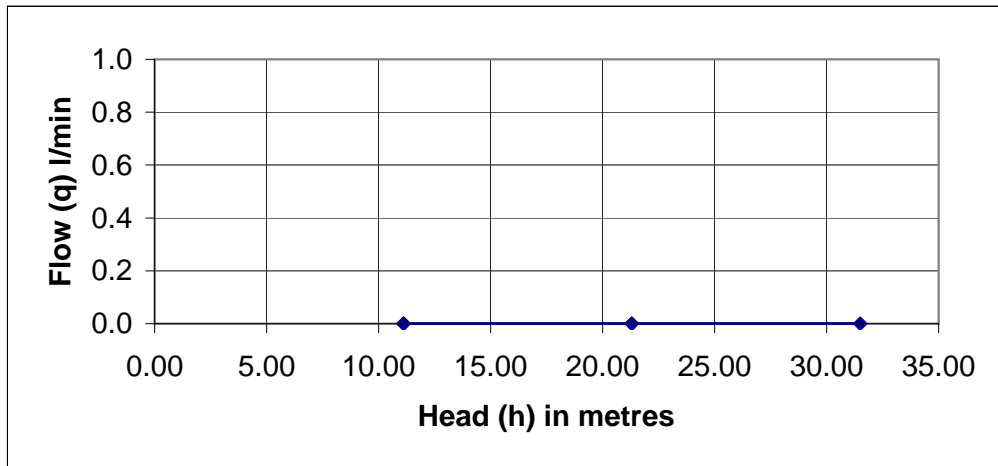
Test Type: Double Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      20.00  
 Base of Test Section     23.00  
 Test Section Centre     21.50  
 Initial Water Depth      0.22  
 Datum to Ground/Bed    0.00  
 Datum to Gauge          0.70

Borehole: BH03  
 Date: 11/02/10  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 3  
 Start Time: 12:00  
                      
                      
 Quartz Mica Schist  
 7  
 3.00      (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 0.22                             | 0.00                                     | 0.00                  | 11.11          |
| 2     | 0.0                     | 29.0               | 20.39                                 | 0.70                      | 0.22                             | 0.00                                     | 0.00                  | 21.31          |
| 3     | 0.0                     | 43.5               | 30.58                                 | 0.70                      | 0.22                             | 0.00                                     | 0.00                  | 31.50          |
| 4     | 0.0                     | 29.0               | 20.39                                 | 0.70                      | 0.22                             | 0.00                                     | 0.00                  | 21.31          |
| 5     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 0.22                             | 0.00                                     | 0.00                  | 11.11          |



Note                      mbdl - metres below datum/deck level                      mabl - metres above bed level



PACKER TEST FIELD RECORDS

|  |                              |                     |
|--|------------------------------|---------------------|
| Test Type: Single Water Injection Packer | Borehole: BH04               | Test No: 1          |
| Depth Below Bed Level:                   | Date: 26/01/2010             | Start Time: 12:00pm |
| Base of Casing : 5.50                    | Casing Diameter mm 150       |                     |
| Base of Hole : 11.10                     | Section Diameter mm 131      |                     |
| Top of Test Section : 9.50               | Section Length 1.60          |                     |
| Base of Test Section : 11.10             | Rock Type Quartz Mica Schist |                     |
| Initial Groundwater 2.20 m Below Datum   | Water level after test 2.20  |                     |
| Datum Top of Casing                      | Datum Level                  |                     |
| Datum to Bed Level : 6.00                | Site Engineer                |                     |
| Gauge Height Above Datum 0.70            | Gauge used : 77361-2-09      |                     |
| Tank Dimensions N/A                      | Flow meter used : 1281900    |                     |
| Type of Drill Rods 25mm                  | Number of Rods 3             |                     |
| Packer Type / Ref Pneumatic              | Water Quality Potable        |                     |
| Assumed Standing Water Level 2.20 mbdl   |                              |                     |

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 2.20                       |                           | 7.2                | 0                 | 103.208                 |                          |                 |                                  |
|                             |                            |                           | 7.2                | 3                 | 103.222                 | 14                       | 4.7             |                                  |
|                             |                            |                           | 7.2                | 6                 | 103.335                 | 113                      | 37.7            |                                  |
|                             |                            |                           | 7.2                | 9                 | 103.365                 | 30                       | 10.0            |                                  |
|                             |                            |                           | 7.2                | 12                | 103.390                 | 25                       | 8.3             |                                  |
|                             |                            |                           | 7.2                | 15                | 103.336                 | -54                      | -18.0           | 16                               |
| 2/200                       | 2.20                       |                           | 14.5               | 0                 | 103.365                 |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 103.376                 | 11                       | 3.7             |                                  |
|                             |                            |                           | 14.5               | 6                 | 103.381                 | 5                        | 1.7             |                                  |
|                             |                            |                           | 14.5               | 9                 | 103.399                 | 18                       | 6.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 103.408                 | 9                        | 3.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 103.416                 | 8                        | 2.7             | 4                                |
| 3/200                       | 2.20                       |                           | 29.0               | 0                 | 103.318                 |                          |                 |                                  |
|                             |                            |                           | 29.0               | 3                 | 103.318                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 5                 | 103.318                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 9                 | 103.318                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 12                | 103.318                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 15                | 103.318                 | 0                        | 0.0             | 0                                |
| 4/200                       | 2.20                       |                           | 14.5               | 0                 | 103.319                 |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 103.326                 | 7                        | 2.3             |                                  |
|                             |                            |                           | 14.5               | 5                 | 103.329                 | 3                        | 1.5             |                                  |
|                             |                            |                           | 14.5               | 9                 | 103.335                 | 6                        | 1.5             |                                  |
|                             |                            |                           | 14.5               | 12                | 103.338                 | 3                        | 1.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 103.339                 | 1                        | 0.3             | 2                                |
| 5/200                       | 2.20                       |                           | 7.2                | 0                 | 103.331                 |                          |                 |                                  |
|                             |                            |                           | 7.2                | 3                 | 103.337                 | 6                        | 2.0             |                                  |
|                             |                            |                           | 7.2                | 6                 | 103.341                 | 4                        | 1.3             |                                  |
|                             |                            |                           | 7.2                | 9                 | 103.354                 | 13                       | 4.3             |                                  |
|                             |                            |                           | 7.2                | 12                | 103.359                 | 5                        | 1.7             |                                  |
|                             |                            |                           | 7.2                | 15                | 103.459                 | 100                      | 33.3            | 9                                |



**PACKER TEST CALCULATIONS**

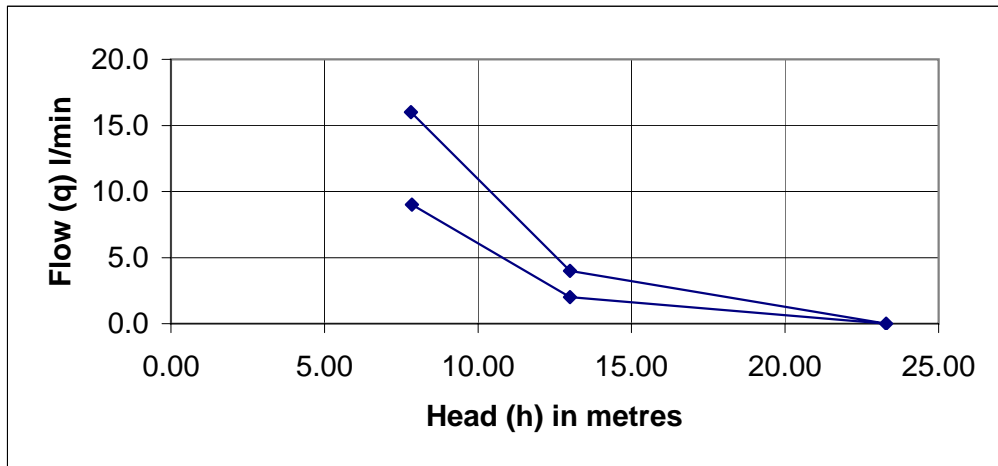
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      9.50  
 Base of Test Section      11.10  
 Test Section Centre      10.30  
 Initial Water Depth      2.20  
 Datum to Ground/Bed      6.00  
 Datum to Gauge          0.70

Borehole: BH04  
 Date: 26/01/2010  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 1  
 Start Time: 12:00pm  
                      
                      
 Quartz Mica Schist  
 3  
 1.60      (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow l/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | l/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 16.0                    | 7.2                | 5.06                                  | 0.70                      | 2.20                             | 0.15                                     | 0.00                  | 7.81           |
| 2     | 4.0                     | 14.5               | 10.19                                 | 0.70                      | 2.20                             | 0.10                                     | 0.00                  | 12.99          |
| 3     | 0.0                     | 29.0               | 20.39                                 | 0.70                      | 2.20                             | 0.00                                     | 0.00                  | 23.29          |
| 4     | 2.0                     | 14.5               | 10.19                                 | 0.70                      | 2.20                             | 0.10                                     | 0.00                  | 12.99          |
| 5     | 9.0                     | 7.2                | 5.06                                  | 0.70                      | 2.20                             | 0.11                                     | 0.00                  | 7.85           |



Note      mbdl - metres below datum/deck level      mabl - metres above bed level



PACKER TEST FIELD RECORDS

|  |                              |                     |
|--|------------------------------|---------------------|
| Test Type: Single Water Injection Packer | Borehole: BH04               | Test No: 2          |
| Depth Below Bed Level:                   | Date: 29/01/2010             | Start Time: 12:00pm |
| Base of Casing : 5.50                    | Casing Diameter mm 150       |                     |
| Base of Hole : 20.50                     | Section Diameter mm 131      |                     |
| Top of Test Section : 16.50              | Section Length 4.00          |                     |
| Base of Test Section : 20.50             | Rock Type Quartz Mica Schist |                     |
| Initial Groundwater 1.99 m Below Datum   | Water level after test 1.98  |                     |
| Datum Top of Casing                      | Datum Level                  |                     |
| Datum to Bed Level :                     | Site Engineer                |                     |
| Gauge Height Above Datum 0.70            | Gauge used : 77361-2-09      |                     |
| Tank Dimensions N/A                      | Flow meter used : 1281900    |                     |
| Type of Drill Rods 25mm                  | Number of Rods 5             |                     |
| Packer Type / Ref Pneumatic              | Water Quality Potable        |                     |
| Assumed Standing Water Level 1.99 m bdl  |                              |                     |

| Stage / Packer Pressure psi | Water Level in Casing m bdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|-----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 2.00                        |                           | 14.5               | 0                 | 39.229                  |                          |                 |                                  |
|                             |                             |                           | 14.5               | 3                 | 39.331                  | 102                      | 34.0            |                                  |
|                             |                             |                           | 14.5               | 6                 | 39.333                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 14.5               | 9                 | 39.334                  | 1                        | 0.3             |                                  |
|                             |                             |                           | 14.5               | 12                | 39.336                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 14.5               | 15                | 39.337                  | 1                        | 0.3             | 0.5                              |
| 2/200                       | 2.00                        |                           | 29.1               | 0                 | 39.238                  |                          |                 |                                  |
|                             |                             |                           | 29.1               | 3                 | 39.240                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 29.1               | 6                 | 39.242                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 29.1               | 9                 | 39.244                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 29.1               | 12                | 39.246                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 29.1               | 15                | 39.248                  | 2                        | 0.7             | 0.7                              |
| 3/200                       | 2.00                        |                           | 58.0               | 0                 | 39.268                  |                          |                 |                                  |
|                             |                             |                           | 58.0               | 3                 | 39.273                  | 5                        | 1.7             |                                  |
|                             |                             |                           | 58.0               | 5                 | 39.274                  | 1                        | 0.5             |                                  |
|                             |                             |                           | 58.0               | 9                 | 39.280                  | 6                        | 1.5             |                                  |
|                             |                             |                           | 58.0               | 12                | 39.284                  | 4                        | 1.3             |                                  |
|                             |                             |                           | 58.0               | 15                | 39.288                  | 4                        | 1.3             | 1.3                              |
| 4/200                       | 2.00                        |                           | 29.1               | 0                 | 39.305                  |                          |                 |                                  |
|                             |                             |                           | 29.1               | 3                 | 39.307                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 29.1               | 5                 | 39.310                  | 3                        | 1.5             |                                  |
|                             |                             |                           | 29.1               | 9                 | 39.312                  | 2                        | 0.5             |                                  |
|                             |                             |                           | 29.1               | 12                | 39.315                  | 3                        | 1.0             |                                  |
|                             |                             |                           | 29.1               | 15                | 39.317                  | 2                        | 0.7             | 0.7                              |
| 5/200                       | 2.00                        |                           | 14.5               | 0                 | 39.318                  |                          |                 |                                  |
|                             |                             |                           | 14.5               | 3                 | 39.320                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 14.5               | 6                 | 39.321                  | 1                        | 0.3             |                                  |
|                             |                             |                           | 14.5               | 9                 | 39.323                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 14.5               | 12                | 39.325                  | 2                        | 0.7             |                                  |
|                             |                             |                           | 14.5               | 15                | 39.326                  | 1                        | 0.3             | 0.5                              |

FIGURE FT21



**PACKER TEST CALCULATIONS**

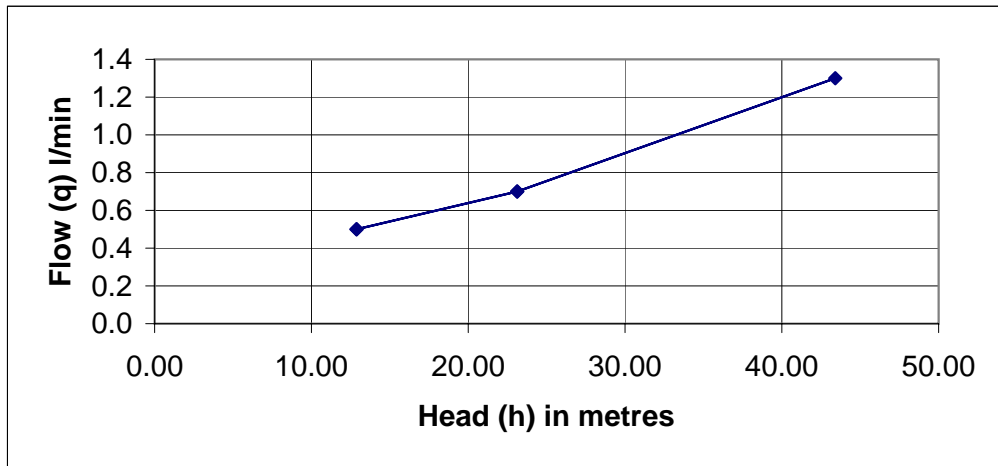
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      16.50  
 Base of Test Section     20.50  
 Test Section Centre     18.50  
 Initial Water Depth      1.99  
 Datum to Ground/Bed    0.00  
 Datum to Gauge          0.70

Borehole: BH04  
 Date: 29/01/2010  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 2  
 Start Time: 12:00pm  
                      
                      
 Quartz Mica Schist  
 5  
 4.00      (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow l/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | l/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.5                     | 14.5               | 10.19                                 | 0.70                      | 1.99                             | 0.00                                     | 0.00                  | 12.88          |
| 2     | 0.7                     | 29.1               | 20.46                                 | 0.70                      | 1.99                             | 0.02                                     | 0.00                  | 23.13          |
| 3     | 1.3                     | 58.0               | 40.77                                 | 0.70                      | 1.99                             | 0.05                                     | 0.00                  | 43.41          |
| 4     | 0.7                     | 29.1               | 20.46                                 | 0.70                      | 1.99                             | 0.02                                     | 0.00                  | 23.13          |
| 5     | 0.5                     | 14.5               | 10.19                                 | 0.70                      | 1.99                             | 0.00                                     | 0.00                  | 12.88          |



Note      mbdl - metres below datum/deck level      mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Double Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 5.50  
 Base of Hole : 35.00  
 Top of Test Section : 22.00  
 Base of Test Section : 25.00  
 Initial Groundwater 0.89 m Below Datum  
 Datum 0.45  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 0.89 mbdl

Borehole: BH04  
 Date: 12/02/10  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 3.00  
 Rock Type Quartz Mica Schist  
 Water level after test 0.96  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-2-09  
 Flow meter used : 1281900  
 Number of Rods 8  
 Water Quality Potable

Test No: 3  
 Start Time: 12:00

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 0.89                       |                           | 18.1               | 0                 | 105.952                 |                          |                 |                                  |
|                             |                            |                           | 18.1               | 3                 | 105.964                 | 12                       | 4.0             |                                  |
|                             |                            |                           | 18.1               | 6                 | 105.977                 | 13                       | 4.3             |                                  |
|                             |                            |                           | 18.1               | 9                 | 106.004                 | 27                       | 9.0             |                                  |
|                             |                            |                           | 18.1               | 12                | 106.020                 | 16                       | 5.3             |                                  |
|                             |                            |                           | 18.1               | 15                | 106.042                 | 22                       | 7.3             | 6                                |
| 2/200                       | 0.89                       |                           | 36.2               | 0                 | 106.061                 |                          |                 |                                  |
|                             |                            |                           | 36.2               | 3                 | 106.068                 | 7                        | 2.3             |                                  |
|                             |                            |                           | 36.2               | 6                 | 106.072                 | 4                        | 1.3             |                                  |
|                             |                            |                           | 36.2               | 9                 | 106.073                 | 1                        | 0.3             |                                  |
|                             |                            |                           | 36.2               | 12                | 106.073                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 36.2               | 15                | 106.073                 | 0                        | 0.0             | 0.8                              |
| 3/200                       | 0.89                       |                           | 54.4               | 0                 | 106.085                 |                          |                 |                                  |
|                             |                            |                           | 54.4               | 3                 | 106.085                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 54.4               | 5                 | 106.085                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 54.4               | 9                 | 106.085                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 54.4               | 12                | 106.085                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 54.4               | 15                | 106.085                 | 0                        | 0.0             | 0                                |
| 4/200                       | 0.89                       |                           | 36.2               | 0                 | 106.086                 |                          |                 |                                  |
|                             |                            |                           | 36.2               | 3                 | 106.086                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 36.2               | 6                 | 106.086                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 36.2               | 9                 | 106.086                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 36.2               | 12                | 106.086                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 36.2               | 15                | 106.086                 | 0                        | 0.0             | 0                                |
| 5/200                       | 0.89                       |                           | 18.1               | 0                 | 106.086                 |                          |                 |                                  |
|                             |                            |                           | 18.1               | 3                 | 106.087                 | 1                        | 0.3             |                                  |
|                             |                            |                           | 18.1               | 6                 | 106.087                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 18.1               | 9                 | 106.088                 | 1                        | 0.3             |                                  |
|                             |                            |                           | 18.1               | 12                | 106.088                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 18.1               | 15                | 106.088                 | 0                        | 0.0             | 0                                |



**PACKER TEST CALCULATIONS**

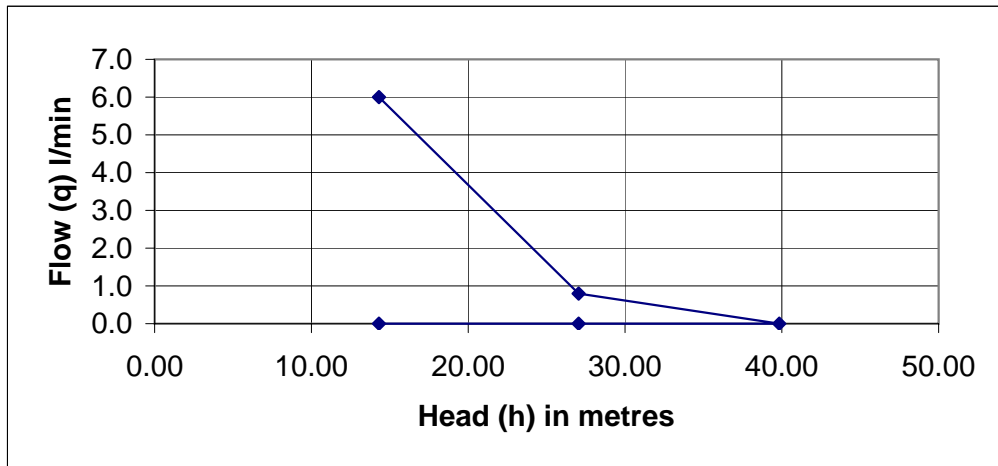
Test Type: Double Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      22.00  
 Base of Test Section      25.00  
 Test Section Centre      23.50  
 Initial Water Depth      0.89  
 Datum to Ground/Bed      0.00  
 Datum to Gauge          0.70

Borehole: BH04  
 Date: 12/02/10  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 3  
 Start Time: 12:00  
                      
 Quartz Mica Schist  
 8  
 3.00 (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 6.0                     | 18.1               | 12.72                                 | 0.70                      | 0.89                             | 0.00                                     | 0.00                  | 14.31          |
| 2     | 0.8                     | 36.2               | 25.45                                 | 0.70                      | 0.89                             | 0.00                                     | 0.00                  | 27.04          |
| 3     | 0.0                     | 54.4               | 38.24                                 | 0.70                      | 0.89                             | 0.00                                     | 0.00                  | 39.83          |
| 4     | 0.0                     | 36.2               | 25.45                                 | 0.70                      | 0.89                             | 0.00                                     | 0.00                  | 27.04          |
| 5     | 0.0                     | 18.1               | 12.72                                 | 0.70                      | 0.89                             | 0.00                                     | 0.00                  | 14.31          |



Note                      mbdl - metres below datum/deck level                      mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Single Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 5.50  
 Base of Hole : 8.80  
 Top of Test Section : 6.00  
 Base of Test Section : 8.80  
 Initial Groundwater 3.20 m Below Datum  
 Datum 1.20  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 3.20 m bdl

Borehole: BH06  
 Date: 17/02/10  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 2.80  
 Rock Type Quartz Mica Schist  
 Water level after test 3.21  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-1-00  
 Flow meter used : 1281900  
 Number of Rods 2  
 Water Quality Potable

Test No: 1  
 Start Time: 12:00

| Stage / Packer Pressure psi | Water Level in Casing m bdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|-----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 3.20                        |                           | 7.0                | 0                 | 105.101                 |                          |                 |                                  |
|                             |                             |                           | 7.0                | 3                 | 105.101                 | 0                        | 0.0             |                                  |
|                             |                             |                           | 7.0                | 6                 | 105.101                 | 0                        | 0.0             |                                  |
|                             |                             |                           | 7.0                | 9                 | 105.101                 | 0                        | 0.0             |                                  |
|                             |                             |                           | 7.0                | 12                | 105.101                 | 0                        | 0.0             |                                  |
|                             |                             |                           | 7.0                | 15                | 105.101                 | 0                        | 0.0             | 0                                |
| 2/200                       | 3.20                        |                           | 14.5               | 0                 | 105.112                 |                          |                 |                                  |
|                             |                             |                           | 14.5               | 3                 | 105.115                 | 3                        | 1.0             |                                  |
|                             |                             |                           | 14.5               | 6                 | 105.119                 | 4                        | 1.3             |                                  |
|                             |                             |                           | 14.5               | 9                 | 105.121                 | 2                        | 0.7             |                                  |
|                             |                             |                           | 14.5               | 12                | 105.125                 | 4                        | 1.3             |                                  |
|                             |                             |                           | 14.5               | 15                | 105.128                 | 3                        | 1.0             | 1                                |
| 3/200                       | 3.20                        |                           | 22.5               | 0                 | 105.158                 |                          |                 |                                  |
|                             |                             |                           | 22.5               | 3                 | 105.160                 | 2                        | 0.7             |                                  |
|                             |                             |                           | 22.5               | 5                 | 105.164                 | 4                        | 2.0             |                                  |
|                             |                             |                           | 22.5               | 9                 | 105.174                 | 10                       | 2.5             |                                  |
|                             |                             |                           | 22.5               | 12                | 105.180                 | 6                        | 2.0             |                                  |
|                             |                             |                           | 22.5               | 15                | 105.199                 | 19                       | 6.3             | 2                                |
| 4/200                       | 3.20                        |                           | 14.5               | 0                 | 105.193                 |                          |                 |                                  |
|                             |                             |                           | 14.5               | 3                 | 105.196                 | 3                        | 1.0             |                                  |
|                             |                             |                           | 14.5               | 6                 | 105.198                 | 2                        | 0.7             |                                  |
|                             |                             |                           | 14.5               | 9                 | 105.203                 | 5                        | 1.7             |                                  |
|                             |                             |                           | 14.5               | 12                | 105.203                 | 0                        | 0.0             |                                  |
|                             |                             |                           | 14.5               | 15                | 105.204                 | 1                        | 0.3             | 1                                |
| 5/200                       | 3.20                        |                           | 7.0                | 0                 | 105.207                 |                          |                 |                                  |
|                             |                             |                           | 7.0                | 3                 | 105.207                 | 0                        | 0.0             |                                  |
|                             |                             |                           | 7.0                | 6                 | 105.207                 | 0                        | 0.0             |                                  |
|                             |                             |                           | 7.0                | 9                 | 105.207                 | 0                        | 0.0             |                                  |
|                             |                             |                           | 7.0                | 12                | 105.207                 | 0                        | 0.0             |                                  |
|                             |                             |                           | 7.0                | 15                | 105.207                 | 0                        | 0.0             | 0                                |





**PACKER TEST CALCULATIONS**

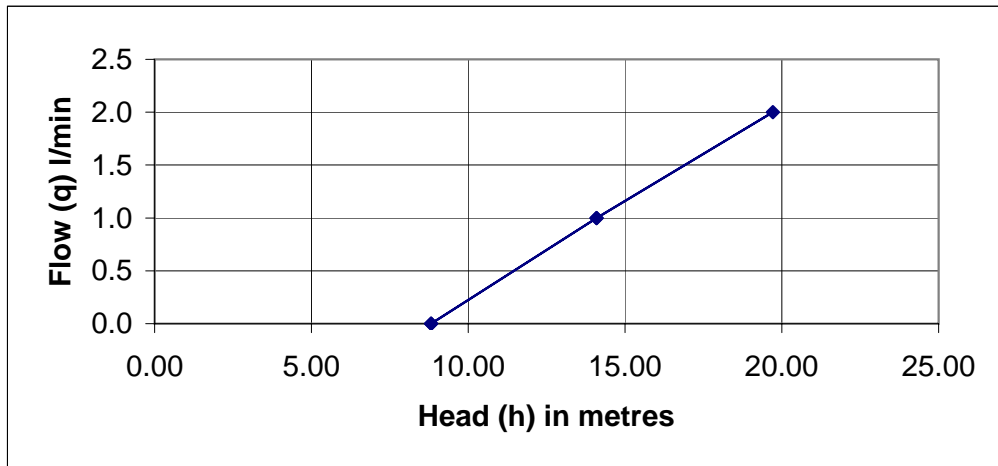
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      6.00  
 Base of Test Section      8.80  
 Test Section Centre      7.40  
 Initial Water Depth      3.20  
 Datum to Ground/Bed      0.00  
 Datum to Gauge      0.70

Borehole: BH06  
 Date: 17/02/10  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 1  
 Start Time: 12:00  
                      
 Quartz Mica Schist  
 2  
 2.80 (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.0                     | 7.0                | 4.92                                  | 0.70                      | 3.20                             | 0.00                                     | 0.00                  | 8.82           |
| 2     | 1.0                     | 14.5               | 10.19                                 | 0.70                      | 3.20                             | 0.00                                     | 0.00                  | 14.09          |
| 3     | 2.0                     | 22.5               | 15.82                                 | 0.70                      | 3.20                             | 0.00                                     | 0.00                  | 19.72          |
| 4     | 1.0                     | 14.5               | 10.19                                 | 0.70                      | 3.20                             | 0.00                                     | 0.00                  | 14.09          |
| 5     | 0.0                     | 7.0                | 4.92                                  | 0.70                      | 3.20                             | 0.00                                     | 0.00                  | 8.82           |



Note      mbdl - metres below datum/deck level      mabl - metres above bed level



PACKER TEST FIELD RECORDS

|  |                              |                   |
|--|------------------------------|-------------------|
| Test Type: Single Water Injection Packer | Borehole: BH06               | Test No: 2        |
| Depth Below Bed Level:                   | Date: 18/02/10               | Start Time: 12:00 |
| Base of Casing : 5.50                    | Casing Diameter mm 150       |                   |
| Base of Hole : 19.60                     | Section Diameter mm 131      |                   |
| Top of Test Section : 13.00              | Section Length 6.60          |                   |
| Base of Test Section : 19.60             | Rock Type Quartz Mica Schist |                   |
| Initial Groundwater 3.41 m Below Datum   | Water level after test 3.41  |                   |
| Datum 1.20                               | Datum Level                  |                   |
| Datum to Bed Level :                     | Site Engineer                |                   |
| Gauge Height Above Datum 0.70            | Gauge used : 77361-1-00      |                   |
| Tank Dimensions NA                       | Flow meter used : 1281900    |                   |
| Type of Drill Rods 25mm                  | Number of Rods 4             |                   |
| Packer Type / Ref Pneumatic              | Water Quality Potable        |                   |
| Assumed Standing Water Level 3.41 mbdl   |                              |                   |

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 3.41                       |                           | 14.5               | 0                 | 105.213                 |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 105.213                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 6                 | 105.213                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 9                 | 105.213                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 12                | 105.213                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 14.5               | 15                | 105.213                 | 0                        | 0.0             | 0                                |
| 2/200                       | 3.41                       |                           | 29.0               | 0                 | 105.217                 |                          |                 |                                  |
|                             |                            |                           | 29.0               | 3                 | 105.217                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 6                 | 105.217                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 9                 | 105.218                 | 1                        | 0.3             |                                  |
|                             |                            |                           | 29.0               | 12                | 105.218                 | 0                        | 0.0             |                                  |
|                             |                            |                           | 29.0               | 15                | 105.218                 | 0                        | 0.0             | 0                                |
| 3/200                       | 3.41                       |                           | 43.5               | 0                 | 105.211                 |                          |                 |                                  |
|                             |                            |                           | 43.5               | 3                 | 105.212                 | 1                        | 0.3             |                                  |
|                             |                            |                           | 43.5               | 5                 | 105.214                 | 2                        | 1.0             |                                  |
|                             |                            |                           | 43.5               | 9                 | 105.217                 | 3                        | 0.8             |                                  |
|                             |                            |                           | 43.5               | 12                | 105.219                 | 2                        | 0.7             |                                  |
|                             |                            |                           | 43.5               | 15                | 105.222                 | 3                        | 1.0             | 0.8                              |
| 4/200                       | 3.41                       |                           | 29.0               | 0                 | 105.224                 |                          |                 |                                  |
|                             |                            |                           | 29.0               | 3                 | 105.228                 | 4                        | 1.3             |                                  |
|                             |                            |                           | 29.0               | 6                 | 105.233                 | 5                        | 1.7             |                                  |
|                             |                            |                           | 29.0               | 9                 | 105.237                 | 4                        | 1.3             |                                  |
|                             |                            |                           | 29.0               | 12                | 105.242                 | 5                        | 1.7             |                                  |
|                             |                            |                           | 29.0               | 15                | 105.244                 | 2                        | 0.7             | 1.3                              |
| 5/200                       | 3.41                       |                           | 14.5               | 0                 | 105.244                 |                          |                 |                                  |
|                             |                            |                           | 14.5               | 3                 | 105.239                 | -5                       | -1.7            |                                  |
|                             |                            |                           | 14.5               | 6                 | 105.233                 | -6                       | -2.0            |                                  |
|                             |                            |                           | 14.5               | 9                 | 105.230                 | -3                       | -1.0            |                                  |
|                             |                            |                           | 14.5               | 12                | 105.229                 | -1                       | -0.3            |                                  |
|                             |                            |                           | 14.5               | 15                | 105.228                 | -1                       | -0.3            | 0                                |



**PACKER TEST CALCULATIONS**

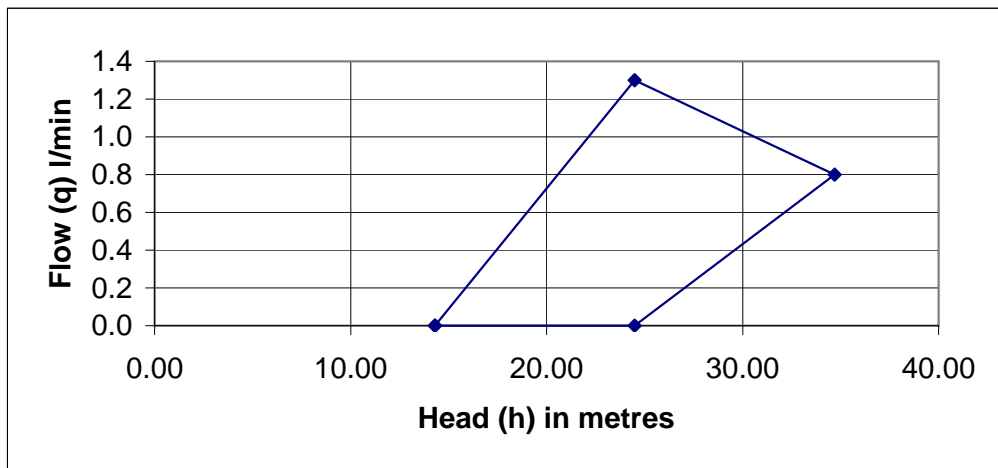
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      13.00  
 Base of Test Section      19.60  
 Test Section Centre      16.30  
 Initial Water Depth      3.41  
 Datum to Ground/Bed      0.00  
 Datum to Gauge          0.70

Borehole: BH06  
 Date: 18/02/10  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 2  
 Start Time: 12:00  
                      
 Quartz Mica Schist  
 4  
 6.60 (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow l/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | l/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 3.41                             | 0.00                                     | 0.00                  | 14.30          |
| 2     | 0.0                     | 29.0               | 20.39                                 | 0.70                      | 3.41                             | 0.00                                     | 0.00                  | 24.50          |
| 3     | 0.8                     | 43.5               | 30.58                                 | 0.70                      | 3.41                             | 0.00                                     | 0.00                  | 34.69          |
| 4     | 1.3                     | 29.0               | 20.39                                 | 0.70                      | 3.41                             | 0.00                                     | 0.00                  | 24.50          |
| 5     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 3.41                             | 0.00                                     | 0.00                  | 14.30          |



Note                      mbdl - metres below datum/deck level                      mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Single Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 7.00  
 Base of Hole : 10.00  
 Top of Test Section : 8.00  
 Base of Test Section : 10.00  
 Initial Groundwater 1.43 m Below Datum  
 Datum 0.50  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 3.46 mbdl

Borehole: BH11  
 Date: 01/03/2010  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 2.00  
 Rock Type Mica SCHIST  
 Water level after test 3.46  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-1-00  
 Flow meter used : 1281900  
 Number of Rods 3  
 Water Quality Potable

Test No: 1  
 Start Time: 1510

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 3.50                       |                           | 7.3                | 0                 | 105.254                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 105.273                 | 19                       | 6.3             |                                  |
|                             |                            |                           |                    | 6                 | 105.291                 | 18                       | 6.0             |                                  |
|                             |                            |                           |                    | 9                 | 105.317                 | 26                       | 8.7             |                                  |
|                             |                            |                           |                    | 12                | 105.324                 | 7                        | 2.3             |                                  |
|                             |                            |                           |                    | 15                | 105.338                 | 14                       | 4.7             | 5.6                              |
| 2/200                       | 3.50                       |                           | 14.5               | 0                 | 105.345                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 105.376                 | 31                       | 10.3            |                                  |
|                             |                            |                           |                    | 6                 | 105.411                 | 35                       | 11.7            |                                  |
|                             |                            |                           |                    | 9                 | 105.446                 | 35                       | 11.7            |                                  |
|                             |                            |                           |                    | 12                | 105.483                 | 37                       | 12.3            |                                  |
|                             |                            |                           |                    | 15                | 105.512                 | 29                       | 9.7             | 11.1                             |
| 3/200                       | 3.50                       |                           | 21.3               | 0                 | 106.000                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 106.285                 | 285                      | 95.0            |                                  |
|                             |                            |                           |                    | 5                 | 106.498                 | 213                      | 106.5           |                                  |
|                             |                            |                           |                    | 9                 | 106.713                 | 215                      | 53.7            |                                  |
|                             |                            |                           |                    | 12                | 106.994                 | 281                      | 93.7            |                                  |
|                             |                            |                           |                    | 15                | 107.184                 | 190                      | 63.3            | 82                               |
| 4/200                       | 3.50                       |                           | 14.5               | 0                 | 107.226                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 107.405                 | 179                      | 59.7            |                                  |
|                             |                            |                           |                    | 6                 | 107.656                 | 251                      | 83.7            |                                  |
|                             |                            |                           |                    | 9                 | 107.904                 | 248                      | 82.7            |                                  |
|                             |                            |                           |                    | 12                | 108.169                 | 265                      | 88.3            |                                  |
|                             |                            |                           |                    | 15                | 108.351                 | 182                      | 60.7            | 75                               |
| 5/200                       | 3.50                       |                           | 7.3                | 0                 | 108.367                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.419                 | 52                       | 17.3            |                                  |
|                             |                            |                           |                    | 6                 | 108.701                 | 282                      | 94.0            |                                  |
|                             |                            |                           |                    | 9                 | 108.848                 | 147                      | 49.0            |                                  |
|                             |                            |                           |                    | 12                | 109.023                 | 175                      | 58.3            |                                  |
|                             |                            |                           |                    | 15                | 109.156                 | 133                      | 44.3            | 20.5                             |



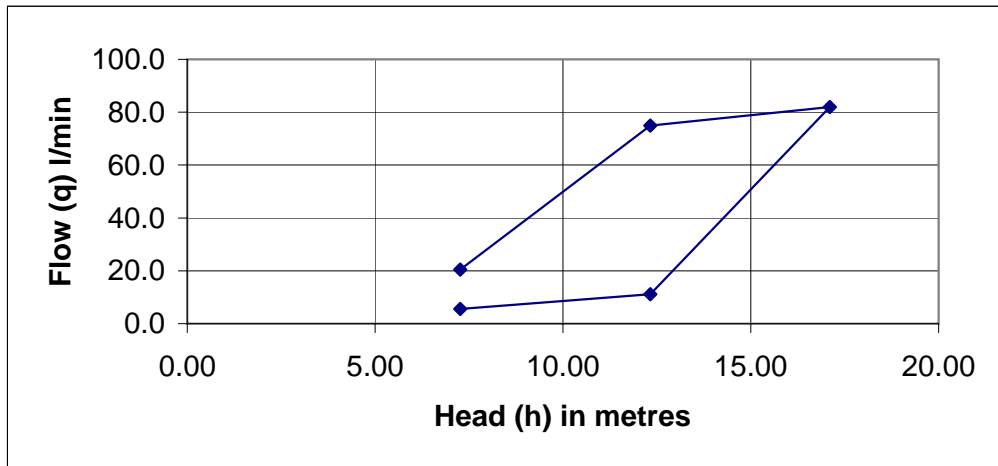
**PACKER TEST CALCULATIONS**

Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      8.00  
 Base of Test Section     10.00  
 Test Section Centre     9.00  
 Initial Water Depth      1.43  
 Datum to Ground/Bed    0.00  
 Datum to Gauge          0.70

Borehole: BH11  
 Date: 01/03/2010  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type                Mica SCHIST  
 Number of Rods         3  
 Test Section Length    2.00        (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow l/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | l/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 5.6                     | 7.3                | 5.13                                  | 0.70                      | 1.43                             | 0.00                                     | 0.00                  | 7.26           |
| 2     | 11.1                    | 14.5               | 10.19                                 | 0.70                      | 1.43                             | 0.00                                     | 0.00                  | 12.32          |
| 3     | 82.0                    | 21.3               | 14.97                                 | 0.70                      | 1.43                             | 0.00                                     | 0.00                  | 17.10          |
| 4     | 75.0                    | 14.5               | 10.19                                 | 0.70                      | 1.43                             | 0.00                                     | 0.00                  | 12.32          |
| 5     | 20.5                    | 7.3                | 5.13                                  | 0.70                      | 1.43                             | 0.00                                     | 0.00                  | 7.26           |



Note                    mbdl - metres below datum/deck level                    mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Single Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 4.00  
 Base of Hole : 12.00  
 Top of Test Section : 8.00  
 Base of Test Section : 12.00  
 Initial Groundwater 2.38 m Below Datum  
 Datum 0.69  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 2.83 mbdl

Borehole: BH12  
 Date: 02/03/2010  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 4.00  
 Rock Type Mica SCHIST  
 Water level after test 2.83  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-1-00  
 Flow meter used : 1281900  
 Number of Rods 3  
 Water Quality Potable

Test No: 1  
 Start Time: 1620

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 2.80                       |                           | 7.5                | 0                 | 108.514                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.515                 | 1                        | 0.3             |                                  |
|                             |                            |                           |                    | 6                 | 108.515                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.515                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.515                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.515                 | 0                        | 0.0             | 0                                |
| 2/200                       | 2.80                       |                           | 14.5               | 0                 | 108.515                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.516                 | 1                        | 0.2             |                                  |
|                             |                            |                           |                    | 6                 | 108.517                 | 1                        | 0.3             |                                  |
|                             |                            |                           |                    | 9                 | 108.517                 | 1                        | 0.2             |                                  |
|                             |                            |                           |                    | 12                | 108.517                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.518                 | 1                        | 0.2             | 0                                |
| 3/200                       | 2.80                       |                           | 21.3               | 0                 | 108.518                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.518                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 5                 | 108.518                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.519                 | 1                        | 0.3             |                                  |
|                             |                            |                           |                    | 12                | 108.519                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.520                 | 1                        | 0.3             | 0.2                              |
| 4/200                       | 2.80                       |                           | 14.5               | 0                 | 108.520                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.520                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.520                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.520                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.520                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.520                 | 0                        | 0.0             | 0                                |
| 5/200                       | 2.80                       |                           | 7.3                | 0                 | 108.520                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.520                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.520                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.520                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.520                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.520                 | 0                        | 0.0             | 0                                |



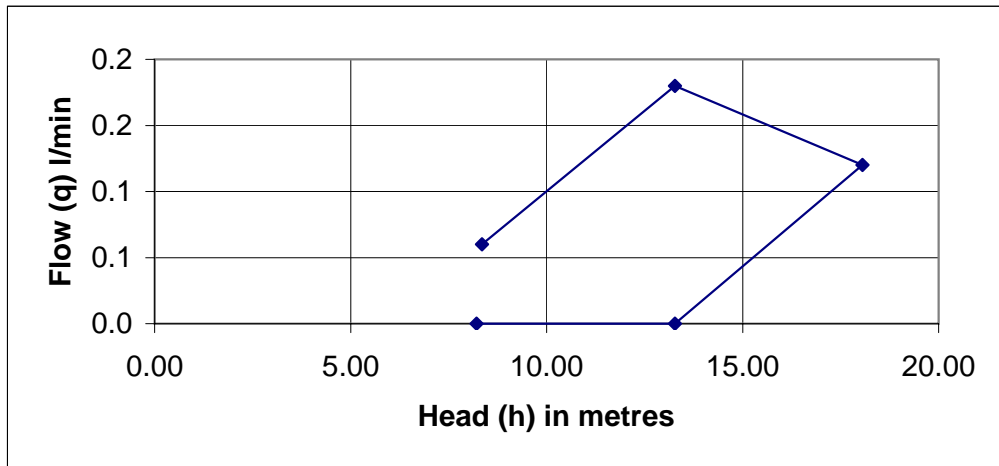
**PACKER TEST CALCULATIONS**

Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      8.00  
 Base of Test Section      12.00  
 Test Section Centre      10.00  
 Initial Water Depth      2.38  
 Datum to Ground/Bed      0.00  
 Datum to Gauge          0.70

Borehole: BH12  
 Date: 02/03/2010  
 Site Engineer  
 Calculated By                       
 Checked By                       
 Rock Type                  Mica SCHIST  
 Number of Rods          3  
 Test Section Length      4.00          (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow l/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | l/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.1                     | 7.5                | 5.27                                  | 0.70                      | 2.38                             | 0.00                                     | 0.00                  | 8.35           |
| 2     | 0.2                     | 14.5               | 10.19                                 | 0.70                      | 2.38                             | 0.00                                     | 0.00                  | 13.27          |
| 3     | 0.1                     | 21.3               | 14.97                                 | 0.70                      | 2.38                             | 0.00                                     | 0.00                  | 18.05          |
| 4     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 2.38                             | 0.00                                     | 0.00                  | 13.27          |
| 5     | 0.0                     | 7.3                | 5.13                                  | 0.70                      | 2.38                             | 0.00                                     | 0.00                  | 8.21           |



Note                      mbdl - metres below datum/deck level                      mabl - metres above bed level



PACKER TEST FIELD RECORDS

|  |                             |                  |
|--|-----------------------------|------------------|
| Test Type: Single Water Injection Packer | Borehole: BH12              | Test No: 2       |
| Depth Below Bed Level:                   | Date: 03/03/2010            | Start Time: 1240 |
| Base of Casing : 4.00                    | Casing Diameter mm 150      |                  |
| Base of Hole : 21.00                     | Section Diameter mm 131     |                  |
| Top of Test Section : 16.00              | Section Length 5.00         |                  |
| Base of Test Section : 21.00             | Rock Type Mica SCHIST       |                  |
| Initial Groundwater 2.03 m Below Datum   | Water level after test 2.12 |                  |
| Datum 0.69                               | Datum Level                 |                  |
| Datum to Bed Level :                     | Site Engineer               |                  |
| Gauge Height Above Datum 0.70            | Gauge used : 77361-1-00     |                  |
| Tank Dimensions NA                       | Flow meter used : 1281900   |                  |
| Type of Drill Rods 25mm                  | Number of Rods 4            |                  |
| Packer Type / Ref Pneumatic              | Water Quality Potable       |                  |
| Assumed Standing Water Level mbdl        |                             |                  |

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       |                            |                           | 14.5               | 0                 | 108.537                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.536                 | -1                       | -0.3            |                                  |
|                             |                            |                           |                    | 6                 | 108.536                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.536                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.536                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.536                 | 0                        | 0.0             | 0                                |
| 2/200                       |                            |                           | 29.1               | 0                 | 108.537                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.537                 | 0                        | 0.0             | 0                                |
| 3/200                       |                            |                           | 43.6               | 0                 | 108.537                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 5                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.537                 | 0                        | 0.0             | 0                                |
| 4/200                       |                            |                           | 29.1               | 0                 | 108.537                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.537                 | 0                        | 0.0             | 0                                |
| 5/200                       |                            |                           | 14.5               | 0                 | 108.537                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.537                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.537                 | 0                        | 0.0             | 0                                |





**PACKER TEST CALCULATIONS**

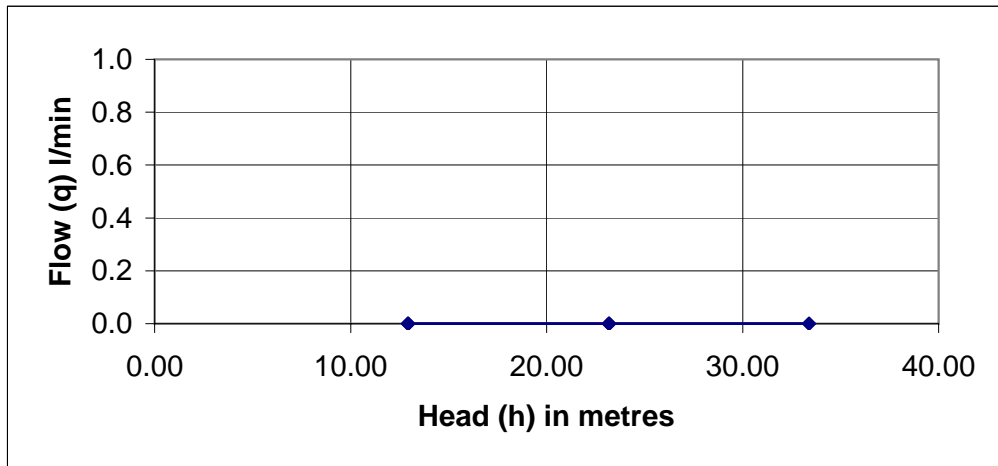
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      16.00  
 Base of Test Section      21.00  
 Test Section Centre      18.50  
 Initial Water Depth      2.03  
 Datum to Ground/Bed      0.00  
 Datum to Gauge          0.70

Borehole: BH12  
 Date: 03/03/2010  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 2  
 Start Time: 1240  
                      
                      
 Mica SCHIST  
 4  
 5.00 (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 2.03                             | 0.00                                     | 0.00                  | 12.92          |
| 2     | 0.0                     | 29.1               | 20.46                                 | 0.70                      | 2.03                             | 0.00                                     | 0.00                  | 23.19          |
| 3     | 0.0                     | 43.6               | 30.65                                 | 0.70                      | 2.03                             | 0.00                                     | 0.00                  | 33.38          |
| 4     | 0.0                     | 29.1               | 20.46                                 | 0.70                      | 2.03                             | 0.00                                     | 0.00                  | 23.19          |
| 5     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 2.03                             | 0.00                                     | 0.00                  | 12.92          |



Note      mbdl - metres below datum/deck level      mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Single Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 4.00  
 Base of Hole : 35.00  
 Top of Test Section : 25.00  
 Base of Test Section : 35.00  
 Initial Groundwater 1.70 m Below Datum  
 Datum 0.69  
 Datum to Bed Level :  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 1.74 mbdl

Borehole: BH12  
 Date: 04/03/2010  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 10.00  
 Rock Type Mica SCHIST  
 Water level after test 1.74  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-1-00  
 Flow meter used : 1281900  
 Number of Rods 8  
 Water Quality Potable

Test No: 3  
 Start Time: 1625

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 1.74                       |                           | 22.0               | 0                 | 108.589                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.589                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.589                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.589                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.590                 | 1                        | 0.3             |                                  |
|                             |                            |                           |                    | 15                | 108.590                 | 0                        | 0.0             | 0                                |
| 2/200                       | 1.74                       |                           | 43.5               | 0                 | 108.590                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.591                 | 1                        | 0.3             |                                  |
|                             |                            |                           |                    | 6                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.591                 | 0                        | 0.0             | 0                                |
| 3/200                       | 1.74                       |                           | 65.5               | 0                 | 108.591                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 5                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.591                 | 0                        | 0.0             | 0                                |
| 4/200                       | 1.74                       |                           | 43.5               | 0                 | 108.591                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.591                 | 0                        | 0.0             | 0                                |
| 5/200                       | 1.74                       |                           | 22.0               | 0                 | 108.591                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.591                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.591                 | 0                        | 0.0             | 0                                |



**PACKER TEST CALCULATIONS**

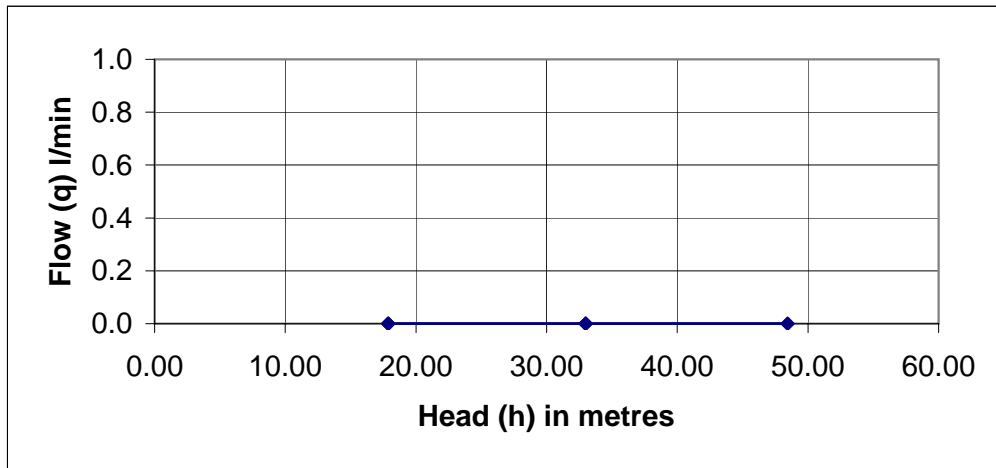
Test Type: Single Water Injection Packer  
 Depth Below Ground/Bed Level: [redacted]  
 Top of Test Section 25.00  
 Base of Test Section 35.00  
 Test Section Centre 30.00  
 Initial Water Depth 1.70  
 Datum to Ground/Bed 0.00  
 Datum to Gauge 0.70

Borehole: BH12  
 Date: 04/03/2010  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type  
 Number of Rods  
 Test Section Length

Test No: 3  
 Start Time: 1625  
 [redacted]  
 Mica SCHIST  
 8  
 10.00 (L)

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.0                     | 22.0               | 15.47                                 | 0.70                      | 1.70                             |  | 0.00                  | 17.87          |
| 2     | 0.0                     | 43.5               | 30.58                                 | 0.70                      | 1.70                             |  | 0.00                  | 32.98          |
| 3     | 0.0                     | 65.5               | 46.05                                 | 0.70                      | 1.70                             |  | 0.00                  | 48.45          |
| 4     | 0.0                     | 43.5               | 30.58                                 | 0.70                      | 1.70                             |  | 0.00                  | 32.98          |
| 5     | 0.0                     | 22.0               | 15.47                                 | 0.70                      | 1.70                             |  | 0.00                  | 17.87          |



Note          mbdl - metres below datum/deck level                  mabl - metres above bed level



PACKER TEST FIELD RECORDS

Test Type: Double Water Injection Packer  
 Depth Below Bed Level:  
 Base of Casing : 4.00  
 Base of Hole : 35.00  
 Top of Test Section : 11.00  
 Base of Test Section : 14.00  
 Initial Groundwater 1.72 m Below Datum  
 Datum  
 Datum to Bed Level : 0.70  
 Gauge Height Above Datum 0.70  
 Tank Dimensions NA  
 Type of Drill Rods 25mm  
 Packer Type / Ref Pneumatic  
 Assumed Standing Water Level 1.79 mbdl

Borehole: BH12  
 Date: 04/03/2010  
 Casing Diameter mm 150  
 Section Diameter mm 131  
 Section Length 3.00  
 Rock Type Mica SCHIST  
 Water level after test 1.79  
 Datum Level  
 Site Engineer  
 Gauge used : 77361-1-00  
 Flow meter used : 1281900  
 Number of Rods 5  
 Water Quality Potable

| Stage / Packer Pressure psi | Water Level in Casing mbdl | Water Level in River mabl | Gauge Pressure psi | Elapsed Time mins | Flow (meter) reading m3 | Water Take Litres litres | Flow litres/min | Assessed Average Flow litres/min |
|-----------------------------|----------------------------|---------------------------|--------------------|-------------------|-------------------------|--------------------------|-----------------|----------------------------------|
| 1/200                       | 1.60                       |                           | 14.5               | 0                 | 108.667                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.667                 | 0                        | 0.0             | 0                                |
| 2/200                       | 1.60                       |                           | 29.1               | 0                 | 108.667                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.667                 | 0                        | 0.0             | 0                                |
| 3/200                       | 1.60                       |                           | 43.5               | 0                 | 108.667                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 5                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.667                 | 0                        | 0.0             | 0                                |
| 4/200                       | 1.60                       |                           | 29.1               | 0                 | 108.667                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.667                 | 0                        | 0.0             | 0                                |
| 5/200                       | 1.60                       |                           | 14.5               | 0                 | 108.667                 |                          |                 |                                  |
|                             |                            |                           |                    | 3                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 6                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 9                 | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 12                | 108.667                 | 0                        | 0.0             |                                  |
|                             |                            |                           |                    | 15                | 108.667                 | 0                        | 0.0             | 0                                |



**PACKER TEST CALCULATIONS**

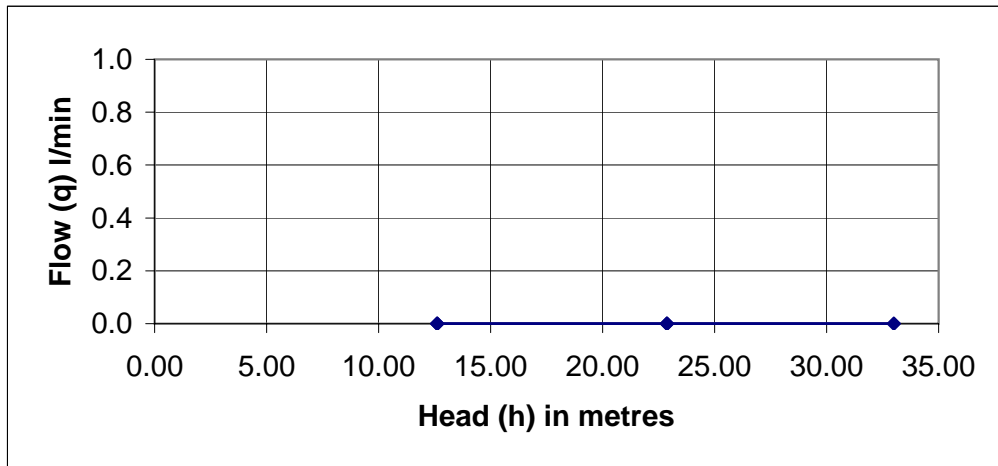
Test Type: Double Water Injection Packer  
 Depth Below Ground/Bed Level:                       
 Top of Test Section      11.00  
 Base of Test Section      14.00  
 Test Section Centre      12.50  
 Initial Water Depth      1.72  
 Datum to Ground/Bed      0.00  
 Datum to Gauge          0.70

Borehole: BH12  
 Date: 04/03/2010  
 Site Engineer  
 Calculated By  
 Checked By  
 Rock Type                  Mica SCHIST  
 Number of Rods            5  
 Test Section Length      3.00          (L)

Test No: 4  
 Start Time: 16:00

See field data sheet for test and section data  
 Initial water level in casing used as standing water level  
 Total head calculated as (1 + 2 + 3) - (4 + 5)

| Stage | Assessed Flow I/min (q) | Gauge Pressure psi | Equivalent Head of Water on Gauge (1) | Gauge Height to Datum (2) | Datum to Initial Water Level (3) | Head loss in basic pipework and rods (4) | Head loss - other (5) | Total Head (h) |
|-------|-------------------------|--------------------|---------------------------------------|---------------------------|----------------------------------|--|-----------------------|----------------|
|       | I/min                   | psi                | m                                     | m                         | m                                | m  | m                     | m              |
| 1     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 1.72                             | 0.00                                     | 0.00                  | 12.61          |
| 2     | 0.0                     | 29.1               | 20.46                                 | 0.70                      | 1.72                             | 0.00                                     | 0.00                  | 22.88          |
| 3     | 0.0                     | 43.5               | 30.58                                 | 0.70                      | 1.72                             | 0.00                                     | 0.00                  | 33.00          |
| 4     | 0.0                     | 29.1               | 20.46                                 | 0.70                      | 1.72                             | 0.00                                     | 0.00                  | 22.88          |
| 5     | 0.0                     | 14.5               | 10.19                                 | 0.70                      | 1.72                             | 0.00                                     | 0.00                  | 12.61          |



Note                      mbdl - metres below datum/deck level                      mabl - metres above bed level

Scottish & Southern Energy  
 Sloy Pumping Station  
 Mackintosh Probe Data

| Position | Depth (mbgl) | Blow Count |
|----------|--------------|------------|
| MP01     | 1.20-1.27    | 100        |
| MP02     | 0.70-0.80    | 23         |
|          | 0.80-0.90    | 60         |
|          | 0.90-0.90    | 100        |
| MP03     | 0.90-1.00    | 85         |
|          | 1.00-1.05    | 100        |
| MP04     | 1.20-1.30    | 32         |
|          | 1.30-1.40    | 80         |
|          | 1.40-1.40    | 100        |
| MP05     | 1.20-1.30    | 9          |
|          | 1.30-1.40    | 11         |
|          | 1.40-1.48    | 100        |
| MP06     | 0.95-1.05    | 30         |
|          | 1.05-1.15    | 100        |
| MP07     | 1.05-1.15    | 50         |
|          | 1.15-1.21    | 100        |
| MP08     | 1.10-1.20    | 14         |
|          | 1.20-1.30    | 64         |
|          | 1.30-1.36    | 100        |
| MP09     | 0.90-0.98    | 100        |
| MP10     | 1.05-1.15    | 70         |
|          | 1.15-1.20    | 100        |
| MP11     | 0.85-0.95    | 37         |
|          | 0.95-1.05    | 18         |
|          | 1.05-1.15    | 16         |
|          | 1.15-1.25    | 36         |
|          | 1.25-1.27    | 100        |
|          | 1.25-1.27    | 100        |
| MP12     | 0.90-1.00    | 19         |
|          | 1.00-1.10    | 24         |
|          | 1.10-1.20    | 11         |
|          | 1.20-1.30    | 50         |
| MP13     | 1.30-1.31    | 100        |
|          | 1.30-1.31    | 100        |
| MP13     | 0.75-0.75    | 100        |
| MP14     | 1.20-1.30    | 2          |
|          | 1.30-1.40    | 3          |
|          | 1.40-1.50    | 2          |
|          | 1.50-1.60    | 4          |
|          | 1.60-1.70    | 7          |
|          | 1.70-1.80    | 19         |
|          | 1.80-1.90    | 20         |
|          | 1.90-1.95    | 100        |
| MP15     | 1.10-1.15    | 100        |
| MP16     | 1.20-1.30    | 12         |
|          | 1.30-1.40    | 21         |
|          | 1.40-1.50    | 12         |
|          | 1.50-1.60    | 43         |
|          | 1.60-1.70    | 48         |
|          | 1.70-1.80    | 24         |
|          | 1.80-1.90    | 33         |
| MP17     | 1.90-1.93    | 100        |
|          | 1.10-1.14    | 100        |

| Position  | Depth (mbgl) | Blow Count |   |
|-----------|--------------|------------|---|
| MP18      | 1.90-2.00    | 3          |   |
|           | 2.00-2.10    | 3          |   |
|           | 2.10-2.20    | 3          |   |
|           | 2.20-2.30    | 2          |   |
|           | 2.30-2.40    | 2          |   |
|           | 2.40-2.50    | 2          |   |
|           | 2.50-2.60    | 7          |   |
|           | 2.60-2.70    | 12         |   |
|           | 2.70-2.80    | 7          |   |
|           | 2.80-2.90    | 7          |   |
|           | 2.90-3.00    | 5          |   |
|           | 3.00-3.08    | 100        |   |
|           | MP19         | 1.00-1.10  | 9 |
|           |              | 1.10-1.20  | 7 |
|           |              | 1.20-1.30  | 1 |
| 1.30-1.40 |              | 9          |   |
| 1.40-1.50 |              | 43         |   |
| 1.50-1.60 |              | 52         |   |
| MP20      | 1.60-1.64    | 100        |   |
|           | 0.75-0.85    | 88         |   |
|           | 0.85-0.91    | 100        |   |
| MP21      | 1.10-1.20    | 3          |   |
|           | 1.20-1.30    | 3          |   |
|           | 1.30-1.40    | 6          |   |
|           | 1.40-1.50    | 7          |   |
|           | 1.50-1.60    | 10         |   |
|           | 1.60-1.70    | 6          |   |
|           | 1.70-1.80    | 3          |   |
|           | 1.80-1.90    | 3          |   |
| MP22      | 1.90-1.94    | 100        |   |
|           | 1.20-1.30    | 15         |   |
|           | 1.30-1.40    | 42         |   |
|           | 1.40-1.50    | 10         |   |
| MP23      | 1.50-1.58    | 100        |   |
|           | 1.20-1.30    | 16         |   |
|           | 1.30-1.40    | 27         |   |
|           | 1.40-1.50    | 39         |   |
|           | 1.50-1.60    | 31         |   |
| MP24      | 1.60-1.70    | 24         |   |
|           | 1.70-1.78    | 100        |   |
|           | 1.20-1.30    | 9          |   |
|           | 1.30-1.40    | 13         |   |
|           | 1.40-1.50    | 14         |   |
|           | 1.50-1.60    | 39         |   |
| MP25      | 1.60-1.70    | 28         |   |
|           | 1.70-1.75    | 100        |   |
|           | 1.20-1.30    | 20         |   |
|           | 1.30-1.40    | 21         |   |
| MP26      | 1.40-1.50    | 20         |   |
|           | 1.50-1.60    | 9          |   |
|           | 1.60-1.70    | 19         |   |
|           | 1.70-1.80    | 9          |   |
|           | 1.80-1.90    | 6          |   |
|           | 1.90-2.00    | 7          |   |
|           | 2.00-2.10    | 6          |   |
|           | 2.10-2.20    | 9          |   |
|           | 2.20-2.20    | 100        |   |
|           | 1.20-1.30    | 10         |   |
| 1.30-1.40 | 61           |            |   |
| 1.40-1.43 | 100          |            |   |

| Position  | Depth (mbgl) | Blow Count |
|-----------|--------------|------------|
| MP25      | 1.20-1.30    | 20         |
|           | 1.30-1.40    | 21         |
|           | 1.40-1.50    | 20         |
|           | 1.50-1.60    | 9          |
|           | 1.60-1.70    | 19         |
|           | 1.70-1.80    | 9          |
|           | 1.80-1.90    | 6          |
|           | 1.90-2.00    | 7          |
|           | 2.00-2.10    | 6          |
|           | 2.10-2.20    | 9          |
| MP26      | 2.20-2.20    | 100        |
|           | 1.20-1.30    | 10         |
|           | 1.30-1.40    | 61         |
| 1.40-1.43 | 100          |            |



**RECORD OF WATER LEVELS IN STANDPIPES AND PIEZOMETERS**

| Installation Details |       |                   |                                   |                     |                           |
|----------------------|-------|-------------------|-----------------------------------|---------------------|---------------------------|
| Remarks              |       | Type              | 19mm Standpipe<br>piezometer      | Borehole No         | BH2                       |
|                      |       | Response Zone     | 6.00-10.00m                       | Tip/Pipe Depth      | 10.00m                    |
|                      |       | Installation Date | 15/03/2010                        | Datum               | Ground Level              |
|                      |       |                   |                                   | Datum Elevation     | 15.46m OD                 |
| Reading Details      |       |                   |                                   |                     |                           |
| Date                 | Time  | Operator          | Depth to Water<br>(m below Datum) | Water Level<br>m OD | Remarks and Samples Taken |
| 15/03/2010           | 12:00 | █                 | 1.35                              | 14.11               |                           |
| 17/03/2010           | 12:00 | █                 | 1.35                              | 14.11               |                           |
| 30/03/2010           | 14:00 | █                 | 0.71                              | 14.75               |                           |
| 16/04/2010           | 12:00 | █                 | 0.72                              | 14.74               |                           |
| 11/05/2010           | 13:00 | █                 | 0.83                              | 14.63               |                           |
|                      |       |                   |                                   | Approved by █       |                           |



**RECORD OF WATER LEVELS IN STANDPIPES AND PIEZOMETERS**

| Installation Details |       |                   |                                   |                     |                           |
|----------------------|-------|-------------------|-----------------------------------|---------------------|---------------------------|
| Remarks              |       | Type              | 50mm Standpipe                    | Borehole No         | BH3                       |
|                      |       | Response Zone     | 2.00-4.76m                        | Tip/Pipe Depth      | 4.76m                     |
|                      |       | Installation Date | 15/03/2010                        | Datum               | Ground Level              |
|                      |       |                   |                                   | Datum Elevation     | 15.62m OD                 |
| Reading Details      |       |                   |                                   |                     |                           |
| Date                 | Time  | Operator          | Depth to Water<br>(m below Datum) | Water Level<br>m OD | Remarks and Samples Taken |
| 17/03/2010           | 12:00 | █                 | 3.57                              | 12.05               |                           |
| 30/03/2010           | 12:00 | █                 | 3.42                              | 12.20               |                           |
| 16/04/2010           | 12:00 | █                 | 3.13                              | 12.49               |                           |
| 11/05/2010           | 13:00 | █                 | 3.68                              | 11.94               |                           |
|                      |       |                   |                                   | Approved by         | █                         |





**RECORD OF WATER LEVELS IN STANDPIPES AND PIEZOMETERS**

| Installation Details |       |                   |                                   |                     |                           |
|----------------------|-------|-------------------|-----------------------------------|---------------------|---------------------------|
| Remarks              |       | Type              | 50mm Standpipe                    | Borehole No         | BH4                       |
|                      |       | Response Zone     | 2.00-4.00m                        | Tip/Pipe Depth      | 4.00m                     |
|                      |       | Installation Date | 12/03/2010                        | Datum               |                           |
|                      |       |                   |                                   | Datum Elevation     | 16.73m OD                 |
| Reading Details      |       |                   |                                   |                     |                           |
| Date                 | Time  | Operator          | Depth to Water<br>(m below Datum) | Water Level<br>m OD | Remarks and Samples Taken |
| 17/03/2010           | 12:00 | █                 | 2.86                              | 13.87               |                           |
| 30/03/2010           | 12:00 | █                 | 2.80                              | 13.93               |                           |
| 16/04/2010           | 12:00 | █                 | 2.70                              | 14.03               |                           |
| 11/05/2010           | 13:00 | █                 | 3.26                              | 13.47               |                           |
|                      |       |                   |                                   | Approved by █       |                           |



**RECORD OF WATER LEVELS IN STANDPIPES AND PIEZOMETERS**

| Installation Details |       |                   |                                   |                     |                           |
|----------------------|-------|-------------------|-----------------------------------|---------------------|---------------------------|
| Remarks              |       | Type              | 19mm Standpipe<br>piezometer      | Borehole No         | BH6                       |
|                      |       | Response Zone     | 10.00-20.00m                      | Tip/Pipe Depth      | 19.50m                    |
|                      |       | Installation Date | 17/03/2010                        | Datum               | Ground Level              |
|                      |       |                   |                                   | Datum Elevation     | 15.91m OD                 |
| Reading Details      |       |                   |                                   |                     |                           |
| Date                 | Time  | Operator          | Depth to Water<br>(m below Datum) | Water Level<br>m OD | Remarks and Samples Taken |
| 17/03/2010           | 12:00 | ■                 | 0.90                              | 15.01               |                           |
| 30/03/2010           | 12:00 | ■                 | 0.49                              | 15.42               |                           |
| 16/04/2010           | 12:00 | ■                 | 0.61                              | 15.30               |                           |
| 11/05/2010           | 13:00 | ■                 | 0.69                              | 15.22               |                           |
|                      |       |                   |                                   | Approved by         | ■                         |



**RECORD OF WATER LEVELS IN STANDPIPES AND PIEZOMETERS**

| Installation Details |       |                   |                                   |                     |                           |
|----------------------|-------|-------------------|-----------------------------------|---------------------|---------------------------|
| Remarks              |       | Type              | 19mm Standpipe<br>piezometer      | Borehole No         | BH12                      |
|                      |       | Response Zone     | 23.00-30.00m                      | Tip/Pipe Depth      | 29.50m                    |
|                      |       | Installation Date | 17/03/2010                        | Datum               | Ground Level              |
|                      |       |                   |                                   | Datum Elevation     | 15.96m OD                 |
| Reading Details      |       |                   |                                   |                     |                           |
| Date                 | Time  | Operator          | Depth to Water<br>(m below Datum) | Water Level<br>m OD | Remarks and Samples Taken |
| 17/03/2010           | 12:00 | ■                 | 1.66                              | 14.30               |                           |
| 30/03/2010           | 12:00 | ■                 | 1.11                              | 14.85               |                           |
| 16/04/2010           | 12:00 | ■                 | 1.05                              | 14.91               |                           |
| 11/05/2010           | 13:00 | ■                 | 1.18                              | 14.78               |                           |
|                      |       |                   |                                   | Approved by         | ■                         |



**APPENDIX C Downhole Logging Results**



# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Borehole: BH1

Log Type:

Optical Televiewer Log

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy      Grid Reference:      Elevation:

Drilled Depth: 20m      Date: 04/03/2010

Logged Depth: 19.87m      Recorded By: [Redacted]

Logging Datum: Ground Level

Remarks:

Logged Interval: North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

Fluid Level:

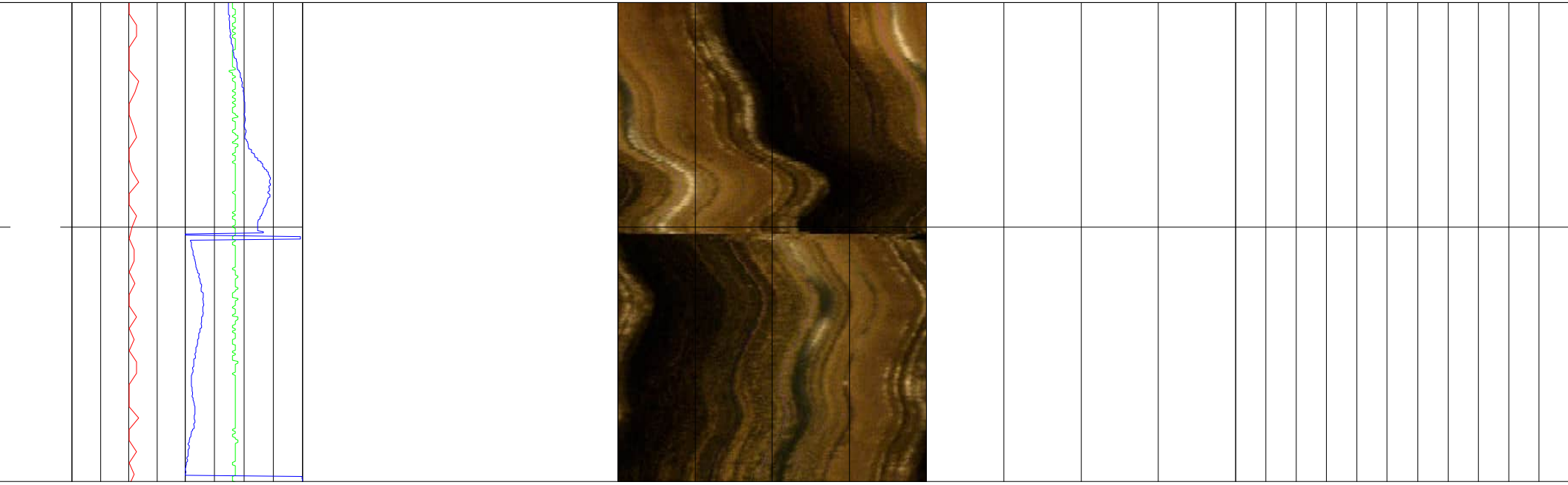
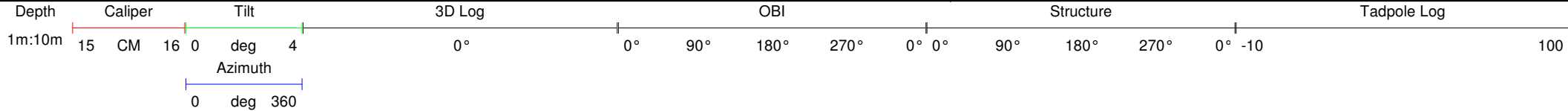
Structure Key: — Foliation — Fracture — Vein

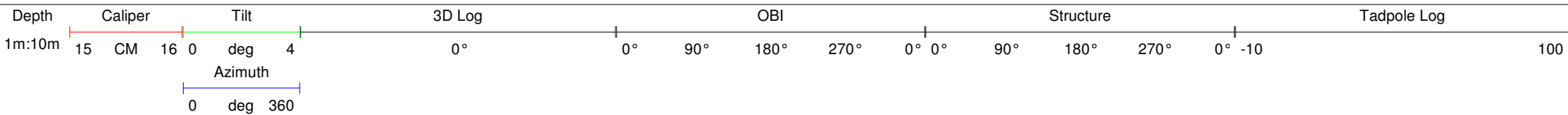
## BOREHOLE RECORD

## CASING RECORD

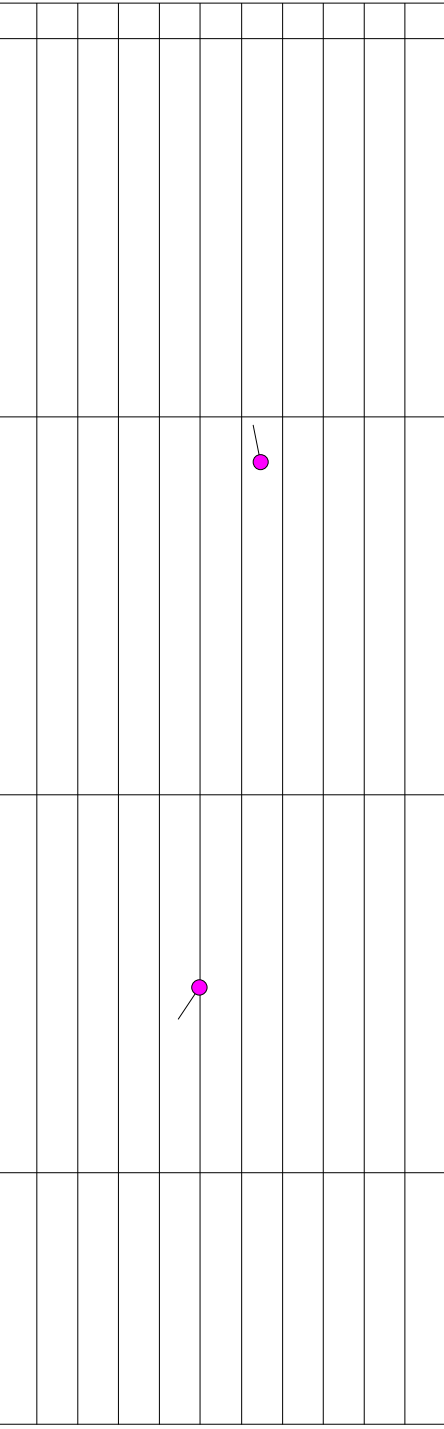
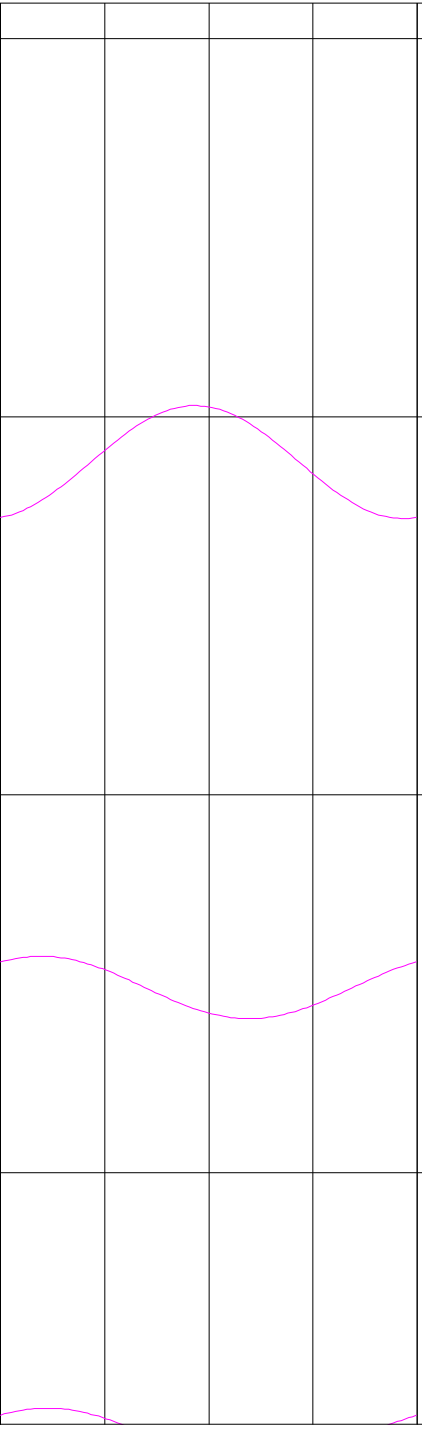
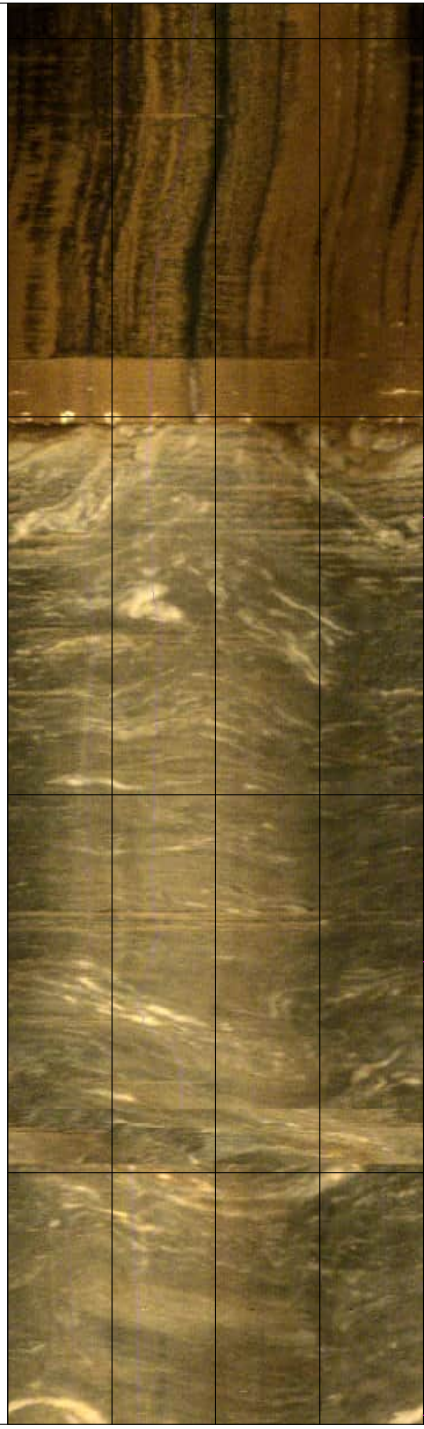
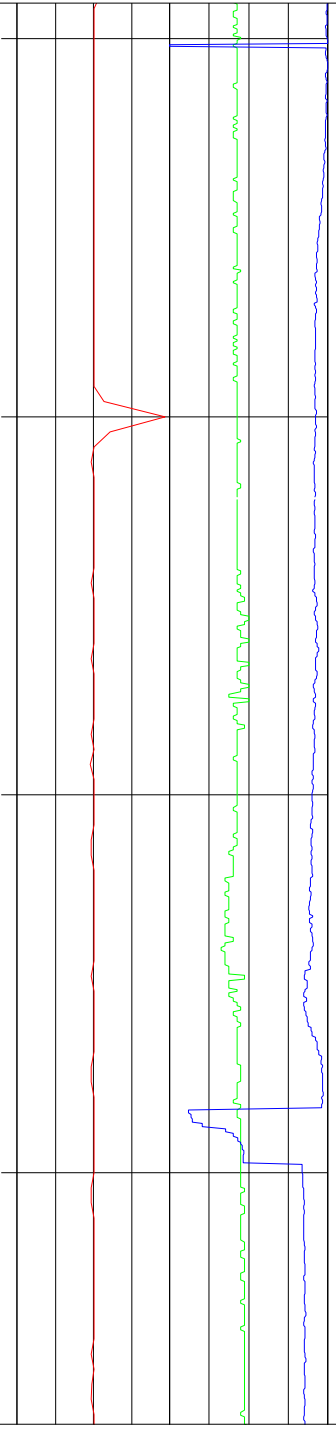
| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 4.2m  |
| 120mm         | 4.2m  | 20.0m |

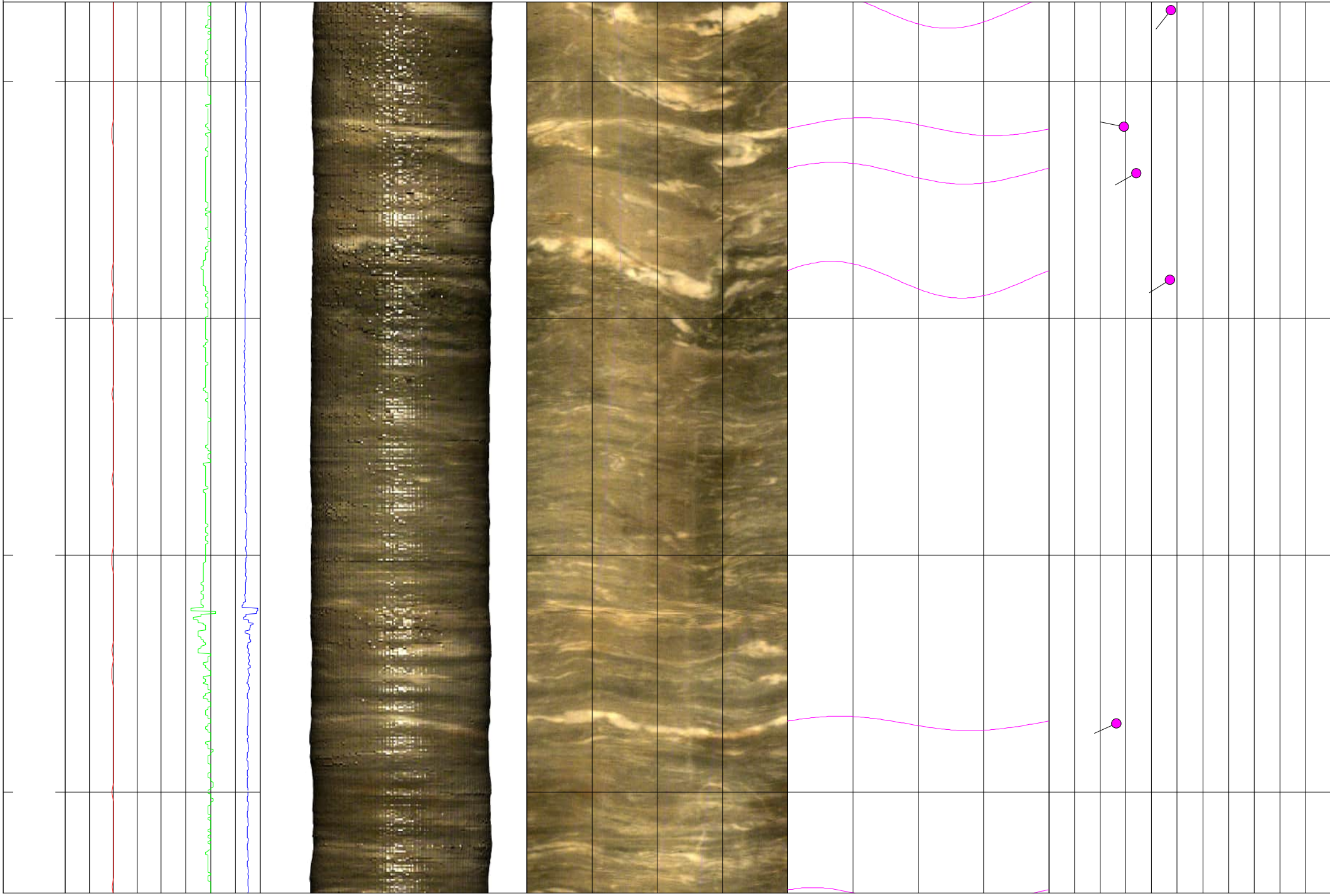
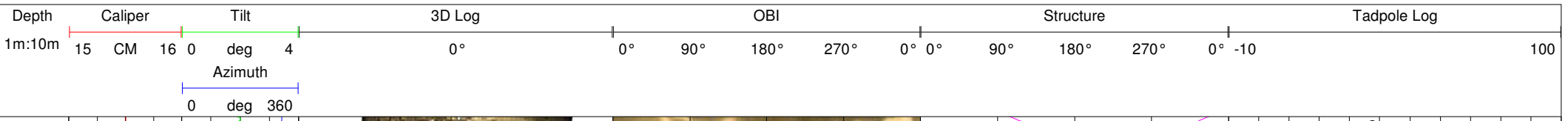
| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 4.2m |

