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City Deep 4L2 Mine Dump Heritage Management

Heritage Impact Assessment

Prepared for:

Ergo Mining (Pty) Ltd

Project Number:

ERG6028



December 2020



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This document has been prepared by Digby Wells Environmental.

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- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
 - I declare that there are no circumstances that may compromise my objectivity in performing such work;
 - I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; and
- All the particulars furnished by me in this form are true and correct.



11 December 2020

Signature of the Specialist

Date

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 - I declare that there are no circumstances that may compromise my objectivity in performing such work;
 - I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; and
- All the particulars furnished by me in this form are true and correct.



11 December 2020

Signature of the Specialist

Date

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EXECUTIVE SUMMARY

Ergo Mining (Pty) Ltd (hereinafter Ergo) identified exposed human remains from a burial ground adjacent to the City Deep 4L2 Mine Dump in Johannesburg (hereinafter 4L2 Dump). Ergo appointed Digby Wells Environmental (hereinafter Digby Wells) to provide specialist support in respect of the discovery, comprising *inter alia* the development of the Heritage Site Management Plan (HSMP).

Digby Wells submitted A Site Inspection Report (SIR) and the HSMP to the South African Heritage Resources Agency (SAHRA) Burial Grounds and Graves (BGG) Unit for adjudication and approval August 2019. The SAHRA BGG Unit issued interim comment on the submitted documentation, to which clarification questions submitted in October 2019 remain unanswered.

Through informal communication with the SAHRA Heritage Protection Unit (HPU) representative, Ms. Machete, a “rescue permit application” process was required to reinter the exposed human remains prior to implementation of recommended mitigation and management measures. As there are no regulated requirements encapsulated in any legislation or regulations, Digby Wells proposed alignment with select actions prescribed in Chapter IX of GN R 548. This comprised an application supported by the following documentation:

- Letter of Appointment from Ergo to Digby Wells;
- Letter of Competency of Undertakers;
- Landowner Consent Letter;
- Application Fee Proof of Payment; and
- Motivation Cover Letter.

Subsequent to the submission of the Rescue Permit Application, the SAHRA HPU completed a site inspection on 25 August 2020. During the site inspection, it was noted the originally identified *ex-situ* remains are still located on the surface. In addition to this negative impact, additional impacts to the burial ground were identified and recorded by the SAHRA HPU. These included:

- The exposure of an additional grave, with coffin remains visible on the surface;
- The use of machinery within the burial ground; and
- Earth moving activities on the perimeter berm that have potentially damaged surface dressings of graves within the burial ground.

The SAHRA HPU have classified these incidences as contraventions of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) in terms of Section 36(3), and expose Ergo to fines in terms of Section 51(1)(b).

The SAHRA BGG Unit Case Officer redistributed Interim Comments on Case ID 14041 on 26 August 2020 that stipulates, prior to consideration of the Rescue Permit Application, the following requirements be fulfilled:

- The Rescue Permit Application be supported by a full Public Participation Process;
- A detailed Heritage Impact Assessment (HIA) be undertaken; and
- With the necessary authorisations, undertake test excavations and trenches to identify other graves or any other heritage resources in the larger area.

To comply with the SAHRA BGG Unit requirements issued on Case ID 14041, the heritage specialist completed an assessment of the manifested impacts to the burial ground and the manually excavated graves. A summary of this assessment is presented in the following table.

Impact Assessment Summary

Code	Impact	Pre-mitigation:						Post-mitigation:					
		Duration	Extent	Intensity	Consequence	Probability	Significance	Duration	Extent	Intensity	Consequence	Probability	Significance
Cemetery	Surface damage from silt and wash	Permanent	International	Extremely high - negative	Extremely detrimental	Certain	Major - negative	Project Life	Local	High - negative	Moderately detrimental	Likely	Minor - negative
Grave	Exposure of human remains	Medium term	International	Extremely high - negative	Highly detrimental	Certain	Major - negative	Short term	Very limited	High - negative	Slightly detrimental	Likely	Minor - negative
Cemetery	Surface damage from machinery	Short term	International	High - negative	Highly detrimental	Certain	Moderate - negative	Short term	Limited	High - negative	Slightly detrimental	Likely	Minor - negative
Surface Dressing	Surface damage from silt and wash	Permanent	International	Extremely high - negative	Extremely detrimental	Certain	Major - negative	Permanent	Limited	High - negative	Highly detrimental	Likely	Minor - negative

No comments from I&APs were recorded from the PPP undertaken, therefore to mitigate against these impacts, Digby Wells has recommends the following remedial actions:

- Reinterment of the *ex-situ* human remains with the authorisation of the SAHRA BGG Unit;
- Rehabilitation of the burial ground; and
- Implementation of the HSMP.

Where these recommendations are approved by the SAHRA BGG Unit and implemented by Ergo, Digby Wells believes the burial ground can be conserved *in situ* with minimal future risk to the burial ground and individual graves.

NHRA and GN R 326 Appendix 6 Legislated Requirements

Description	App. 6	NHRA	Section
Declaration that the report author(s) is (are) independent.	1(b)	-	Page iii
An indication of the scope of, and the purpose for which, the report was prepared.	1(c)	-	1
Details of the person who prepared the report and their expertise to carry out the specialist study.	1(a)	-	1.3
Outlines the legislative framework relevant to the specialist heritage study.	-	-	3
Identifies the specific constraints and limitations of the HIA, including any assumptions made and any uncertainties or gaps in knowledge.	1(i)	-	4
Describes the methodology employed in the compilation of this HIA.	1(e)	-	5
An indication of the quality and age of base data used for the specialist report.	1(cA)	-	5
The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment.	1(d)	-	5.5
Provides the baseline cultural landscape.	-	38(3)(a)	6.1
Motivates for the defined CS of the identified heritage resources and landscape.	-	38(3)(b)	8
A description of the potential impacts to heritage resources by project related activities, including: <ul style="list-style-type: none"> - Existing impacts on the site; - Possible risks to heritage resources; - Cumulative impacts of the proposed development; - Acceptable levels of change; and - Heritage-related risks to the project. 	1(cB)	38(3)(c)-	8
A description of the findings and potential implications of such findings on the impact of the proposed activity or activities.	1(j)	38(3)(c)	
Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives.	1(f)	-	

Description	App. 6	NHRA	Section
Considers the development context to assess the socio-economic benefits of the project in relation to the presented impacts and risks.	-	38(3)(d)	7
A description of any consultation process that was undertaken during the course of preparing the specialist report and the results of such consultation.	1(o)	38(3)(e)	10
A summary and copies of any comments received during any consultation process and where applicable all responses thereto.	1(p)	38(3)(e)	
Details the specific recommendations based on the contents of the HIA.	-	38(3)(g)	8 & 9
An identification of any areas to be avoided, including buffers.	1(g)		
Any mitigation measures for inclusion in the Environmental Management Programme (EMPr)	1(k)		
Any conditions for inclusion in the environmental authorisation.	1(l)		
Any monitoring requirements for inclusion in the EMPr or environmental authorisation.	1(m)		
A reasoned opinion— (i) whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	1(n)	38(3)(g)	11
Collates the most salient points of the HIA and concludes with the specific outcomes and recommendations of the study.	-	38(3)(f) 38(3)(g)	12
Lists the source material used in the development of the report.	1(cA)	-	13
A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	1(h)	-	6

Description	App. 6	NHRA	Section
Any other information requested by the competent authority.	1(q)	-	N/A

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1 Introduction

Ergo Mining (Pty) Ltd (hereinafter Ergo) identified exposed human remains from a burial ground adjacent to the City Deep 4L2 Mine Dump in Johannesburg (hereinafter 4L2 Dump) in May 2019. Ergo appointed Digby Wells Environmental (hereinafter Digby Wells) to provide specialist support in respect of the discovery.

This document serves as the detailed Heritage Impact Assessment (HIA) required by the South African Heritage Resources Agency (SAHRA) Burial Grounds and Graves (BGG) Unit, issued under Case ID 14041.

1.1. Terms of Reference

To comply with interim comments issued on Case ID 14041, Ergo are required to *inter alia* complete a detailed HIA contemplated in terms of Section 38(3) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).

1.2. Scope of Work

The Scope of Work (SoW) for the specialist HRM process included the compilation of an HIA report to comply with the requirements encapsulated in Section 38(3) of the NHRA. Digby Wells completed the following activities as part of the SoW:

- Description of the predominant cultural landscape supported through primary and secondary data collection;
- Assessment of the Cultural Significance (CS) of the identified heritage resources;
- Identification of potential impacts to heritage resources based on the Project description and Project activities;
- An evaluation of the potential impacts to heritage resources relative to the sustainable socio-economic benefits that may result from the Project;
- Recommending feasible management measures and/or mitigation strategies to avoid and/or minimise negative impacts and enhance potential benefits resulting from the Project; and
- Submission of the HIA report to the HRAs for Statutory Comment as required under Section 38(8) of the NHRA.

1.3. Expertise of the Specialist

Table 1-1 presents a summary of the expertise of the specialists involved in the compilation of this report. Appendix B includes the full CVs of these specialists.

Table 1-1: Expertise of the Specialists

Team Member	Bio Sketch
<p>Shannon Hardwick</p> <p>ASAPA Member: 451 ICOMOS Member 38048</p> <p>Years' Experience: 3</p>	<p>Shannon joined the Digby Wells team in May 2017 as a Heritage Management Intern and has most recently been appointed as a Heritage Resources Management Consultant. Shannon is an archaeologist who obtained a Master of Science (MSc) degree from the University of the Witwatersrand in 2013, specialising in historical archaeobotany in the Limpopo Province. She is a published co-author of one paper in <i>Journal of Ethnobiology</i>. Since joining Digby Wells, Shannon has gained generalist experience through the compilation of various heritage assessments, including Heritage Scoping Reports (HSRs), HIAs, Heritage Basic Assessment Reports (HBARs) and Section 34 permit applications. Her other experience includes compiling a Community Health, Safety and Security Management Plan (CHSSMP) and various social baselines, including researching Artisanal and Small-Scale Mining as part of a Livelihood Restoration Framework (LRF). Shannon's experience in the field includes pre-disturbance surveys in South Africa, Malawi and the Democratic Republic of the Congo and fieldwork in Malawi.</p>
<p>Justin du Piesanie</p> <p>ASAPA Member 270 ASAPA CRM Unit ICOMOS Member 14274 IAIAAsa Member</p> <p>Years' Experience: 12</p>	<p>Justin is the Divisional Manager for Social and Heritage Services at Digby Wells. He obtained his Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. Justin also attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2013. Justin is a professional member of the Association of Southern African Professional Archaeologists (ASAPA) and accredited by the association's Cultural Resources Management (CRM) section. He is also a member of the International Council on Monuments and Sites (ICOMOS), an advisory body to the UNESCO World Heritage Convention. He has over 12 years combined experience in HRM in South Africa, including heritage assessments, archaeological mitigation, grave relocation, NHRA Section 34 application processes, and Conservation Management Plans (CMPs). Justin has gained further generalist experience since his appointment at Digby Wells in Botswana, Burkina Faso, Cameroon, the Democratic Republic of Congo, Liberia, Malawi, Mali and Senegal on projects that have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. Furthermore, Justin has acted as a technical expert reviewer of HRM projects undertaken in Cameroon, Malawi and Senegal. Justin's current focus at Digby Wells is to develop the HRM process as an integrated discipline following international HRM principles and standards. This approach aims to provide clients with comprehensive, project-specific solutions that promote ethical heritage management and assist in achieving strategic objectives.</p>

2. Project Description

Ergo reclaim historic sand dumps and slime dams deposited as tailings by mines that once operated in the greater Witwatersrand area. Through reclamation activities, the company is responsible for the removal of a source of environmental pollution, the rehabilitation of disturbed areas, and the unlocking of key urban land for development.

In 2011, Crown Gold Recoveries (Pty) Ltd (hereinafter Crown Gold Recoveries) appointed Digby Wells to complete a Section 102 Amendment Process in respect of the Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) to the existing City Deep Environmental Management Plan (EMP). The amendment was required to include reclamation of the 4L2 Dump into their authorisation. Digby Wells, on behalf of Crown Gold Recoveries, undertook a consultative Public Participation Process (PPP) in support of the amendment application. The PPP complied with the regulatory requirements, utilising a combination of various methodologies to meet the needs of various Interested and Affected Parties (I&APs). Furthermore, several specialist studies were undertaken in support of the amendment process, including a Heritage Statement to comply with Section 38(8) of the NHRA.

Digby Wells did not identify any known sites of archaeological or heritage significance¹ during this assessment. Similarly, no I&APs indicated the presence of any tangible or intangible heritage resources that could potentially be impacted from Project related activities. Based on these findings, the SAHRA had no objection to the Project with the proviso that the supplied management and monitoring plan be implemented throughout the course of the development².

Subsequent to the 2011 study, Ergo representatives identified exposed human remains in a manually-excavated hole adjacent to the 4L2 Dump. These remains originate from a previously-unidentified burial ground. In accordance with the monitoring plan, the South African Police Service (SAPS) immediately inspected the site and contacted the SAHRA BGG Unit in turn.

The SAHRA BGG Unit inspected the site and noted the following:

- *Ex-situ* human remains were visible on the surface;
- The cemetery did not have any defined boundaries;
- There was no evidence that buffers had been implemented around the cemetery;
- Silt and wash resulting from mining activities and mine dump run-off had caused damage to the surface' and
- There are service roads within proximity to visible graves.

¹ These results were supported by a site inspection and consultation with surrounding landowners who indicated no known graves occurred within the immediate vicinity.

² Please refer to Appendix B of the Heritage Statement available at https://sahris.sahra.org.za/sites/default/files/heritagereports/CRO795_HeritageStatement_Final_27312_Combined.pdf

Digby Wells undertook a site inspection, accompanied by Ergo representatives. Following this inspection, Digby Wells contacted the SAHRA BGG Unit telephonically to confirm a suitable way forward.



Figure 2-1: Photographs of the Manually- Excavated Hole and the Exposed Human Remains During the Site Inspection, May 2019

3. Relevant Legislation, Standards and Guidelines

Table 3-1 presents a summary of the national legislation applicable to this HRM process and illustrates how it will be considered in the HIA. Table 3-2 below presents the applicable policies considered in the HIA process.

Table 3-1: Applicable legislation considered in the HRM process

Applicable legislation used to compile the report	Reference where applied
<p><u>Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)</u></p> <p>Section 24 of the Constitution states that everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures, that –</p> <ul style="list-style-type: none"> i. Prevent pollution and ecological degradation; ii. Promote conservation; and iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development 	<p>The HRM process was undertaken to identify heritage resources and determine heritage impacts associated with the Project.</p> <p>As part of the HRM process, applicable mitigation measures, monitoring plans and/or remediation were recommended to ensure that any potential impacts are managed to acceptable levels to support the rights as enshrined in the Constitution.</p>
<p><u>National Environmental Management Act, 1998 (Act No. 107 of 1998)</u></p> <p>The NEMA, as amended, was set in place in accordance with section 24 of the Constitution of the Republic of South Africa. Certain environmental principles under NEMA have to be adhered to, to inform decision making on issues affecting the environment. Section 24 (1)(a), (b) and (c) of NEMA state that:</p> <p><i>The potential impact on the environment, socio-economic conditions and cultural heritage of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity.</i></p> <p>The Environmental Impact Assessment (EIA) Regulations, Government Notice Regulation (GN) R.982 were published on 04 December 2014 and promulgated on 08 December 2014. Together with the EIA Regulations, the Minister also published GN R.983 (Listing Notice No. 1), GN R.984 (Listing Notice No. 2) and GN R.985 (Listing Notice No. 3) in terms of Sections 24(2) and 24D of the NEMA, as amended.</p>	<p>The 2011 application process was undertaken in accordance with the principles of Section 2 of NEMA as well as with the EIA 2014 Regulations, promulgated in terms of NEMA.</p> <p>No further NEMA requirements are applicable in respect of the current HIA process.</p>

Applicable legislation used to compile the report	Reference where applied
<p><u>National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)</u></p> <p>The NHRA is the overarching legislation that protects and regulates the management of heritage resources in South Africa, with specific reference to the following Sections:</p> <ul style="list-style-type: none"> ● 5. General principles for HRM ● 6. Principles for management of heritage resources ● 7. Heritage assessment criteria and grading ● 38. Heritage resources management <p>The Act requires that Heritage Resources Authorities (HRAs), be notified as early as possible of any developments that may exceed certain minimum thresholds in terms of Section 38(1), or when assessments of impacts on heritage resources are required by other legislation in terms of Section 38(8) of the Act.</p>	<p>This HIA was compiled to comply with interim comments issued by the SAHRA BGG Unit, and in accordance with Sections 5, 38(3), and (4) of the NHRA.</p>
<p><u>NHRA Regulations, 2000 (GN R 548)</u></p> <p>The NHRA Regulations regulate the general provisions and permit application process in respect of heritage resources included in the national estate. Applications must be made in accordance with these regulations. The following Chapters are applicable to this assessment:</p> <ul style="list-style-type: none"> ● II. Permit Applications and General Provisions for Permits; ● III: Application for Permit: National Heritage Site, Provincial Heritage Site, Provisionally-Protected Place or Structure older than 60 years; ● IV: Application for Permit: Archaeological or Palaeontological or Meteorite; ● IX: Application for Permit: Burial Grounds and Graves; ● X: Procedure for Consultation regarding Protected Area; 	<p>The HRM process was undertaken with cognisance of the applicable regulations. This notwithstanding, no regulations or policy / procedure documents for a rescue excavation permit process, for which this prescribed HIA and the PPP / Consultation, is available.</p>

Applicable legislation used to compile the report	Reference where applied
<ul style="list-style-type: none"> ● XI: Procedure for Consultation regarding Burial Grounds and Graves; and ● XII: Discovery of Previously Unknown Graves. 	

Table 3-2: Applicable policies considered in the HRM process

Applicable policies used to compile the report	Reference where applied
<p><u>SAHRA Archaeology, Palaeontology and Meteorites (APM) Guidelines: Minimum Standards for the Archaeological and Palaeontological Components of Impact Assessment Reports (2007)</u></p> <p>The guidelines provide the minimum standards that must be adhered to for the compilation of a HIA (2007) and/or Palaeontological Impact Assessment (PIA) report (2012).</p> <p>Chapter II Section 7 outlines the minimum requirements for inclusion in the heritage assessment as follows:</p> <ul style="list-style-type: none"> ● Background information on the Project; ● Background information on the cultural baseline; ● Description of the properties or affected environs; ● Description of identified sites or resources; ● Recommended field rating of the identified sites to comply with Section 38 of the NHRA; ● A statement of Cultural Significance in terms of Section 3(3) of the NHRA; and ● Recommendations for mitigation or management of identified heritage resources. <p>Chapter II, Section 8 outlines the minimum requirements for a PIA report. The information requirements are similar as for the HIA report but must additionally include a 1:50 000 geological map showing the geological context of the Project.</p>	<p>The HIA was compiled to adhere to the minimum standards as defined by Chapter II of the SAHRA Minimum Standards (2007).</p>

4. Assumptions, Limitations and Exclusions

The compilation and outcomes of this assessment are based on the following assumptions, limitations and exclusions:

- The HIA adheres to the minimum requirements as encapsulated in Section 38(3) of the NHRA and SAHRA Minimum Standards (2007), however is limited to Section 36 Heritage Resources and does not consider those protected under Sections 34 or 35 of the Act;
- The GPR Assessment is limited to areas conducive to scanning, i.e. areas in which topography, surface features and vegetation do not preclude scanning; and
- The age of the burial ground and consequently the age of the human remains may have influenced the results of the GPR scans where human remains may now be absent or minimal due to natural decomposition and settling of the substrate.

5. Methodology

5.1. Defining the Study Area

Heritage resources do not exist in isolation to the greater natural and social environment, including the socio-cultural, socio-economic and socio-political environments. In addition, the NHRA requires the grading of heritage resources in terms of national, provincial and local concern based on their importance and consequent official (i.e. State) management effort required. The type and level of baseline information required to adequately predict heritage impacts varies between these categories. Three nested study areas were defined for the purposes of this study, and include:

- The *local* study area: the area most likely to be influenced by any changes to heritage resources in the Project area, or where project development could cause heritage impacts. The local study area is defined as the area bounded by the local municipality and includes particular reference to the immediate surrounding properties or farms. The local study area is specifically examined to offer a backdrop to the socio-economic conditions within which the proposed development will occur. The local study area furthermore provides the local development and planning context that may contribute to cumulative impacts. The Project is situated in the City of Johannesburg (CoJ);
- The *Mining Right Boundary* study area or *Mining Right Area*: the farm portions extent associated with the Mining Right area, including a 500 m buffer area; and
- The *Project area*: the farm portions extent associated with the proposed Project and which includes the Project infrastructure. In this instance the property Doornfontein 92 IR and includes a 100 m buffer.

5.2. Statement of Cultural Significance

Digby Wells designed the significance rating process to provide a numerical rating of the CS of identified heritage resources. This process considers heritage resources assessment criteria set out in subsection 3(3) of the NHRA, which determines the intrinsic, comparative and contextual significance of identified heritage resources. A resource's importance rating is

based on information obtained through review of available credible sources and representativity or uniqueness (i.e. known examples of similar resources to exist).

The rationale behind the heritage value matrix takes into account that a heritage resource's value is a direct indication of its sensitivity to change (i.e. impacts). Value, therefore, was determined prior to completing any assessment of impacts.

The matrix rated the potential, or importance, of an identified resource relative to its contribution to certain values – aesthetic, historical, scientific and social. Resource significance is directly related to the impact on it that could result from Project activities, as it provided minimum accepted levels of change to the resource.

5.3. Definitions of Heritage Impacts

Potential impacts to heritage resources may manifest differently across geographical areas or diverse communities when one considers the simultaneous effect to the tangible resource and social repercussions associated with the intangible aspects. Furthermore, potential impacts may concurrently influence the CS of heritage resources. This assessment therefore considers three broad categories adapted from Winter & Baumann (2005, p. 36). These are described in Table 5-1.