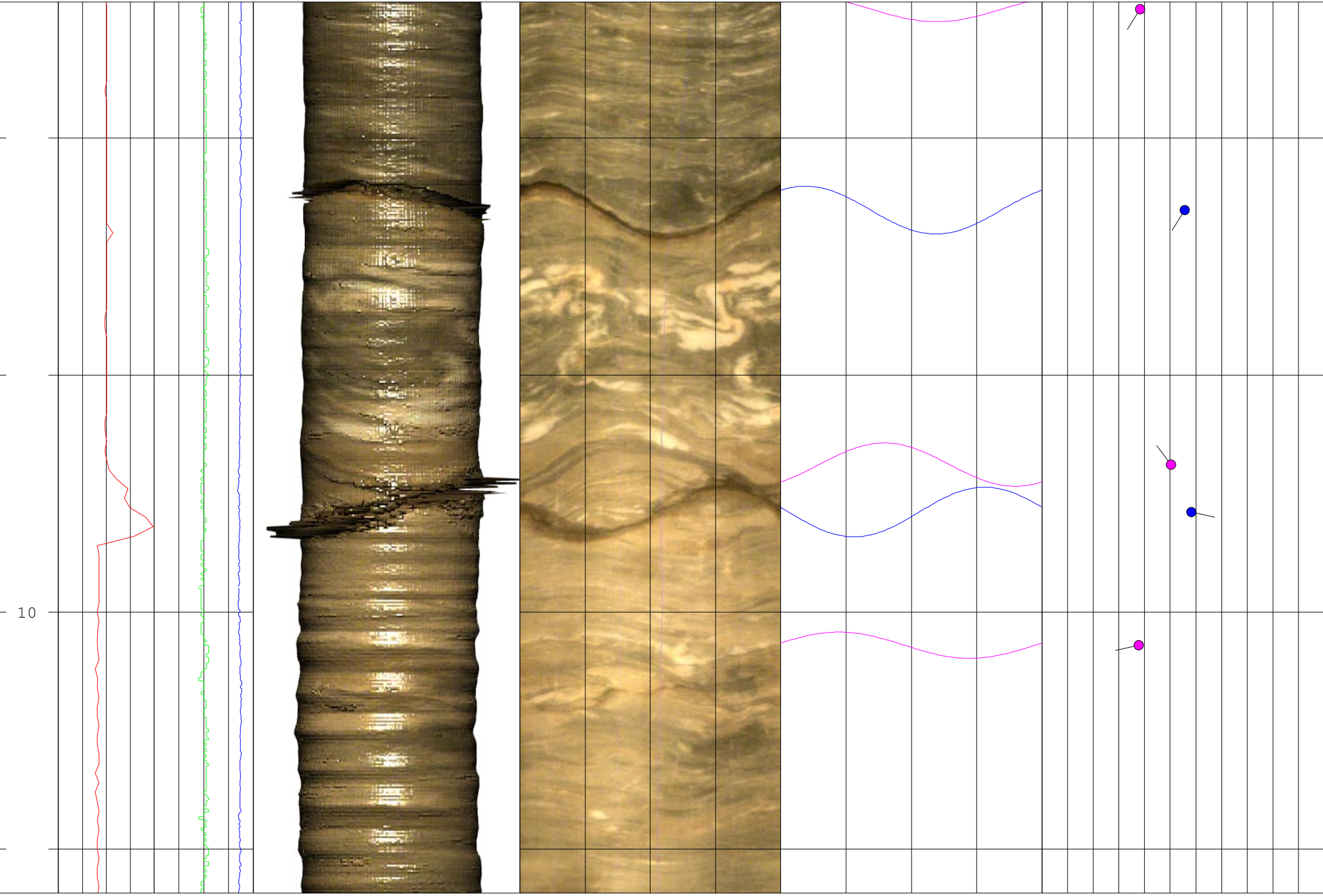
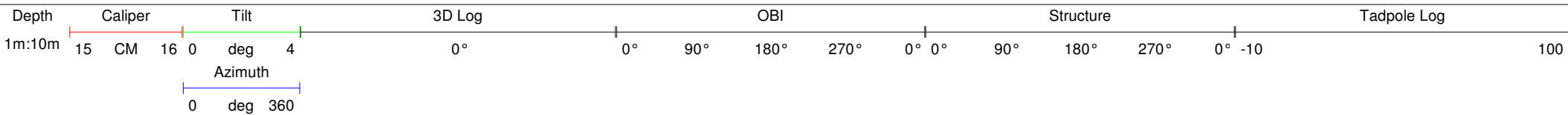




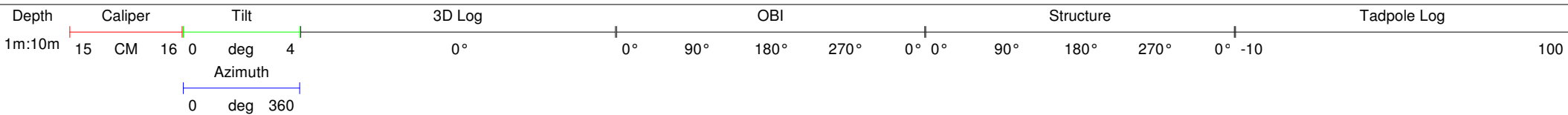
5





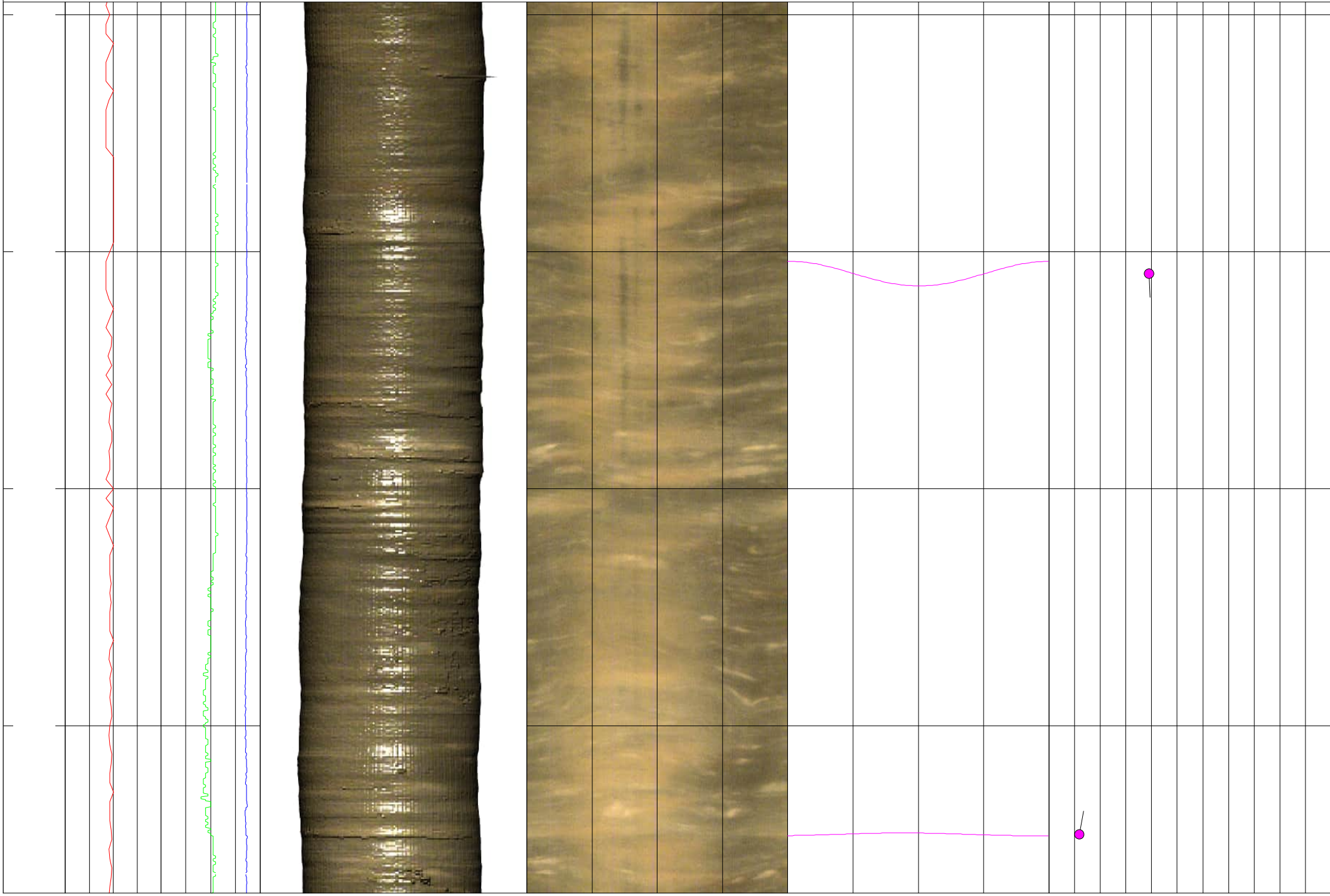






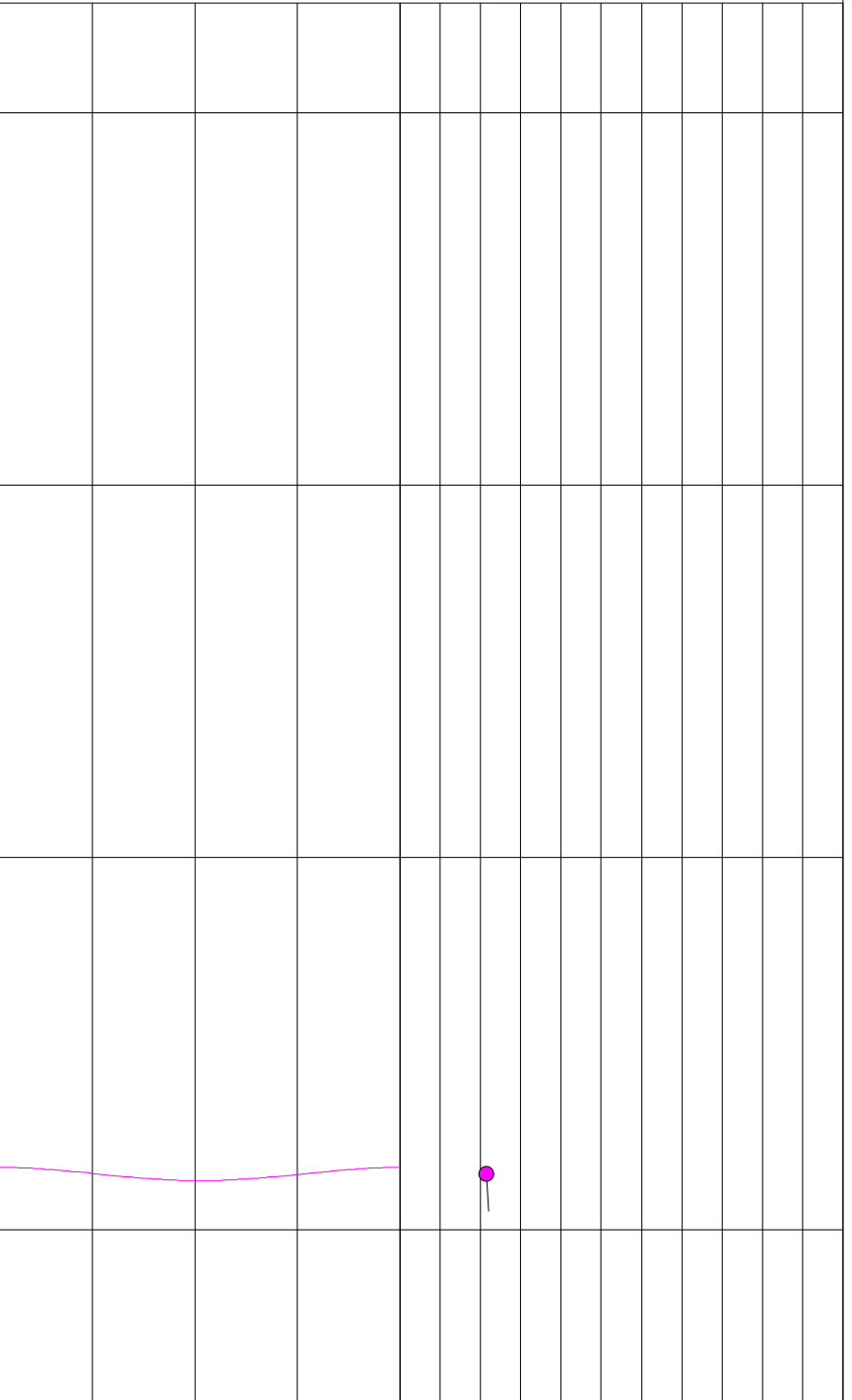
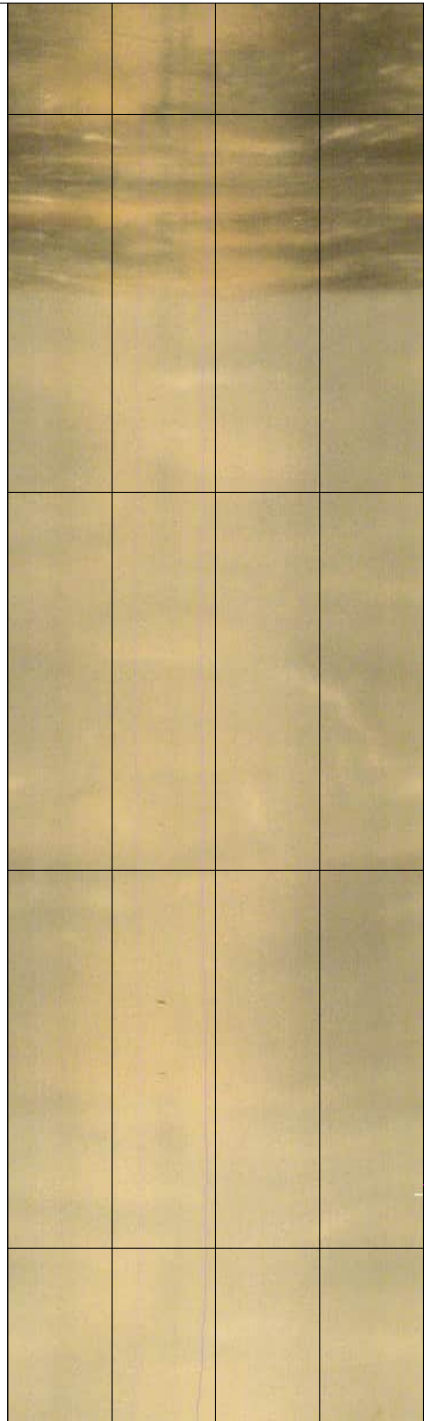
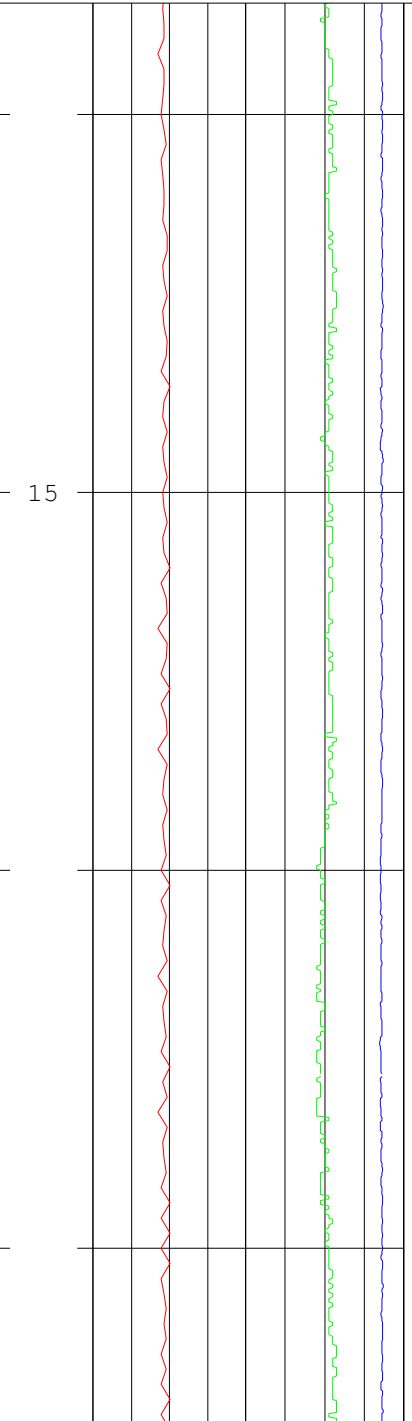
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole Log 0° -10    100

Azimuth 0 deg 360



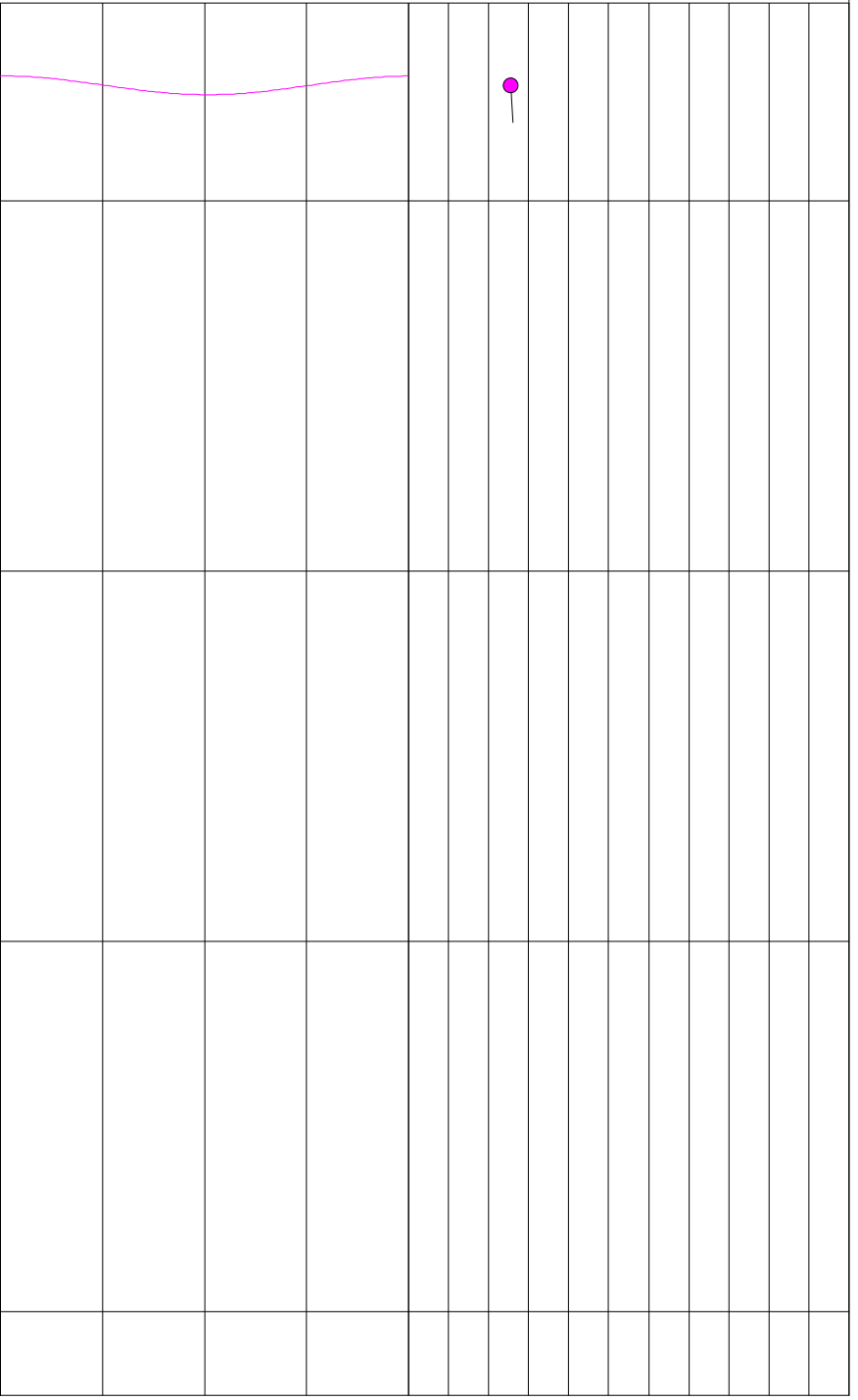
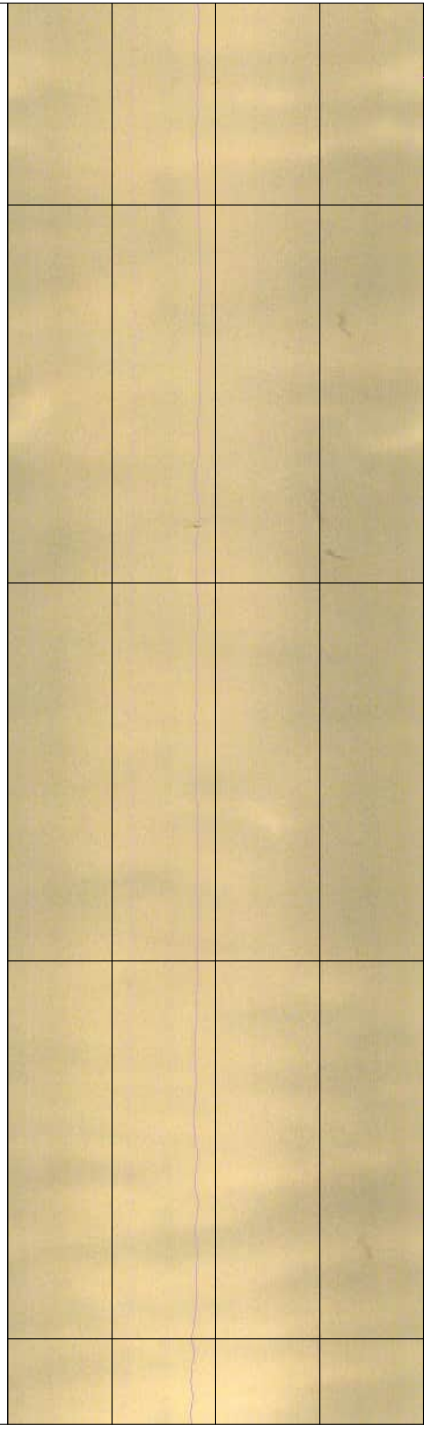
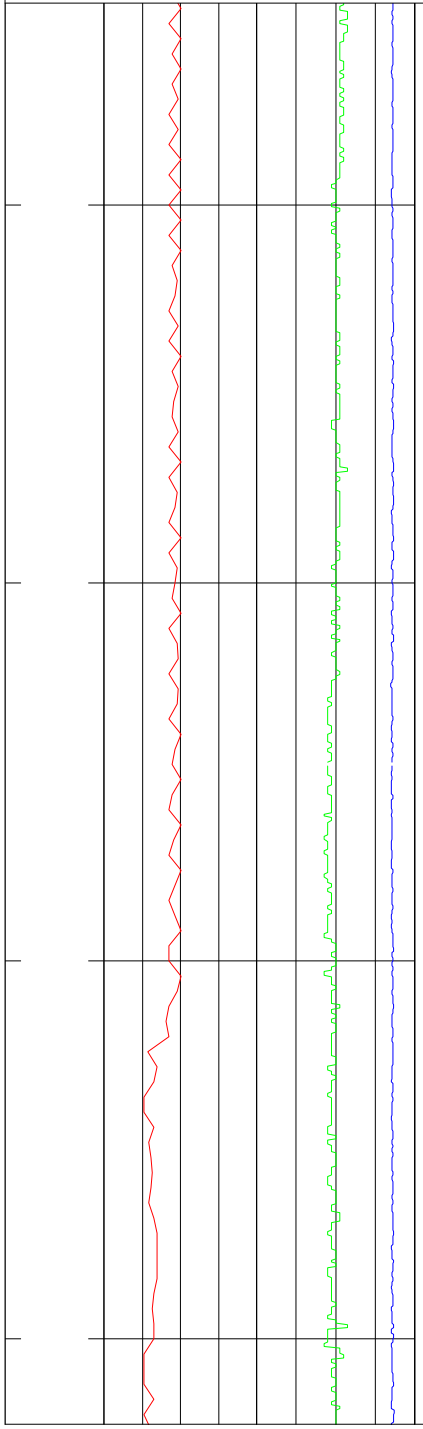
Depth 1m:10m    Caliper 15 CM 16    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole Log 0° -10    100

Azimuth 0 deg 360

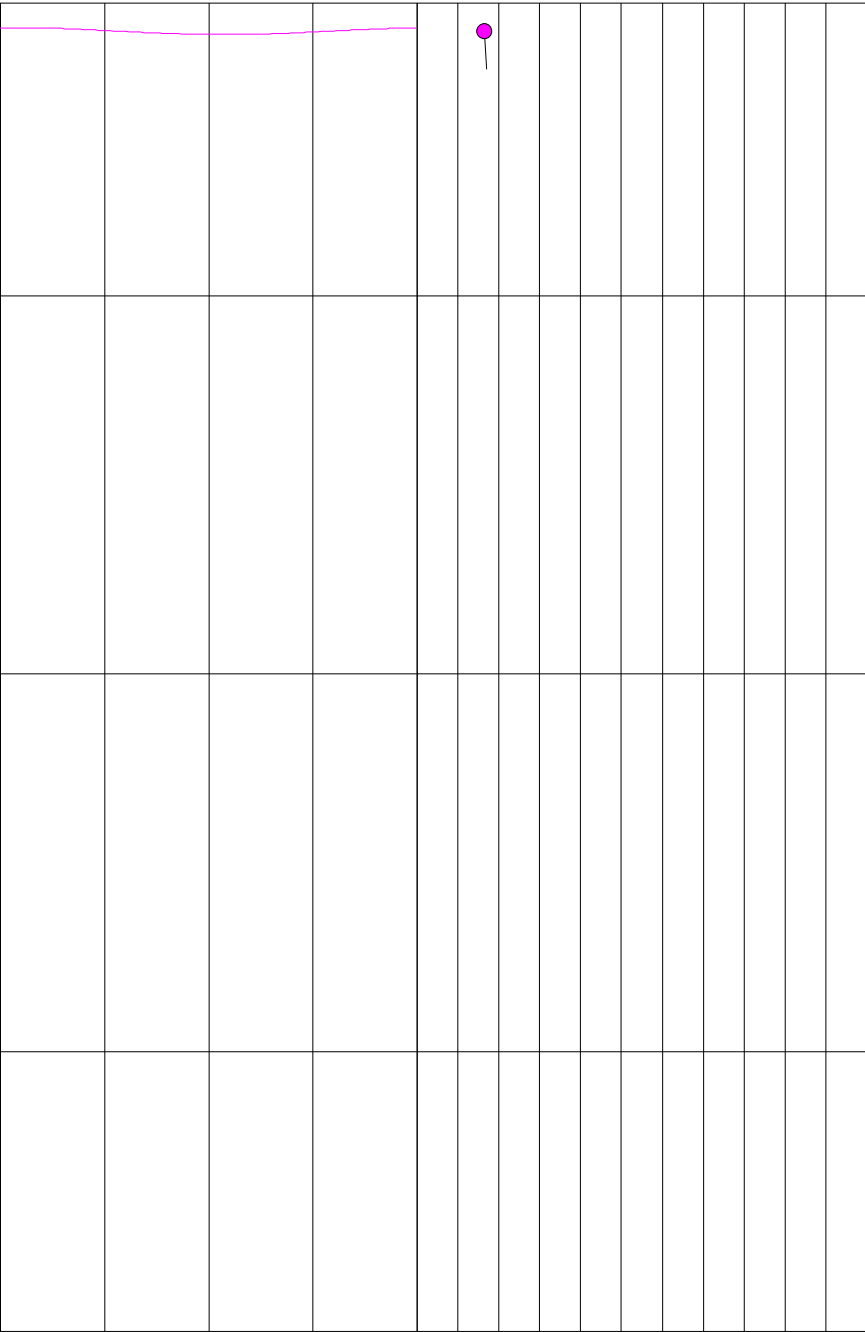
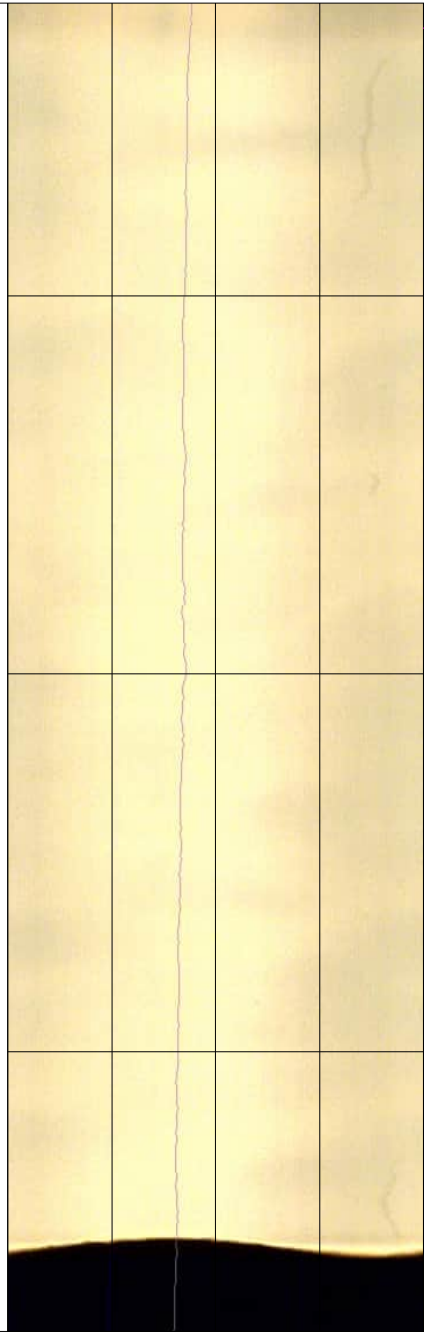
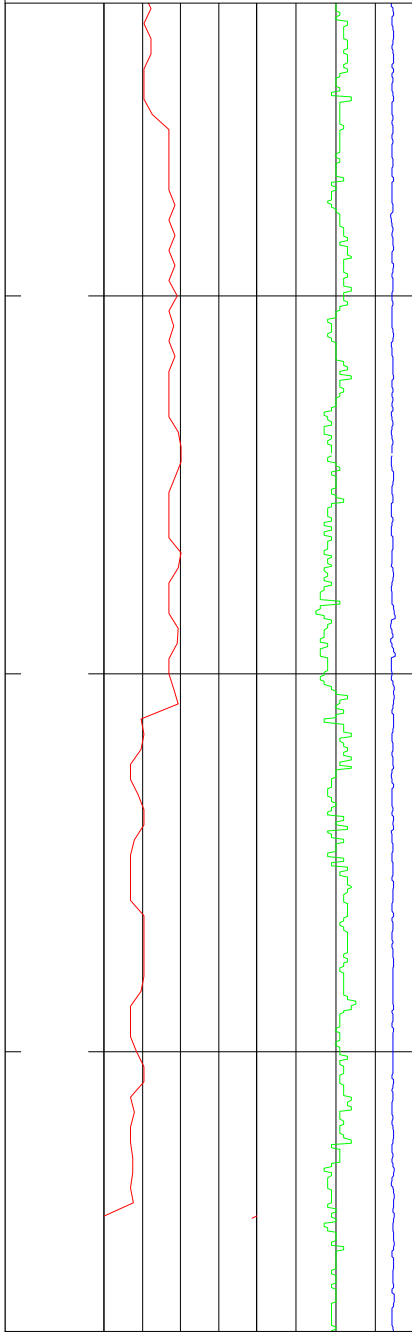


Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole Log 0° -10    100

Azimuth 0 deg 360



Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole Log 0° -10    100  
 Azimuth 0 deg 360





# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Borehole: BH2

Log Type:  
Optical Televiewer Log

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy      Grid Reference:      Elevation:

Drilled Depth: 35.0m      Date: 04/03/2010

Logged Depth: 34.85m      Recorded By: [Redacted]

Logging Datum: Ground Level

Logged Interval:

Fluid Level:

Structure Key: — Foliation — Fracture — Vein

Remarks:

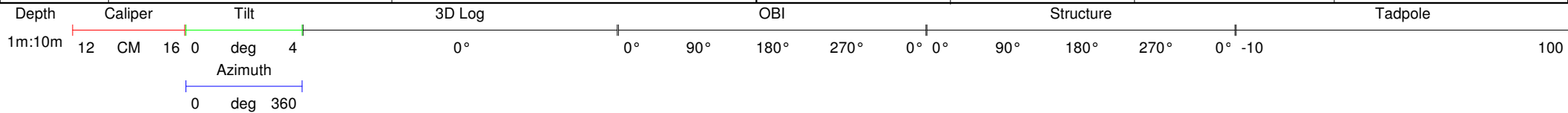
North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

## BOREHOLE RECORD

## CASING RECORD

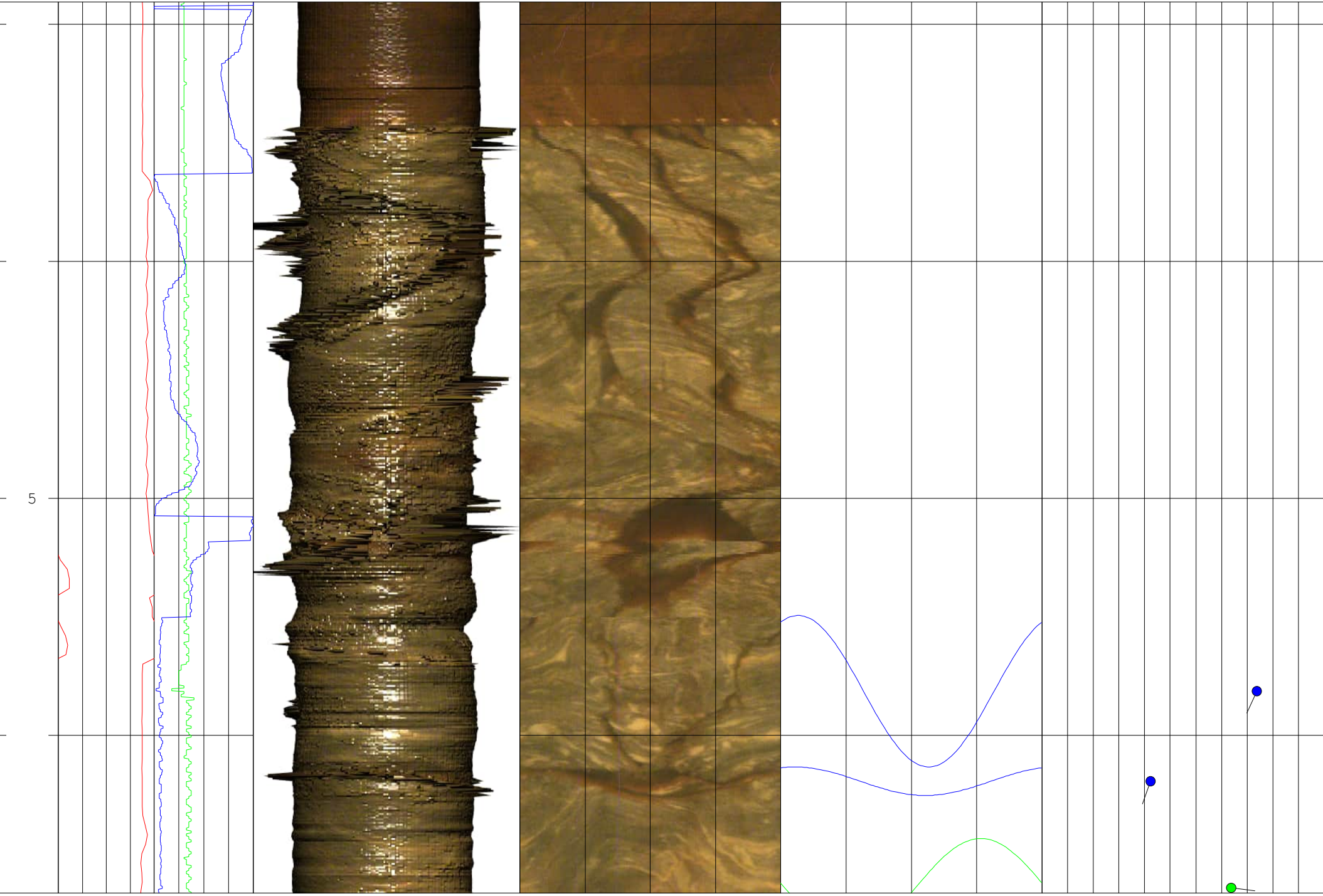
| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 4.2m  |
| 120mm         | 4.2m  | 35.0m |

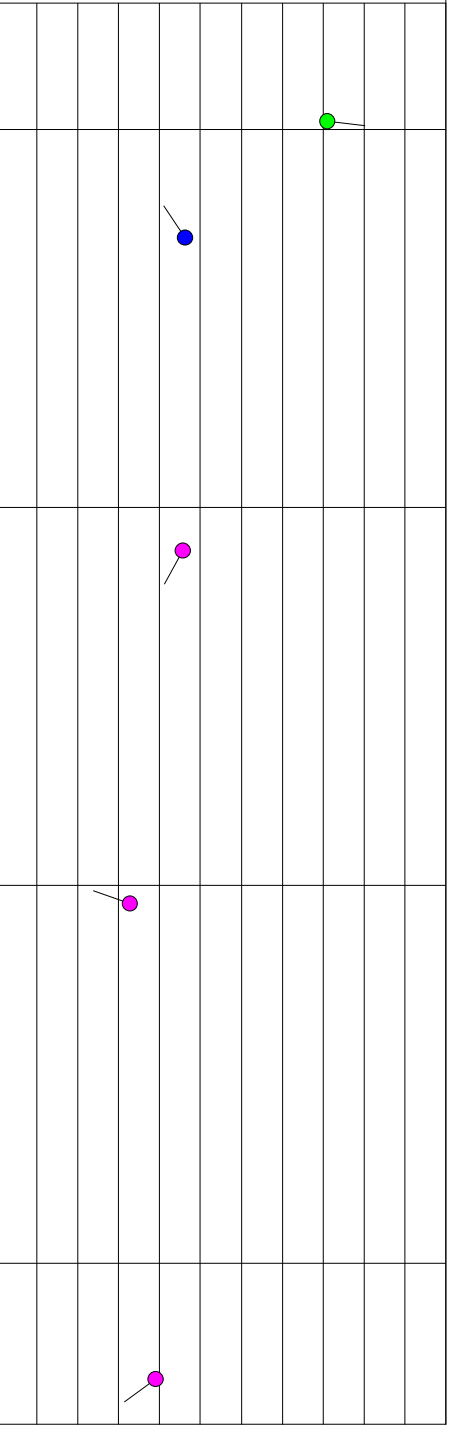
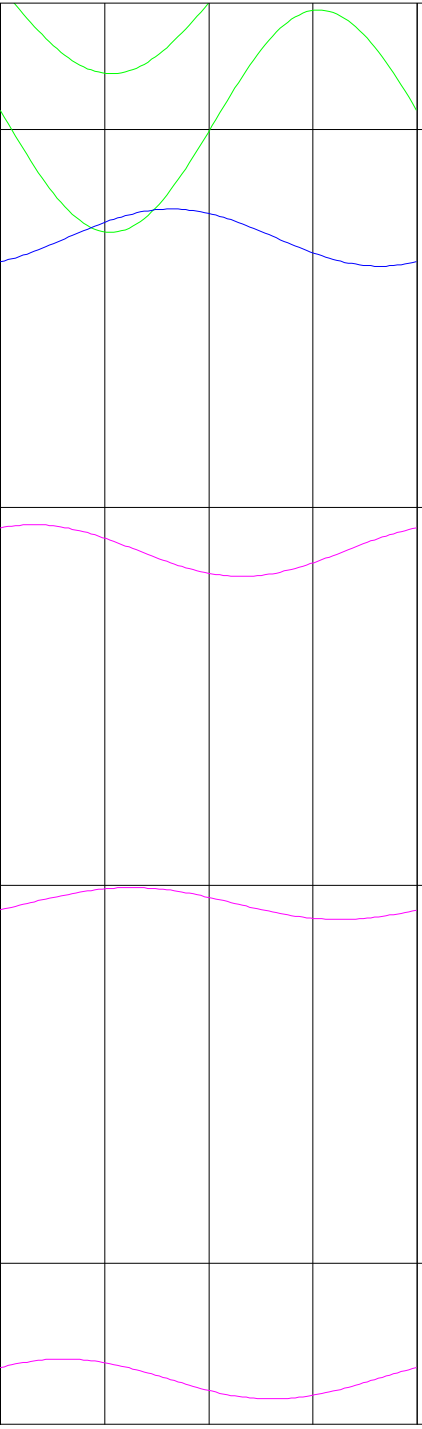
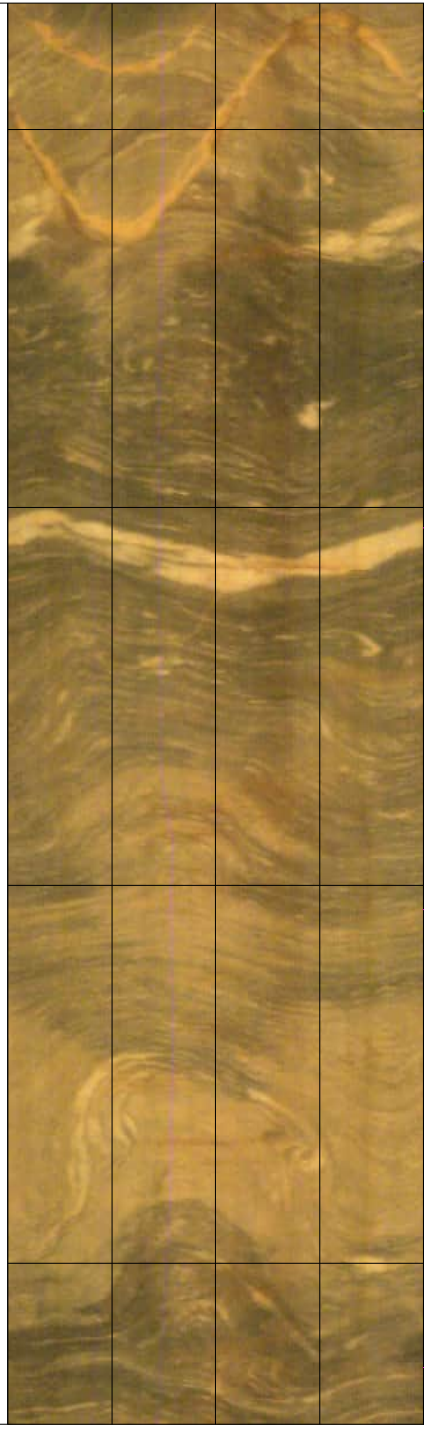
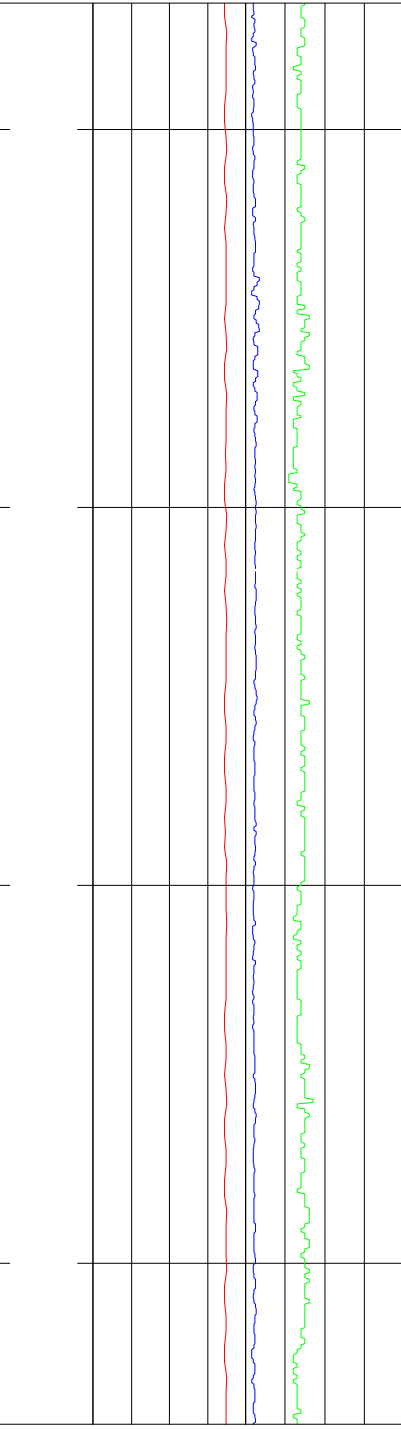
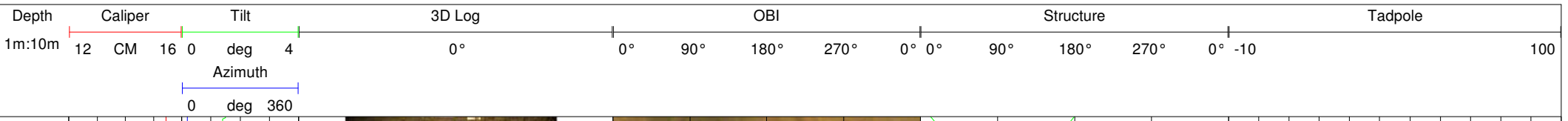
| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 4.2m |
|       |       |      |      |



Depth 1m:10m Caliper 12 CM 16 0 Tilt deg 4 3D Log 0° 0° 90° 180° 270° 0° 0° 90° 180° 270° 0° -10 Tadpole 100

Azimuth  
0 deg 360

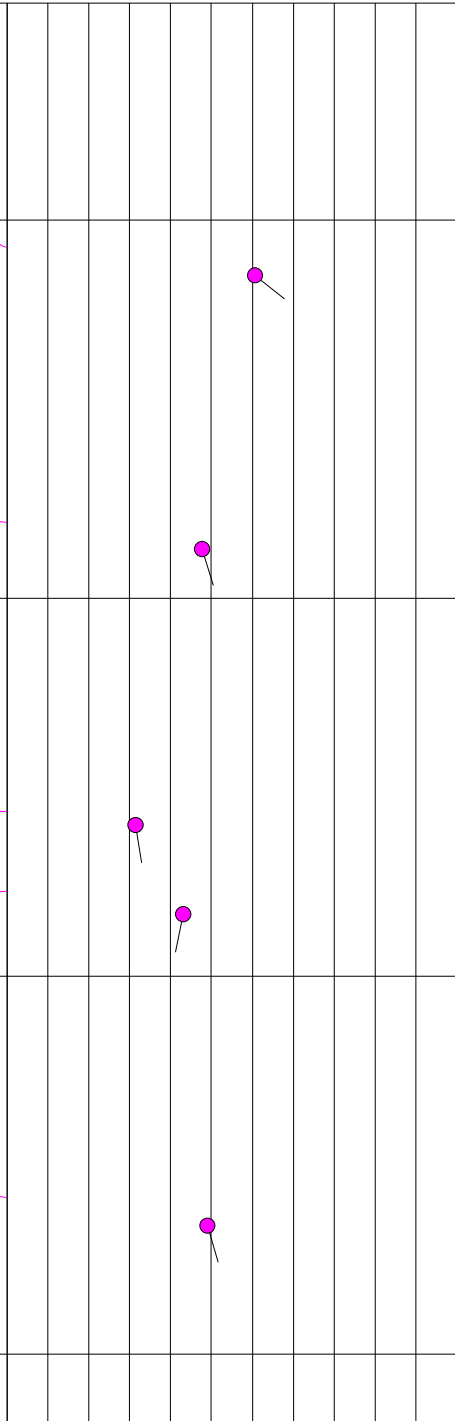
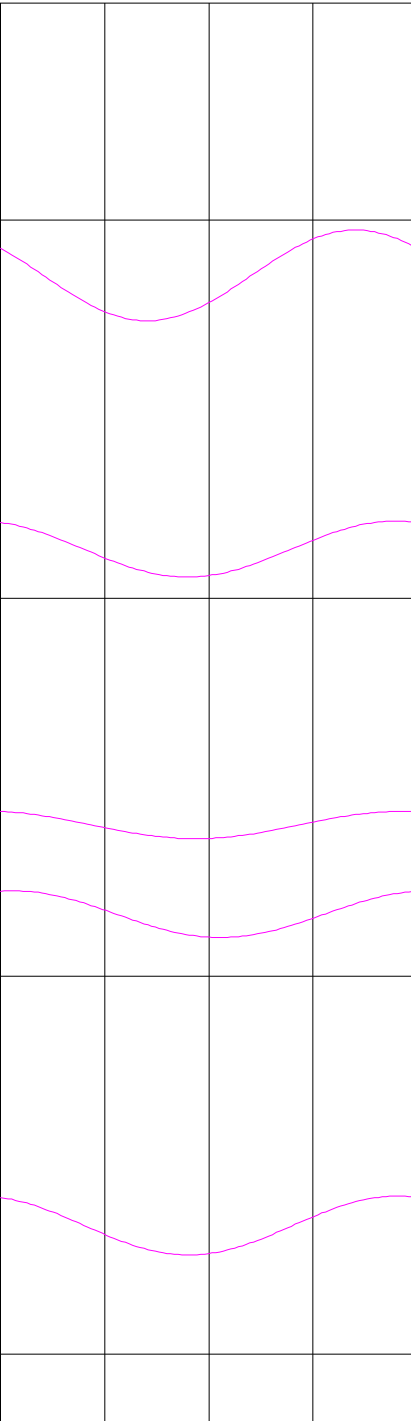
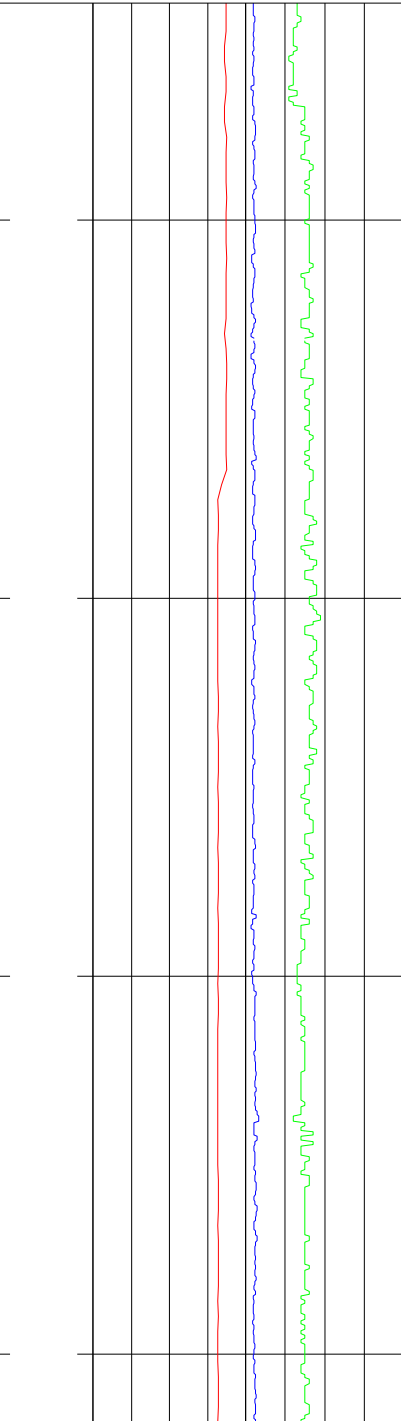






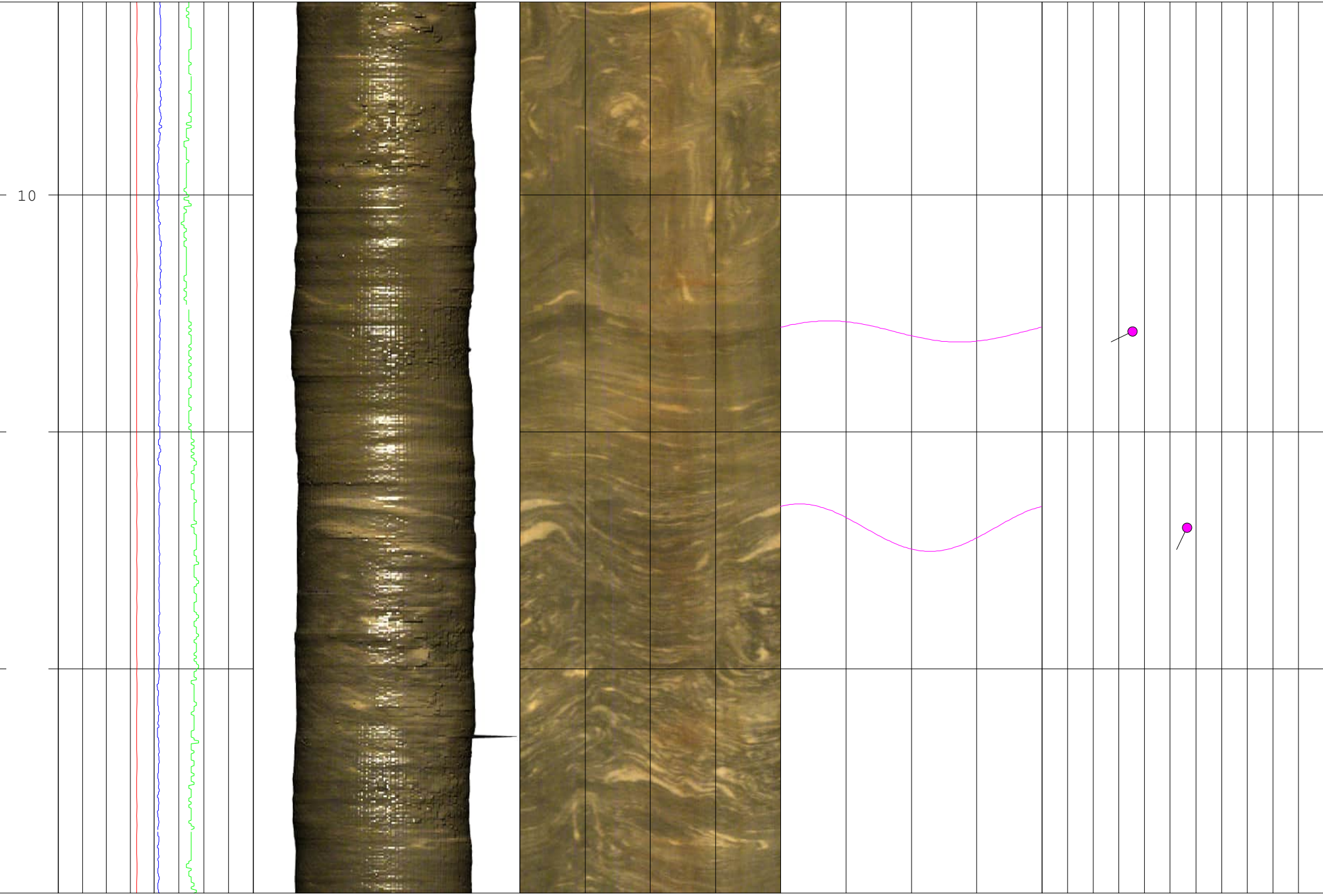
Depth 1m:10m    Caliper 12 CM    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360

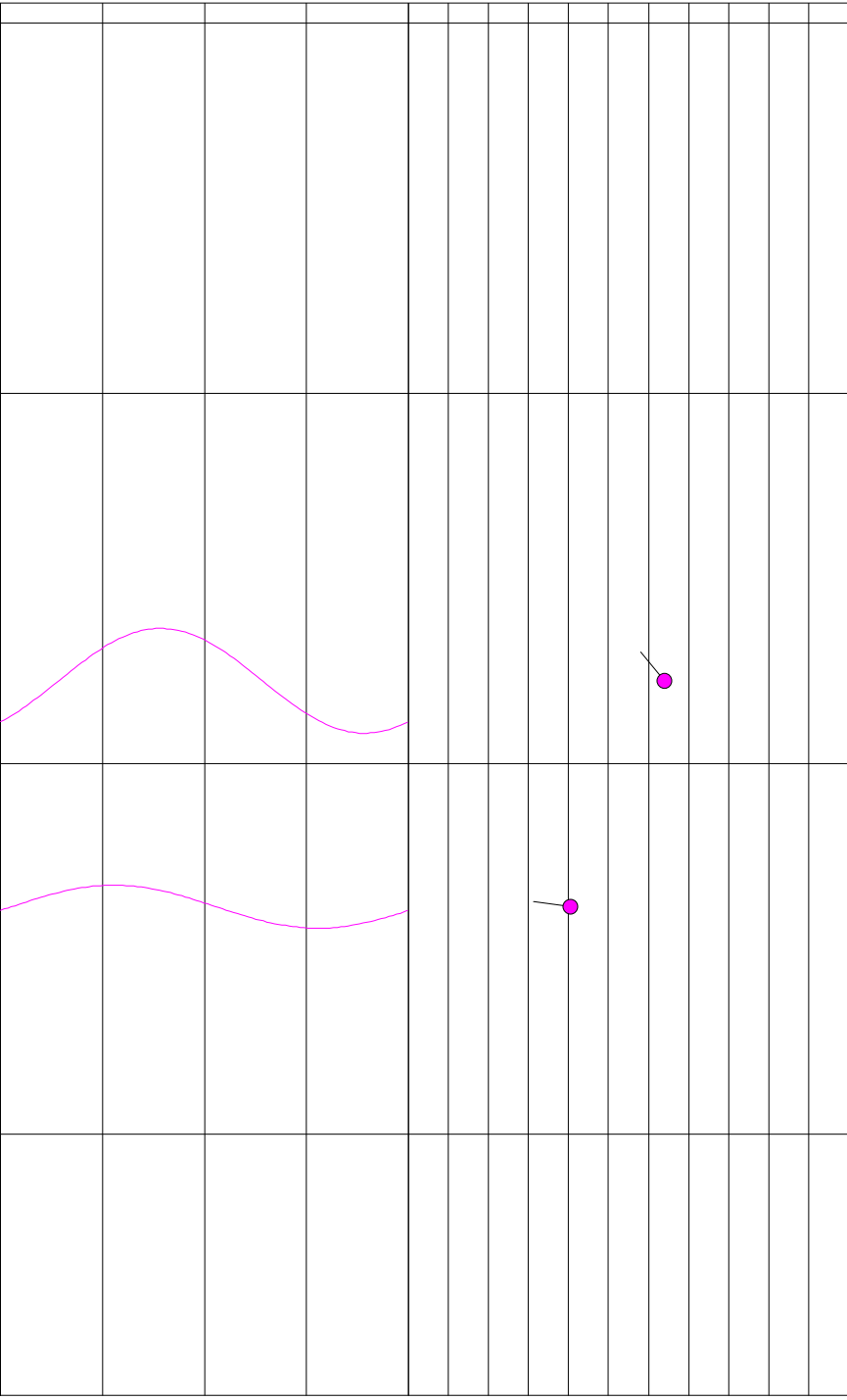
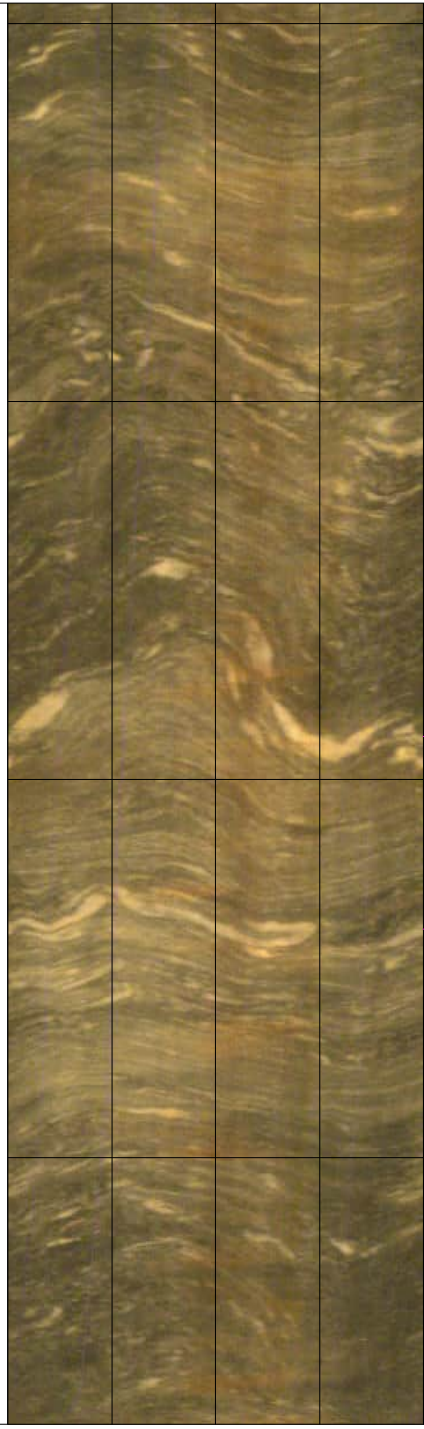
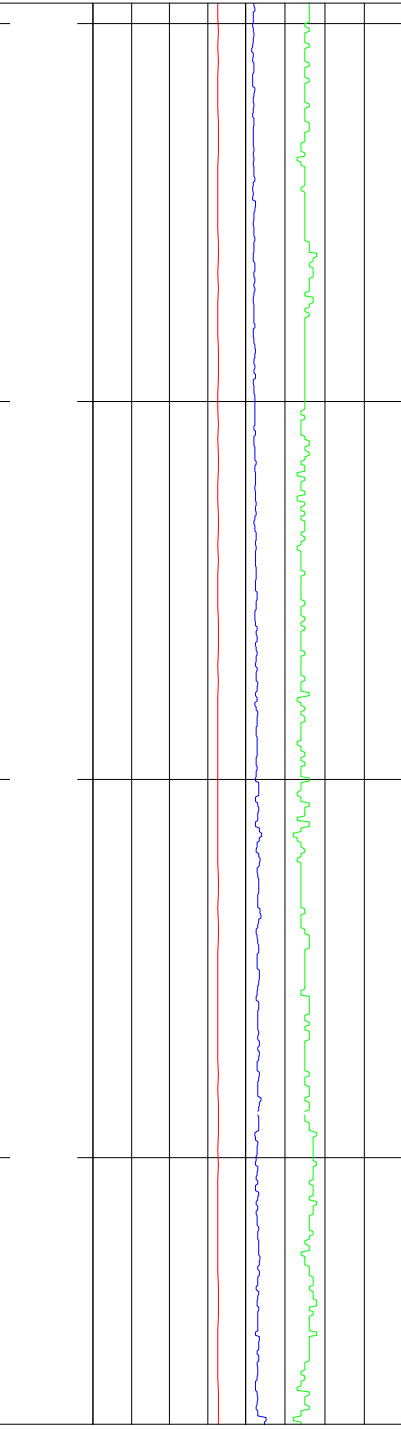


Depth 1m:10m    Caliper 12 CM    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10 100

Azimuth 0 deg 360

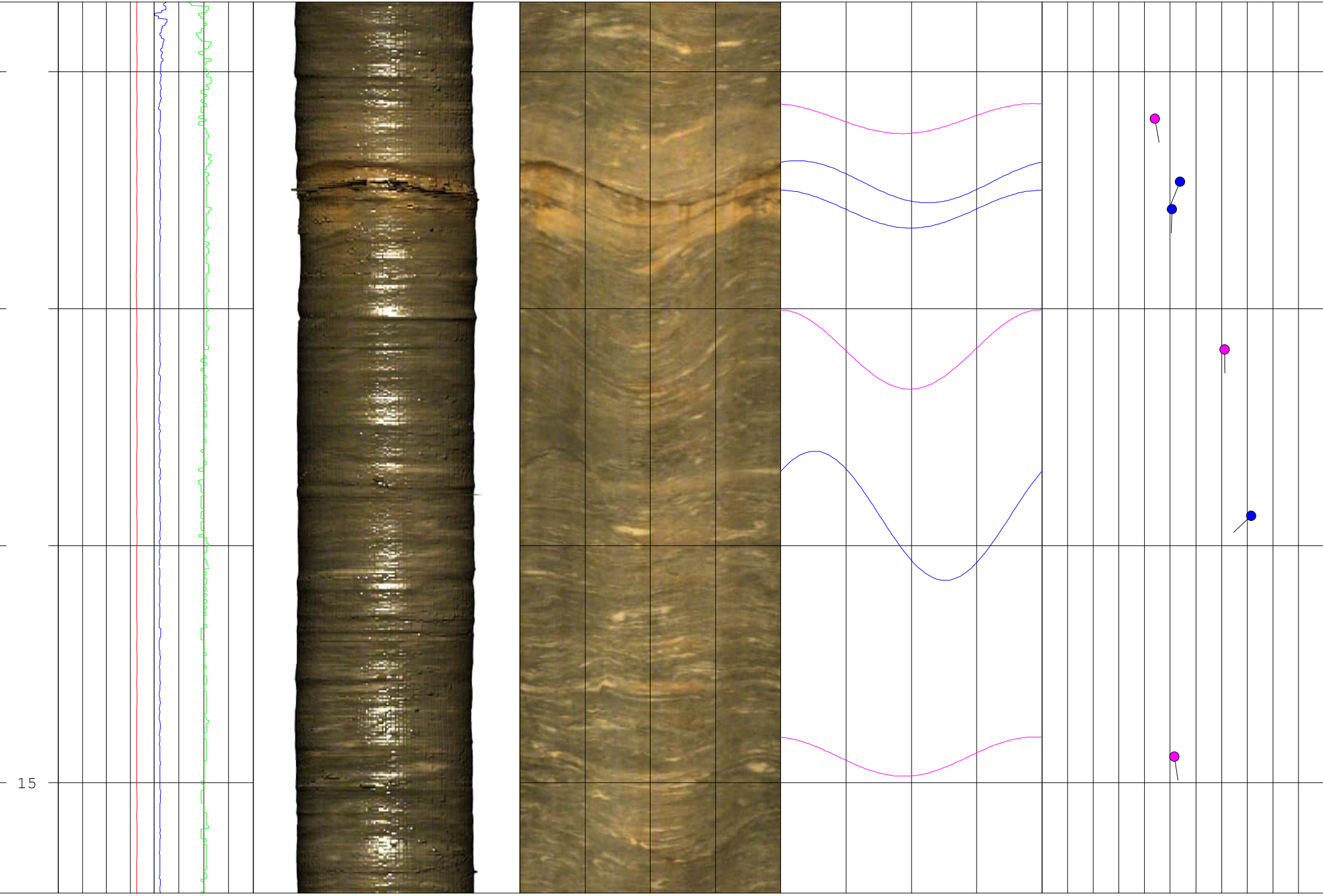


Depth 1m:10m    Caliper 12 CM    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100  
 Azimuth 0 deg 360

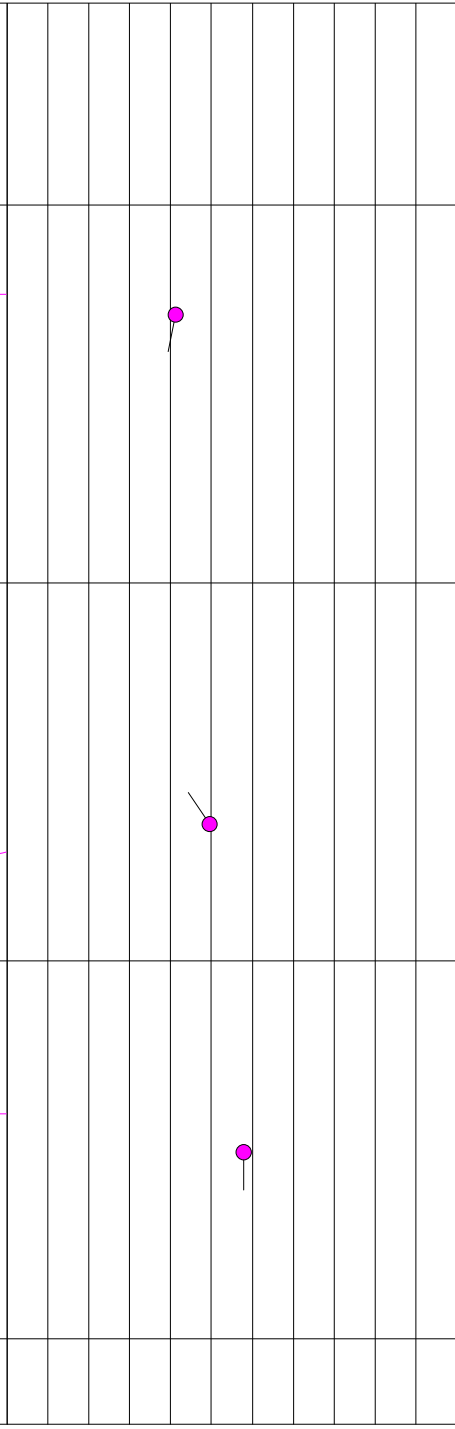
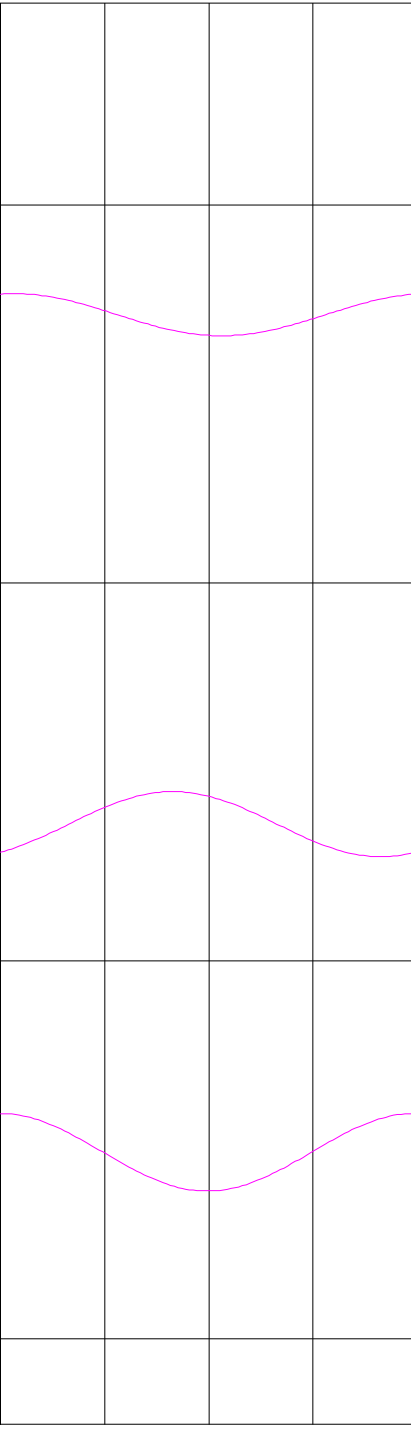
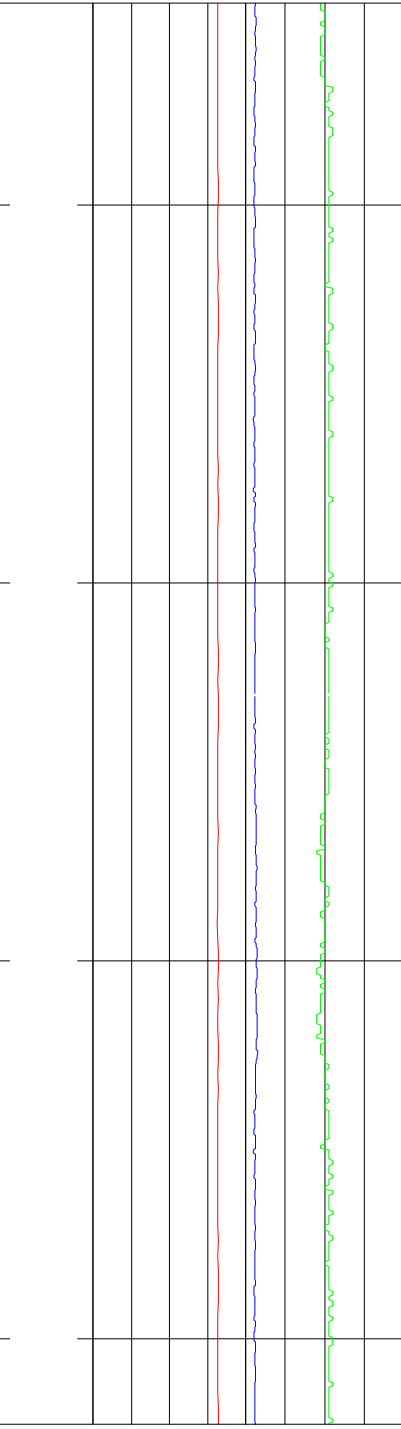


Depth 1m:10m Caliper 12 CM 16 0 Tilt 0 deg 4 Structure 0° 90° 180° 270° 0° -10 Tadpole 100

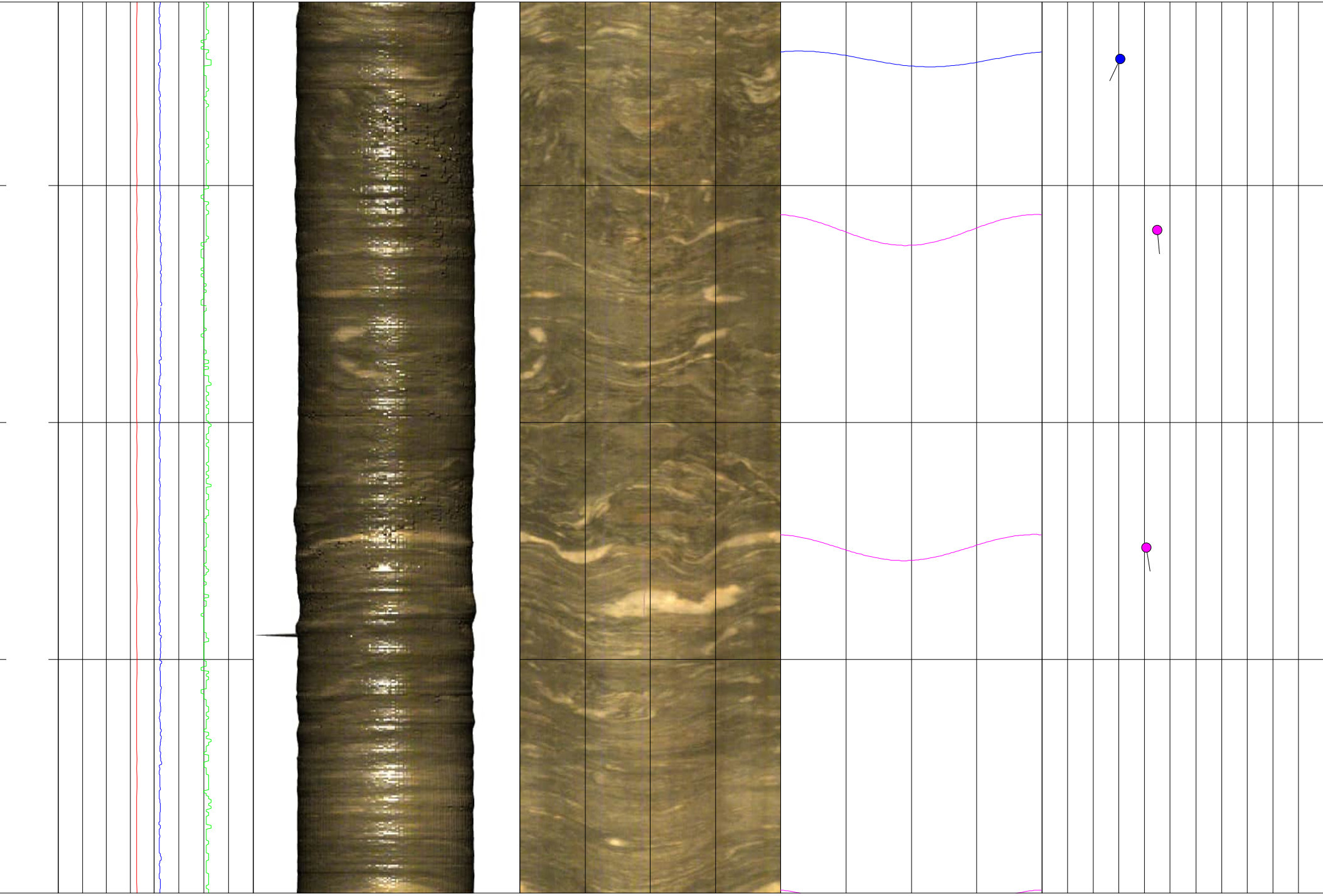
Azimuth 0 deg 360



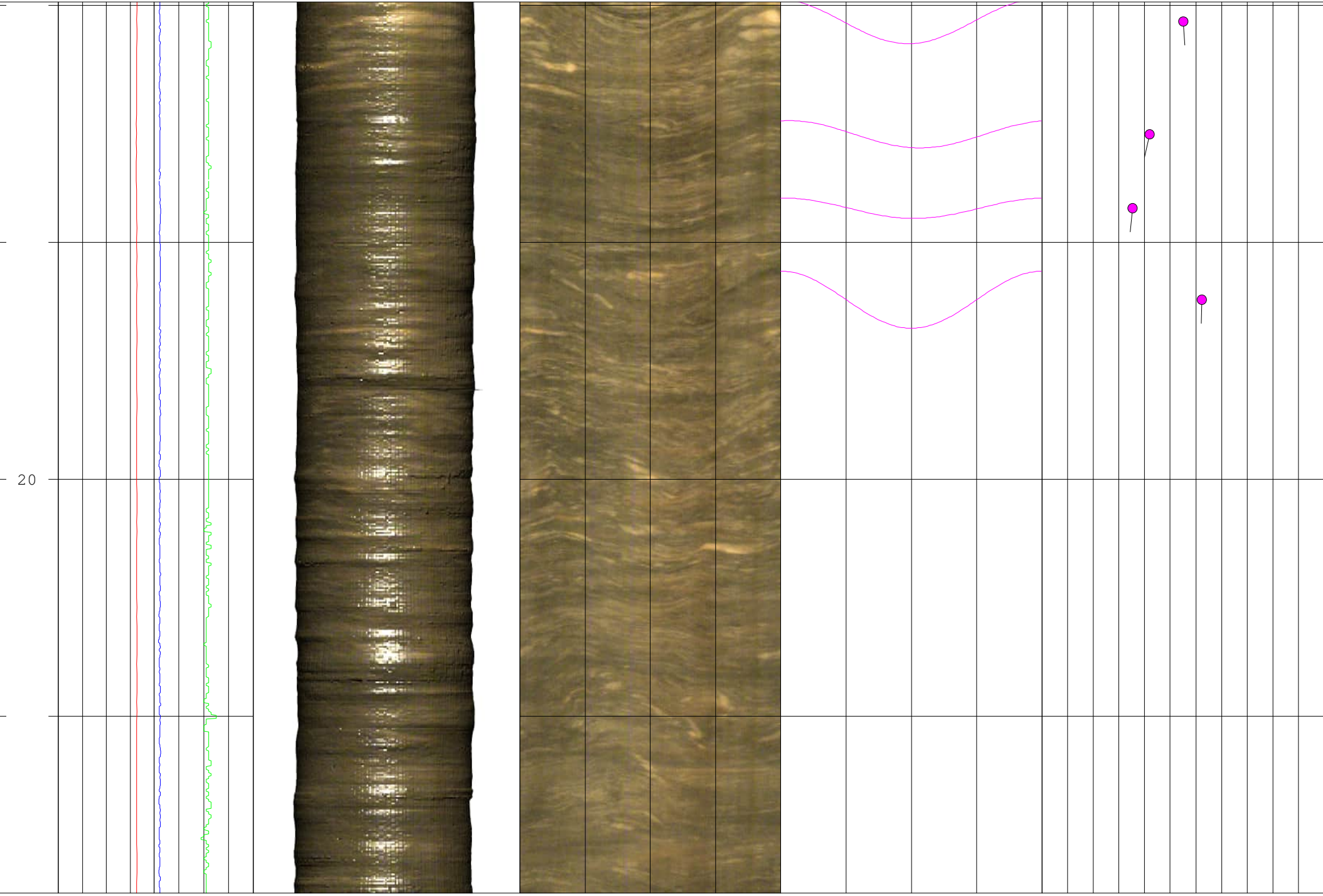
Depth 1m:10m    Caliper 12 CM    Tilt 0 deg    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100  
 Azimuth 0 deg 360



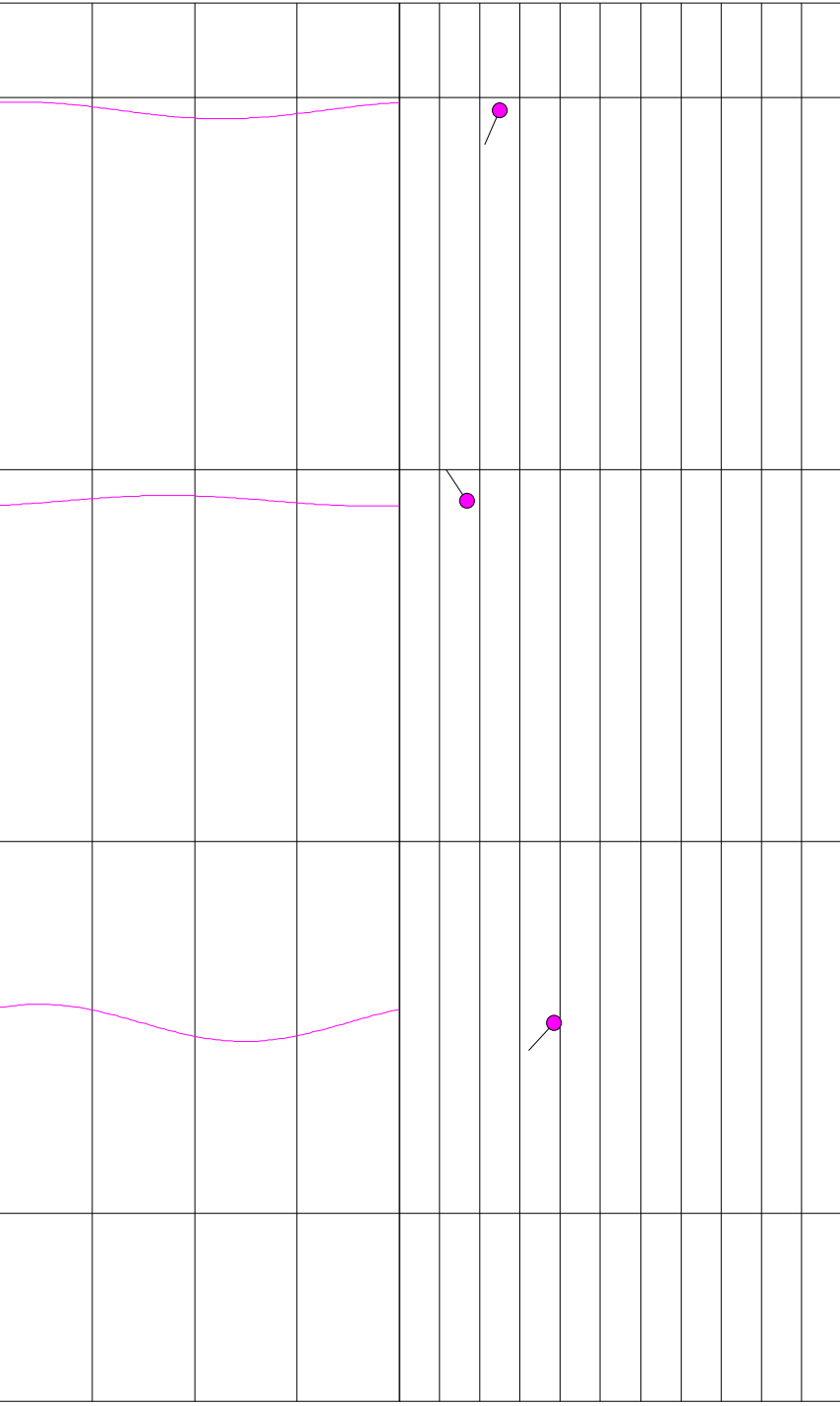
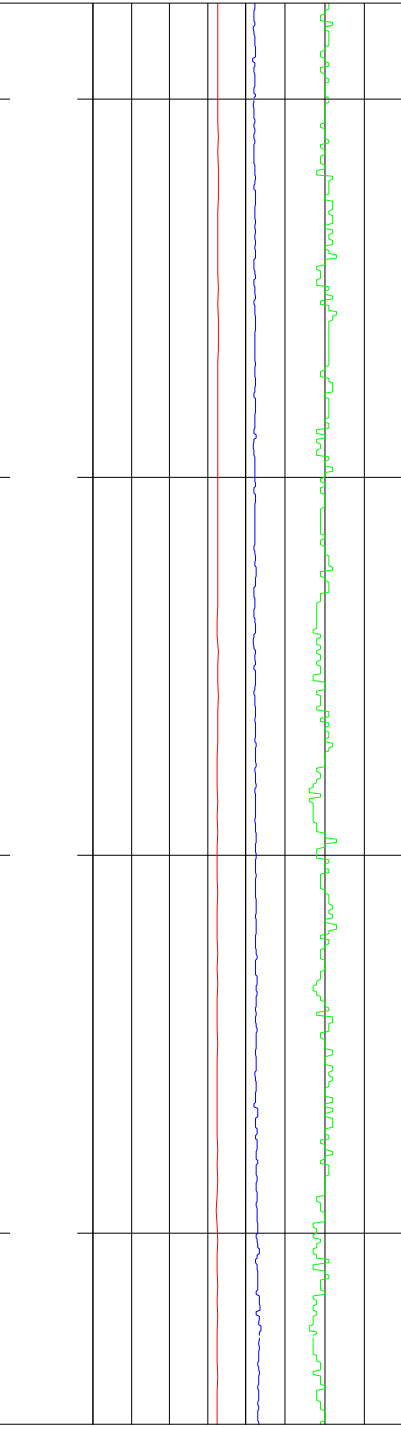
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 Azimuth 0 deg 360



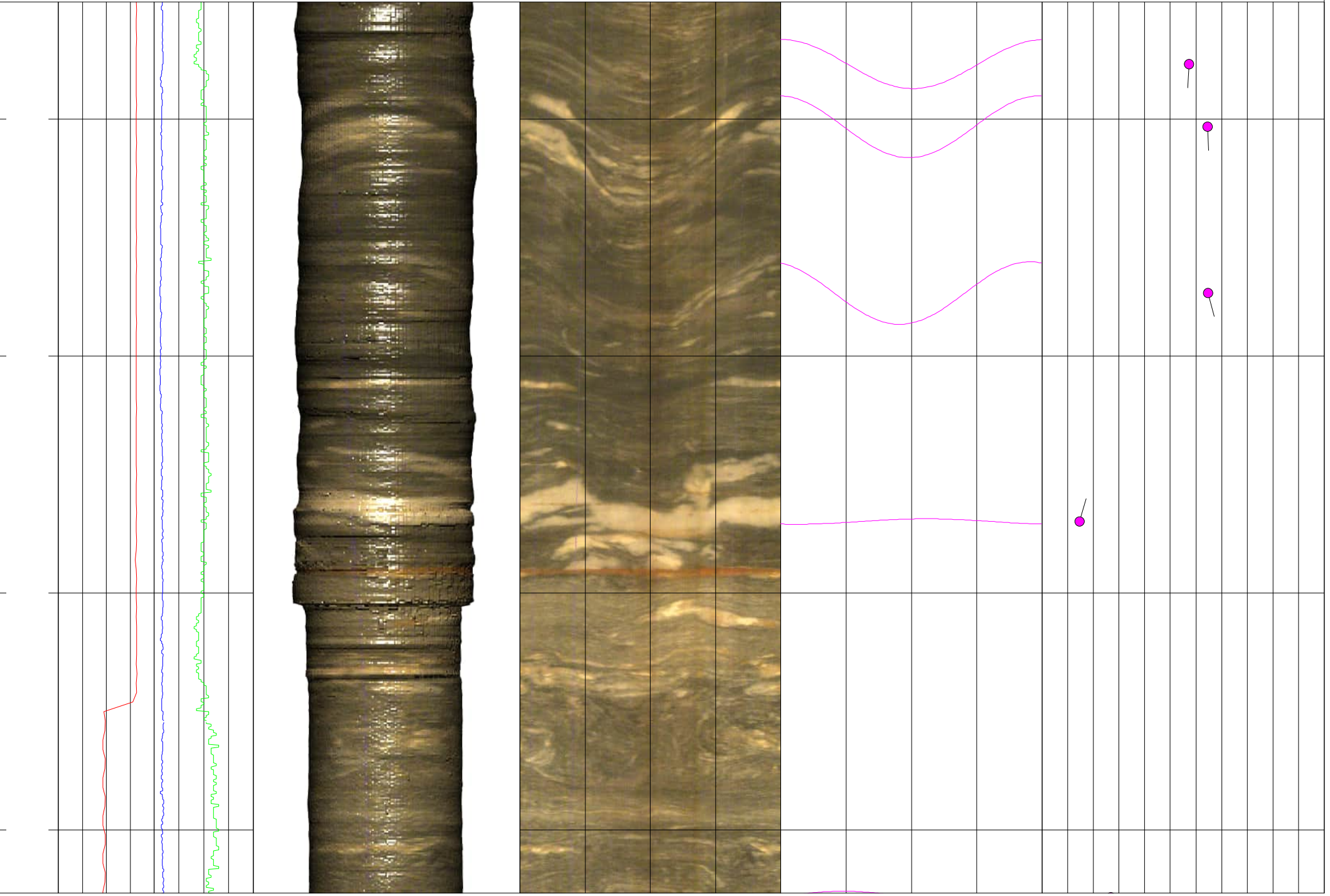
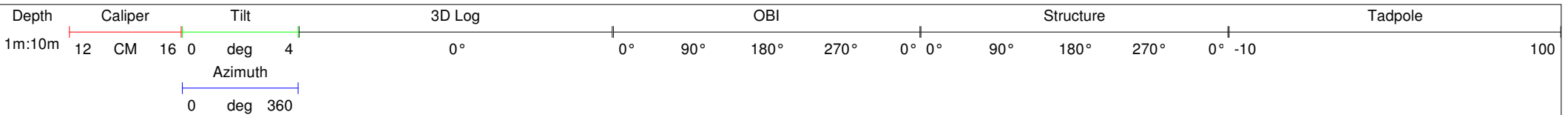
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 Azimuth 0 deg 360