Table 5-1: Impact Definition

Category	Description
Direct Impact	Affect the fabric or physical integrity of the heritage resource, for example destruction of an archaeological site or historical building. Direct impacts may be the most immediate and noticeable. Such impacts are usually ranked as the most intense but can often be erroneously assessed as high-ranking.
Indirect Impact	Occur later in time or at a different place from the causal activity, or as a result of a complex pathway. For example, restricted access to a heritage resource resulting in the gradual erosion of its CS that may be dependent on ritual patterns of access. Although the physical fabric of the resource is not affected through any direct impact, its significance is affected to the extent that it can ultimately result in the loss of the resource itself.
Cumulative Impact	Result from in-combination effects on heritage resources acting within a host of processes that are insignificant when seen in isolation, but which collectively have a significant effect. Cumulative effects can be: <ul style="list-style-type: none"> ● Additive: the simple sum of all the effects, e.g. the reclamation of a historical Tailings Storage Facility (TSF) will minimise the sense of the historic mining landscape. ● Synergistic: effects interact to produce a total effect greater than the sum of the individual effects, e.g. the removal of all historical TSFs will sterilise the historic mining landscape.

Category	Description
	<ul style="list-style-type: none"> • Time crowding: frequent, repetitive impacts on a particular resource at the same time, e.g. the effect of regular blasting activities on a nearby rock art site or protected historical building could be high. • Neutralizing: where the effects may counteract each other to reduce the overall effect, e.g. the effect of changes from a historic to modern mining landscape could reduce the overall impact on the sense-of-place of the study area. • Space crowding: high spatial density of impacts on a heritage resource, e.g. density of new buildings resulting in suburbanisation of a historical rural landscape.

5.4. Secondary Data Collection

Digby Wells used the secondary data available at the National Archives of South Africa (NASA) to obtain more information on the affected burial ground. Table 5-2 indicates the databases available to search at the NASA.

Table 5-2: NASA Databases

Database	Data
GEN	South African Genealogical Society on Gravestones
HER	Bureau of Heraldry on registered heraldic representations
KAB	Cape Town Archives Repository
MAN	National Registers of Manuscripts and Photographs National Archives' cartographic and library materials, microfilms and copies
NAB	Pietermaritzburg Archives Repository
OVM	National Register of Audio-Visual Material
ROS	National Register of Oral Sources
RSA	All Archives Repositories and National Register of non-public records
SAB	National Archives Repository (public records of Central Government since 1910)
TAB	National Archives Repository (public records of the former Transvaal Province and its predecessors, magistrates and local authorities)
TBD	Durban Archives Repository
TBE	Port Elizabeth Archives Repository
TBK	Cape Town Records Centre
VAB	Free State Archives Repository

Considering the location and context of the burial ground, Digby Wells focused their research on the RSA, SAB and TAB databases. Using a variety of search terms, searching these databases yielded ten reference volumes applicable to the City Deep Mine, including the compound, mine hospital and married quarters and a further two volumes applicable to the property on which the burial ground is located. No records were identified that made direct reference to the affected burial ground.

The reference numbers were taken to the National Archives and Records Services of South Africa in Pretoria. Digby Wells then reviewed the available archival material to obtain any additional information regarding the burial ground. These findings are included in Section 6.1.

5.5. Primary Data Collection

Digby Wells undertook site inspection survey of the burial ground in May and June 2019 . As part of this HRM process, Justin du Piesanie and Shannon Hardwick completed a pedestrian survey to record, as far as possible, the number of individual graves and, in turn, the areal extent of the burial ground. The identified graves were based on visible surface indicators recorded through GPS waypoints and photographs. The heritage specialists did not employ any Ground Penetrating Radar (GPR) technology or intrusive methodologies during the site inspection at this stage.

Digby Wells completed a second site inspection, accompanied by Ms. Machete of the SAHRA Heritage Protection Unit (HPU), on 25 August 2020. The second site inspection was undertaken as a pedestrian survey.

A specialist team lead by Hennie le Roux from Subscan undertook a GPR survey between 2 and 13 November 2020 using a GSSI Utility Scan DF. GPR transmits an electromagnetic pulse into the ground from the surface and records the strength and time required for the return of the reflected signal. This technology allows for a non-intrusive sub-surface image to be created using RADAN7 software. A total of 34 10 x 10 m areas were scanned with the intent of identifying the extent of the burial as required by the SAHRA BGG Unit (*Refer to Section 4 of the GPR Specialist Report included as Appendix D*).

5.6. Public Participation Process

Digby Wells developed public announcement materials to comply with NHRA Regulation 39. The materials included:

- Print media notices; and
- Site Notices.

**SECTION 36 RESCUE PERMIT NOTIFICATION FOR THE MITIGATION OF BURIAL GROUND ADJACENT TO
THE CITY DEEP 4L2 MINE DUMP, JOHANNESBURG**

Ergo Mining (Pty) Ltd (hereinafter Ergo) identified exposed human remains from a burial ground adjacent to the City Deep 4L2 Mine Dump in Johannesburg (hereinafter 4L2 Dump). Ergo appointed Digby Wells Environmental (hereinafter Digby Wells) to provide specialist support in respect of the discovery. Digby Wells submitted a Site Inspection Report and Heritage Site Management Plan to the South African Heritage Resources Agency (SAHRA) Burial Grounds and Graves (BGG) Unit for adjudication.

To mitigate the manifested impact on the burial ground, Digby Wells made a Section 36 Rescue Permit Application to re-inter the *ex-situ* remains. The SAHRA BGG Unit issued interim comment requiring Ergo to implement the required Public Participation Process to comply with Chapter XI of the NHRA Regulations published in GN R 548 of GG 1239 of 2000.

Any Interested and Affected Parties (I&APs) who wish to comment on the Rescue Permit Application are invited to do so in writing to: The South African Heritage Resources Agency (SAHRA) Burial Grounds and Graves (BGG) Unit: Mimi Seetelo (MSeetelo@sahra.org.za) and Digby Wells Environmental (Shannon Hardwick) at Tel: (011) 789 9495; Fax: (011) 069 6801 or Email: sh@digbywells.com.

Commenting period for S.36 Notification

Start of public commenting period: 09 September 2020

End of public commenting period: 08 November 2020

Location of I&AP registration form:

<http://www.digbywellsdocs.com/PublicDocuments/>

Figure 5-1: Media Notice



SECTION 36 RESCUE PERMIT NOTIFICATION FOR THE MITIGATION OF BURIAL GROUND ADJACENT TO THE CITY DEEP 4L2 MINE DUMP, JOHANNESBURG

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Commenting period for S.36 Notification:

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<p>Location of I&AP Registration form</p>	<p>http://www.digbywellsdocs.com/PublicDocuments/</p>
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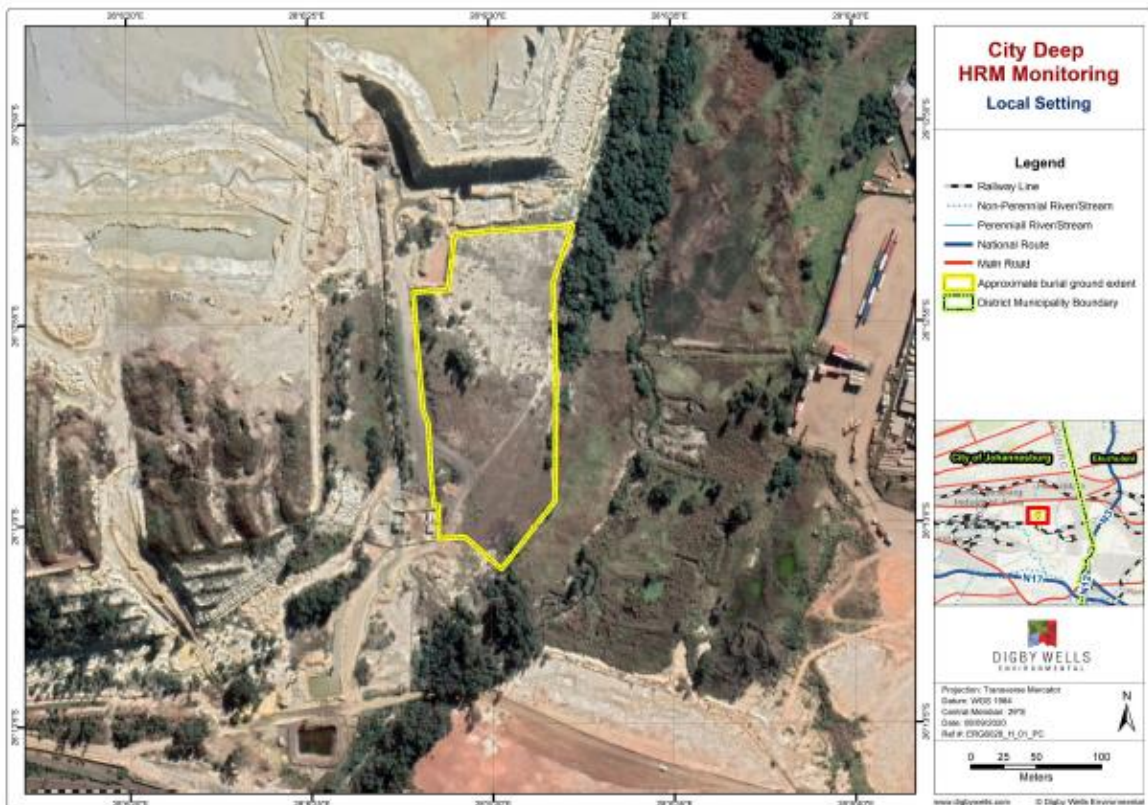


Figure 5-2: Site Notice

As part of the regulated process, Digby Wells facilitated the placement of advertisements in the Sowetan and The Star newspapers on 9 September 2020. Further to the advertisements, Digby Wells placed site notices at the following locations:

- The City Deep 4L2 Burial Ground;
- The Cleveland SAPS Station;
- The Primrose Pick n Pay;
- The Steeledale Pick n Pay; and
- The Jeppes SAPS Station.

Over and above the regulated requirements, Digby Wells compiled an information pamphlet. The information pamphlet was placed in strategic locations on 21 October 2020. These included:

- The Steeledale Pick n Pay; and
- The Cleveland SAPS Station.

Refer to Appendix C for details pertaining to the PPP undertaken in support of the report and permit application process.

6. Findings and Discussion

This HIA considers the manifested impacts to a burial ground associated with the historic City Deep Mine in Johannesburg. As such, the baseline description is limited to the historical period, with specific emphasis on gold mining in Johannesburg to provide the reader with contextual information pertinent to the burial ground considered herein.

6.1. Baseline Description

Historically, early settlement by the Voortrekkers occurred subsequent to a mass exodus of local inhabitants as a consequence of the *Mfecane*. This early settlement of Voortrekkers in the region was primarily associated with agrarian economies until the discovery of gold on the Witwatersrand in 1886 by George Harrison. This discovery sparked a gold rush with many prospectors staking claim to tracts of land trying to strike it rich. Gold bearing conglomerate could easily be extracted as these surface outcrops had been weathered by the elements (Brodie, 2008). The earliest cartographic information for the study area is the 1899 Jeppe Map of the Transvaal. At the time of this map's compilation, the South African War (Second-Anglo Boer War) erupted on 11 October 1899. Migrant African mine workers suffered during this period. Those that remained in the mining compounds suffered through outbreaks of scurvy due to the lack of fresh produce, while those that fled were robbed of their wages and possessions by Boer commandos (Warwick, 1983). During 1901, 'native' concentration camps were established to deal with African refugees in the aftermath of the war.

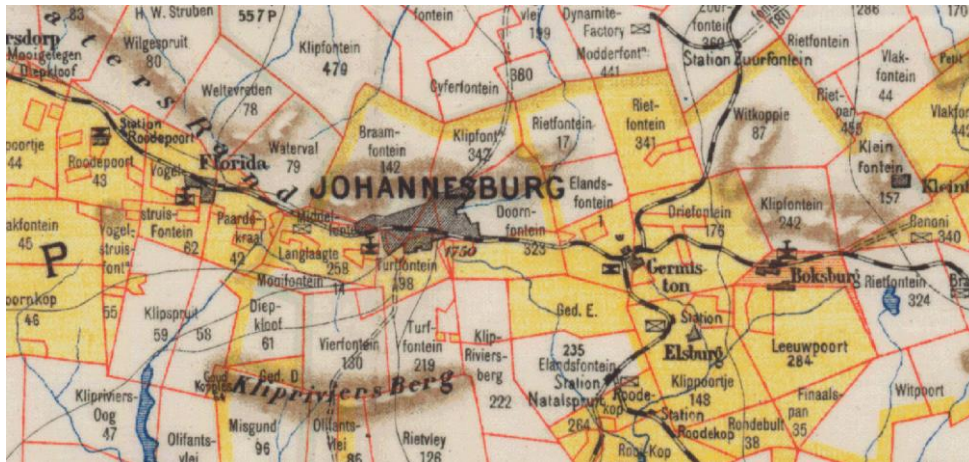


Figure 6-1: Joppes Map, 1899

6.2. Results from Archival Research

In 1910, a selection of Magistrates from the Cape region undertook a visit to the mines on the Rand to investigate the conditions under which the mine labour forces worked³. The reports from the Magistrates provided very general feedback on the conditions of the eight mines, which included City Deep. These reports generally provided positive feedback on the conditions at the City Deep Mine and especially on the Change House at the mine.

Letters included in the archives approve the plans for the construction of a compound at the City Deep Mine in April 1910⁴ (after which construction was to commence). Plans⁵ for a “Native Hospital” were approved in June 1910 and permission to occupy the hospital was granted in September 1910. Similar hospitals were established at other Rand Mines and, in 1917, the City Deep mine hospital was converted to a central hospital⁶ for the Village Main Reef, Village Deep, Nourse Mines, Geldenhuis Deep and Rose Deep mines. Plans⁷ for a new, updated compound at the suburban section of City Deep housing 40 men were approved in 1922.

Figure 6-2 presents a plan with the affected cemetery and presents an overview of the surrounding infrastructure. This plan however, is undated. The available NASA archives did not include documentation detailing when the “Native Married Quarters” were established, but there are letters⁸ indicating that these quarters were closed on 15 August 1912 and all residents had been ordered to vacate the premises by this date. It is therefore likely that this map is not younger than August 1912, as it indicates the presence of the Married Quarters. Furthermore, this would suggest the relative age of the burial ground in question to exceed 100 years.

³ Database: TAB / Source: GNLB / Volume: 12 / Reference No. 2255/10

⁴ Database: TAB / Source: GNLB / Volume: 9 / Reference No. 730/10

⁵ Database: TAB / Source: GNLB / Volume: 12 / Reference No. 2105/10

⁶ Database: TAB / Source: GNLB / Volume: 235 / Reference No. 684/15

⁷ Database: TAB / Source: GNLB / Volume: 146 / Reference No. 91/14

⁸ Database: TAB / Source: GNLB / Volume: 70 / Reference No. 2380/12

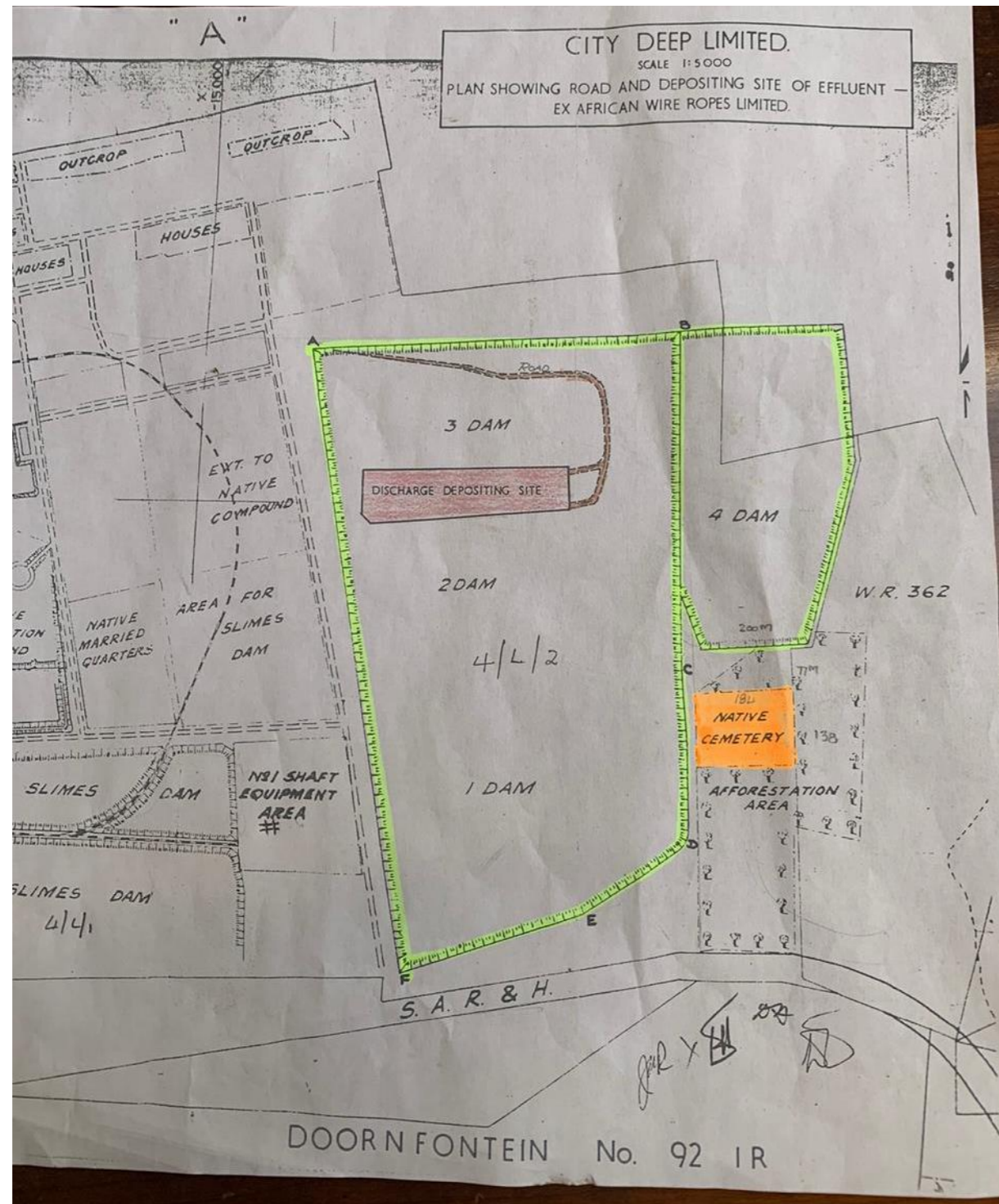


Figure 6-2: Plan of the City Deep Mine indicating Existing Infrastructure (no date)

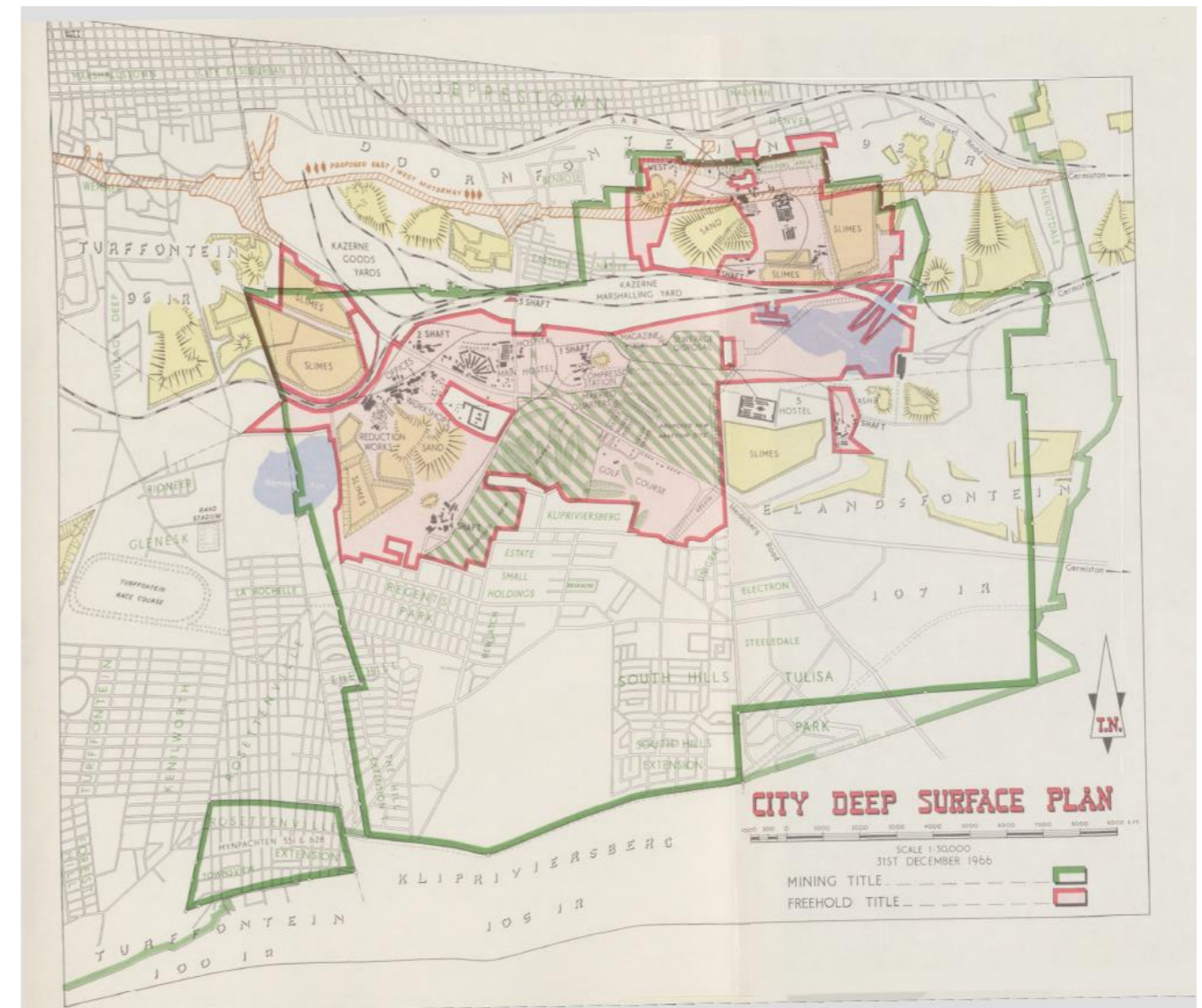


Figure 6-3: City Deep Surface Workings 1966 (Anon., 1966)



Figure 6-4: Aerial imagery dated 1937 and 1969 displaying locations of native compound and burial ground. Note position of married quarters in disuse in 1937

6.3. Results from Historical Layering

Historical imagery sourced from the Survey General comprised those presented in Table 6-1. These demonstrate the evolution of 4L2 Mine Dump from 1937 through to 1996. The imagery, as well as the plan presented in Figure 6-2, confirm the extent of the Mine Dump footprint was engineered to avoid the burial ground footprint.