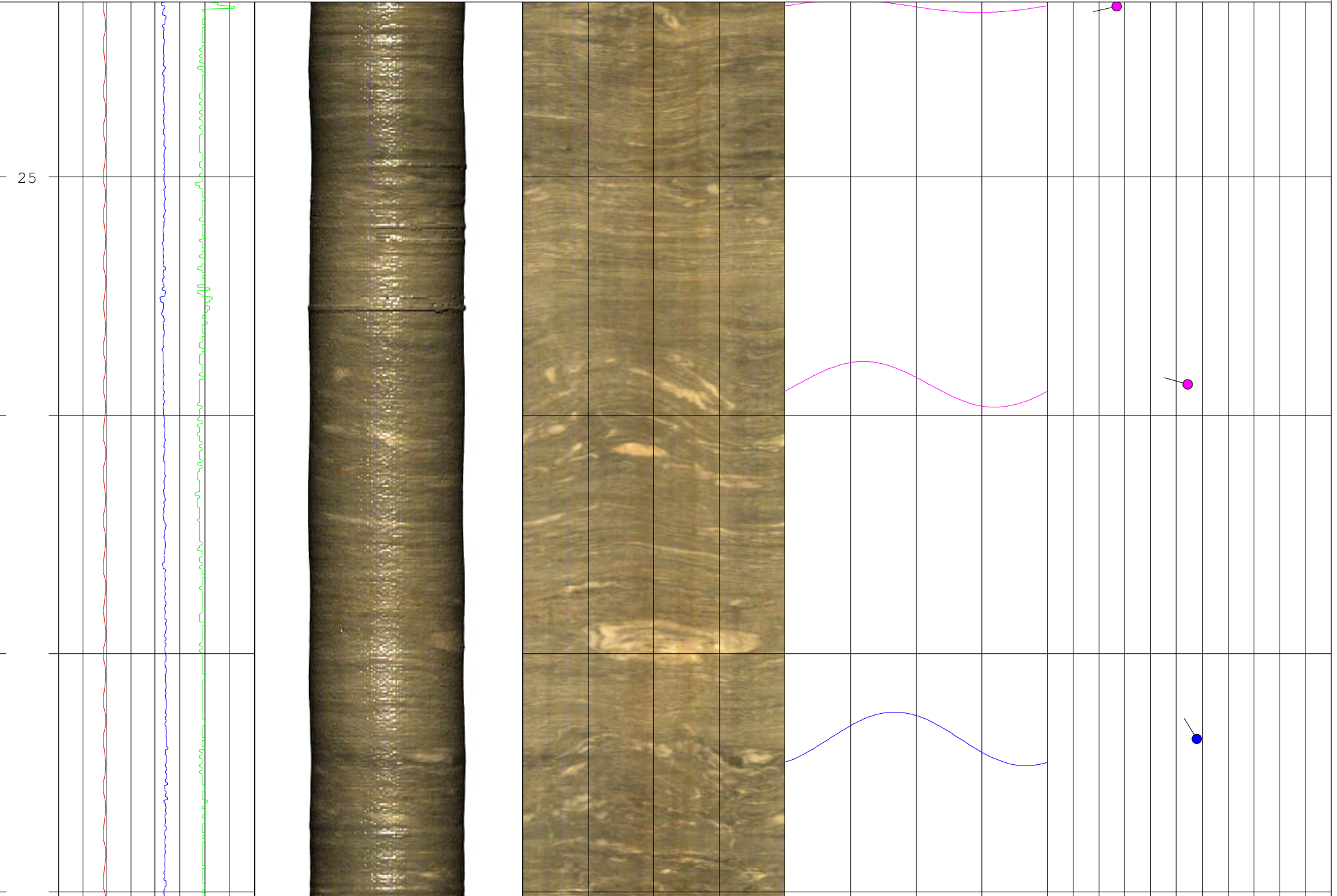
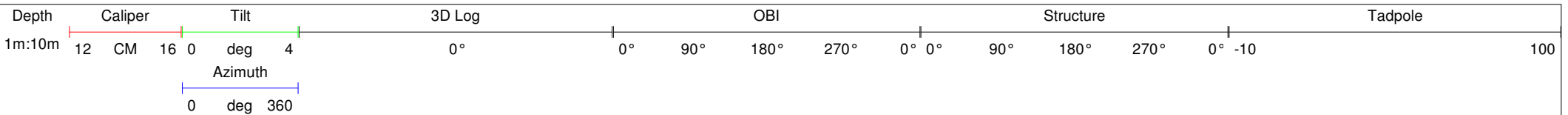


Depth 1m:10m    Caliper 12 CM    Tilt 0 deg    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100  
 Azimuth 0 deg 360



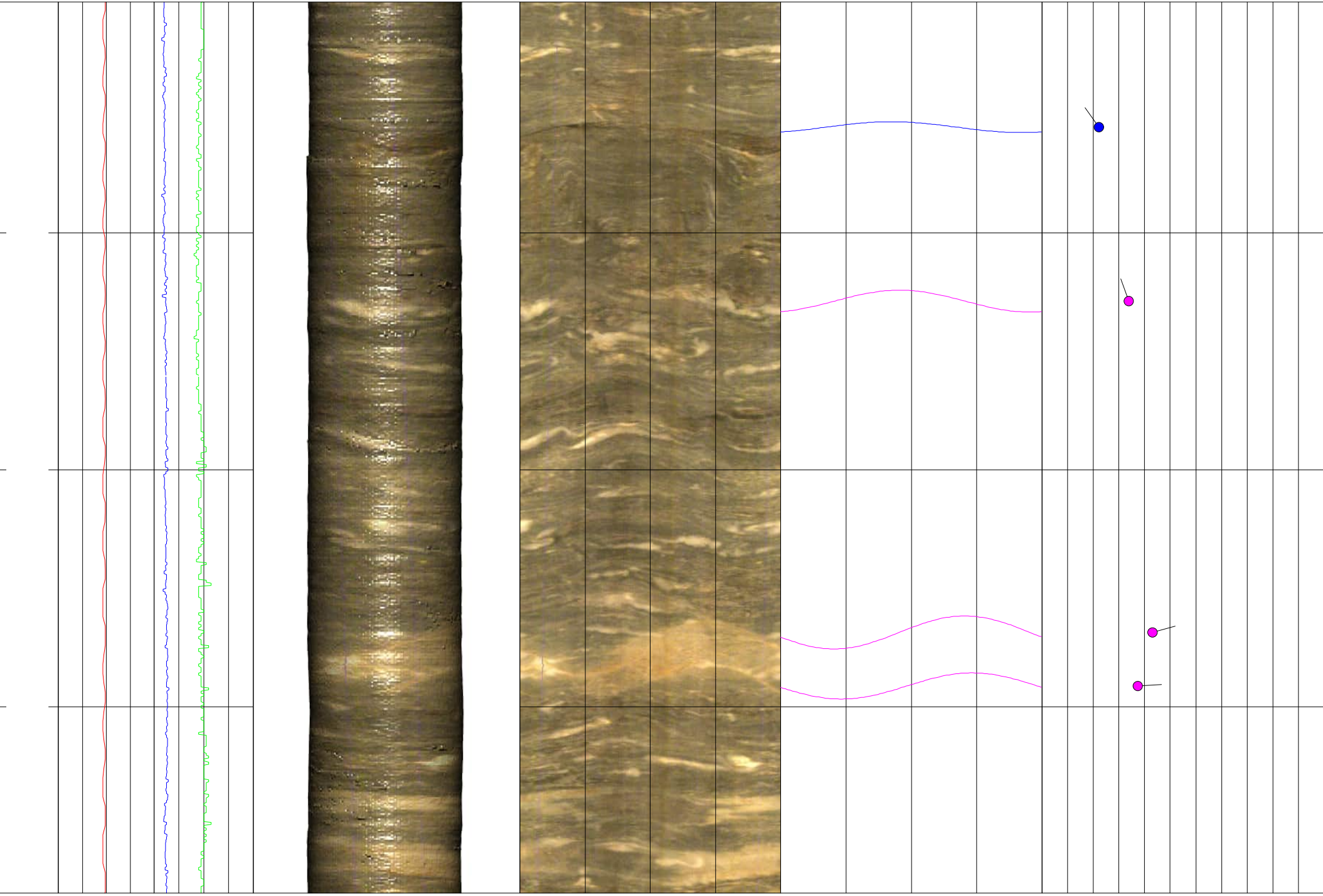






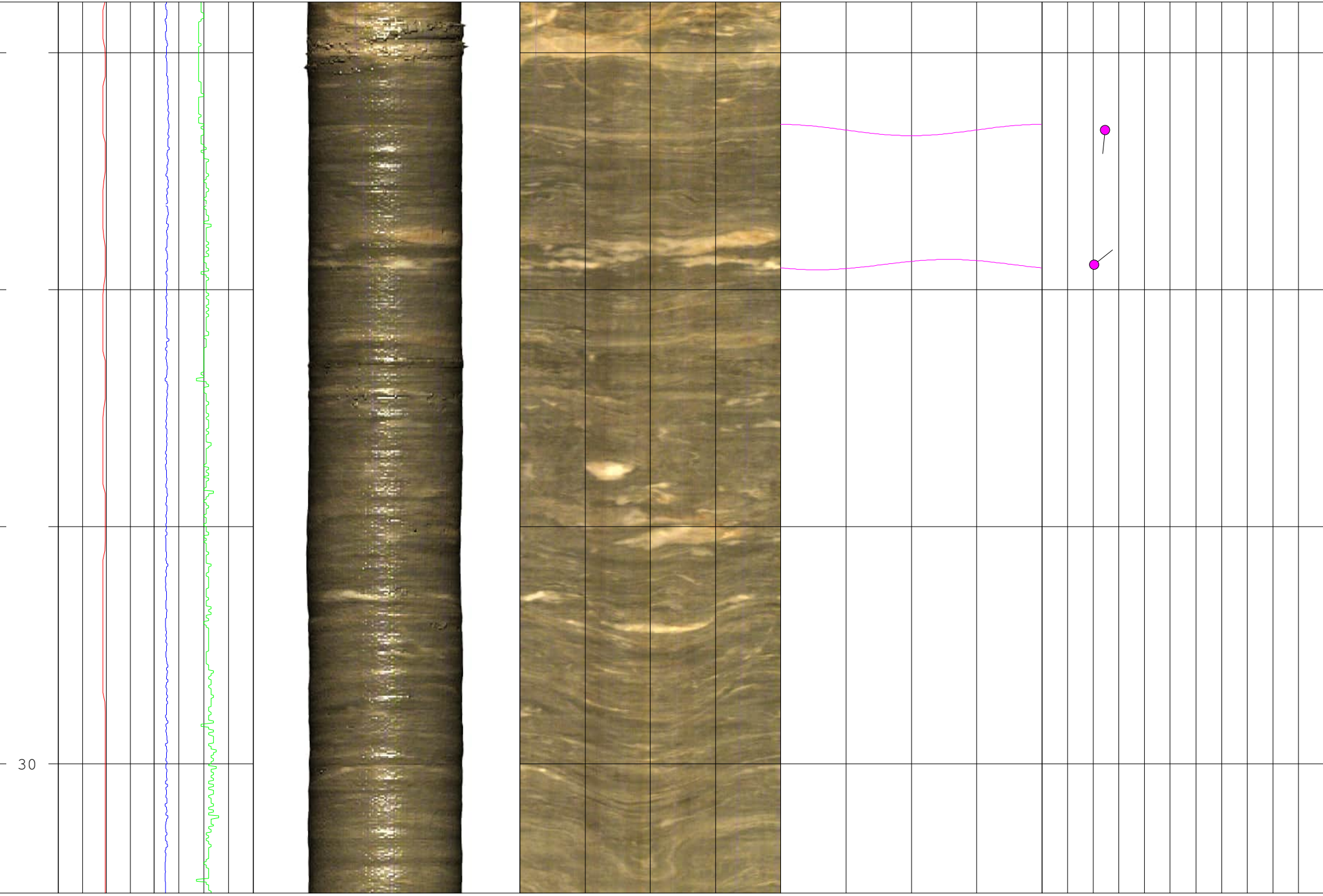
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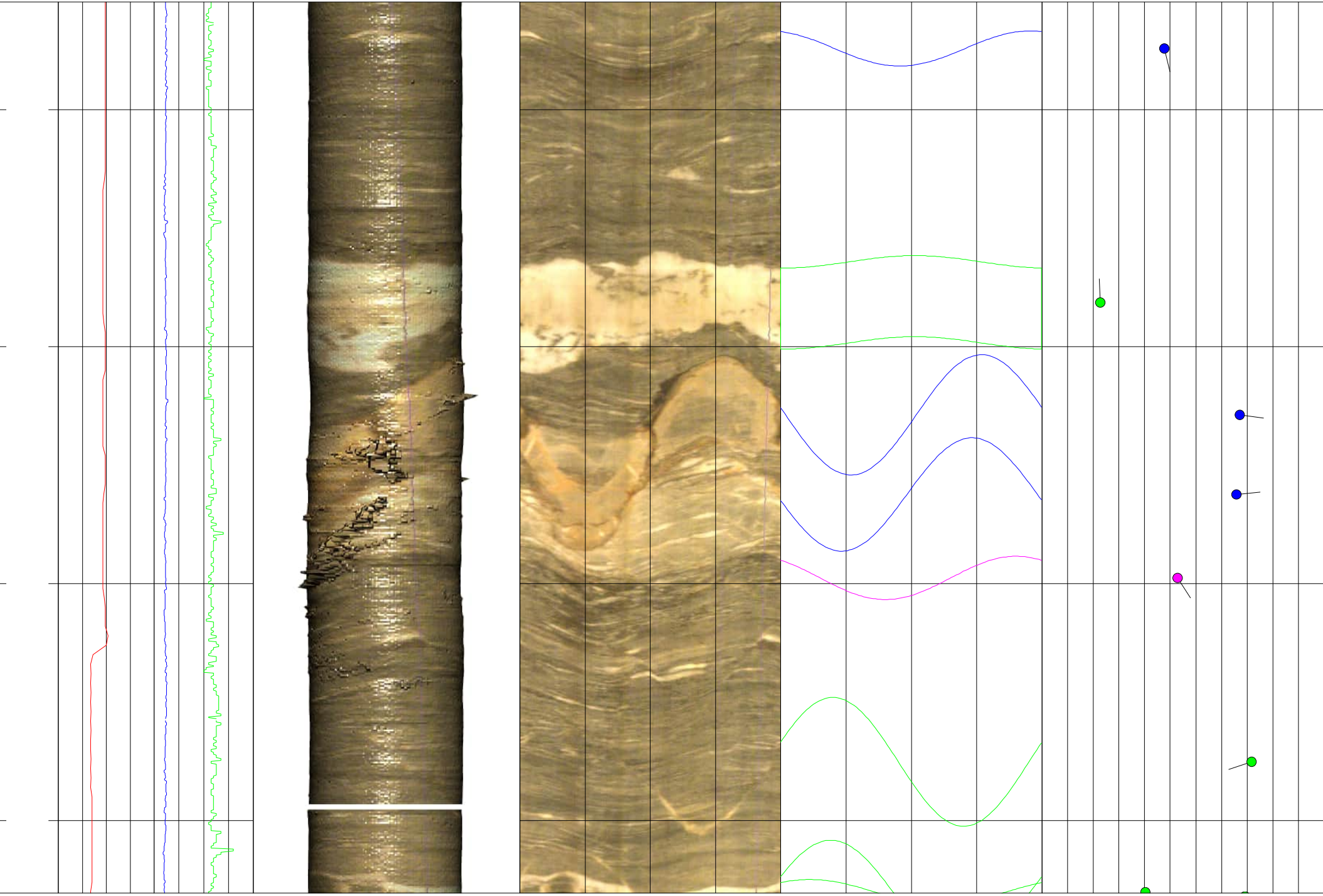
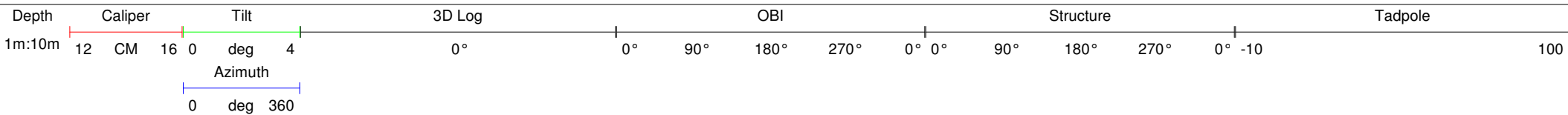
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Depth 1m:10m    Caliper 12 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100

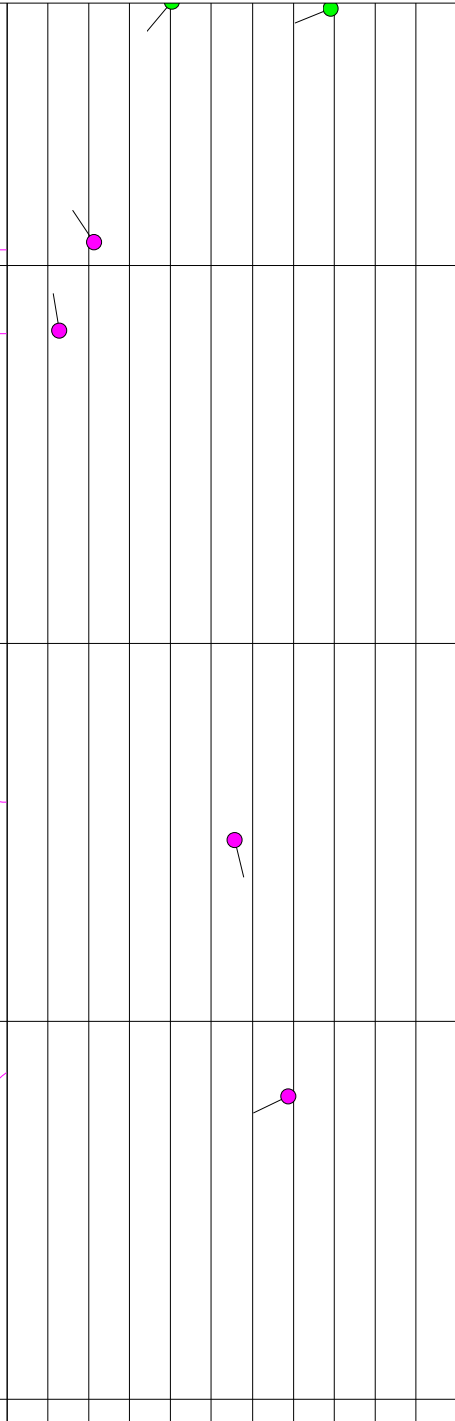
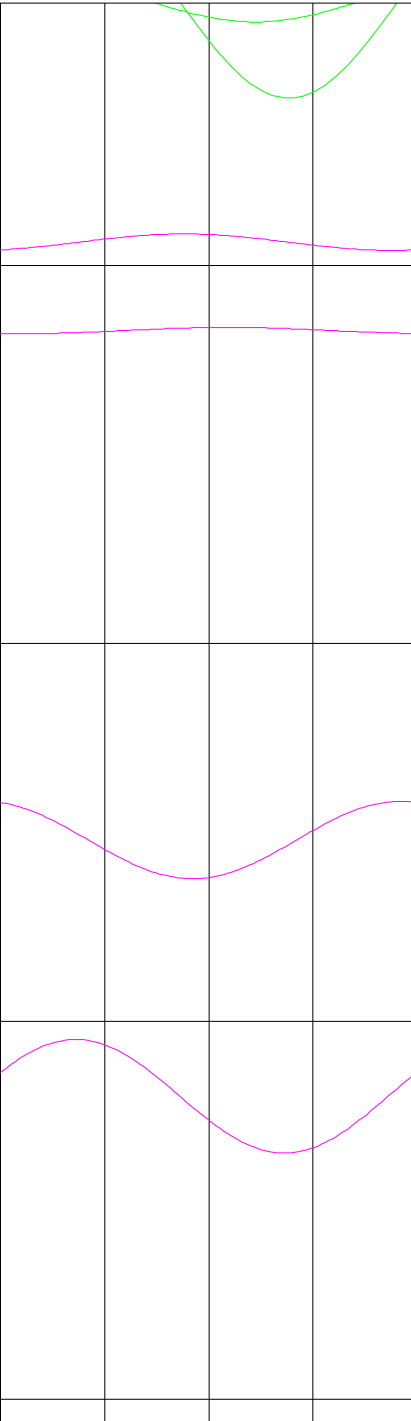
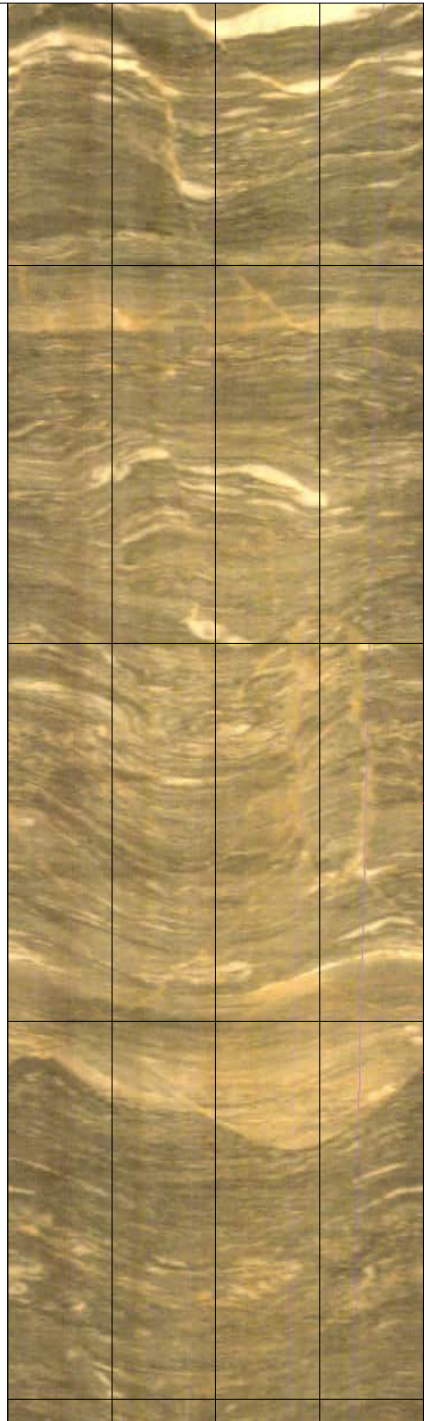
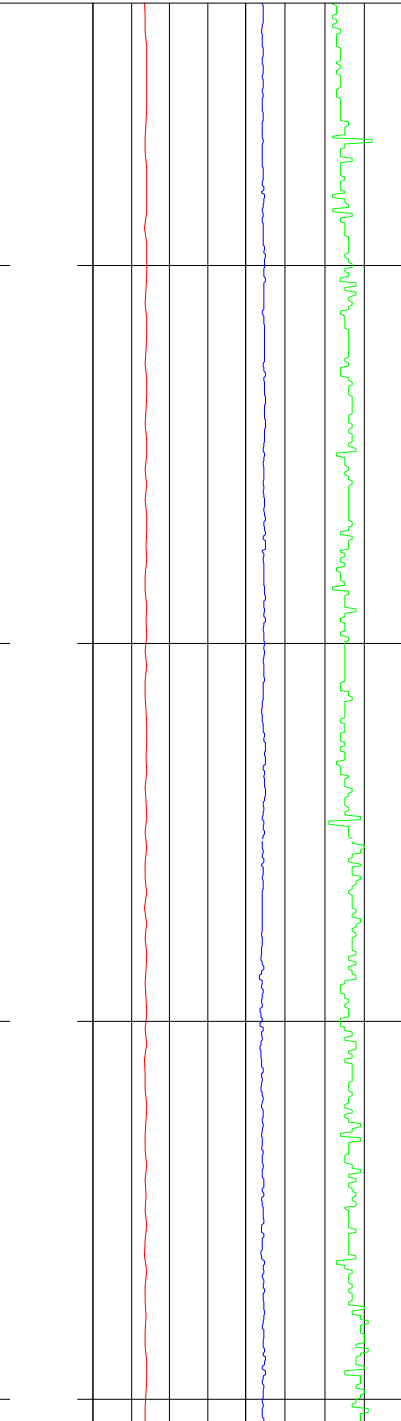
Azimuth 0 deg 360





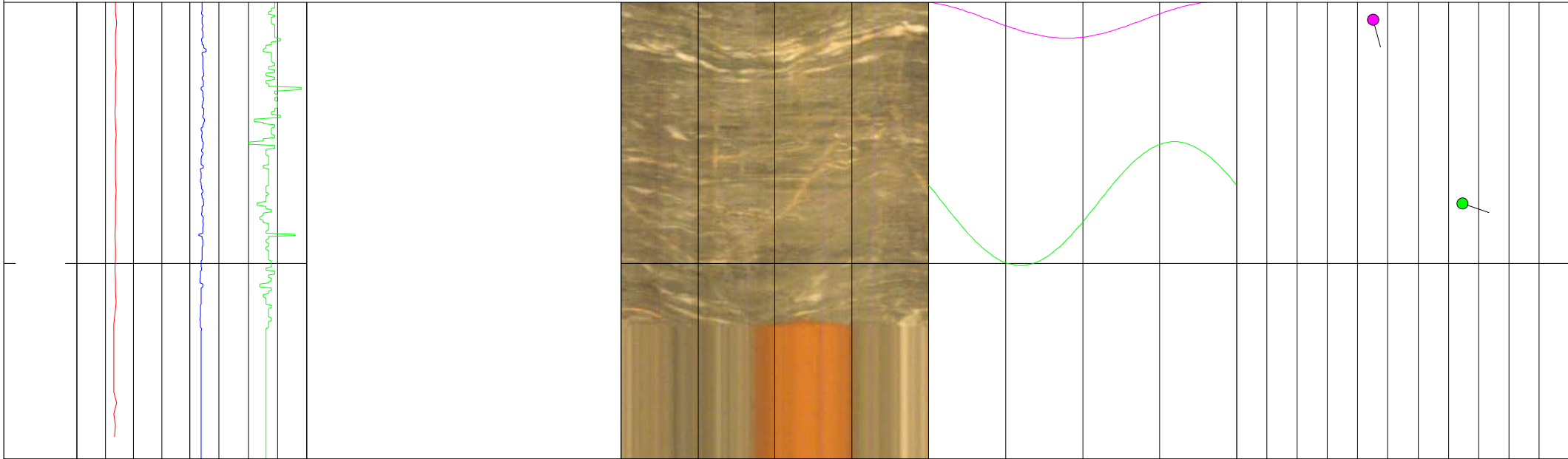
Depth 1m:10m    Caliper 12 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270° 0° -10    Tadpole 100

Azimuth 0 deg 360



Depth 1m:10m    Caliper 12 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole 100

Azimuth 0 deg 360





# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Log Type:

Optical Televiewer Log

Borehole: BH3

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy      Grid Reference:      Elevation:

Drilled Depth: 35m      Date: 04/03/2010

Logged Depth: 33.73m      Recorded By: [Redacted]

Logging Datum: Ground Level

Remarks:

Logged Interval: North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

Fluid Level:

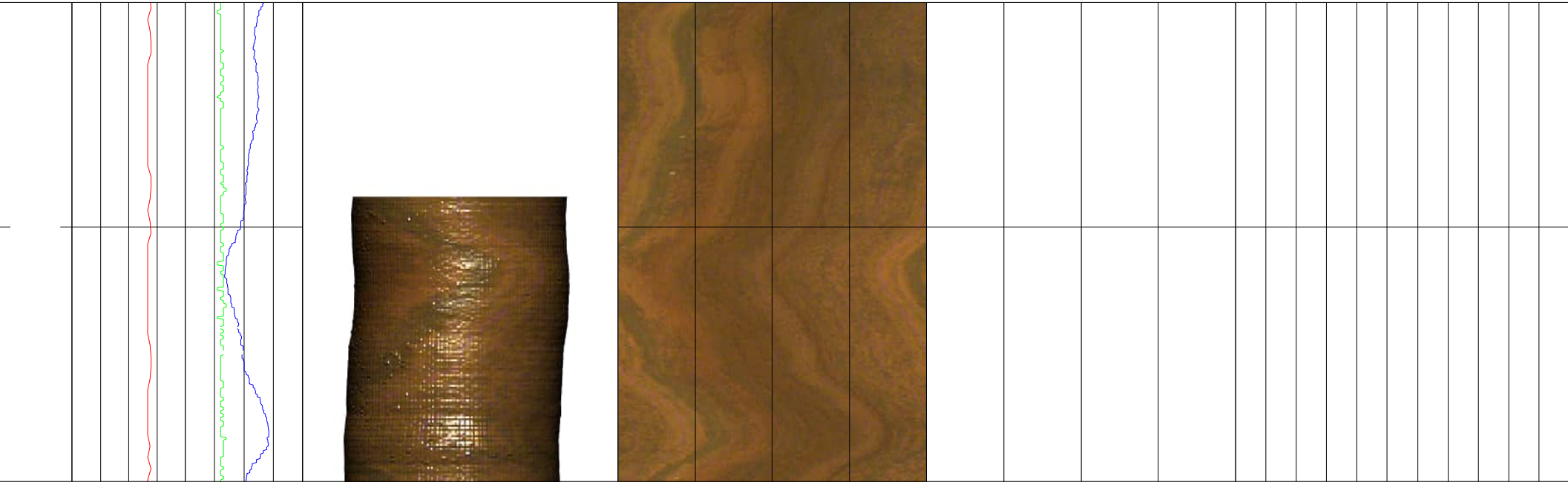
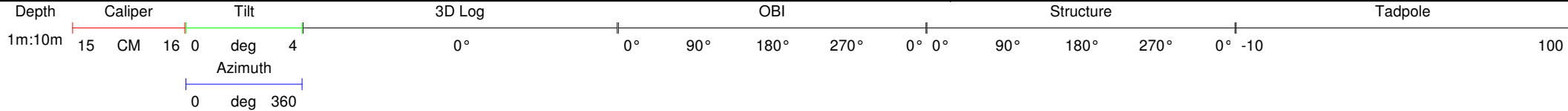
Structure Key: — Foliation — Fracture — Vein

## BOREHOLE RECORD

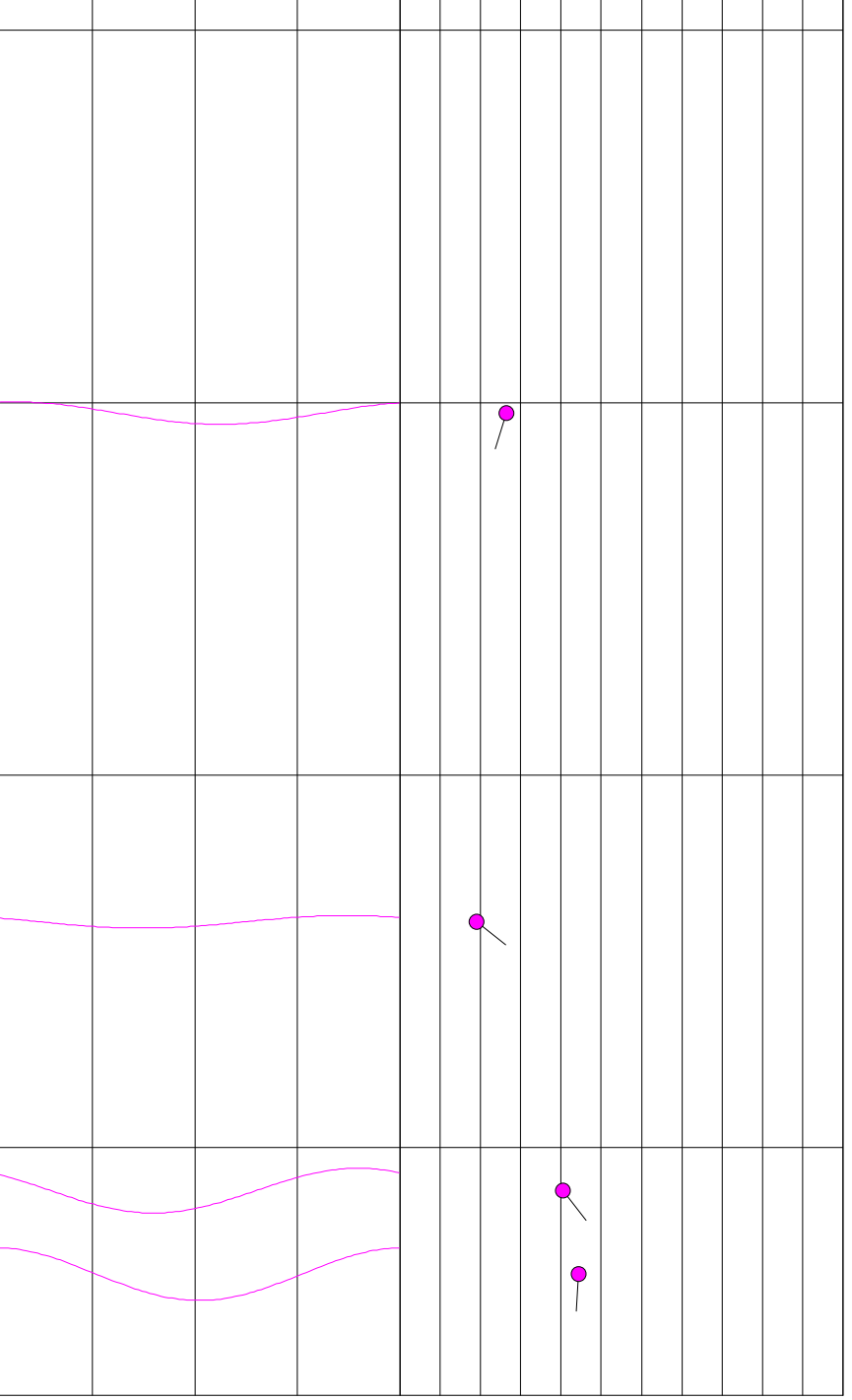
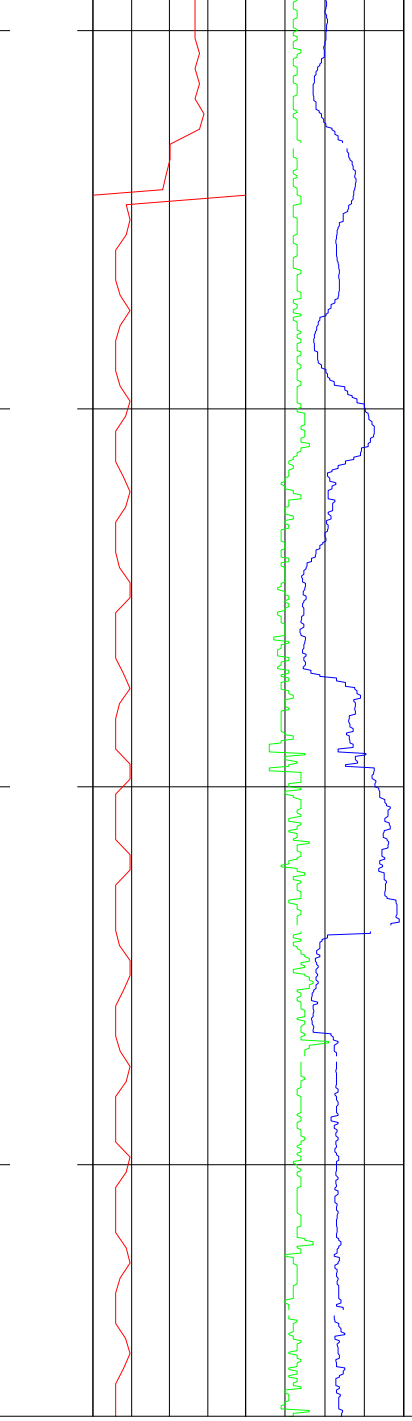
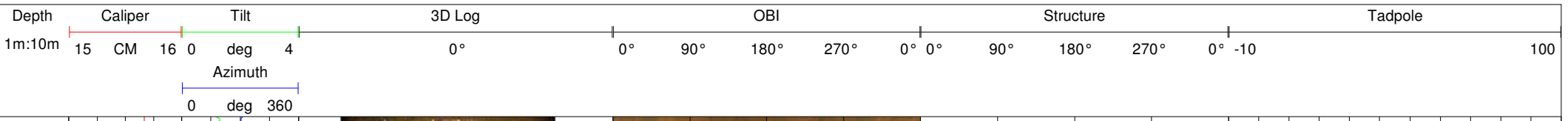
## CASING RECORD

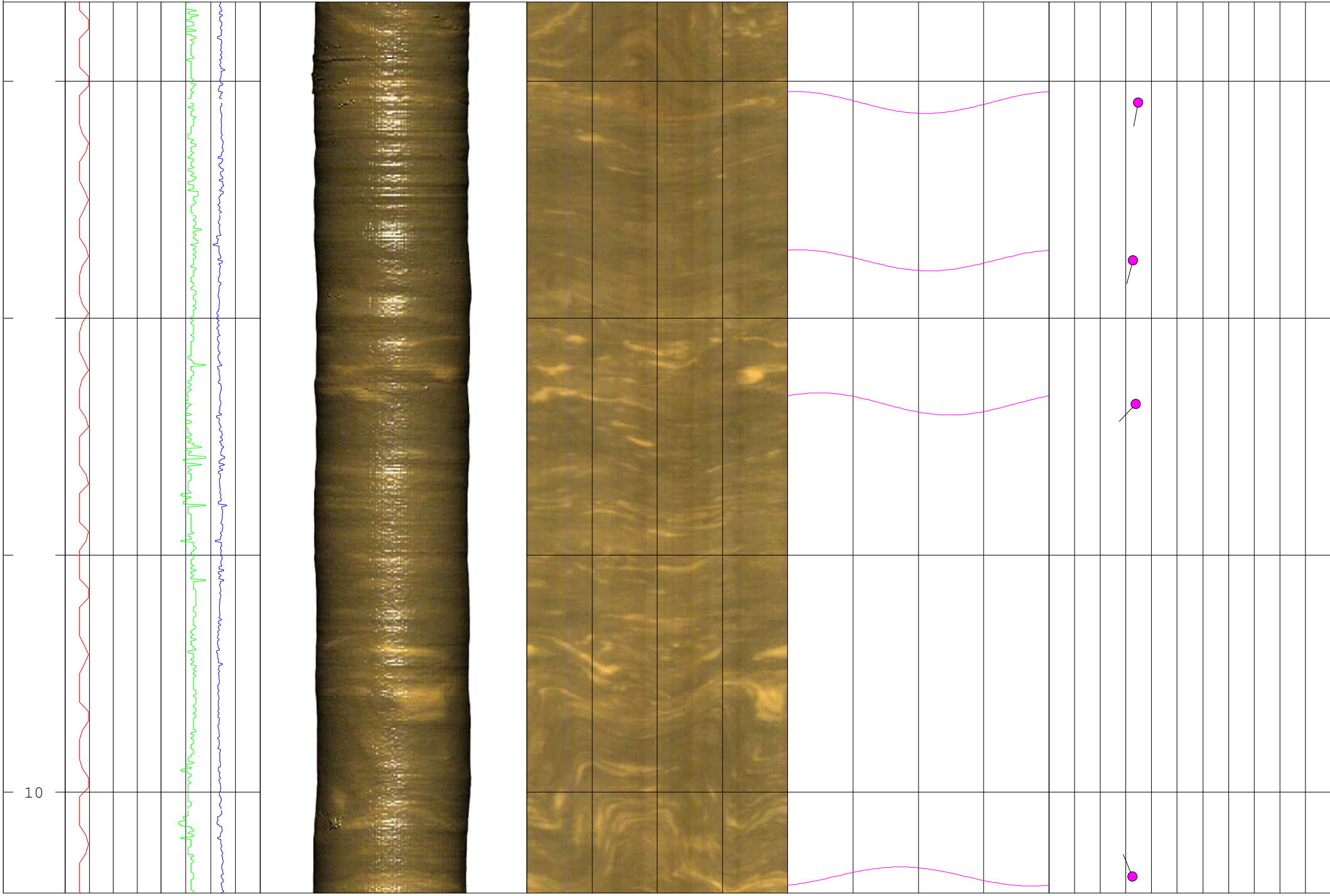
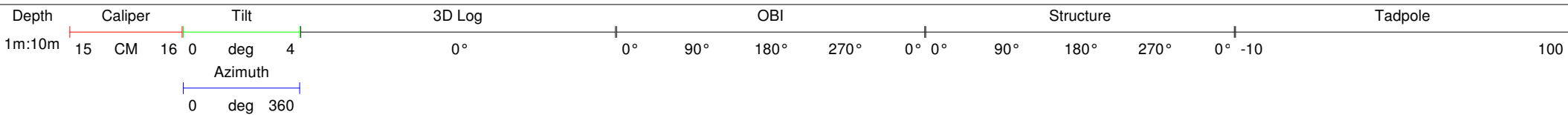
| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 6.8m  |
| 120mm         | 6.8m  | 35.0m |

| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 6.8m |



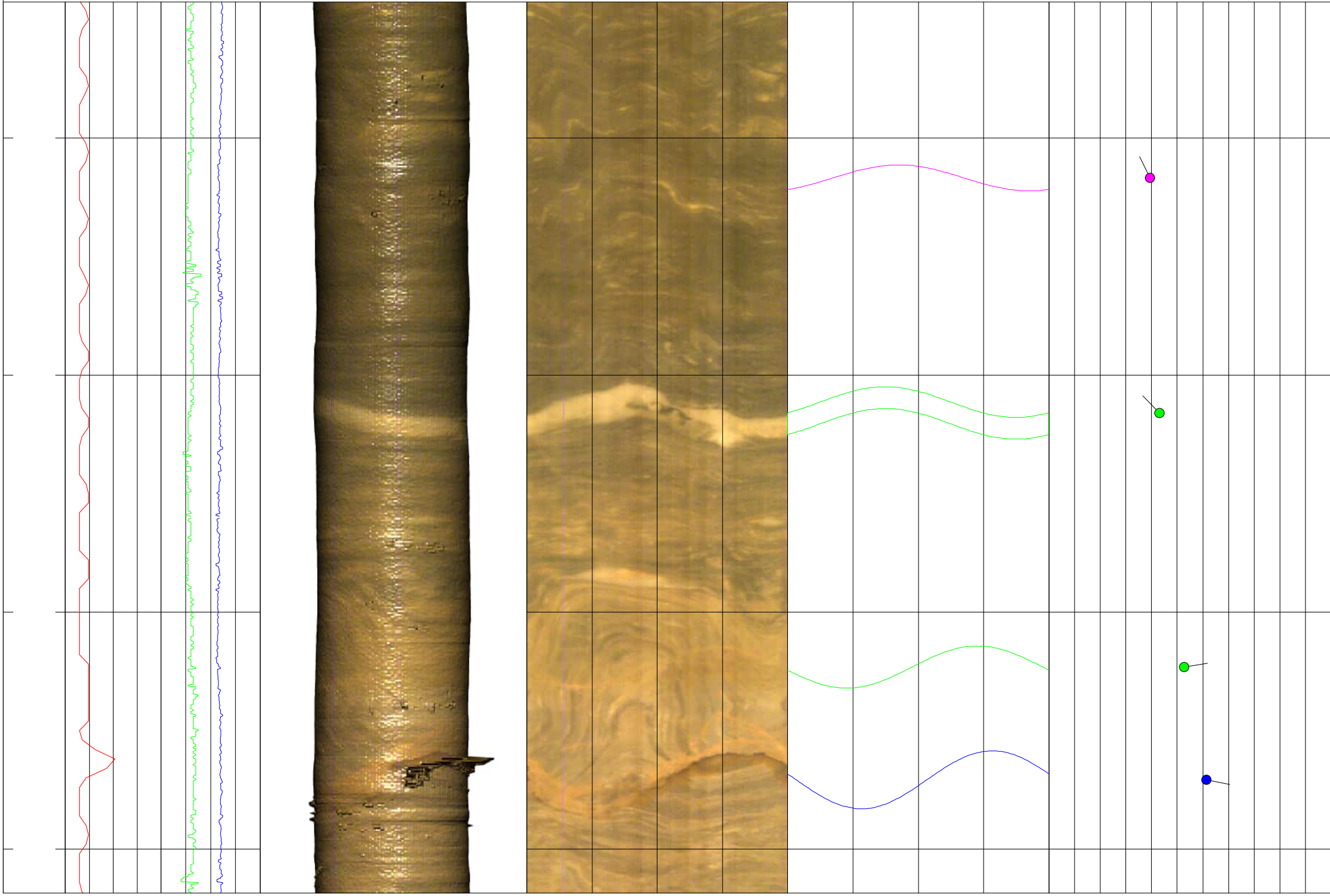






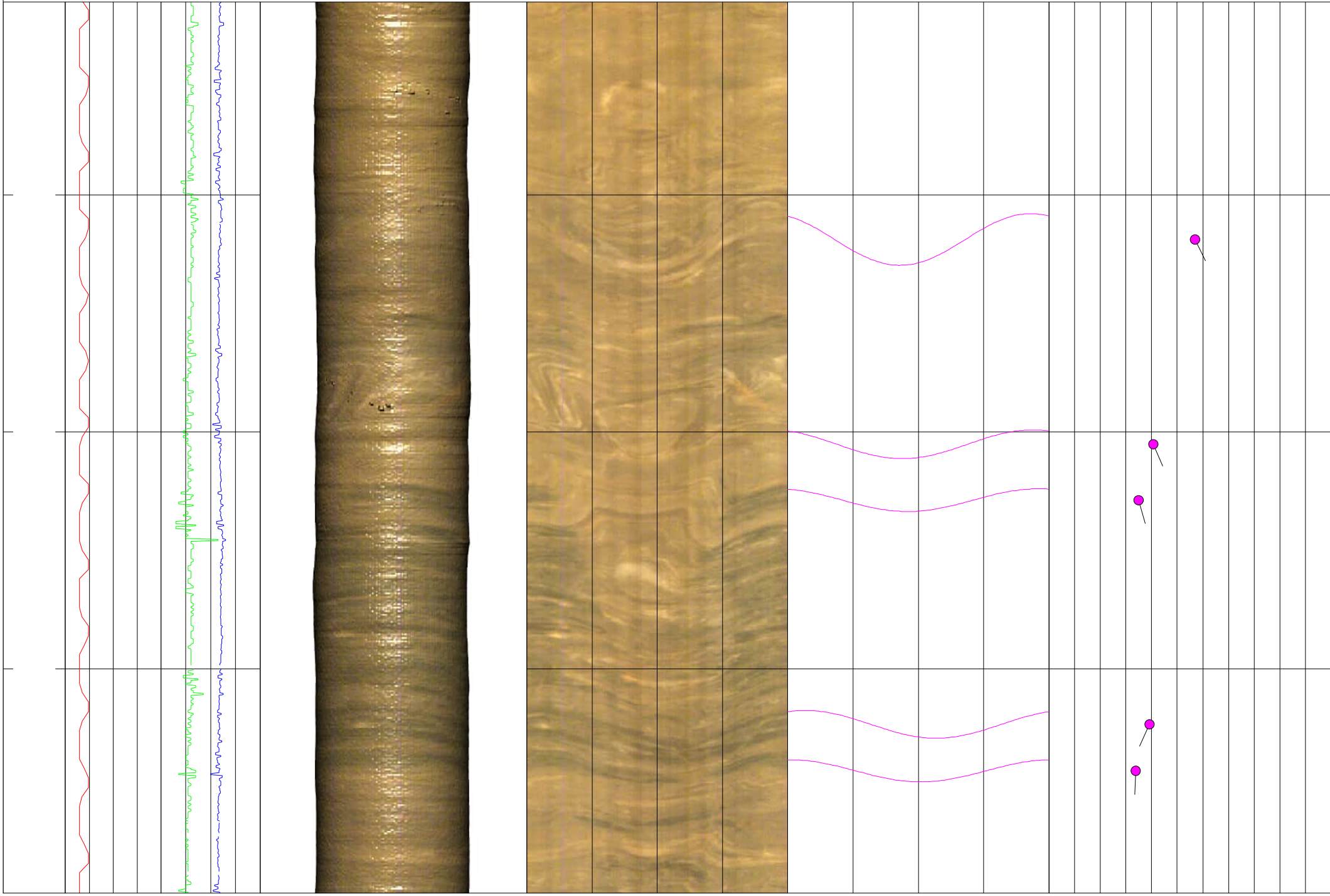
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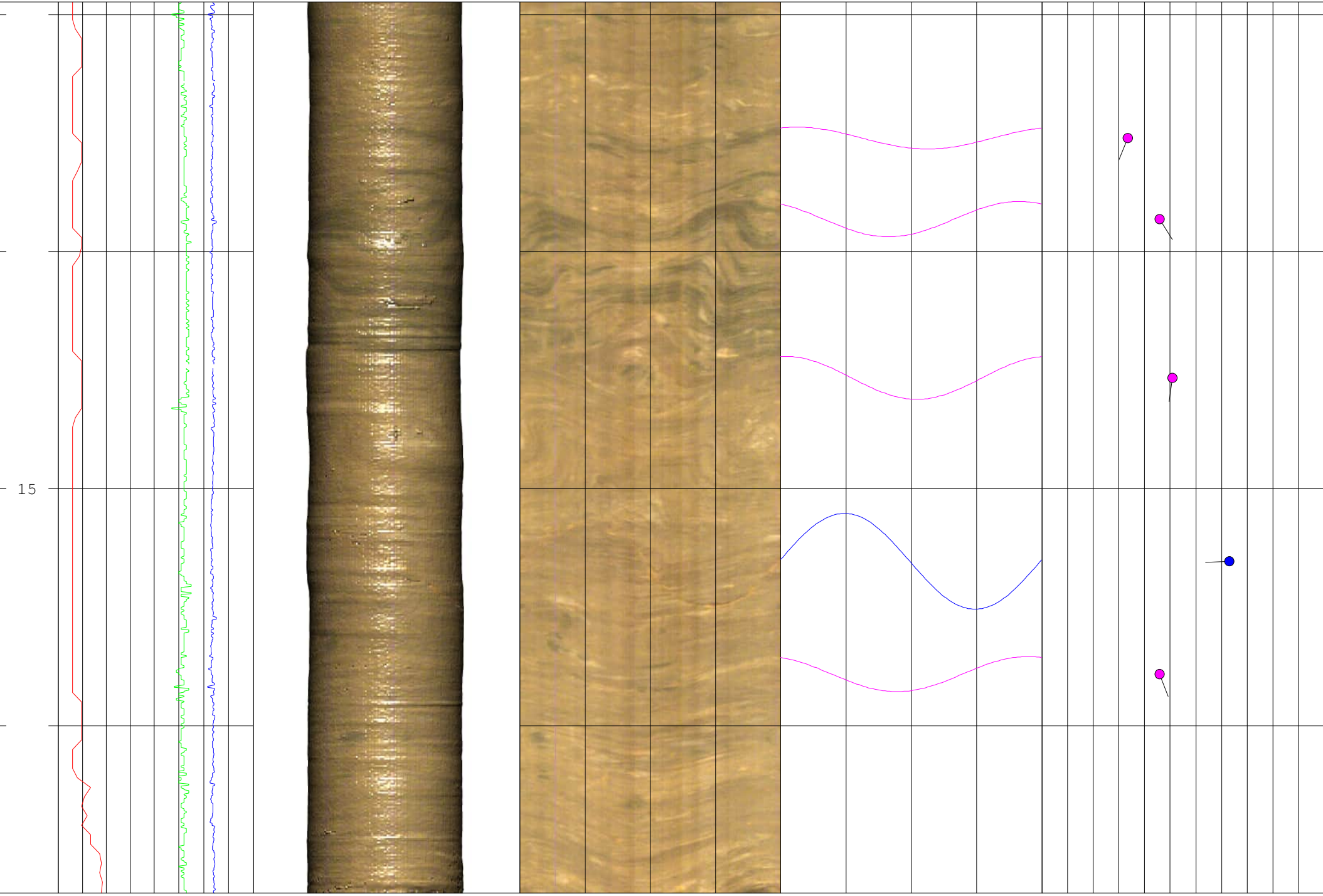
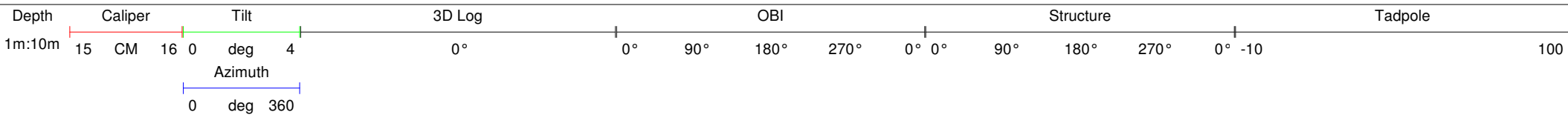
Azimuth  
0 deg 360

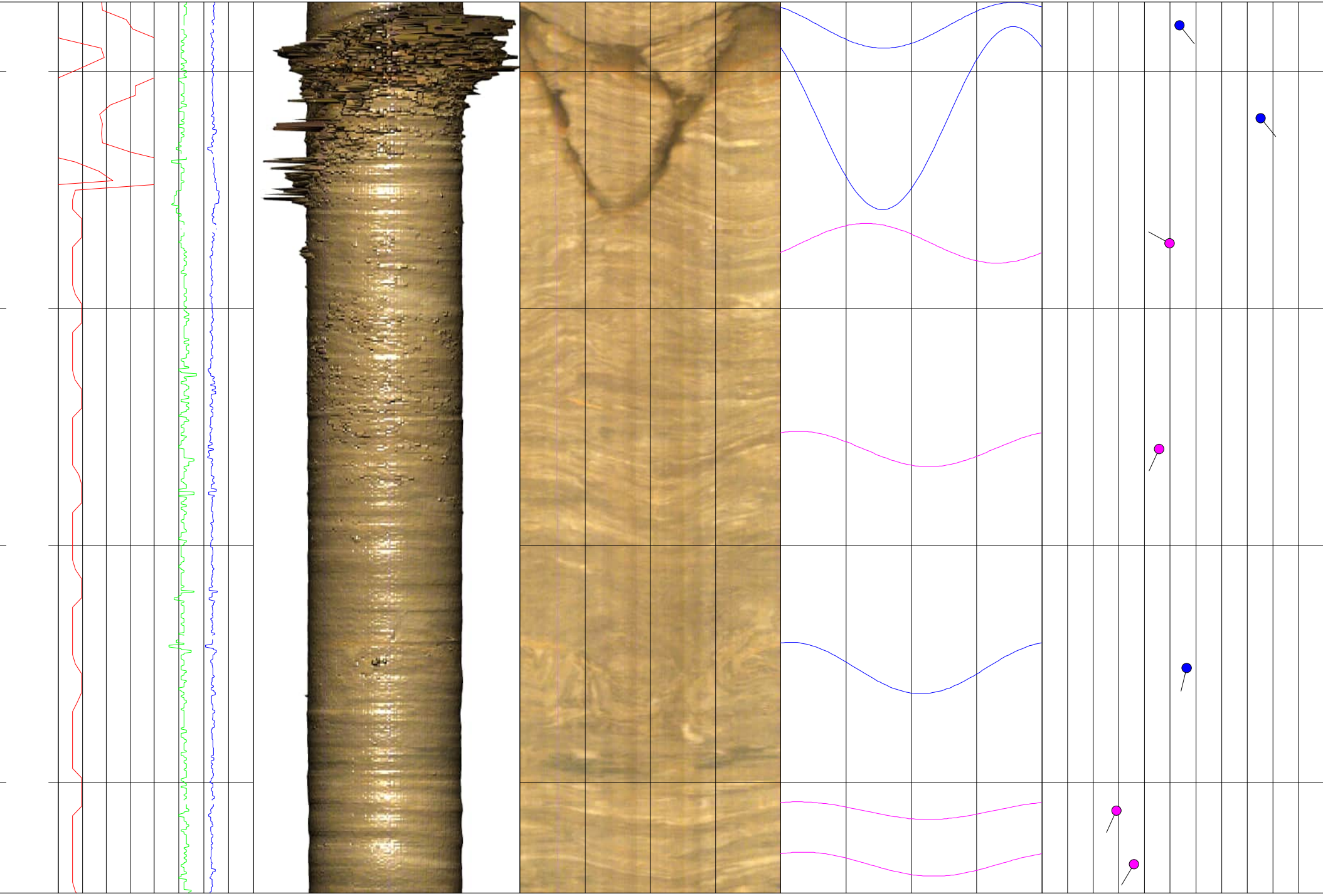
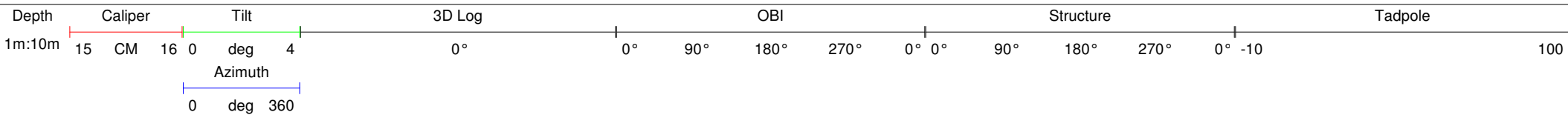


Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole    100

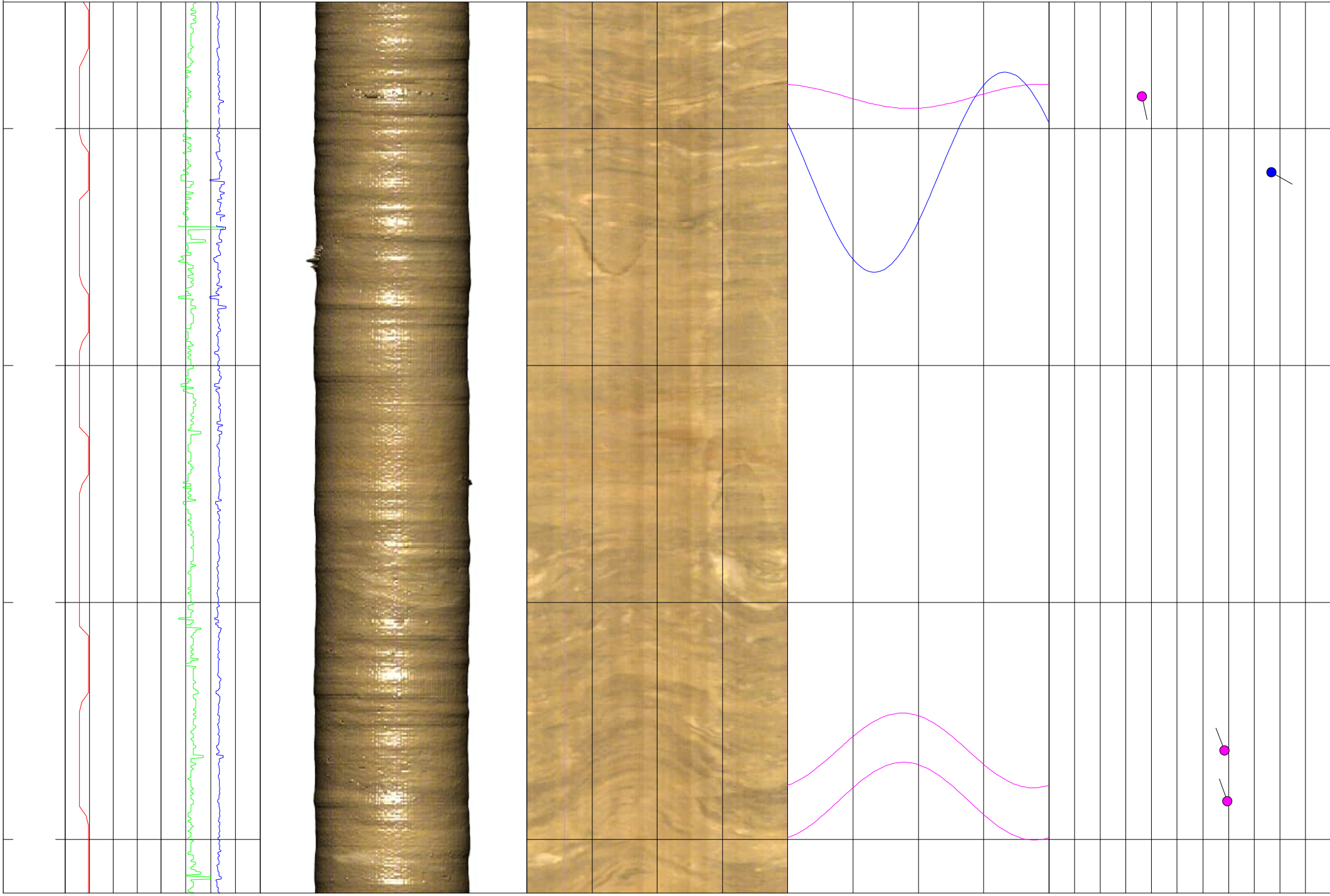
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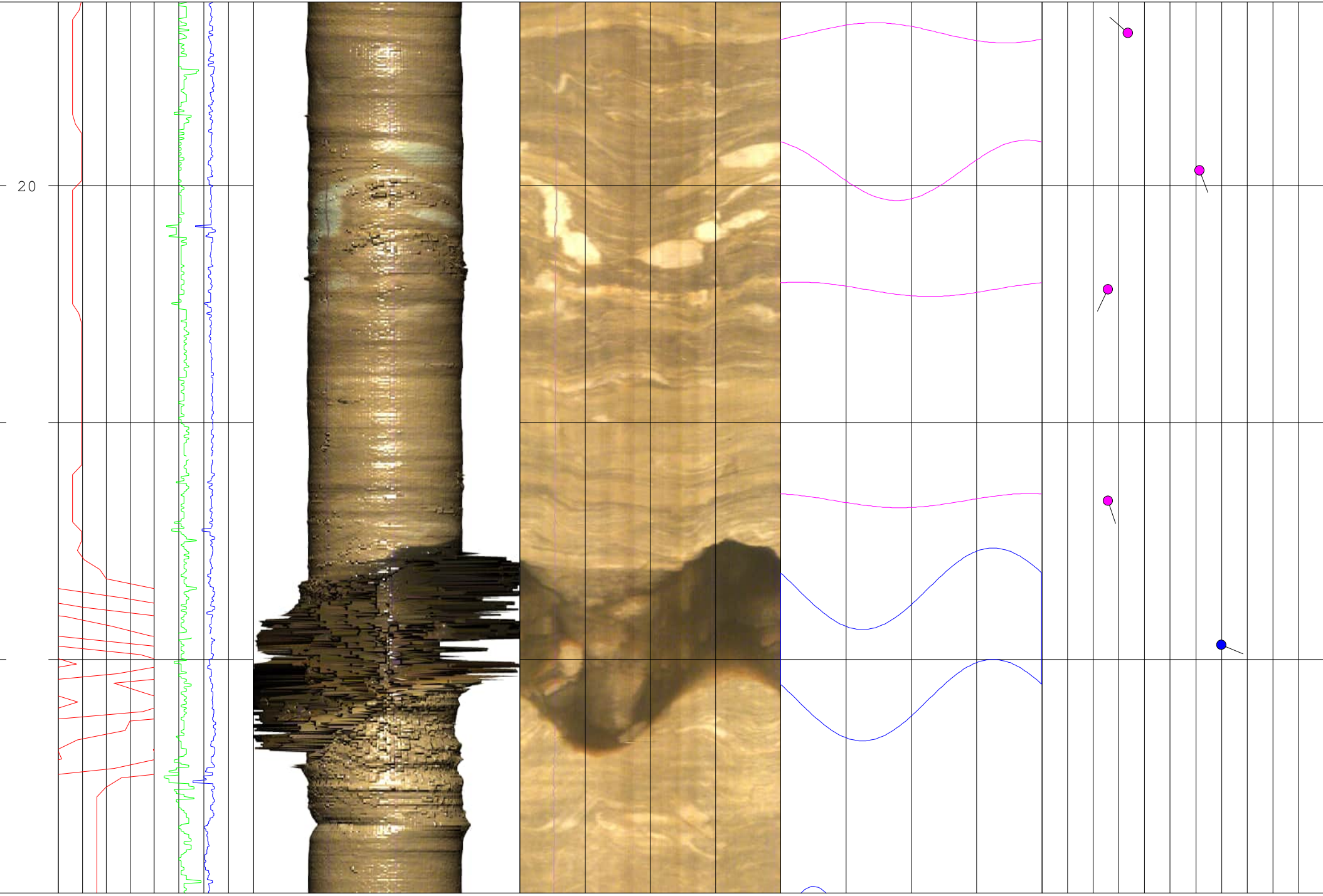
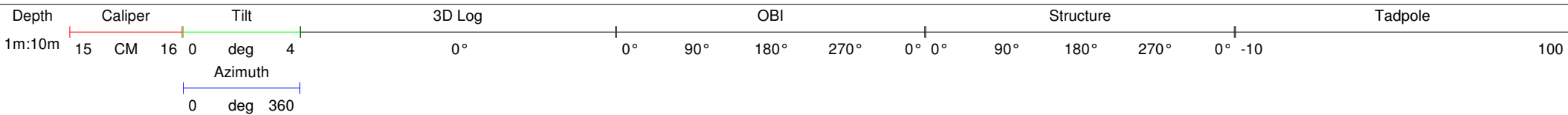




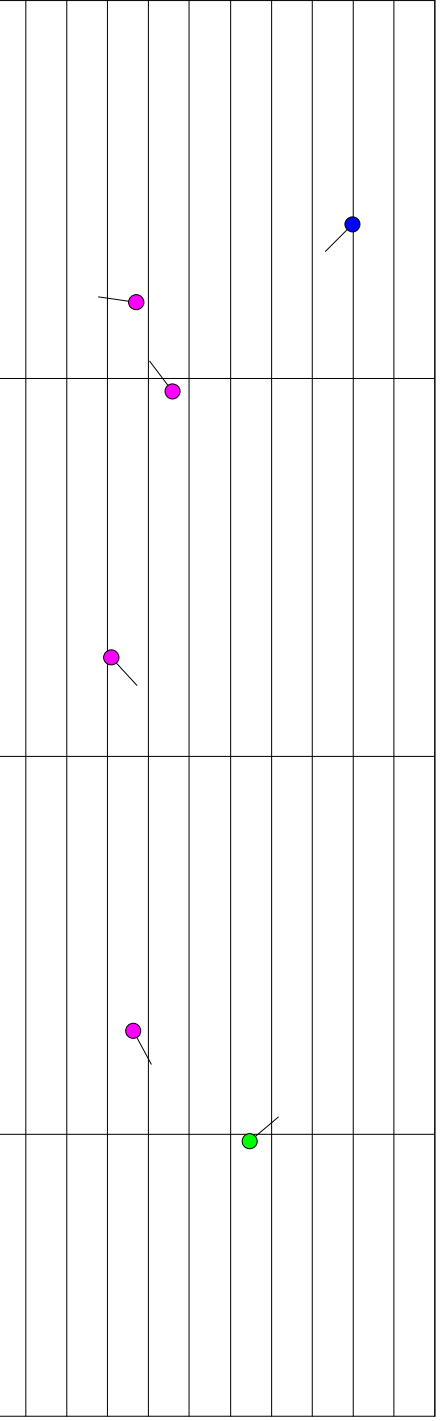
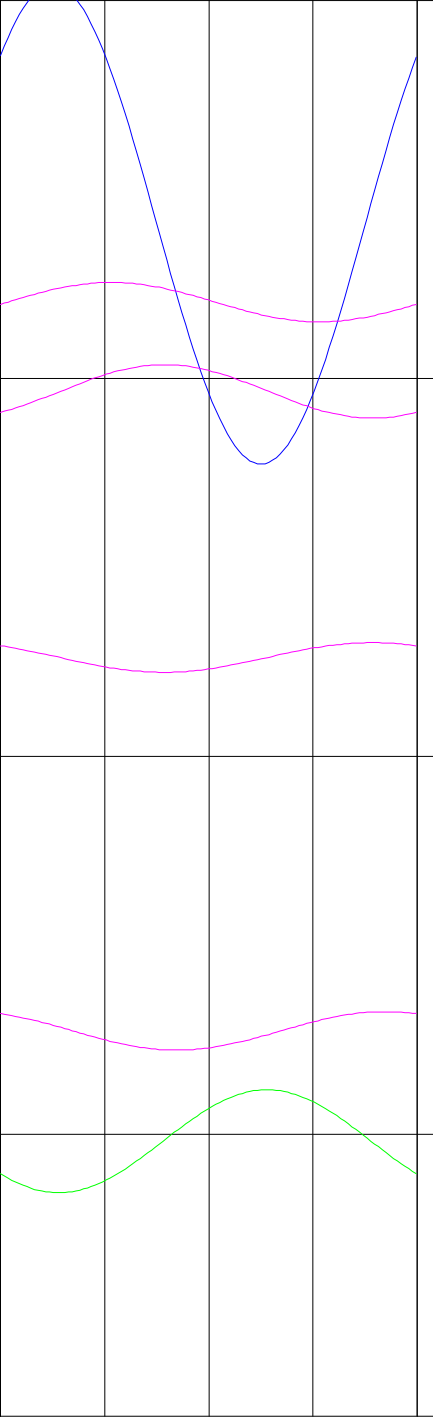
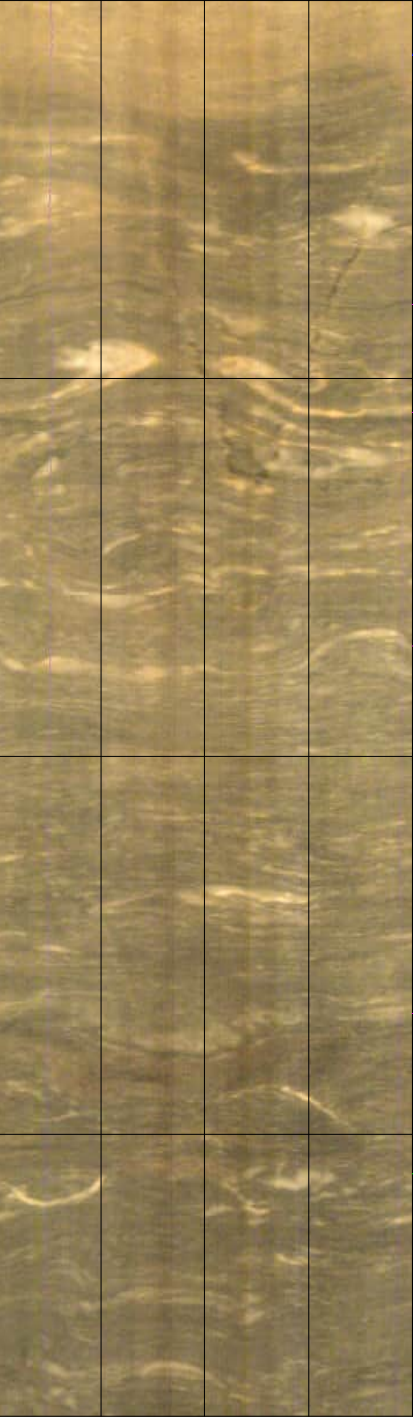
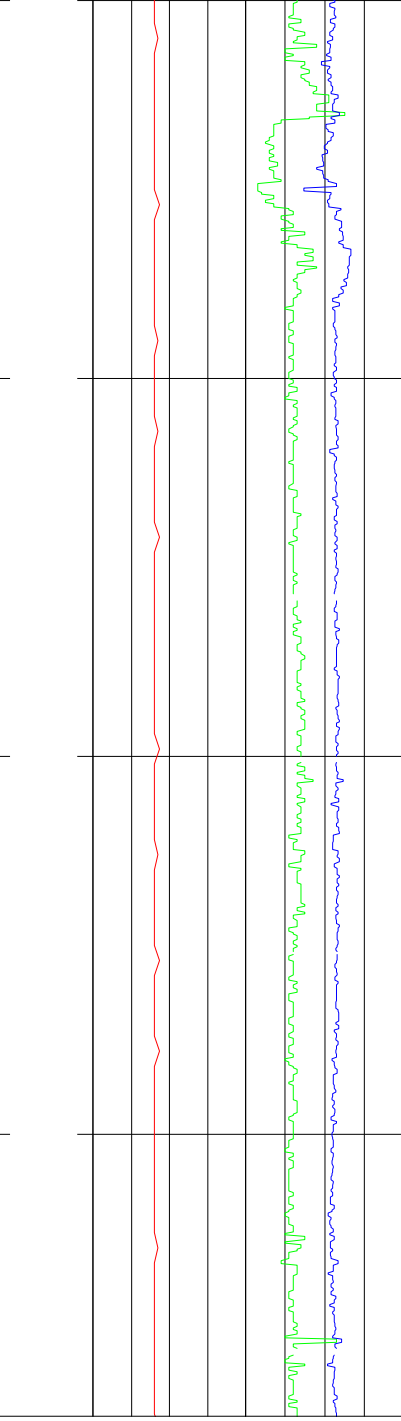
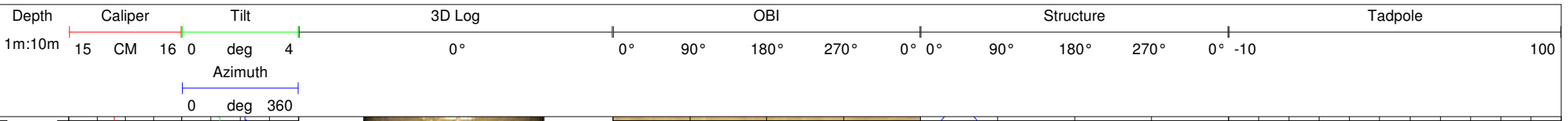


Depth 1m:10m    Caliper 15 CM 16    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100  
 Azimuth 0 deg 360



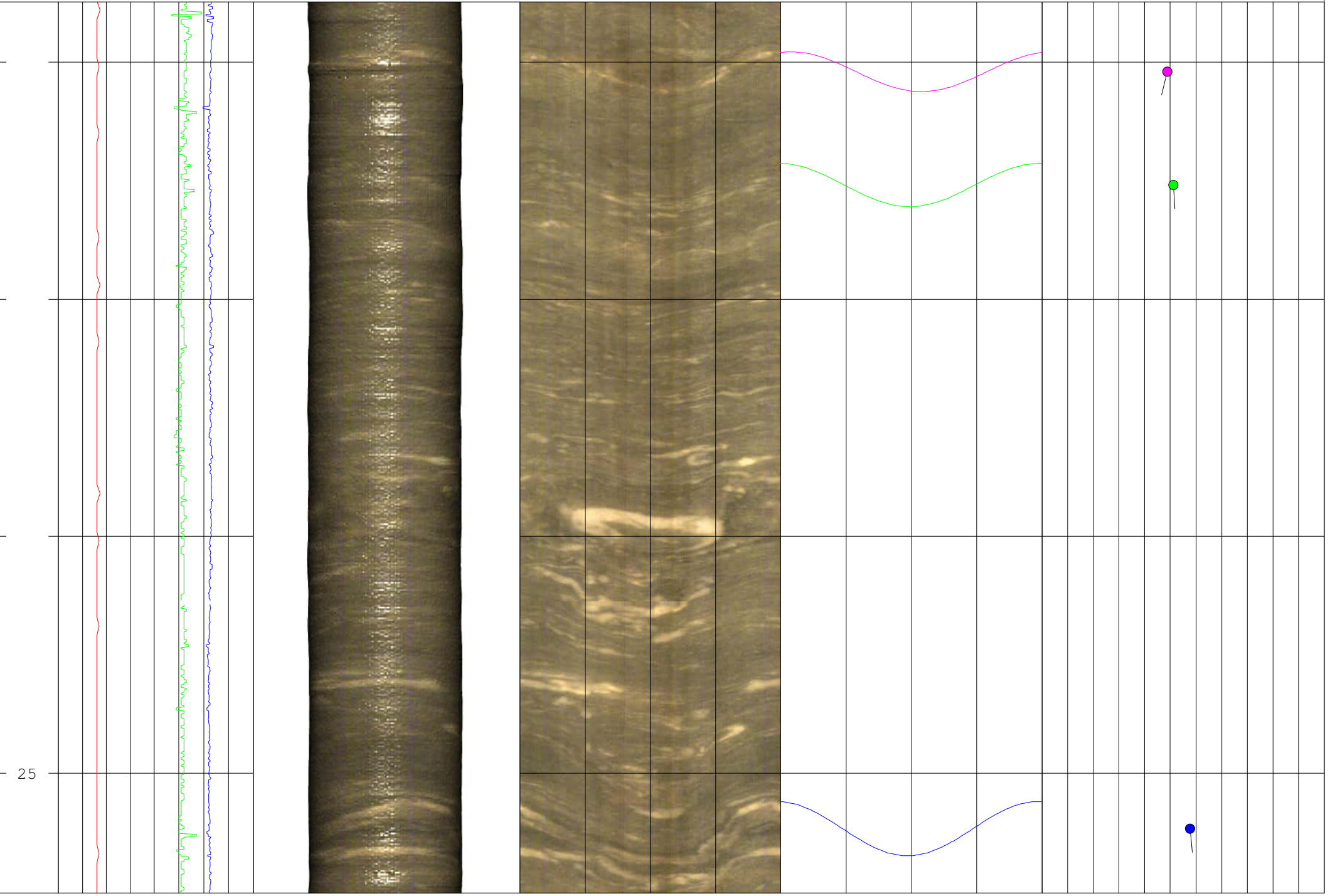


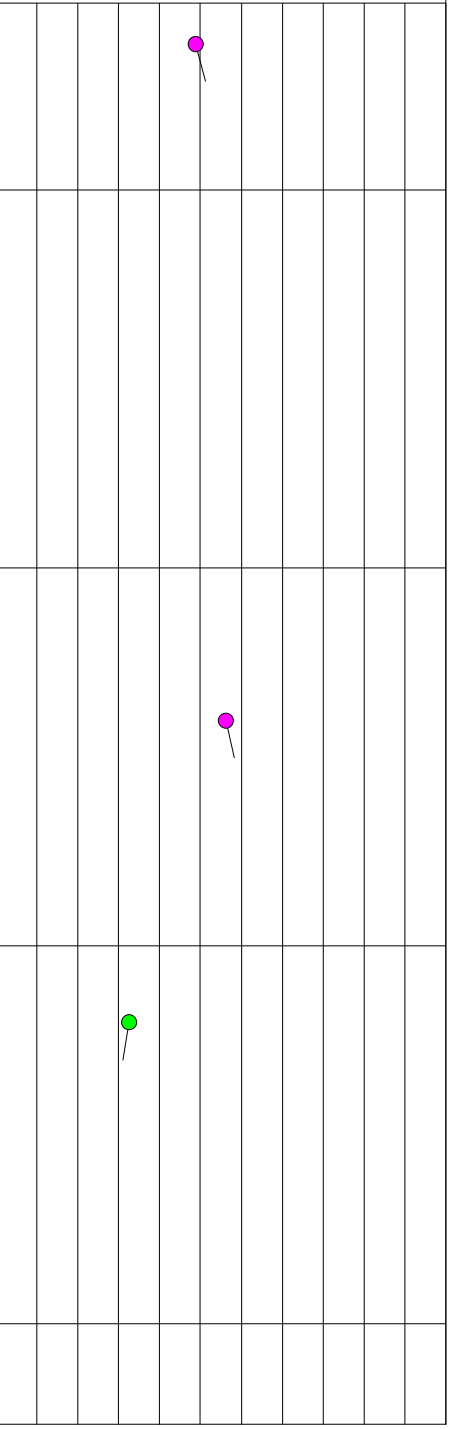
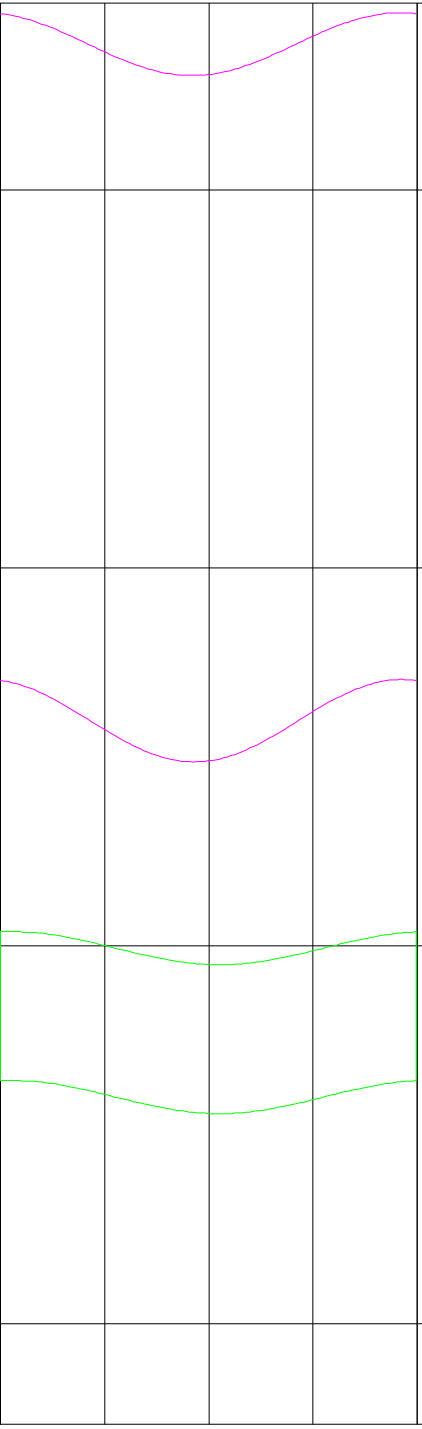
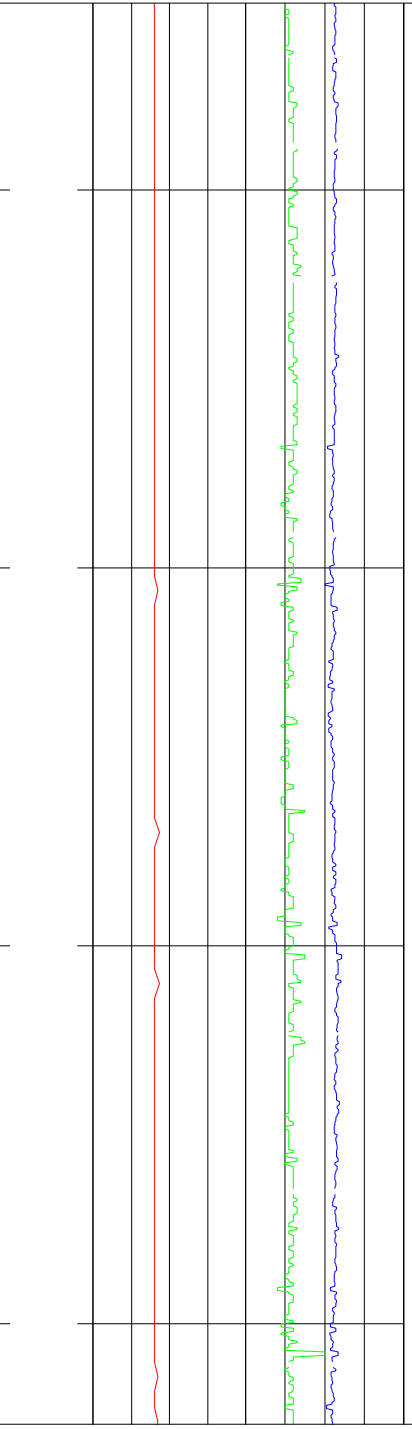
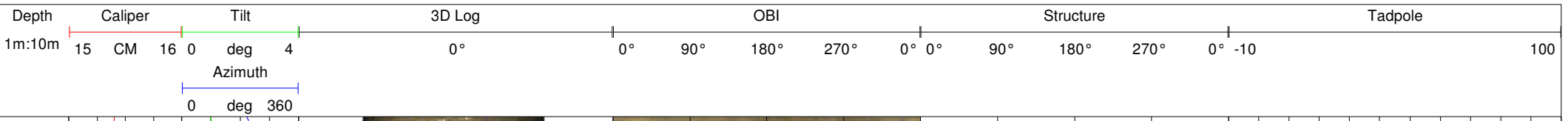