On the basis of the aerial imagery, it is reasonable to infer operational activities with the deposition of the 4L2 Mine Dump, and the subsequent reclamation activities, are concentrated on the development footprint.

Table 6-1: Aerial Imagery Utilised

Aerial photographs						
Job no.	Flight plan	Photo no.	Map ref.	Area	Year	Ref.
123	11	545	2628	Johannesburg	1937	NGI
162	12	85	2628	Johannesburg	1941	NGI
438	14	34	2628	Brits/Rand/Vereeniging	1961	NGI
273	3	7	2628	Johannesburg	1969	NGI
775	3	03	2628	Oos Rand	1976	NGI
498/190	5	4360	2628	Johannesburg	1984	NGI
498/311	5	544	2628	Johannesburg	1993	NGI
989	38	5877	2628	Johannesburg	1996	NGI

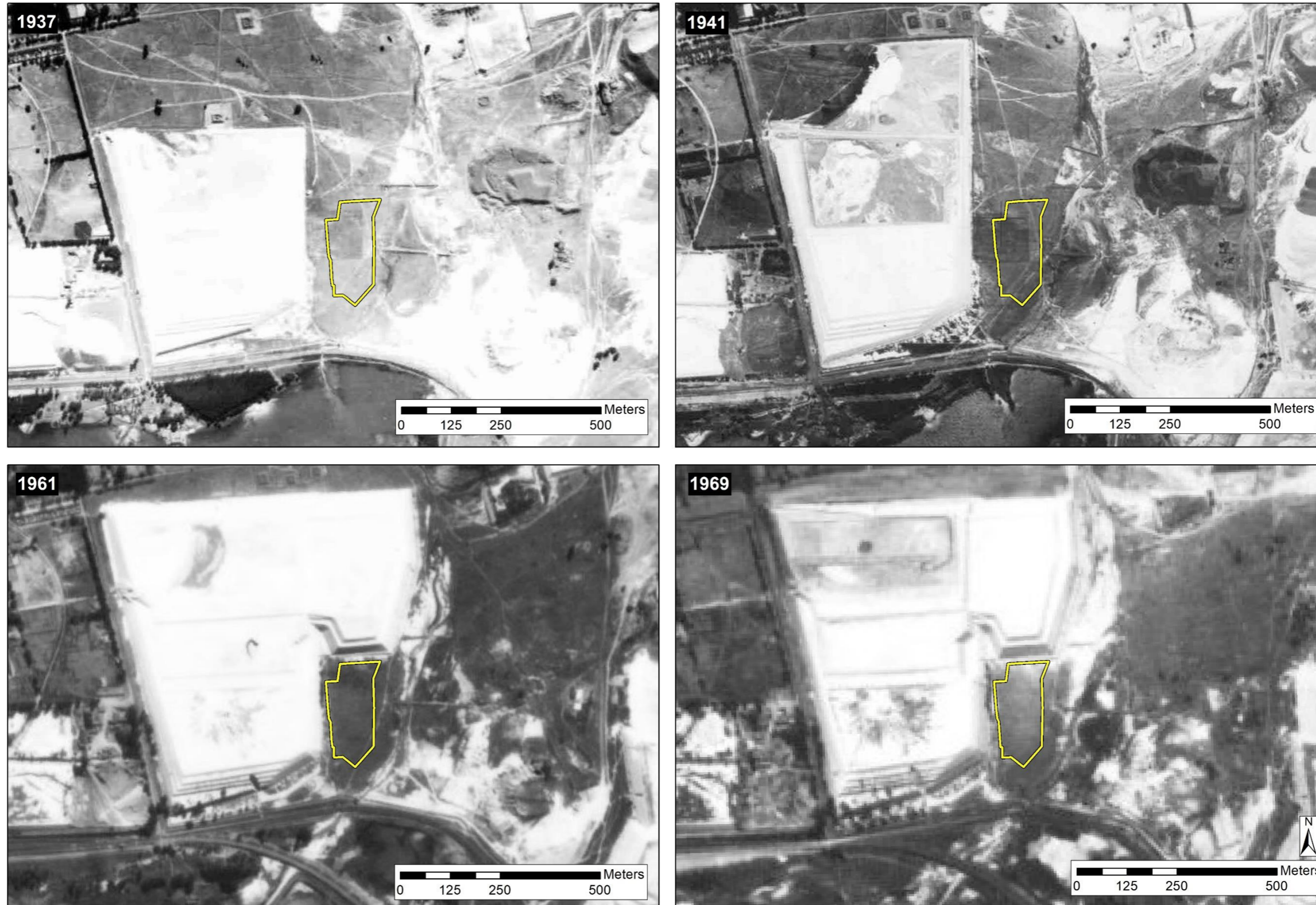


Figure 6-5: Historical Imagery from 1937 through 1969

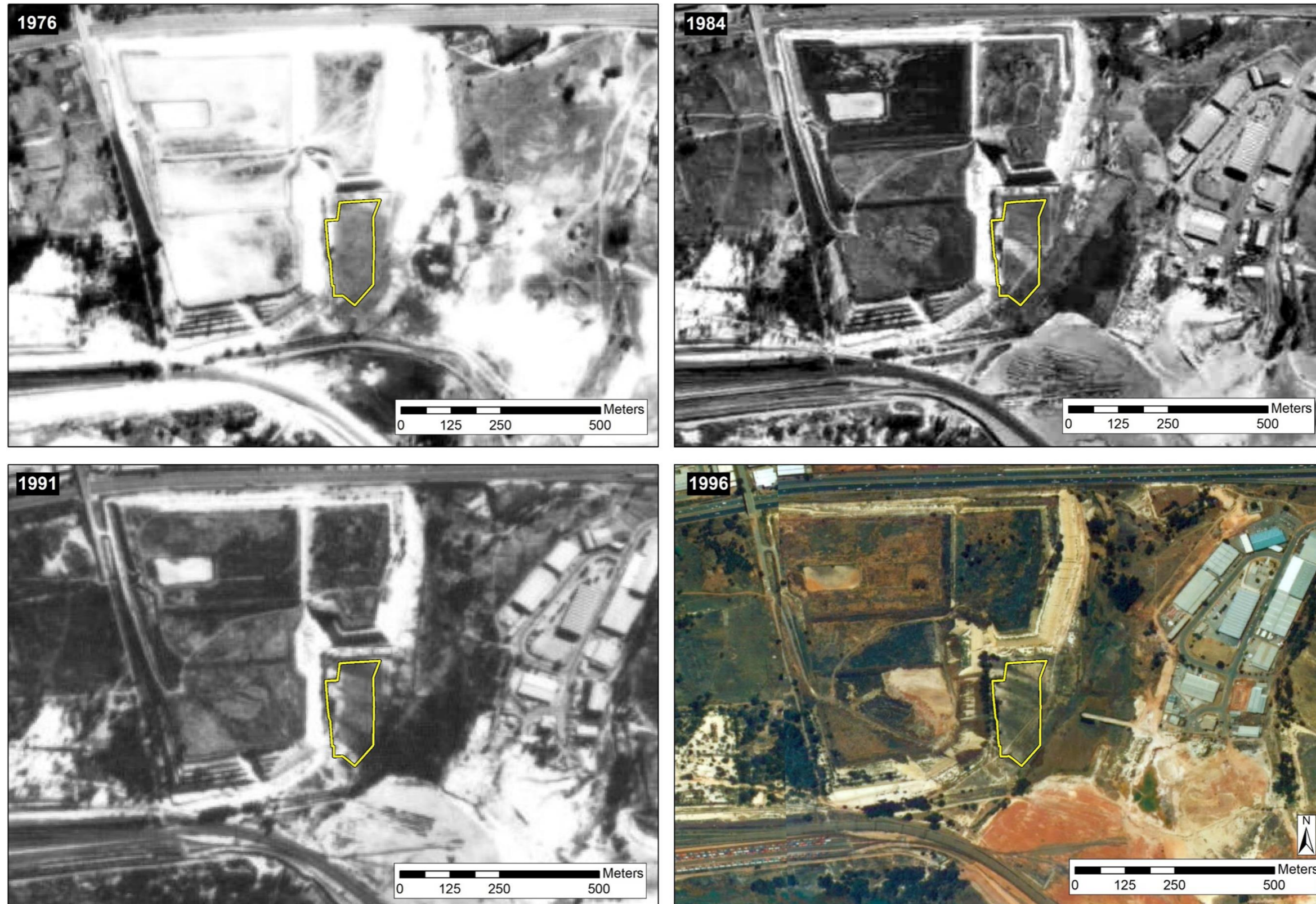


Figure 6-6: Historical Imagery from 1976 through 1996

6.4. Results from Site Inspection

Justin du Piesanie, in conjunction with Ergo representatives, undertook an inspection of the burial ground on 28 May 2019. The purpose of this inspection was to demonstrate compliance with the instruction issued by SAHRA on 23 May 2019. Furthermore, it afforded the heritage practitioner the opportunity to recommend immediate remedial action⁹ to safeguard the burial ground from further impacts.

Justin du Piesanie and Shannon Hardwick on 26 June 2019 undertook a second site inspection to record, as far as possible, the number of individual graves and, in turn, the areal extent of the burial ground. The identified graves were based on visible surface indicators recorded through GPS waypoints and photographs. Digby Wells did not employ any Ground Penetrating Radar (GPR) technology or intrusive methodologies during the initial inspection.

From the visible surface features, the burial ground comprises a minimum of 33 possible graves (Figure 6-7). Considering the extent of the burial ground however, the number is likely to far exceed that identified by surface indicators. Of the identified graves, only two had headstones. One legible headstone dates to 1938. Digby Wells assumes the rest of the graves are approximately contemporaneous and the entire graveyard is older than 60 years.

Ergo, Digby Wells and the SAHRA HPU completed another site inspection on 25 August 2020. During the latest site inspection, it was noted the originally identified *ex-situ* remains are still located on the surface. In addition to this negative impact, additional impacts to the burial ground were identified and recorded by the SAHRA HPU. These included:

- The exposure of an additional grave, with coffin remains visible on the surface;
- The use of machinery within the burial ground; and
- Earth moving activities on the perimeter berm that have potentially damaged surface dressings of graves within the burial ground.

An assessment of the manifested impacts is considered under Chapter 8 below.

⁹ It was recommended that the approximate extent of the burial ground be clearly demarcated and any works within the possible boundaries cease immediately.



Figure 6-7: Images of Individual Graves Identified During the Site Inspection

6.5. Results from Ground Penetrating Radar Assessment

The SAHRA BGG Unit required the proponent to conduct test excavations under the authorisation of a permit, to identify the extent of the burial ground. Given the risk of accidental damage to the human remains from test trenching, as well as the ambiguity around and timeframes required to make such an application, the specialist opted for a GPR Assessment as a non-intrusive alternative approach to achieve the same result. This section present the outcomes of the GPR Assessment (*Refer to Appendix D*).

As detailed in subsection 5.5 above, a total of 34 grids were subject to the GPR scan (Figure 6-8). Of the total number of scans, only two demonstrated the presence of possible graves. These comprised Scan 20 and Scan 32, within the initially determined extent of burial ground suggested in the Site Inspection Report (SIR) and HSMP. Other detected anomalies occurred within Scan 10 and Scan 14, however, these were determined to be not consistent with human remains given the size recorded.



Figure 6-8: Location of GPR Scan Grid

7. Development Context and Socio-Economic Benefit

This section provides a brief overview of the socio-economic context within which the affected burial ground is located. This section presents a summary of the information available from Wazimap (2017) at ward¹⁰ and metropolitan level. This data is supplemented by data from the most recent available Integrated Development Plan (IDP) for the COJ Metropolitan Municipality (MM) (2020).

The Project is located in Ward 57 of the COJ MM. The Ward covers approximately 32 km² of Johannesburg south of the M3 metropolitan route and west of the N3 national highway. This ward comprises a mix of residential areas (including housing and additional infrastructure such as public services and retail shopping centres) with industrial and commercial areas. Within this area, there are remnants of the gold mining which took place historically in this area, including several TSFs (some of which are being reclaimed).

The 2011 census recorded 12 272 263 people living in the Gauteng Province (Wazimap, 2017). The province includes three MMs as well as two district municipalities which are divided into three local municipalities each. The COJ is the largest of the MMs in terms of population, with 4 949 346 residents. The COJ MM includes 135 wards.

Table 7-1 presents an overview of the employment status of the population. In this table, 'not applicable' refers to those who are not considered to be of working age (i.e. individuals younger than 18 and older than 65 years of age). Discouraged work-seekers refers to individuals who are unemployed but who are not actively seeking work.

Table 7-1: Employment Statistics within the Local Study Area

Statistics (2011)	Ward 57		COJ MM		Gauteng	
	No.	%	No.	%	No.	%
Population	36 672	-	4 434 827	-	12 272 263	-
Working Age Population (18 to 64)	25 162	68.6	3 048 814	68.7	8 316 444	67.8
Employed	15 833	43.2	1 696 520	38.3	4 467 520	36.4
Unemployed	3 118	8.5	564 970	12.7	1 598 044	13.0
Discouraged work-seeker	499	1.4	105 882	2.4	296 450	2.4
Not applicable	10 073	27.5	1 212 221	27.3	3 441 539	28.0
Other not economically active	7 148	19.5	855 234	19.3	2 468 859	20.1

Adapted from Statistics South Africa (2011) and Wazimap (2017)

Youth unemployment is a major concern within the COJ, and in 2019 was estimated to exceed 40% (COJ, 2020). Slow growth within the formal sector is a major cause of youth

¹⁰ The data from the Community Survey (2016) is not yet available at Ward Level and so this report makes use of the 2011 Census data. This data makes use of the Statistics South Africa (2011) but has been reconfigured to represent the changes in municipal boundaries ahead of the 2016 Municipal Elections (Open Up, 2017).

unemployment. Youth are employed in wholesale, retail and trade and private households which accounts for 16% of the employed youth. Additionally, the unemployability of the youth in general accounts for the high unemployment rate. The vast majority of the youth in the COJ have a matric certificate which renders them semi-unemployable or undesirable in the job market. Only 5% of the of the employed youth are employed in the highly-skilled manufacturing sector.

Within the COJ in 2018, the sectors employing the largest proportions of the formal workforce include the finance sector (26.1%) and trade (21.6%) (COJ, 2020). The informal sector has grown significantly between 2008 and 2018, from 225 000 jobs to 351 000. Most of these jobs are in trade.

Mining accounts for a very small portion of the total workforce¹¹ (COJ, 2020). Mining does, however, contribute significantly to the poor air quality within the municipality. Illegal mining is increasingly becoming a health, safety and security risk.

Based on a review of the applicable planning documents and available socio-economic data, the potential socio-economic benefits that will arise from the Project outweigh the identified risks and impacts to the known heritage resources within the site-specific study area. This statement is supported by the following statements:

- Ergo intends to implement the necessary mitigation measures to conserve the affected burial ground *in situ*;
- The reclamation of the historic tailings is contributing to long-term employment opportunities within the COJ and key urban land that will become available for development; and
- The activities undertaken as part of the tailings reclamation result in positive environmental impacts through the removal of a source of environmental pollution and the rehabilitation of disturbed land.

8. Heritage Impact Assessment

Digby Wells considered the evaluation of CS of the burial ground and graves under Section 2.2.2 of the SIR and concluded it to be a heritage resource with Very-High CS. This section considers the manifested impacts to the burial ground and individual graves located therein. The identified impacts are considered to be the result of anthropogenic activities not affiliated with the operational activities associated with the reclamation of the 4L2 Dump currently underway, as well as ancillary operational activities not adequately managed.

As introduced in the SIR and subsection 6.4 above, these include:

- The exposure of human and coffin remains visible on the surface;
- Surface damage from silt and wash over the burial ground;

¹¹ As seen in a figure in the COJ IDP. The numbers are not available in the figure nor in the rest of the report.

- The use of machinery within the burial ground; and
- Earth moving activities on the perimeter berm that have potentially damaged surface dressings of graves within the burial ground.

The identified impacts are considered in Table 8-1 through Table 8-3

Table 8-1: Impact Assessment of Surface Damage to the Surface Dressing of Individual Graves and the Burial Ground

IMPACT DESCRIPTION: Surface damage from silt and wash				
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Permanent (7)	The damage to surface dressing has permanently altered the cemetery that will extend beyond the life of the Operation	Consequence: Extremely detrimental (-21)	Significance: Major - negative (-147)
Extent	International (7)	Next-of-Kin may reside outside of the local and regional area, as well as internationally. Furthermore, the manifestation of the impact may have reputational repercussions that could extend to an internationally.		
Intensity x type of impact	Extremely high - negative (-7)	The manifested impact is considered a minor change to a heritage resource with very high CS		
Probability	Certain (7)	The impact has manifested.		
MITIGATION				
The proponent must update the Heritage Site Management Plan (HSMP) and implement the remedial measures defined therein.				

IMPACT DESCRIPTION: Surface damage from silt and wash				
Dimension	Rating	Motivation		
Project Life (5)	The burial ground can be rehabilitated to remove the silt and wash, but the original surface dressing of the graves within the cemetery are permanently lost.	Consequence: Moderately detrimental (-13)	Significance: Minor - negative (-65)	Project Life (5)
Extent	Local (3)	The development and implementation of the HSMP will be limited to the extent of the burial ground.		
Intensity x type of impact	High - negative (-5)	The implementation of the HSMP and remedial actions will result in a minor change to the status quo of a heritage resource with very high CS		
Probability	Likely (5)	With the implementation of recommended mitigation measures, it is possible that risks to the burial ground manifest at a later date.		

Table 8-2: Impact Assessment of the Exposure of Human Remains

IMPACT DESCRIPTION: Exposure of human remains				
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Medium term (3)	The exposure of human remains occurred in 2019 and the recommended reinternment delayed. The duration from the initial assessment has increased, and consequently increased the impact to the originally identified human remains.	Consequence: Highly detrimental (-17)	Significance: Major - negative (-119)
Extent	International (7)	Next-of-Kin may reside outside of the local and regional area, as well as internationally. Furthermore, the manifestation of the impact may have reputational repercussions that could extend to an internationally.		
Intensity x type of impact	Extremely high - negative (-7)	The manifested impact is considered a major change to a heritage resource with very high CS		
Probability	Certain (7)	The impact has manifested.		
MITIGATION:				
With the authorisation of the SAHRA BGG Unit via the requisite Rescue Permit Application, reinter the exposed human remains in their original position and rehabilitate the graves.				

IMPACT DESCRIPTION: Exposure of human remains				
Dimension	Rating	Motivation		
The proponent must implement remedial measures detailed in the HSMP to manage similar risks to the burial ground.				
POST-MITIGATION				
Duration	Short term (2)	The impact has permanently altered the fabric of the two individual graves.	Consequence: Slightly detrimental (-8)	Significance: Minor - negative (-40)
Extent	Very limited (1)	The implementation of the recommendations will affect isolated aspects of the individual graves		
Intensity x type of impact	High - negative (-5)	The implementation of the HSMP and remedial actions will result in a minor change to the status quo of a heritage resource with very high CS		
Probability	Likely (5)	With the implementation of recommended mitigation measures, it is possible that risks to the burial ground manifest at a later date.		

Table 8-3: Impact Assessment of Surface Damage to the Burial Ground from Machinery

IMPACT DESCRIPTION: Surface damage from machinery				
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Short term (2)	Surface damage from machinery to the burial ground has recently occurred and remedial action proposed will minimise the impact in the near future	Consequence: Highly detrimental (-14)	Significance: Moderate - negative (-98)
Extent	International (7)	Next-of-Kin may reside outside of the local and regional area, as well as internationally. Furthermore, the manifestation of the impact may have reputational repercussions that could extend to an internationally.		
Intensity x type of impact	High - negative (-5)	The manifested impact is considered a minor change to a heritage resource with very high CS		
Probability	Certain (7)	The impact has manifested.		
MITIGATION:				
The proponent must update the HSMP and implement the remedial measures defined therein.				
POST-MITIGATION				

IMPACT DESCRIPTION: Surface damage from machinery				
Dimension	Rating	Motivation		
Duration	Short term (2)	The burial ground can be rehabilitated to address surface damage from machinery in the immediate future	Consequence: Slightly detrimental (-9)	Significance: Minor - negative (-45)
Extent	Limited (2)	The development and implementation of the HSMP will be limited to the impact footprint within the burial ground.		
Intensity x type of impact	High - negative (-5)	The implementation of the HSMP and remedial actions will result in a minor change to the status quo of a heritage resource with very high CS		
Probability	Likely (5)	With the implementation of recommended mitigation measures, it is possible that risks to the burial ground manifest at a later date.		

9. Monitoring Programme

A Monitoring Programme and requisite requirements are encapsulated within Section 5.4 of the submitted HSMP. These are repeated here (Refer to Table 9-1).