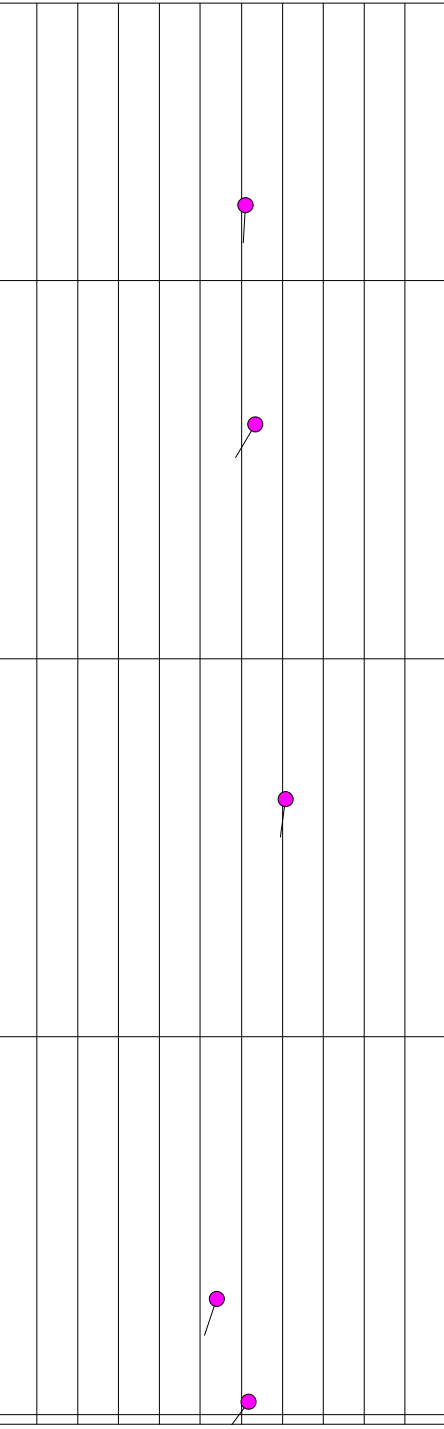
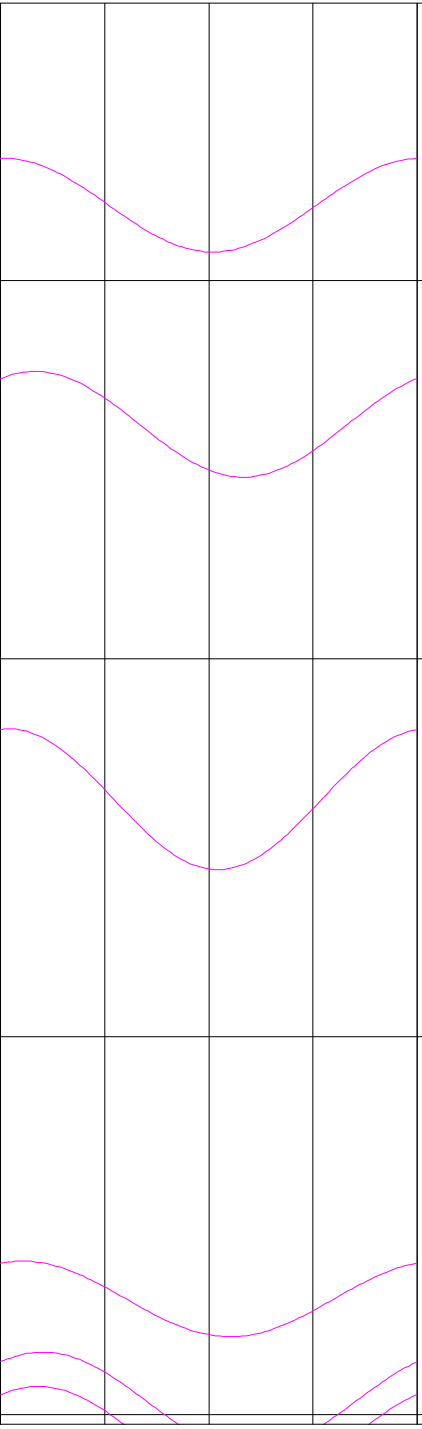
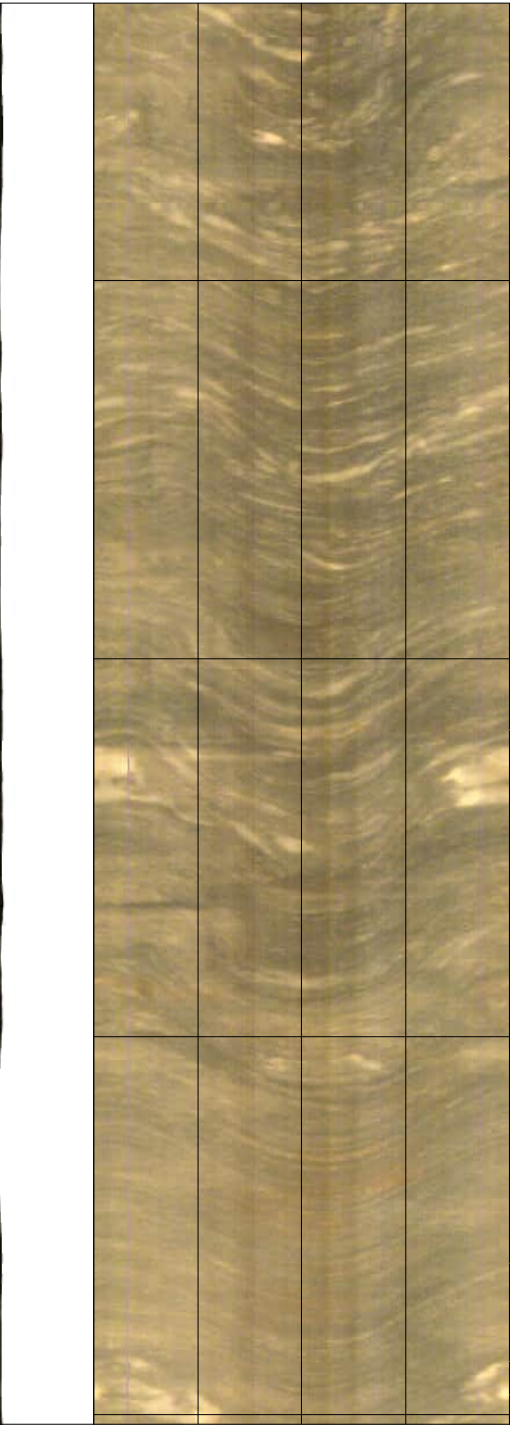
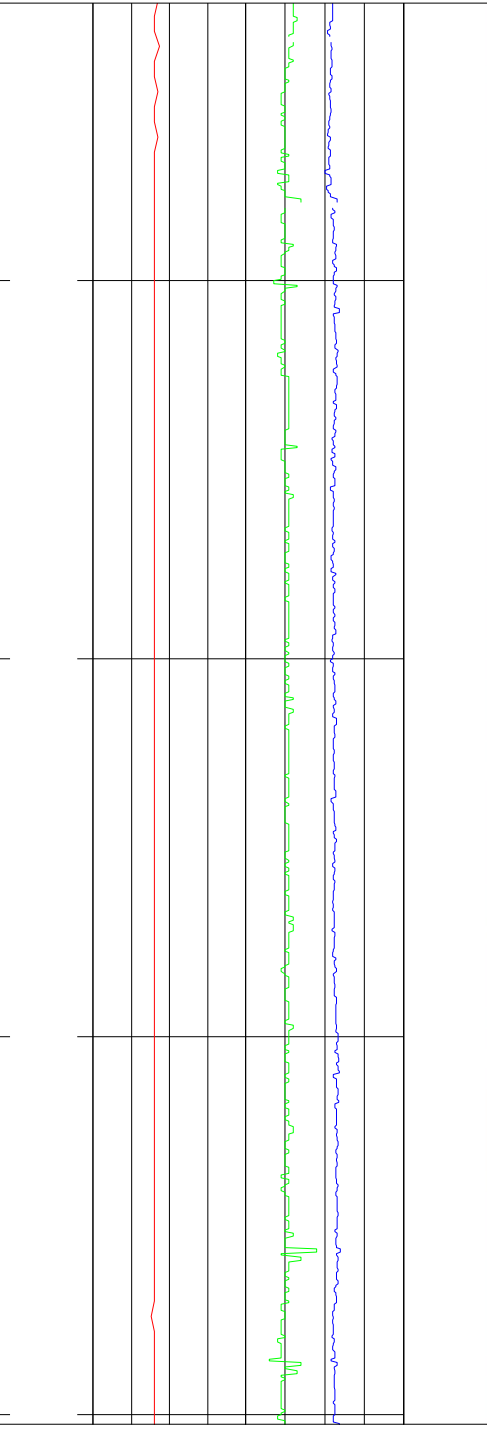
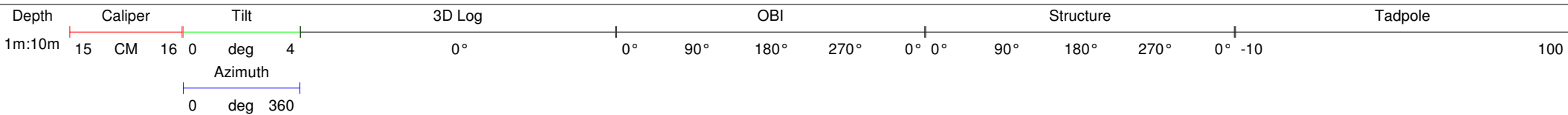


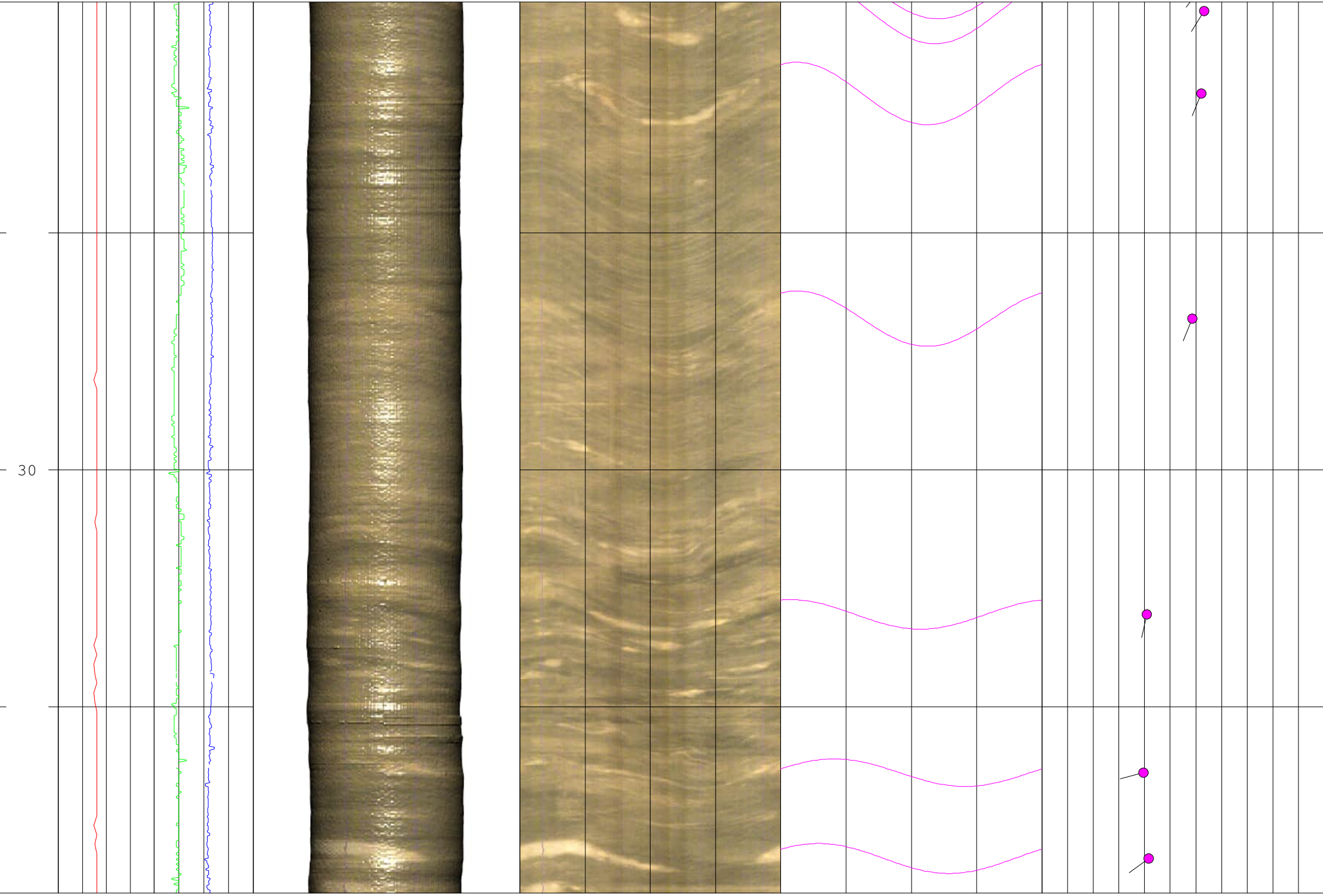
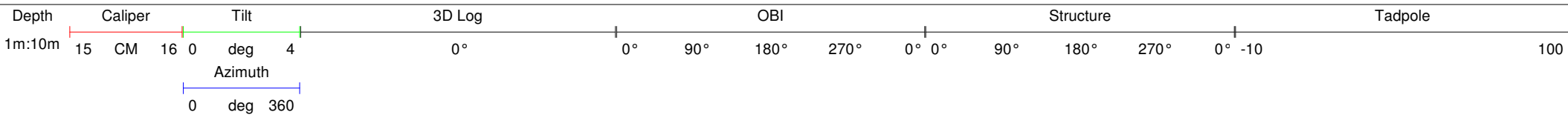
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360



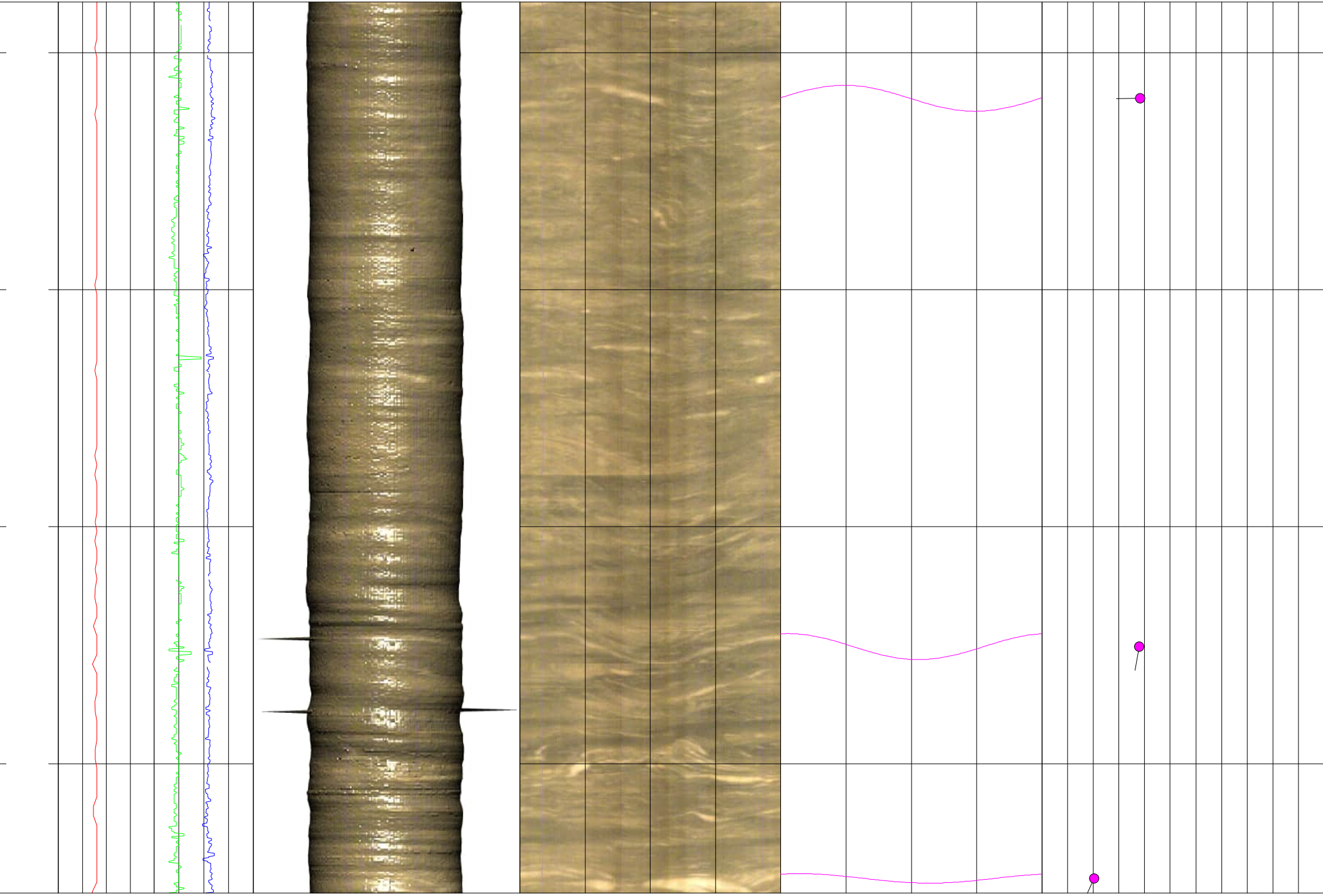






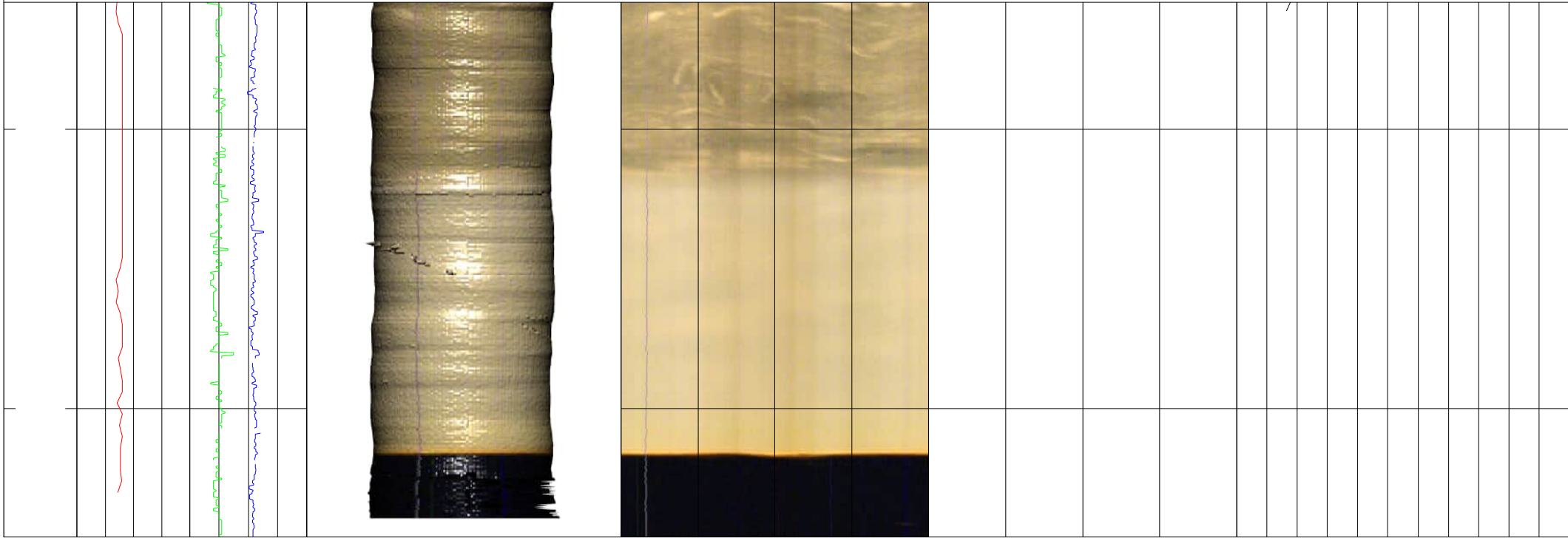
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole    100

Azimuth 0 deg 360



Depth 1m:10m    Caliper 15 CM 16    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole 100

Azimuth 0 deg 360





# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Log Type:

Optical Televiewer Log

Borehole: BH4

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy      Grid Reference:      Elevation:

Drilled Depth: 35m      Date: 04/03/2010

Logged Depth: 33.97m      Recorded By: [Redacted]

Logging Datum: Ground Level

Remarks:

Logged Interval: North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

Fluid Level:

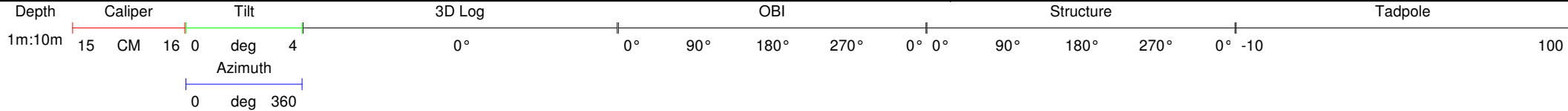
Structure Key: — Foliation — Fracture — Vein

## BOREHOLE RECORD

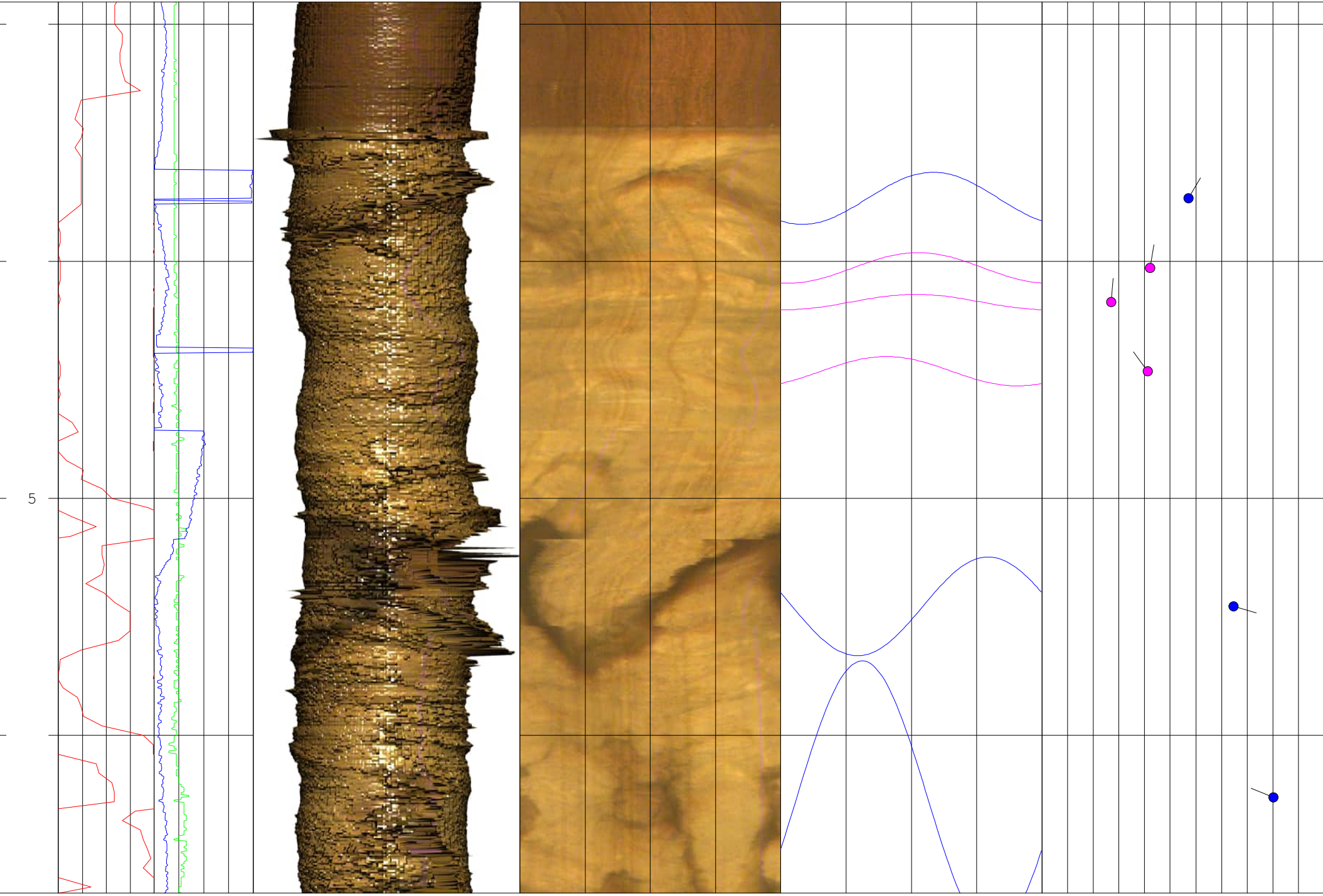
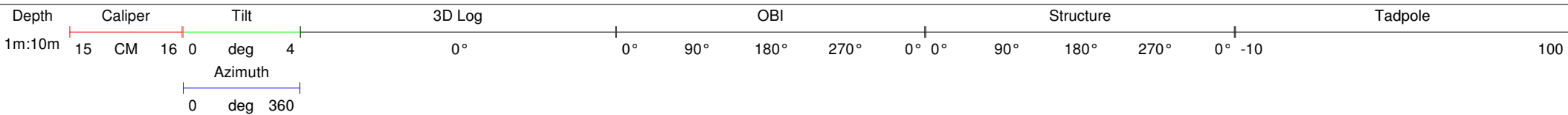
## CASING RECORD

| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 4.2m  |
| 120mm         | 4.2m  | 35.0m |

| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 4.2m |

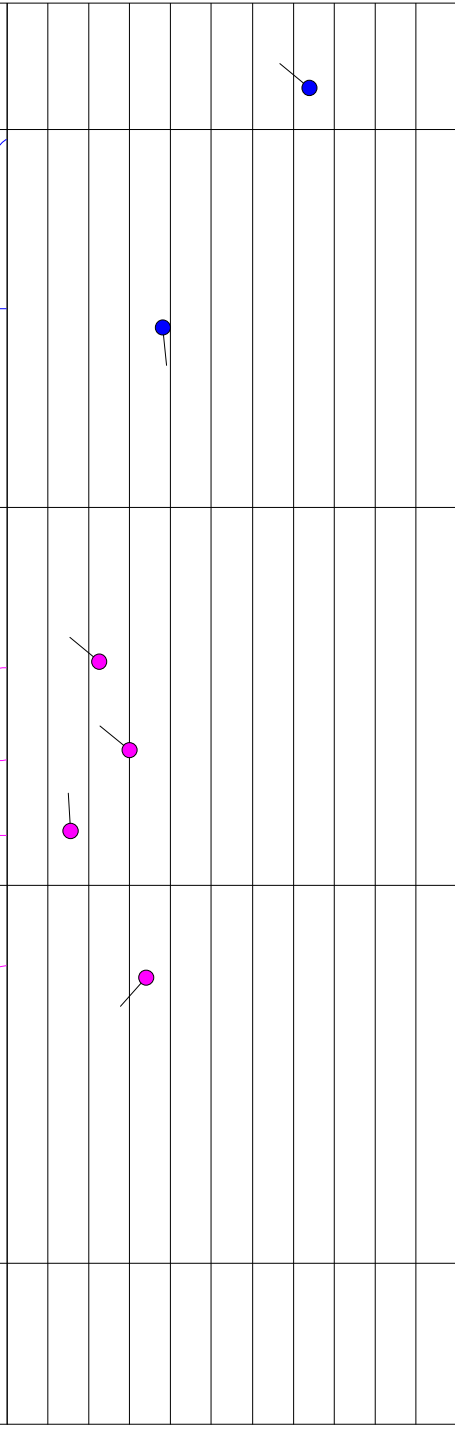
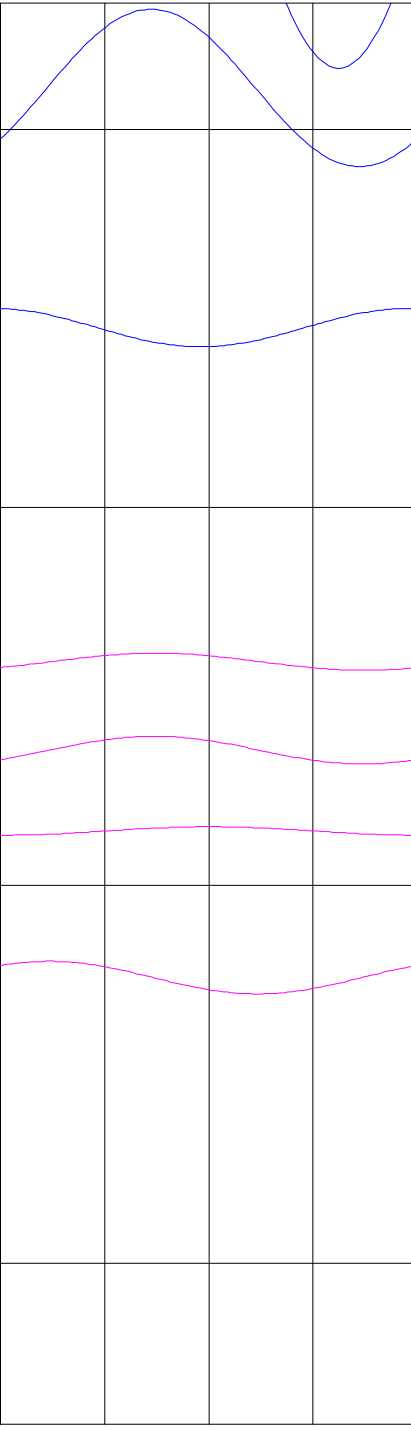
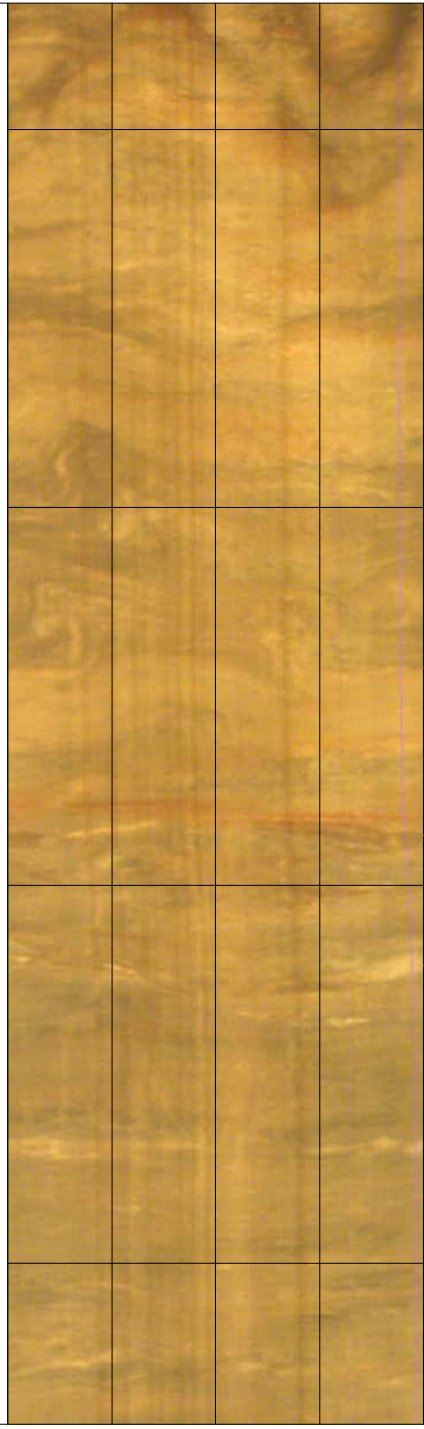
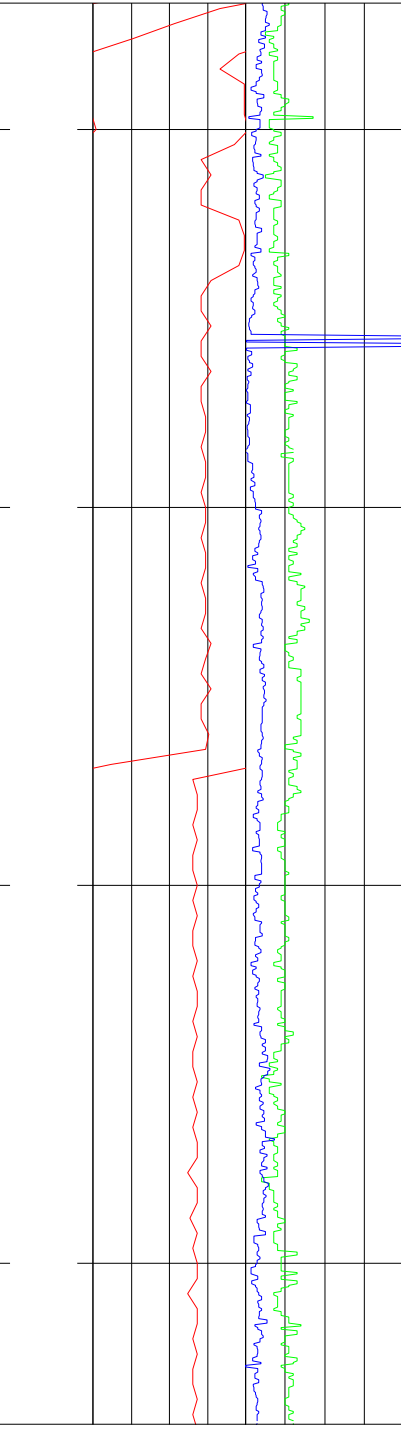


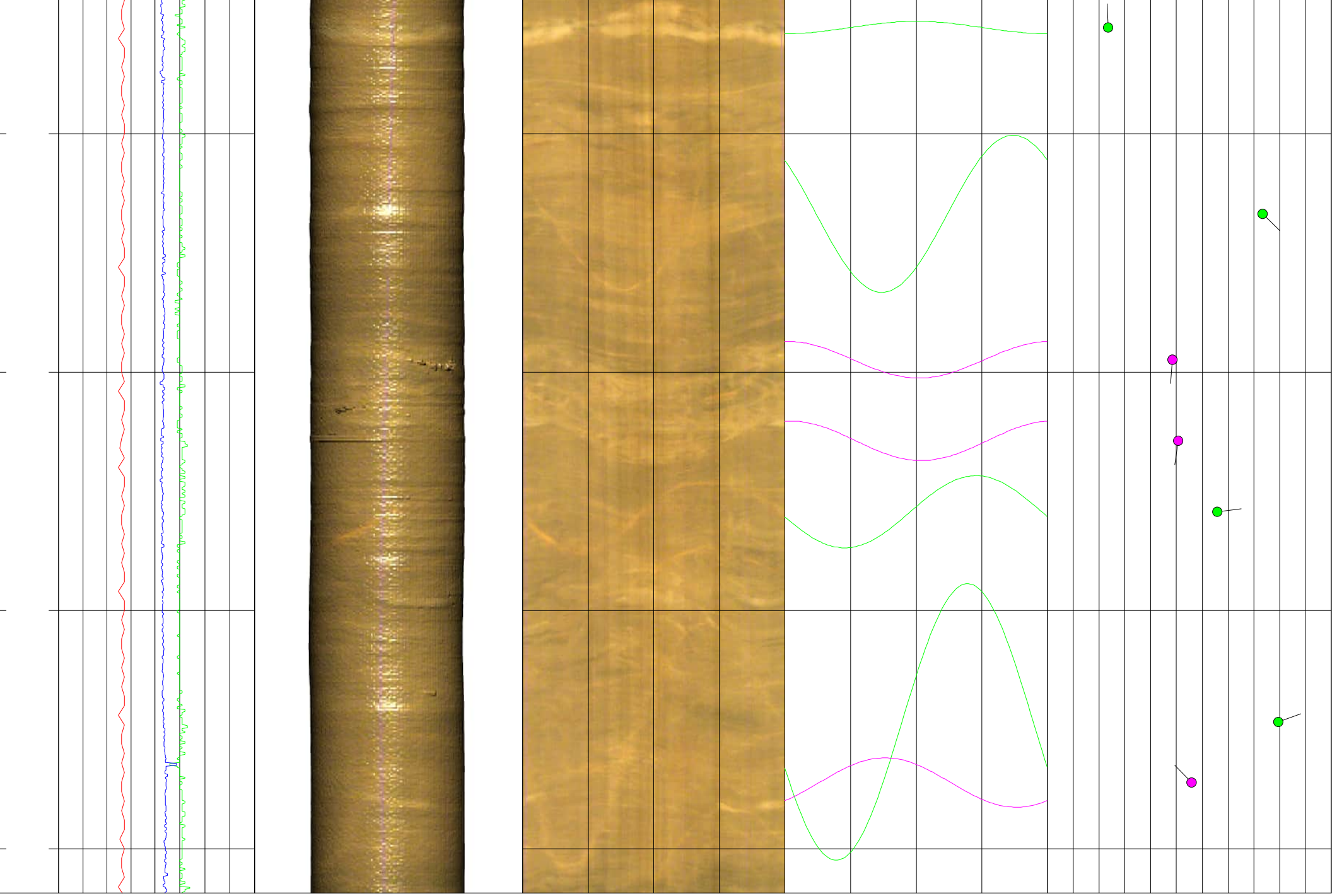
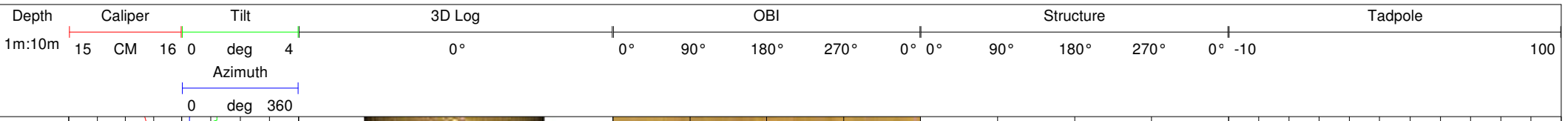


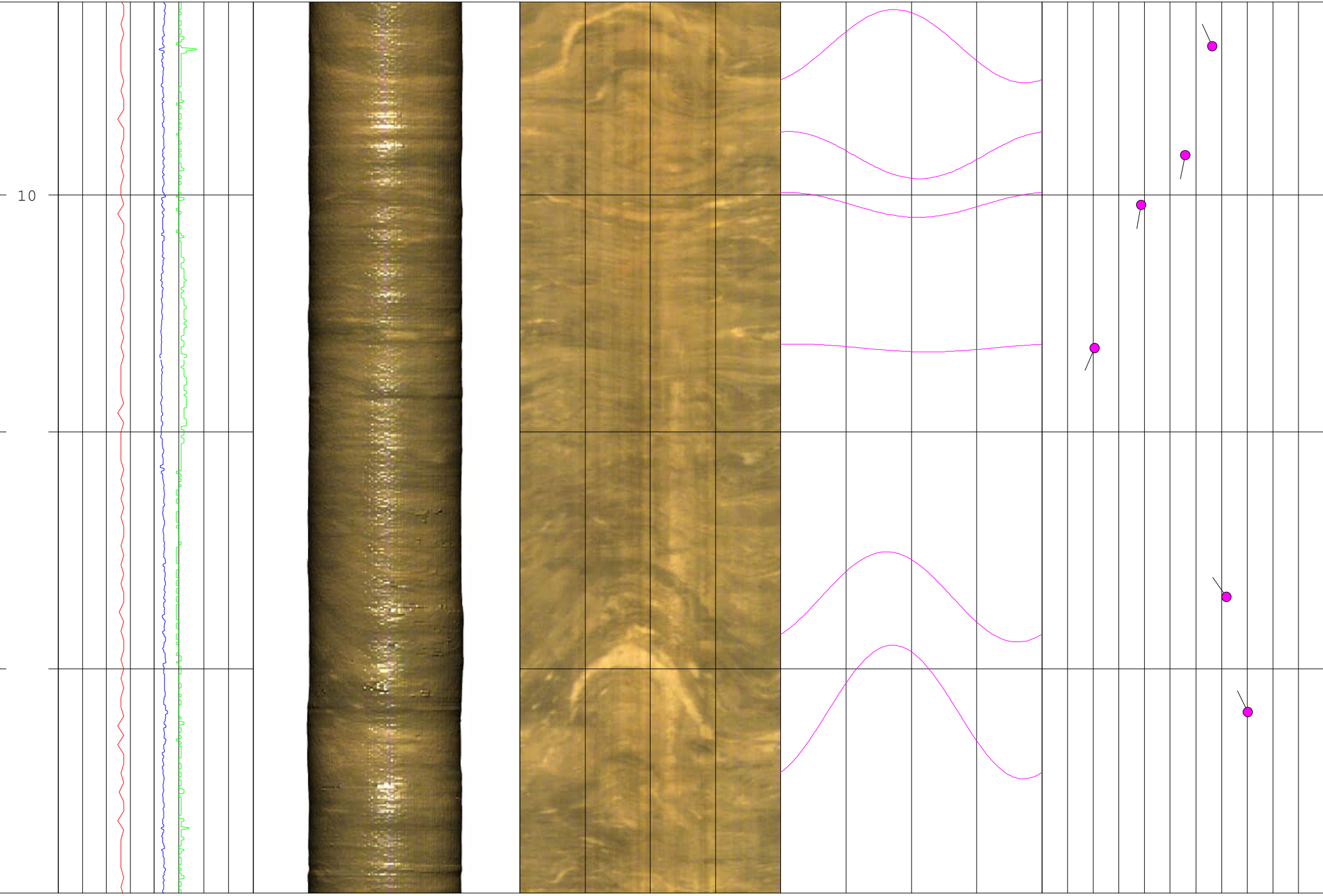
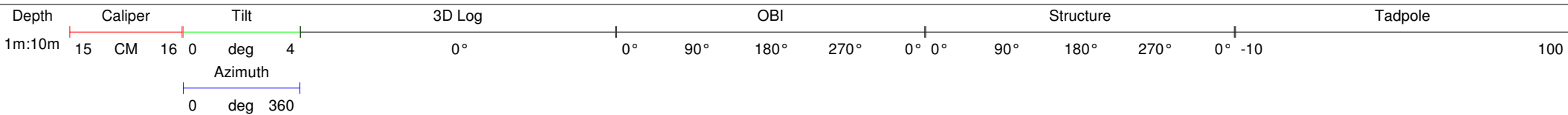


Depth 1m:10m    Caliper 15 CM    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360

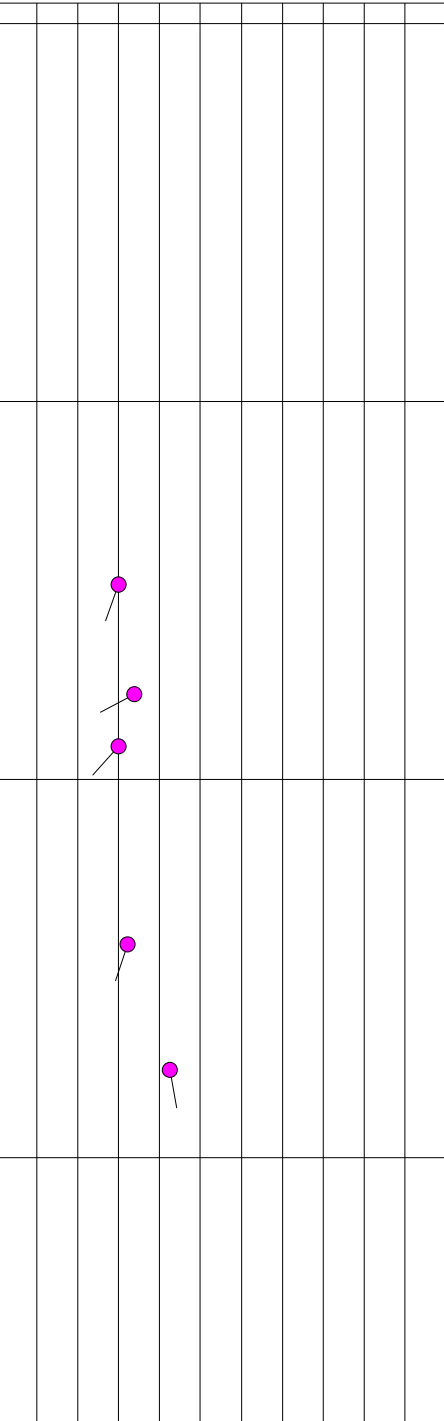
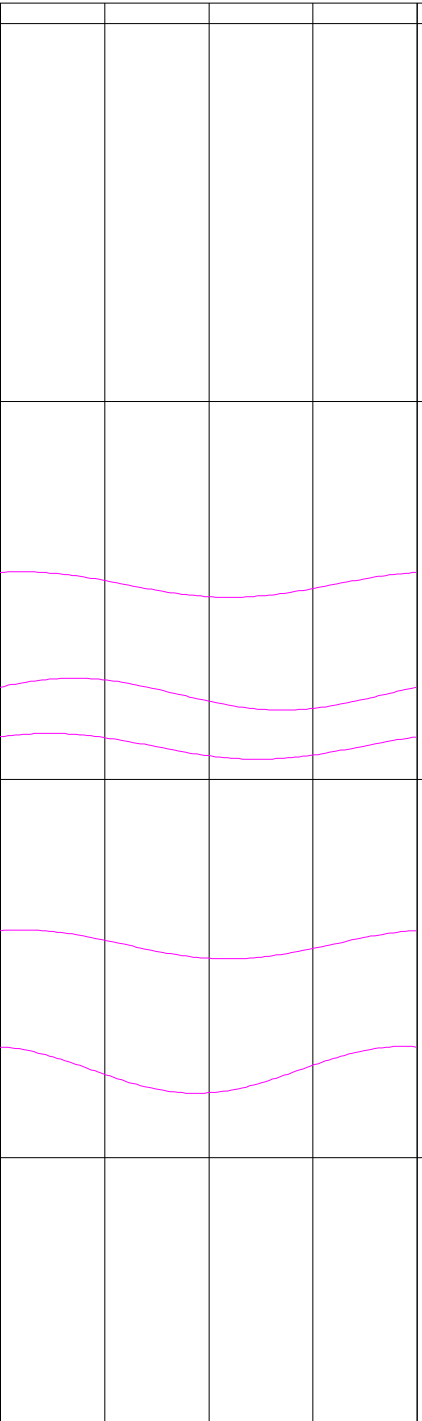
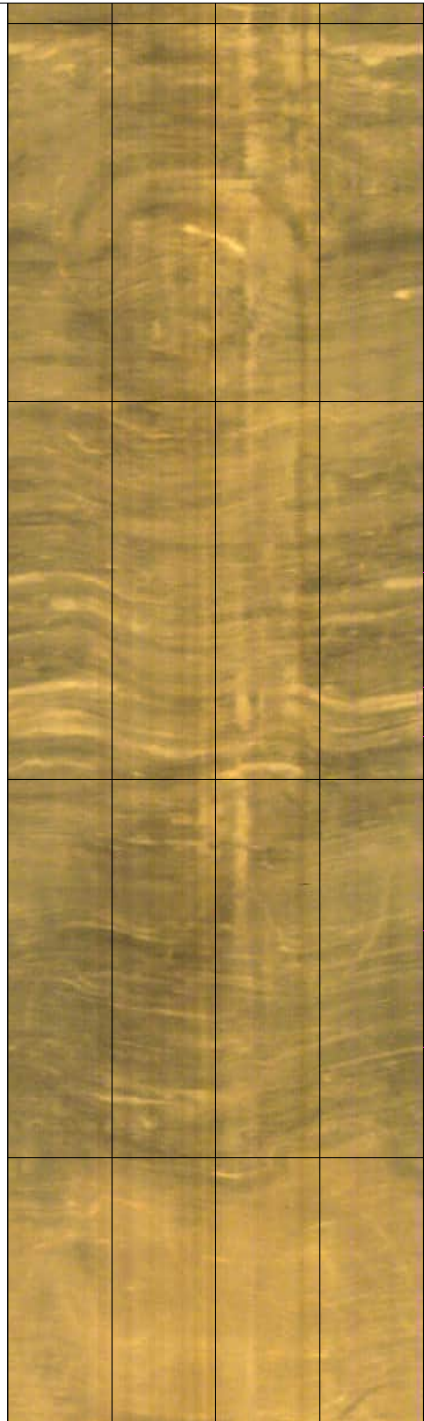
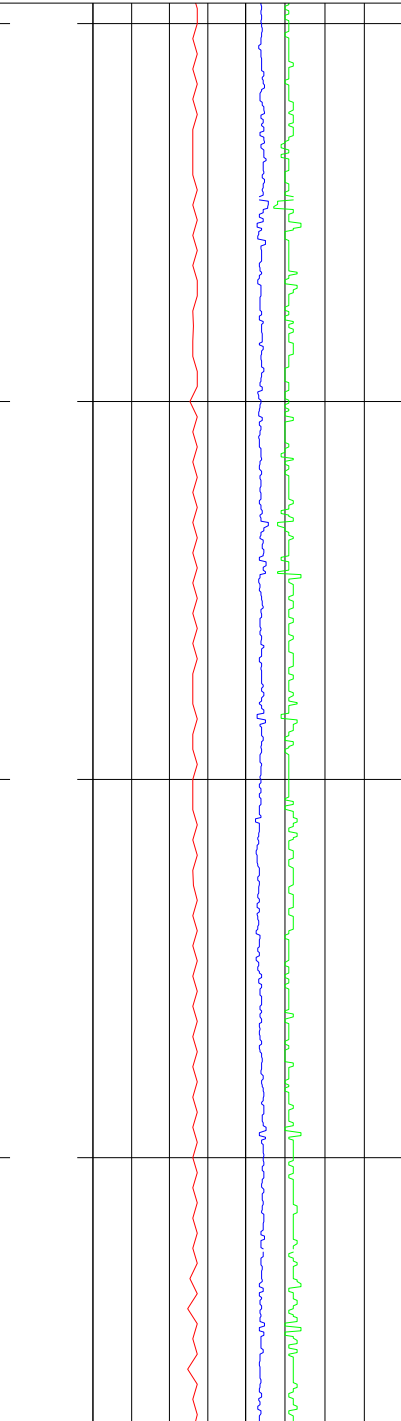


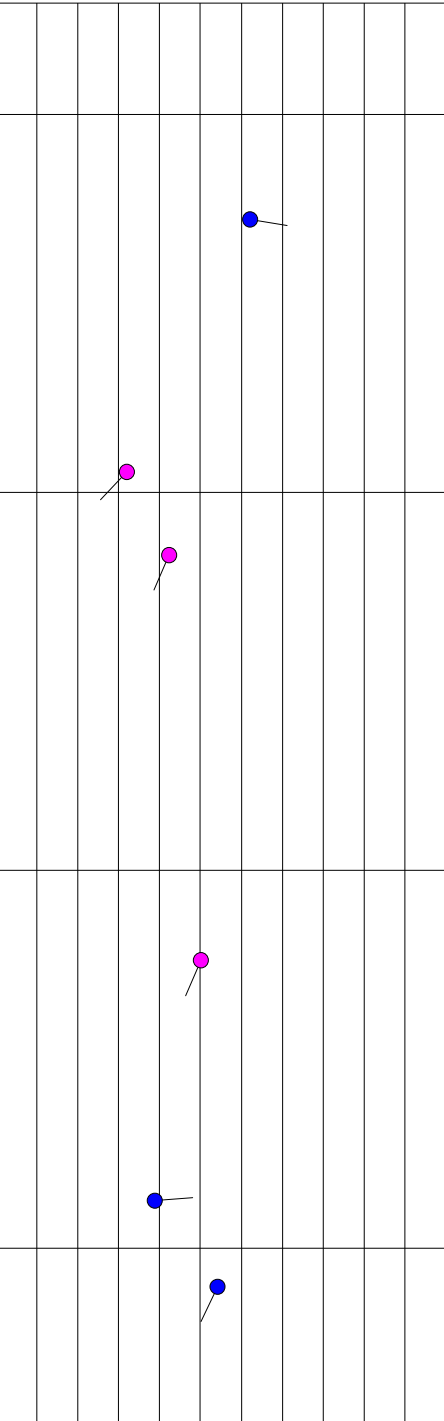
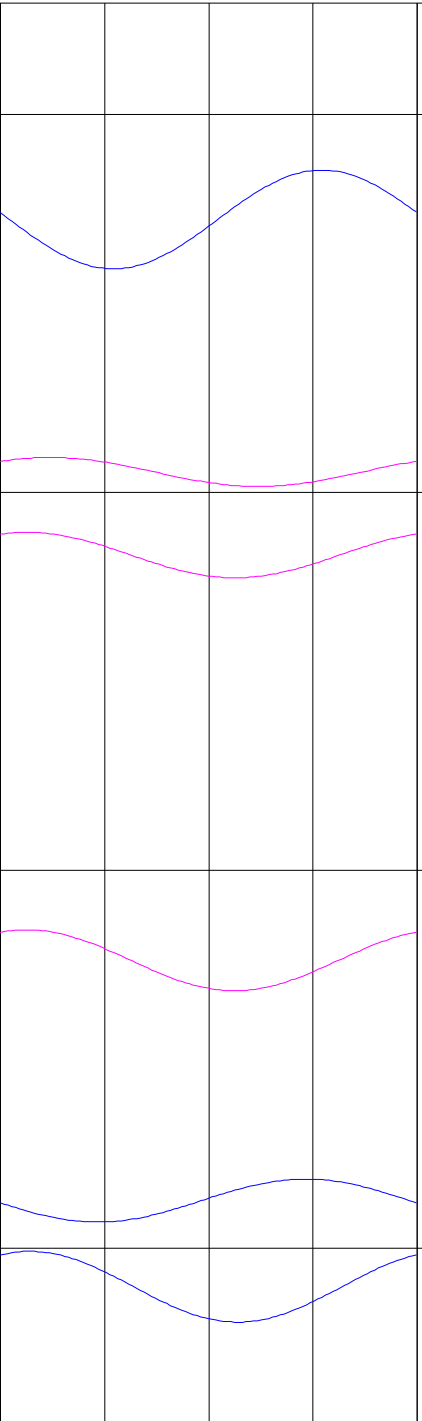
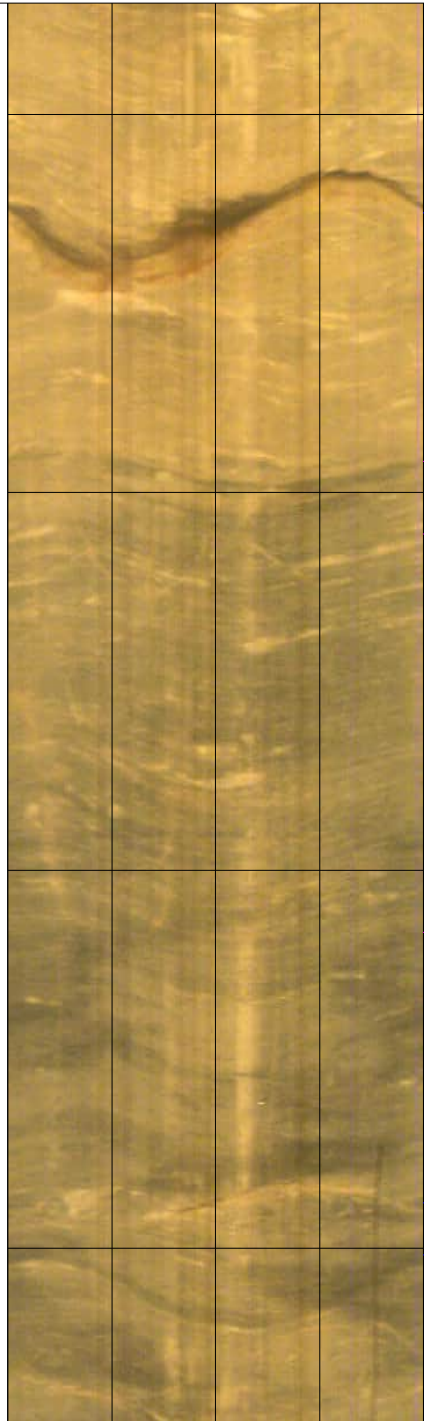
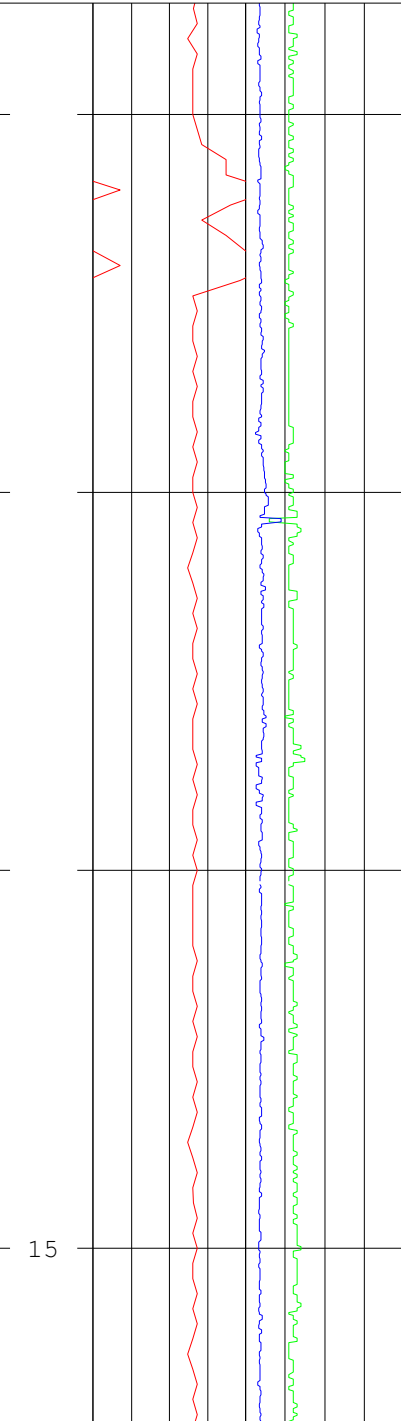
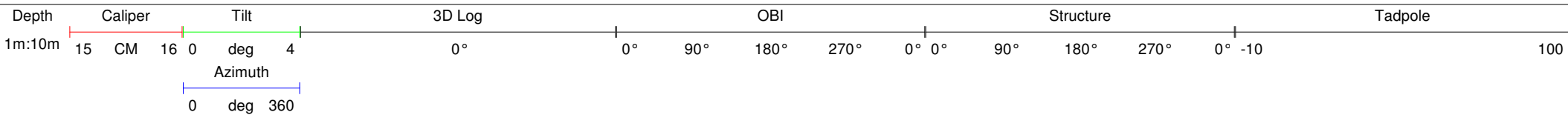




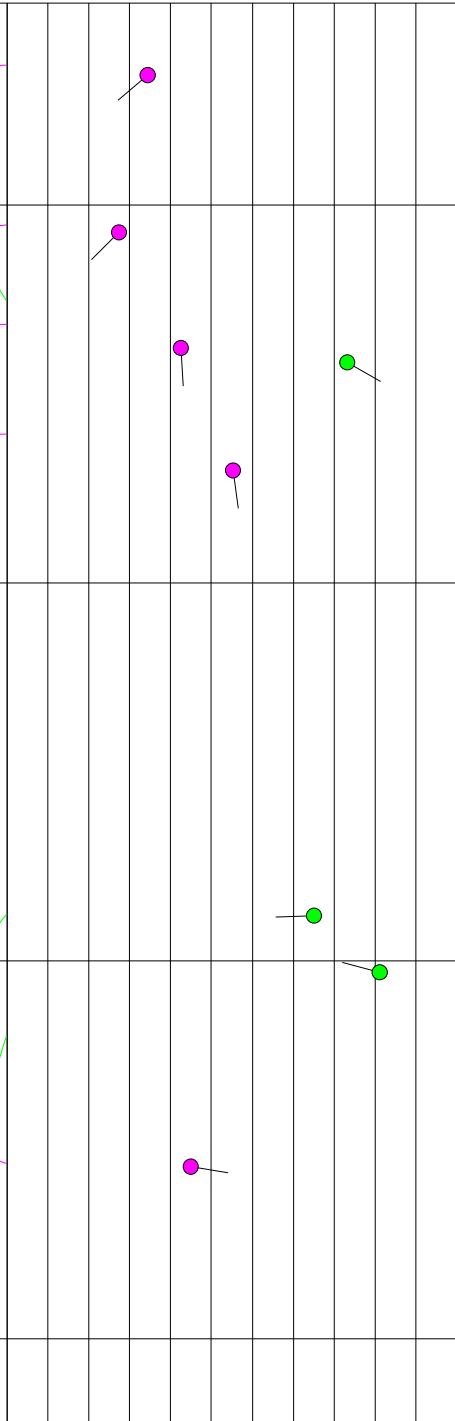
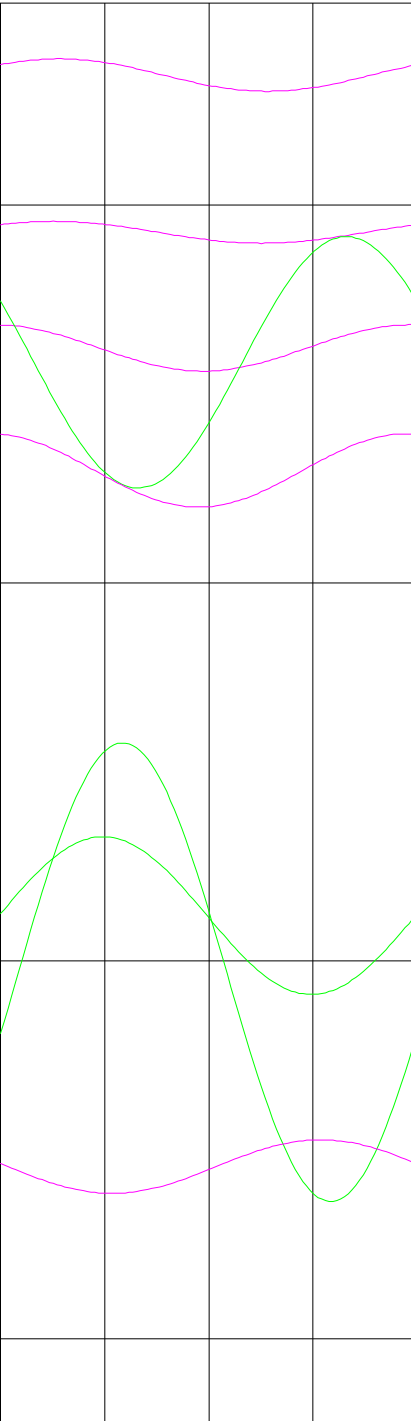
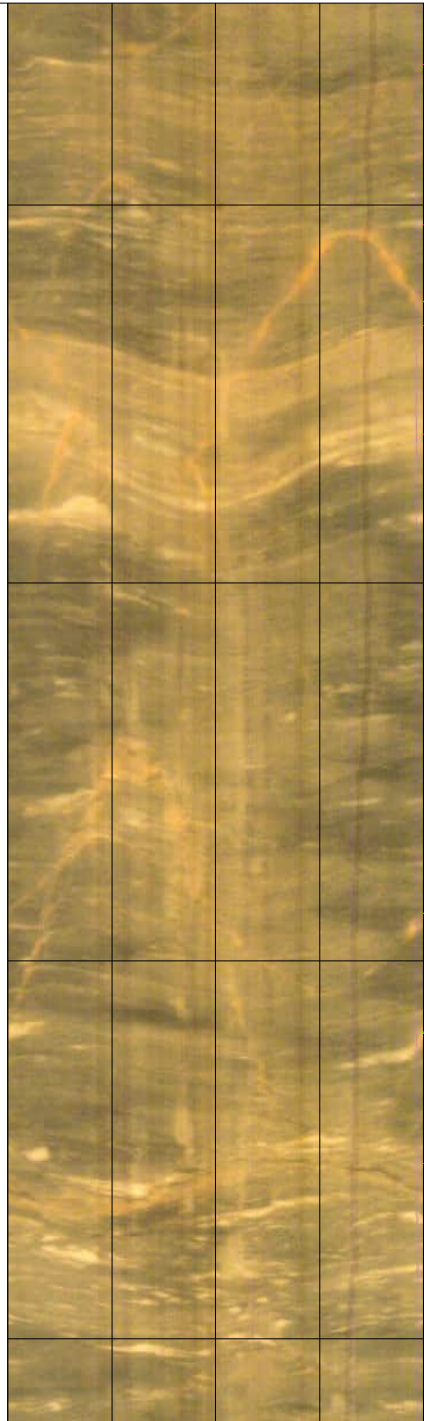
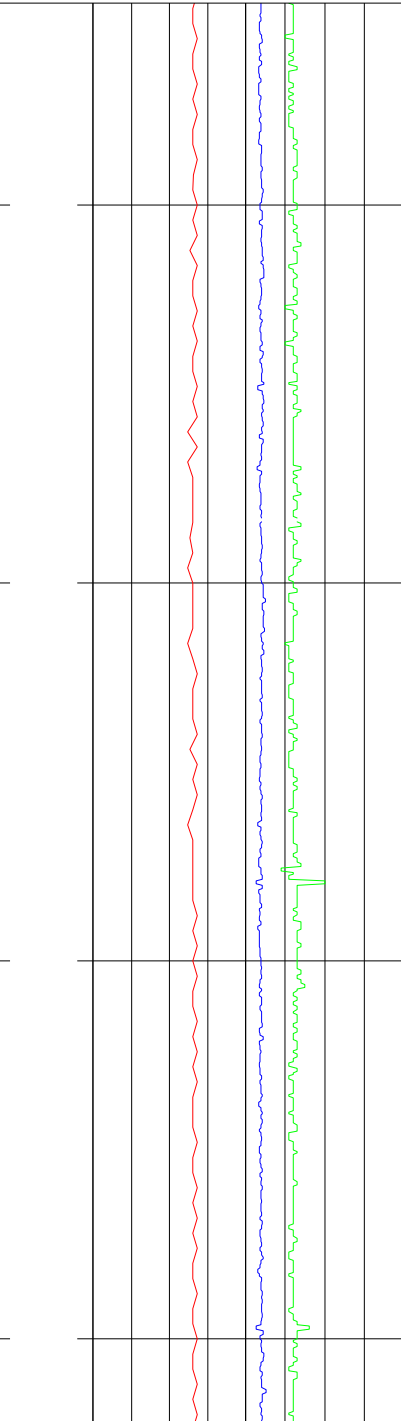
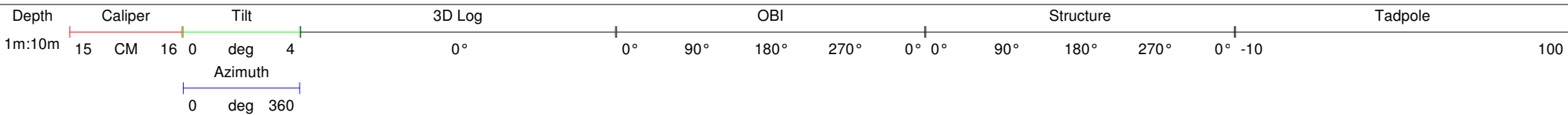
Depth 1m:10m    Caliper 15 CM    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100

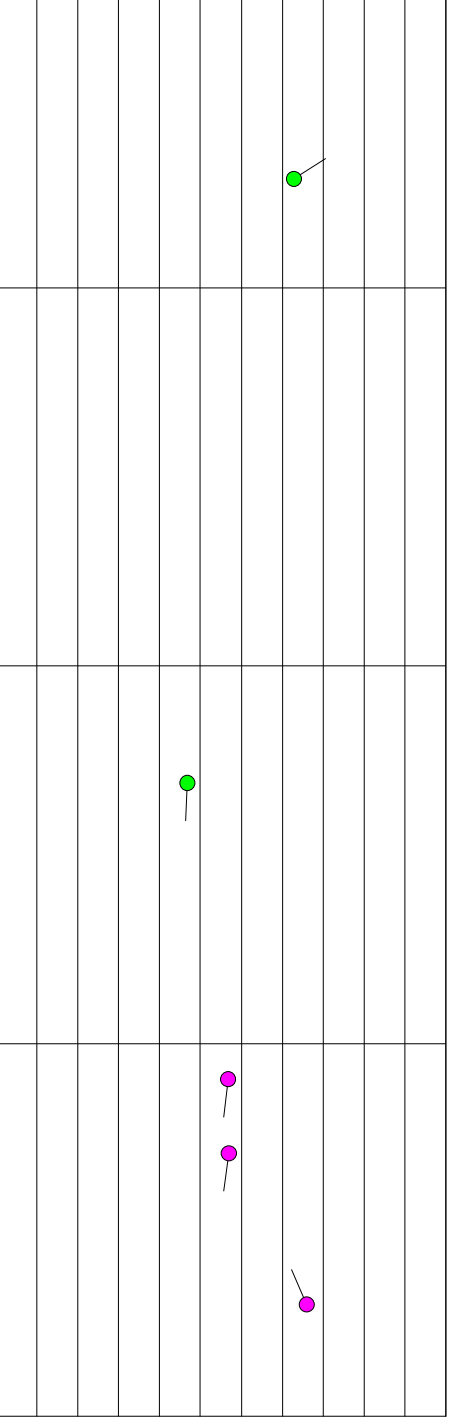
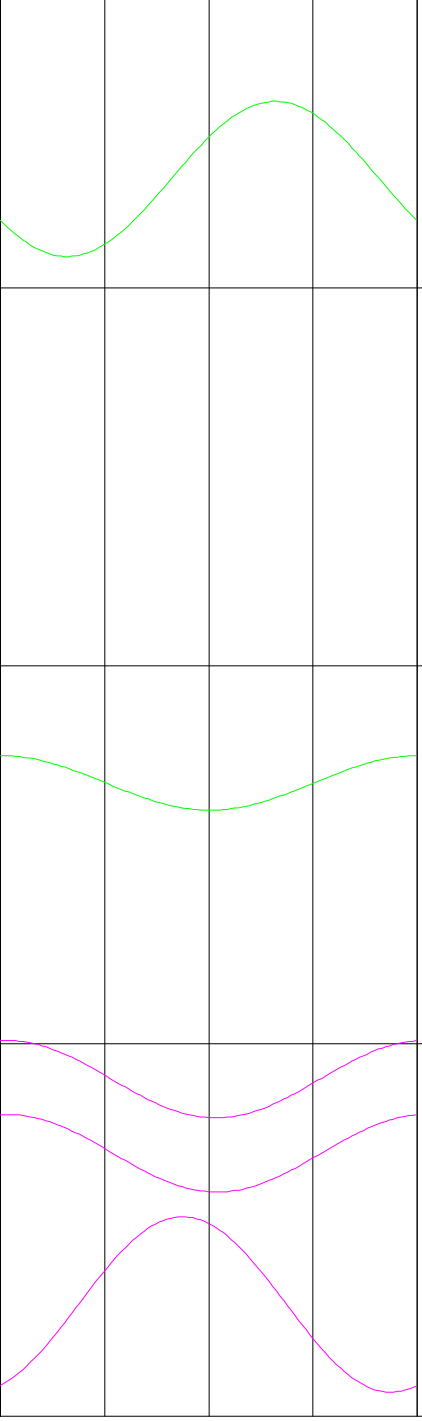
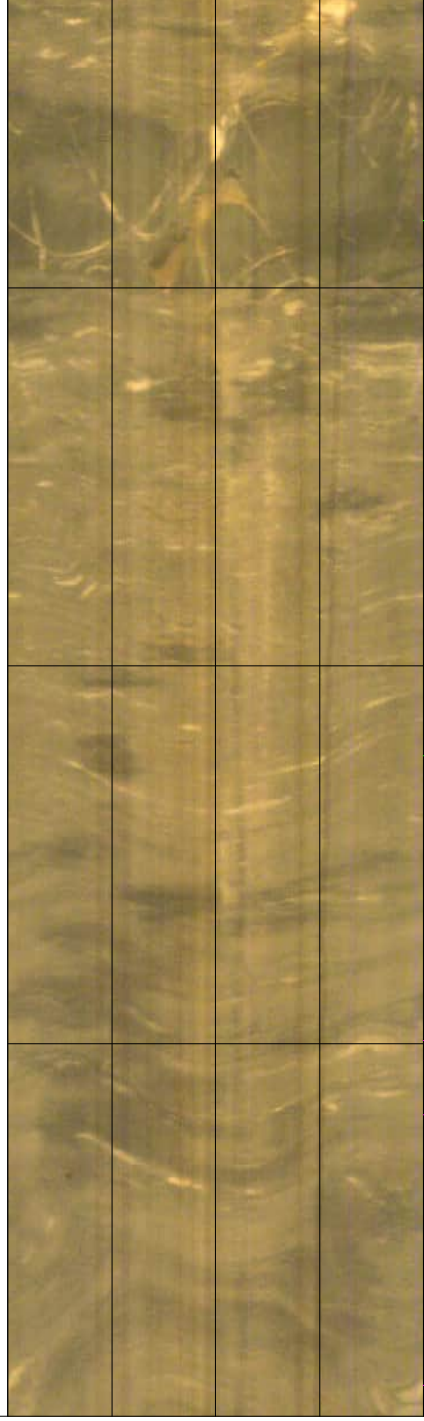
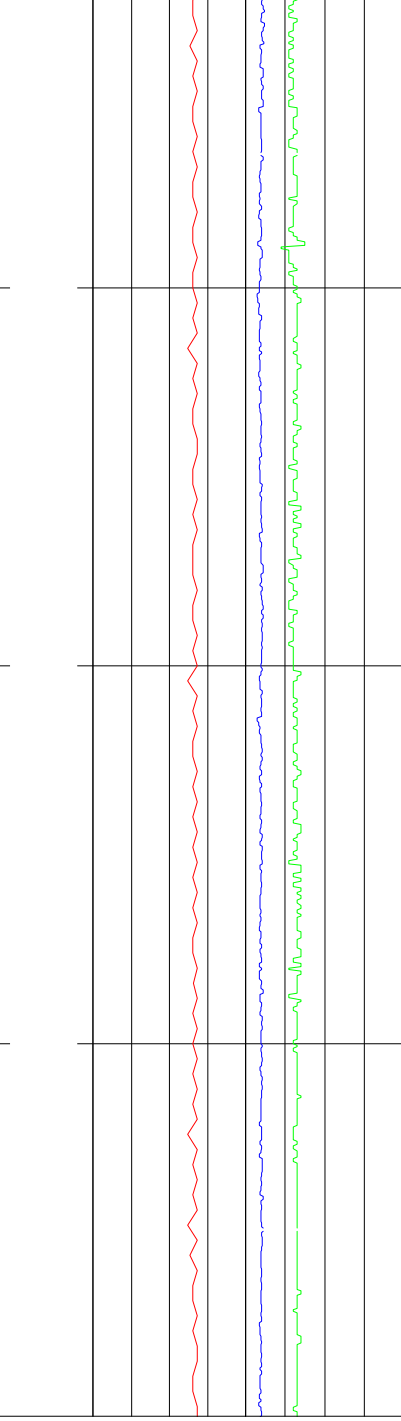
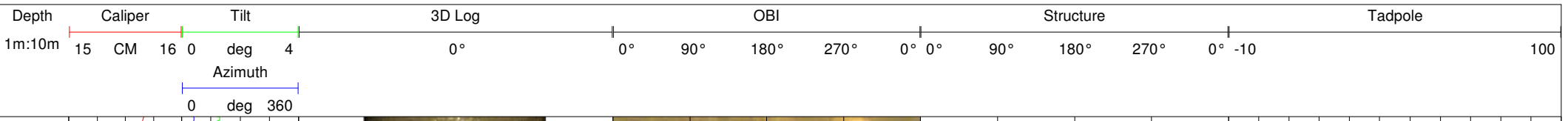
Azimuth 0 deg 360



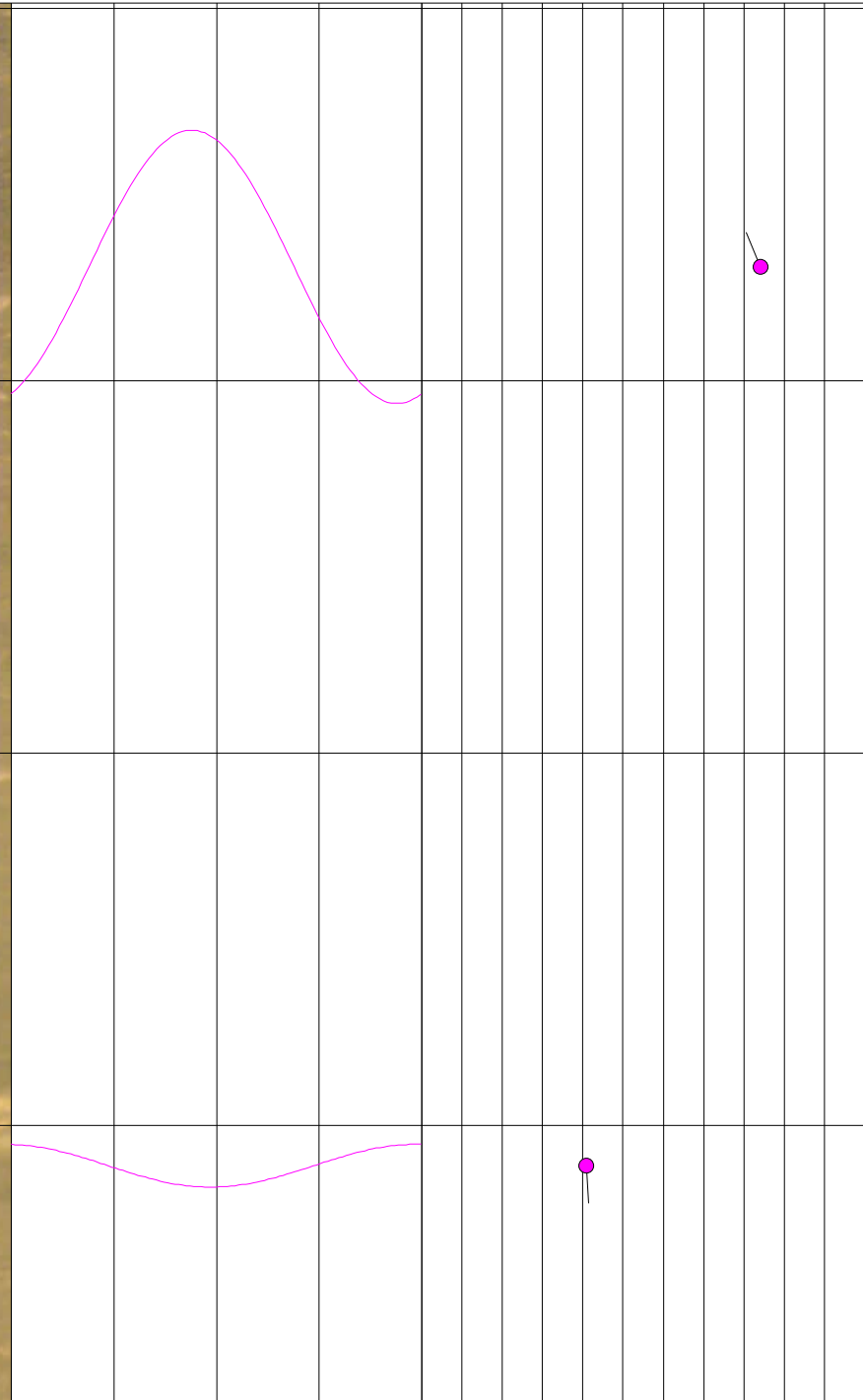
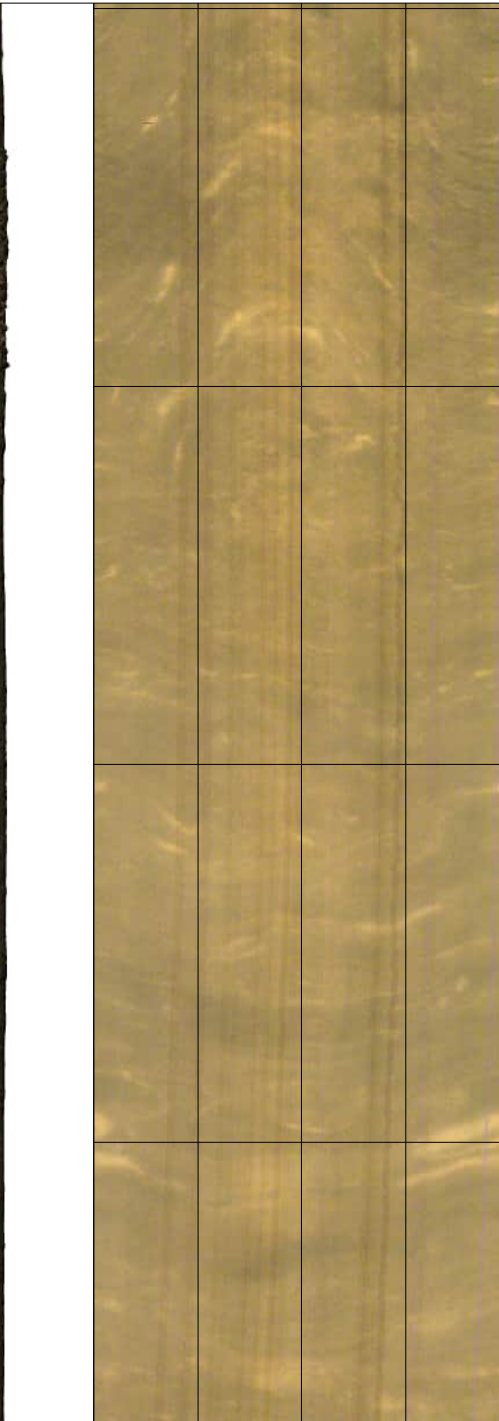
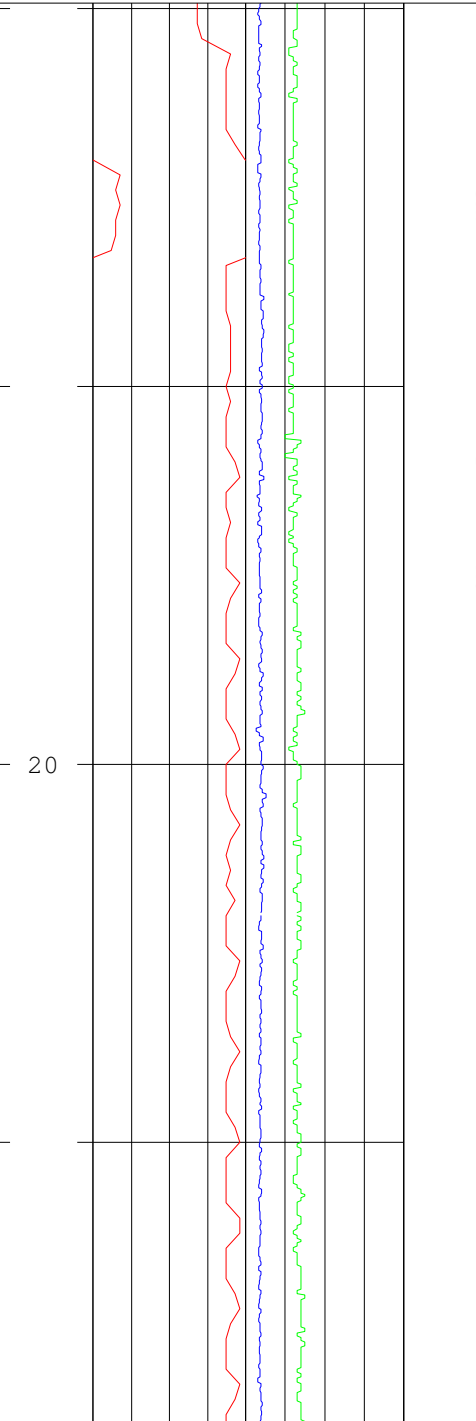
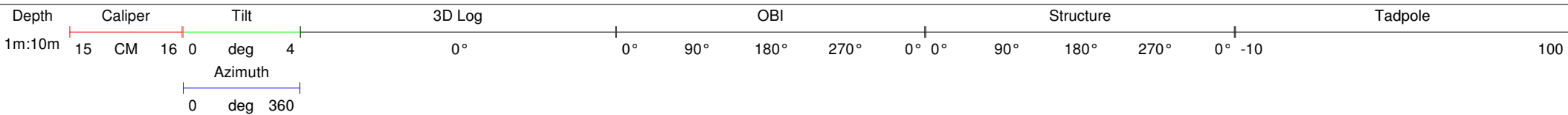


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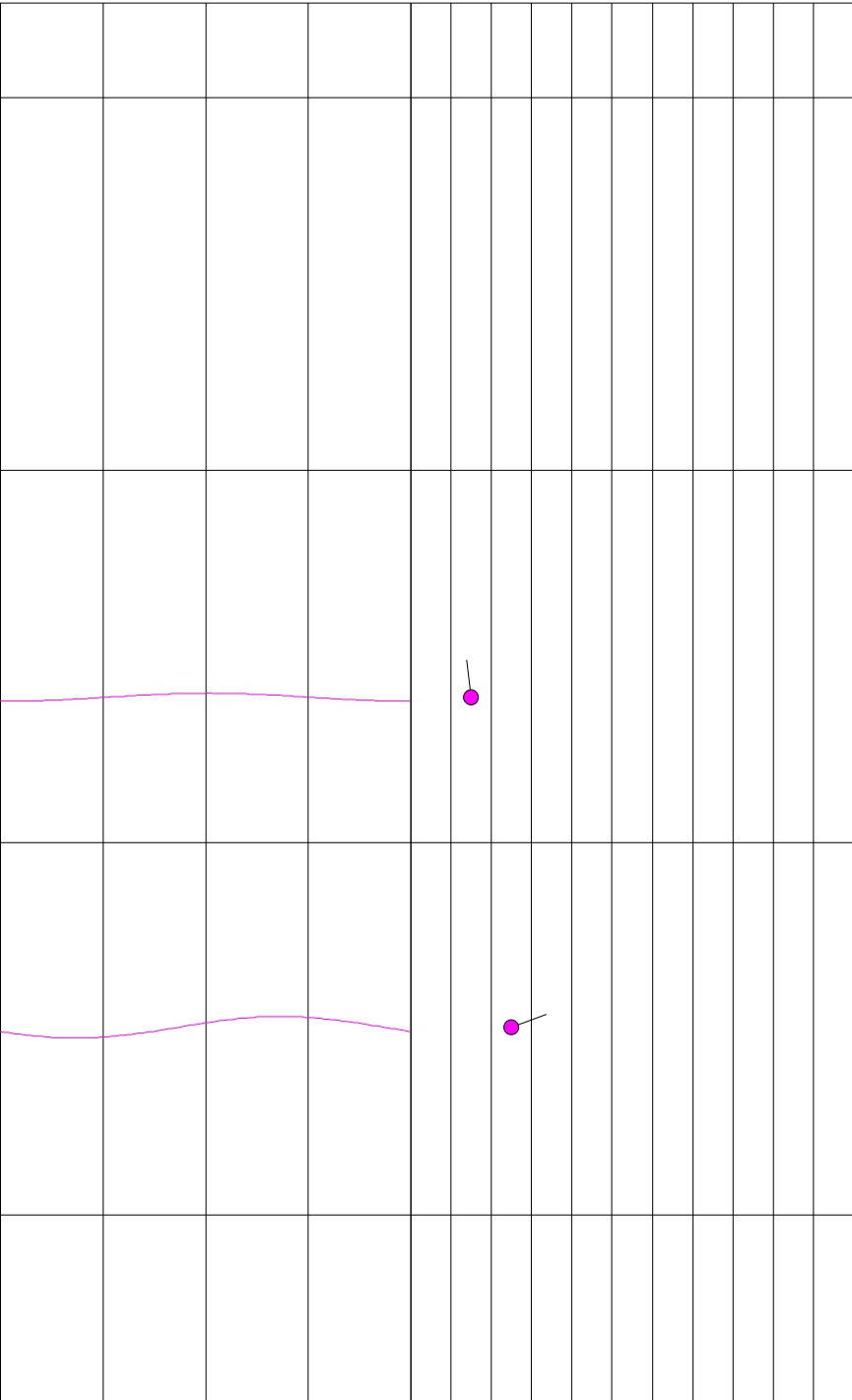
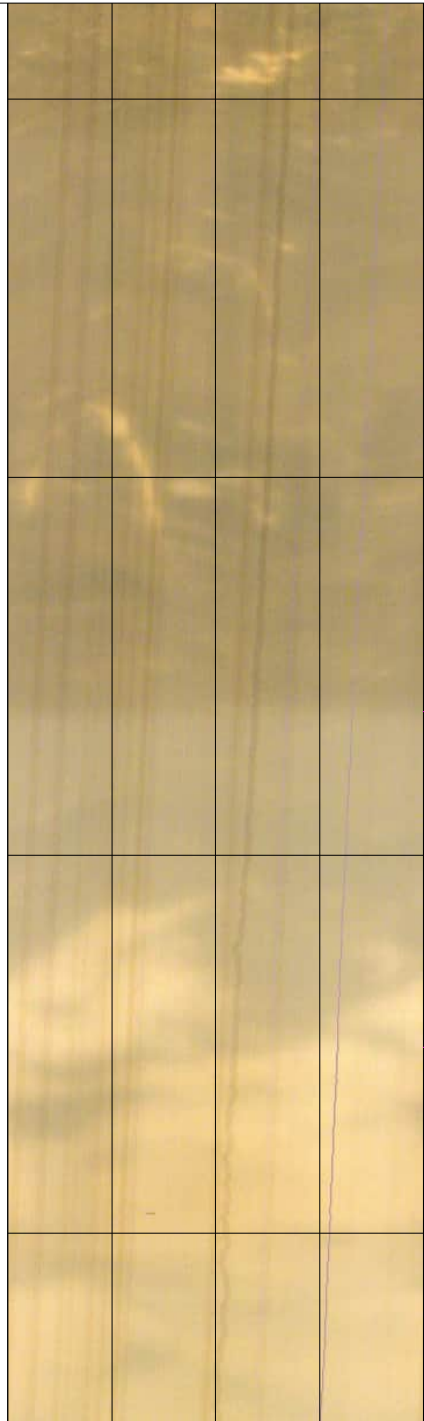
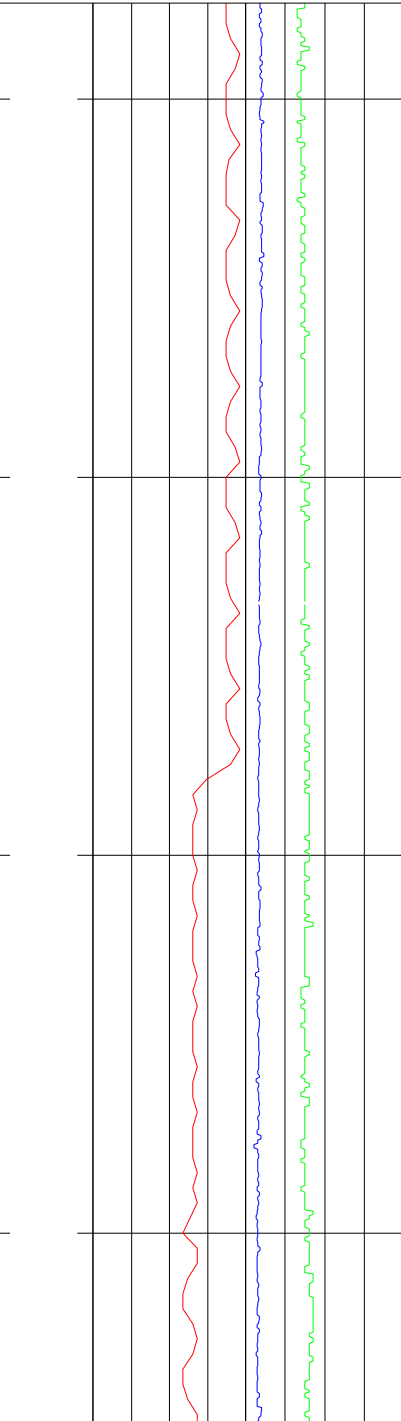