Table 9-1: Monitoring Requirements

Aspect	Responsible	Frequency	Proactive or Reactive	Method
Rehabilitation of Slurry Spill	Environmental Rehabilitation Superintendent	Daily	Proactive	<ul style="list-style-type: none"> Supervise all required rehabilitation activities; Record all rehabilitation activities through photographs and detailed notes.
	Archaeologist	Weekly		<ul style="list-style-type: none"> Visually assess the <i>status quo</i> of the burial ground; Review monitoring results; Complete progress reporting for submission to the competent authority.
	Environmental Rehabilitation Superintendent	When risk manifests	Reactive	<ul style="list-style-type: none"> If risks manifest: <ol style="list-style-type: none"> Cease all works immediately; Report the incident to the Environmental Manager and Compliance Officer; Contact an archaeologist to inspect the site and detail immediate remedial action; Report the incident to the competent authority and await instruction; Implement the required mitigation and management measures to comply with

Aspect	Responsible	Frequency	Proactive or Reactive	Method
				<p>the NHRA, NHRA Regulations and SAHRA Minimum Standards.</p> <p>Only recommence activities once impacts are mitigated and remedial actions completed.</p>
Reclamation of 4L2	Environmental Rehabilitation Superintendent	Weekly	Proactive	<ul style="list-style-type: none"> Visually assess the <i>status quo</i> of the burial ground; Confirm the status of the burial ground against the established baseline; <p>Record status of the burial ground through photographs and detailed notes.</p>
	Archaeologist	Quarterly – throughout operation	Proactive	<ul style="list-style-type: none"> Visually assess the status quo; Review monitoring results against baseline conditions; <p>Complete progress reporting for submission to the competent authority.</p>
	Environmental Rehabilitation Superintendent	When risk manifests	Reactive	<ul style="list-style-type: none"> If risks manifest: <ol style="list-style-type: none"> Cease all works immediately; Report the incident to the Environmental Manager and Compliance Officer;

Aspect	Responsible	Frequency	Proactive or Reactive	Method
				<ol style="list-style-type: none"> 3. Contact an archaeologist to inspect the site and detail immediate remedial action; 4. Report the incident to the competent authority and await instruction; 5. Implement the required mitigation and management measures to comply with the NHRA, NHRA Regulations and SAHRA Minimum Standards. <p>Only recommence activities once impacts are mitigated and remedial actions completed.</p>

10. Stakeholder Engagement Comments Received

Digby Wells received no comments from Interested and Affected Parties (I&APs) during or subsequent to the regulated Notification and Consultation Period.

11. Reasoned Opinion Whether Project Should Proceed

The proponent and specialists adhered to the requirements issued by the SAHRA BGG Unit. To mitigate the manifested impact to the exposed human remains, Digby Wells is of the opinion that the proposed mitigation and management measures are reasonable and feasible and should proceed. Where these are implemented, the proposed rehabilitation and monitoring can continue, and the intensity of the impact to the individual graves and burial ground will be reduced.

12. Conclusion

Ergo identified exposed human remains from a burial ground adjacent to the City Deep 4L2 Mine Dump in Johannesburg in May 2019. Ergo appointed Digby Wells to provide specialist support in respect of the discovery.

Table 12-1 presents a summary of the impact assessment of the manifested impacts on a heritage resource with Very High CS.

Table 12-1: Impact Assessment Summary

Code	Impact	Pre-mitigation:						Post-mitigation:					
		Duration	Extent	Intensity	Consequence	Probability	Significance	Duration	Extent	Intensity	Consequence	Probability	Significance
Cemetery	Surface damage from silt and wash	Permanent	International	Extremely high - negative	Extremely detrimental	Certain	Major - negative	Project Life	Local	High - negative	Moderately detrimental	Likely	Minor - negative
Grave	Exposure of human remains	Medium term	International	Extremely high - negative	Highly detrimental	Certain	Major - negative	Short term	Very limited	High - negative	Slightly detrimental	Likely	Minor - negative
Cemetery	Surface damage from machinery	Short term	International	High - negative	Highly detrimental	Certain	Moderate - negative	Short term	Limited	High - negative	Slightly detrimental	Likely	Minor - negative
Surface Dressing	Surface damage from silt and wash	Permanent	International	Extremely high - negative	Extremely detrimental	Certain	Major - negative	Permanent	Limited	High - negative	Highly detrimental	Likely	Minor - negative

No comments from I&APs were recorded from the PPP undertaken, therefore to mitigate against these impacts, Digby Wells has recommends the following remedial actions:

- Reinternment of the *ex-situ* human remains with the authorisation of the SAHRA BGG Unit;
- Rehabilitation of the burial ground; and
- Implementation of the HSMP.

Where these recommendations are approved by the SAHRA BGG Unit and implemented by Ergo, Digby Wells believes the burial ground can be conserved *in situ* with minimal future risk to the burial ground and individual graves.

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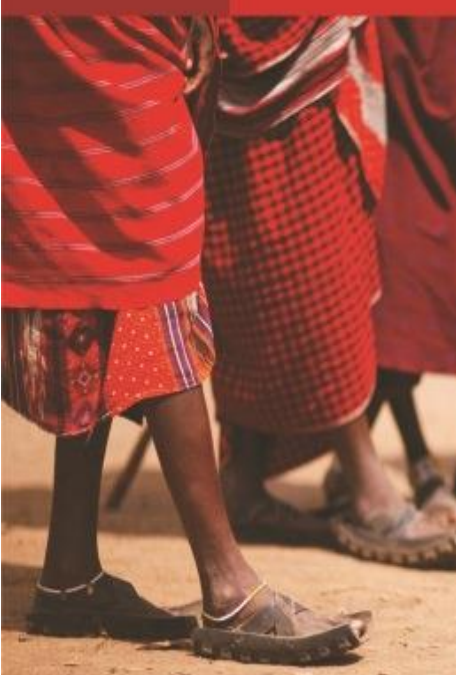


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Appendix A: HRM Methodology



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Cultural Significance, Field Rating and Impact Assessment

Methodology Statement

Project Number:

ZZZ9999

Prepared for:

Internal Document

June 2019

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Project Name:	Cultural Significance, Field Rating and Impact Assessment
Project Code:	ZZZ9999

Revision History

Name	Responsibility	Version	Date
Johan Nel ASAPA Member 095	HRM Unit Manager	Ver. 1	May 2014
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		Ver. 3	May 2015
Justin du Piesanie ASAPA Member 270	Divisional Manager: Social and Heritage Services	Ver. 4	January 2016
		Ver. 5	June 2016
		Ver. 6	June 2019

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1 Introduction

Cultural heritage resources are intrinsic to the history and beliefs of communities. They characterise community identity and cultures, are finite, non-renewable and irreplaceable. Considering the innate value of cultural heritage resources, Heritage Resources Management (HRM) acknowledges that these have lasting worth as evidence of the origins of life, humanity and society. It is incumbent of the assessor to determine the cultural significance¹ (CS) of cultural heritage resources to allow for the implementation of appropriate management. This is achieved through assessing cultural heritage resources' value relative to certain prescribed criteria encapsulated in policies and legal frameworks, such as the South African National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).

Commensurate to the NHRA, with specific reference to Section 38, this methodology aims to ensure that clients protect cultural heritage during implementation of project activities by either avoiding, removing or reducing the intensity of adverse impacts to tangible² and intangible³ cultural heritage resources within the defined area of influence.

The methodology to define CS and assess the potential effects of a project is discussed separately in the sections below.

2 Evaluation of Cultural Significance and Field Ratings

2.1 Cultural Significance Determination

Digby Wells developed a CS Determination Methodology to assign identified cultural heritage resources with a numerical CS rating in an objective as possible way and that can be independently reproduced provided that the same information sources are used, should this be required.

This methodology determines the intrinsic, comparative and contextual significance of identified cultural heritage resources by considering their:

1. Importance rated on a six-point scale against four criteria; and
2. Physical integrity rated on a five-point scale.

¹ Cultural significance is defined as the intrinsic "aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance" of a cultural heritage resource. These attributes are combined and reduced to four themes used in the Digby Wells significance matrix: aesthetic, historical, scientific and social.

² (i) Moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values; (ii) unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls.

³ Cultural knowledge, innovations, and practices of communities embodying traditional lifestyles.

The assigned ratings consider information obtained through a review of available credible sources and representativity or uniqueness (i.e. known examples of similar resources to exist), as well as the current preservation *status-quo* as observed.

Figure 2-2 depicts the CS formula and importance criteria, and it describes ratings on the importance physical integrity scales

2.2 Field Rating Determination

Grading of heritage resources remains the responsibility of heritage resources authorities. However, the South African Heritage Resources Agency (SAHRA) Minimum Standards requires heritage reports include Field Ratings for identified resources to comply with section 38 of the NHRA. Section 7 of the NHRA provides for a system of grading of heritage resources that form part of the national estate and distinguishes between three categories.

The field rating process is designed to provide a numerical rating of the recommended grading of identified heritage resources. The evaluation is done as objectively as possible by integrating the field rating into the significance matrix.

Field ratings guide decision-making in terms of appropriate minimum required mitigation measures and consequent management responsibilities in accordance with Section 8 of the NHRA. Figure 2-1 presents the formula and the parameters used to determine the Field Ratings.

Field Rating = Average Sum of Aesthetic + Historic + Scientific + Social			
rated against			
Value	Field Rating	Designation	Authority
0	Resource not assessed	None	None
1	Resources afforded general protection in terms of Sections 34 to 37 of the NHRA and with negligible significance	Grade IV C	Local
2	Resources afforded general protection in terms of Sections 34 to 37 of the NHRA and with low significance	Grade IV B	
3	Resources afforded general protection in terms of Sections 34 to 37 of the NHRA and with medium-high significance	Grade IV A	
4	Resources afforded general protection in terms of Sections 34 to 37 of the NHRA and with high significance	Grade III B	
5	Resources afforded general protection in terms of Sections 34 to 37 of the NHRA and with very high significance	Grade II A	
6	Resources under formal protection that can be considered to have special qualities that make them significant within a province or region	Grade II	Provincial
7	Resources under formal protection that can be considered to have special qualities that make them significant within a national or international context	Grade I	National

Figure 2-1: Field Ratings Methodology

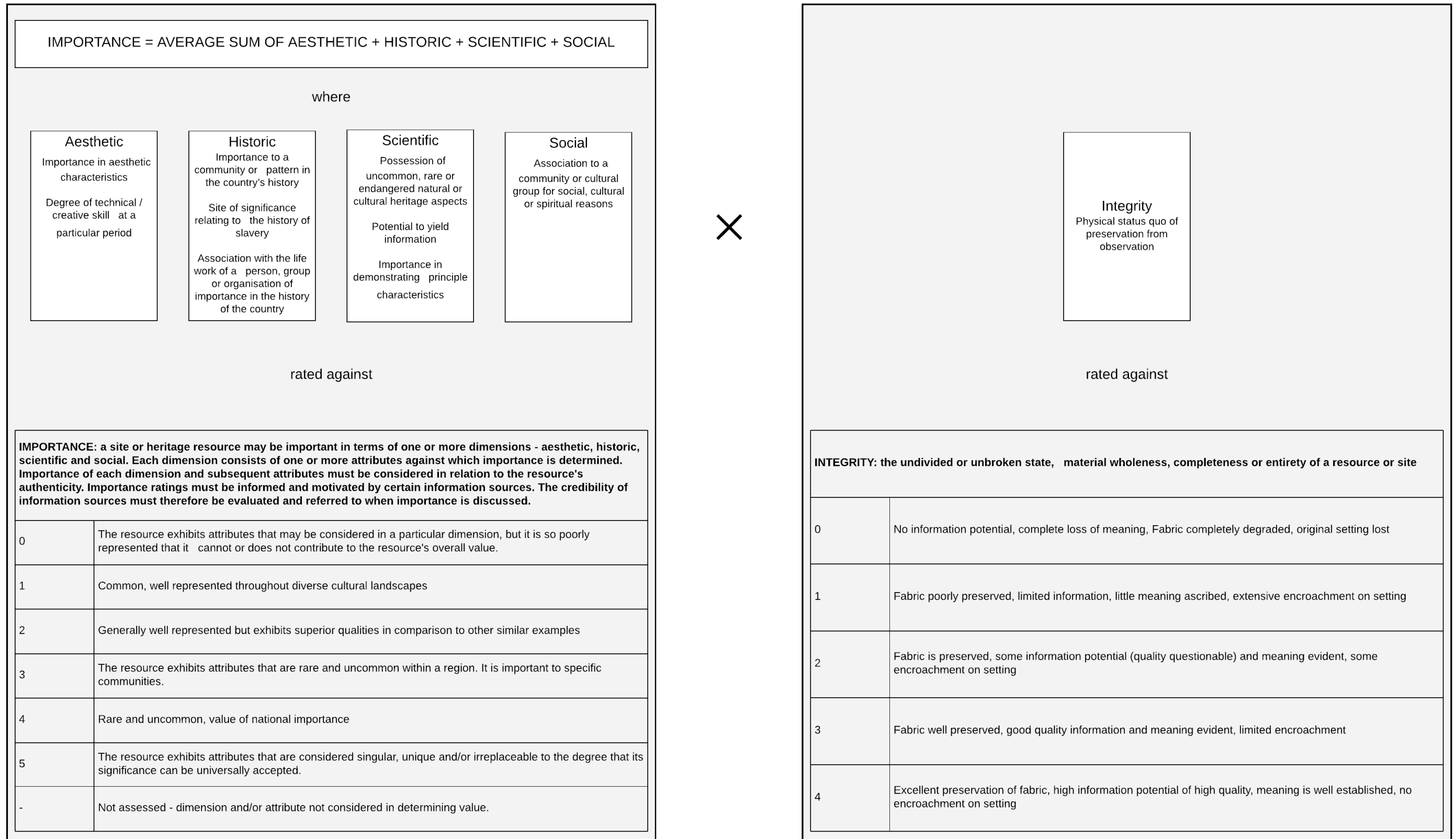


Figure 2-2: CS Determination Methodology

3 Impact Assessment Methodology

The rationale behind CS determination recognises that the value of a cultural heritage resource is a direct indication of its sensitivity to change (impacts) as well as the maximum acceptable levels of change to the resource. Therefore, the assessor must determine CS prior to the completion of any impact assessment.

These requirements in terms of international best practice standards are integrated into the impact assessment methodology to guide both assessments of impacts and recommendations for mitigation and management of resources.

The following are terms and definitions applicable to the Environmental Impact Assessment (EIA) concept (ISO 14001):

- **Project Activity:** Activities associated with the Project that result in an environmental interaction during various phases, i.e. construction, operation and decommissioning, e.g., new processing plant, new stockpiles, development of open pit, dewatering, water treatment plant;
- **Environmental Interaction:** An element or characteristic of an activity, product, or service that interacts or can interact with the environment. Environmental interactions can cause environmental impacts (but may not necessarily do so). They can have either beneficial impacts or adverse impacts and can have a direct and decisive impact on the environment or contribute only partially or indirectly to a larger environmental change;
- **Environmental Aspect:** Various natural and human environments that an activity may interact with. These environments extend from within the activity itself to the global system, and include air, water, land, flora, fauna (including people) and natural resources of all kinds; and
- **Environmental Impact:** A change to the environment that is caused either partly or entirely by one or more environmental interactions. An environmental interaction can have either a direct and decisive impact on the environment or contribute only partially or indirectly to a larger environmental change. In addition, it can have either a beneficial environmental impact or an adverse environmental impact.

The assessment process identified potential issues and impacts through examination of:

- Project phases and activities,
- Interactions between activities and the environmental aspect; and
- The interdependencies between environmental aspects.

Figure 3-1 presents a graphical summary of this concept and Figure 3-2 provides an example of the process.

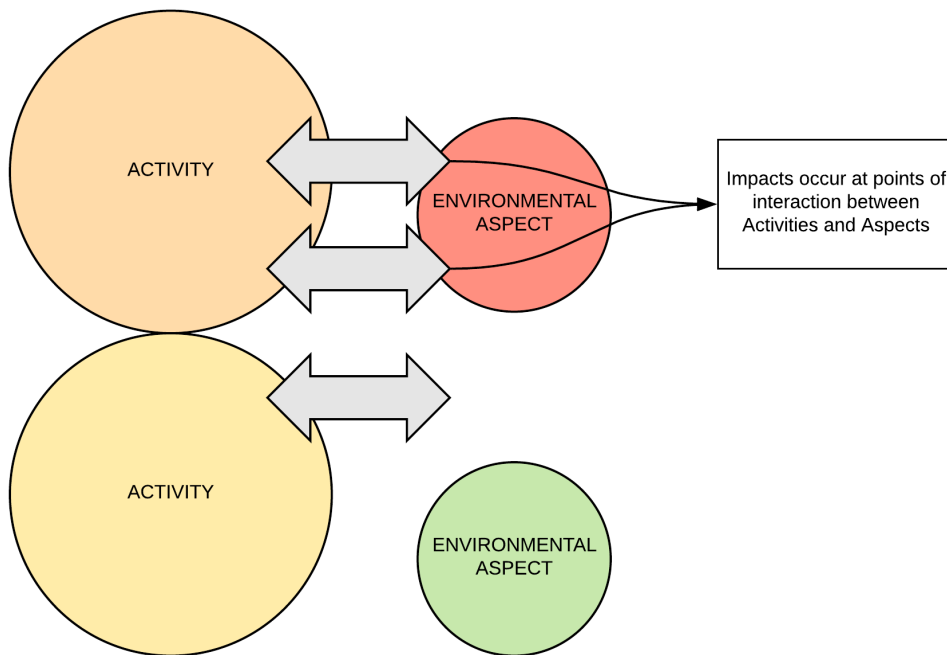


Figure 3-1: Graphical Representation of Impact Assessment Concept

Project Activity & Interaction		Environmental Aspect		Potential Environmental Impact	
Project Phase	Activity	Aspect	Interdependencies	Issue	Potential Impact
This relates to the consideration of the relevant phase of the project. Example: Construction	This refers to one or more of the activities that will be undertaken during the corresponding phase of the project. Example: Topsoil clearing	This identifies and considers the various aspects that will be affected by the project activity. Example: Heritage, Biophysical, and Social	This identifies and considers the interdependencies between the various aspects and how they may be impacted upon by the relevant activity. Example: Removal of topsoil will impact on flora which may have heritage and social implications	The issues considers the activity in relation to the identified aspects and interdependencies. Note: Activities and Aspects can have several issues resulting in various impacts. Example: Physical alteration of the land	Potential impacts are a culmination of the various categories evaluated as part of the impact assessment. Example: Topsoil clearing will remove medicinal plants that will erode indigenous knowledge systems and cultural significance.

Figure 3-2: Example of how Potential Impacts are considered



3.1 Categorising Impacts to Cultural Heritage

Impacts may manifest differently among geographical areas and diverse communities. For instance, impacts to cultural heritage resources can simultaneously affect the tangible cultural heritage resource and have social repercussions. The severity of the impact is compounded when the intensity of physical impacts and social repercussions differ significantly, e.g. removal of a grave surface dressings results in a minor physical impact but has a significant social impact. In addition, impacts to cultural heritage resources can influence the determined CS without a physical impact taking place. Given this reasoning, impacts as considered here are generally placed into three broad categories (adapted from Winter & Bauman 2005: 36):

- **Direct or primary impacts** affect the fabric or physical integrity of the cultural heritage resource, for example destruction of an archaeological site or historical building. Direct or primary impacts may be the most immediate and noticeable. Such impacts are usually ranked as the most intense, but can often be erroneously assessed as high-ranking. For example, the destruction of a low-density scatter of archaeological material culture may be assessed as a negatively high impact if CS is not considered;
- **Indirect, induced or secondary impacts** can occur later in time or at a different place from the causal activity, or because of a complex pathway. For example, restricted access to a cultural heritage resource resulting in the gradual erosion of its CS that may be dependent on ritual patterns of access. Although the physical fabric of the cultural heritage resource is not affected through any primary impact, its CS is affected, which can ultimately result in the loss of the resource itself; and
- **Cumulative impacts** result from in-combination effects on cultural heritage resources acting within a host of processes that are insignificant when seen in isolation, but which collectively have a significant effect. Cumulative effects can be:
 - **Additive:** the simple sum of all the effects, e.g. the total number of development activities that will occur within the study area;
 - **Synergistic:** effects interact to produce a total effect greater than the sum of the individual effects, e.g. the effect of each different activity on the archaeological landscape in the study area;
 - **Time crowding:** frequent, repetitive impacts on a cultural heritage resource at the same time, e.g. the effect of regular blasting activities on a nearby rock art site or protected historical building;
 - **Neutralizing:** where the effects may counteract each other to reduce the overall effect, e.g. the effect of changes in land use could reduce the overall impact on sites within the archaeological landscape of the study area; and/or

- **Space crowding:** high spatial density of impacts on a cultural heritage resource, e.g. density of new buildings resulting in suburbanisation of a historical rural landscape.

The fact that cultural heritage resources do not exist in isolation from the wider natural, social, cultural and heritage landscape demonstrates the relevance of the above distinctions: CS is therefore also linked to rarity / uniqueness, physical integrity and importance to diverse communities.

3.2 Impact Assessment

The impact assessment process is designed to provide a numerical rating of the identified potential impacts. This methodology follows the established impact assessment formula:

Impact = consequence of an event x probability of the event occurring

where:

Consequence = type of impact x (Duration + Extent + Intensity)

and

Probability = Likelihood of an impact occurring

In the formula for calculating consequence:

Type of impact = +1 (positive) or -1 (negative)

Table 3-1 presents a description of the duration, extent, intensity and probability ratings. The intensity rating definitions consider the determined CS of the identified cultural heritage resources. These criteria are used to determine the impact ratings as defined in Table 3-2 below. Table 3-3 represents the relationship between consequence, probability and significance.

The impact assessment process considers pre- and post-mitigation scenarios with the intention of managing and/or mitigating impacts in line with the EIA Mitigation Hierarchy, i.e. avoiding all impacts on cultural heritage resources. Where Project-related mitigation does not avoid or sufficiently minimise negative impacts on cultural heritage resources, mitigation of these resources may be required.

Table 3-1: Description of Duration, Extent, Intensity and Probability Ratings Used in the Impact Assessment

Value	CONSEQUENCE						PROBABILITY RATING - A measure of the chance that consequences of that selected level of severity could occur during the exposure window.	
	DURATION RATING - A measure of the lifespan of the impact		EXTENT RATING A measure of how wide the impact would occur		INTENSITY RATING- A measure of the degree of harm, injury or loss.		Probability	Description
	Probability	Description	Exposure	Description	Intensity	Description		
7	Permanent	Impact will permanently alter or change the heritage resource and/or value (Complete loss of information)	International	Impacts on heritage resources will have international repercussions, issues or effects, i.e. in context of international cultural significance, legislation, associations, etc.	Extremely high	Major change to Heritage Resource with High-Very High Value	Certain/Definite	Happens frequently. The impact will occur regardless of the implementation of any preventative or corrective actions.
6	Beyond Project Life	Impact will reduce over time after project life (Mainly renewable resources and indirect impacts)	National	Impacts on heritage resources will have national repercussions, issues or effects, i.e. in context of national cultural significance, legislation, associations, etc.	Very high	Moderate change to Heritage Resource with High-Very High Value	High probability	Happens often. It is most likely that the impact will occur.
5	Project Life	The impact will cease after project life.	Region	Impacts on heritage resources will have provincial repercussions, issues or effects, i.e. in context of provincial cultural significance, legislation, associations, etc.	High	Minor change to Heritage Resource with High-Very High Value	Likely	Could easily happen. The impact may occur.
4	Long Term	Impact will remain for >50% - Project Life	Municipal area	Impacts on heritage resources will have regional repercussions, issues or effects, i.e. in context of the regional study area.	Moderately high	Major change to Heritage Resource with Medium-Medium High Value	Probable	Could happen. Has occurred here or elsewhere
3	Medium Term	Impact will remain for >10% - 50% of Project Life	Local	Impacts on heritage resources will have local repercussions, issues or effects, i.e. in context of the local study area.	Moderate	Moderate change to Heritage Resource with Medium - Medium High Value	Unlikely / Low probability	Has not happened yet, but could happen once in a lifetime of the project. There is a possibility that the impact will occur.

Value	CONSEQUENCE						PROBABILITY RATING - A measure of the chance that consequences of that selected level of severity could occur during the exposure window.	
	DURATION RATING - A measure of the lifespan of the impact		EXTENT RATING A measure of how wide the impact would occur		INTENSITY RATING- A measure of the degree of harm, injury or loss.		Probability	Description
	Probability	Description	Exposure	Description	Intensity	Description		
2	Short Term	Impact will remain for <10% of Project Life	Limited	Impacts on heritage resources will have site specific repercussions, issues or effects, i.e. in context of the site-specific study area.	Low	Minor change to Heritage Resource with Medium - Medium High Value	Rare / Improbable	Conceivable, but only in extreme circumstances. Have not happened during the lifetime of the project, but has happened elsewhere. The possibility of the impact materialising is very low as a result of design, historic experience or implementation of adequate mitigation measures
1	Transient	Impact may be sporadic/limited duration and can occur at any time. E.g. Only during specific times of operation, and not affecting heritage value.	Very Limited	Impacts on heritage resources will be limited to the identified resource and its immediate surroundings, i.e. in context of the specific heritage site.	Very low	No change to Heritage Resource with values medium or higher, or Any change to Heritage Resource with Low Value	Highly Unlikely /None	Expected never to happen. Impact will not occur.

Table 3-2: Impact Significance Scores, Descriptions and Ratings

Score	Description	Rating
109 to 147	A very beneficial impact which may be sufficient by itself to justify implementation of the project. The impact may result in permanent positive change.	Major (positive)
73 to 108	A beneficial impact which may help to justify the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term positive change to the heritage resources.	Moderate (positive)
36 to 72	An important positive impact. The impact is insufficient by itself to justify the implementation of the project. These impacts will usually result in positive medium to long-term effect on the heritage resources.	Minor (positive)
3 to 35	A small positive impact. The impact will result in medium to short term effects on the heritage resources.	Negligible (positive)
-3 to -35	An acceptable negative impact for which mitigation is desirable but not essential. The impact by itself is insufficient even in combination with other low impacts to prevent the development being approved. These impacts will result in negative medium to short term effects on the heritage resources.	Negligible (negative)
-36 to -72	An important negative impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in negative medium to long-term effect on the heritage resources.	Minor (negative)
-73 to -108	A serious negative impact which may prevent the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term change to the heritage resources and result in severe effects.	Moderate (negative)
-109 to -147	A very serious negative impact which may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are immitigable and usually result in very severe effects.	Major (negative)

Table 3-3 Relationship between Consequence, Probability and Significance

Relationship between consequence, probability and significance ratings																																							
		Significance																																					
Probability	7	-147	-140	-133	-126	-119	-112	-105	-98	-91	-84	-77	-70	-63	-56	-49	-42	-35	-28	-21	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140	147
	6	-126	-120	-114	-108	-102	-96	-90	-84	-78	-72	-66	-60	-54	-48	-42	-36	-30	-24	-18	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120	126
	5	-105	-100	-95	-90	-85	-80	-75	-70	-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105
	4	-84	-80	-76	-72	-68	-64	-60	-56	-52	-48	-44	-40	-36	-32	-28	-24	-20	-16	-12	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84
	3	-63	-60	-57	-54	-51	-48	-45	-42	-39	-36	-33	-30	-27	-24	-21	-18	-15	-12	-9	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63
	2	-42	-40	-38	-36	-34	-32	-30	-28	-26	-24	-22	-20	-18	-16	-14	-12	-10	-8	-6	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42
	1	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		Consequence																																					

4 Recommended Management and Mitigation Measures

The CS of an identified heritage resource informs the level of the identified potential impact to that resource which in turn informs the recommended management and mitigation requirements. Table 4-1 presents an overview of the minimum recommended mitigation requirements considering the CS of the heritage resource.

Table 4-1: Minimum Recommended Management or Mitigation Requirements Considering CS

Determined CS	Minimum Management / Mitigation Requirements⁴
Negligible	Sufficiently recorded through assessment, no mitigation required
Low	Resource must be recorded before destruction, may include detailed mapping or surface sampling
Medium	Mitigation of the resource to include detailed recording and limited test excavations
Medium-High	Project design must aim to minimise impacts; Mitigation of resources to include extensive sampling through test excavations and analysis
High	Project design must aim to avoid impacts; Cultural heritage resource to be partially conserved, must be managed by way of Conservation Management Plan
Very High	Project design must be amended to avoid all impacts; Cultural heritage resources to be conserved in entirety and conserved and managed by way of Conservation Management Plan

The desired outcome of an impact assessment is the avoidance of all negative impacts and enhancement of positive ones. While this is not always possible, the recommended management or mitigation measures must be reasonable and feasible taking into consideration the determined CS and nature of the Project.

Two categories of impact management options are considered: avoidance and mitigation.

Avoidance requires changes or amendments to Project design, planning and siting of infrastructure to avoid physical impacts on heritage resources. It is the preferred option, especially where cultural heritage resources with high – very-high CS will be impacted.

⁴ Based on minimum requirements encapsulated in guidelines developed by SAHRA

Mitigation of cultural heritage resources may be necessary where avoidance is not possible, thus resulting in partial or complete changes (including destruction) to a resource. Such resources need to be protected until they are fully recorded, documented and researched before any negative impact occurs. Options for mitigating a negative impact can include minimization, offsets, and compensation. Examples of mitigation measures specific to cultural heritage include:

- Intensive detailed recording of sites through various non-intrusive techniques to create a documentary record of the site – “preservation by record”; and
- Intrusive recording and sampling such as shovel test pits (STPs) and excavations, relocation (usually burial grounds and graves, but certain types of sites may be relocated), restoration and alteration. Any form of intrusive mitigation is normally a regulated permitted activity for which permits⁵ need to be issued by the Heritage Resource Authorities (HRAs). Such mitigation may result in a reassessment of the value of a cultural heritage resource that could require conservation measures to be implemented. Alternatively, an application for a destruction permit may be made if the resource has been sufficiently sampled.

Where resources have negligible CS, the specialist may recommend that no further mitigation is required, and the site may be destroyed where authorised.

Community consultation is an integral activity to all above-mentioned avoidance and mitigation measures.

⁵ Permit application processes must comply with the relevant Section of the NHRA and applicable Chapter(s) of the NHRA Regulations, 2000 (Government Notice Regulation [GN R] 548) and must be issued by SAHRA or the Provincial Heritage Resources Authority (PHRA) as is applicable.



DIGBY WELLS
ENVIRONMENTAL

Appendix B: Specialist CV



Mr. Justin du Piesanie
 Divisional Manager
 Social and Heritage Services
 Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2015	Continued Professional Development, Intermediate Project Management Course	PM.Ideas: A division of the Mindset Group
2013	Continued Professional Development Programme, Architectural and Urban Conservation: Researching and Assessing Local Environments	University of Cape Town
2008	MSc	University of the Witwatersrand
2005	BA (Honours) (Archaeology)	University of the Witwatersrand
2004	BA	University of the Witwatersrand
2001	Matric	Norkem Park High School

2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Proficient	Good

3 Employment

Period	Company	Title/position
2018 to present	Digby Wells Environmental	Divisional Manager: Social and Heritage Services
2016-2018	Digby Wells Environmental	Unit Manager: Heritage Resources Management
2011-2016	Digby Wells Environmental	Heritage Management Consultant: Archaeologist
2009-2011	University of the Witwatersrand	Archaeology Collections Manager
2009-2011	Independent	Archaeologist
2006-2007	Maropeng & Sterkfontein Caves UNESCO World Heritage Site	Tour guide

4 Experience

I joined the company in August 2011 as an archaeologist. Subsequently, Digby Wells appointed me as the Heritage Unit Manager and Divisional Manager for Social and Heritage Services in 2016 and 2018 respectively. I obtained my Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. I further attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2013. I am a professional member of the Association of Southern African Professional Archaeologists (ASAPA), and accredited by the association's Cultural Resources Management (CRM) section. I am also a member of the International Council on Monuments and Sites (ICOMOS), an advisory body to the UNESCO World Heritage Convention. I have over 10 years combined experience in HRM in South Africa, including heritage assessments, archaeological mitigation, grave relocation, and NHRA Section 34 application processes. I gained further generalist experience since my appointment at Digby Wells in Botswana, Burkina Faso, Cameroon, the Democratic Republic of Congo, Liberia, Malawi, Mali, Senegal and Tanzania on projects that have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. Furthermore, I have acted as a technical expert reviewer of HRM projects undertaken in Cameroon and Senegal. As Divisional Manager for Social and Heritage Services at Digby Wells Environmental, I manage several large capital Projects and multidisciplinary teams placing me in the best position to identify and exploit points of integration between the HRM process and greater social landscape. This approach to HRM, as an integrated discipline, is grounded in

international HRM principles and standards that has allowed me to provide comprehensive, project-specific solutions that promote ethical heritage management and assist in achieving the strategic objectives of our clients, as well as maintain or enhance Cultural Significance of the relevant cultural heritage resources.

5 Project Experience

Please see the following table for relevant Project experience:

PROJECT		LOCATION	DATES		PROJECT TYPE		CLIENT		
LLWDP-II Process	HRM	Lesotho	2020	-	Heritage Assessment	Impact	Lesotho Lowlands Development Project II	Water	
Ergo City Heritage Mitigations	Deep	Johannesburg, Gauteng, South Africa	2020	-	Heritage Assessment, Rescue Permit Application and Monitoring	Impact	Ergo (Pty) Ltd		
Marshall Barracks Archaeological Monitoring	Street	Johannesburg, Gauteng, South Africa	2020	-	Archaeological Monitoring		GVK-Siya Zama Construction		
Exxaro Belfast Inspection	Site	Belfast, Mpumalanga, South Africa	2020	2020	Site Inspection		Exxaro Coal Mpumalanga (Pty) Ltd		
Matla Mine 1 GRP		Kriel, Mpumalanga, South Africa	2020	-	Grave Relocation		Exxaro Coal Mpumalanga (Pty) Ltd		
Mafube RAP and GRP		Middelburg, Mpumalanga, South Africa	2019	-	Grave Relocation		Mafube Coal		
SARAO SKA Project: Heritage Mitigations		Carnarvon, Northern Cape, South Africa	2019	-	Heritage Management and Mitigation		SARAO		
Kibali Kalimva & Ikamva Pit ESIA		Orientele Province, Democratic Republic of Congo	2019	2019	Heritage Assessment	Impact	Barrick Gold Corporation		
Ergo City Deep HSMP		Johannesburg, Gauteng, South Africa	2019	2019	Heritage Management Plan	Site	Ergo (Pty) Ltd		
Ergo RTSF Section 34 Process		Westonaria, Gauteng, South Africa	2019	-	Section 34 Destruction Permit Applications		Ergo (Pty) Ltd		

PROJECT	LOCATION	DATES		PROJECT TYPE		CLIENT
Twyfelaar EIA	Ermelo, Mpumalanga, South Africa	2019	2019	Heritage Assessment	Impact	Dagsoom Coal Mining (Pty) Ltd
Sasol River Diversion	Sasolburg, Free State, South Africa	2019	2019	Heritage Assessment	Impact	Sasol Mining
Sun City EIA and CMP	Pilanesberg, North-West Province, South Africa	2018	2019	Heritage Assessment and Conservation Management Plan	Impact and	Sun International
Exxaro Matla HRM	Kriel, Mpumalanga, South Africa	2017	2019	Heritage Assessment and Conservation Management Plan	Impact	Exxaro Coal Mpumalanga (Pty) Ltd
Exxaro Belfast GRP	Belfast, Mpumalanga, South Africa	2013	2019	Grave Relocation		Exxaro Coal Mpumalanga (Pty) Ltd
Eskom Northern KZN Strengthening	KwaZulu- Natal, South Africa	2016	2018	Heritage Assessment	Impact	ILISO Consulting
Thabametsi GRP	Lephalale, Limpopo Province, South Africa	2017	2018	Grave Relocation		Exxaro Resources Ltd
SKA HIA and CMP	Carnarvon, Northern Cape, South Africa	2017	2018	Heritage Assessment and Conservation Management Plan	Impact and	SARAO
Grootegeeluk Watching Brief	Lephalale, Limpopo Province, South Africa	2017	2017	Watching Brief		Exxaro Resources Ltd
Matla HSMP	Kriel, Mpumalanga Province, South Africa	2017	2017	Heritage Management Plan	Site	Exxaro Coal Mpumalanga (Pty) Ltd
Ledjadja Coal Borrow Pits	Lephalale, Limpopo Province, South Africa	2017	2017	Heritage Assessment	Basic	Ledjadja Coal (Pty) Ltd
Exxaro Belfast Implementation Project PIA	Belfast, Mpumalanga, South Africa	2017	2017	Palaeontological Impact Assessment		Exxaro Coal Mpumalanga (Pty) Ltd

PROJECT	LOCATION	DATES	PROJECT TYPE	CLIENT	
Lanxess Chrome Mine Archaeological Mitigation	Rustenburg, North West Province, South Africa	2017	2017	Phase 2 Excavations	Lanxess Chrome Mine (Pty) Ltd
Tharisa Apollo EIA Project	KwaZulu-Natal, South Africa	2017	2017	Heritage Assessment Impact	GCS (Pty) Ltd
Queen Street Section 34 Process	Germiston, Johannesburg, Gauteng, South Africa	2017	2017	Section 34 Destruction Permit Applications	IDC Architects
Goulamina EIA Project	Goulamina, Sikasso Region, Mali	2017	2017	Heritage Assessment Impact	Birimian Limited
Zuurfontein Residential Establishment Project	Ekurhuleni, Gauteng, South Africa	2017	2017	Notification of Intent to Develop	Shuma Africa Projects
Kibali Grave Relocation Training and Implementation	Orientele Province, Democratic Republic of Congo	2017	2017	Grave Relocation	Randgold Resources Limited
Massawa EIA	Senegal	2016	2017	Heritage Assessment and Technical Reviewer Impact	Randgold Resources Limited
Beatrix EIA and EMP	Welkom, Free State, South Africa	2016	2017	Heritage Assessment Impact	Sibanye Stillwater
Sun City Chair Lift	Pilanesberg, North-West Province, South Africa	2016	2017	Notification of Intent to Develop and Heritage Assessment Basic	Sun International
Hendrina Underground Coal Mine EIA	Hendrina, Mpumalanga, South Africa	2016	2017	Heritage Assessment Impact	Umcebo Mining (Pty) Ltd
Elandsfontein Update	Clewer, Mpumalanga, South Africa	2016	2017	Heritage Assessment Impact	Anker Coal
Groningen and Inhambane PRA	Limpopo Province, South Africa	2016	2016	Heritage Assessment Basic	Rustenburg Platinum Mines Limited

PROJECT	LOCATION	DATES		PROJECT TYPE		CLIENT
Palmietkuilen MRA	Springs, Gauteng, South Africa	2016	2016	Heritage Assessment	Impact	Canyon Resources (Pty) Ltd
Copper Sunset Sand Mining S.102	Free State, South Africa	2016	2016	Heritage Assessment	Basic	Copper Sunset Sand (Pty) Ltd
Grootvlei MRA	Springs, Gauteng, South Africa	2016	2016	Notification of Intent to Develop		Ergo (Pty) Ltd
Lambda EMP	Mpumalanga, South Africa	2016	2016	Palaeontological Impact Assessment		Eskom Holdings SOC Limited
Kilbarchan Basic Assessment and EMP	Newcastle, KwaZulu- Natal, South Africa	2016	2016	Heritage Assessment	Basic	Eskom Holdings SOC Limited
Grootegeeluk Amendment	Lephalale, Limpopo Province, South Africa	2016	2016	Notification of Intent to Develop		Exxaro Coal Resources (Pty) Ltd
Garsfontein Township Development	Pretoria, Gauteng, South Africa	2016	2016	Notification of Intent to Develop		Leungo Construction Enterprises
Louis Botha Phase 2	Johannesburg, Gauteng, South Africa	2016	2016	Phase 2 Excavations		Royal Haskoning DHV
Sun City Heritage Mapping	Pilanesberg, North-West Province, South Africa	2016	2016	Phase 2 Mapping		Sun International
Gino's Building Section 34 Destruction Permit Application	Johannesburg, Gauteng, South Africa	2015	2016	Heritage Assessment Section 34 Destruction Application	Impact and 34 Permit	Bigen Africa Services (Pty) Ltd
EDC Block Refurbishment Project	Johannesburg, Gauteng, South Africa	2015	2016	Heritage Assessment Section 34 Application	Impact and Permit	Bigen Africa Services (Pty) Ltd
Namane IPP and Transmission Line EIA	Steenbokpan, Limpopo Province, South Africa	2015	2016	Heritage Assessment	Impact	Namane Resources (Pty) Ltd

PROJECT	LOCATION	DATES	PROJECT TYPE	CLIENT
Temo Coal Road Diversion and Rail Loop EIA	Steenbokpan, Limpopo Province, South Africa	2015 2016	Heritage Assessment Impact	Namane Resources (Pty) Ltd
Sibanye WRTRP	Gauteng, South Africa	2014 2016	Heritage Assessment Impact	Sibanye Stillwater
NTEM Iron Ore Mine and Pipeline Project	Cameroon	2014 2016	Technical Review	IMIC plc
NLGM Constructed Wetlands Project	Liberia	2015 2015	Heritage Assessment Impact	Aureus Mining
ERPM Section 34 Destruction Permits Applications	Johannesburg, Gauteng, South Africa	2015 2015	Section 34 Destruction Permit Applications	Ergo (Pty) Ltd
JMEP II EIA	Botswana	2015 2015	Heritage Assessment Impact	Jindal
Oakleaf ESIA Project	Bronkhorstspruit, Gauteng, South Africa	2014 2015	Heritage Assessment Impact	Oakleaf Investment Holdings
Imvula Project	Kriel, Mpumalanga, South Africa	2014 2015	Heritage Assessment Impact	Ixia Coal
VMIC Vanadium EIA Project	Mokopane, Limpopo, South Africa	2014 2015	Heritage Assessment Impact	VM Investment Company
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012 2015	Heritage Assessment Impact	Aquarius Resources
Nzoro 2 Hydro Power Project	Orientele Province, Democratic Republic of Congo	2014 2014	Social consultation	Randgold Resources Limited
Eastern Basin AMD Project	Springs, Gauteng, South Africa	2014 2014	Heritage Assessment Impact	AECOM
Soweto Cluster Reclamation Project	Soweto, Gauteng, South Africa	2014 2014	Heritage Assessment Impact	Ergo (Pty) Ltd
Klipspruit South Project	Ogies, Mpumalanga, South Africa	2014 2014	Heritage Assessment Impact	BHP Billiton

PROJECT		LOCATION	DATES		PROJECT TYPE		CLIENT
Klipspruit Extension: Weltevreden Project		Ogies, Mpumalanga, South Africa	2014	2014	Heritage Assessment	Impact	BHP Billiton
Ergo Pipeline Assessment	Rondebult Basic	Johannesburg, South Africa	2014	2014	Heritage Assessment	Basic	Ergo (Pty) Ltd
Kibali Project	ESIA Update	Orientele Province, Democratic Republic of Congo	2014	2014	Heritage Assessment	Impact	Randgold Resources Limited
GoldOne Consolidation	EMP	Westonaria, Gauteng, South Africa	2014	2014	Gap analysis		Gold One International
Yzermite PIA		Wakkerstroom, Mpumalanga, South Africa	2014	2014	Palaeontological Impact Assessment		EcoPartners
Sasol Mooikraal Assessment	Basic	Sasolburg, Free State, South Africa	2014	2014	Heritage Assessment	Basic	Sasol Mining
Rea Vaya Project	Phase II C	Johannesburg, Gauteng, South Africa	2014	2014	Heritage Assessment	Impact	ILISO Consulting
New Project	Liberty Gold	Liberia	2013	2014	Grave Relocation		Aureus Mining
Putu Project	Iron Ore Mine	Petroken, Liberia	2013	2014	Heritage Assessment	Impact	Atkins Limited
Sasol Twistdraai Project		Secunda, Mpumalanga, South Africa	2013	2014	Notification of Intent to Develop		ERM Southern Africa
Kibali Project	Gold Hydro-Power	Orientele Province, Democratic Republic of Congo	2012	2014	Heritage Assessment	Impact	Randgold Resources Limited
SEGA Project	Gold Mining	Burkina Faso	2013	2013	Technical Reviewer		Cluff Gold PLC
Consbrey and Collieries Project	Harwar	Breyton, Mpumalanga, South Africa	2013	2013	Heritage Assessment	Impact	Msobo Coal
Falea Environmental Assessment	Uranium Mine	Falea, Mali	2013	2013	Heritage Scoping		Rockgate Capital