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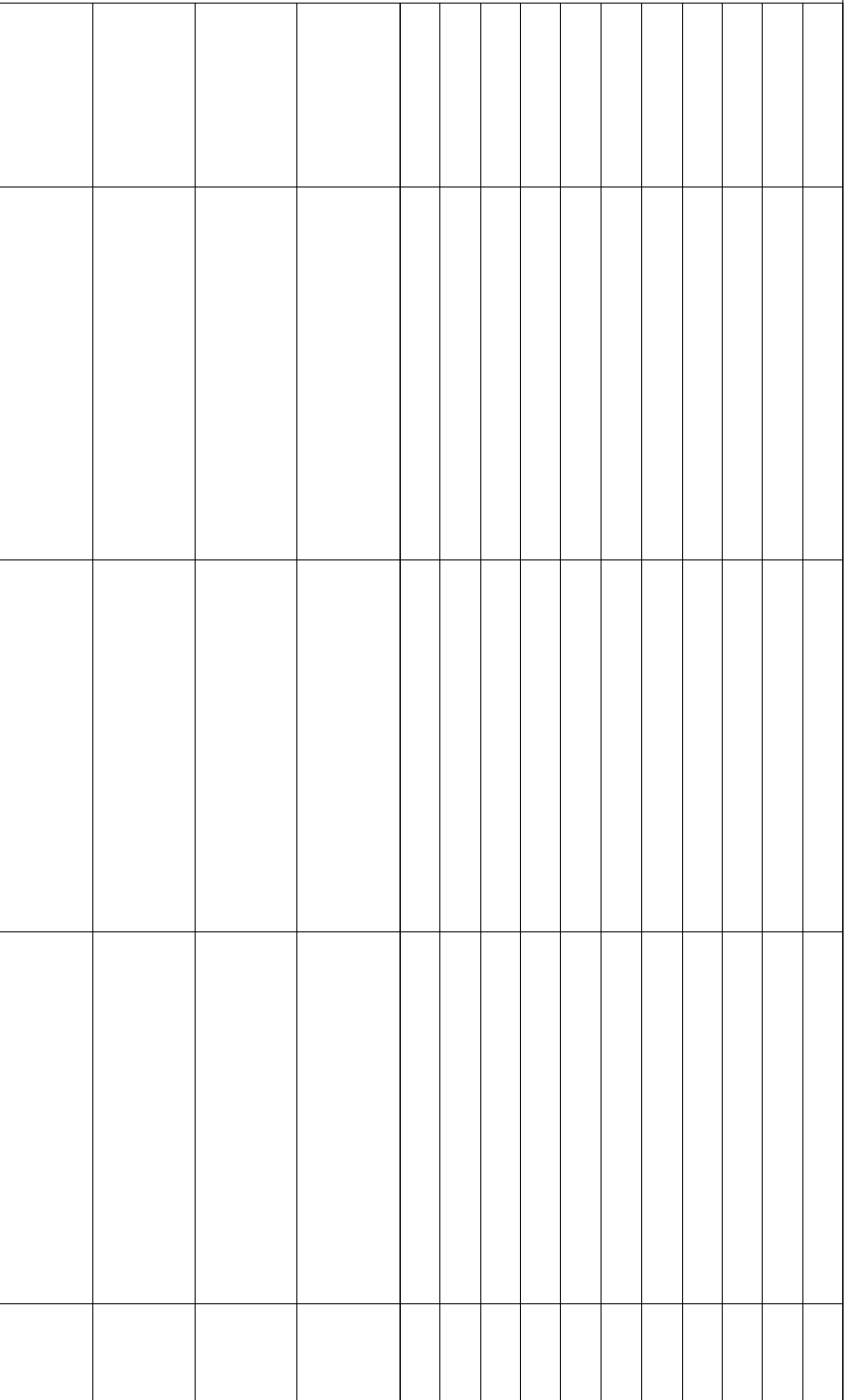
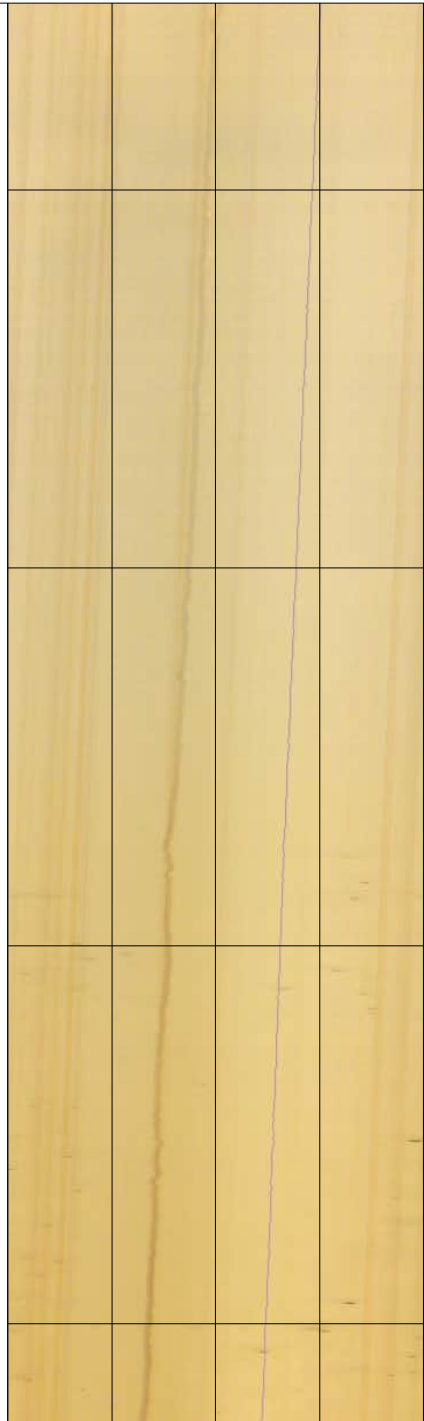
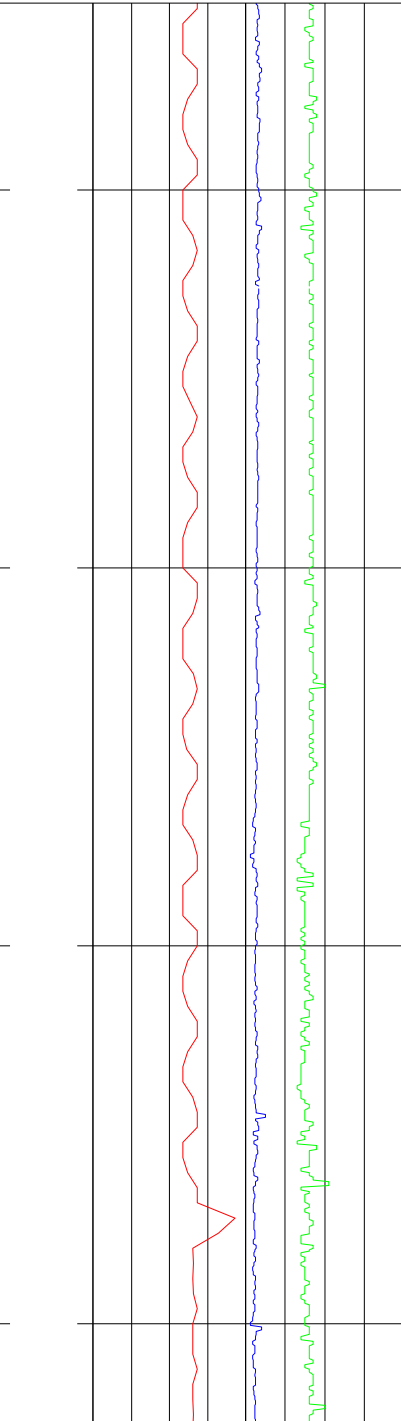
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Azimuth 0 deg 360



Depth 1m:10m    Caliper 15 CM    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360



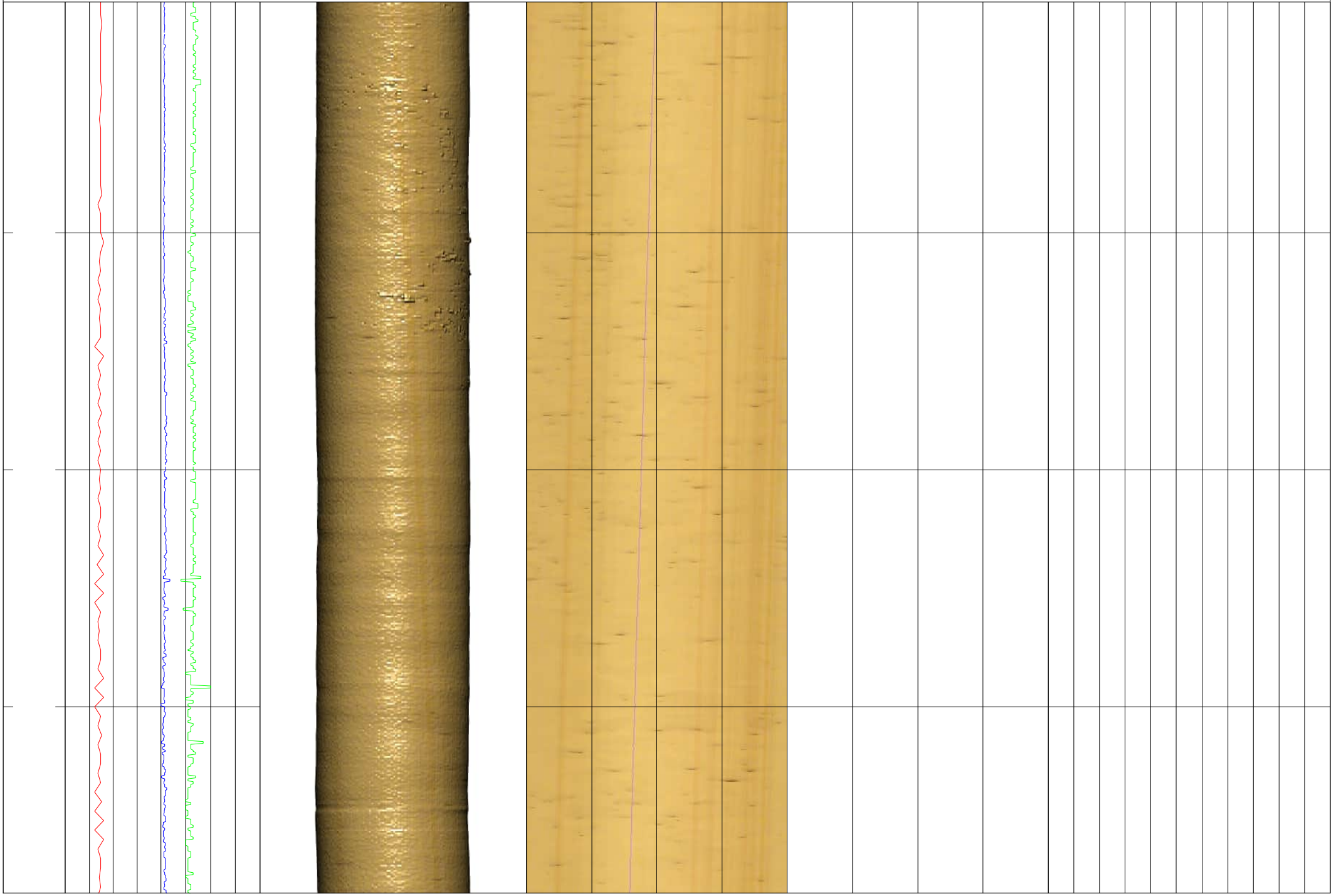
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360

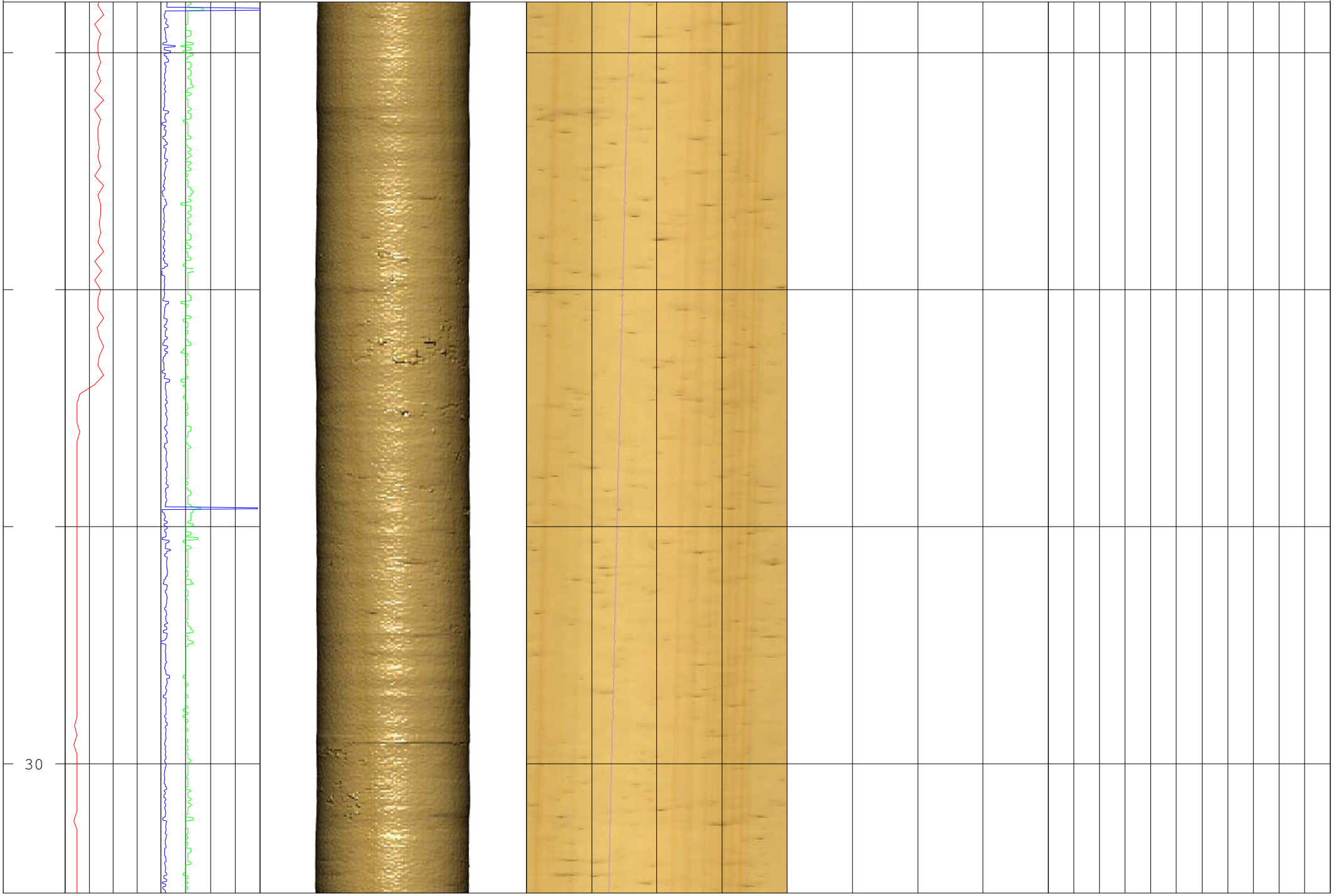


Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360

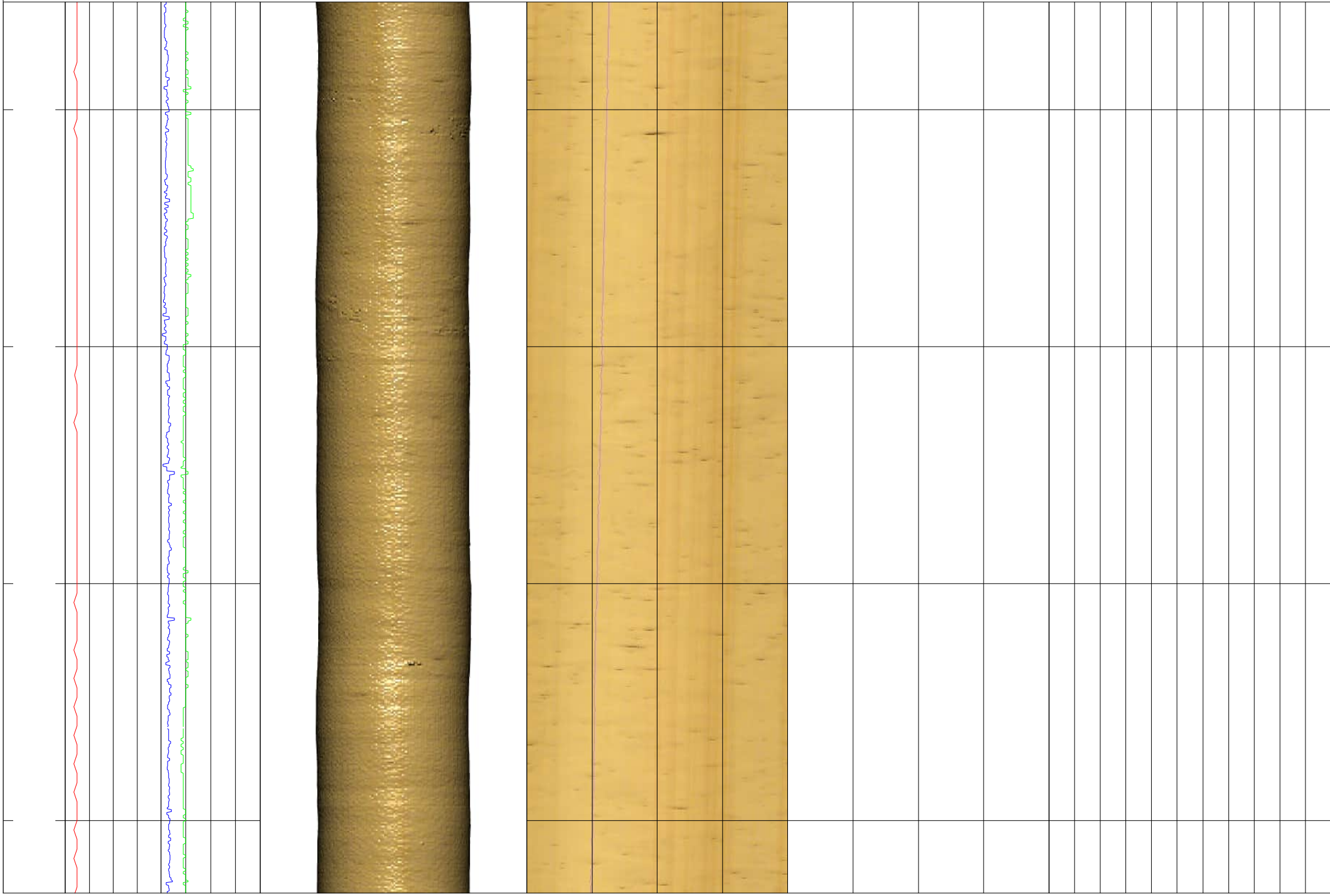


Depth 1m:10m Caliper 15 CM 16 0 Tilt deg 4  
 3D Log 0° 0° 90° 180° 270° 0° 0° 90° 180° 270° 0° -10 100  
 Azimuth 0 deg 360



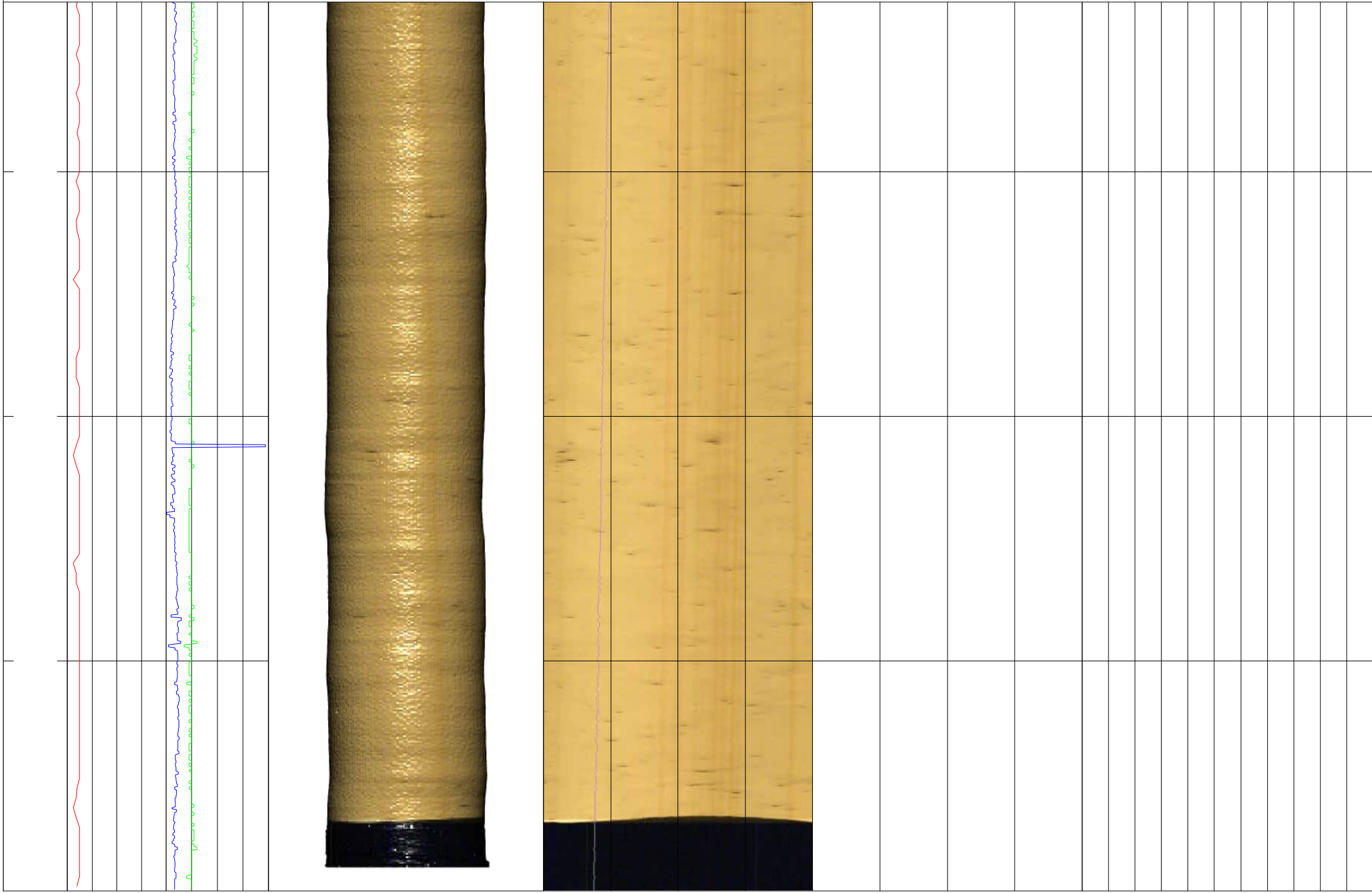
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360



Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth  
0 deg 360







# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Borehole: BH6

Log Type:  
Optical Televiewer Log

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy                      Grid Reference:                      Elevation:

Drilled Depth: 35m                      Date: 04/03/2010

Logged Depth: 33.76m                      Recorded By: [Redacted]

Logging Datum: Ground level

Logged Interval:

Fluid Level:

Structure Key: — Foliation — Fracture — Vein

Remarks:

North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

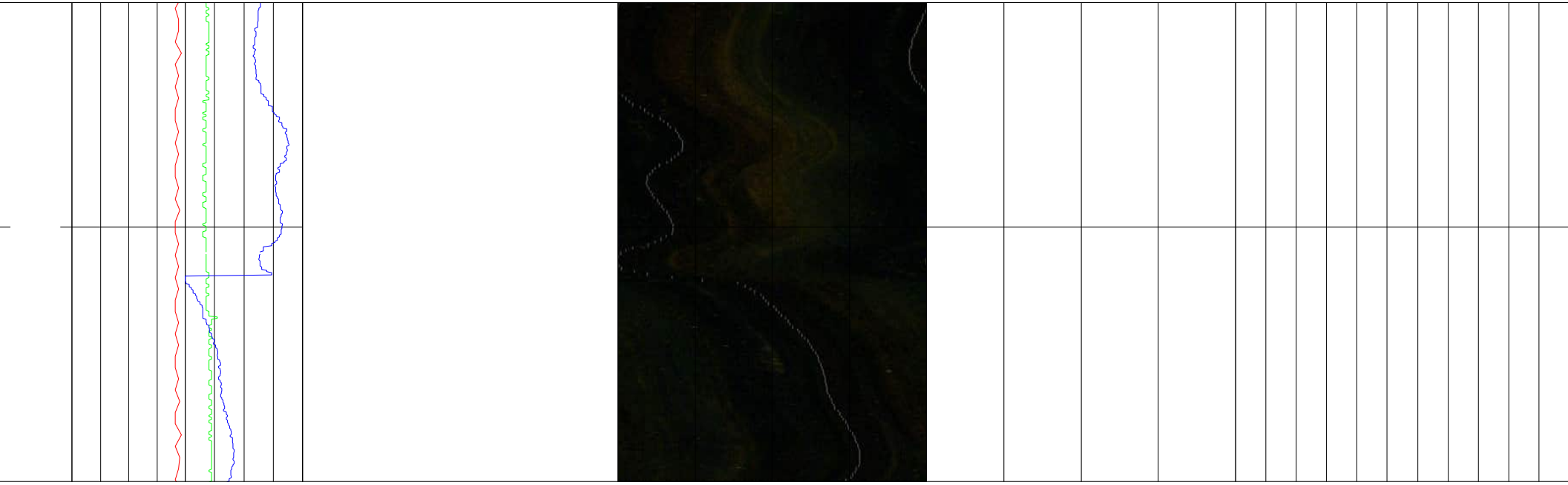
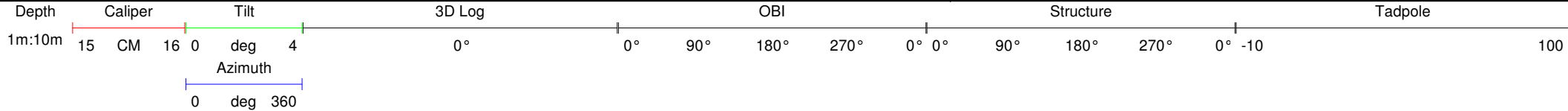
Features are difficult to pick due to very poor water conditions below 6.8m

## BOREHOLE RECORD

## CASING RECORD

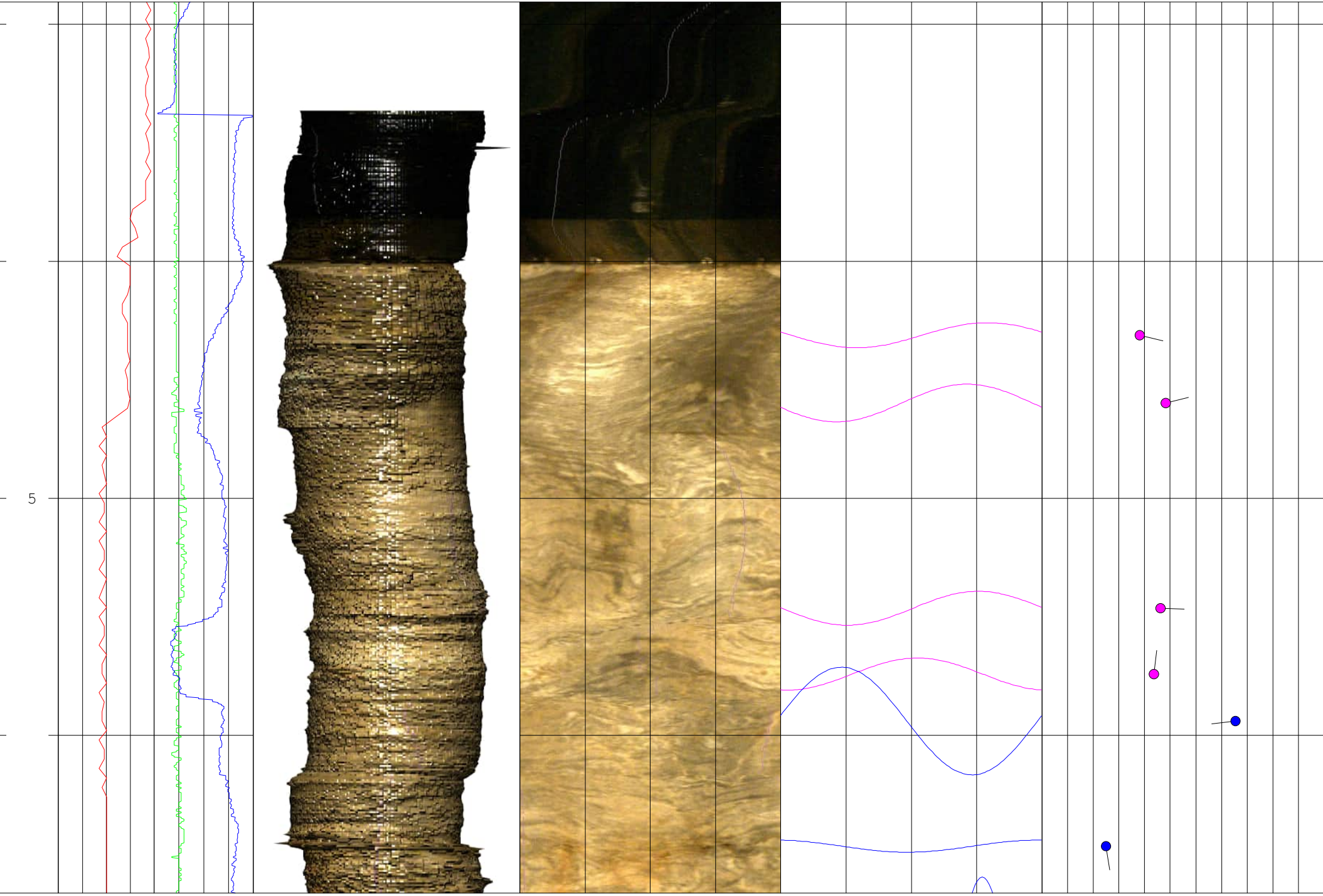
| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 4.5m  |
| 120mm         | 4.5m  | 35.0m |

| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 4.5m |



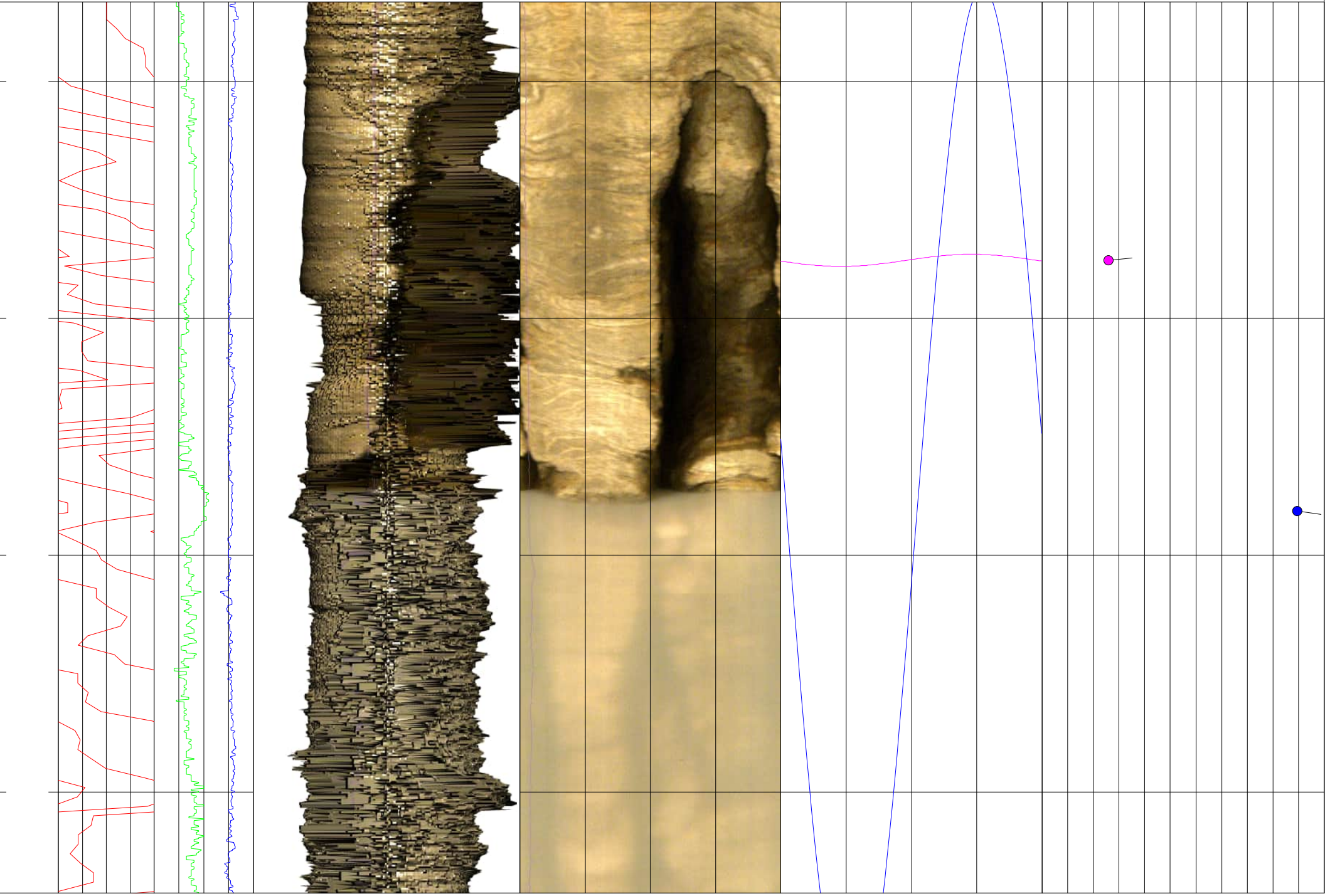
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360



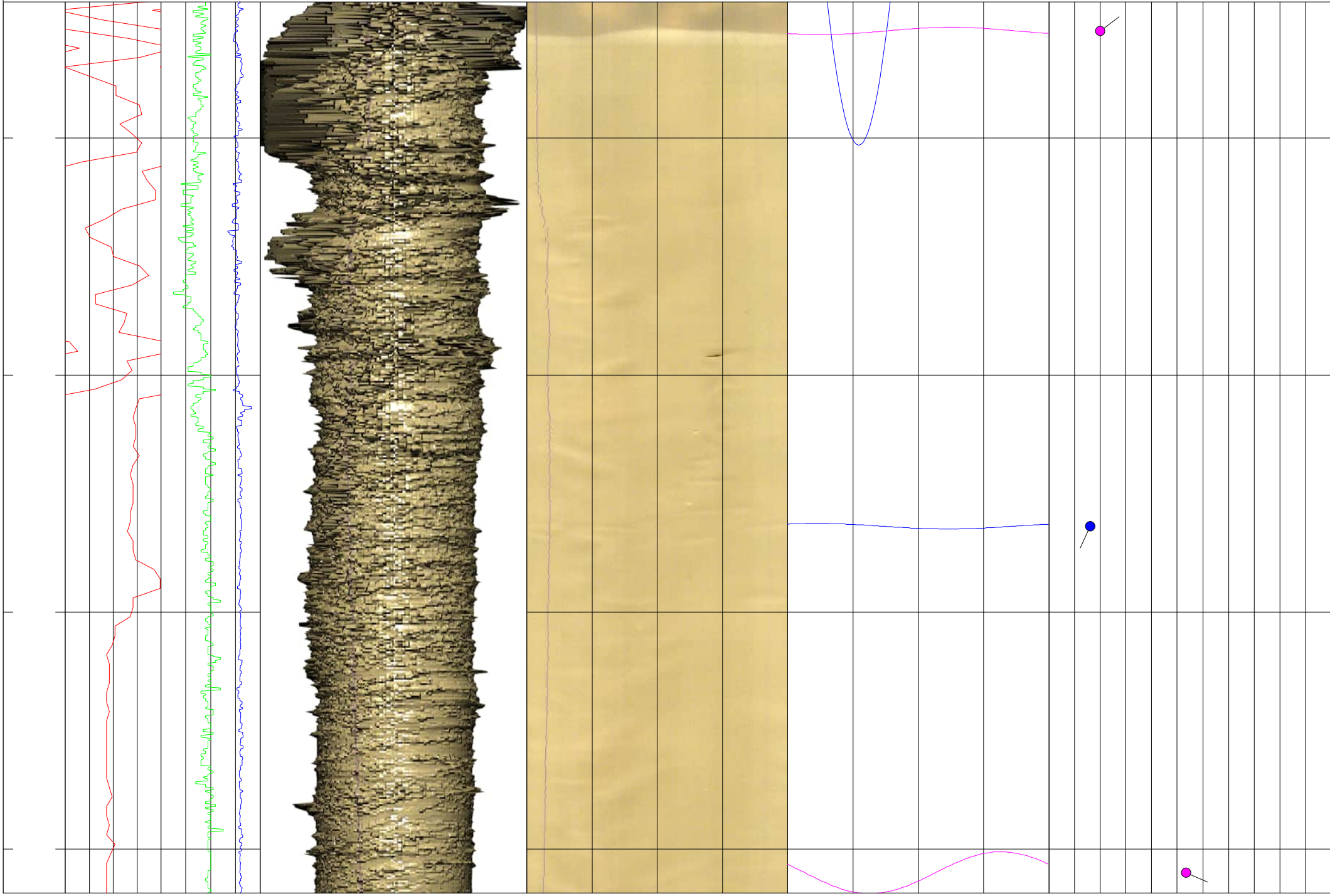
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole    100

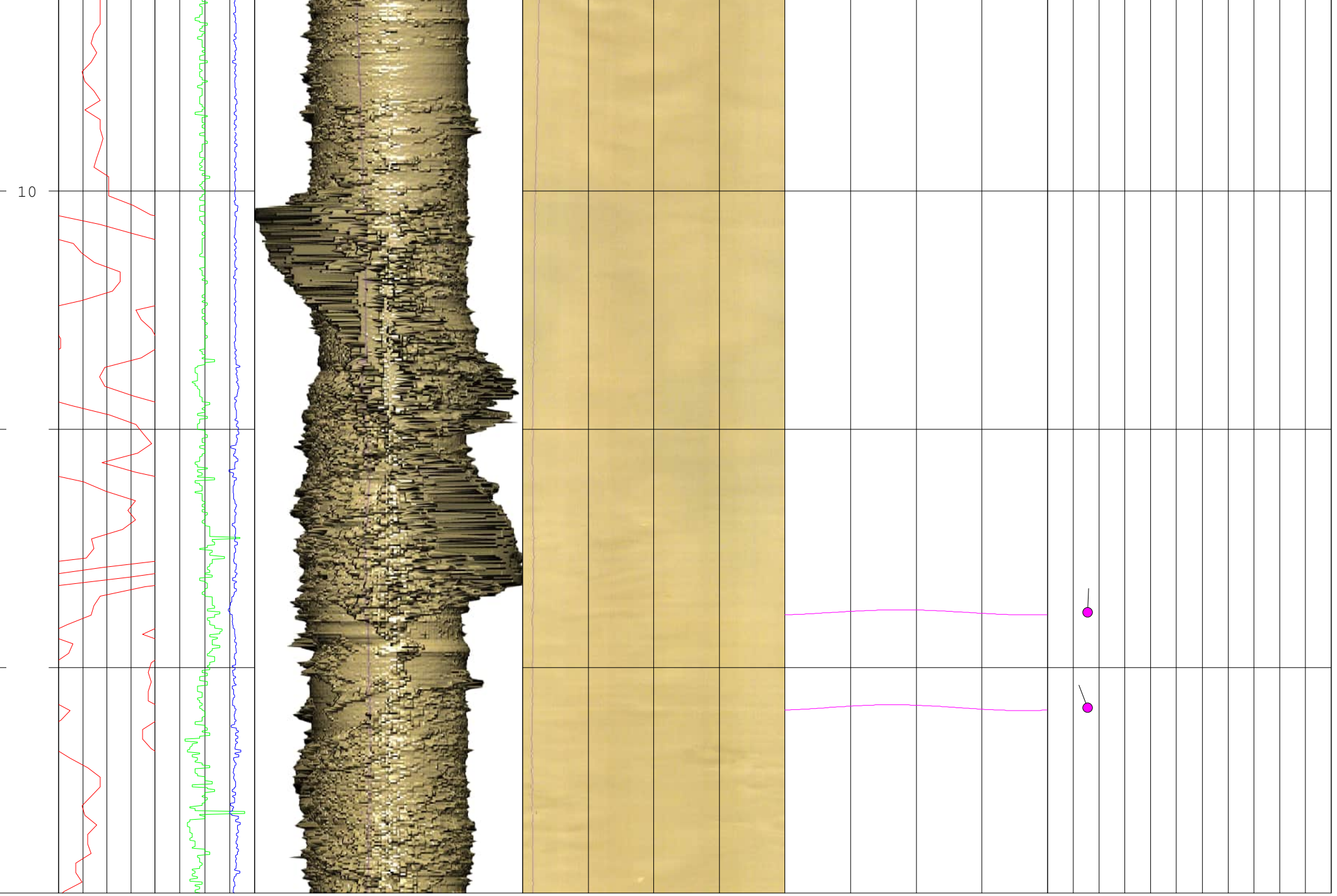
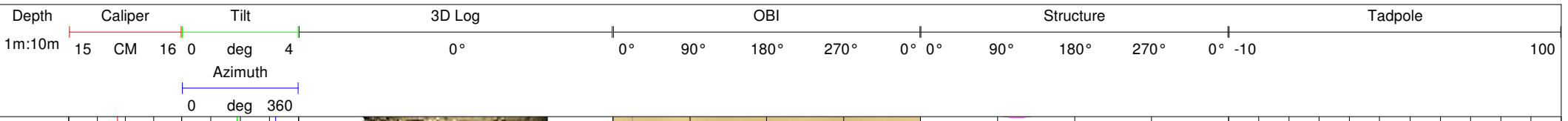
Azimuth 0 deg 360



Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270° 0° 0° 90° 180° 270° 0° -10    Structure    Tadpole    100

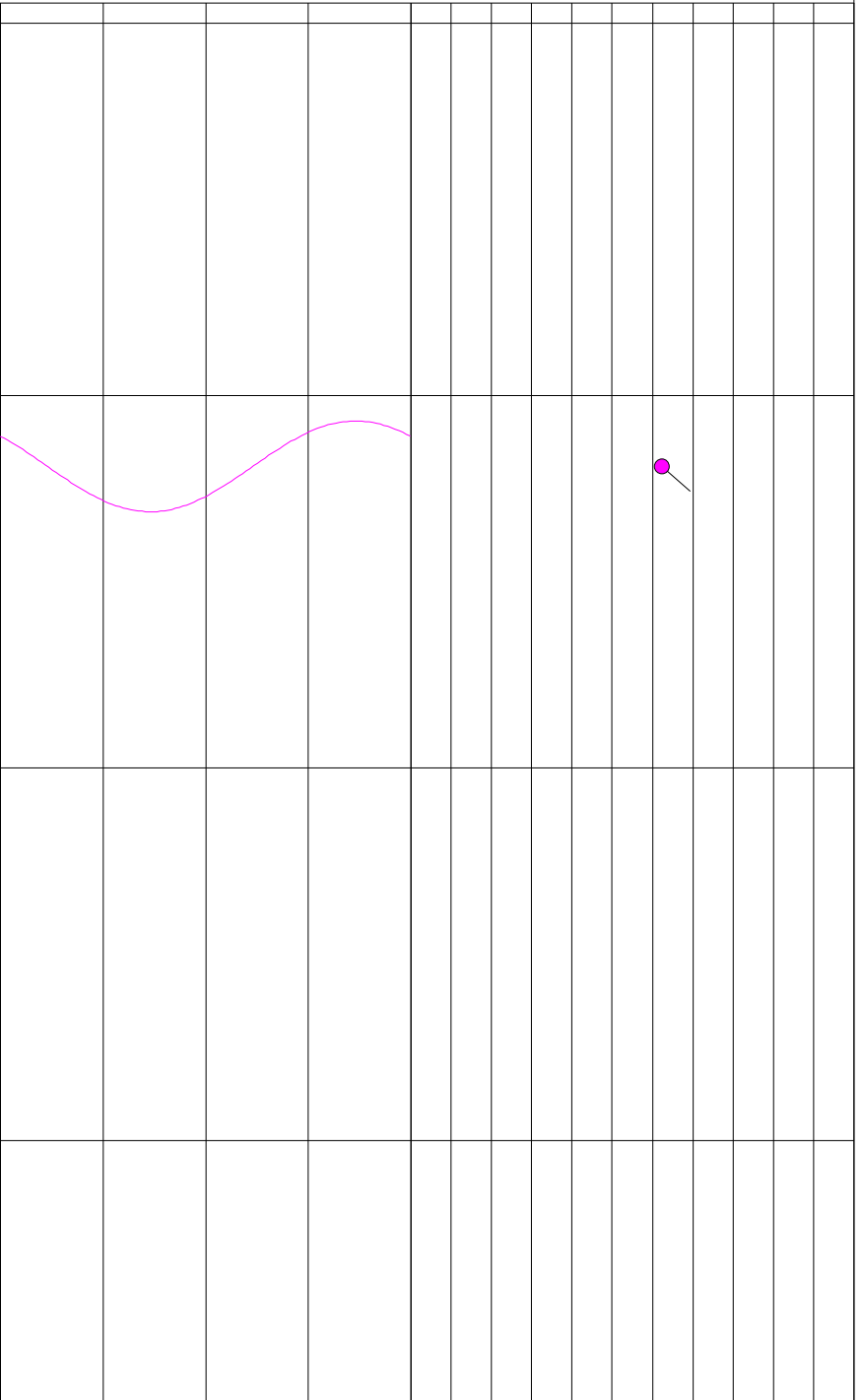
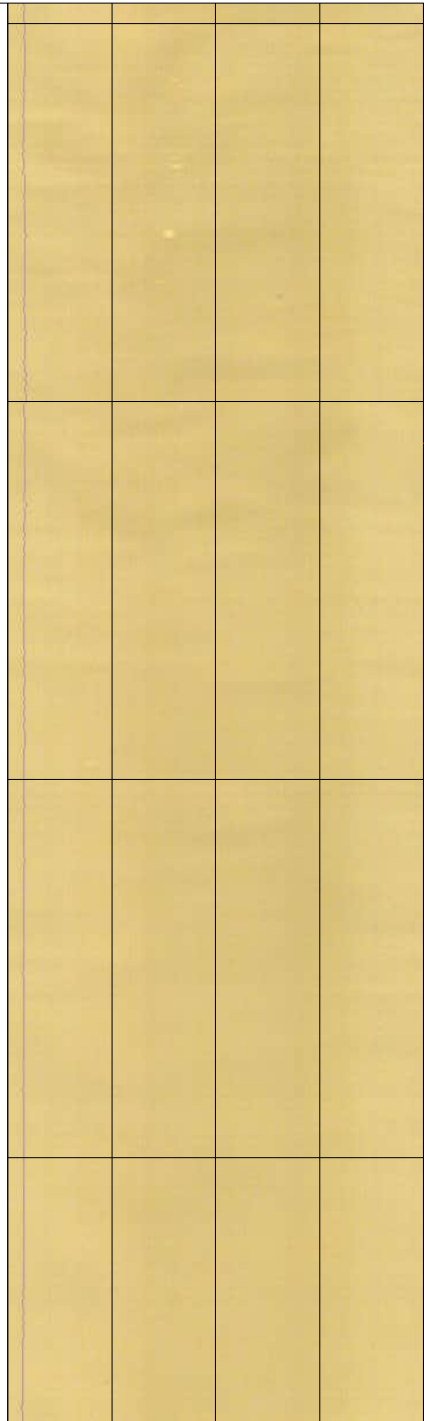
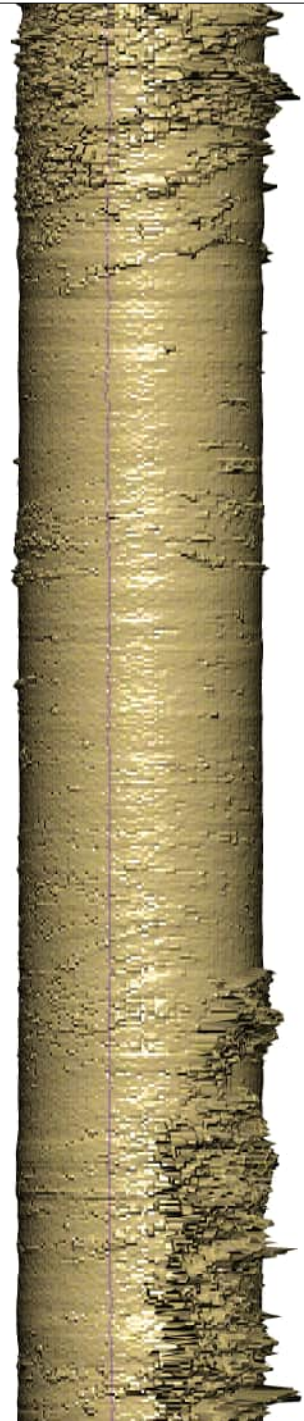
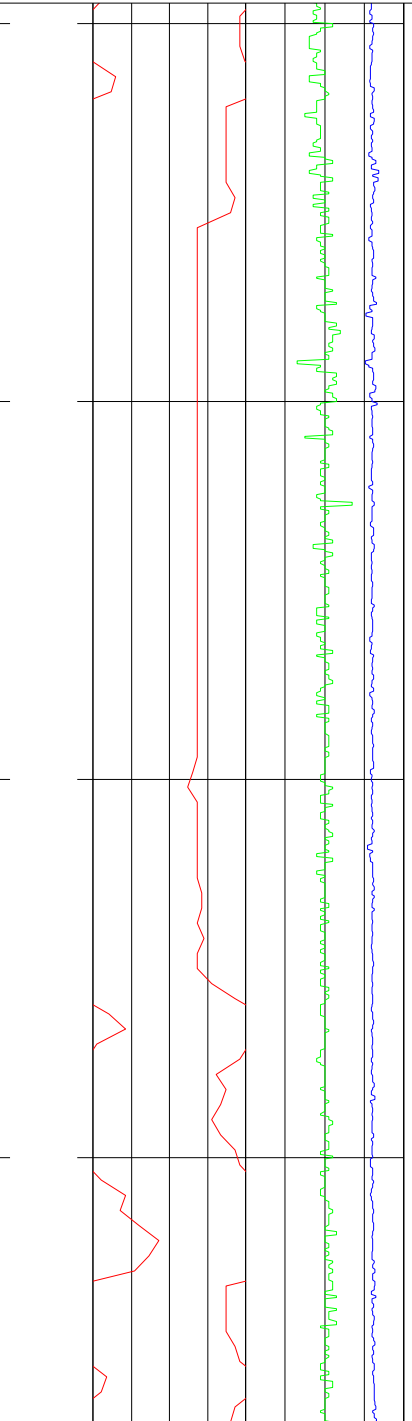
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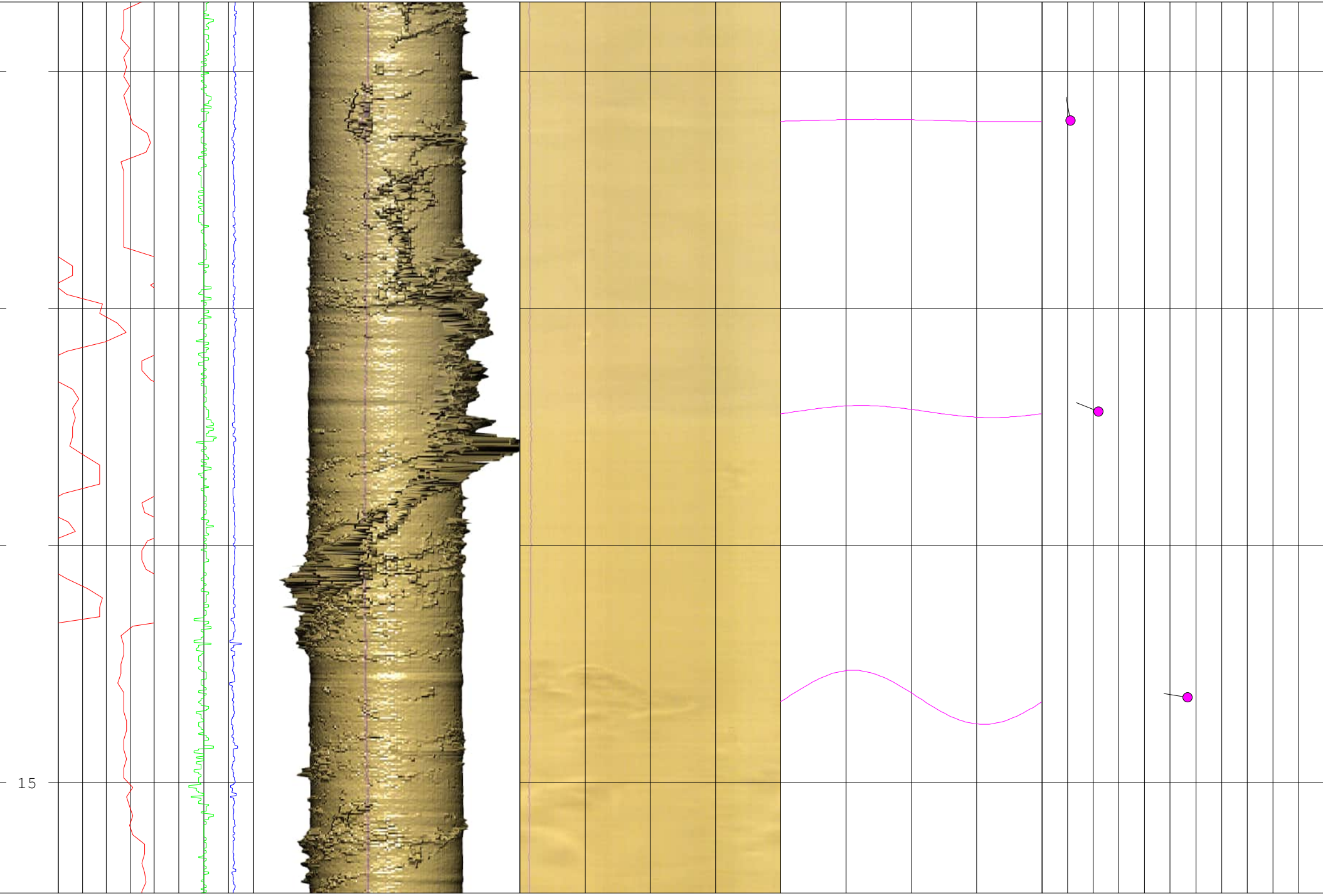
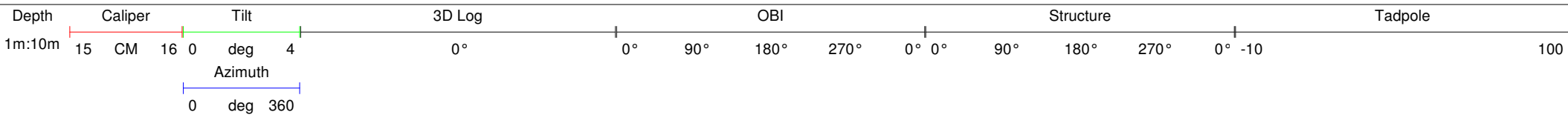


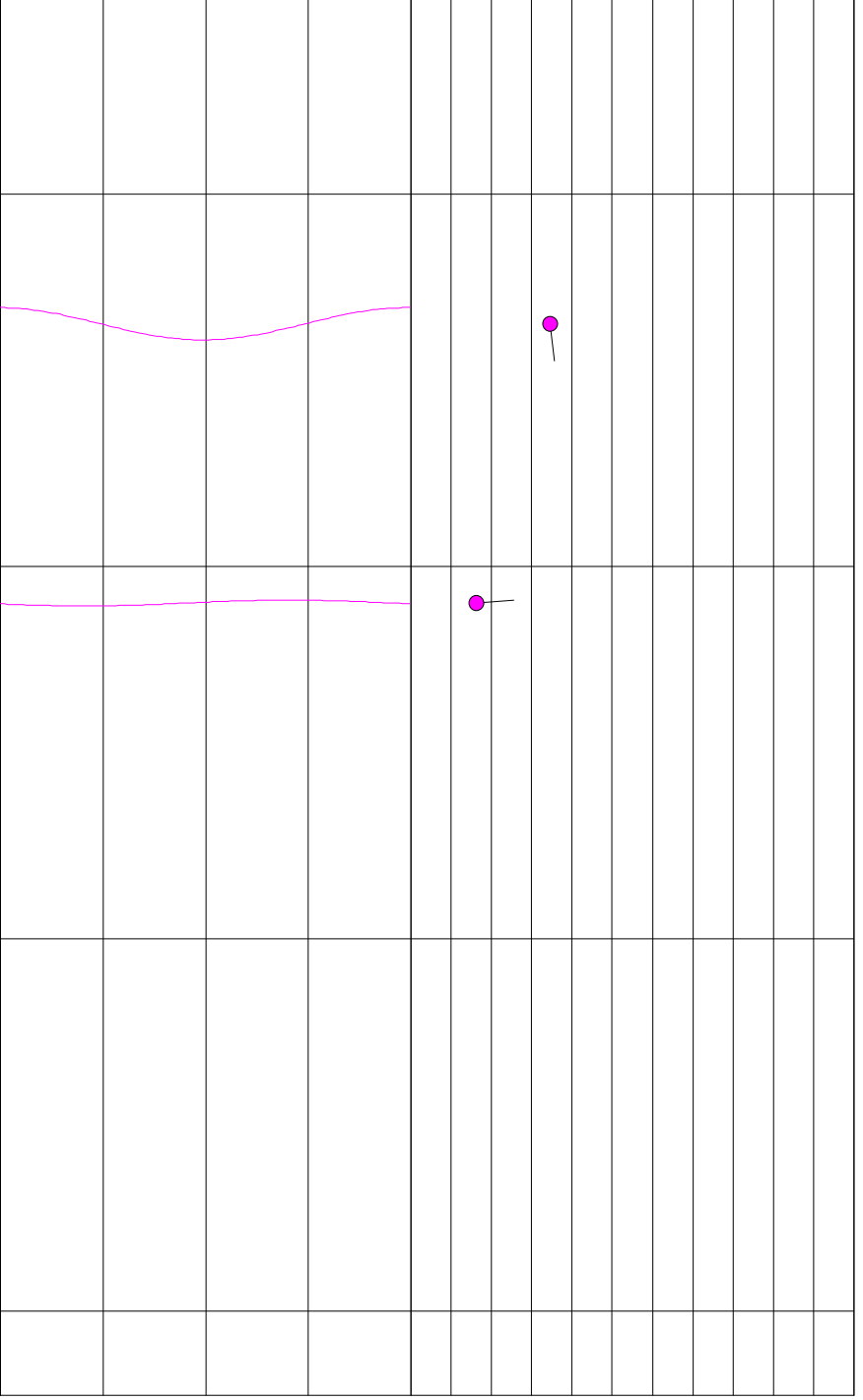
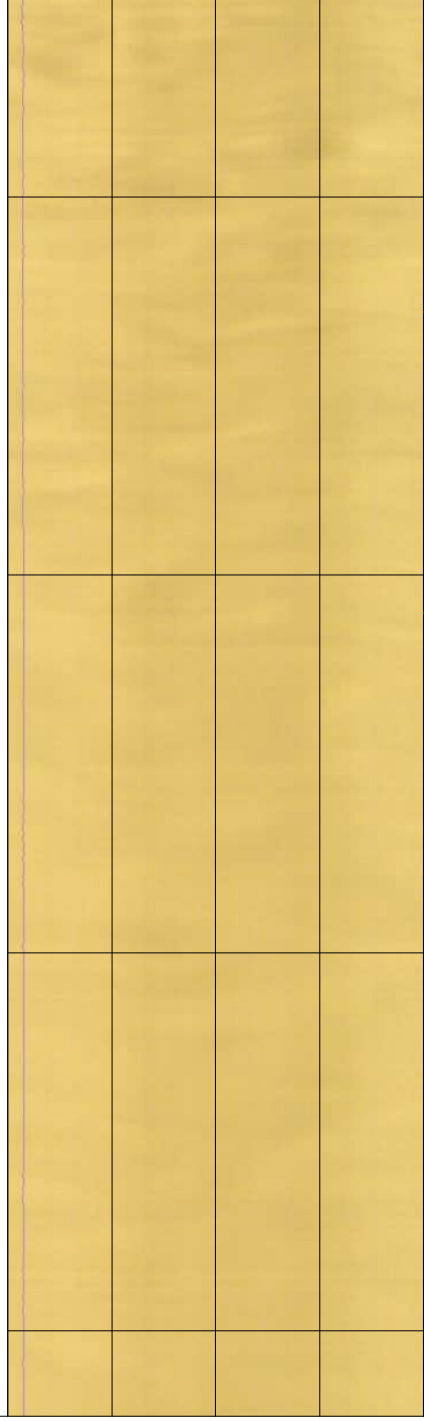
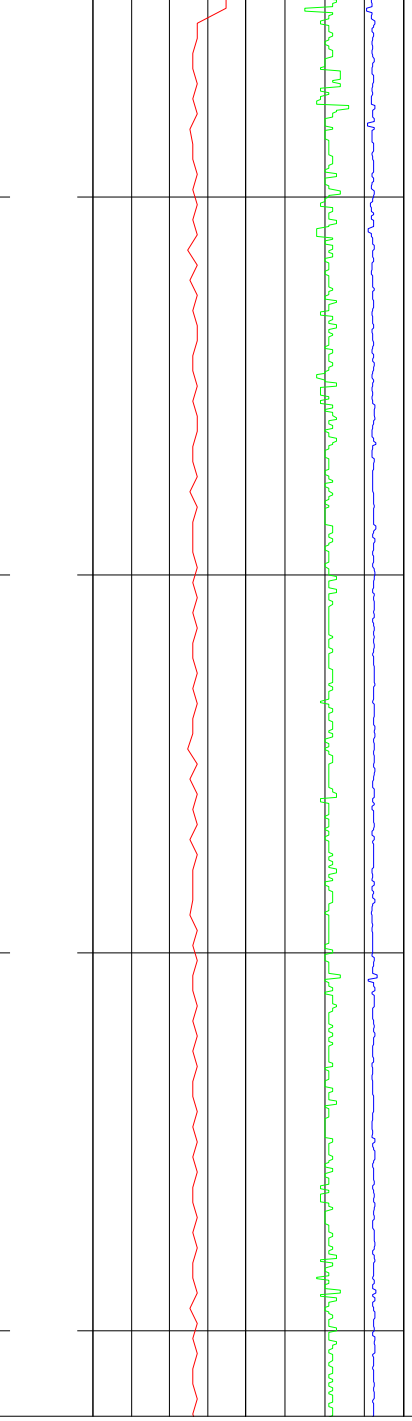
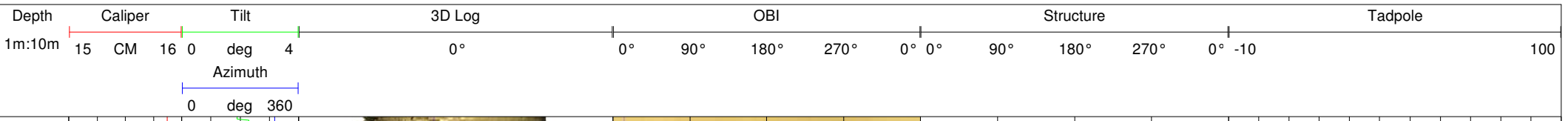


Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole    100

Azimuth 0 deg 360



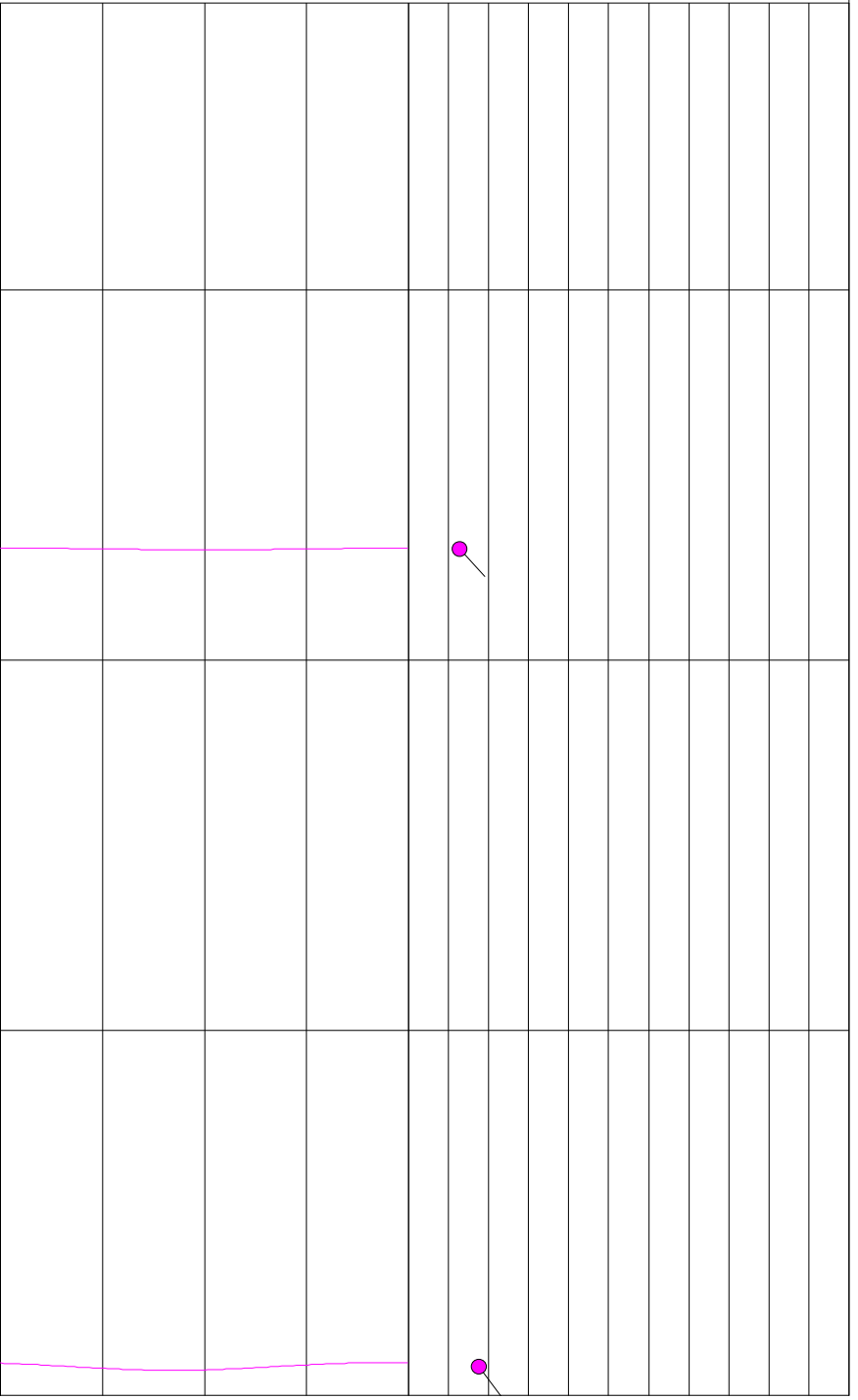
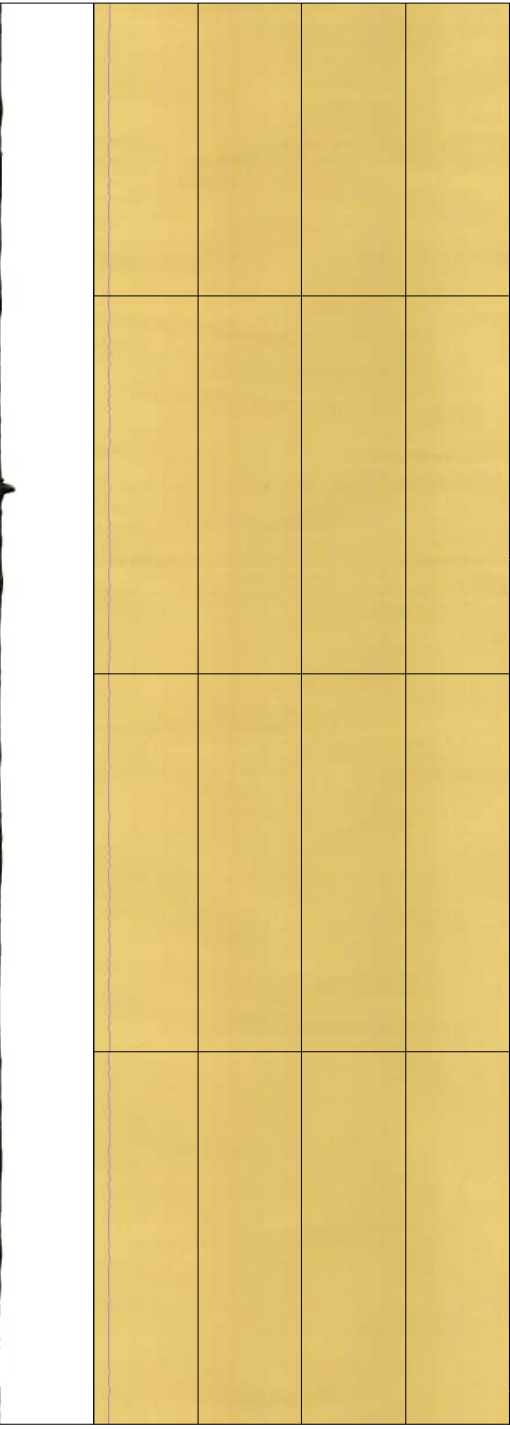
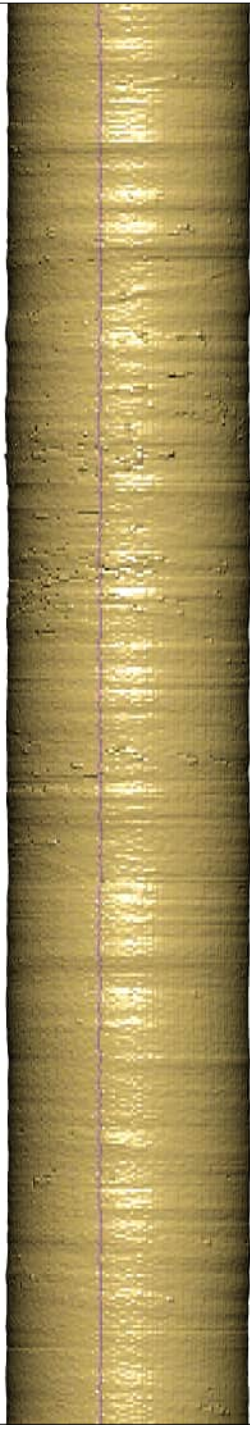
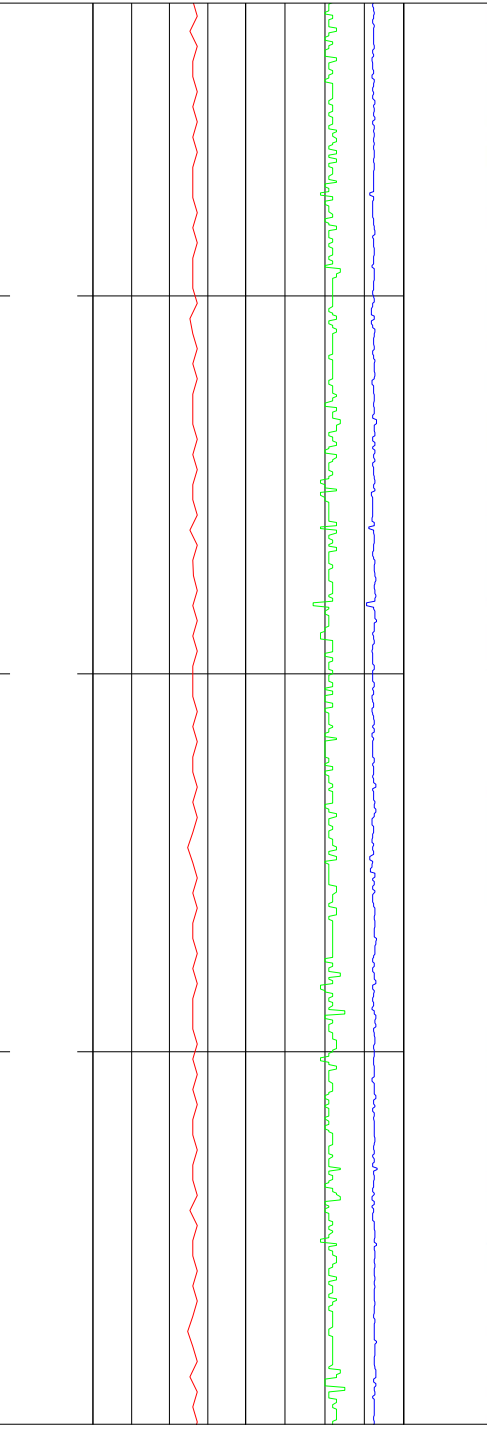






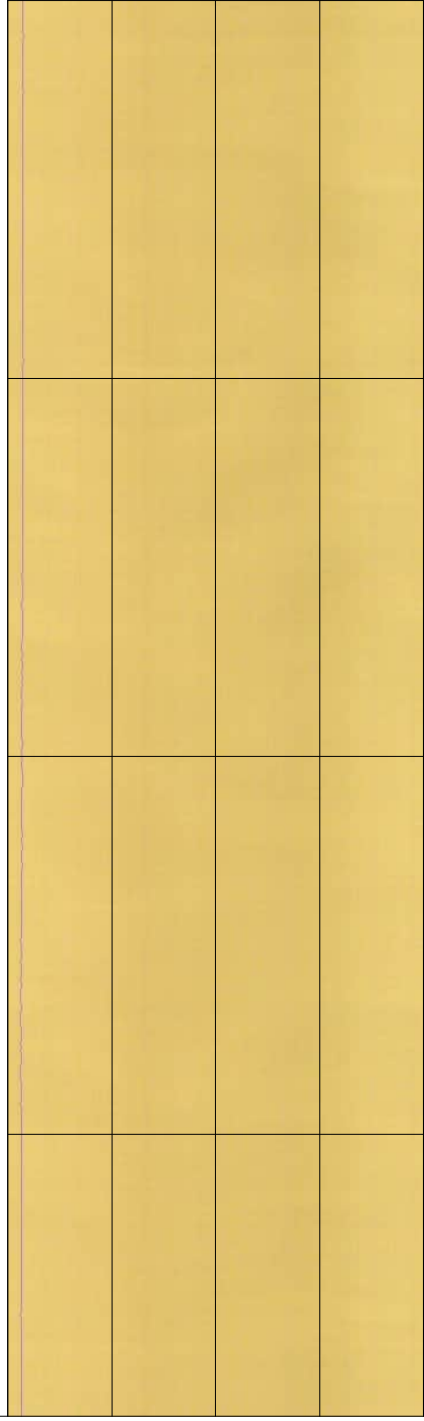
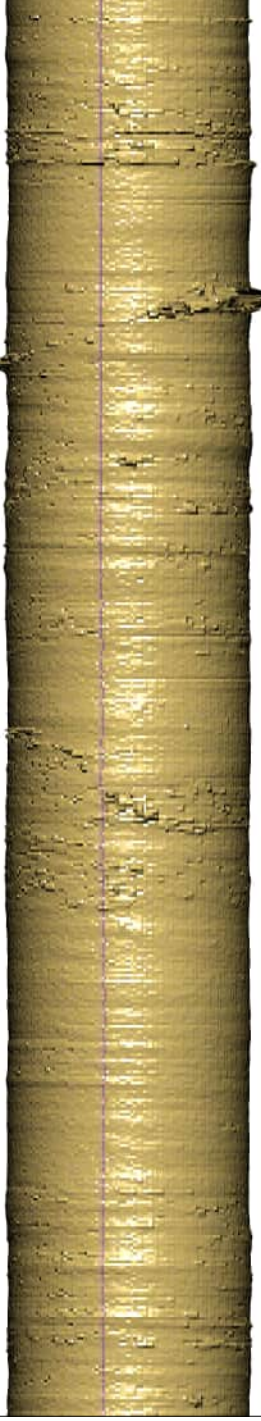
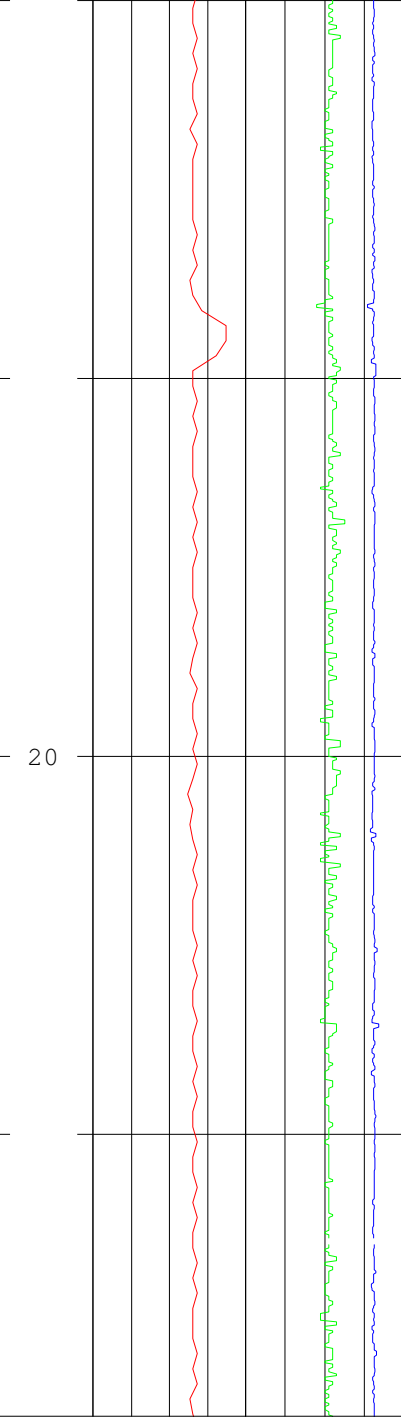
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360



Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360

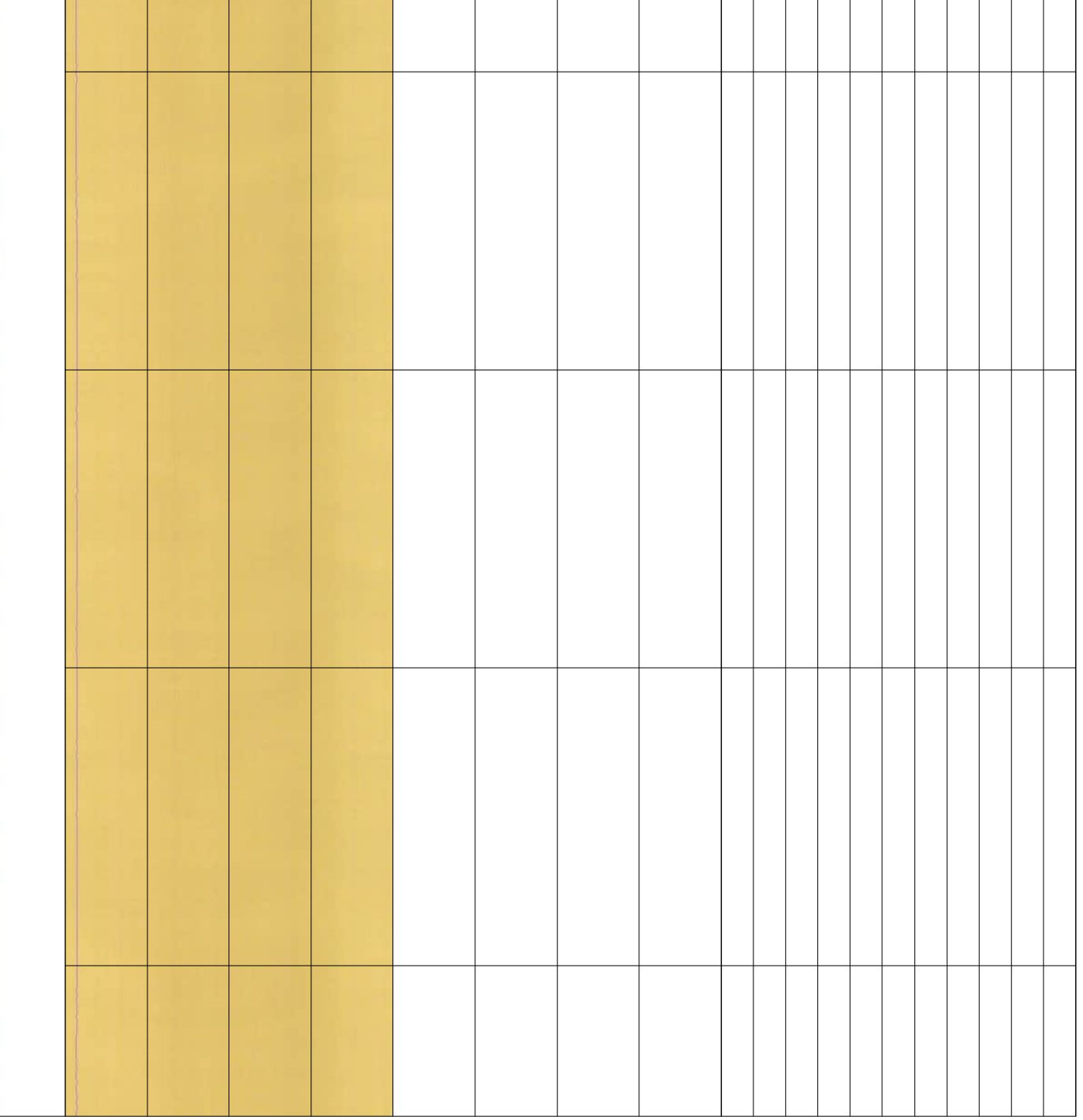
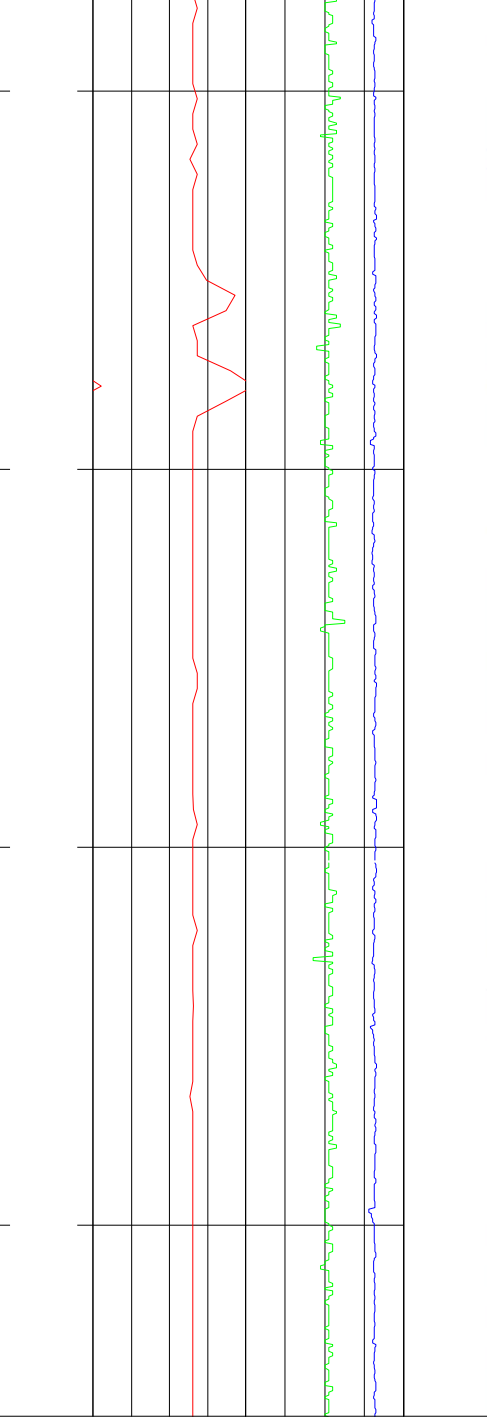


| Structure |    | Tadpole |      |      |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------|----|---------|------|------|----|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 0°        | 0° | 90°     | 180° | 270° | 0° | -10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|           |    |         |      |      |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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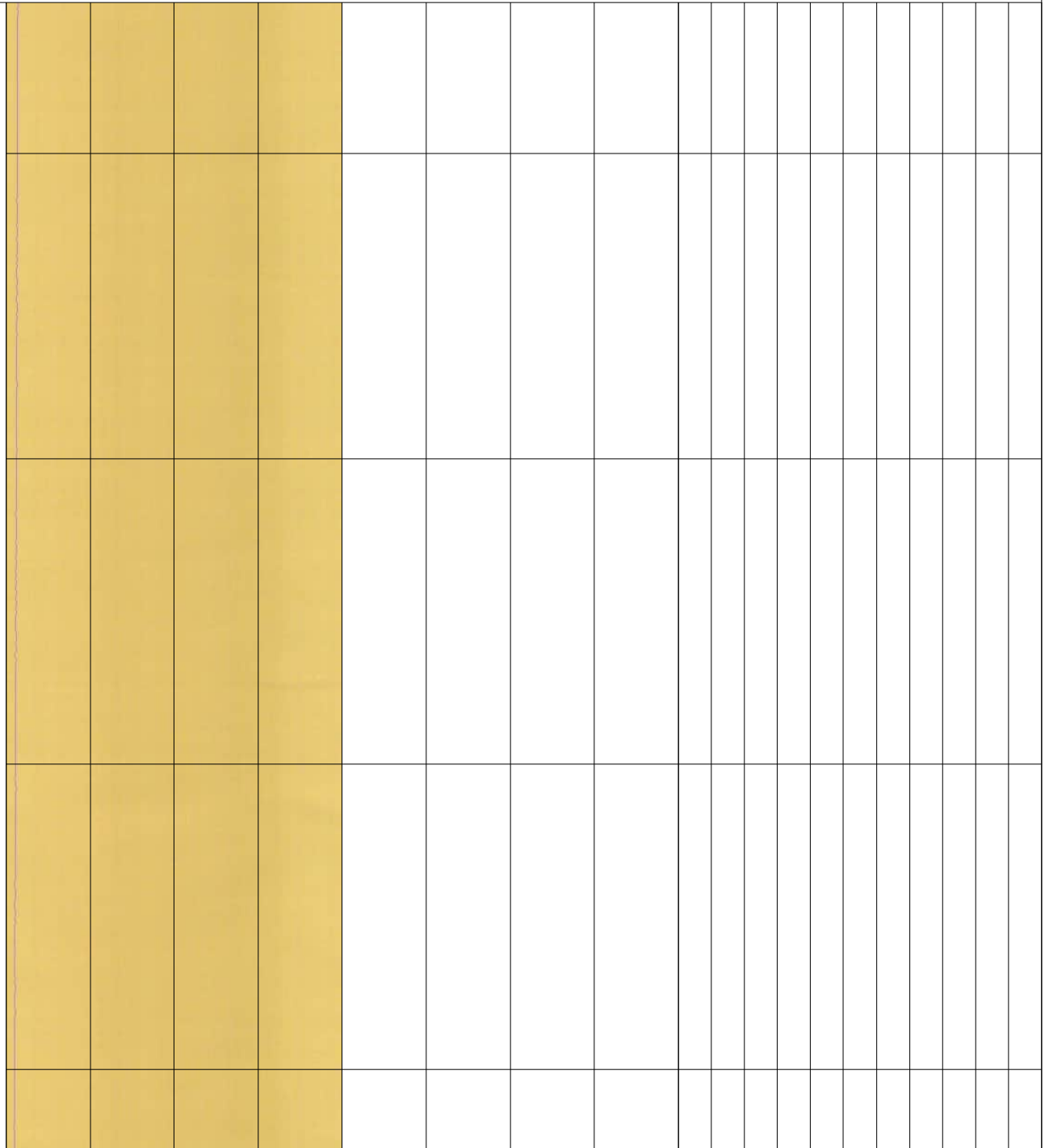
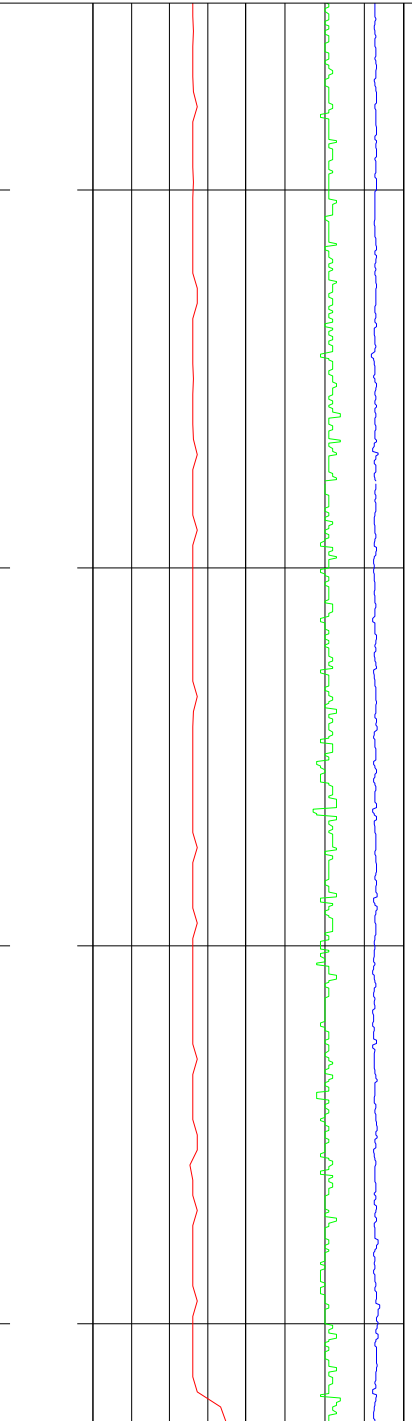
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole 100