PROJECT	LOCATION	DATES		PROJECT TYPE	CLIENT
Daleside Acetylene Gas Production Facility	Gauteng, South Africa	2013	2013	Heritage Impact Assessment	ERM Southern Africa
SEGA Gold Mining Project	Burkina Faso	2012	2013	Socio Economic and Asset Survey	Cluff Gold PLC
Kibali Gold Project Grave Relocation Plan	Orientele Province, Democratic Republic of Congo	2011	2013	Grave Relocation	Randgold Resources Limited
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012	2012	Heritage Impact Assessment	Aquarius Resources
Environmental Authorisation for the Gold One Geluksdal TSF and Pipeline	Gauteng, South Africa	2012	2012	Heritage Impact Assessment	Gold One International
Platreef Burial Grounds and Graves Survey	Mokopane, Limpopo Province, South Africa	2012	2012	Burial Grounds and Graves Survey	Platreef Resources
Resgen Boikarabelo Coal Mine	Limpopo Province, South Africa	2012	2012	Phase 2 Excavations	Resources Generation
Bokoni Platinum Road Watching Brief	Burgersfort, Limpopo Province, South Africa	2012	2012	Watching Brief	Bokoni Platinum Mine
Transnet NMPP Line	Kwa-Zulu Natal, South Africa	2010	2010	Heritage survey	Umlando Consultants
Archaeological Impact Assessment – Witpoortjie Project	Johannesburg, Gauteng, South Africa	2010	2010	Archaeological Impact Assessment	ARM
Der Brochen Archaeological Excavations	Steelpoort, Mpumalanga, South Africa	2010	2010	Phase 2 Excavations	Heritage Contracts Unit
De Brochen and Booyesdal Archaeology Project	Steelpoort, Mpumalanga, South Africa	2010	2010	Site Mapping Recording:	Heritage Contracts Unit
Eskom Thohoyandou Electricity Master Network	Limpopo Province, South Africa	2010	2010	Heritage Statement	Strategic Environmental Focus

PROJECT		LOCATION	DATES		PROJECT TYPE		CLIENT
Bathako Expansion	Mine	North-West Province, South Africa	2010	2010	Phase 2 Mapping		Heritage Contracts Unit
Wenzelrust Excavations		Shoshanguve, Gauteng, South Africa	2009	2009	Phase 2 Excavations		Heritage Contracts Unit
University of the Witwatersrand LIA Shelter Project	Parys	Free State, South Africa	2009	2009	Phase 2 Mapping		University of the Witwatersrand
Archaeological Assessment of Modderfontein Holdings	of AH	Johannesburg, Gauteng, South Africa	2008	2008	Heritage Assessment	Basic	ARM
Heritage Assessment of Rhino Mines		Thabazimbi, Limpopo Province, South Africa	2008	2008	Heritage Assessment	Impact	Rhino Mines
Cronimet Project		Thabazimbi, Limpopo Province, South Africa	2008	2008	Archaeological surveys		Cronimet
Eskom Thohoyandou SEA Project		Limpopo Province, South Africa	2008	2008	Heritage Statement		Eskom
Witbank Archaeological Assessment	Dam Impact	Witbank, Mpumalanga, South Africa	2007	2007	Archaeological survey		ARM
Sun City Archaeological Site Mapping		Sun City, Pilanesberg, North West Province, South Africa	2006	2006	Site Mapping	Recording:	Sun International
Klipriviersberg Archaeological Survey		Meyersdal, Gauteng, South Africa	2005	2006	Archaeological surveys		ARM

6 Professional Registration

Position	Professional Body	Registration Number
Member	Association for Southern African Professional Archaeologists (ASAPA);	270

Position	Professional Body	Registration Number
	ASAPA Cultural Resources Management (CRM) section	
Member	International Council on Monuments and Sites (ICOMOS)	14274
Member	Society for Africanist Archaeologists (SAfA)	N/A
Member	International Association of Impact Assessors (IAIA) South Africa	5494

7 Publications

Huffman, T.N. & du Piesanie, J.J. 2011. Khami and the Venda in the Mapungubwe Landscape. *Journal of African Archaeology* 9(2): 189-206

du Piesanie, J.J., 2017. Book Review: African Cultural Heritage Conservation and Management. *South African Archaeological Bulletin* 72(205)



Miss Shannon Hardwick
 Heritage Resources Management Consultant
 Social and Heritage Services
 Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2013	MSc (Archaeology)	University of the Witwatersrand
2010	BSc (Honours) (Archaeology)	University of the Witwatersrand
2009	BSc	University of the Witwatersrand
2006	Matric	Rand Park High School

2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Fair	Basic

3 Employment

Period	Company	Title/position
2019 to Present	Digby Wells Environmental	Heritage Resources Management Consultant
2017 to 2019	Digby Wells Environmental	Assistant Heritage Resources Management Consultant
2017 to 2017	Digby Wells Environmental	Social and Heritage Services Intern
2016 to 2017	Tarsus Academy	Facilitator
2011 to 2016	University of the Witwatersrand	Teaching Assistant
2011	University of the Witwatersrand	Collections Assistant

4 Experience

I joined the Digby Wells team in May 2017 as a Heritage Management Intern and has most recently been appointed as a Heritage Resources Management Consultant. I am an archaeologist and obtained a Master of Science (MSc) degree from the University of the Witwatersrand in 2013, specialising in historical archaeobotany in the Limpopo Province. I am a published co-author of one paper in *Journal of Ethnobiology*.

Since joining Digby Wells, I have gained generalist experience through the compilation of various heritage assessments, including Notification of Intent to Develop (NIDs), Heritage Scoping Reports (HSRs), Heritage Impact Assessment (HIA) reports, Heritage Basic Assessment Reports (HBARs) and permit applications to undertake permitted activities in terms of Sections 34 and 35 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA). I have also obtained experience in compiling socio-economic documents, including a Community Health, Safety and Security Management Plan (CHSSMP) and social baselines and data analysis for Projects in South Africa, Malawi, Mali and Sierra Leone. My fieldwork experience includes heritage pre-disturbance surveys in South Africa, Malawi and the Democratic Republic of the Congo and social fieldwork in Malawi.

I am a registered member of the Association of Southern African Professional Archaeologists (ASAPA) and the International Council on Monuments and Sites (ICOMOS).

5 Project Experience

My project experience is listed in the table below.

Project Experience

Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Environmental Authorisation for the Dagsoom Coal Mining Project near Ermelo, Mpumalanga Province	Dagsoom Coal Mining (Pty) Ltd	Ermelo, Mpumalanga Province	Ongoing	Heritage Impact Assessment
Regional Tailings Storage Facility Heritage Mitigations	Ergo Mining (Pty) Ltd	Randfontein, Gauteng	Ongoing	Section 34 Permit Application Process
Weltervreden Mine Environmental Authorisation, Water Use Licence and Mining Right Application Project	Mbuyelo Group (Pty) Ltd	Belfast, Mpumalanga	Ongoing	Heritage Impact Assessment



Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Environmental Authorisation for the proposed Lephalale Pipeline Project, Limpopo Province	MDT Environmental (Pty) Ltd	Lephalale, Limpopo Province	2019	Notification of Intent to Develop
Heritage Resources Management Process Update for the Exxaro Matla Mine	Exxaro Coal Mpumalanga (Pty) Ltd	Kriel, Mpumalanga Province	2019	Heritage Site Management Plan Update
Environmental Authorisation for the proposed Musina-Makhado Special Economic Zone Development Project, Limpopo Province	Limpopo Economic Development Agency	Vhembe District Municipality, Limpopo Province	Ongoing	Heritage Impact Assessment Project Management
Songwe Hills Rare Earth Elements Project	Mkango Resources Limited	Phalombe District, Malawi	Ongoing	Heritage Impact Assessment
Elandsfontein Colliery Burial Grounds and Graves Chance Finds	Anker Coal and Mineral Holdings SA (Pty) Ltd Elandsfontein Colliery (Pty) Ltd	Clewer, Emalahleni, Mpumalanga Province	December 2018	Site Inspection Project Management
Environmental Authorisation Process to Decommission a Conveyor Belt Servitude, Road and Quarry at Twistdraai East Colliery	Sasol Mining (Pty) Ltd	Secunda, Mpumalanga Province	Ongoing	Notification of Intent to Develop
Environmental and Social Impact Assessment for the Bougouni Lithium Project, Mali	Future Minerals S.A.R.L.	Bougouni, Mali	Ongoing	Heritage Impact Assessment
Environmental Authorisation for the Nomalanga Estates Expansion Project, KwaZulu-Natal	Nomalanga Property Holdings (Pty) Ltd	Greytown, KwaZulu-Natal	Ongoing	Heritage Impact Assessment
Environmental Authorisation for the Temo Mine proposed Rail, Road and Pipeline Development, Limpopo Province	Temo Coal Mining (Pty) Ltd	Lephalale, Limpopo Province	Ongoing	Heritage Impact Assessment

Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Gorumbwa RAP Audit	Randgold Resources Limited	Kibali Sector, Democratic Republic of the Congo	December 2018	Resettlement Action Plan Audit
Sasol Sigma Defunct Colliery Surface Mitigation Project: Proposed Rover Diversion and Flood Protection Berms	Sasol Mining (Pty) Ltd	Sasolburg, Free State Province	November 2018	Notification of Intent to Develop
Basic Assessment and Regulation 31 Amendment / Consolidation for Sigma Colliery: Mooikraal and Sigma Colliery: 3 Shaft	Sasol Mining (Pty) Ltd	Sasolburg, Free State Province	Ongoing	Notification of Intent to Develop
Sasol Mining Sigma Colliery Ash Backfilling Project, Sasolburg, Free State Province	Sasol Mining (Pty) Ltd	Sasolburg, Free State Province	July 2018	Heritage Basic Assessment Report Update
Constructed Landfill Site for the Sierra Rutile Limited Mining Operation, Southern Province, Sierra Leone	Sierra Rutile Limited	Southern Province, Sierra Leone	May 2019	Social Impact Assessment
Environmental Impact Assessment for the Klipspruit Colliery Water Treatment Plant and associated pipeline, Mpumalanga	South32 SA Coal Holdings (Pty) Ltd	Ogies, Mpumalanga Province	Ongoing	Notification of Intent to Develop; Social baseline
Proposed construction of a Water Treatment Plant and associated infrastructure for the Treatment of Mine-Affected Water at the Kilbarchan Colliery	Eskom Holdings SOC Limited	Newcastle, KwaZulu-Natal Province	Ongoing	Heritage Impact Assessment
Belfast Implementation Project	Exxaro Coal Mpumalanga (Pty) Ltd	Belfast, Mpumalanga Province	Ongoing	Section 34 Permit Application

Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Newcastle Landfill Project	GCS Water and Environmental Consultants	Newcastle, KwaZulu-Natal	March 2019	Heritage Impact Assessment
NHRA Section 34 Permit Application process for the Davin and Queens Court Buildings on Erf 173 and 174, West Germiston, Gauteng Province	IDC Architects	Johannesburg, Gauteng Province	May 2018	Section 34 Permit Application Process
Basic Assessment and Environmental Management Plan for the Proposed pipeline from the Mballi Colliery to the Tweefontein Water Reclamation Plant, Mpumalanga Province	HCI Coal (Pty) Ltd Mballi Colliery	Ogies, Mpumalanga Province	February 2018	Heritage Basic Assessment Report
The South African Radio Astronomy Observatory Square Kilometre Array Heritage Impact Assessment and Conservation Management Plan Project	The South African Radio Astronomy Observatory (SARAO)	Carnarvon, Northern Cape Province	July 2018	Heritage Impact Assessment; Conservation Management Plan
Environmental Impact Assessment for the proposed Future Developments within the Sun City Resort Complex	Sun International (Pty) Ltd	Rustenburg, North West Province	Ongoing	Heritage Impact Assessment Conservation Management Plan Social Baseline
Environmental Fatal Flaw Analysis for the Mabula Filling Station	Mr van den Bergh	Waterberg, Limpopo Province	November 2017	Fatal Flaw Analysis
Environmental Impact Assessment for the Blyvoor Gold Mining Project near Carletonville, Gauteng Province	Blyvoor Gold Capital (Pty) Ltd	Carletonville, Gauteng	Ongoing	Notification of Intent to Develop; Social Baseline

Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Heritage Resources Management Process for the Exxaro Matla Mine	Exxaro Coal Mpumalanga (Pty) Ltd	Kriel, Mpumalanga Province	October 2018	Heritage Impact Assessment
Liwonde Additional Studies	Mota-Engil Africa	Liwonde, Malawi	June 2018	Community Health, Safety and Security Management Plan
Environmental Impact Assessment for the Millsite TSF Complex	Sibanye-Stillwater	Randfontein, Gauteng	December 2017	Heritage Impact Assessment
Heritage Resources Management Process for the Portion 296 of the farm Zuurfontein 33 IR Proposed Residential Establishment Project	Shuma Africa Projects (Pty) Ltd	Ekurhuleni (Johannesburg), Gauteng	June 2017	Notification of Intent to Develop
NHRA Section 35 Archaeological Investigations, Lanxess Chrome Mine, North-West Province	Lanxess Chrome Mine (Pty) Ltd	Rustenburg, North West Province	August 2017	Archaeological Phase 2 Mitigation
Environmental and Social Input for the Pre-Feasibility Study	Birimium Gold	Bougouni, Mali	October 2018	Pre-Feasibility Study; Heritage Impact Assessment

6 Professional Registration

Position	Professional Body	Member Number
Member	Association of Southern African Professional Archaeologists (ASAPA)	451
Member	International Council on Monuments and Sites (ICOMOS)	38048

7 Publications

Esterhuysen, A.B. & Hardwick, S.K. 2017. Plant remains recovered from the 1854 siege of the Kekana Ndebele, Historic Cave, Makapan Valley, South Africa. *Journal of Ethnobiology* 37(1): 97-119.



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Appendix C: Public Participation Process

LEGAL NOTICES

TRACING OF DEPENDANTS

In terms of Section 37C of the Pension Funds Act, 1956, as amended, the Trustees of the South African Civil Aviation Authority Provident Fund are responsible for the distribution of the provident fund death benefits to the beneficiaries of its deceased members.

If you were a dependant in terms of Section 1 of the Pension Funds Act, 1956, of the late –

(i) Tobego Caroline Lekalakala;

(ii) Thabiso Collins Tolo;

(iii) Gugu Comfort Mnguni;

(iv) Coleman Motshope Mohlala;

(v) Zukiswa Botha; or

(vi) Angelina Thabane.

you are kindly requested to contact the Principal Officer (noted below) of the SACAA Provident Fund not later than 21 September 2020.

Theo Ferreira (Chartered Principal Executive Officer)
Tel: 011-545-1120
E-mail: ferreirat@caa.co.za
02MD3L

NOTICE OF MOTION IN THE HIGH COURT OF SOUTH AFRICA (GAUTENG LOCAL DIVISION, JOHANNESBURG)

Case No.: 9553/2020
In the matter between:
FATIMA ABDUL SAMID EBRAHIM
I.D No.: 800621 0163 084
First Applicant
And
YOUSHA SOLOMONS
I.D No.: 800725 5203 082
Second Applicant
KINDLY TAKE NOTICE that the abovementioned Applicants will make application to the above Honourable Court on 29 September 2020 at 10:00 or as soon thereafter as Counsel for the Applicant may be heard, for an order in the following terms:

- To amend/rectify the date of execution of Ante-nuptial Contract H1404/2019 to reflect 16 March 2019 from 27 March 2019.
- Alternatively, in the event of prayer 1 not being granted, authorising a postnuptial execution of a notarial contract between the Applicants having the effect of an ante-nuptial contract in terms of Section 88 of the Deeds Registries Act 47 of 1937, the aforesaid authorisation shall include the following:
 - The heading of the proposed contract should read: "Notarial contract having the effect of an Ante-nuptial contract in terms of Section 88 of the Deeds Registries Act 47/1937."
 - The present marital status of the parties should be disclosed as provided in section 17(2) of the Deeds Registries Act 47/1937.
 - The proposed contract should not be in the form of an Antenuptial Contract for parties to be married.
 - The proposed contract should provide for a reference to the order of Court in terms of which the contract is to be concluded.
 - The Registrar of deeds, Johannesburg, be ordered to give effect to prayer 1;
 - The Registrar of deeds, Johannesburg, be and is hereby authorised to register the aforesaid Notarial Contract within two (2) months of this order;
 - The aforesaid change in the parties' matrimonial property regime shall not in any way prejudice the right of the creditors of their joint estate whose claims arose before registration of the aforesaid Notarial Contract;
 - The costs of this application are to be paid by the applicants, alternatively by any unsuccessful party opposing the granting of this order; and
 - The Applicants be granted such further and/or alternative relief as the above Honourable Court may deem fit.

TAKE FURTHER NOTICE THAT the Founding affidavit of the Applicant, FATIMA ABDUL SAMID EBRAHIM together with annexures will be used in support of this application.

BE PLEASED TO TAKE NOTICE FURTHER that the Applicants have appointed Ferzana Mia Attorneys, 14 Olga Kirsch Street, Ridgeway, Johannesburg, at which they will accept notice and service of all process in these proceedings.

SIGNED AT JOHANNESBURG THIS THE 3RD DAY OF SEPTEMBER 2020.

FERZANA MIA ATTORNEYS
14 Olga Kirsch Street, Ridgeway
Johannesburg, 2091
Tel: 011 433 2824
Cell: +27 82 356 0695
Email: ferzana@mialaw.co.za
02MG9F

Return of fans for Paris worries Serena

'Organiser must clarify plan for crowd control'

New York – Having adjusted to the sight of barren stands inside Flushing Meadows, Serena Williams said she has some questions over how players will be protected at the French Open, which plans to welcome a limited number of spectators.

Organisers had earlier said Roland Garros would allow 11,500 fans per day between three show-courts when the tournament starts on September 27, in a departure from numerous professional sports events that have barred spectators amid the Covid-19 pandemic.

Williams, who avoids public places and takes a conservative approach to social distancing due to prior health concerns, said she hopes to speak with French Open organisers to "see how that works with the crowd and how we will be protected."

"They have to make the best decision for them, and I have to do what's best for me."

"But I think it should be ok," Williams, who suffered blood clots and life-threatening pulmonary embolisms while giving birth to daughter Olympia in 2017, said.

"There [are] a lot of factors that hopefully are thinking about, and I'm sure that they are, as this is a global pandemic," she said.

Williams notched her 100th win at Arthur Ashe Stadium when she beat Greece's Maria Sakkari at the US Open on Monday.

The 38-year-old American, who is on a quest for a record-equalling 24th Grand Slam title, said she misses playing in front of the legions of fans who regularly support her but has largely adapted to the unusual circumstances at Flushing Meadows this year.

"I don't feel like I'm super different without a crowd," third-seeded Williams said. I'm super passionate. This is my job. This is what I wake up to do. This is what I train to do 365 days of the year.

"Obviously I miss the crowd, because usually I'm training and I'm playing for the crowd. But now we have a virtual crowd."

She next faces Bulgaria's Tsvetana Pironkova in the US Open quarterfinals. Reigning champion Ash Barty will not play at the French Open because of health concerns and a lack of preparation, the world No 1 said on Tuesday.

Barty has not played a tournament match since February and also skipped the ongoing US Open



Serena Williams is progressing well in the US Open after reaching quarterfinals. / DANIELLE PARHIZKARAN / USA TODAY SPORTS

over health concerns relating to the Covid-19 pandemic.

The 24-year-old Australian, who beat Marketa Vondrousova in the 2019 final at Roland Garros to win her first Grand Slam title, said she would not be playing at all in Europe this year.

"Last year's French Open was the most special tournament of my career so this is not a decision I have made lightly," Barty said in a statement on Instagram.

"There are two reasons for my decision. The first is the health risks that still exist with Covid."

"The second is my preparation, which has not been ideal without my coach being able to train with me due to the state border closures in Australia."

Barty lives in Queensland, which has been rel-

atively successful in containing the coronavirus and has closed its borders to the more populous southeastern states where there are more cases.

Tennis Australia is looking to schedule more tournaments for players around the country from December, in addition to the usual warm-up events, to allow players to prepare for January's Australian Open.

"I now look forward to a long pre-season and the summer in Australia," Barty said.

"It has been a challenging year for everyone and although I am disappointed on a tennis front, the health and wellbeing of my family and my team will always be my priority."

The French Open was moved back from May to September 27-October 11 because of the pandemic. -Reuters



POSITION: COMPANIES EDITOR
REPORTING TO: BUSINESS DAY EDITOR/DEPUTY EDITOR
DEPARTMENT: EDITORIAL
LOCATION: JOHANNESBURG

POSITION OVERVIEW

Business Day is looking for a Companies Editor to co-ordinate our company-news coverage for BusinessLIVE, our digital business platform, and Business Day. We're seeking an applicant with news-editing and writing skills who has a nose for news and a good sense of what our readers want to see online, in print and in video. Applicants should have a demonstrated knowledge of business and finance and be able to quickly commission, edit and publish relevant and informed articles. They should also be comfortable in front of the camera and be able to speak fluently on camera on their areas of expertise. The position involves liaising with reporters and editors to ensure the best possible coverage of the companies sector.

MAIN RESPONSIBILITIES/OUTCOMES

- Deliver quality and extensive companies coverage in digital, print and video products;
- Being comfortable with constant deadlines throughout the day, in line with our "digital-first" strategy;
- Quick editing skills to ensure stories provide a full picture timeously;
- Manage fast, digital- and print-news coverage;
- Ensure journalism is produced at a consistent high standard;
- Previous experience at a news-wire agency or web publication will stand candidates in good stead;
- The ability to contribute original ideas for on illustrations, especially for web; and
- Contribute to building digital audience.

MINIMUM QUALIFICATIONS AND REQUIREMENTS

- Relevant diploma/degree;
- At least seven years' experience in journalism;
- A demonstrated knowledge of finance and business;
- Excellent organisational and editing;
- Ability to work quickly and accurately under pressure;
- Excellent communication skills; and
- Unimpeachable integrity

PERSONAL SKILLS/ATTRIBUTES

- Be self-motivated with an ability to lead and work within a team.

Qualified applicants may submit their CV, cover letter and two references to Managing Editor Kevin O'Grady at ogradyk@businesslive.co.za

Closing date: 15 September 2020

Arena Holdings is an Affirmative Action Employer and as such, preference will be given to candidates who will add to the diversity of our organisation. Kindly take note that should we not respond to you in the next 21 days, you may regard your application as unsuccessful.

SECTION 36 RESCUE PERMIT NOTIFICATION FOR THE MITIGATION OF BURIAL GROUND ADJACENT TO THE CITY DEEP 4L2 MINE DUMP, JOHANNESBURG

Ergo Mining (Pty) Ltd (hereinafter Ergo) identified exposed human remains from a burial ground adjacent to the City Deep 4L2 Mine Dump in Johannesburg (hereinafter 4L2 Dump). Ergo appointed Digby Wells Environmental (hereinafter Digby Wells) to provide specialist support in respect of the discovery. Digby Wells submitted a Site Inspection Report and Heritage Site Management Plan to the South African Heritage Resources Agency (SAHRA) Burial Grounds and Graves (BGG) Unit for adjudication.

To mitigate the manifested impact on the burial ground, Digby Wells made a Section 36 Rescue Permit Application to re-enter the ex-situ remains. The SAHRA BGG Unit issued interim comment requiring Ergo to implement the required Public Participation Process to comply with Chapter XI of the NHRA Regulations published in GN R 548 of GG 1239 of 2000.

Any Interested and Affected Parties (I&APs) who wish to comment on the Rescue Permit Application are invited to do so in writing to: The South African Heritage Resources Agency (SAHRA) Burial Grounds and Graves (BGG) Unit: Mimi Seetelo (MSeetelo@sahra.org.za) and Digby Wells Environmental (Shannon Hardwick) at Tel: (011) 789 9495; Fax: (011) 069 6801 or Email: sh@digbywells.com.

Commenting period for S.36 Notification:

Start of public commenting period: 09 September 2020

End of public commenting period: 08 November 2020

Location of I&AP registration form:
<http://www.digbywellsdocs.com/PublicDocuments/>



DR JS MOROKA LOCAL MUNICIPALITY

PUBLIC NOTICE: 2021/2022 IDP PROCESS PLAN

A public notice is hereby given that the Dr JS Moroka Local Municipality Council meeting held on the 21st August 2020, in terms of Sections 21 (A) and 28 (3) of the Local Government: Municipal Systems Act (Act 32 of 2000), has approved and adopted the 2021/2022 IDP Process Plan (Council Resolution No: R475.08.2020ND).

The community members, businesses and other stakeholders are encouraged and invited to inspect the IDP Process Plan documents at Municipal Head Office in Siyabuswa, Unit Offices; at Libangeni and Nokaneng and libraries; at Masobe, Marapyane, Libangeni, Maphotla and Siyabuswa.

For more information, kindly contact the Assistant Manager: IDP, Mr MM Mathebe during working hours (08:00-16:15) on 013 973 1101 Ext 253

**Municipal Administrator
Mr BM Mhlanga**

Legals & Tenders

Tenders Tenders Tenders

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To mitigate the manifested impact on the burial ground, Digby Wells made a Section 36 Rescue Permit Application to re-enter the ex-situ remains...

Any Interested and Affected Parties (I&APs) who wish to comment on the Rescue Permit Application are invited to do so by writing to: The South African Heritage Resources Agency (SAHRA)...

Commenting period for R,36 Notification: Start of public commenting period: 09 September 2020 End of public commenting period: 08 November 2020

Location of R&IP registration form: http://www.digbywells.co.za/PublicDocuments/

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CONSULTATION ON DRAFT TECHNICAL GUIDELINES FOR VALIDATION AND VERIFICATION OF GREENHOUSE GAS EMISSIONS

I. Barbara Dina Cressy, Minister of Forestry, Fisheries and the Environment, under section 56 and section 57 of the National Environmental Management Act (Act No. 107 of 2004)...

Members of the public are invited to submit to the Minister, within 30 days after the publication of the notice in the Government Gazette...

Address of Municipal offices: Centurion Regional Offices, 2011-2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020

Address of applicant: PH TOWN PLANNING SERVICES PTY LTD, 241 Loskop Street, Pretoria, 0181

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(716) Town Planning NOTICE OF APPLICATION FOR THE AMENDMENT OF A LAND USE SCHEME IN TERMS OF SECTION 21 OF THE CITY OF JOHANNESBURG MUNICIPAL PLANNING BY-LAW, 2016

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joburg logo and contact information

joburg logo and contact information

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**SECTION 36 RESCUE PERMIT NOTIFICATION
FOR THE MITIGATION OF BURIAL GROUND
ADJACENT TO THE CITYDEEP 4L2 MINE DUMP,
JOHANNESBURG**

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Commenting Period

09 September 2020 to 08 November 2020



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Commenting Period

09 September 2020 to 08 November 2020



DIGBY WELLS
ENVIRONMENTAL

Section 36 Rescue Permit Application


Site Notice Report



Client: Ergo Mining (Pty) Ltd

Project: City Deep 4L2 Mine Dump

Project Code: ERG6028

SITE NOTICES PLACED AT PUBLIC PLACES ON 10 SEPTEMBER 2020

Public Place	Coordinates	Photo
<p>Location 1: City Deep 4L2 Burial Ground</p> <p>Notice placed on poles erected to demarcate no-go buffer zone around burial ground.</p>	<p>26°13'00.56" S 28°06'28.11" E</p>	
<p>Location 2: Cleveland South African Police Service (SAPS)</p> <p>Notice placed on Community Notice Board between offices at the Community Services Centre.</p>	<p>26°12'12.40" S 28°06'56.67" E</p>	
<p>Location 3: Pick n Pay, Primrose</p> <p>Notice placed on Community Notice Board opposite the Pick n Pay entrance and exit.</p>	<p>26°11'07.52" S 28°09'29.54" E</p>	

Public Place	Coordinates	Photo
<p>Location 4: Pick n Pay Centre, Steeledale</p> <p>The Centre is undergoing renovations, and so the Notice Board has been taken down. The Notice was placed where the Notice Board is usually located.</p>	<p>26°14'51.12" S 28°05'36.08" E</p>	
<p>Location 5: Jeppe SAPS</p> <p>Notice placed on Community Notice Board inside the station.</p>	<p>26°12'8.16"S 28°03'38.94"E</p>	



DIGBY WELLS
ENVIRONMENTAL

Appendix D: GPR Report



GPR 3D Grave Detection Report

– DIGBY WELLS ENVIRONMENTAL

– City Deep

Scanning Report

Prepared for

DIGBY WELLS ENVIRONMENTAL

Prepared by

H le Roux



Subscan (PTY) LTD

OFFICE: 011 768 1233

MOBILE: 084 803 0181

EMAIL: hennie@subscan.co.za

WEB: www.subscan.co.za

ADDRESS: 170 Golf Club Terrace, Constantia Kloof, 1709

POSTAL: PO BOX 4725, Weltevredenpark, 1715

REG NO: 2015/148503/07



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7 Conclusion 72



1 INTRODUCTION

To whom it may concern,

Digby Well Environmental South Africa (the Client) approached Subscan (Pty) Ltd to perform GPR (Ground Penetrating Radar) Scans on a suspected grave site in City Deep, Johannesburg. The purpose of the scans is to determine the presence of unmarked graves in the area.

Scanning was done on 2 – 13 November 2020.

Analysis and reporting were done 16 to 25 November 2020.

This report shows Subscan's findings.



2 GROUND PENETRATING RADAR EXPLAINED

Ground Penetrating Radar (GPR) sends an electromagnetic pulse into the ground and then calculates the strength and the time required for the return of any reflected signal. A scan is series of pulses sent over a single area. The signal is reflected wherever the electrical conductivity of the material being tested has changed.



By using GPR a sub-surface image can be produced. The size of the object cannot be determined since a small but highly conductive material (like steel) could appear the same way as a larger but less conductive material (like PVC conduit).

The depth of penetration depends on the electrical conductivity of the material, the frequency of the electromagnetic pulse and the radiated power. Essentially in dry materials depth penetration is deeper than in moist or clay-laden soils. A high frequency pulse would give a better resolution feedback but will not penetrate as far as a lower frequency pulse.

The depth of an object is calculated by the Machine software using the time it takes to send and receive a pulse.





3 EQUIPMENT USED

Utility detection: *GSSI Utility Scan DF*
Software: *RADAN7*
GPS: *Hi Target V30*



4 METHODOLOGY

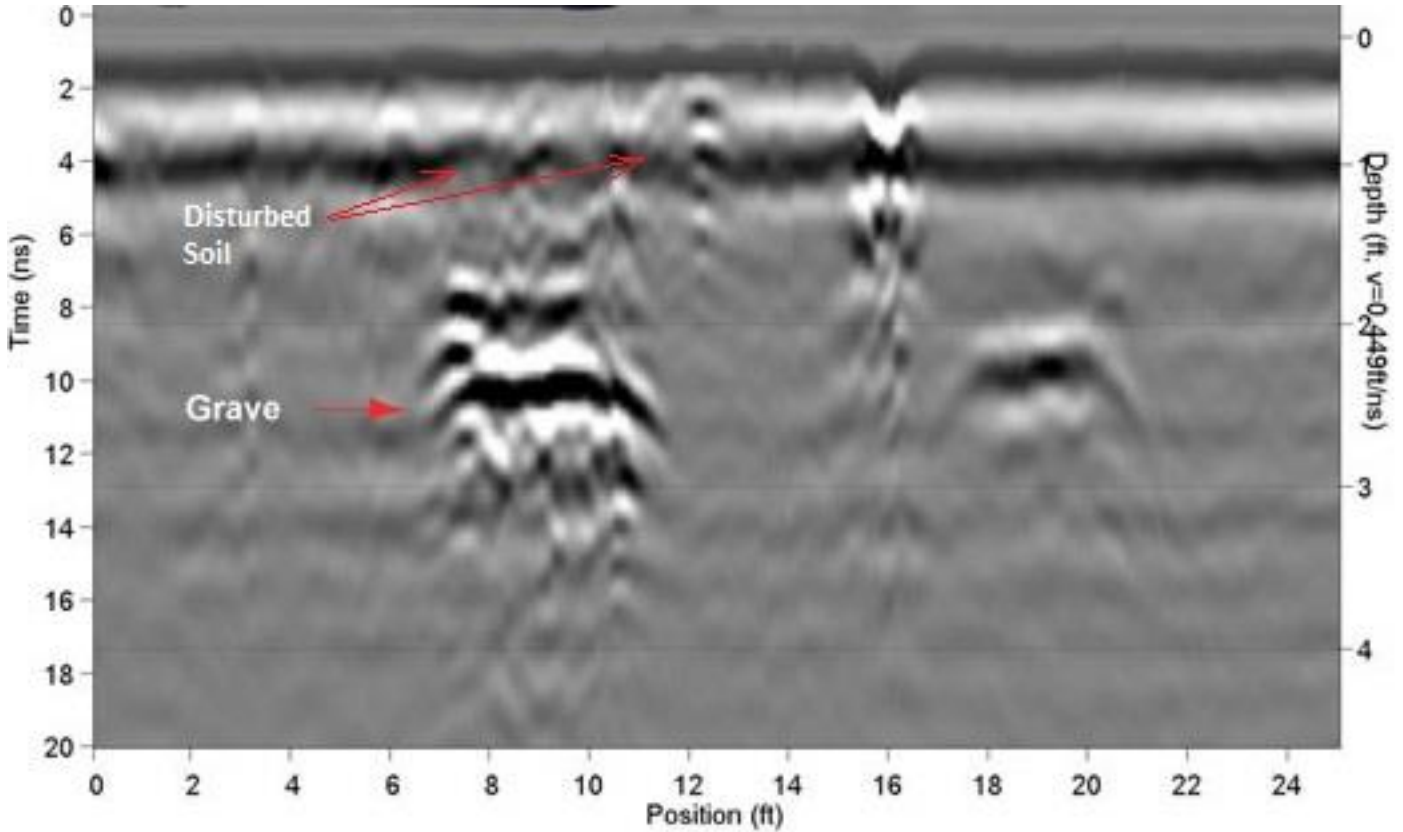
34 areas of 10m x 10m were scanned. This is done by scanning a grid with each line scanned spaced 500mm apart. This equates to 21 scans in each direction and a total of 42 lines per 3D scan (see image below). The position of each scan was captured by GPS. The GSSI Radan7 Software is then used to interpolate between each scan and form a 3D image of the scanned area.



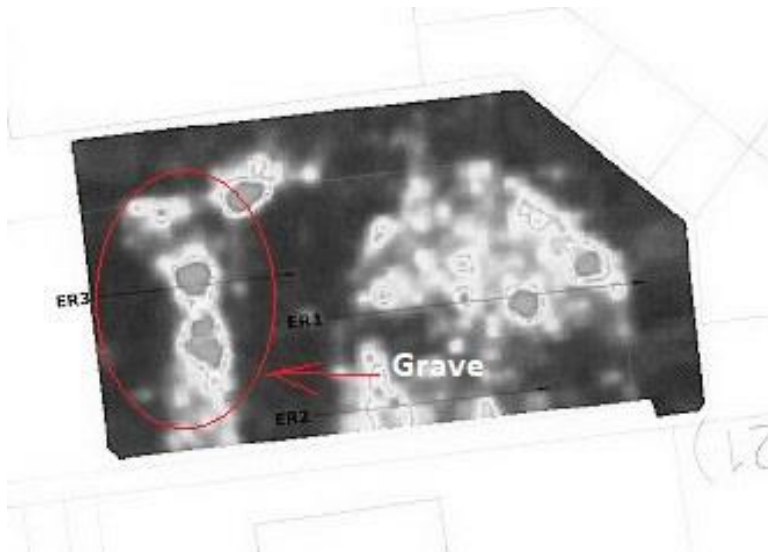
Each of the 42 scans are viewed subsequent to each other to determine if any anomaly is showing up repeatedly and then also the interpolated image is viewed from above in a 120mm slice moving from ground level smoothly down to 3m deep to determine if a clear shape of a coffin or human remains can be seen. To keep this report from becoming too bulky we will only be showing the 3D image at 450mm deep and 1,5m deep unless something of interest has been detected.

When a grave is detected the image that would be returned from the software would look similar to the following image.

On this image a cross section of a grave is seen. Note that it shows both the disturbance in the ground all the way from the surface and the human remains 2.5 feet deep.



When the 3D scan with a grave present (as in the image below) the image that is returned will show a disturbance of the soil at various levels – usually from the surface to at least 1,5m deep.



The area under investigation has graves of approximately 90 years old. It is not clear if coffins were used in all cases and therefore the condition of the human remains could vary substantially. The state of any corpse is dependent on climate, moisture, insect activity, and whether it is a sealed environment.

5 SCOPE OF WORK

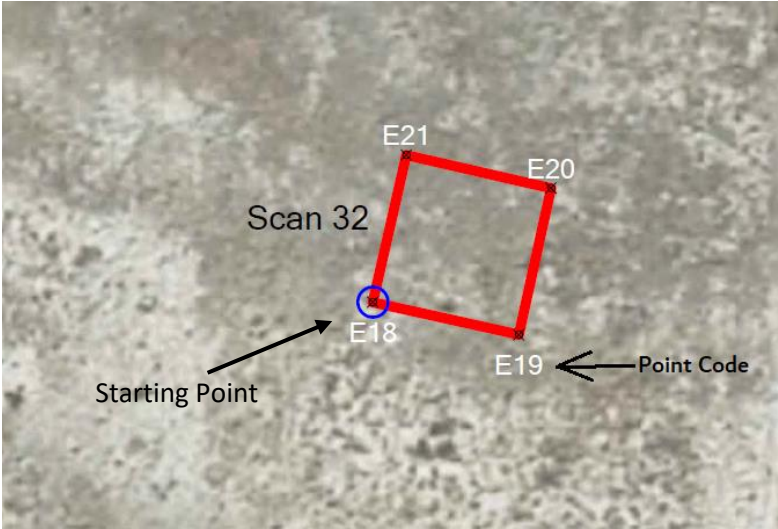
The scan area was on a section of land in City Deep, Johannesburg South. The red block in the image below shows the approximate position.



The red squares below show the position of each scan.

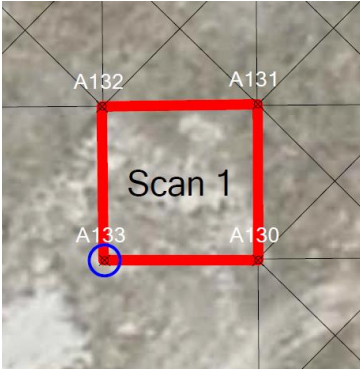


34 grids have been scanned.



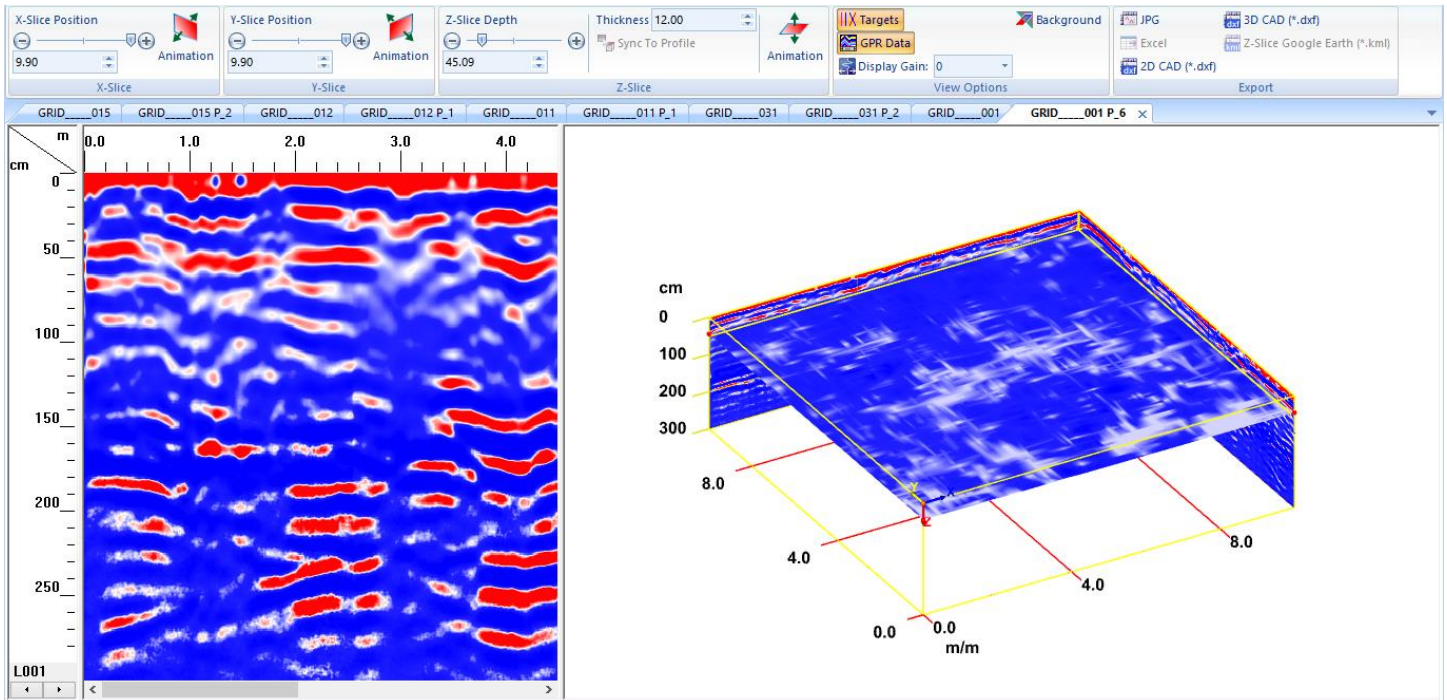
On each scan it is important to know where the starting point of the scan was to orientate yourself when looking at the area while standing in field and looking at the area that was scanned. Therefore, on each scan we have indicated the starting point in blue and the 4 corners will each have a point code. Coordinates for each of the point codes will be provided.