Azimuth 0 deg 360



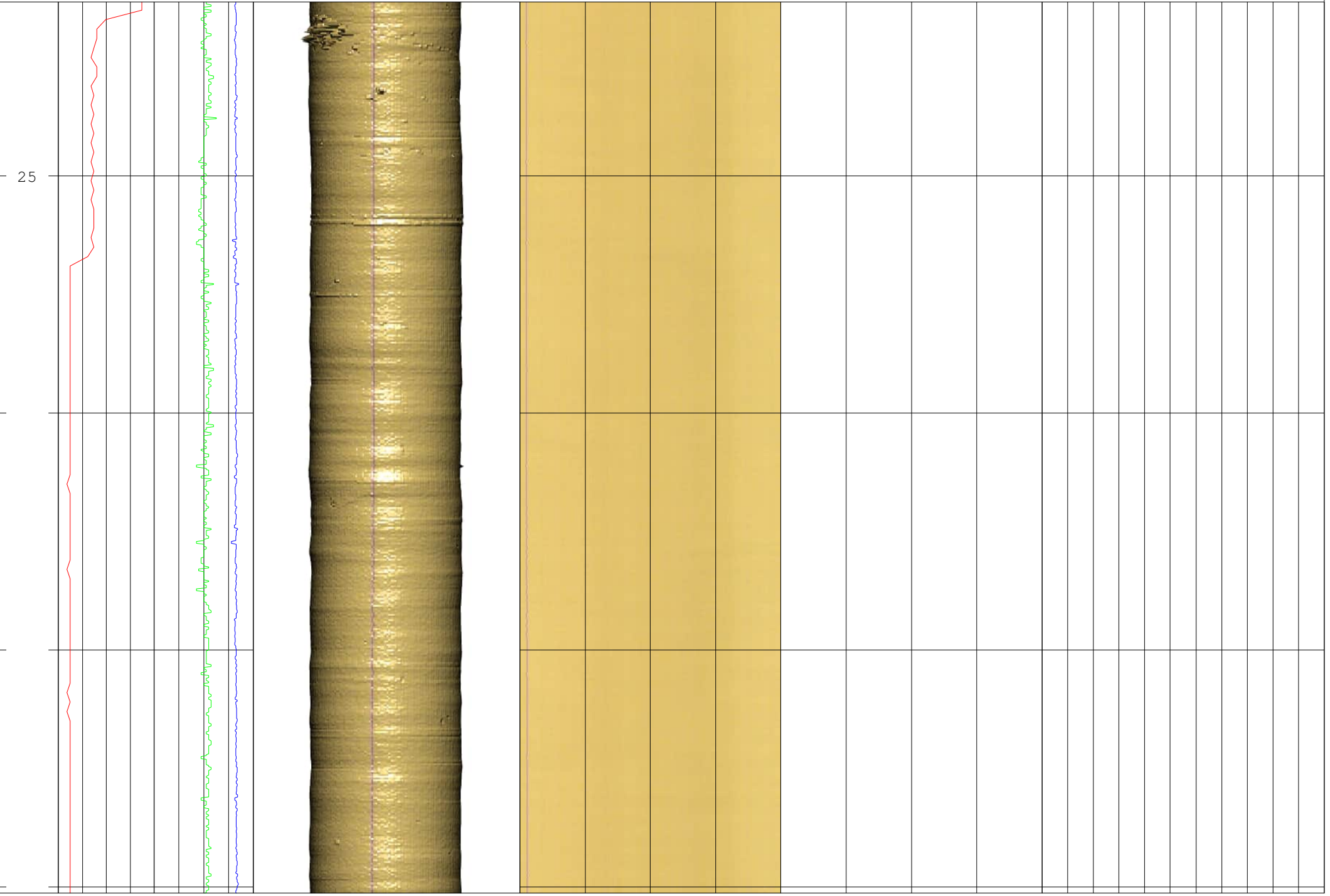
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360



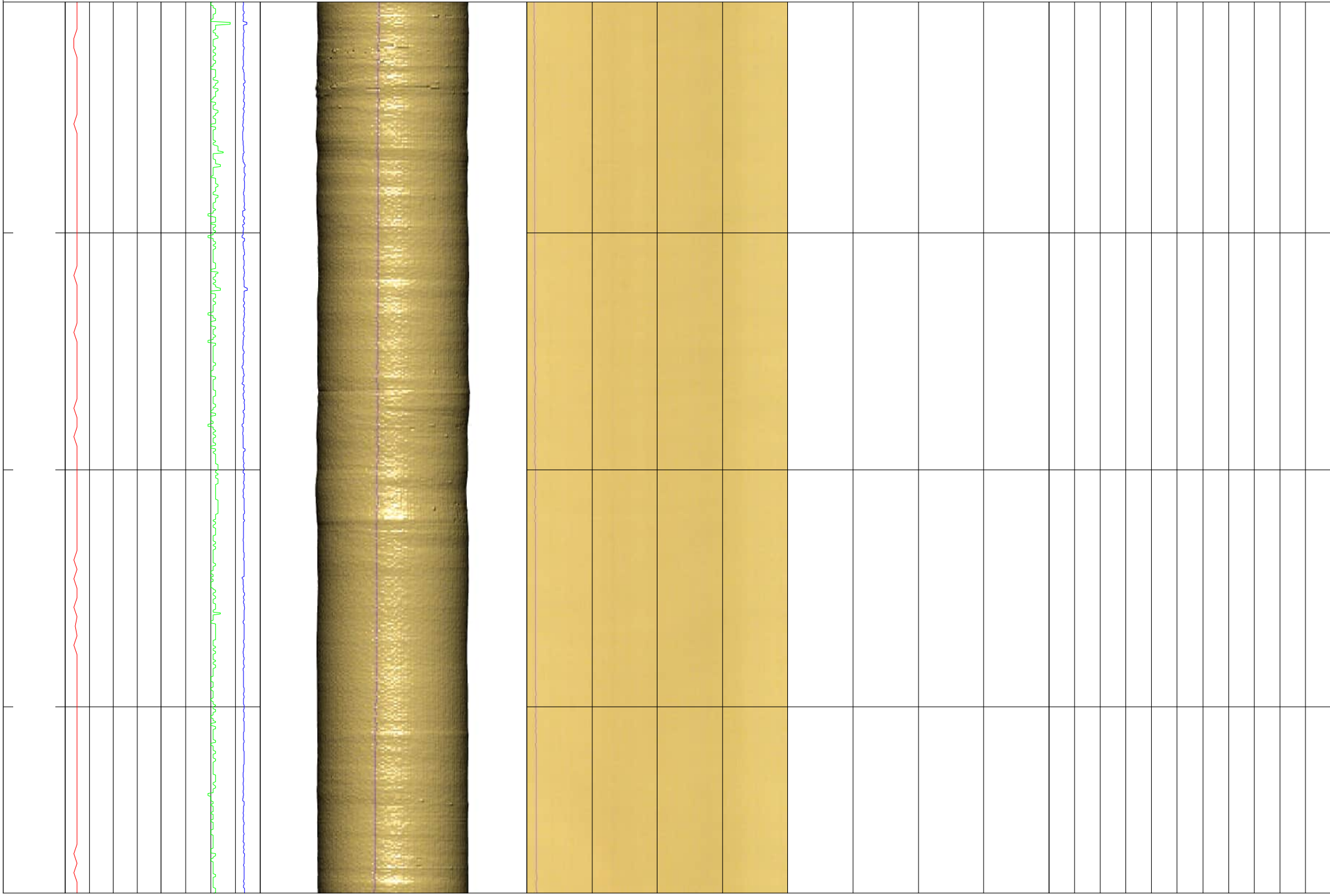
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360



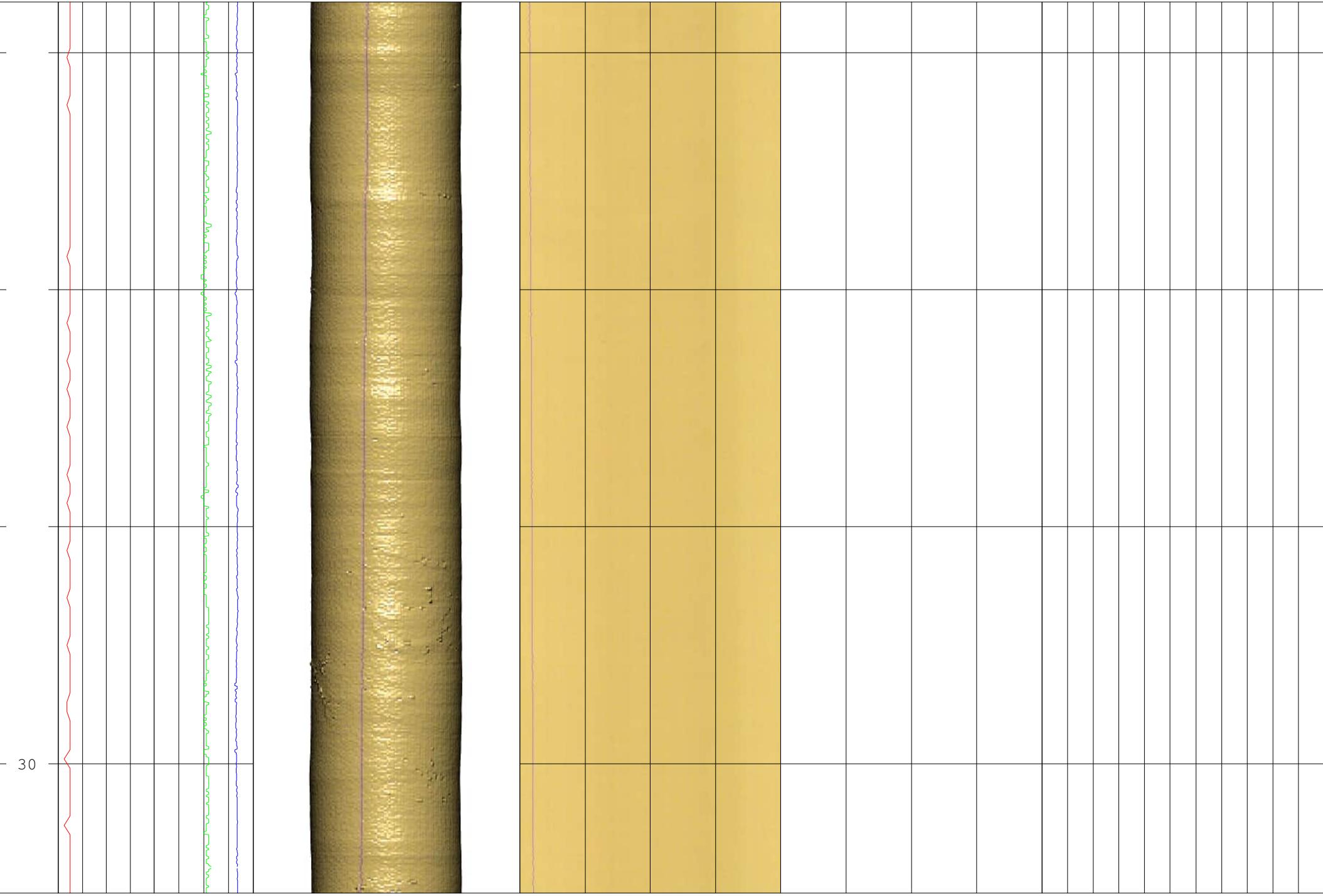
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360

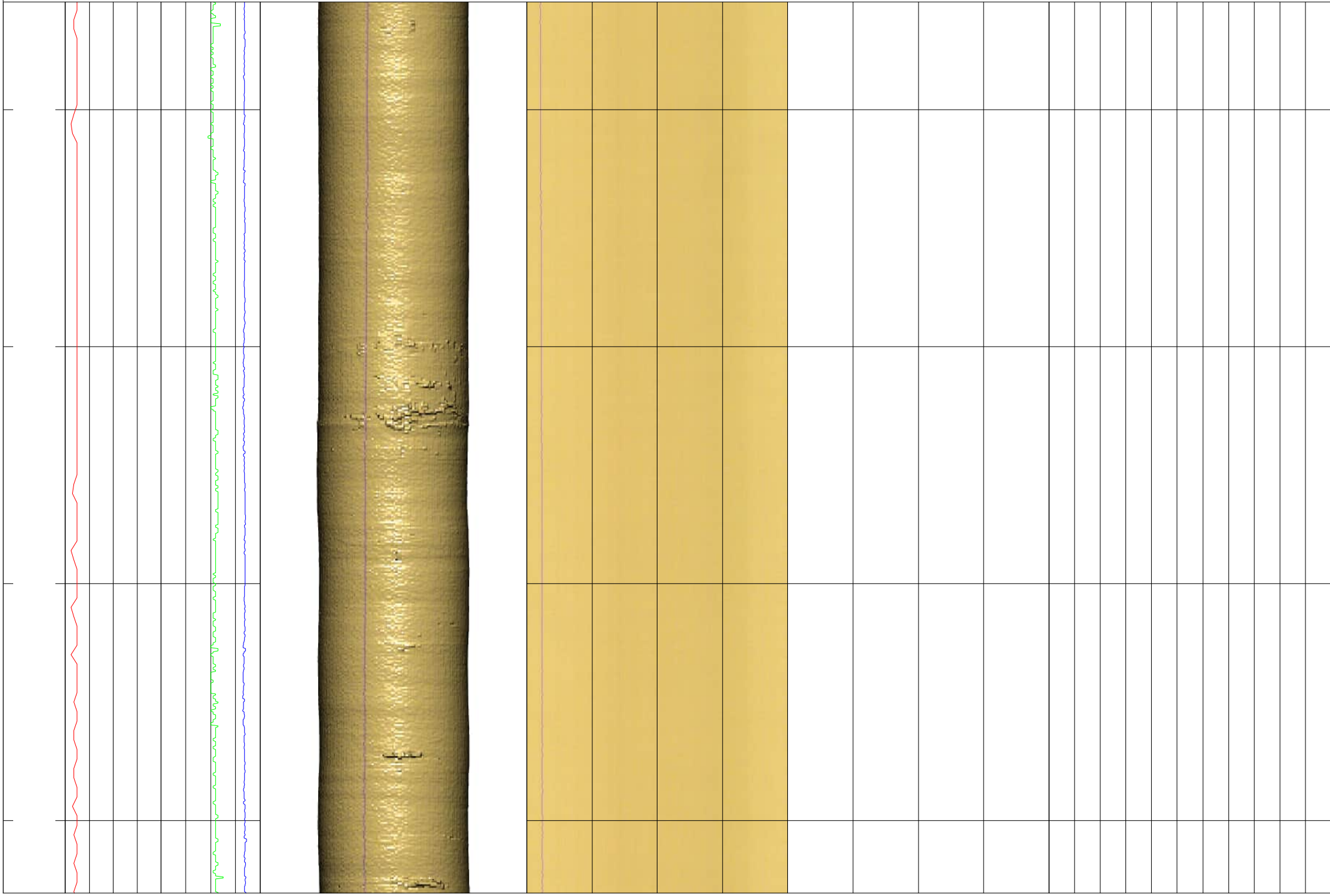


Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100

Azimuth 0 deg 360



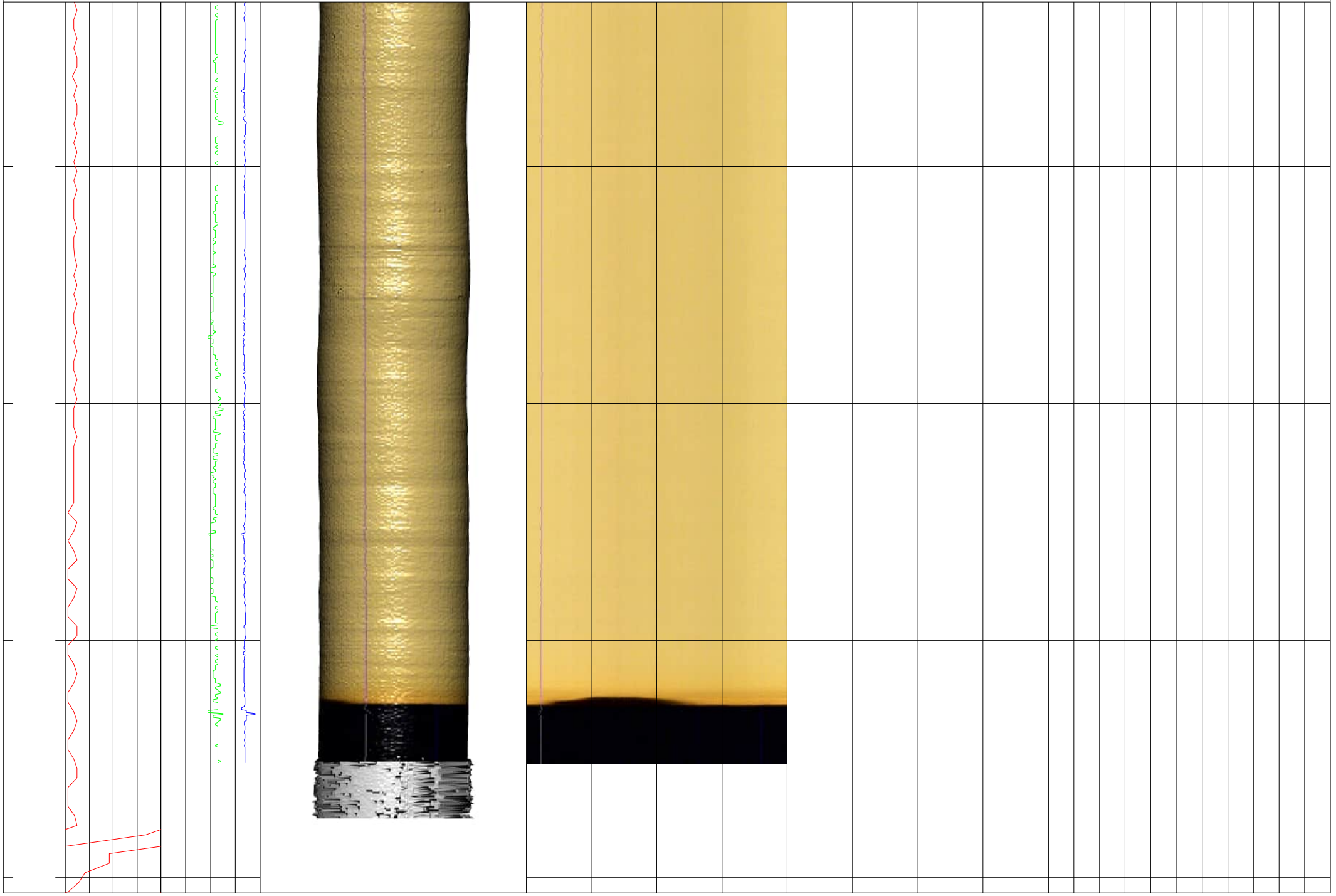
Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log 0°    OBI 0° 90° 180° 270°    Structure 0° 0° 90° 180° 270°    Tadpole 0° -10    100  
 Azimuth 0 deg 360





Depth 1m:10m    Caliper 15 CM 16 0    Tilt 0 deg 4    3D Log    OBI 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole 100

Azimuth 0 deg 360







# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Log Type:

Optical Televiewer Log

Borehole: BH7

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy      Grid Reference:      Elevation:

Drilled Depth: 8.0m      Date: 04/03/2010

Logged Depth: 7.88m      Recorded By: [Redacted]

Logging Datum: Ground Level

Remarks:

Logged Interval: North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

Fluid Level:

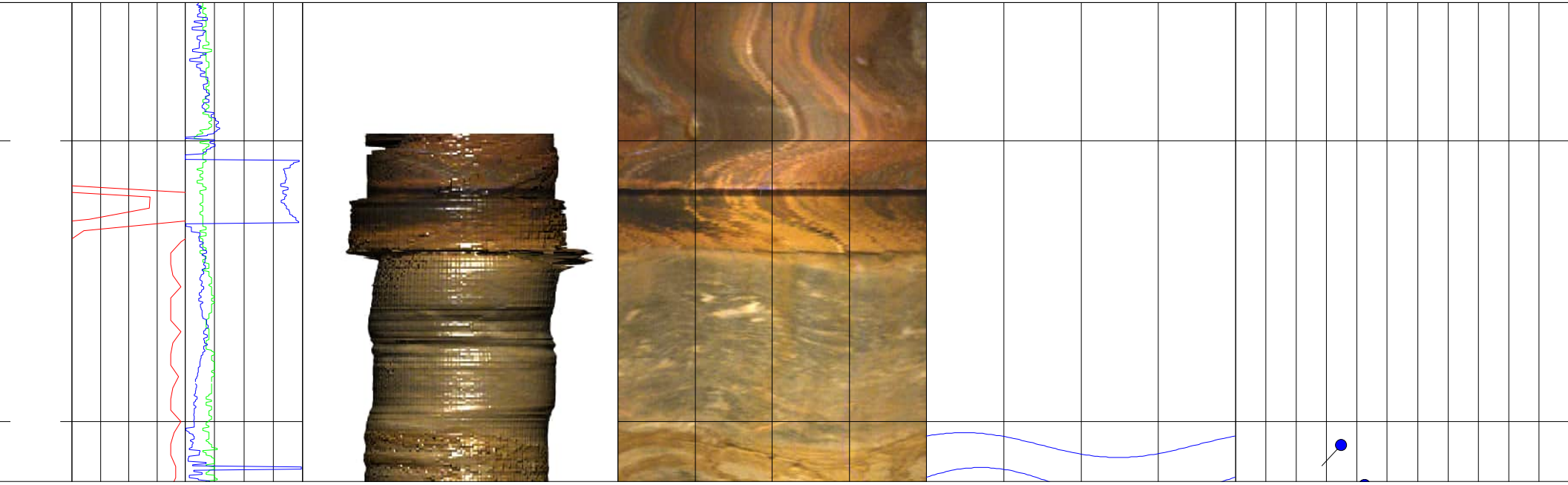
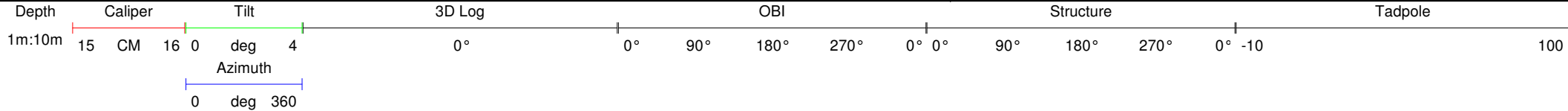
Structure Key: — Foliation — Fracture — Vein

## BOREHOLE RECORD

## CASING RECORD

| Bit Diameter: | From: | To:  |
|---------------|-------|------|
| 150mm         | 0m    | 1.7m |
| 120mm         | 1.7m  | 8.0m |

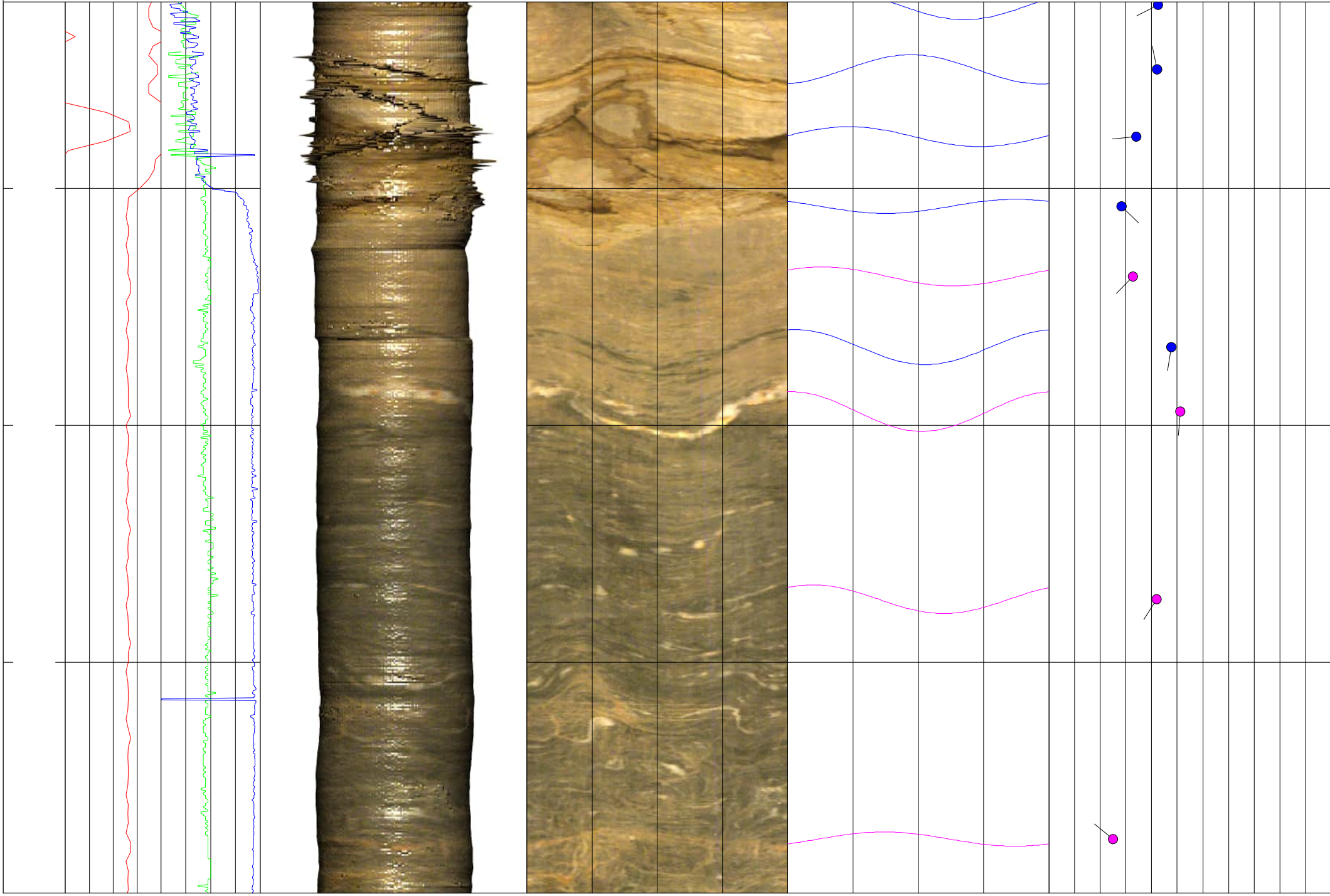
| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 1.7m |



Depth 1m:10m Caliper 15 CM 16 0 Tilt 0 deg 4 Structure Tadpole

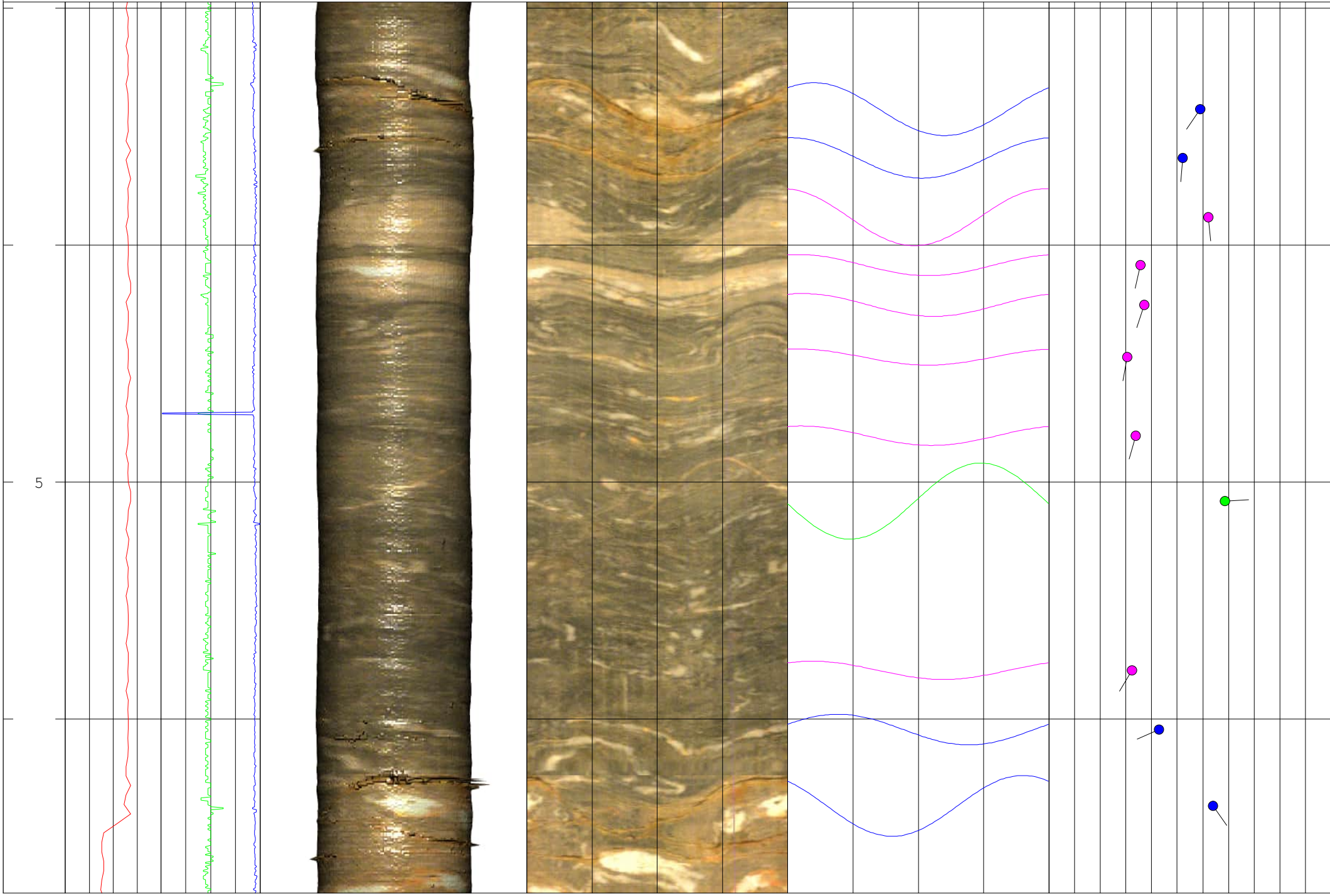
0° 90° 180° 270° 0° 0° 90° 180° 270° 0° -10 100

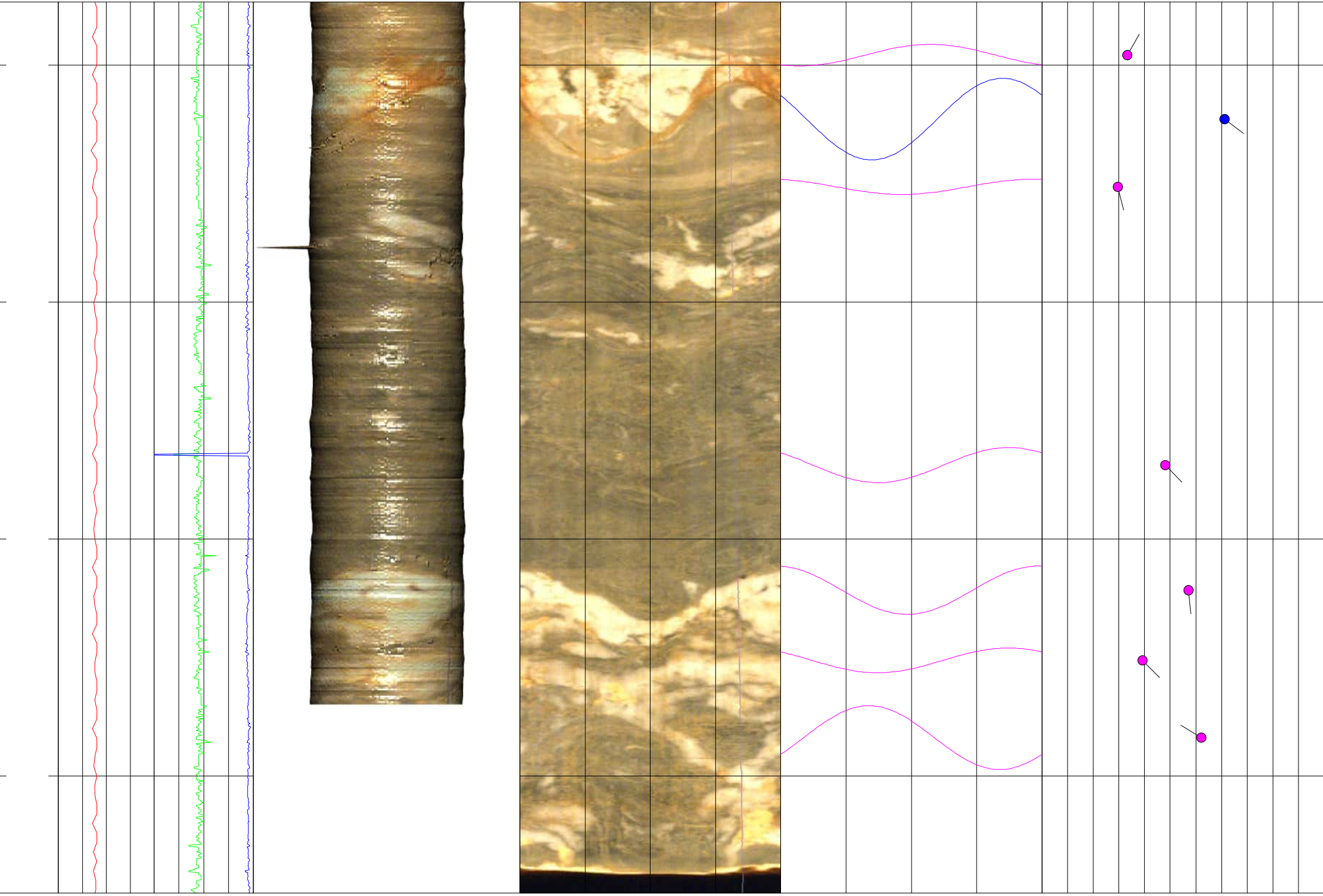
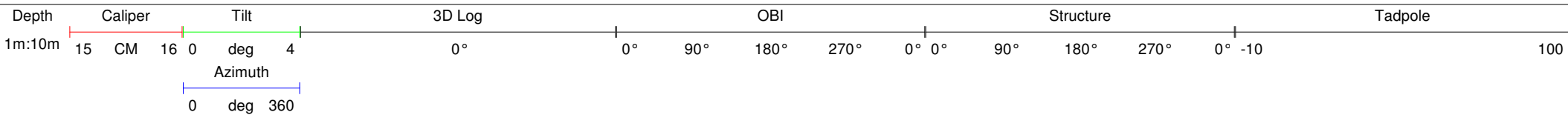
Azimuth 0 deg 360

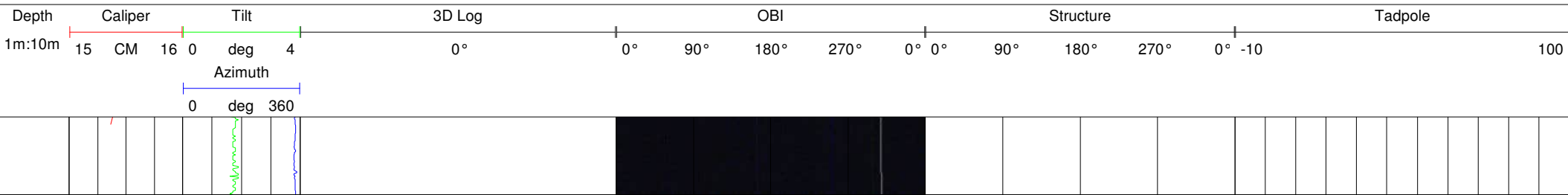


Depth 1m:10m Caliper 15 CM 16 0 Tilt 0 deg 4 3D Log 0° 0° 90° 180° 270° 0° 0° 90° 180° 270° 0° -10 Tadpole 100

Azimuth  
0 deg 360









# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Borehole: BH12

Log Type:

Optical Televiewer Log

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy Power Station

Grid Reference:

Elevation:

Drilled Depth: 35m

Date: 05/03/2010

Logged Depth: 14.95m

Recorded By: [Redacted]

Logging Datum: Ground Level

Remarks:

Logged Interval:

North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

Fluid Level:

Test stopped at 14.9m due to poor visibility as a result of the water condition

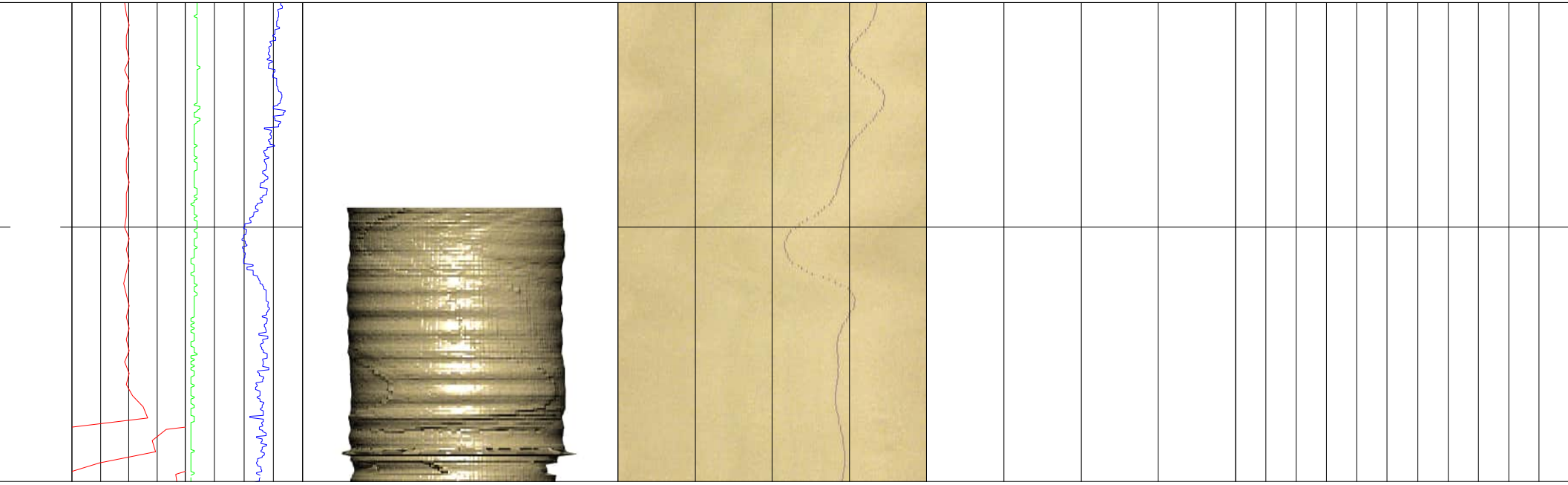
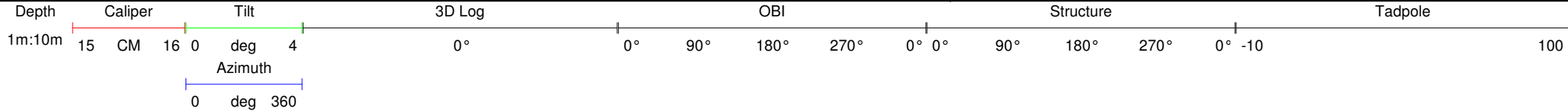
Structure Key: — Foliation — Fracture — Vein

## BOREHOLE RECORD

## CASING RECORD

| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 4.1m  |
| 120mm         | 4.1m  | 35.0m |

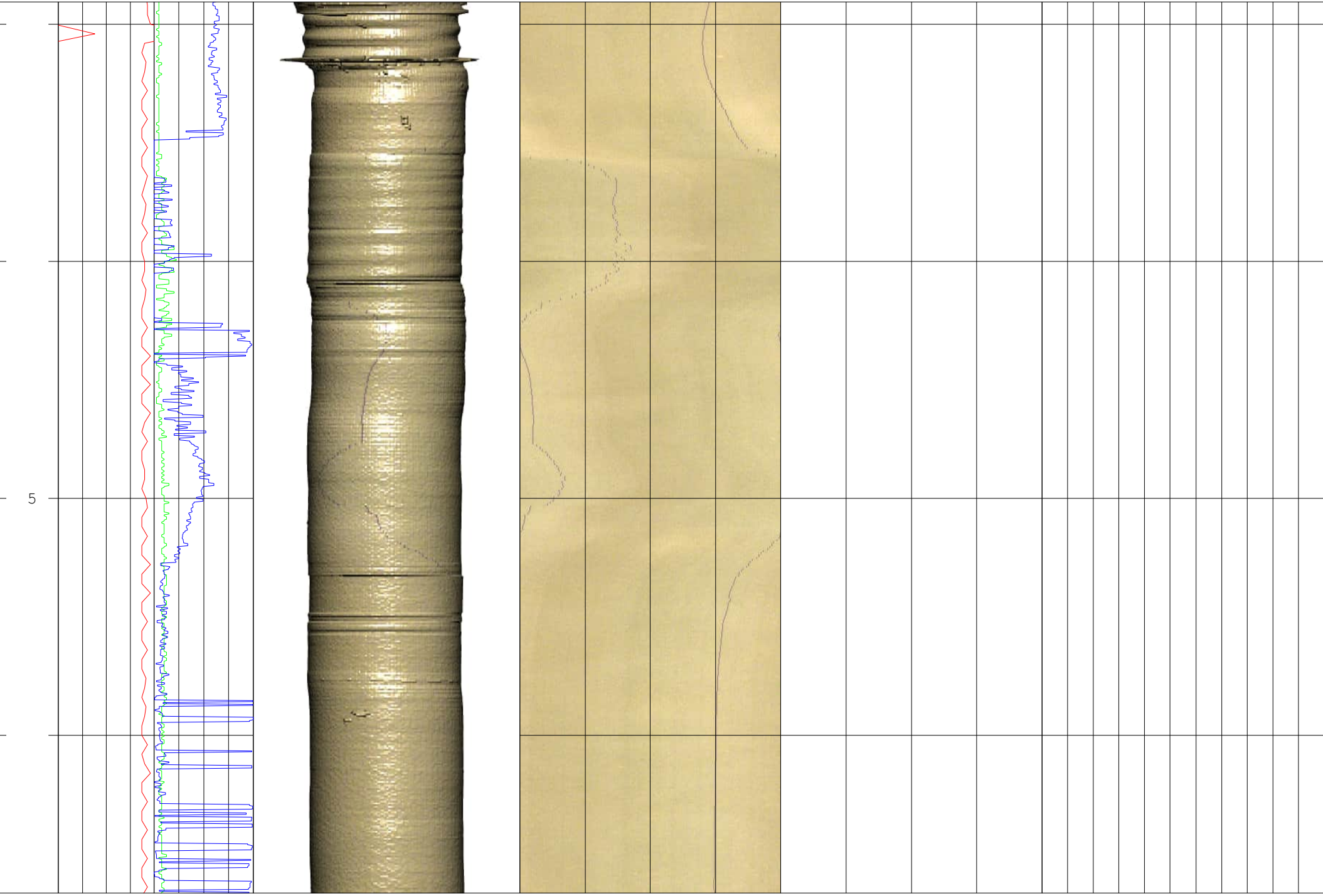
| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 4.1m |





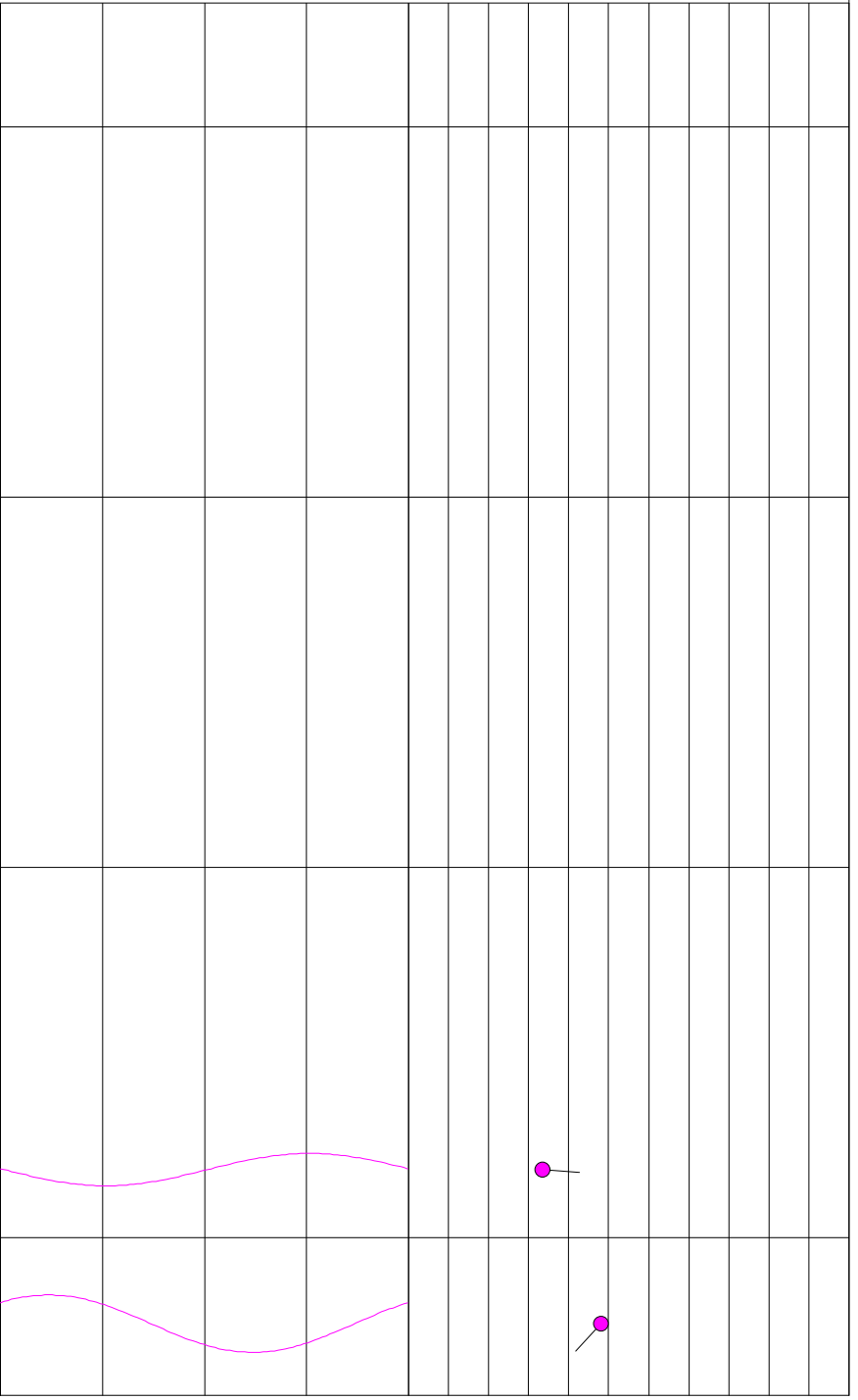
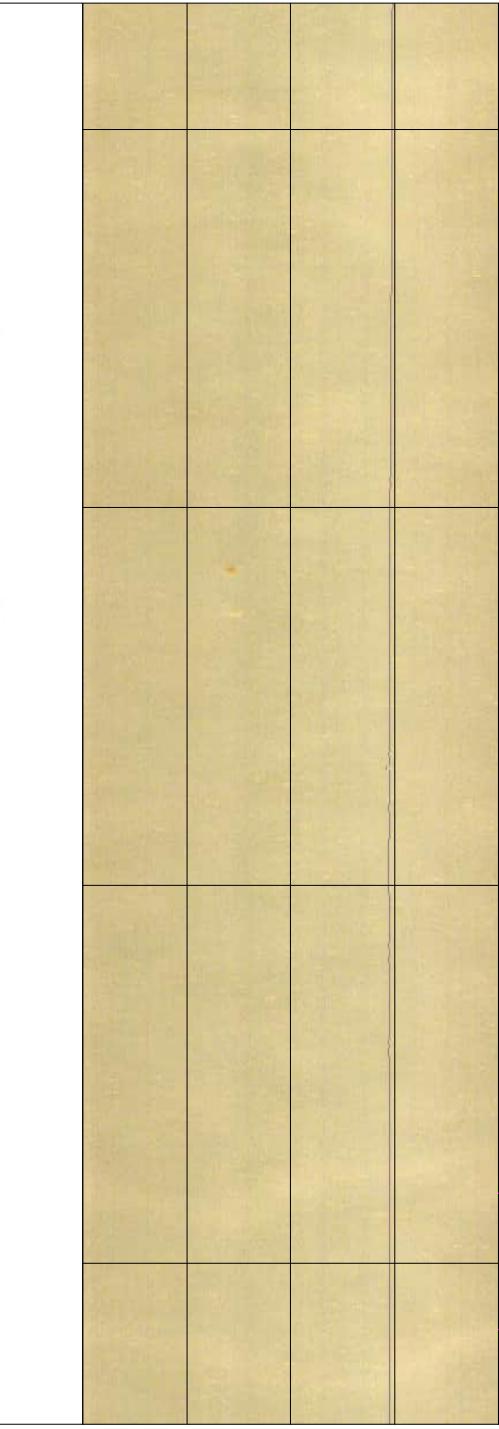
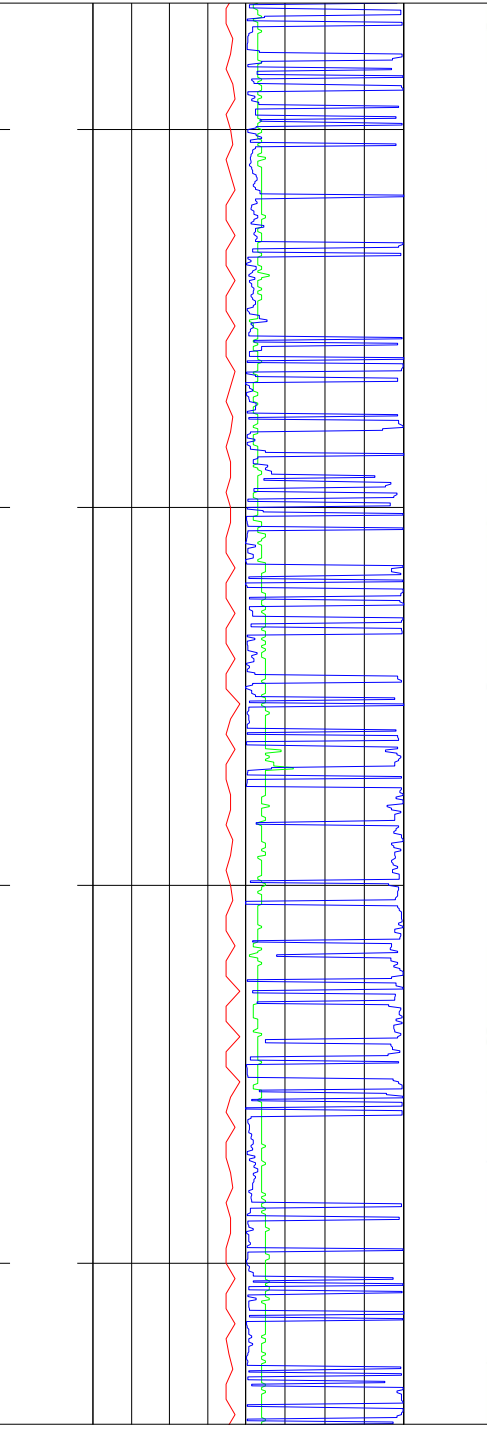
Depth 1m:10m    Caliper 15 CM 16 0    Tilt deg 4    3D Log 0°    OBI 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole 100

Azimuth  
 0 deg 360



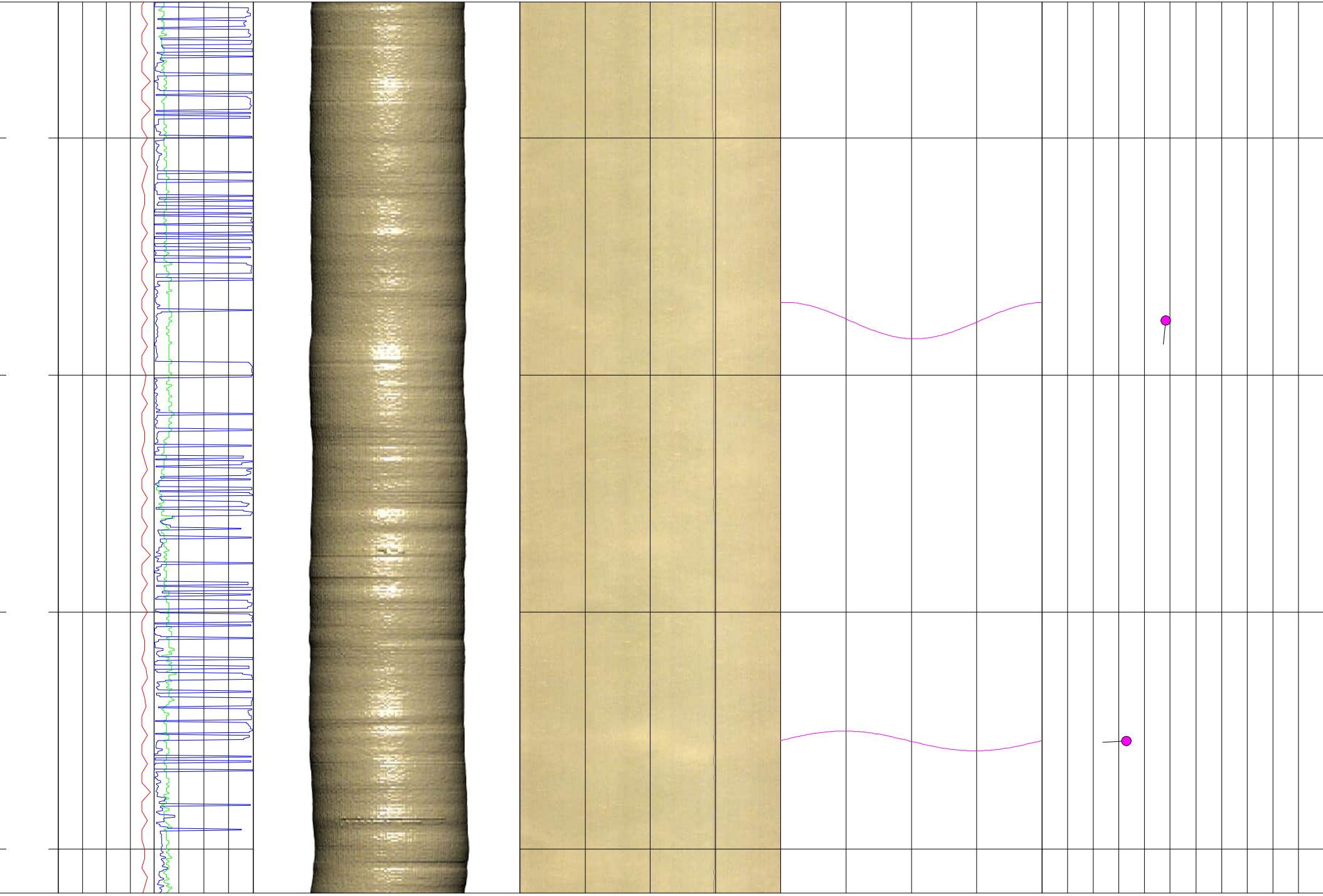
Depth 1m:10m Caliper 15 CM 16 0 Tilt deg 4 3D Log 0° 0° 90° 180° 270° 0° 0° 90° 180° 270° 0° -10 Tadpole 100

Azimuth 0 deg 360



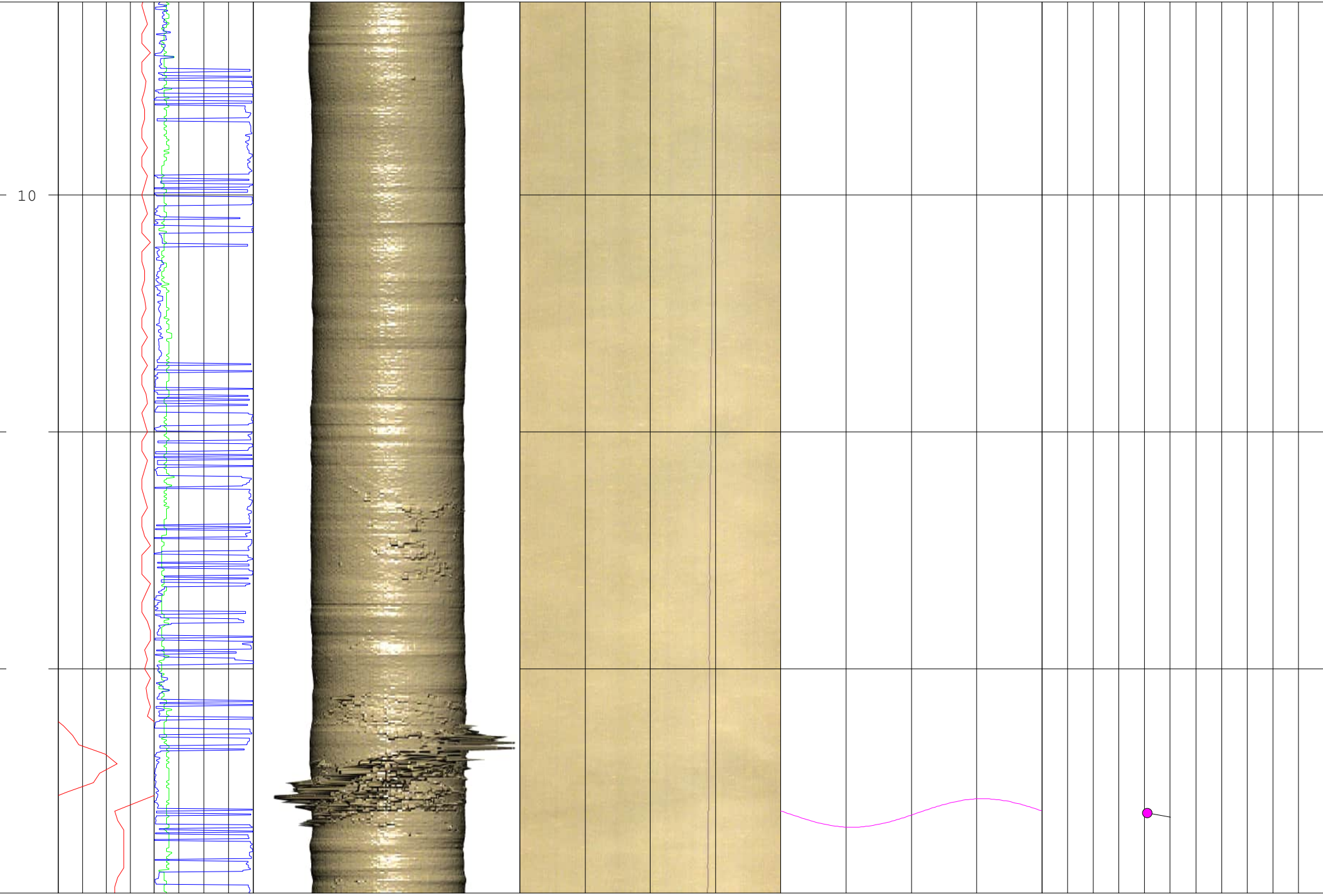
Depth 1m:10m Caliper 15 CM 16 0 Tilt deg 4 3D Log 0° 0° 90° 180° 270° 0° 0° 90° 180° 270° 0° -10 Tadpole 100

Azimuth 0 deg 360



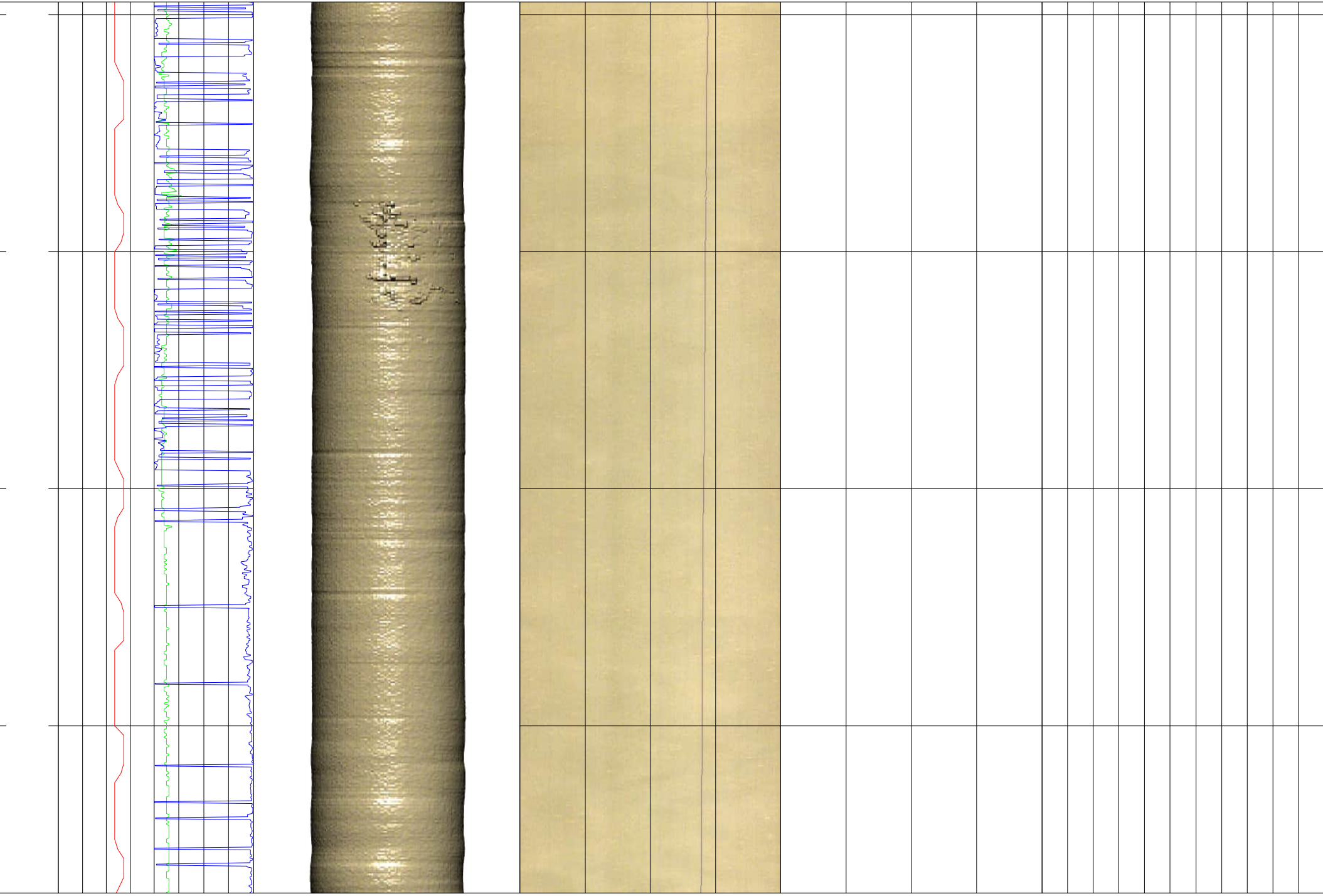
Depth 1m:10m    Caliper 15 CM    Tilt 16 0 deg 4    3D Log    OBI 0° 90° 180° 270°    Structure 0° 90° 180° 270°    Tadpole 0° -10 100

Azimuth 0 deg 360



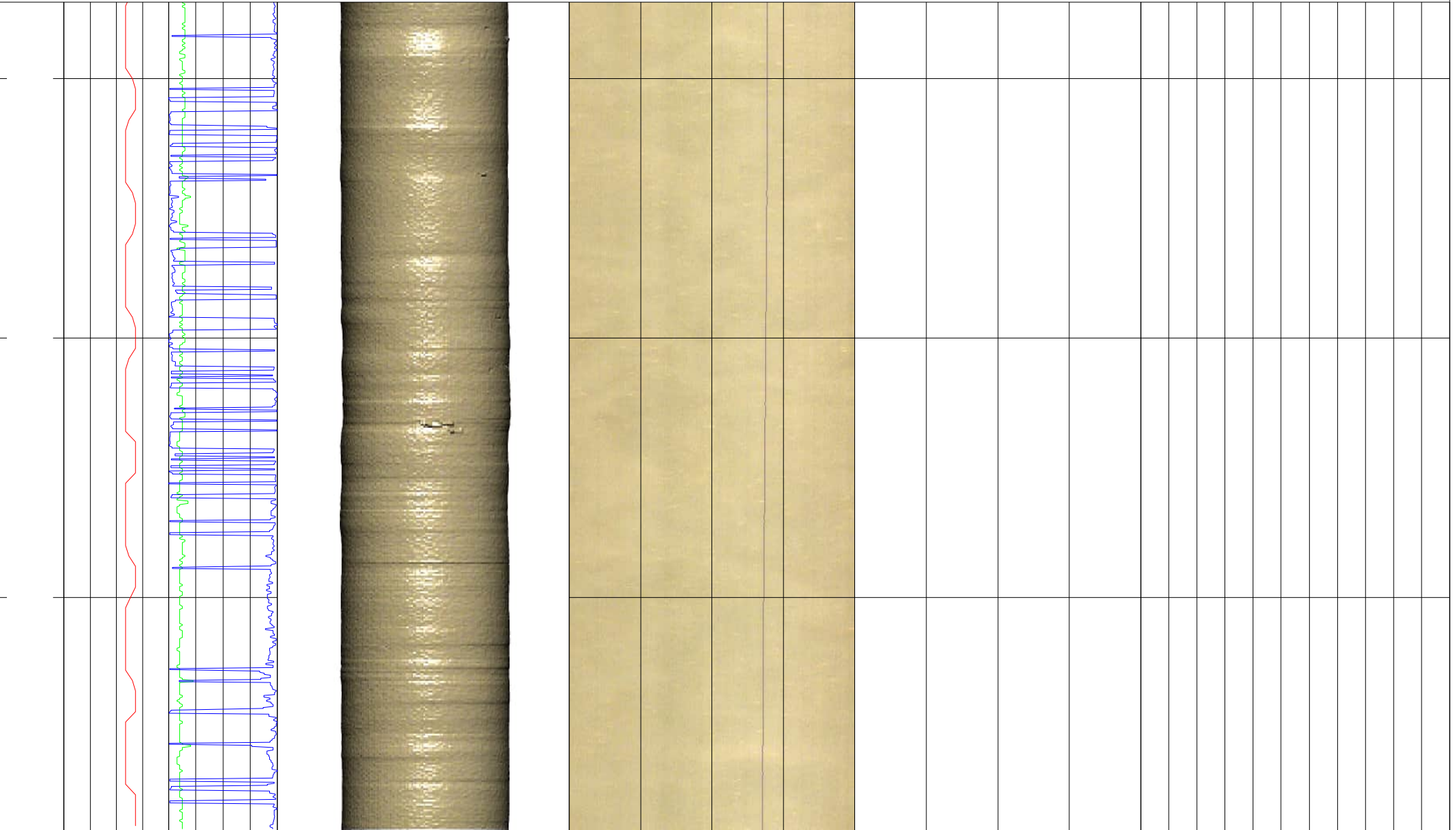
Depth 1m:10m Caliper 15 CM 16 0 Tilt deg 4 3D Log 0° 0° 90° 180° 270° 0° 0° 90° 180° 270° 0° -10 Tadpole 100

Azimuth 0 deg 360



Depth 1m:10m Caliper 15 CM 16 0 Tilt 0 deg 4 Structure OBI 0° 90° 180° 270° 0° 0° 90° 180° 270° 0° -10 Tadpole 100

Azimuth  
0 deg 360





# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Borehole: BH1

Log Type:

Acoustic Televiewer Log

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy                      Grid Reference:                      Elevation:

Drilled Depth: 20.0m                      Date: 04/03/2010

Logged Depth: 19.40m                      Recorded By: [Redacted]

Logging Datum: Ground Level

Remarks:

Logged Interval: North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

Fluid Level:

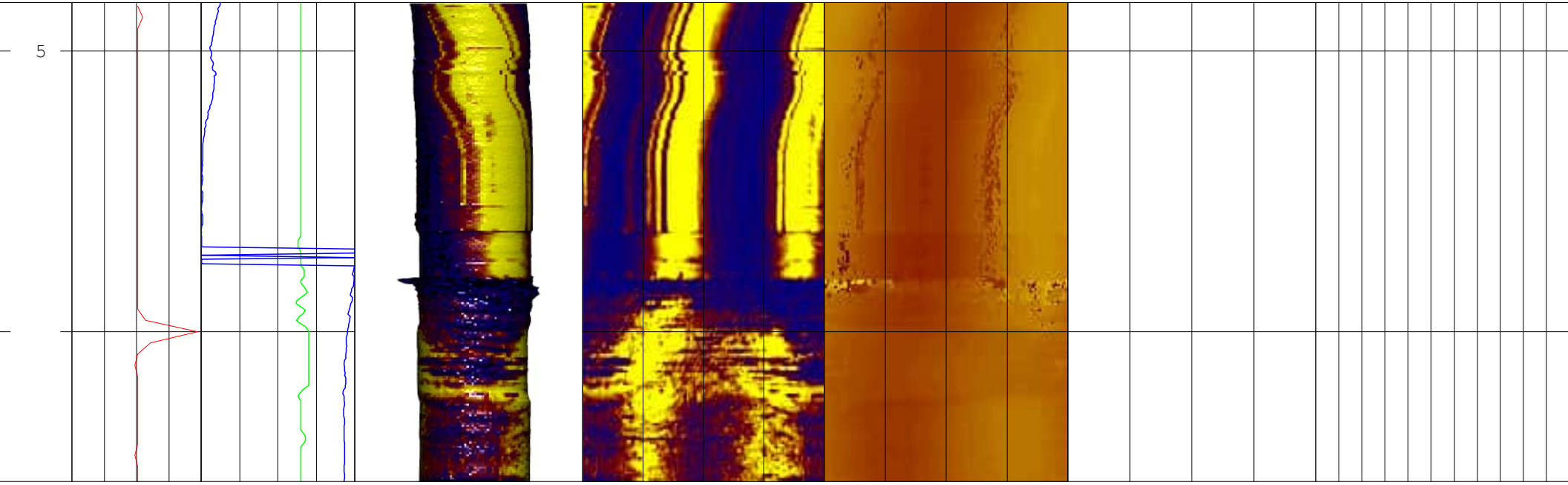
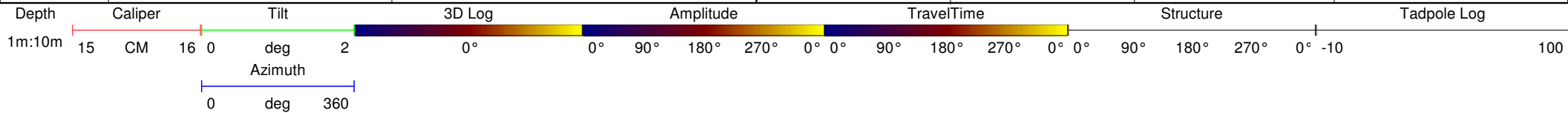
Structure Key: — Foliation    — Fracture    — Vein

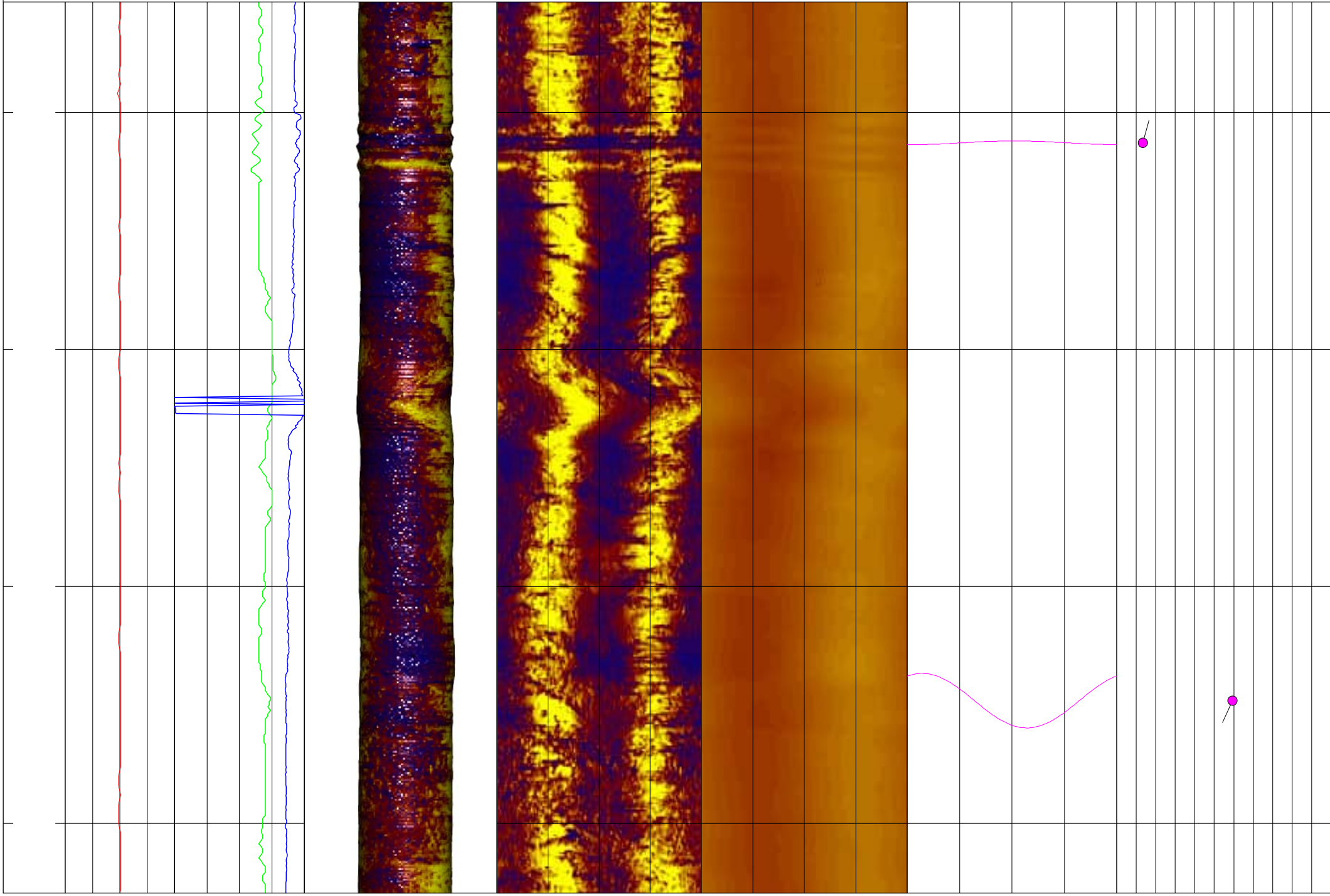
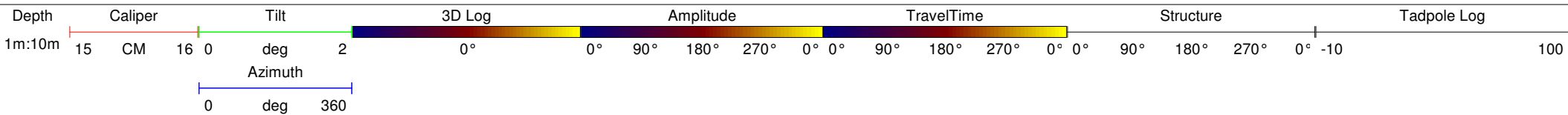
## BOREHOLE RECORD

## CASING RECORD

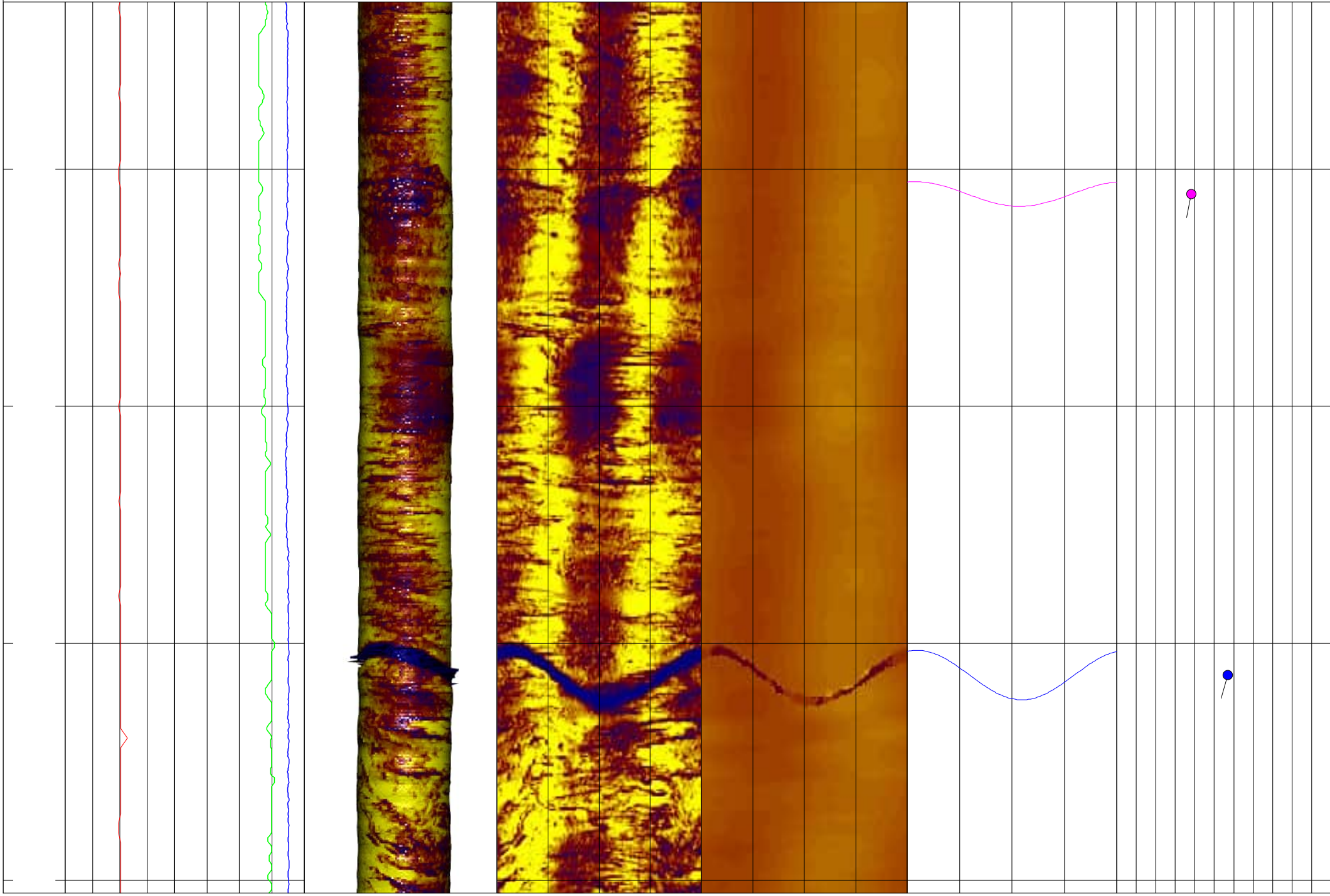
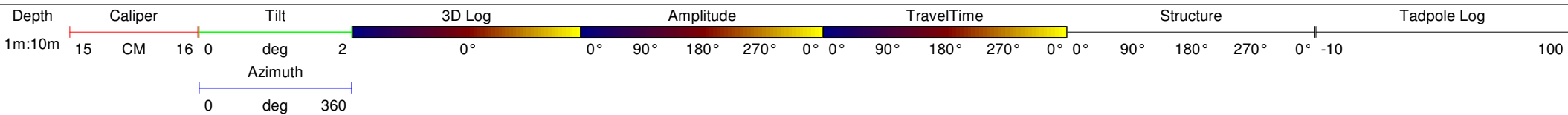
| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 5.5m  |
| 120mm         | 5.5m  | 20.0m |

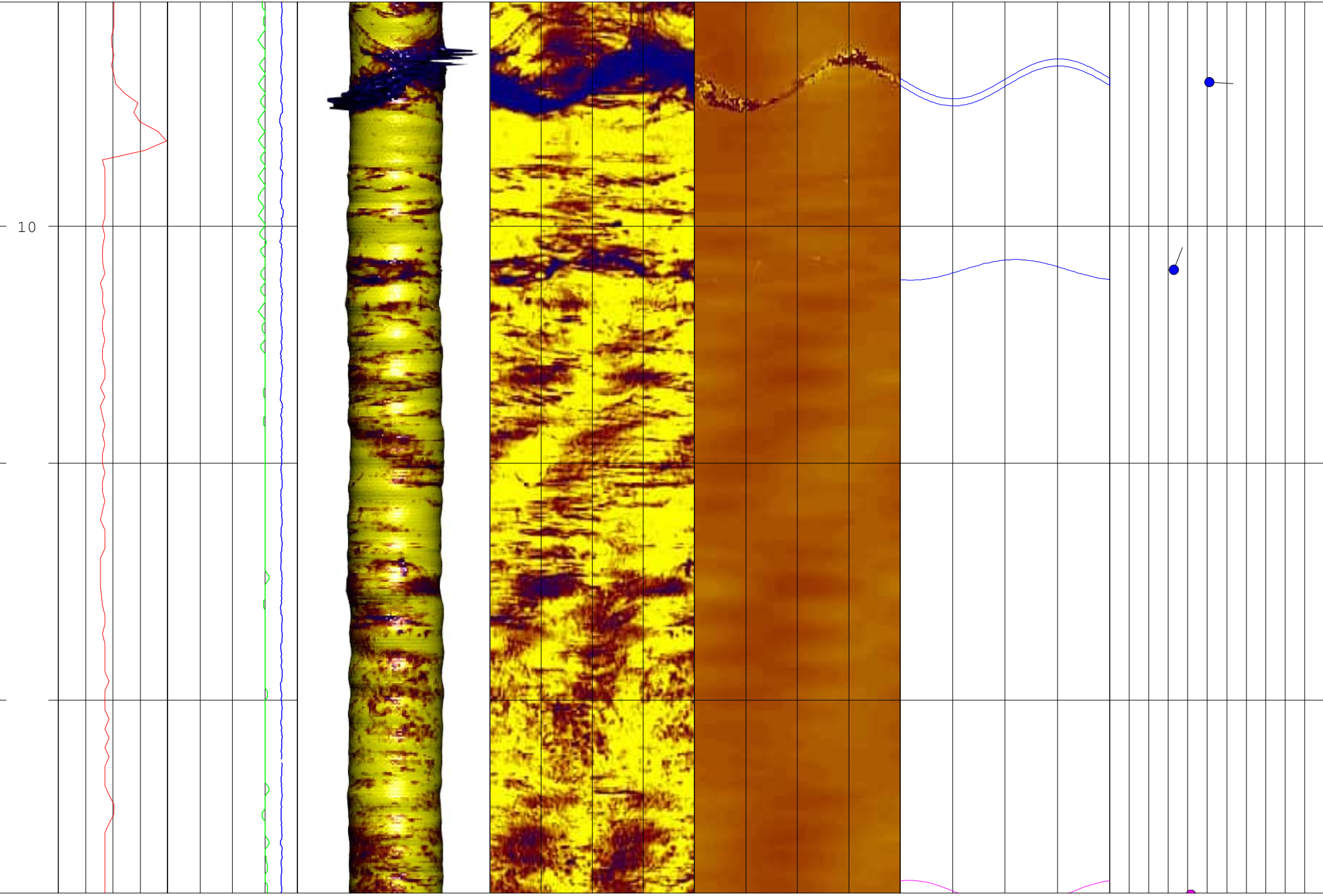
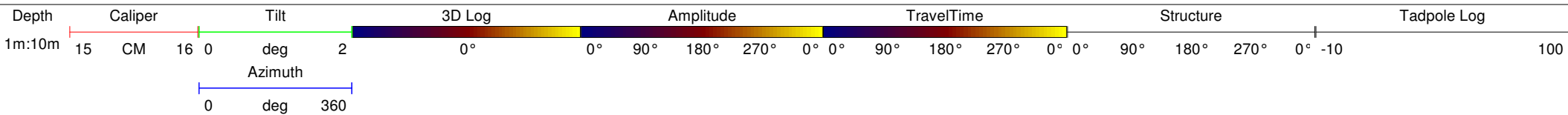
| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0    | 5.5m |

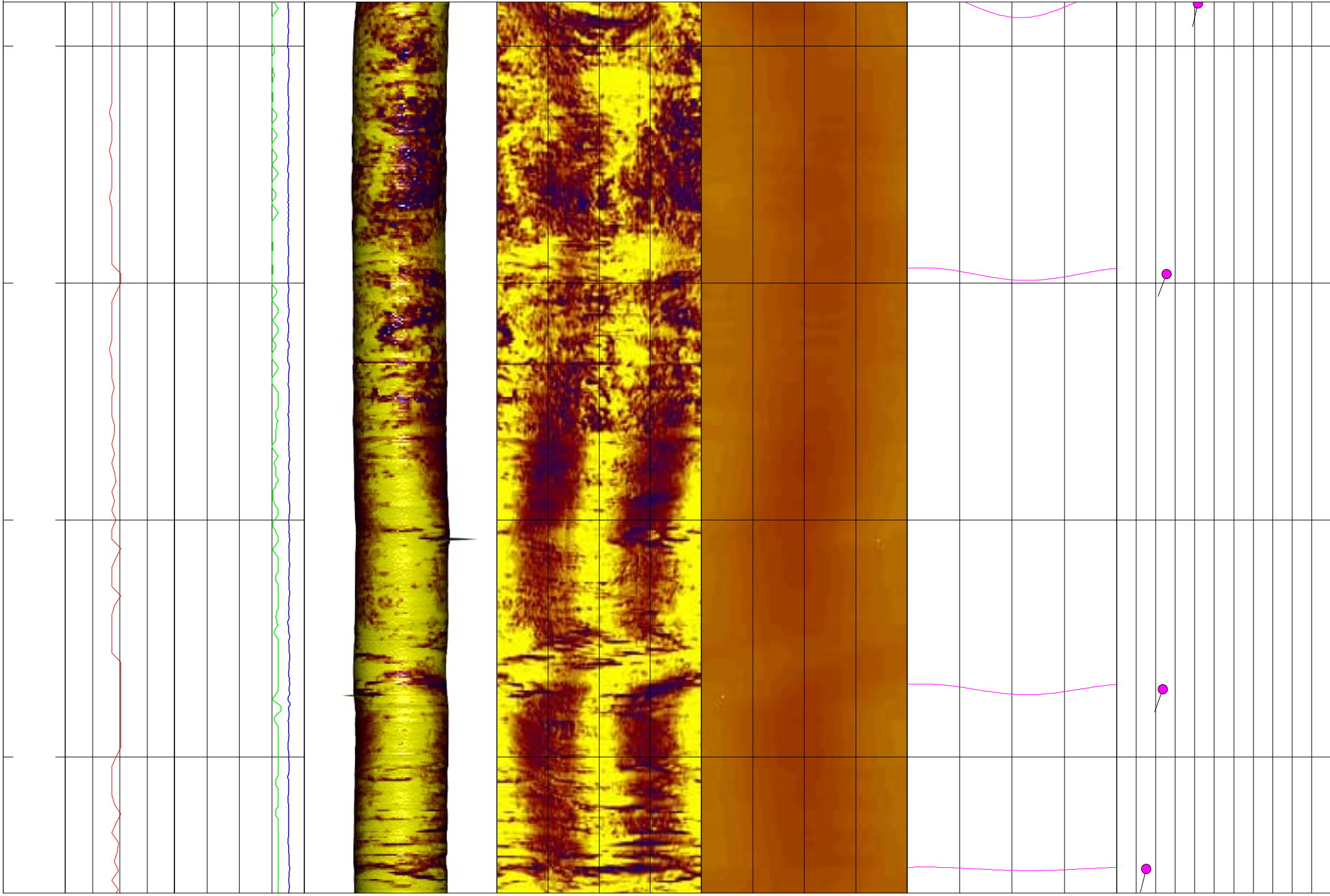
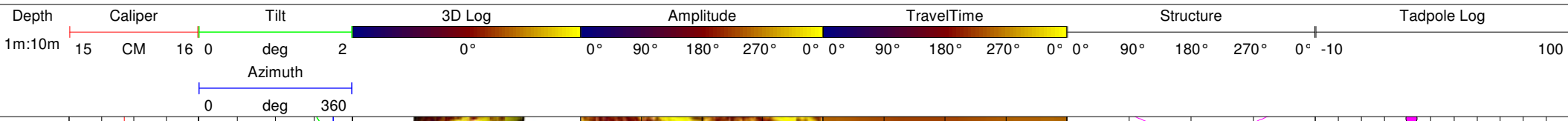


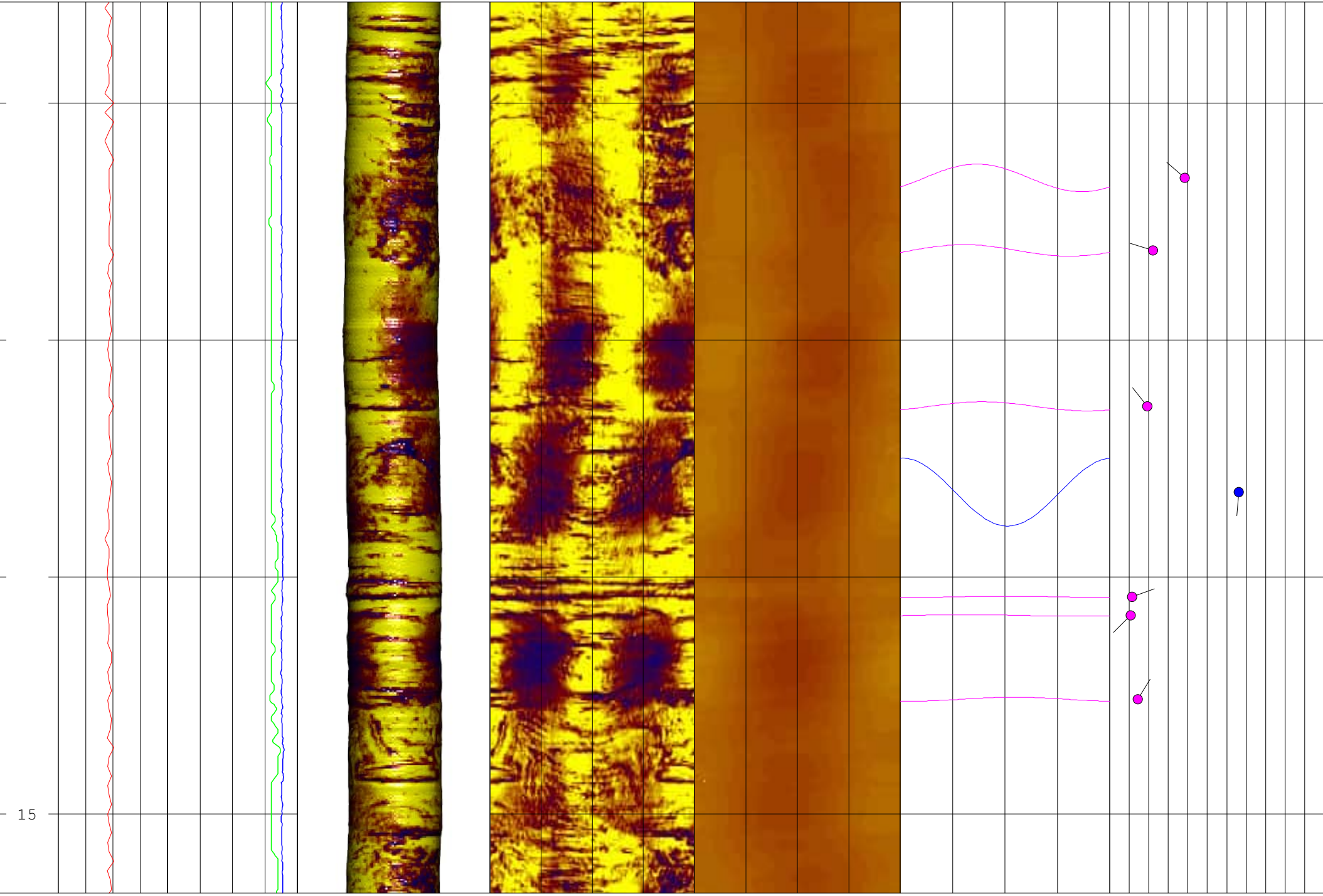
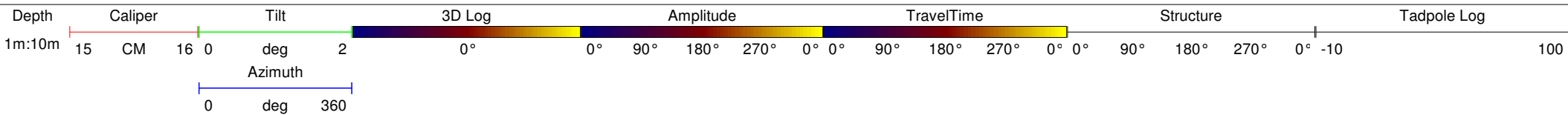




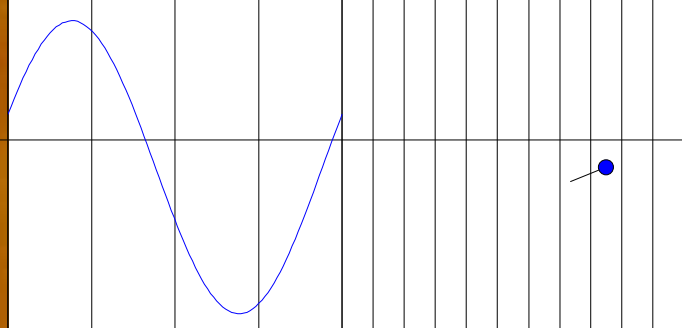
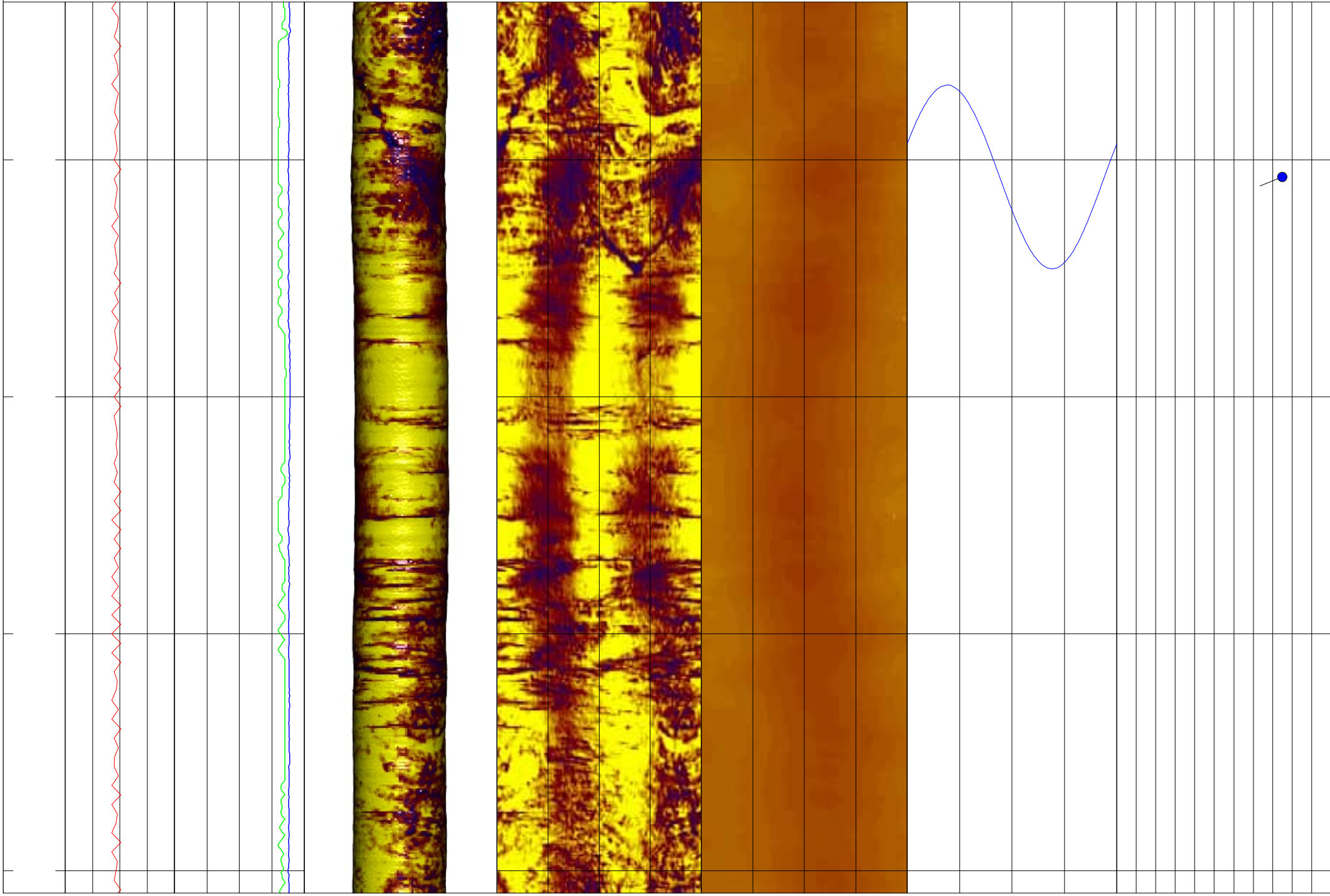
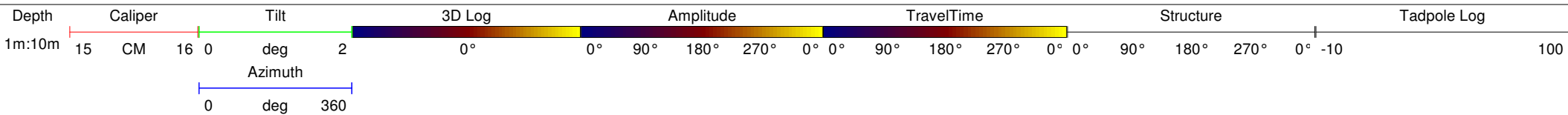


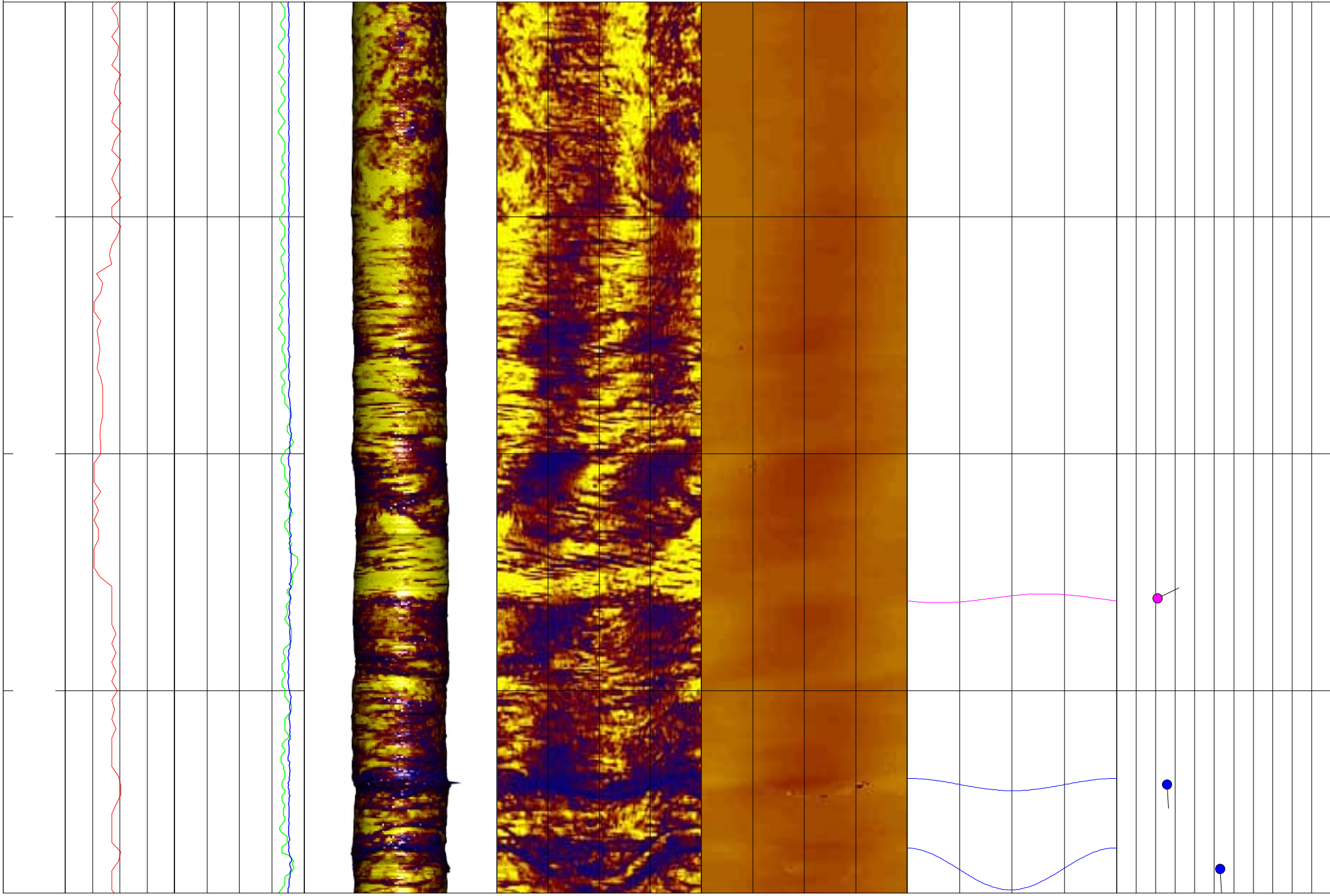
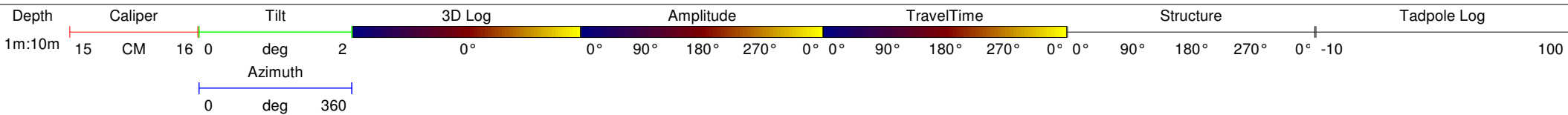


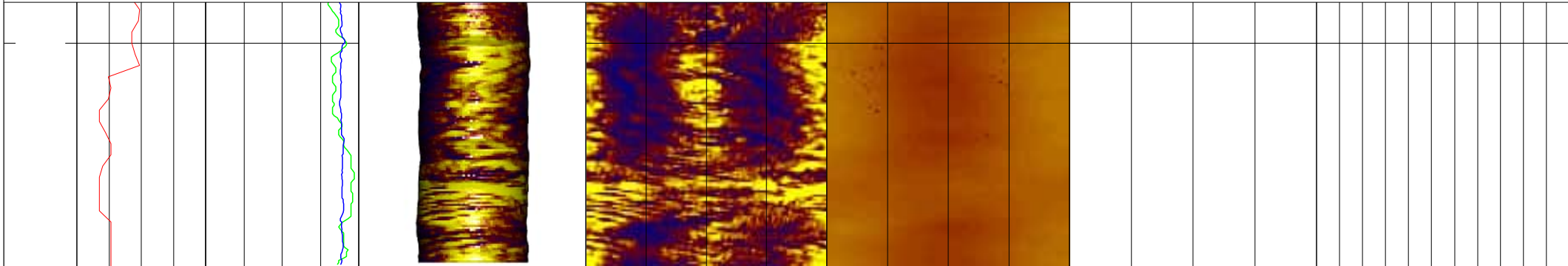
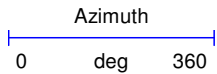
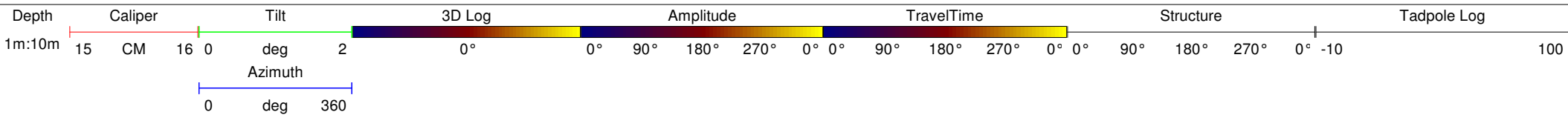




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# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Borehole: BH2

Log Type:

Acoustic Televiewer Log

Project: CON103001 Sloy Power Station

Approved: [REDACTED]

Location: Sloy                      Grid Reference:                      Elevation:

Drilled Depth: 35.0m                      Date: 04/03/2010

Logged Depth: 34.02m                      Recorded By: [REDACTED]

Logging Datum: Ground Level

Remarks:

Logged Interval: North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

Fluid Level:

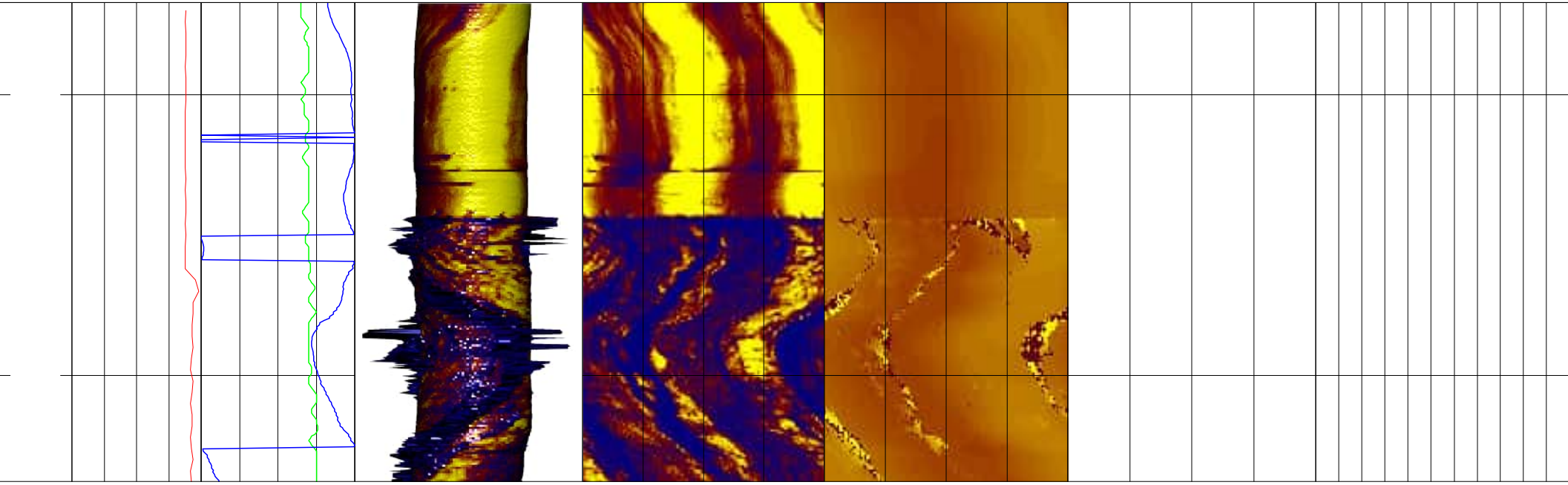
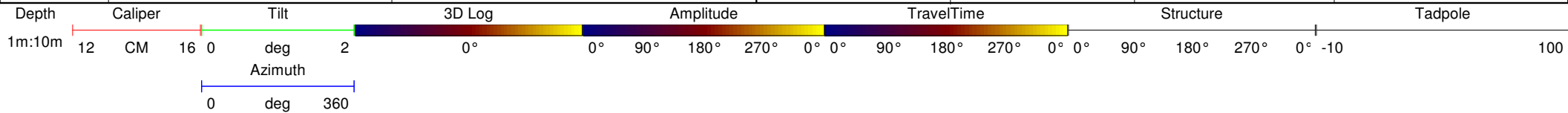
Structure Key: — Foliation    — Fracture    — Vein

## BOREHOLE RECORD

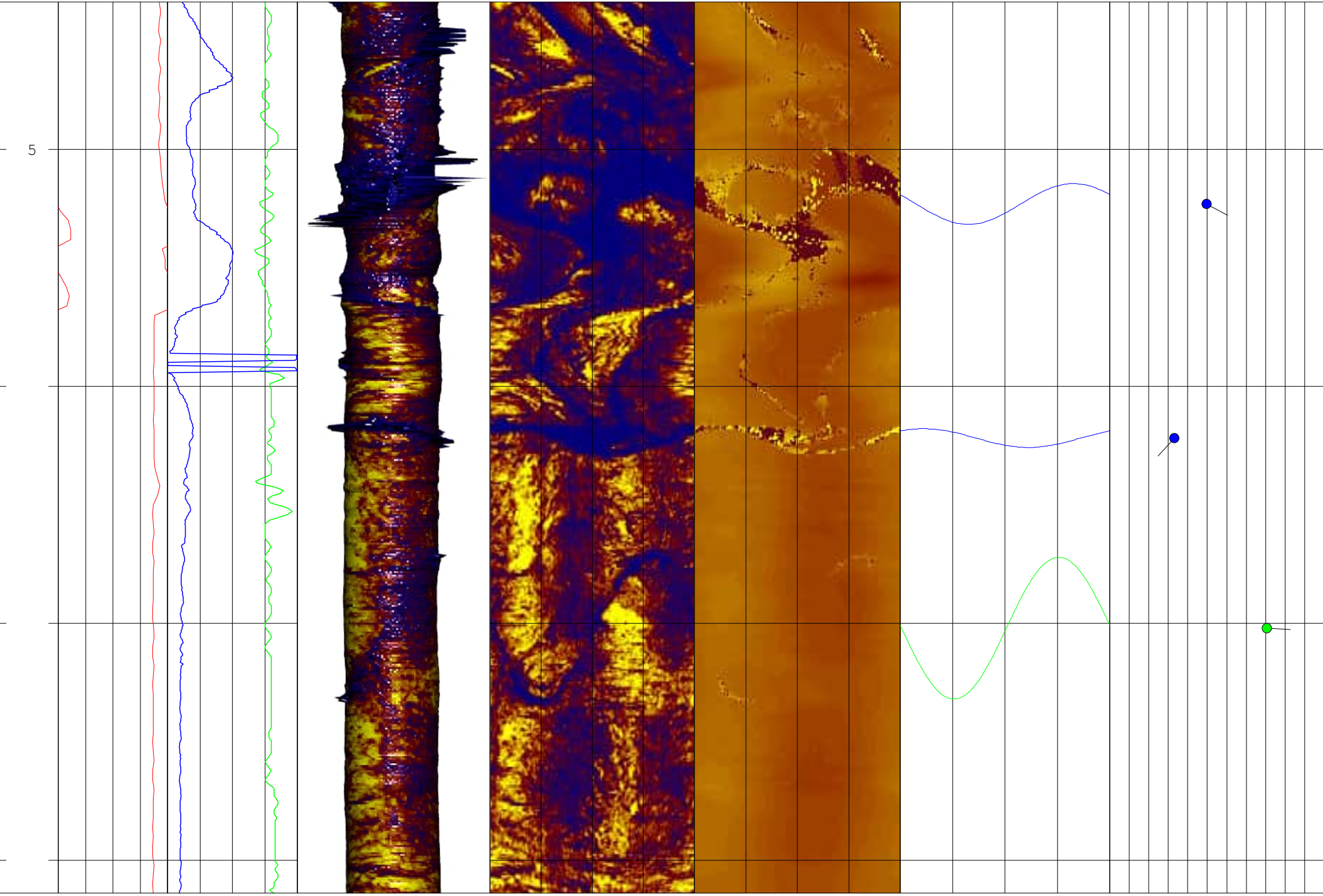
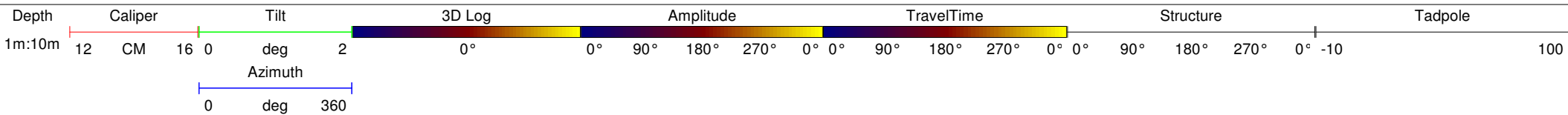
## CASING RECORD

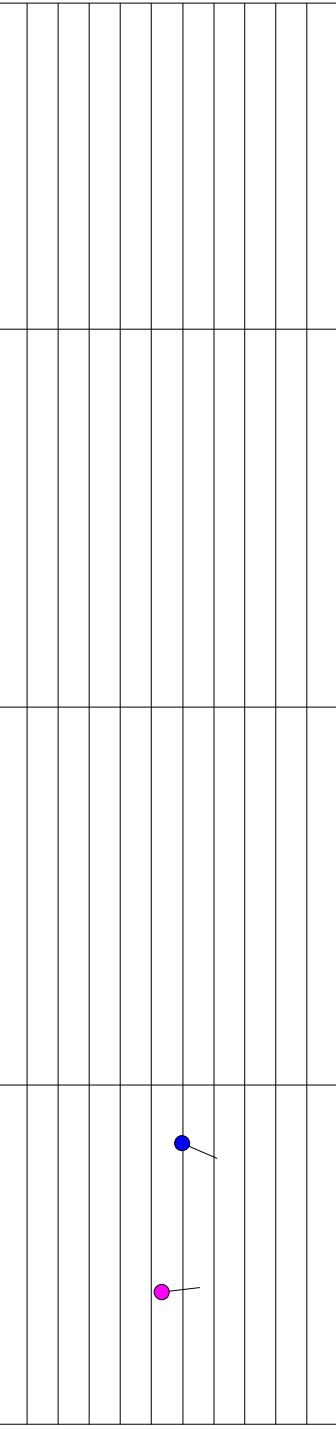
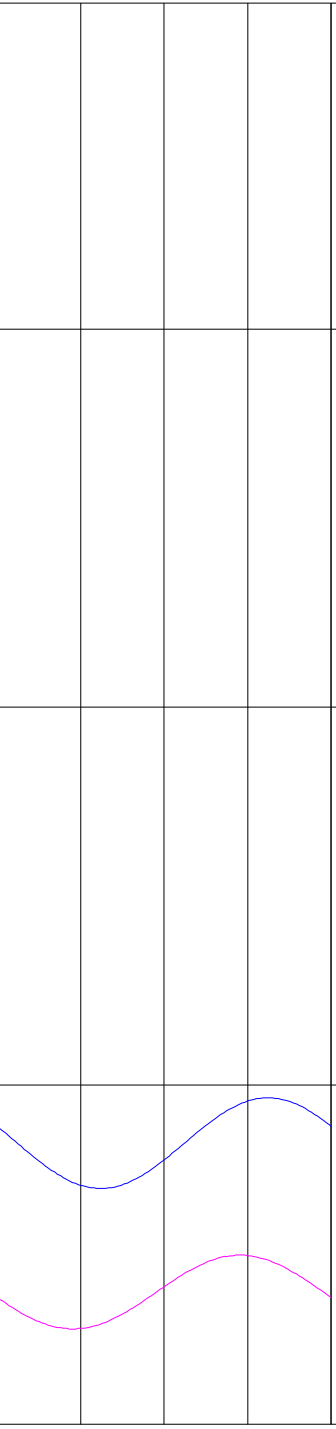
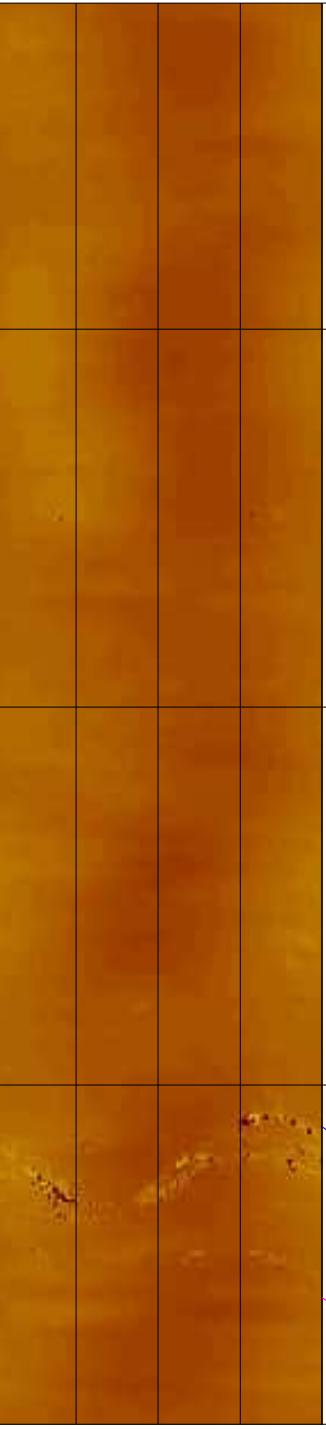
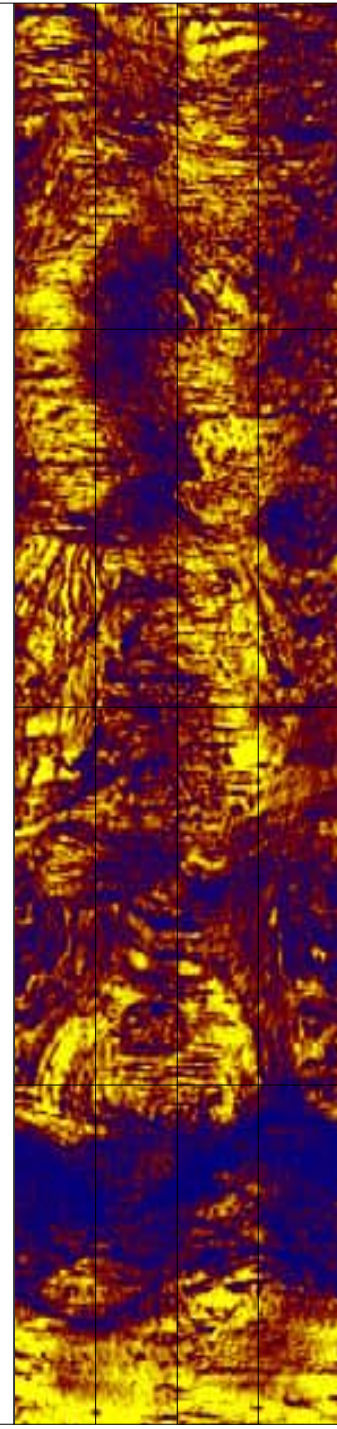
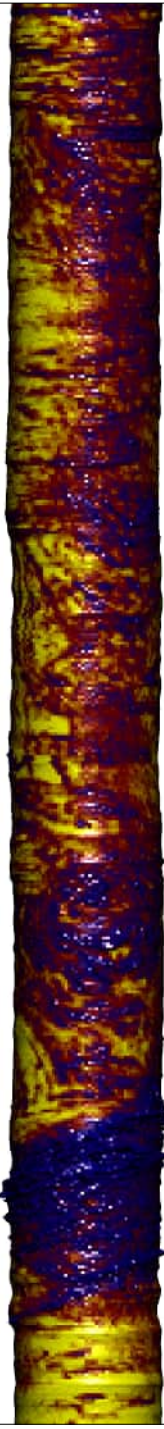
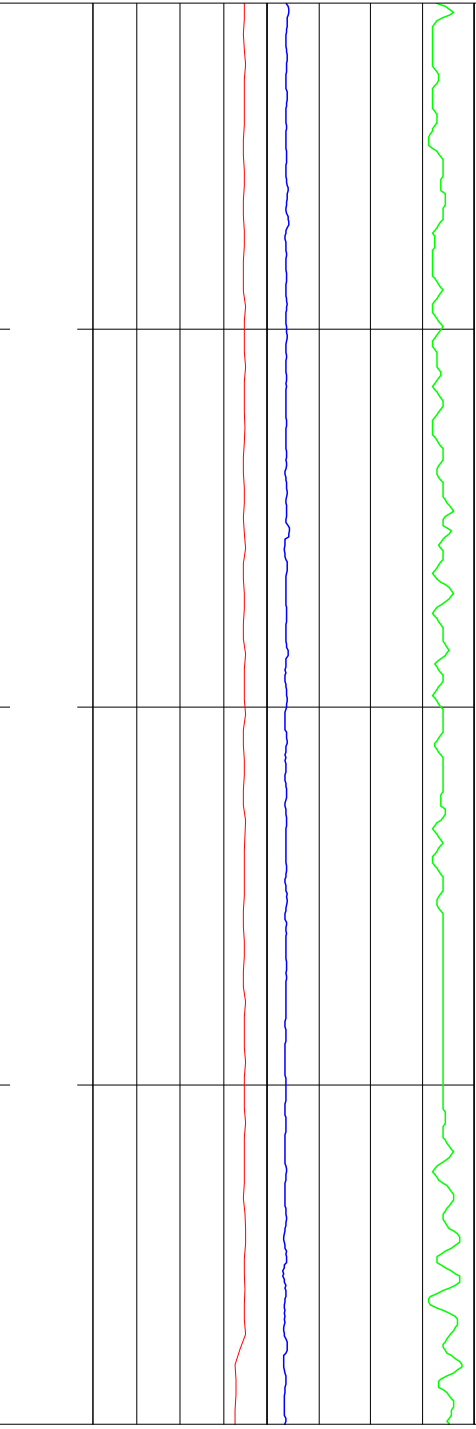
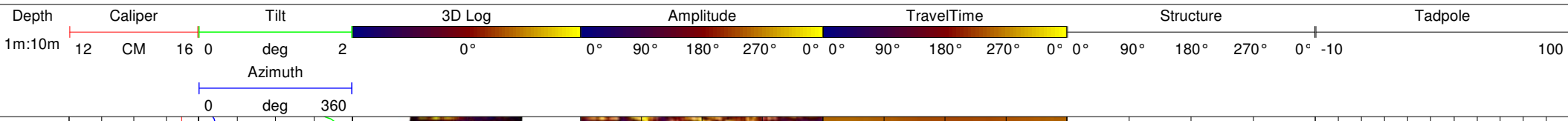
| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 4.2m  |
| 120mm         | 4.2m  | 35.0m |

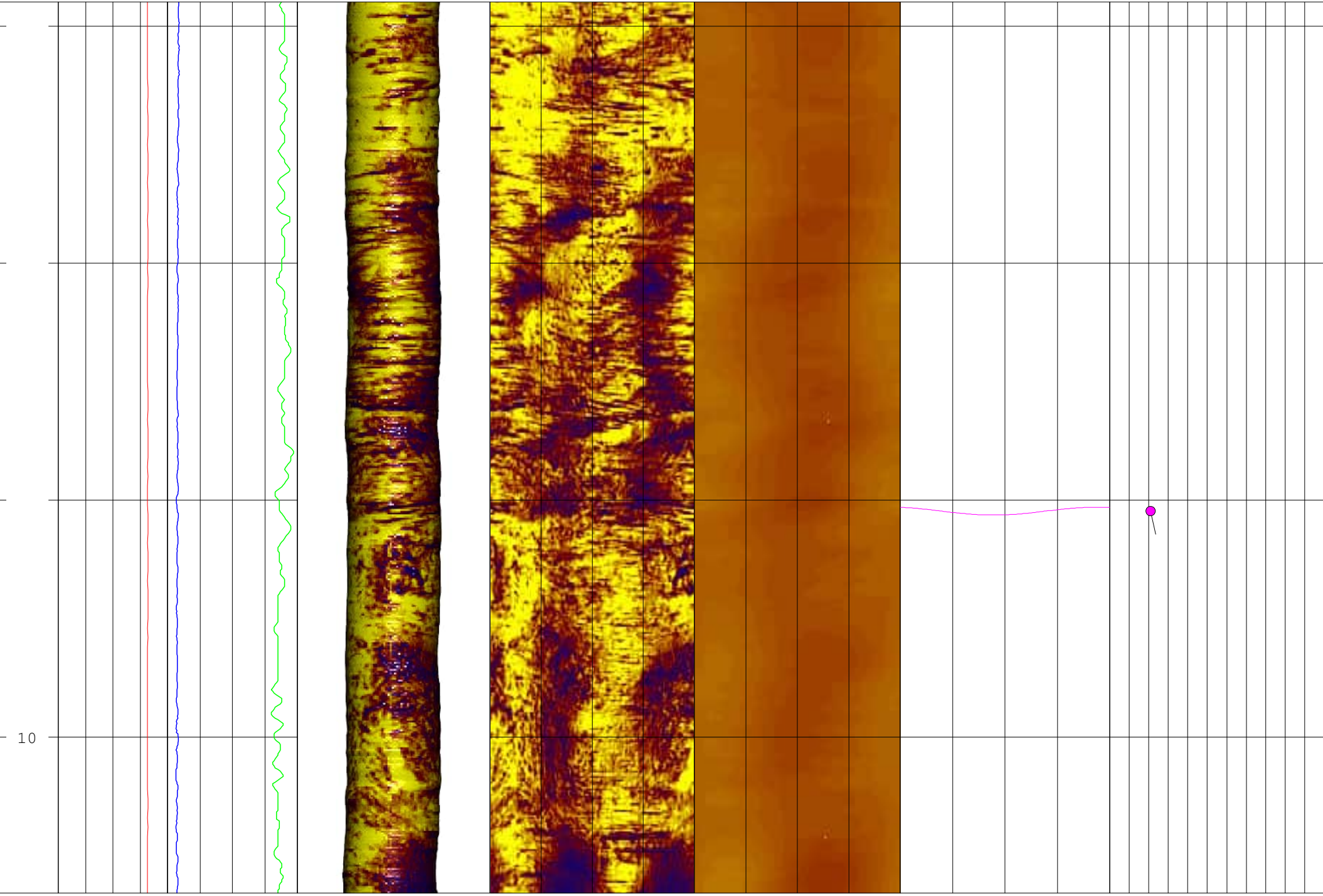
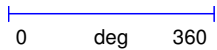
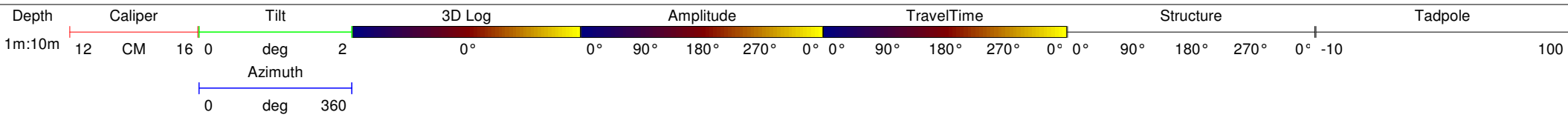
| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 4.2m |



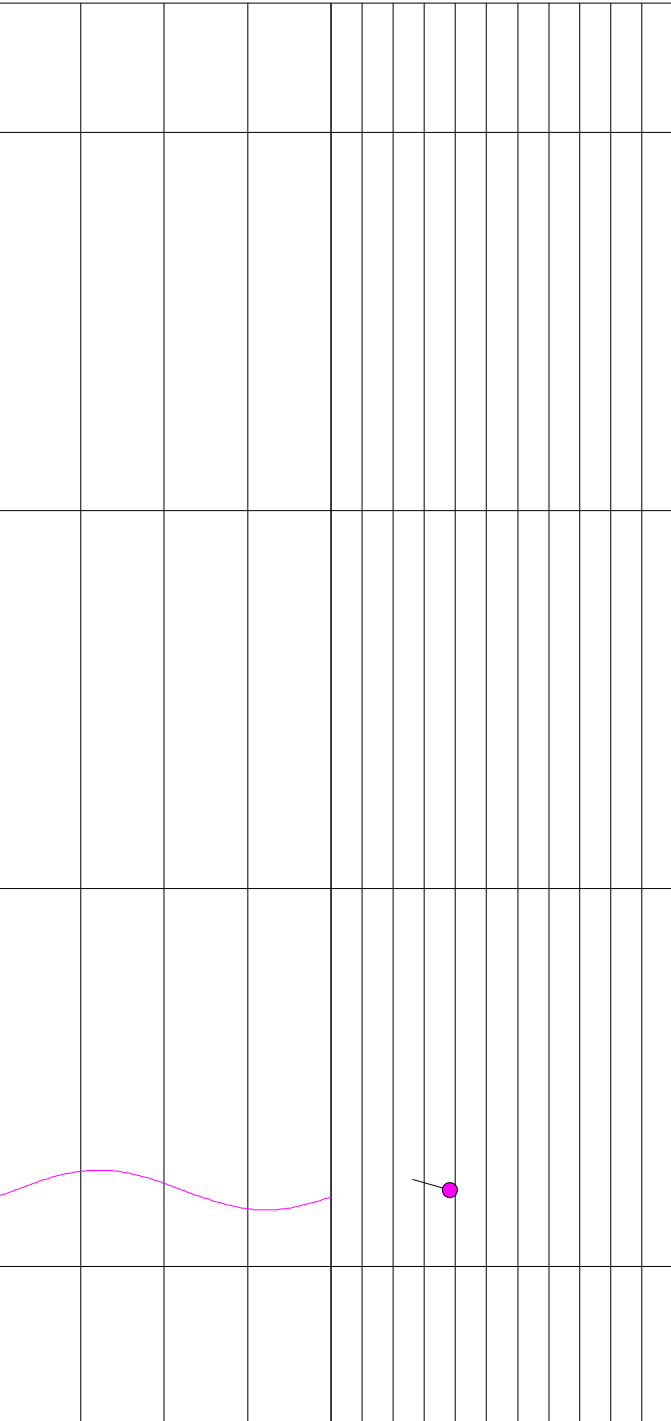
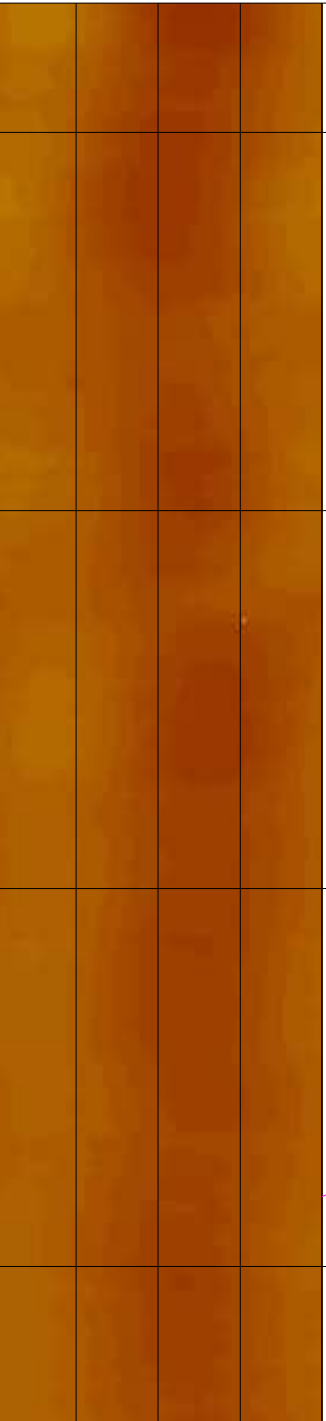
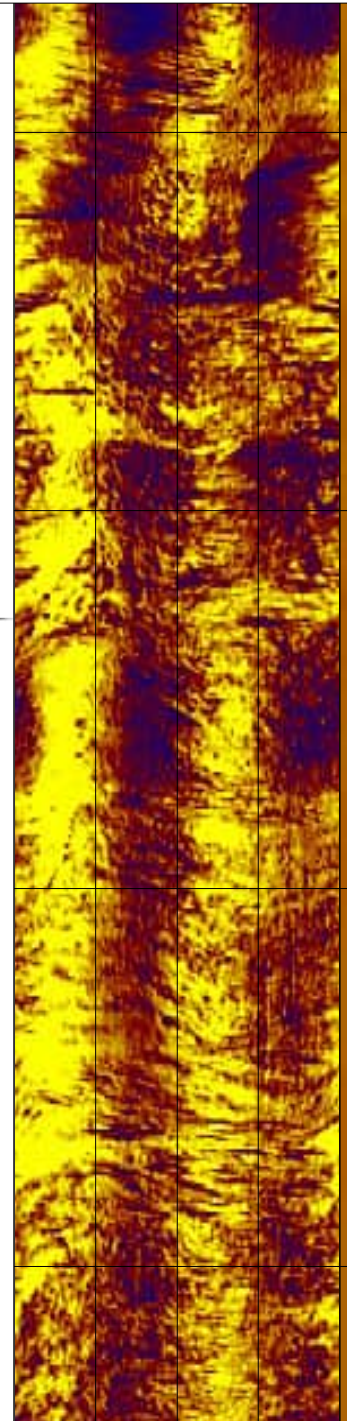
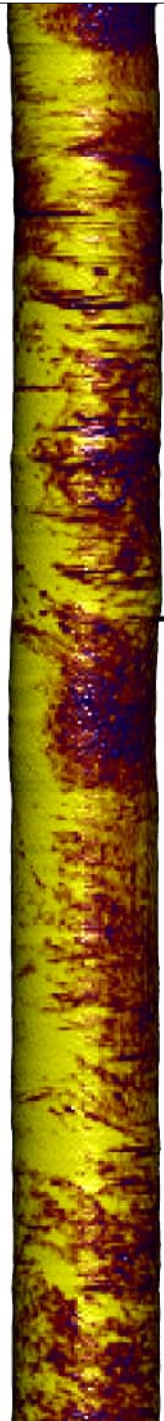
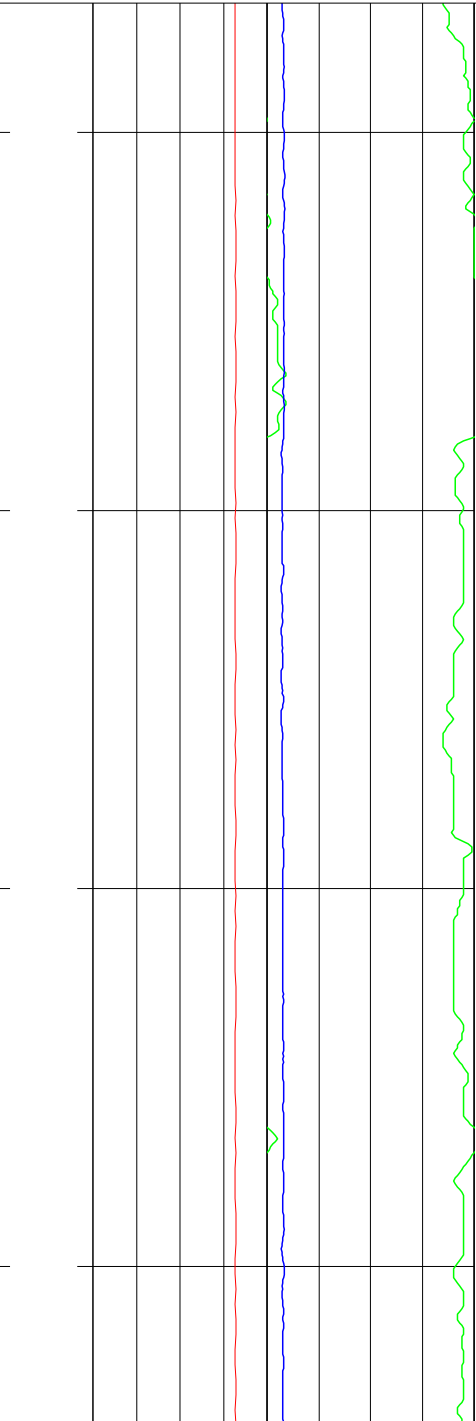
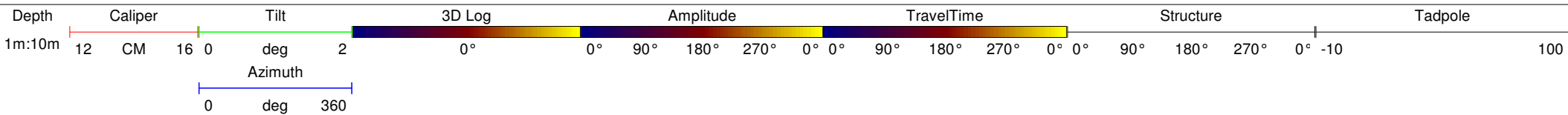


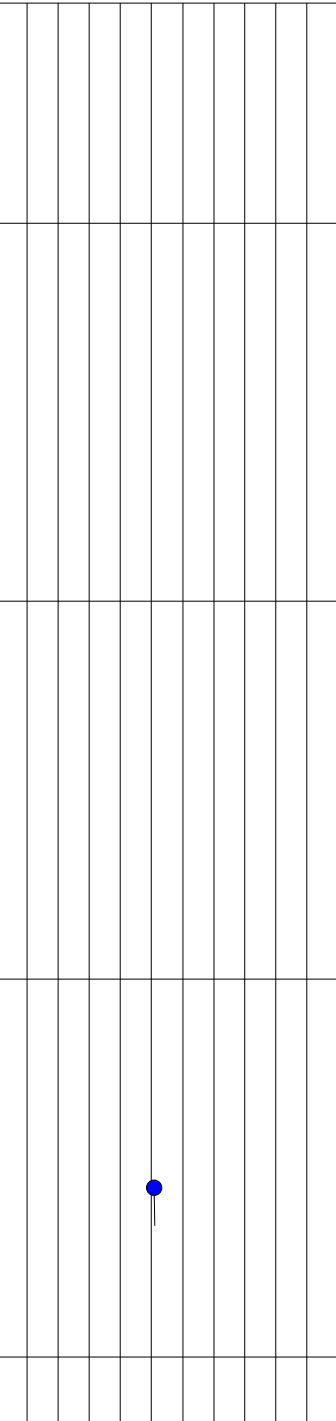
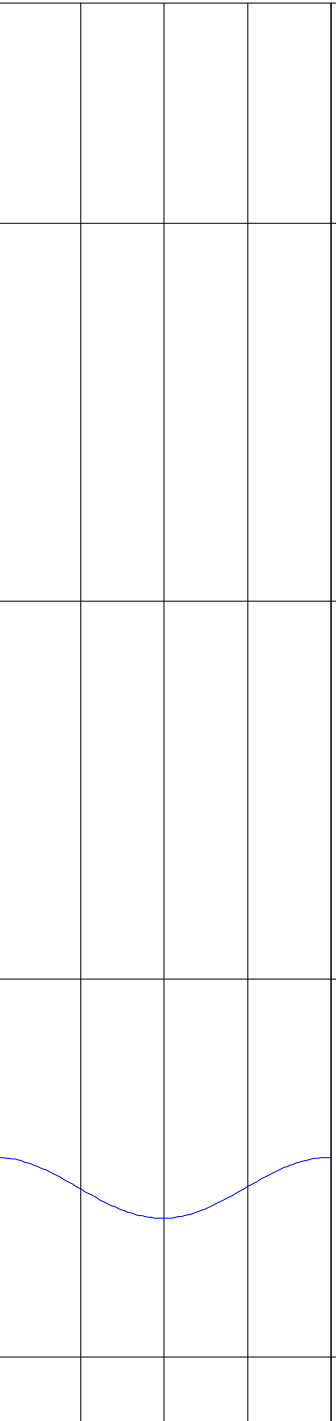
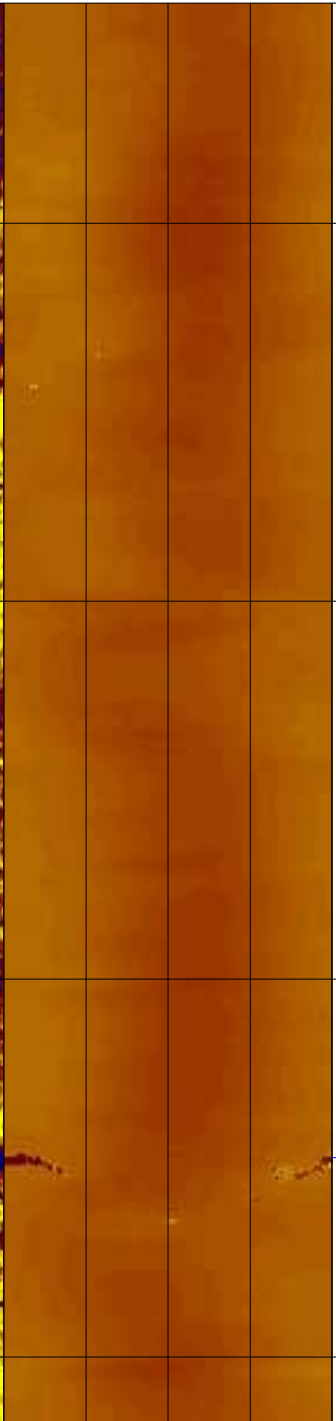
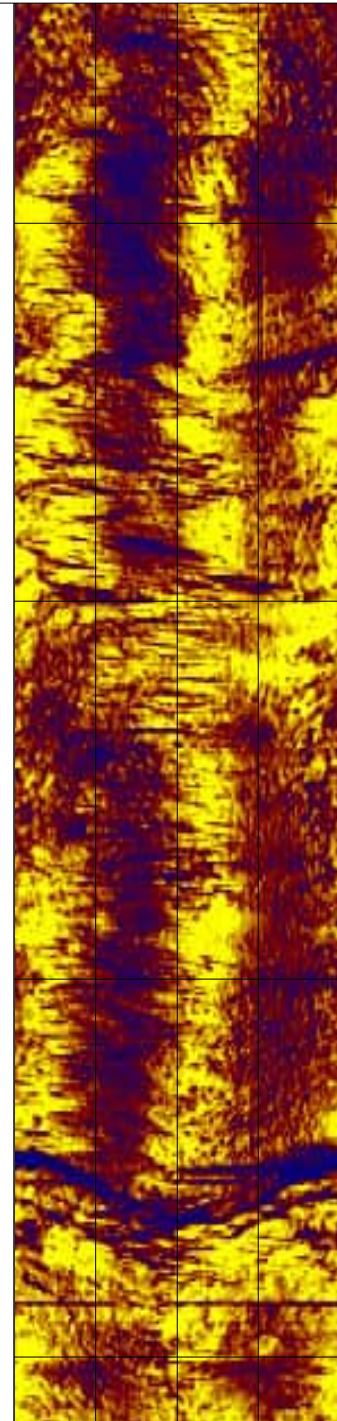
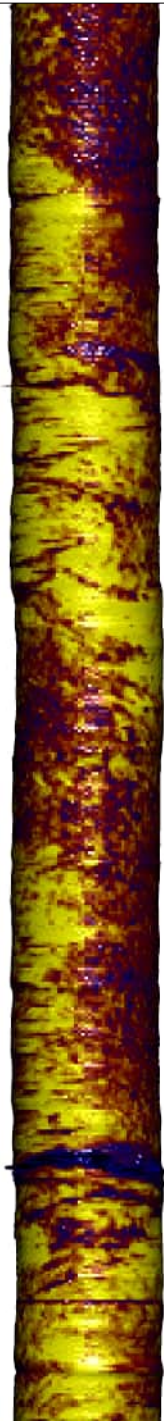
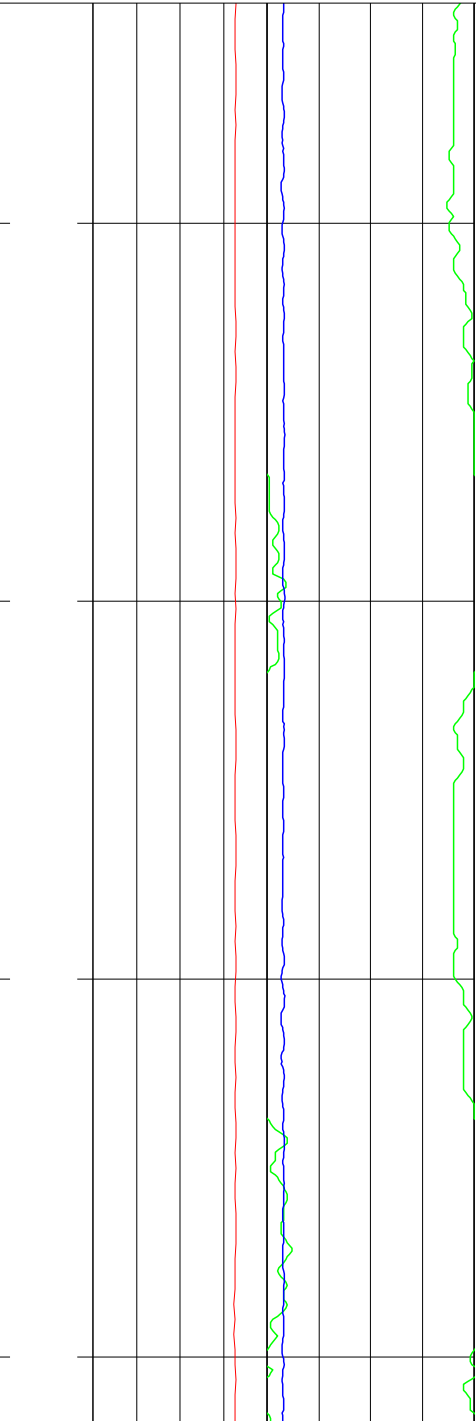
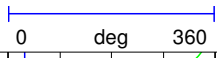
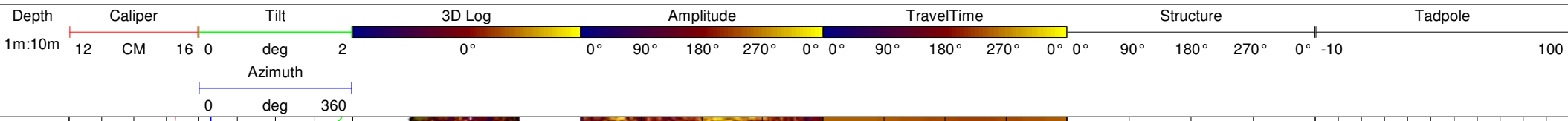


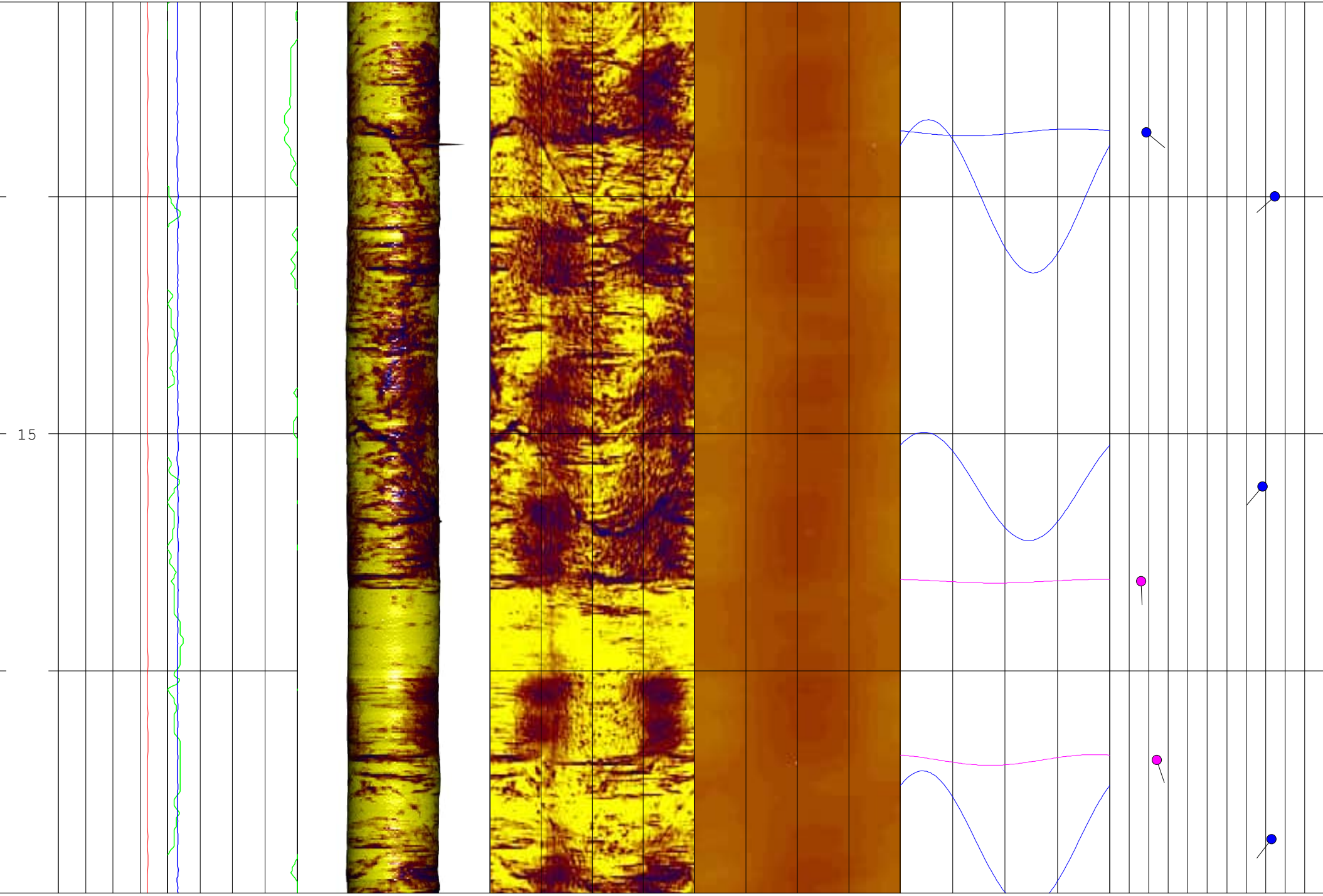
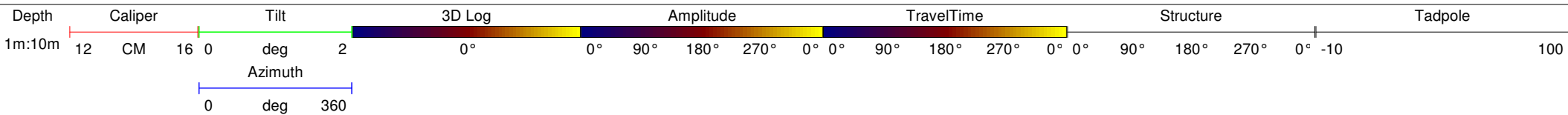


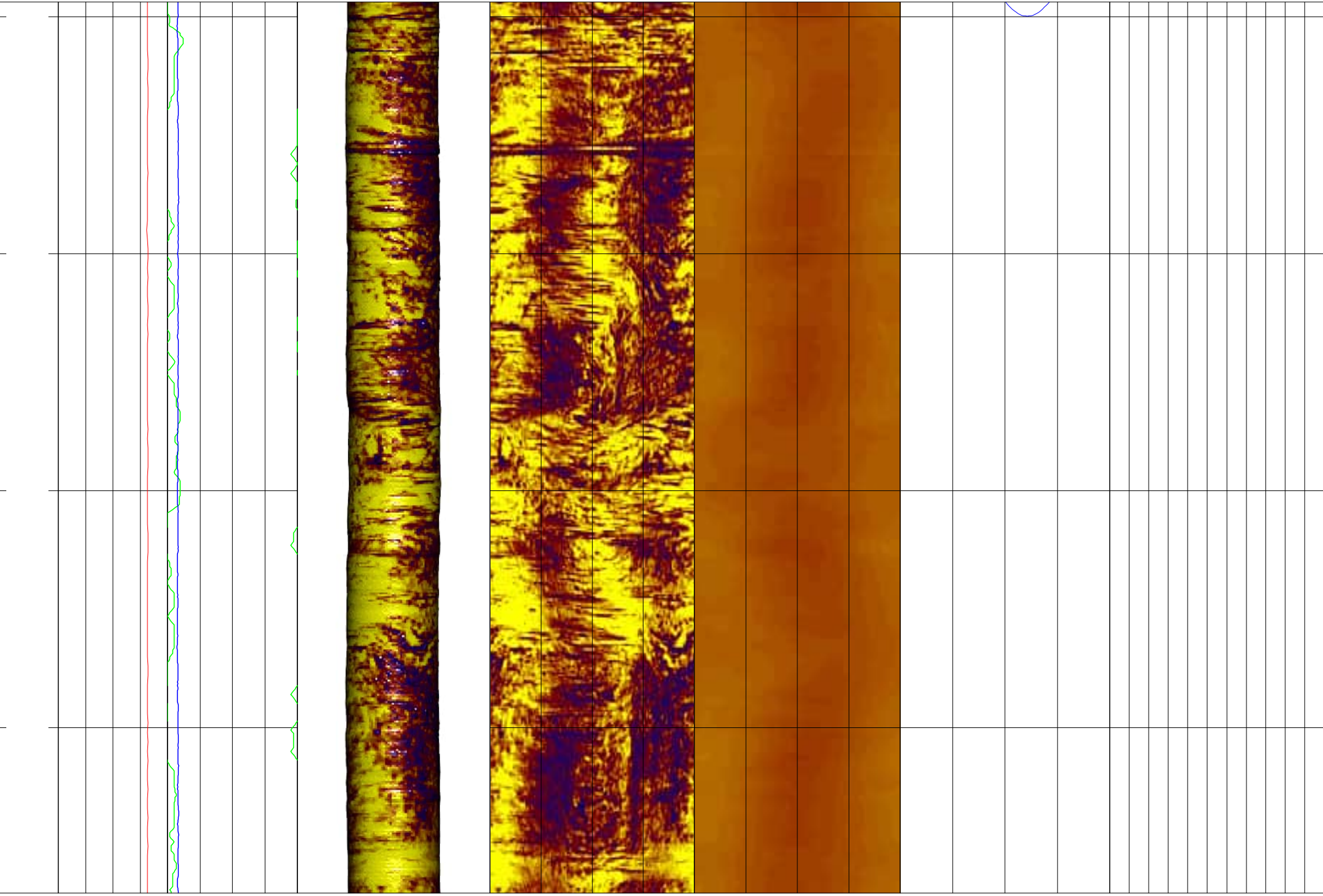
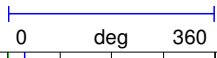
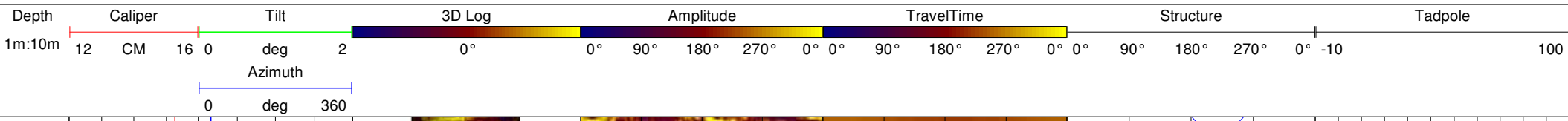


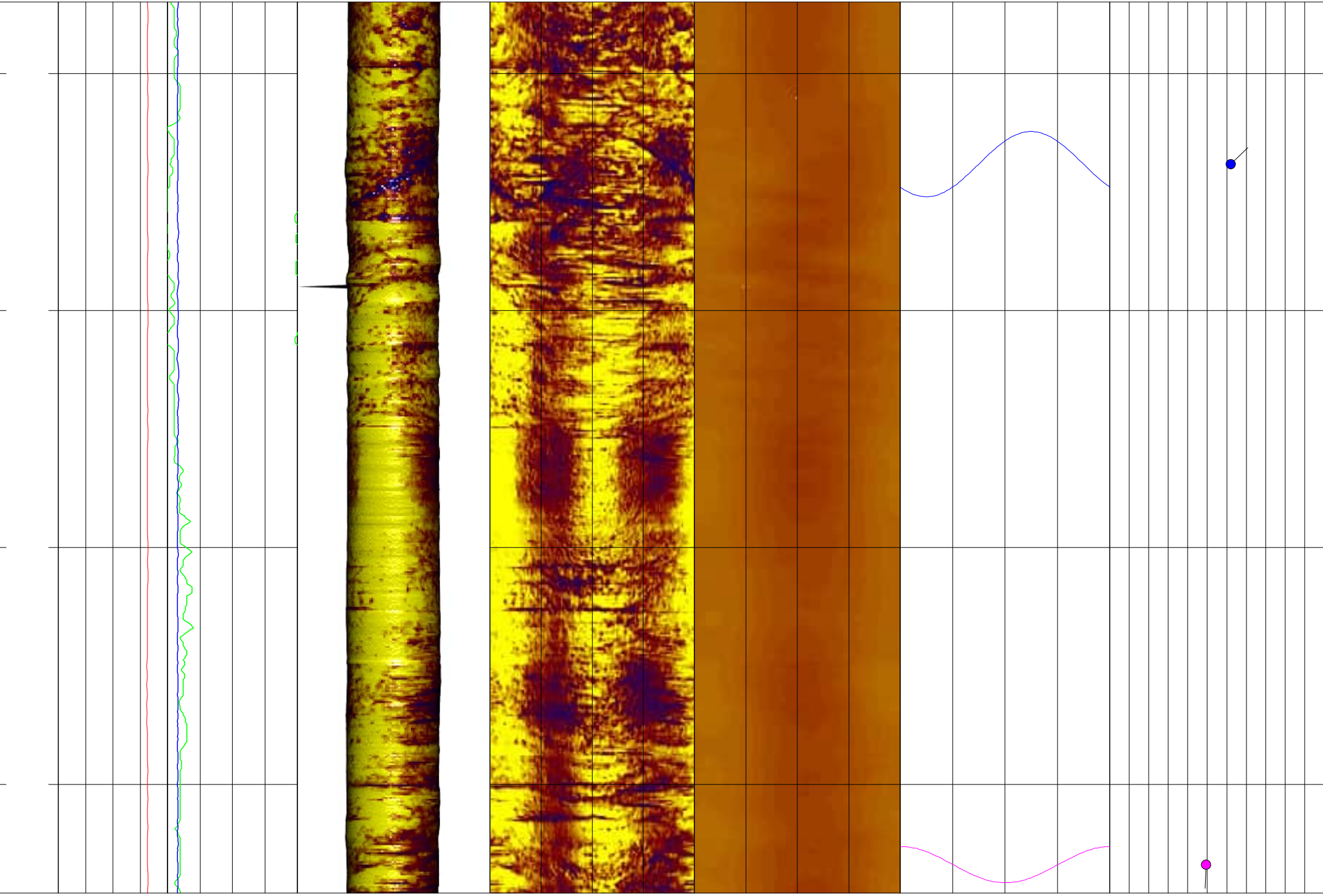
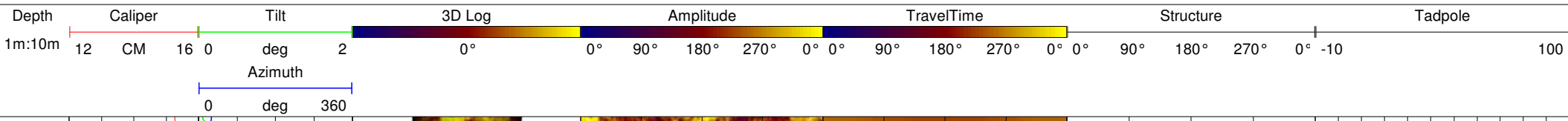
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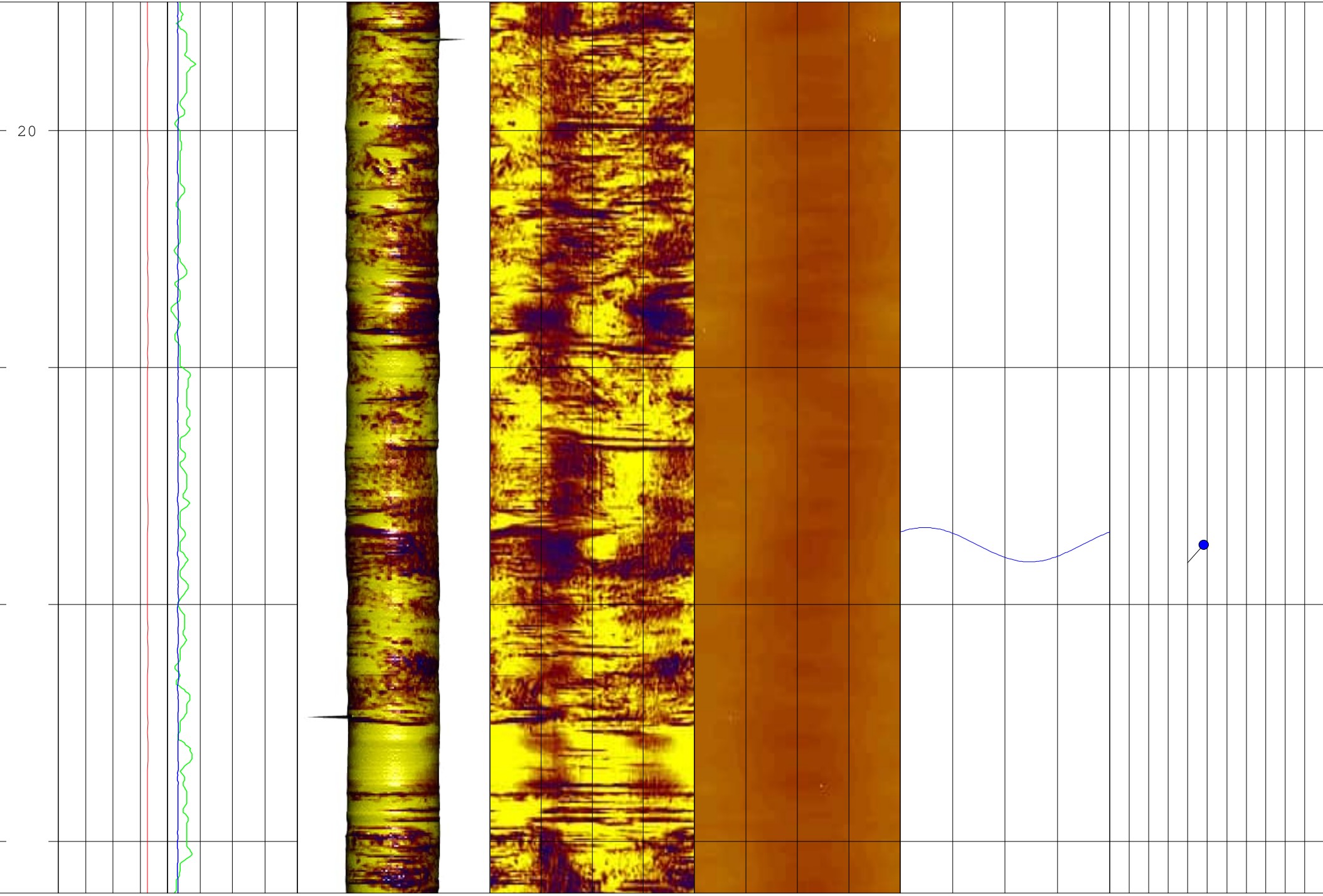
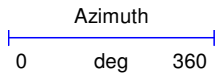
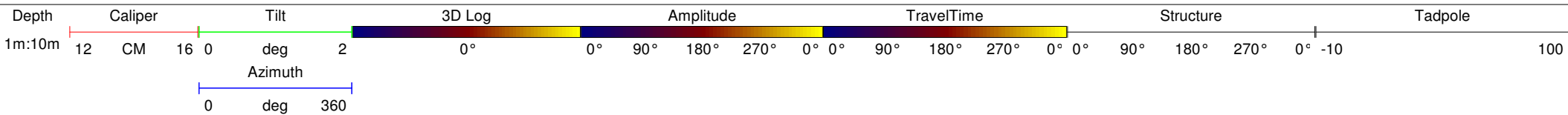


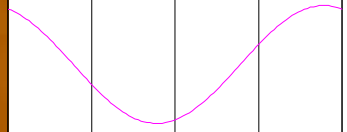
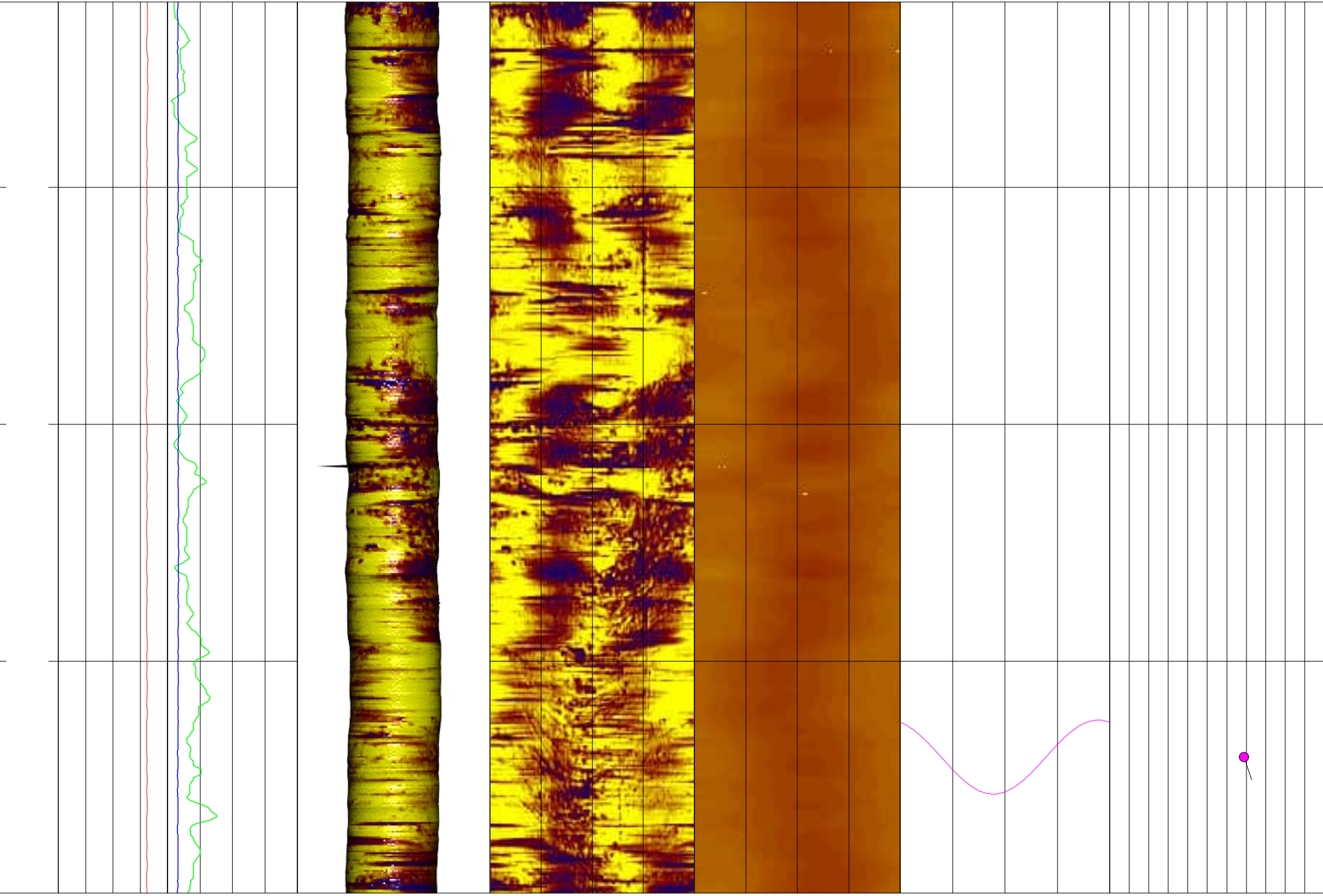
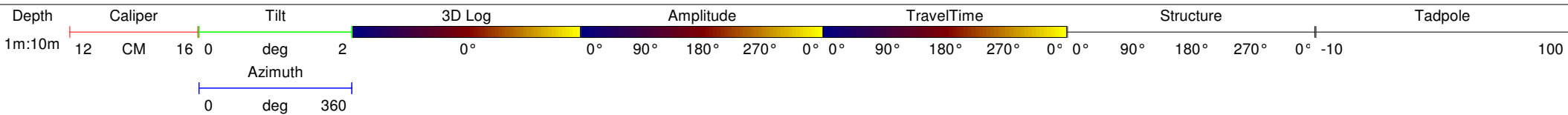


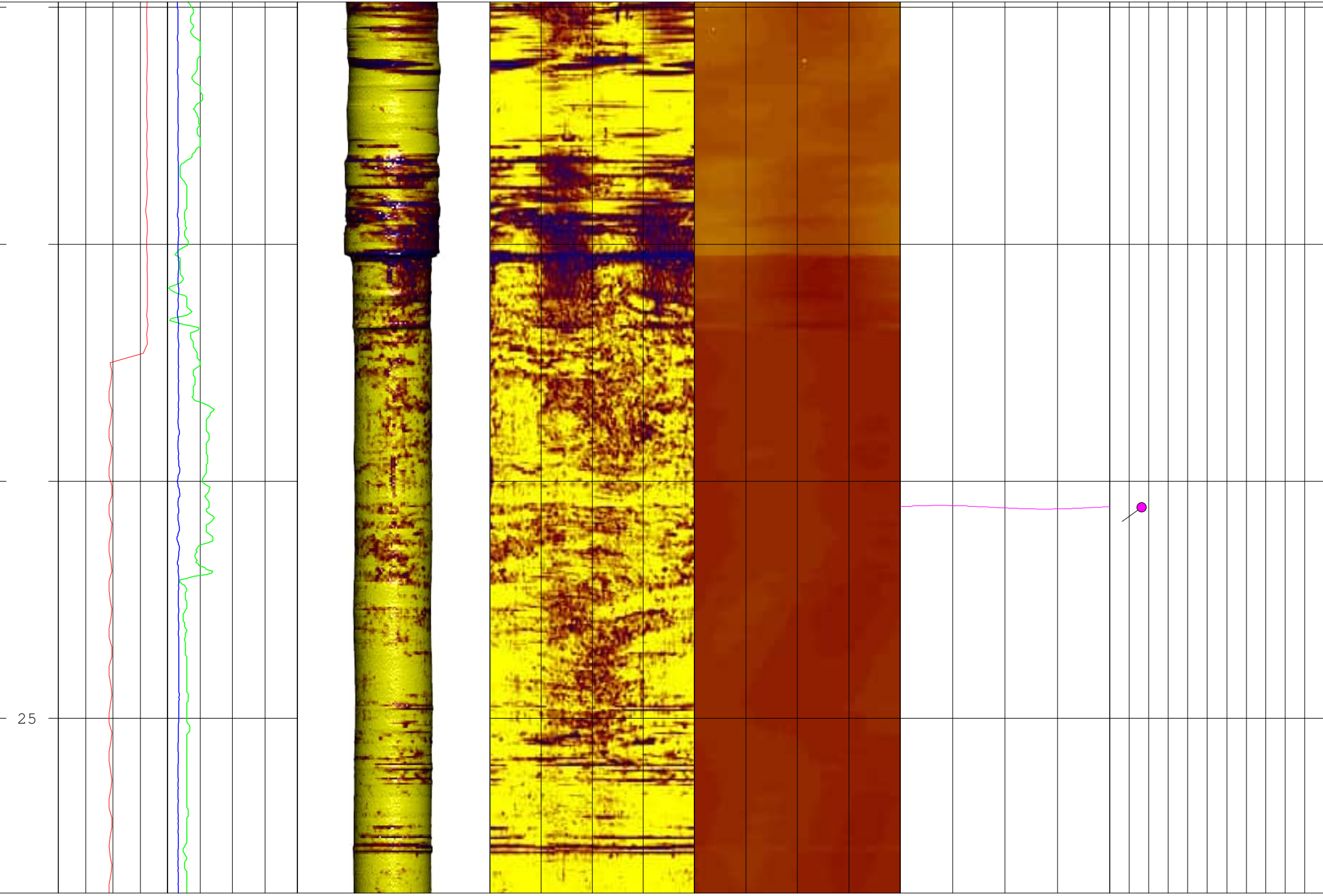
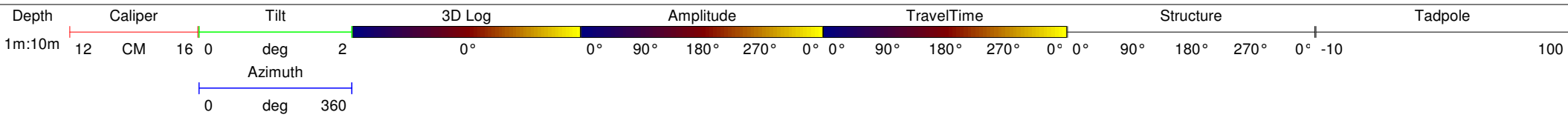




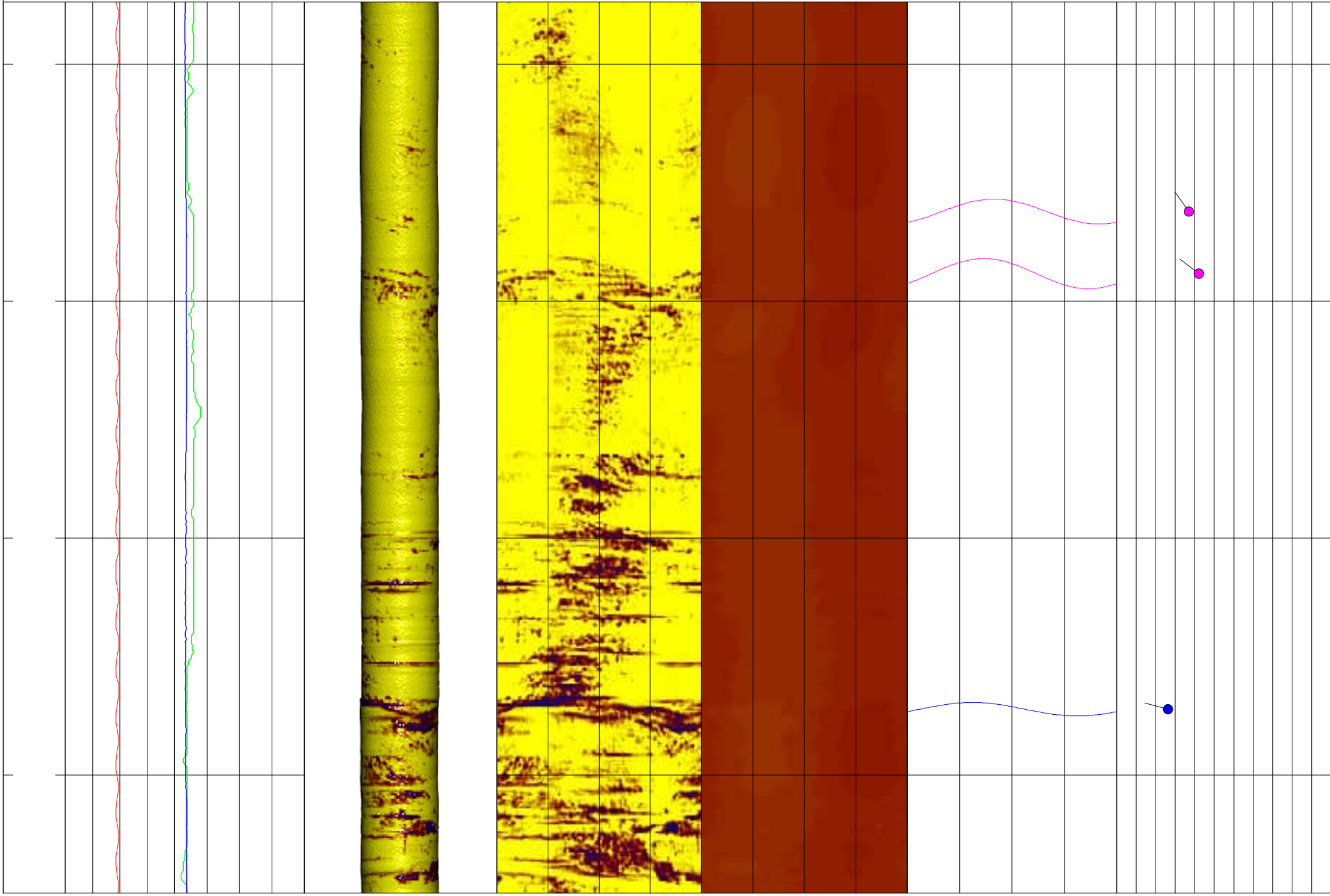
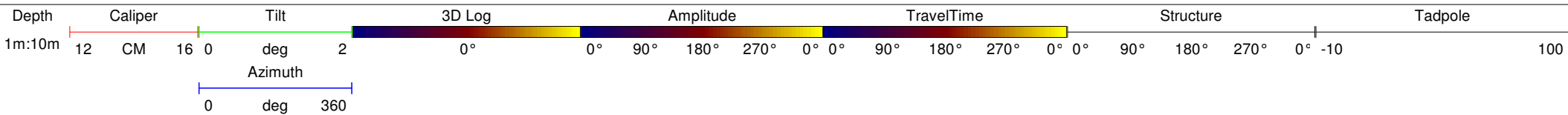


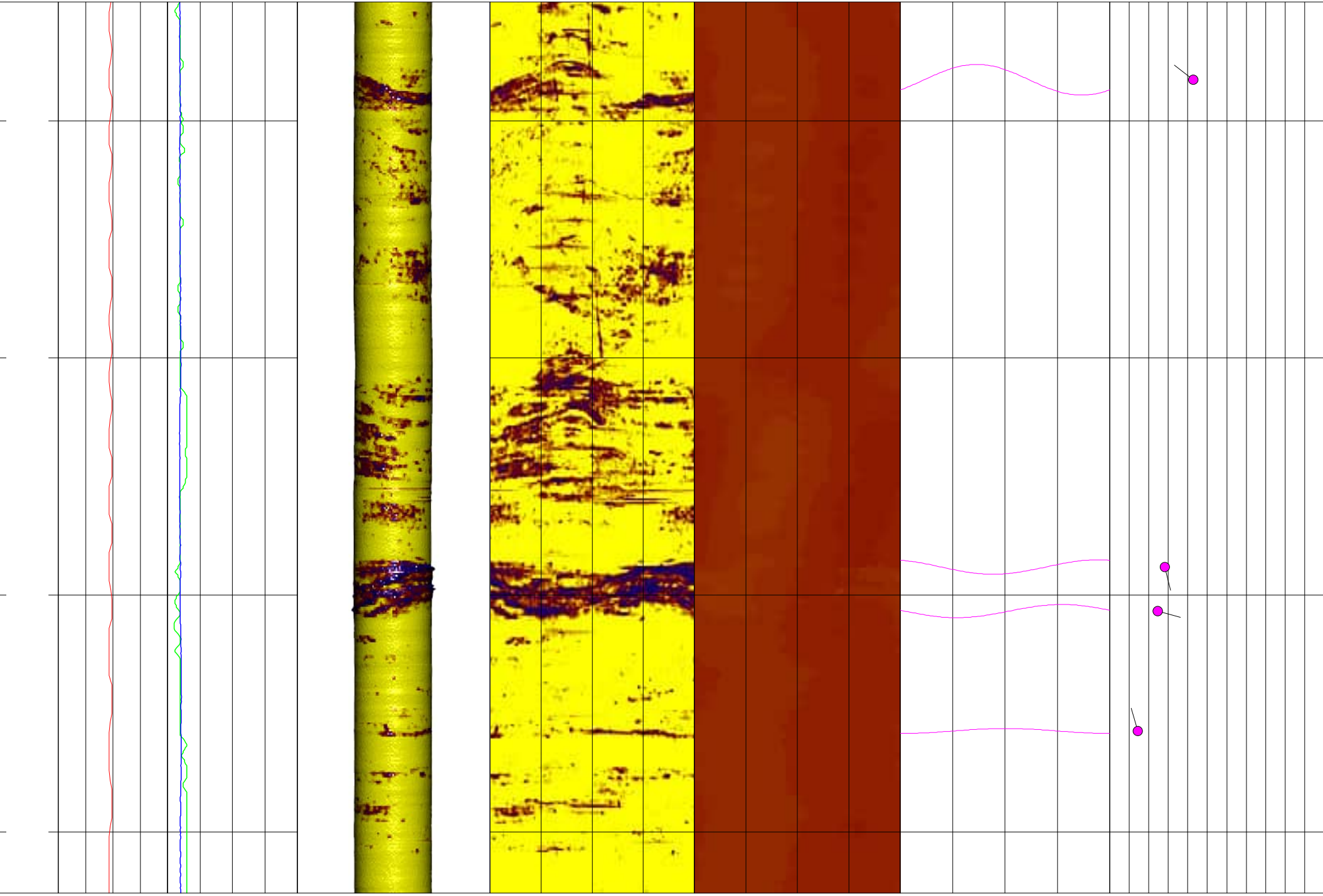
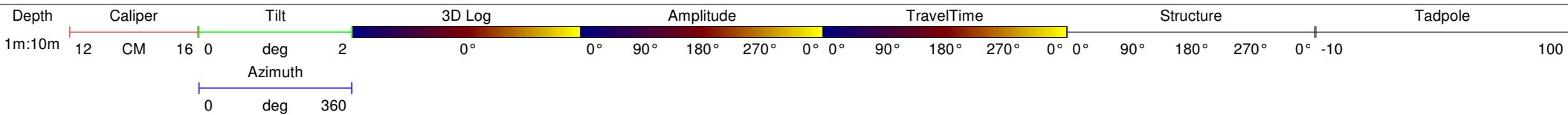


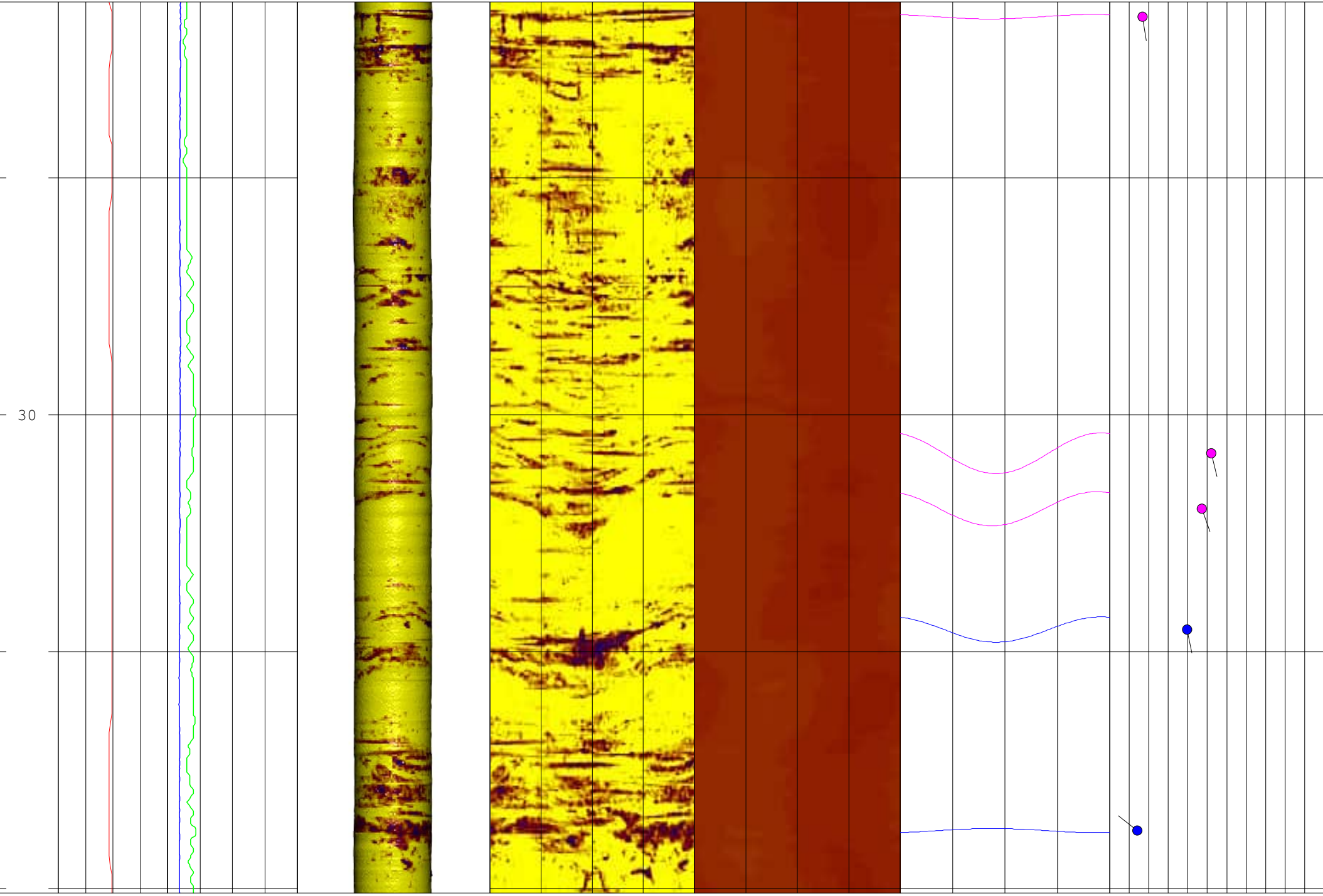
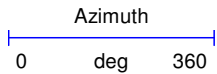
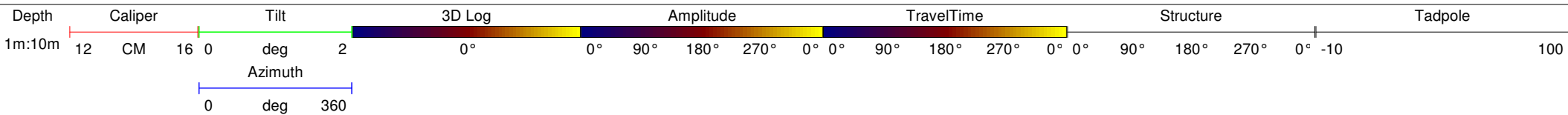


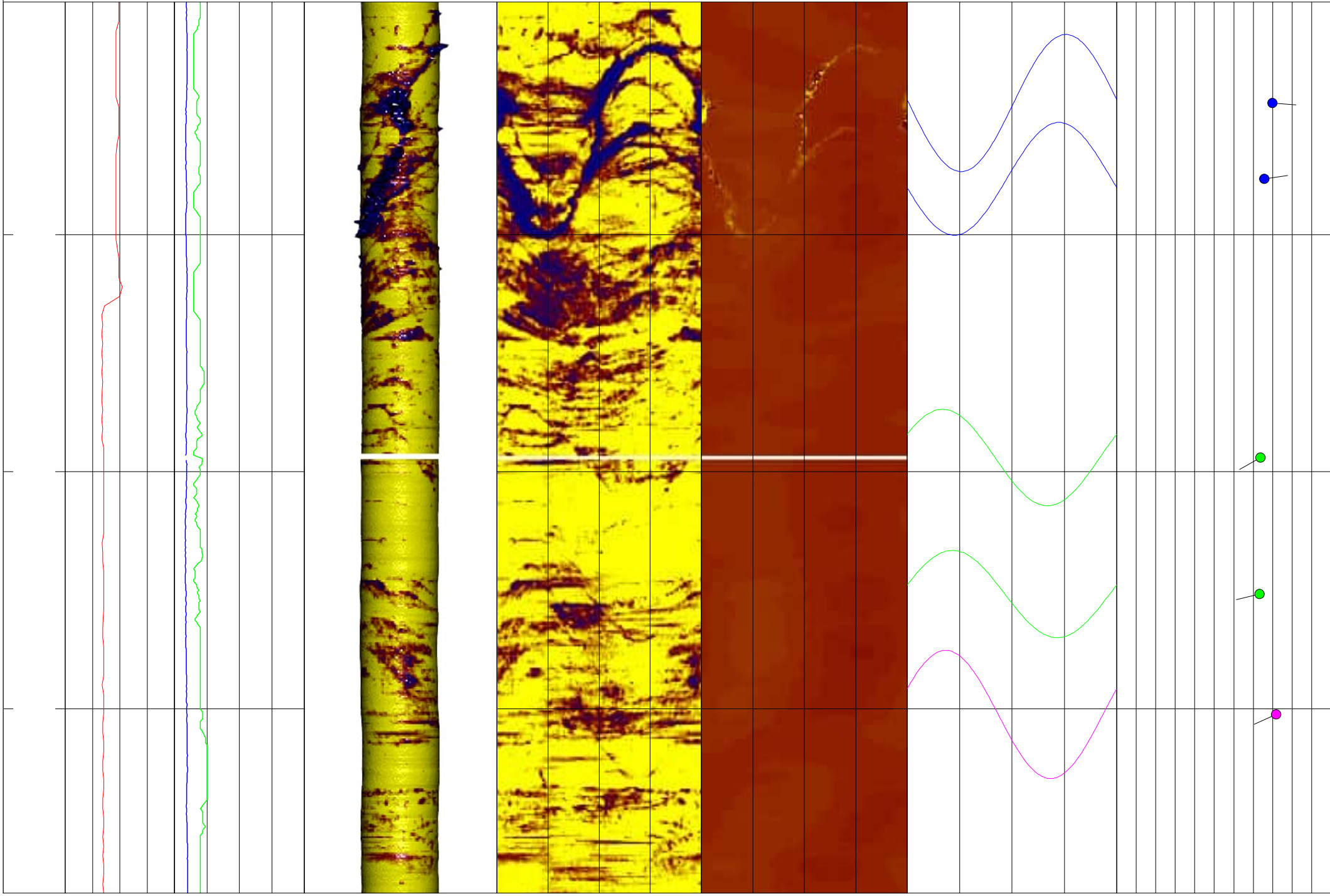
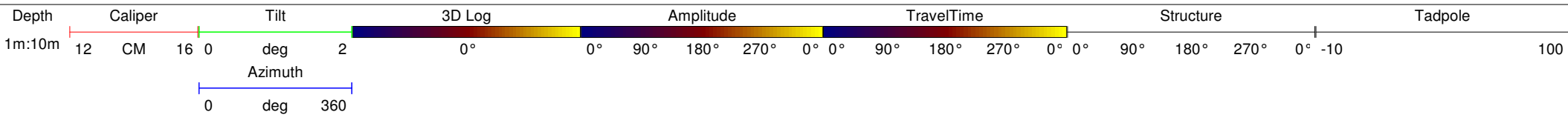


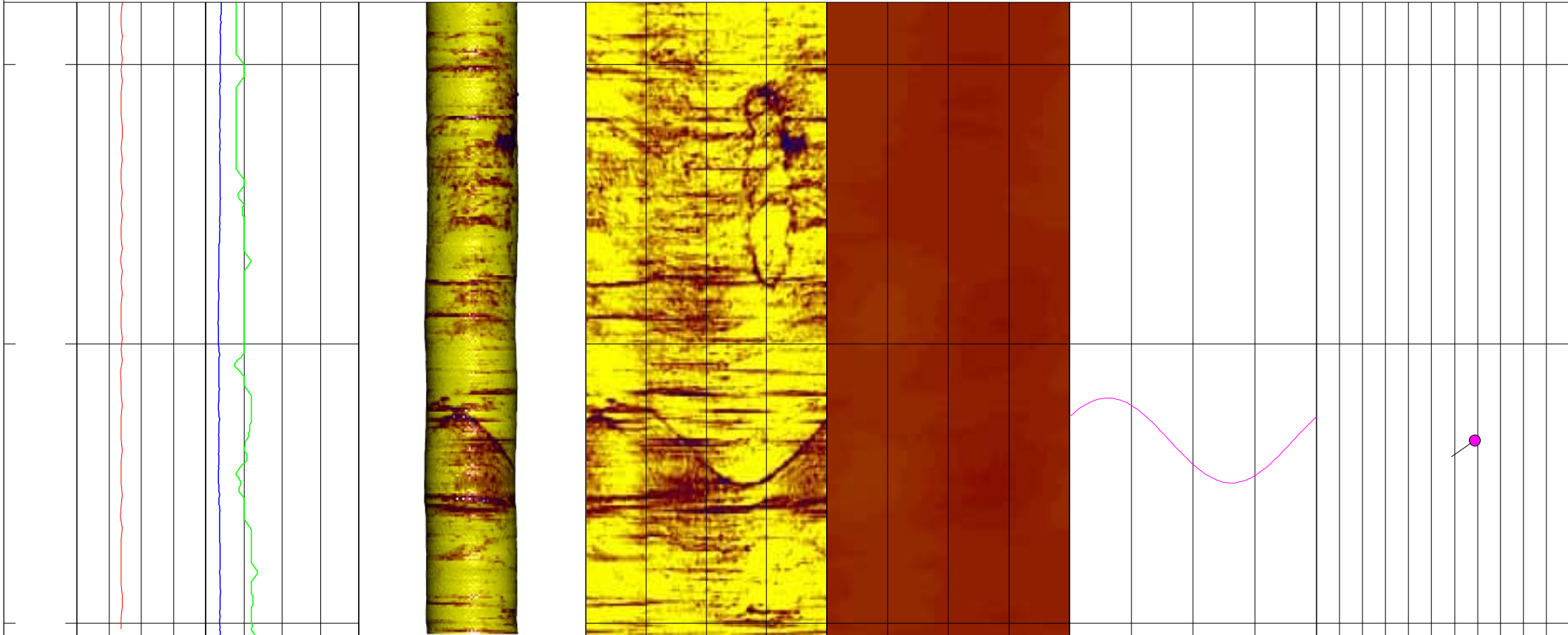
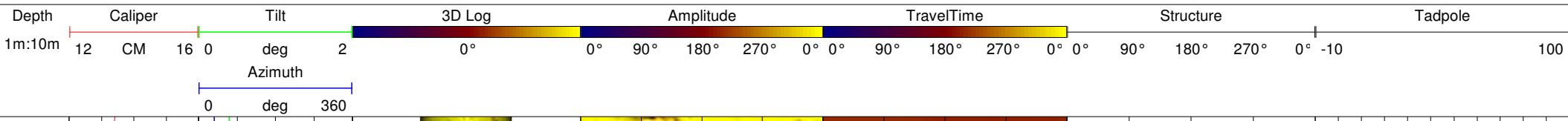
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# Fugro Engineering Services

Client: Scottish and Southern Energy PLC

Borehole: BH3

Log Type:

Acoustic Televiewer Log

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy                      Grid Reference:                      Elevation:

Drilled Depth: 35m                      Date: 04/03/2010

Logged Depth: 33.62m                      Recorded By: [Redacted]

Logging Datum: Ground Level

Remarks:

Logged Interval: North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

Fluid Level:

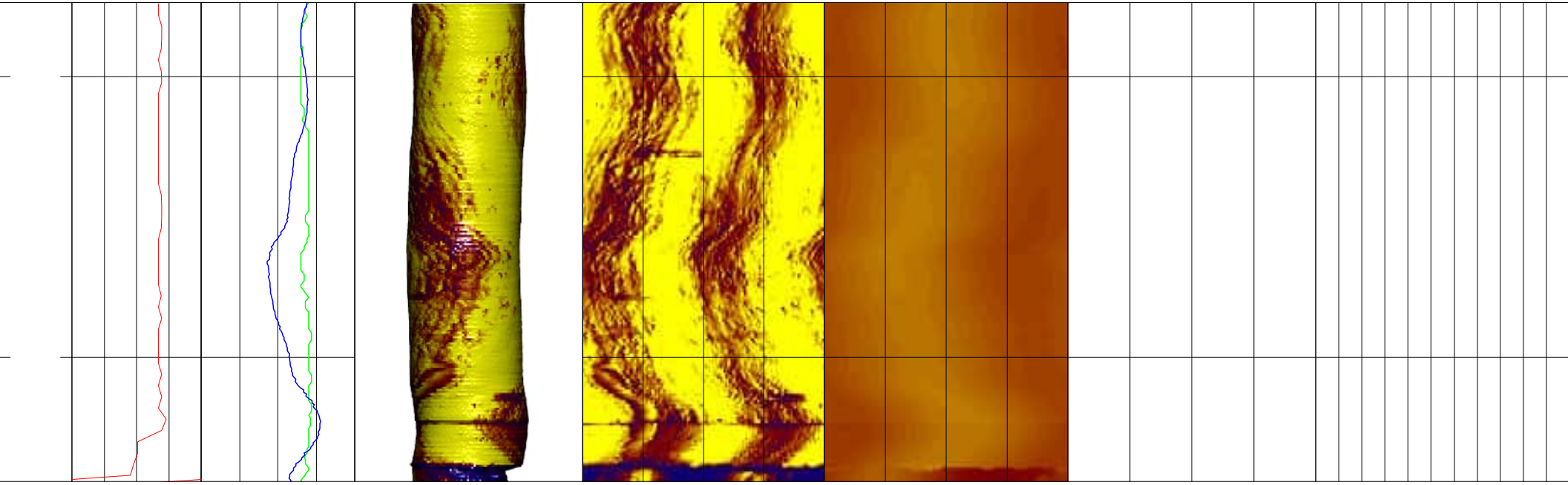
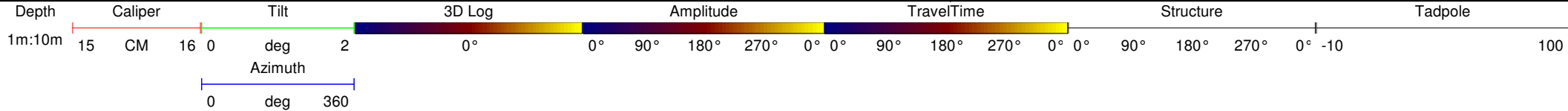
Structure Key: — Foliation    — Fracture    — Vein

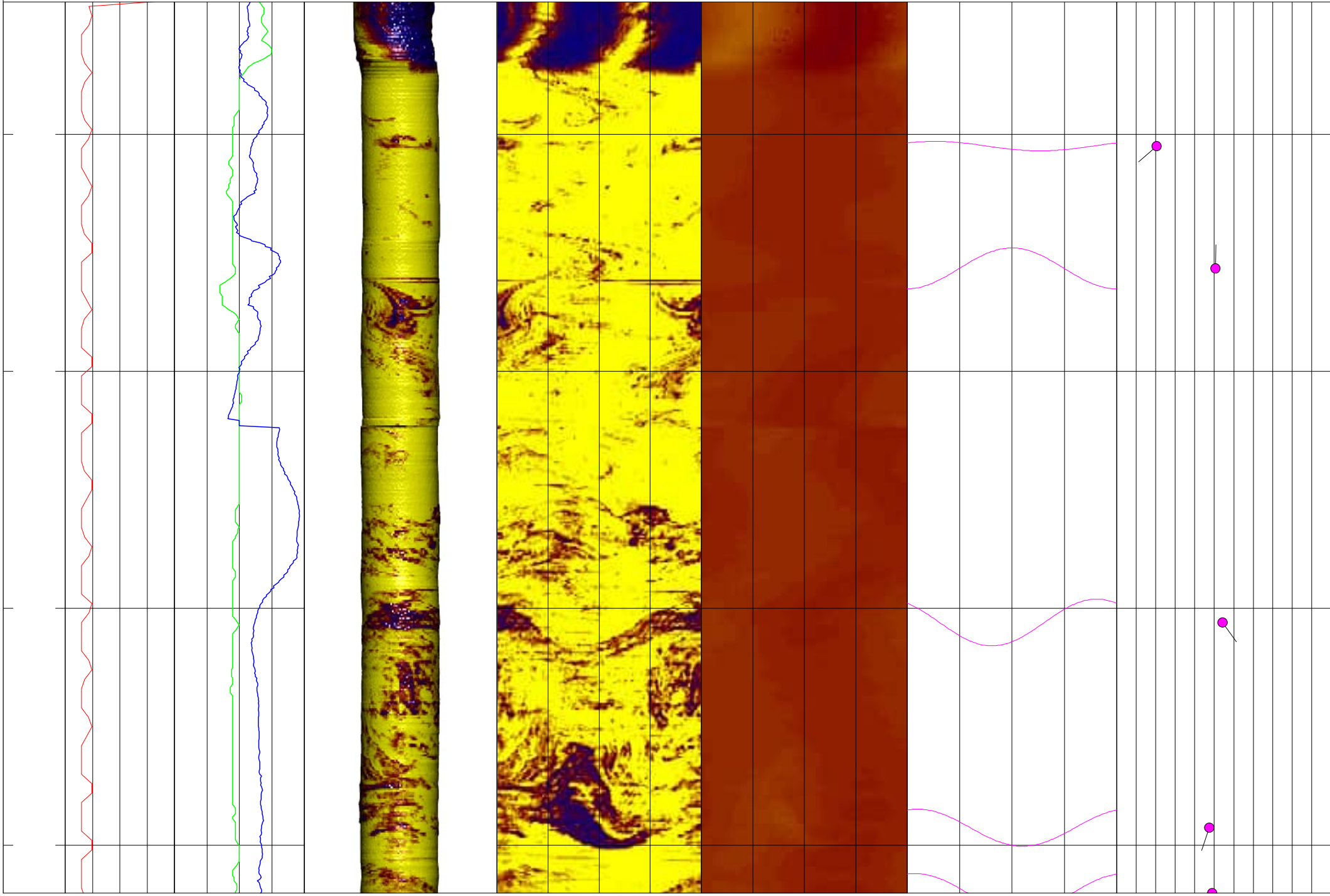
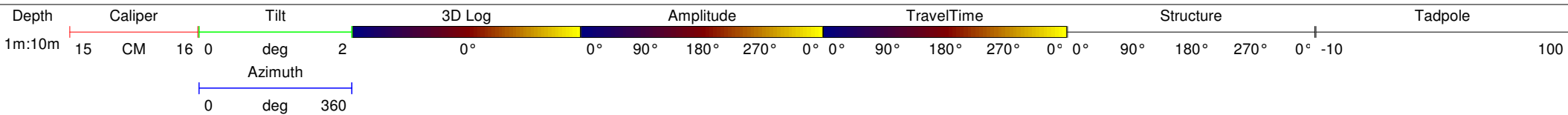
## BOREHOLE RECORD

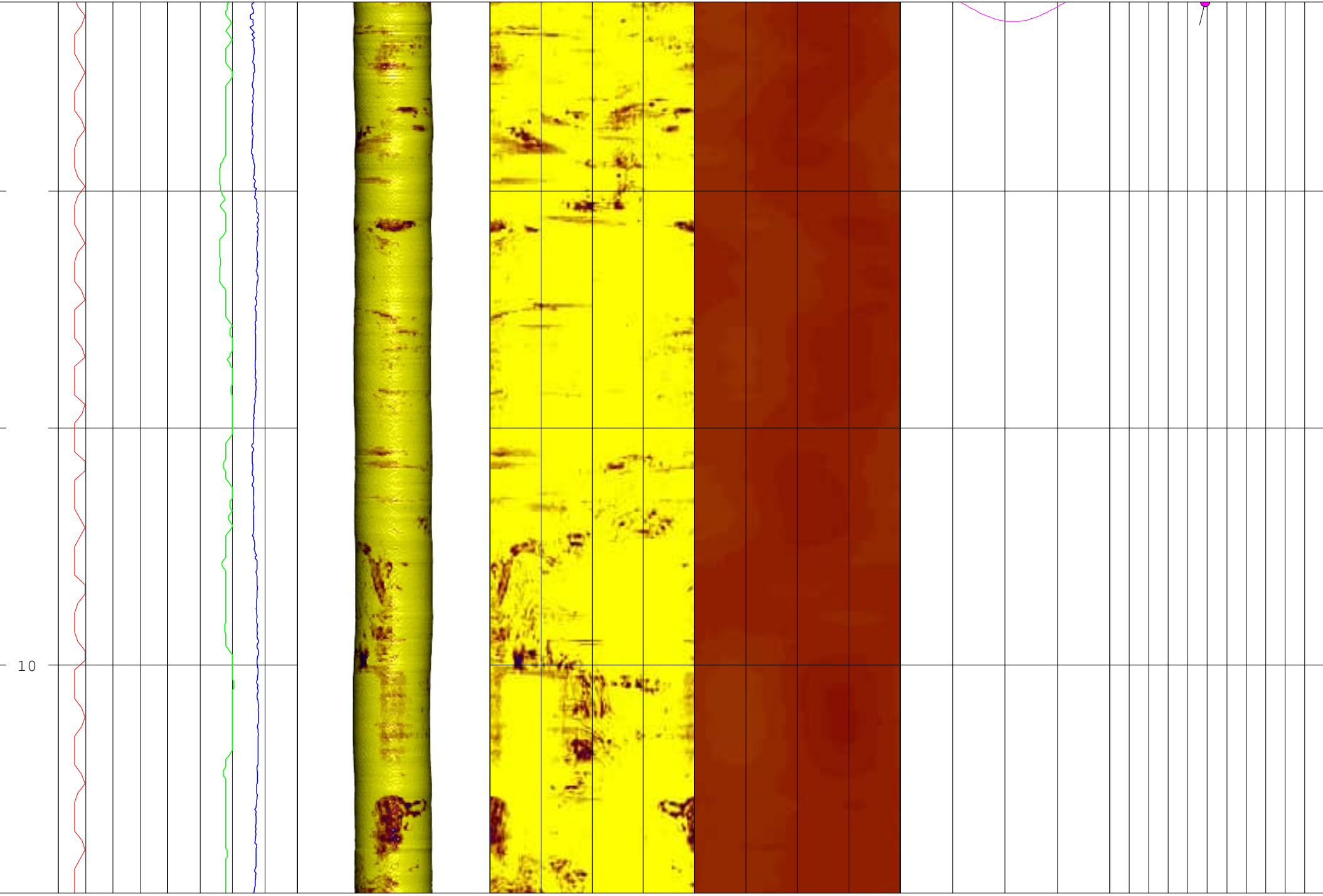
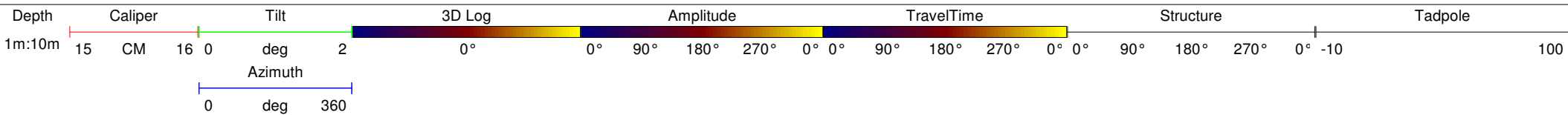
## CASING RECORD

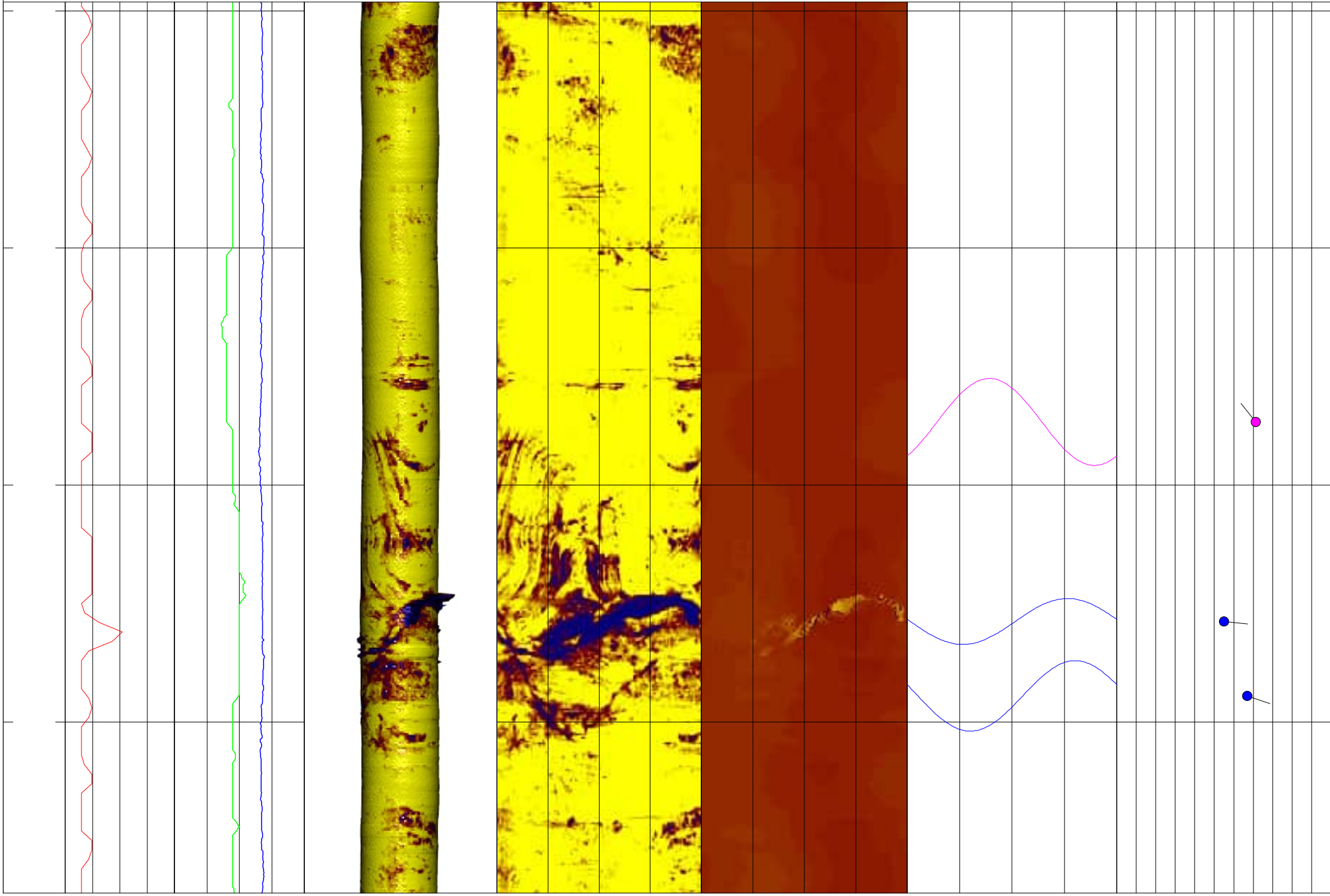
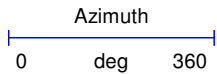
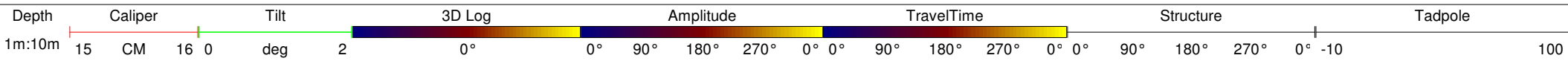
| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 6.8m  |
| 120mm         | 6.8m  | 35.0m |

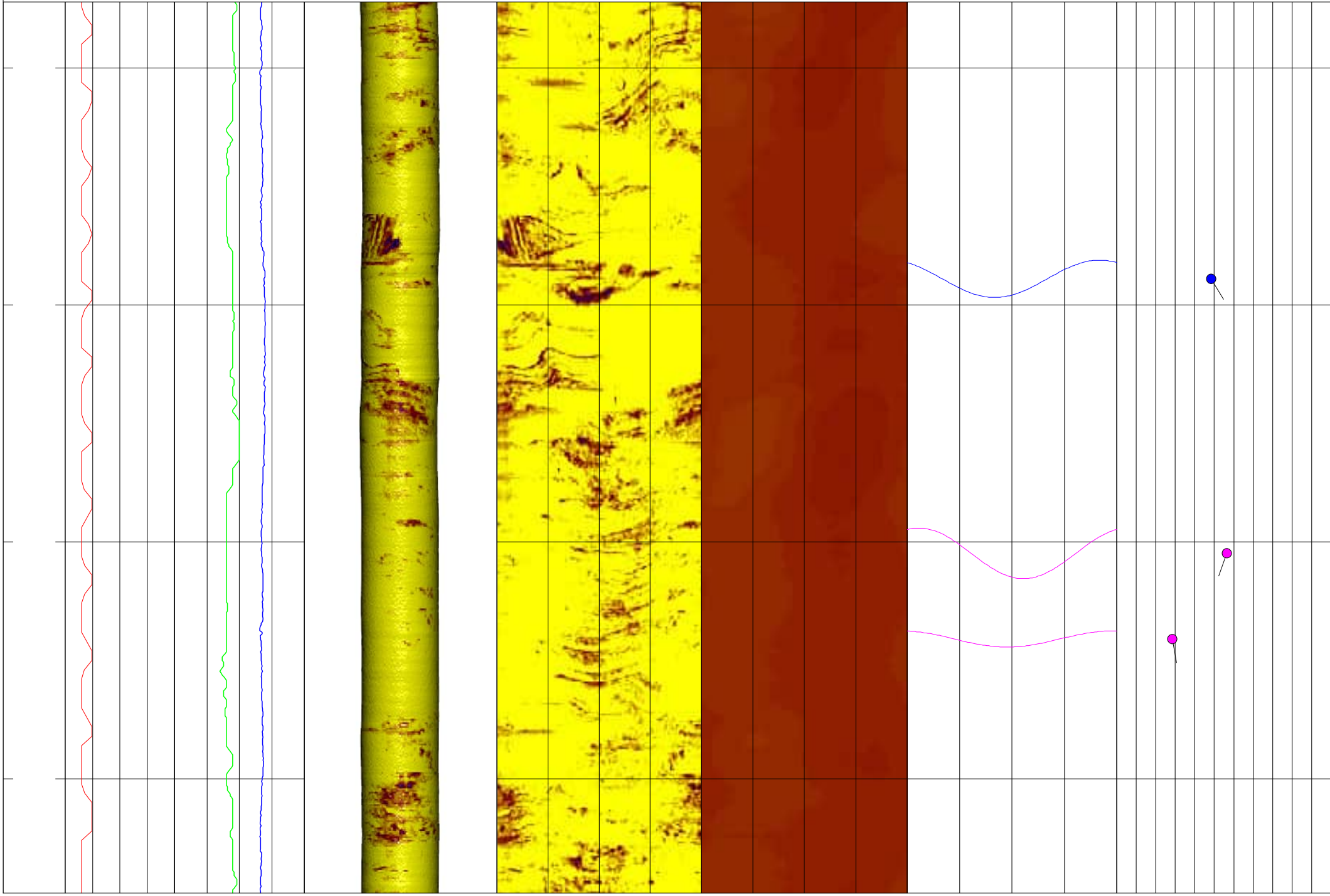
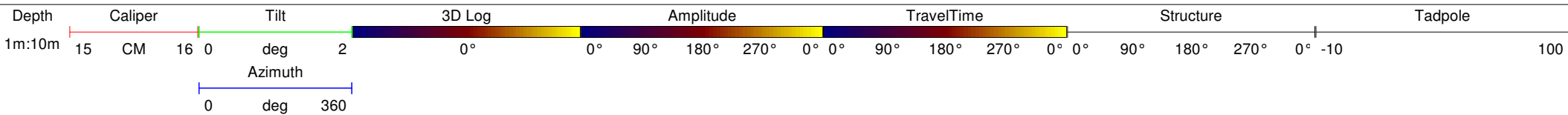
| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 6.8m |
|       |       |      |      |

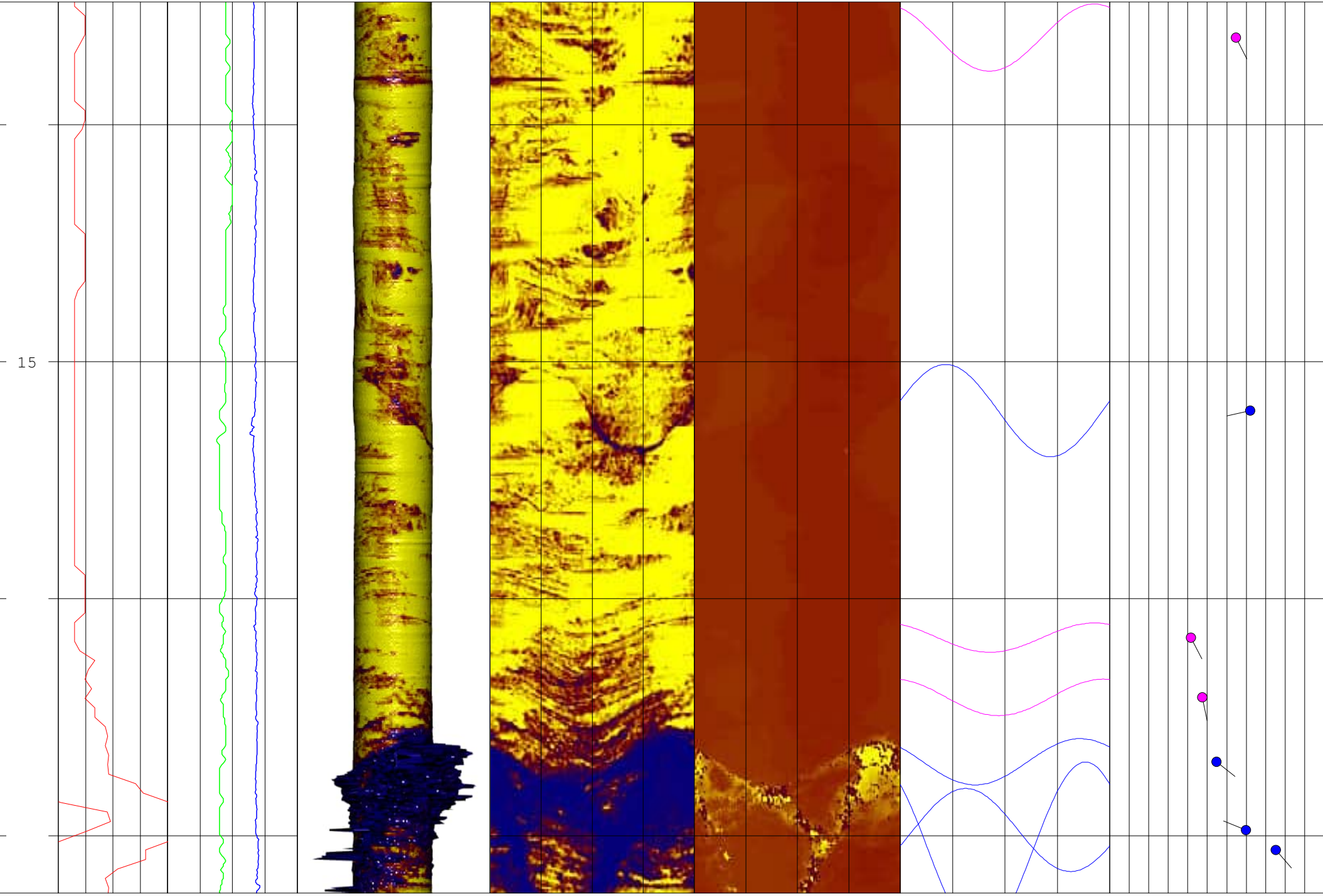
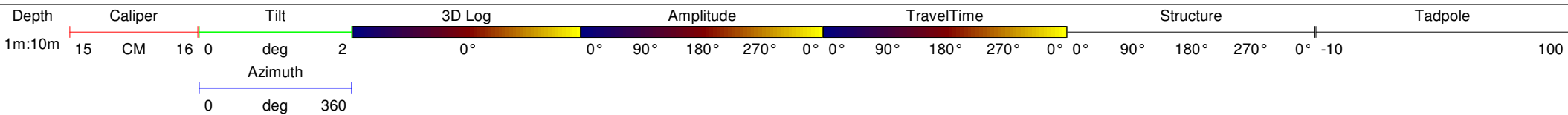


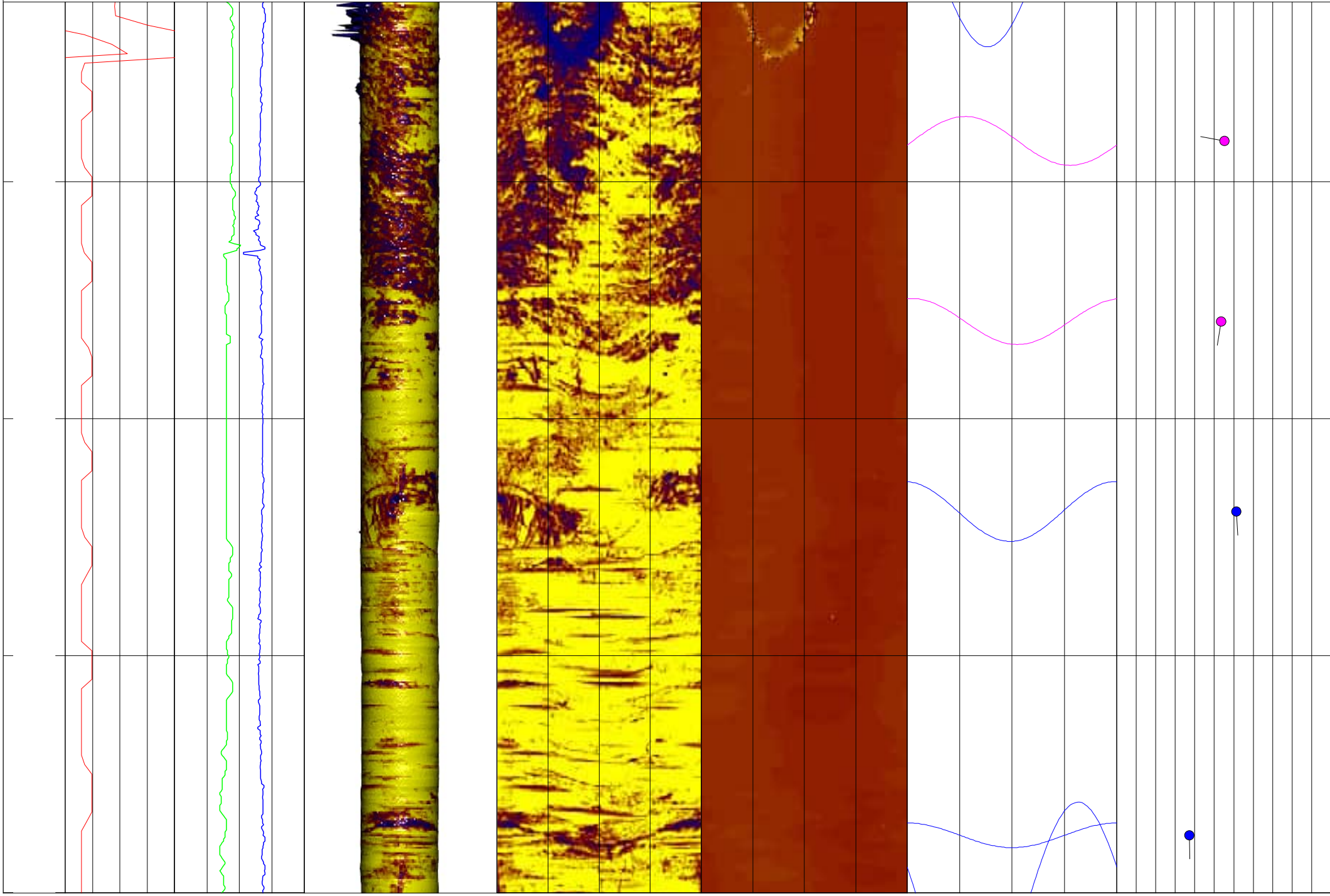
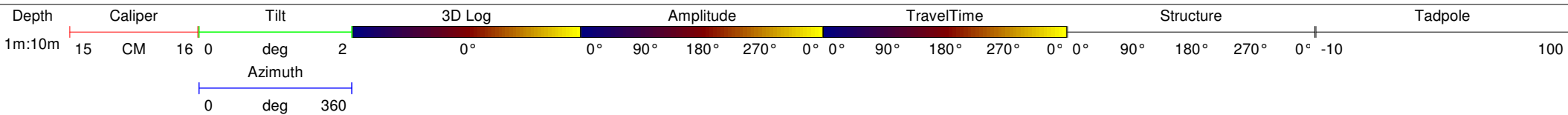


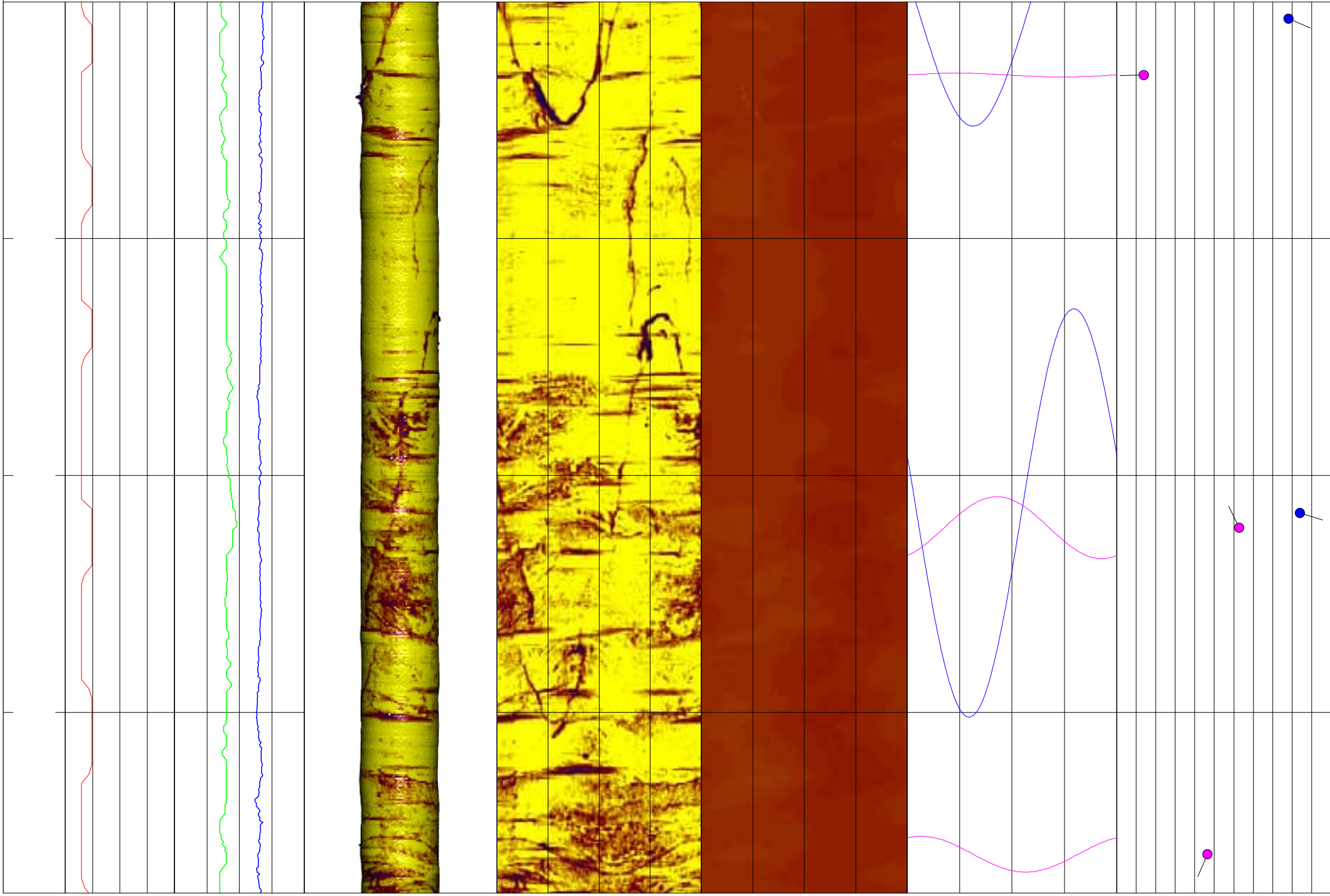
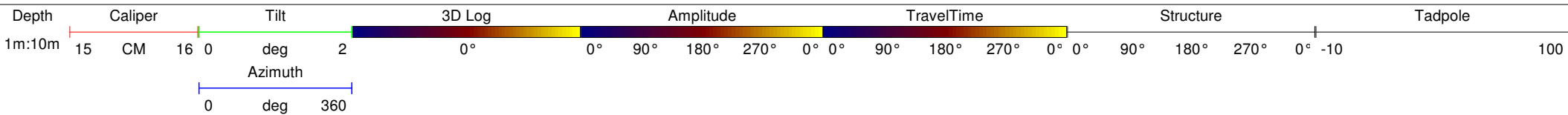




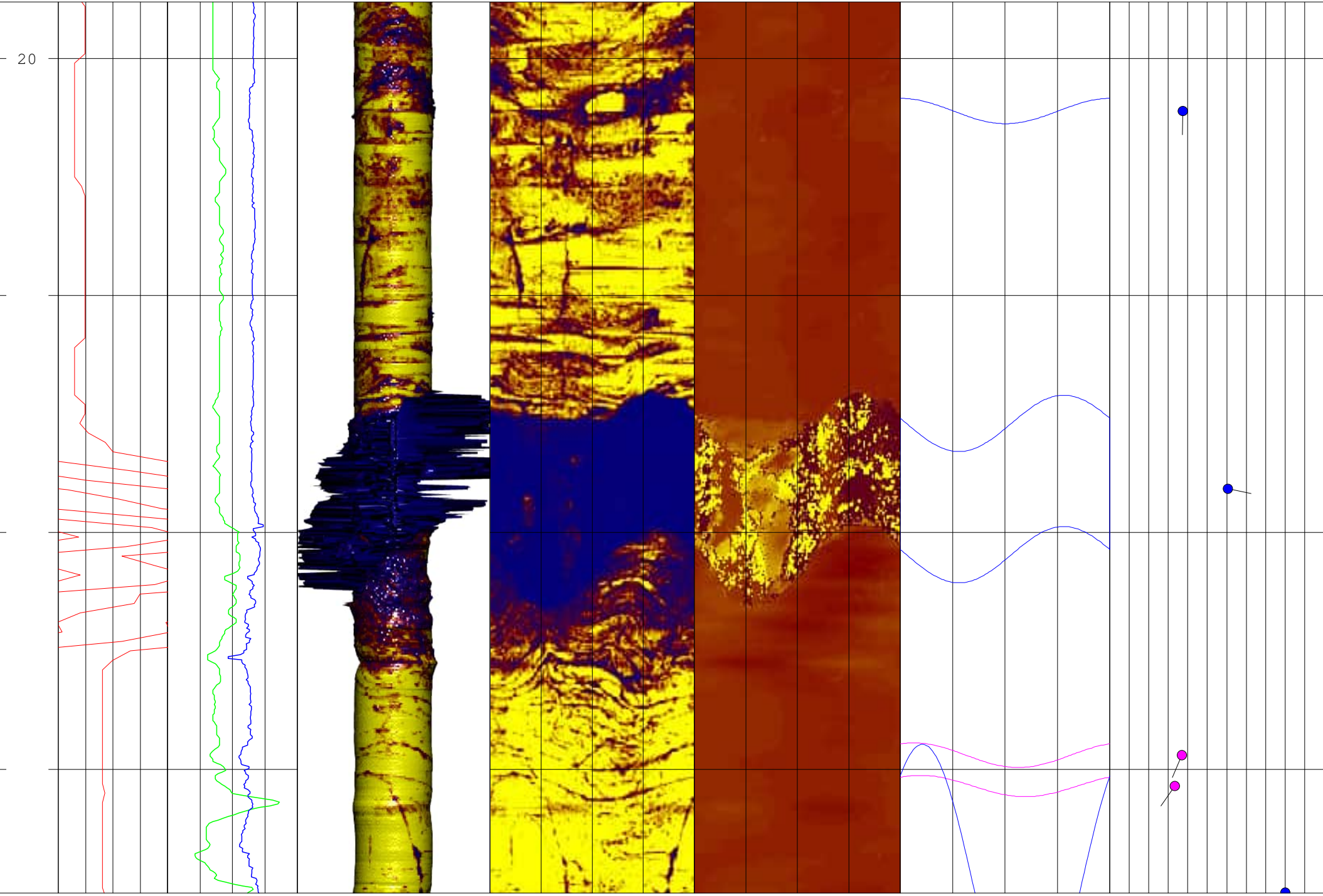
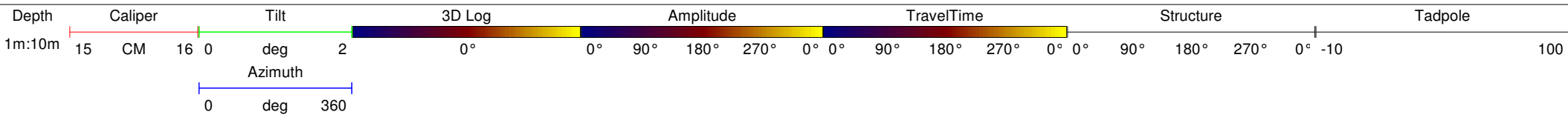


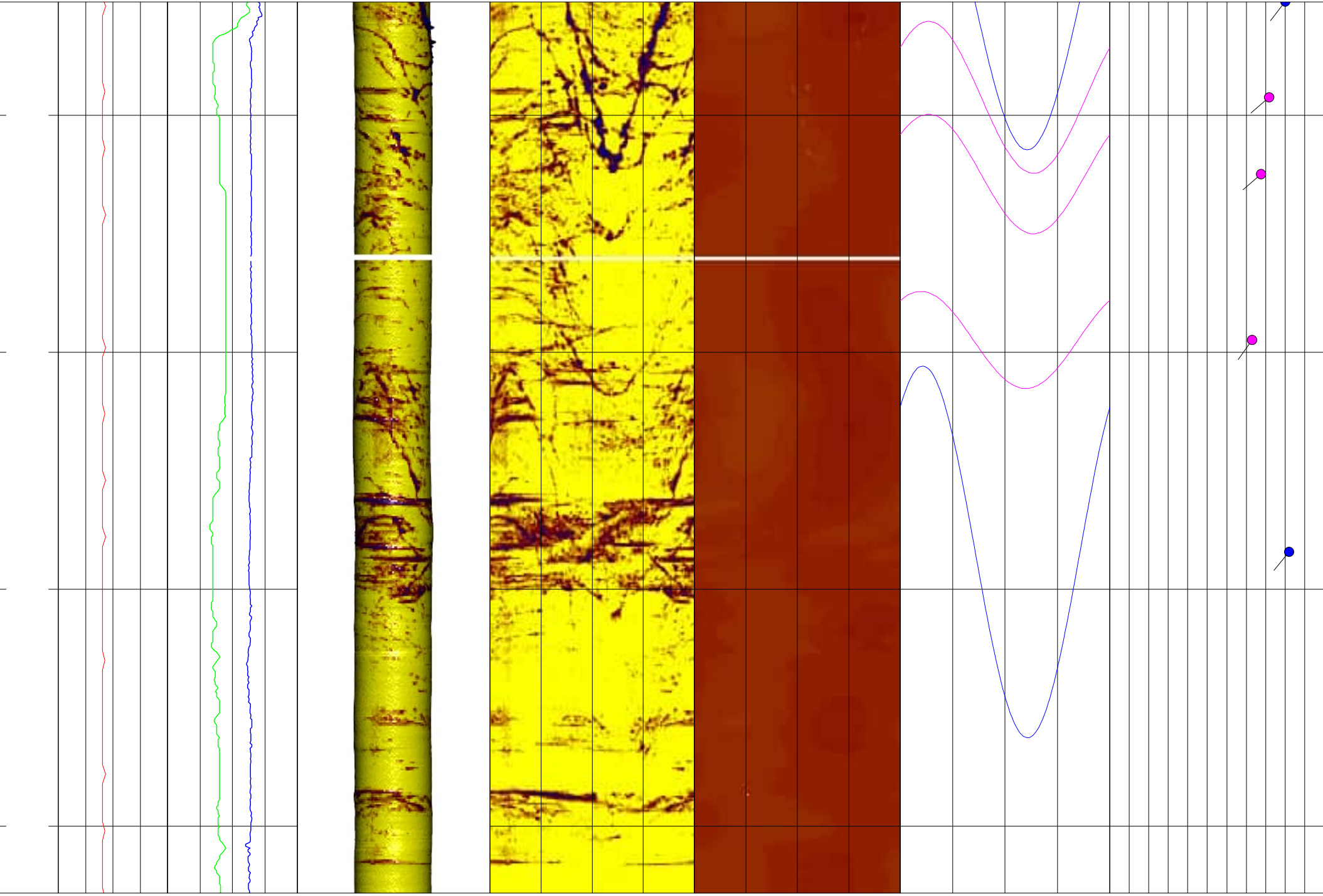
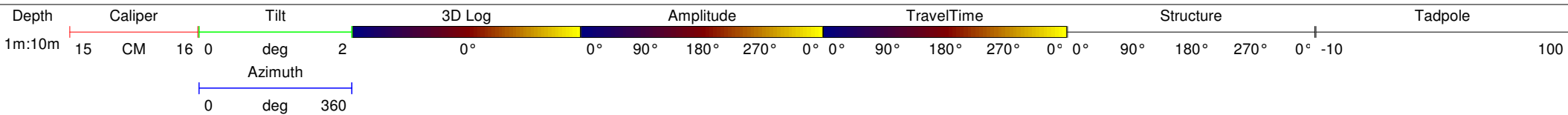


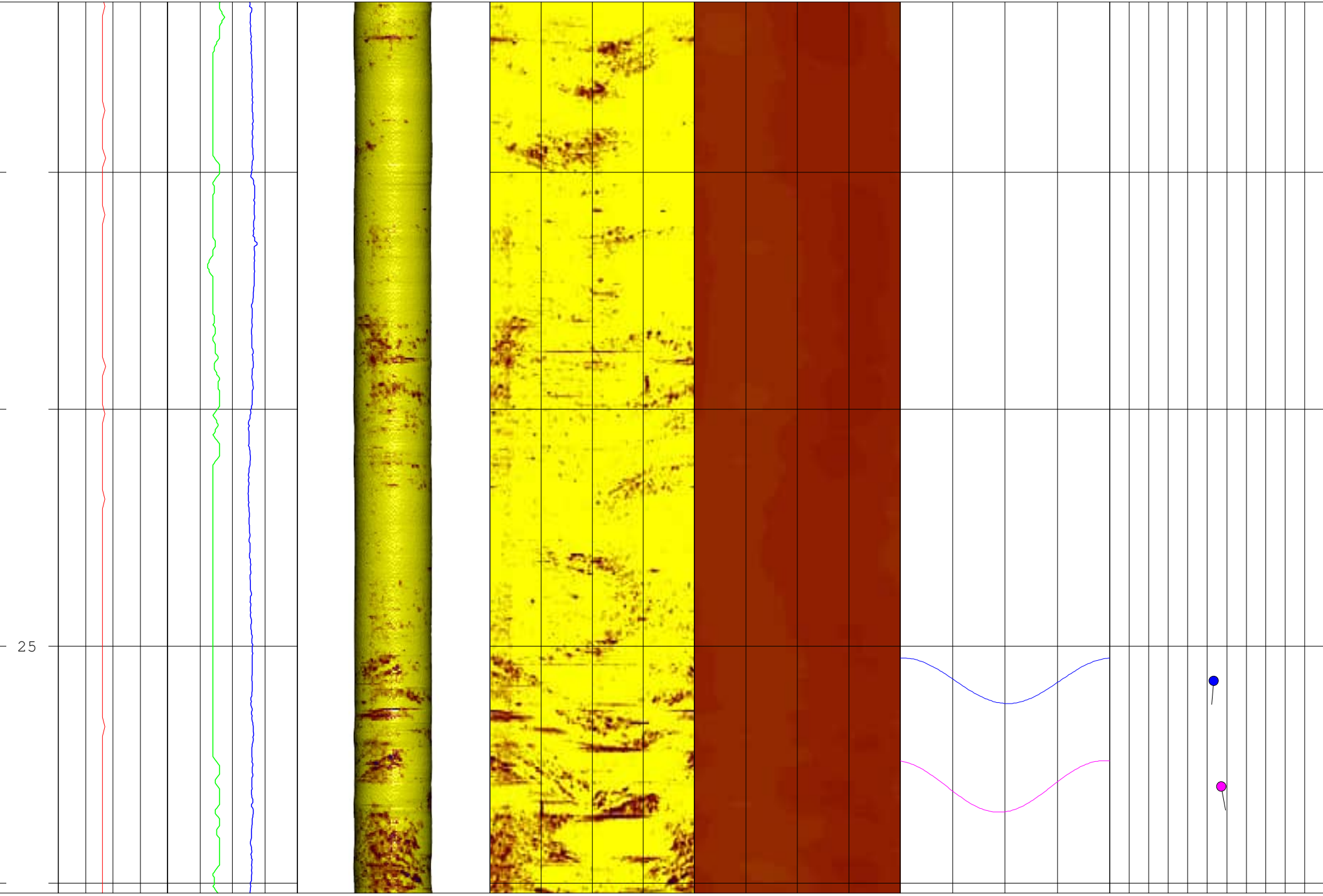
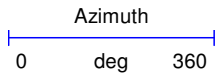
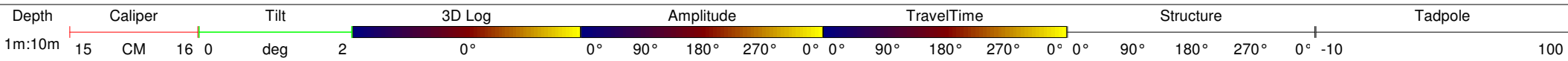


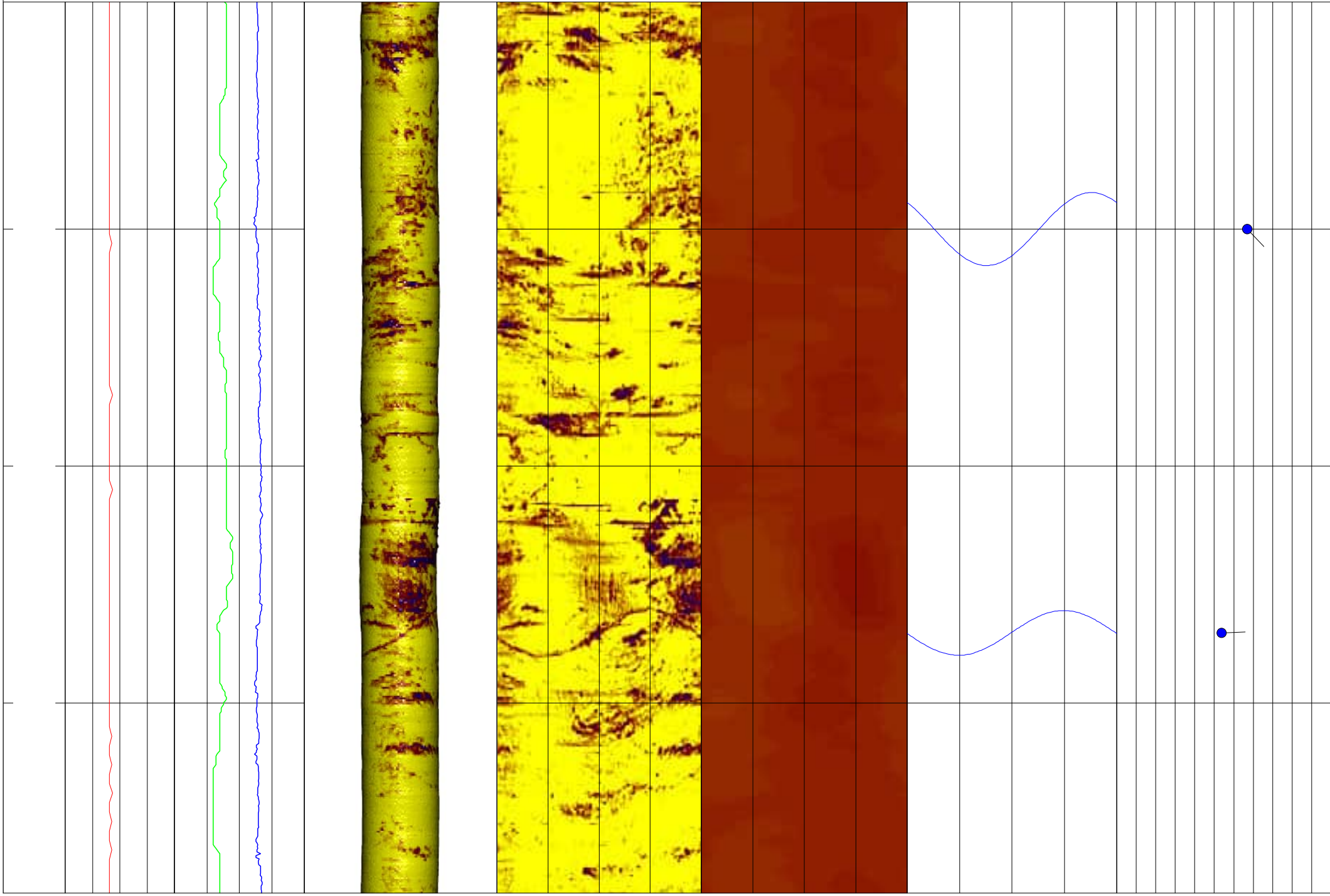
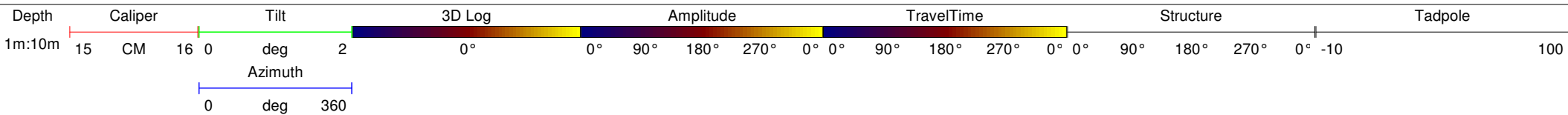


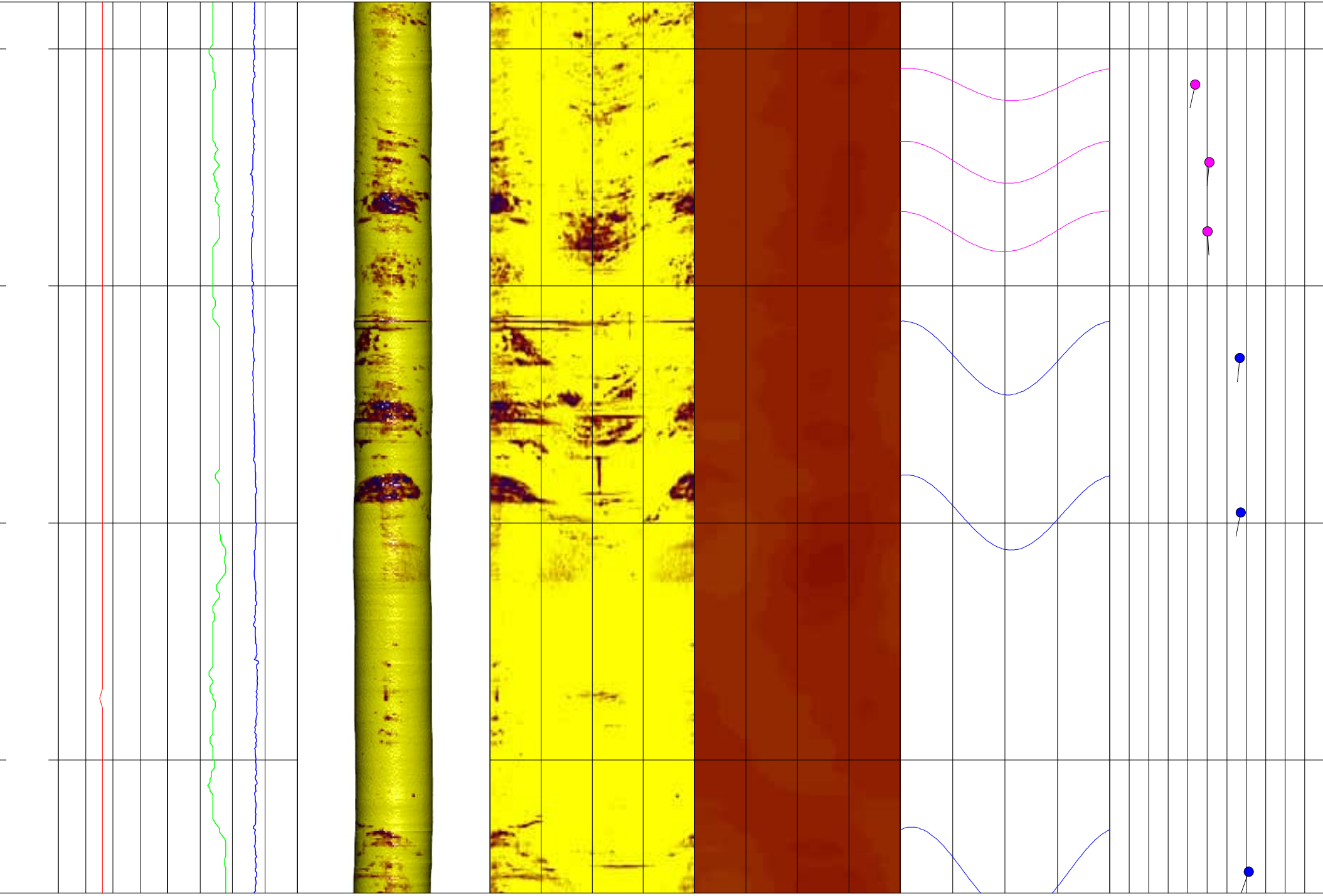
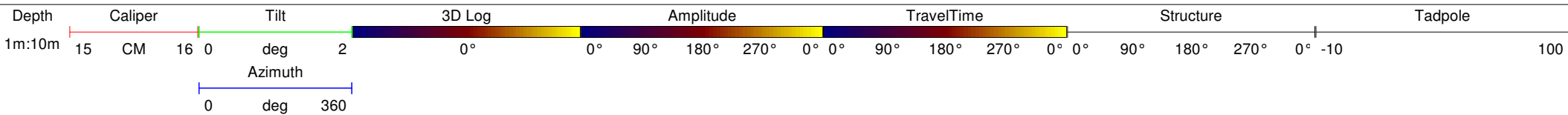


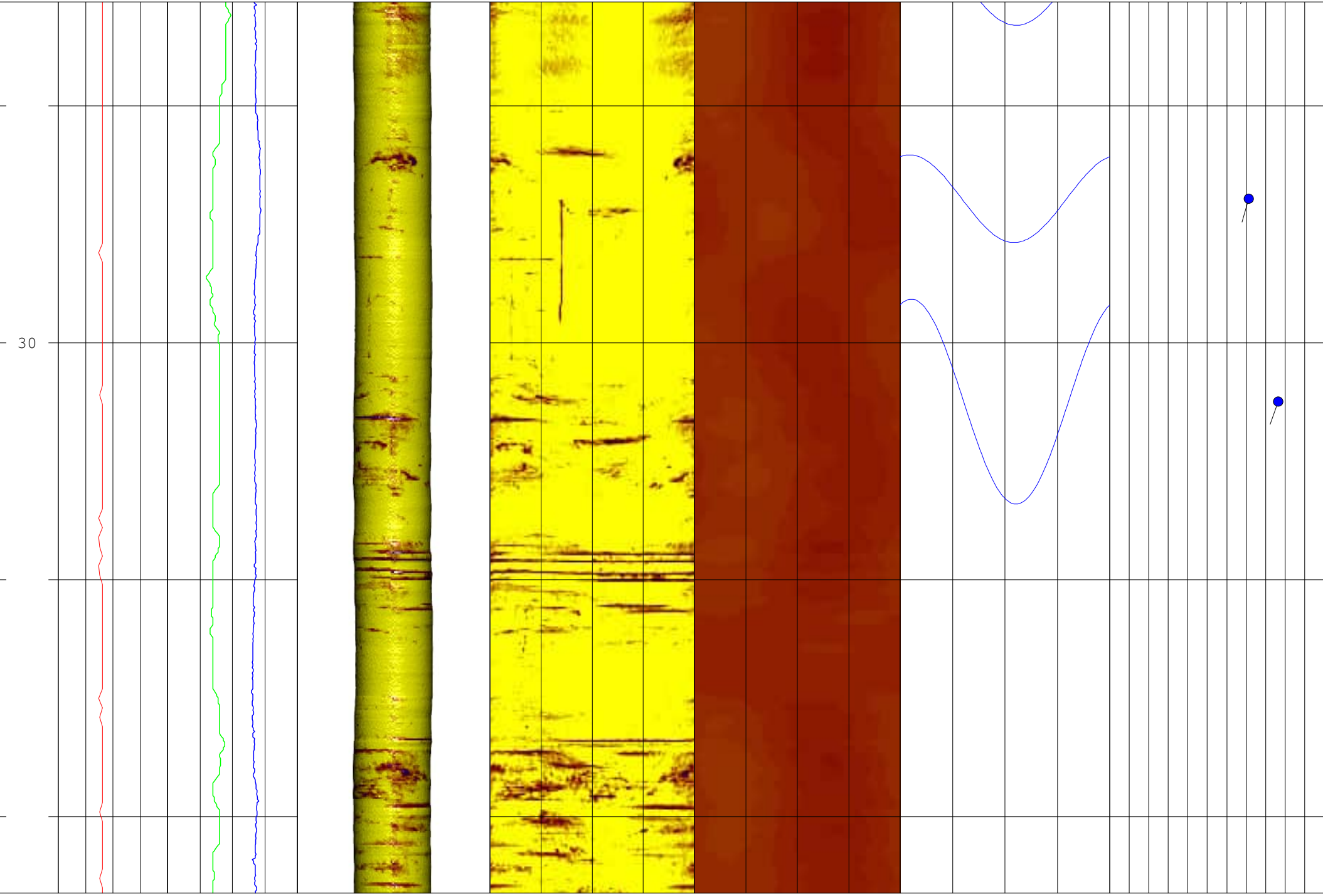
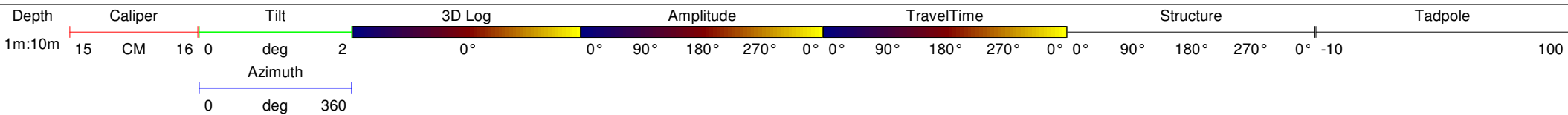


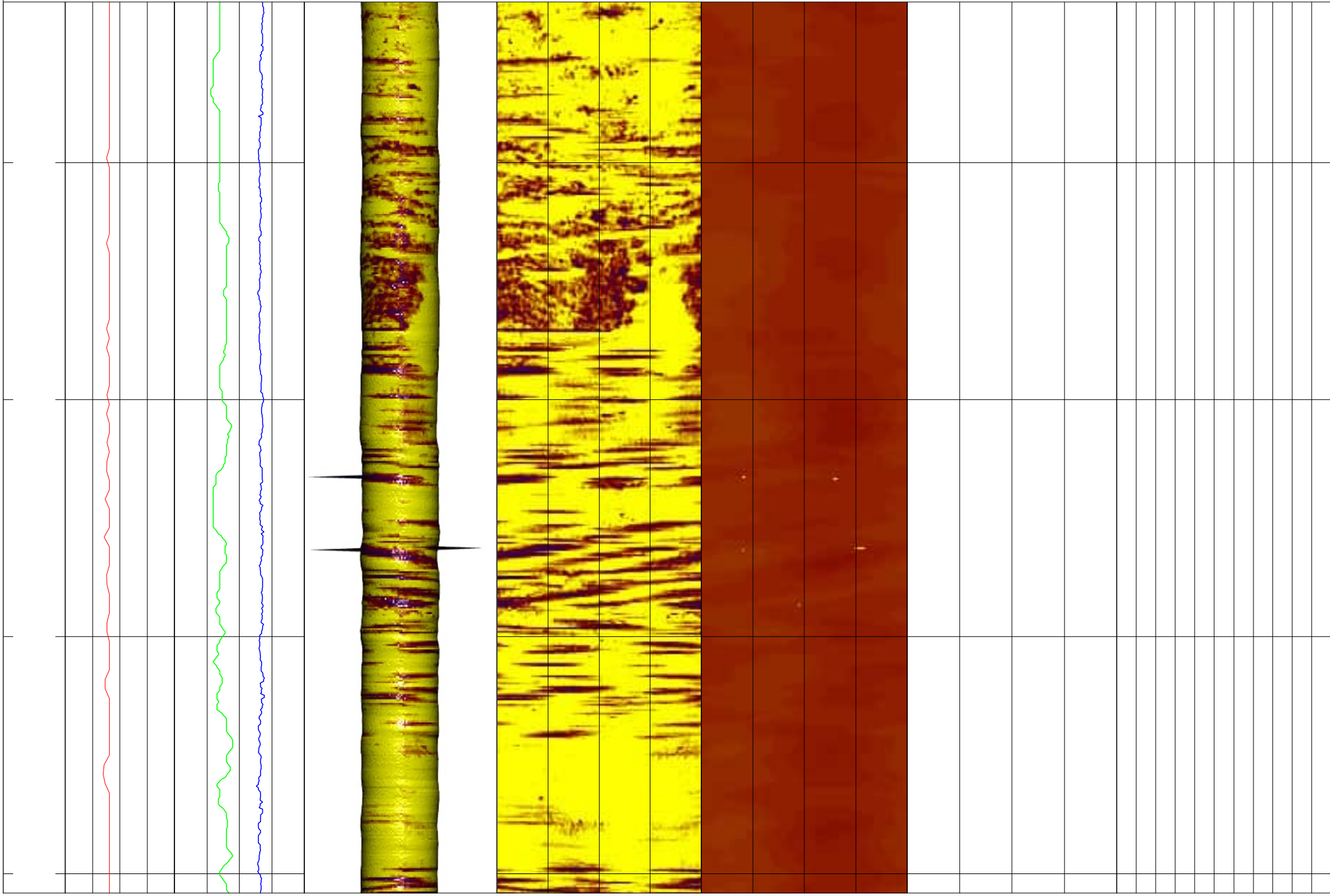
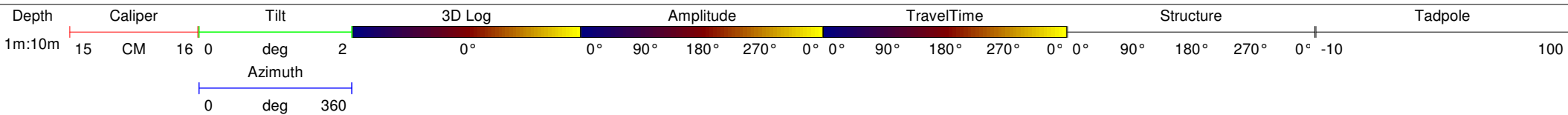


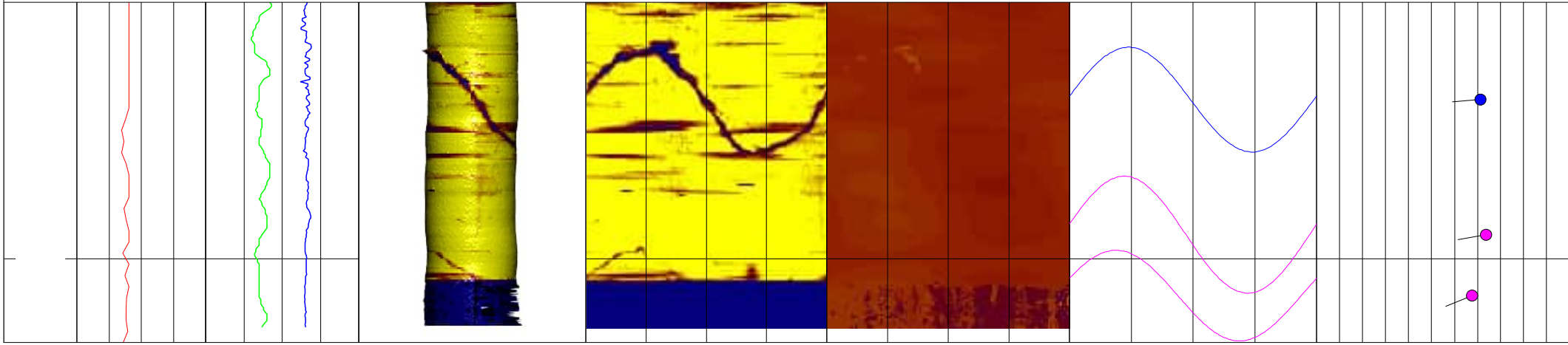
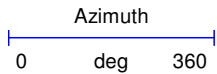
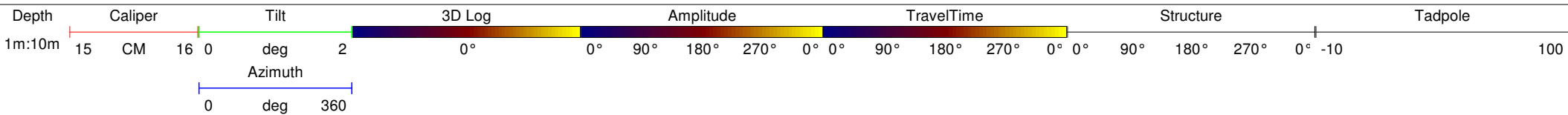
















# Fugro Engineering Services

Client: Scottish and Southern PLC

Log Type:

Acoustic Televiewer Log

Borehole: BH4

Project: CON103001 Sloy Power Station

Approved: [Redacted]

Location: Sloy      Grid Reference:      Elevation:

Drilled Depth: 35m      Date: 04/03/2010

Logged Depth: 33.99m      Recorded By: [Redacted]

Logging Datum: Ground Level

Remarks:

Logged Interval: North reference is magnetic, Tadpole log and tabulated data is corrected for borehole deviation

Fluid Level:

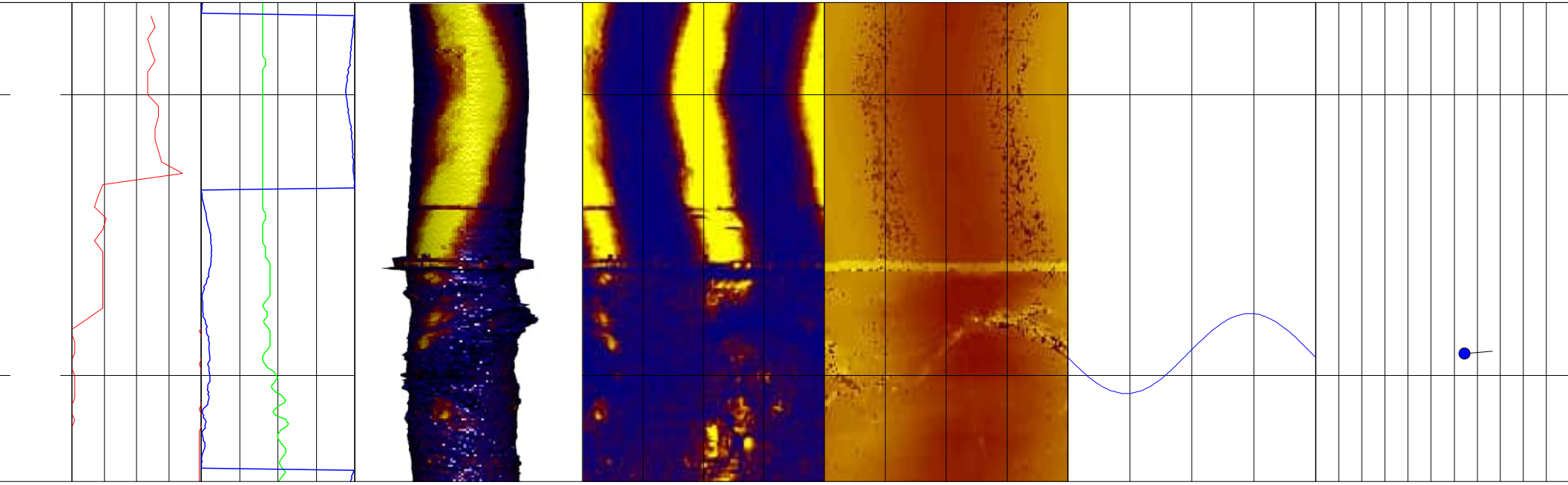
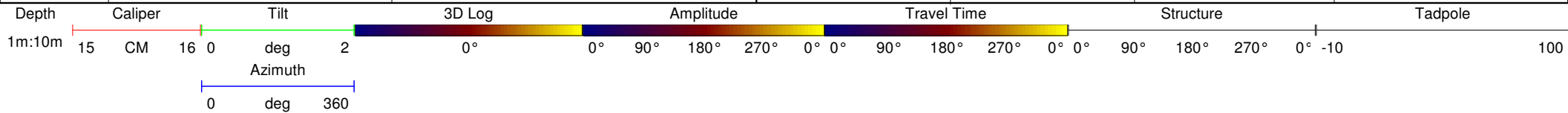
Structure Key: — Foliation — Fracture — Vein

## BOREHOLE RECORD

## CASING RECORD

| Bit Diameter: | From: | To:   |
|---------------|-------|-------|
| 150mm         | 0m    | 4.2m  |
| 120mm         | 4.2m  | 35.0m |

| Type  | Size  | From | To   |
|-------|-------|------|------|
| Steel | 150mm | 0m   | 4.2m |



Depth 1m:10m    Caliper 15 CM 16 0    Tilt 2 deg    3D Log 0°    Amplitude 0° 90° 180° 270° 0° 0°    Travel Time 0° 90° 180° 270° 0° 0°    Structure 90° 180° 270° 0° -10    Tadpole 100

Azimuth 0 deg 360