5.1 SCAN 1

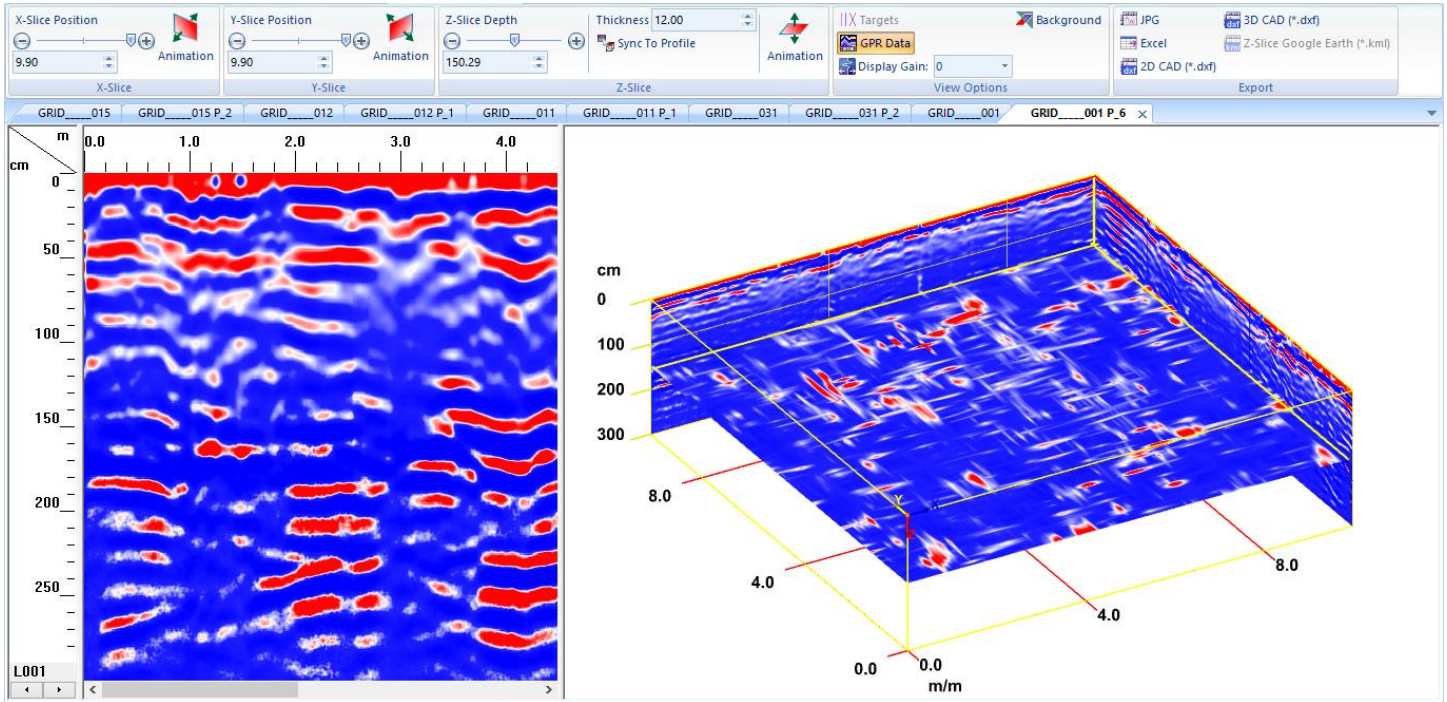


	A133	A132	A131	A130
Y:	89126,146	89126,299	89116,180	89116,165
X:	2901172,531	2901162,552	2901162,402	2901172,524
Z:	1655,847	1656,254	1655,993	1655,700

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

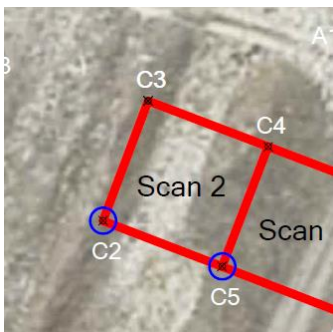


Scan 1: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



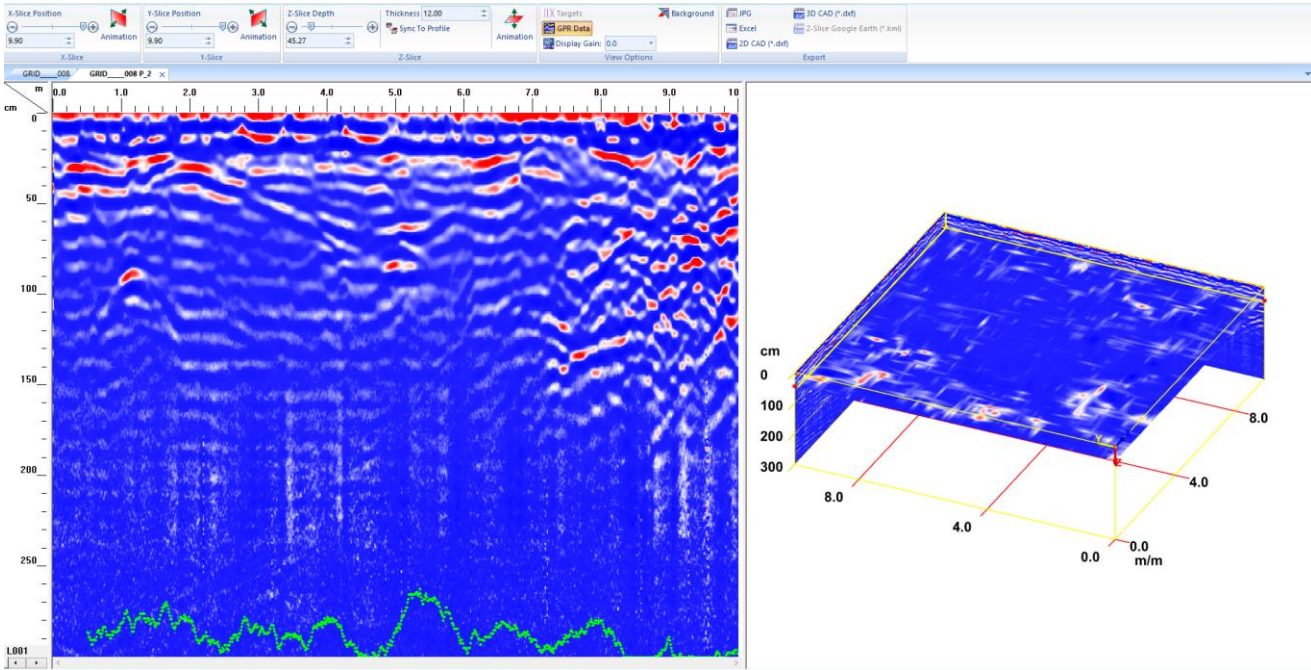
Scan 1: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.2 SCAN 2

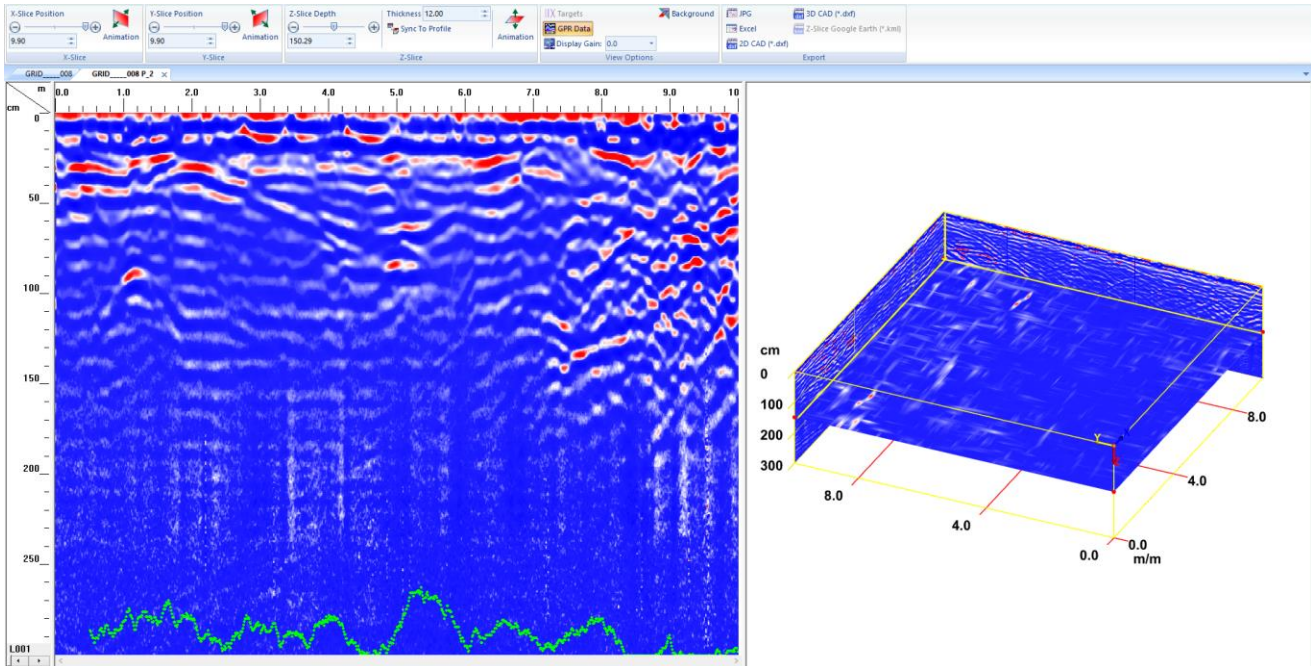


	C2	C3	C4	C5
Y:	89088,057	89084,553	89075,273	89078,840
X:	2901126,439	2901117,182	2901120,725	2901129,961
Z:	1655,596	1655,892	1655,978	1655,762

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

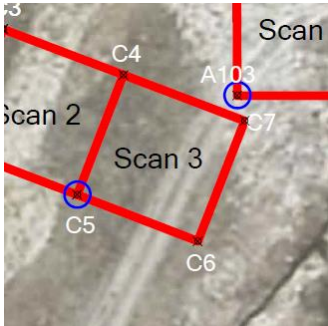


Scan 2: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



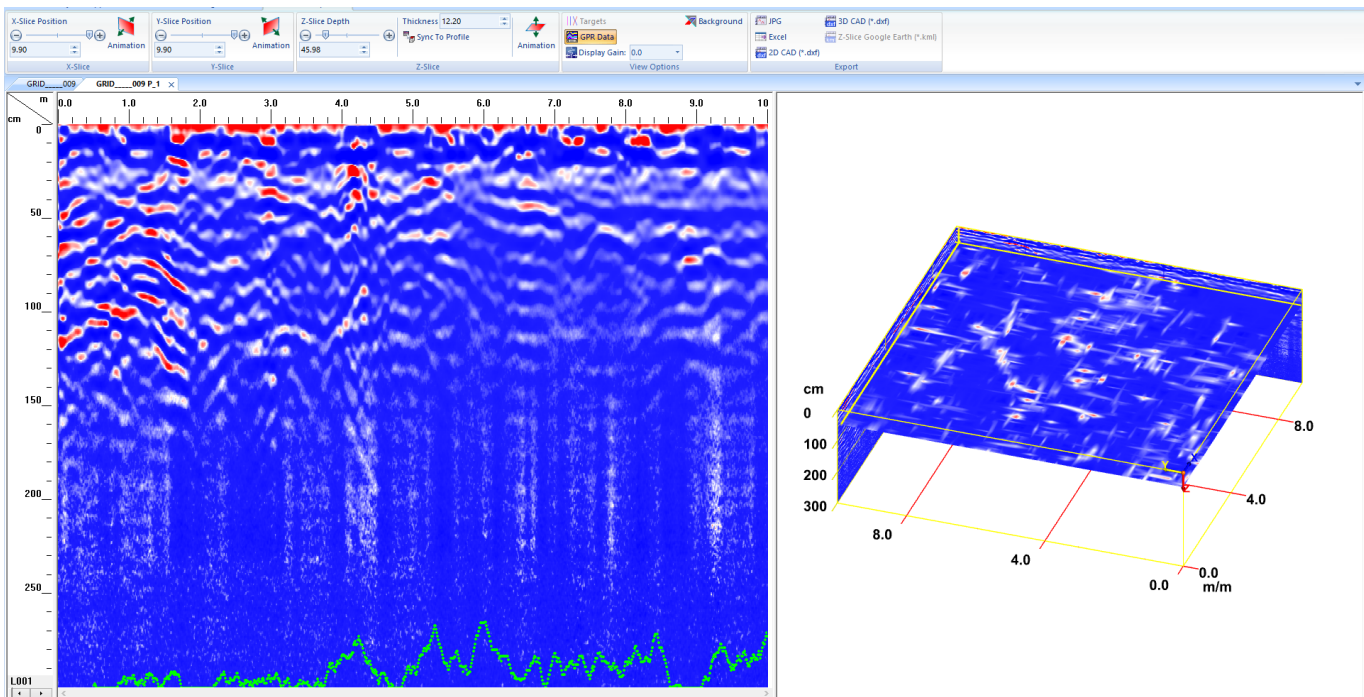
Scan 2: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.3 SCAN 3

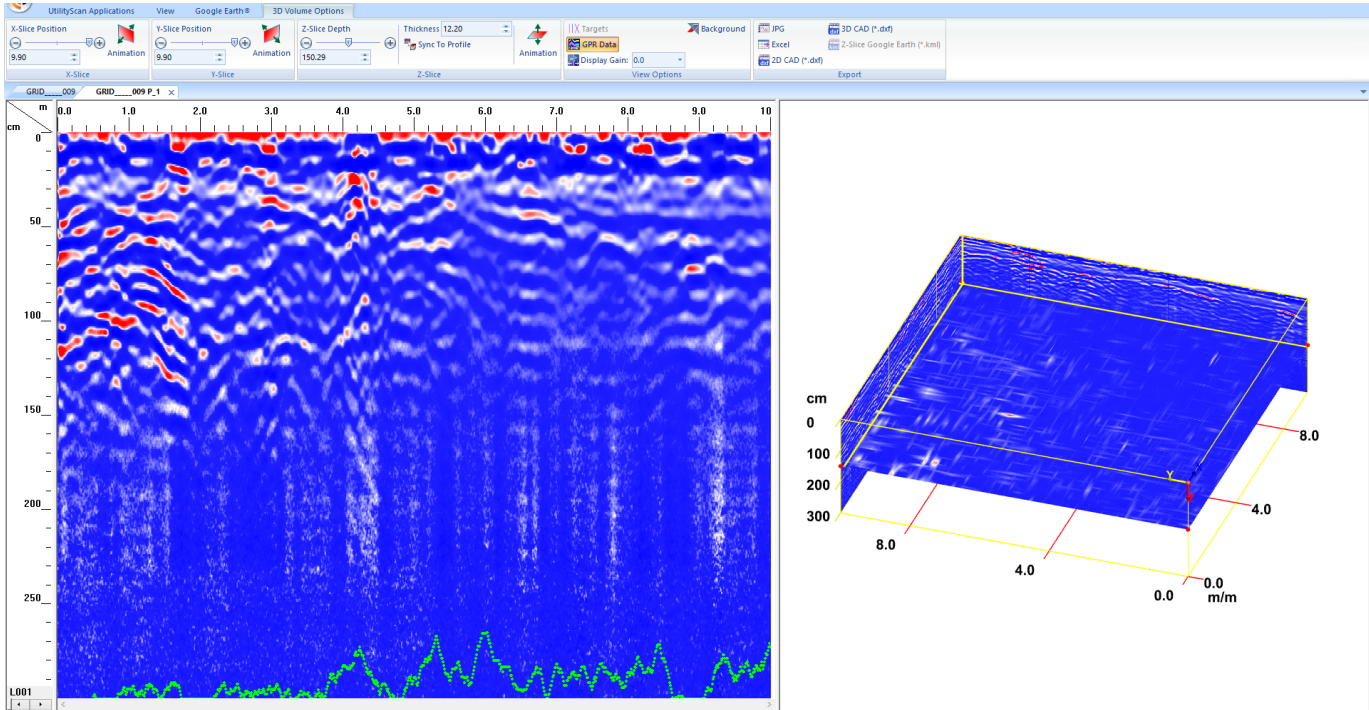


	C5	C4	C7	C6
Y:	89078,840	89075,273	89065,900	89069,522
X:	2901129,961	2901120,725	2901124,265	2901133,569
Z:	1655,762	1655,978	1655,518	1655,440

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.



Scan 3: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



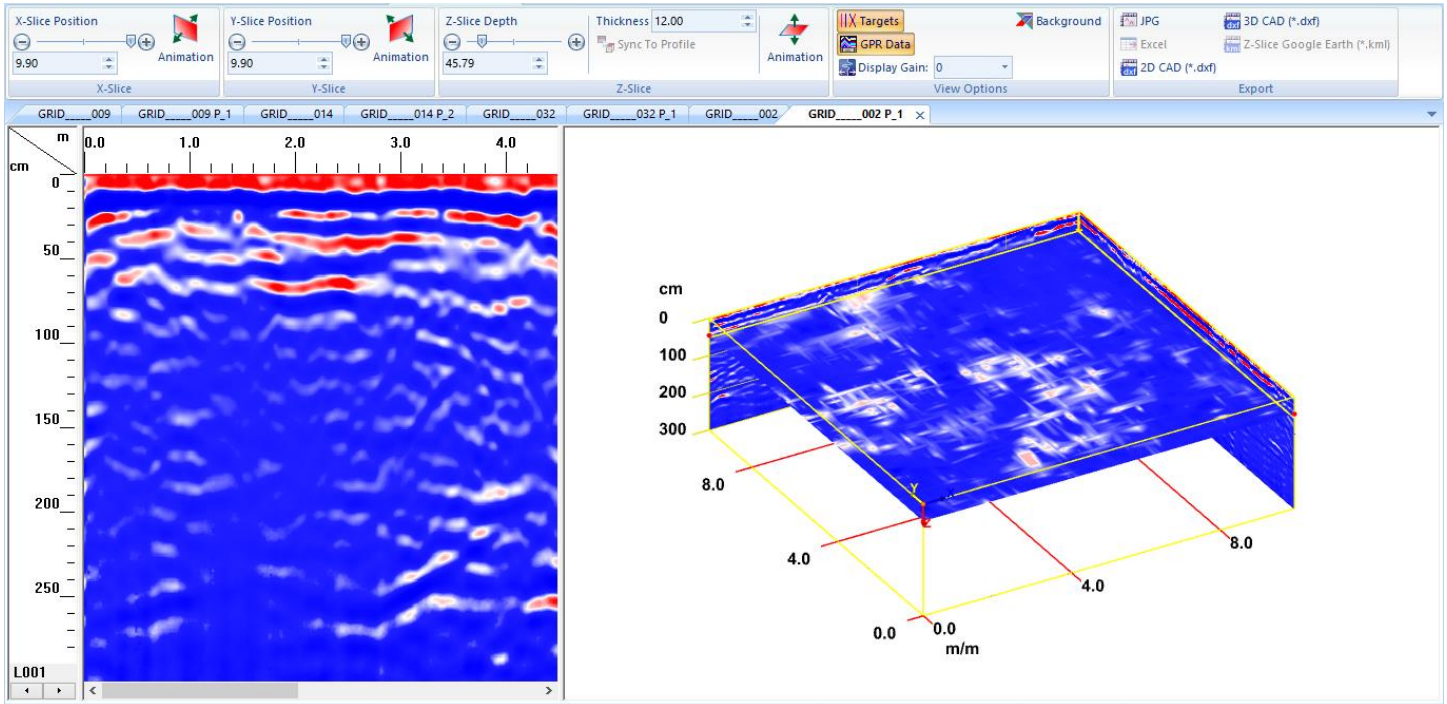
Scan 3: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.4 SCAN 4

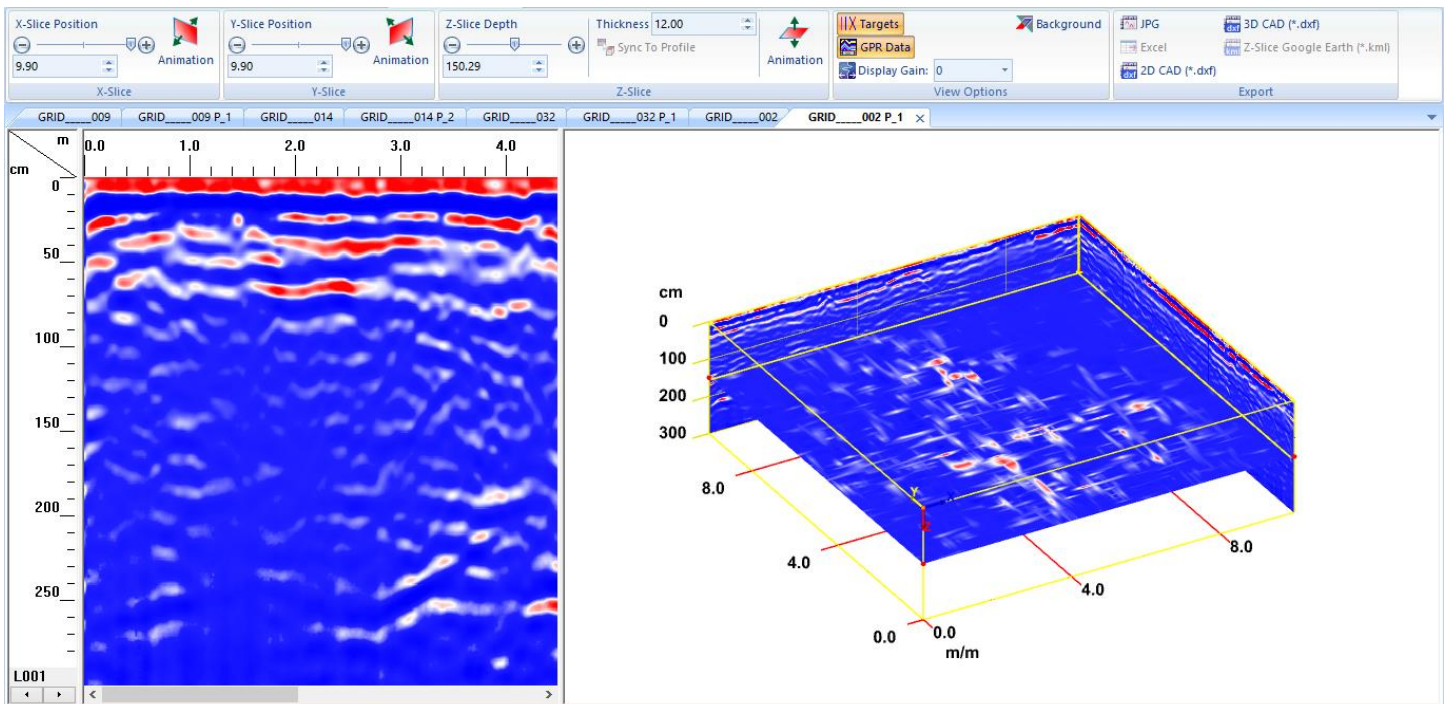


	A103	A102	A101	A100
Y:	89066,485	89066,534	89056,530	89056,532
X:	2901122,306	2901112,368	2901112,230	2901122,310
Z:	1655,572	1655,936	1655,436	1655,297

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

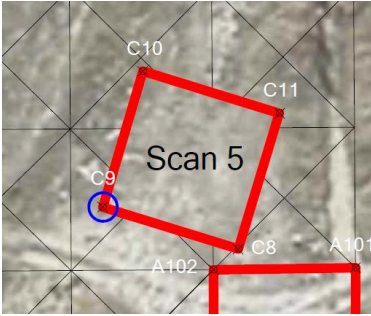


Scan 4: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



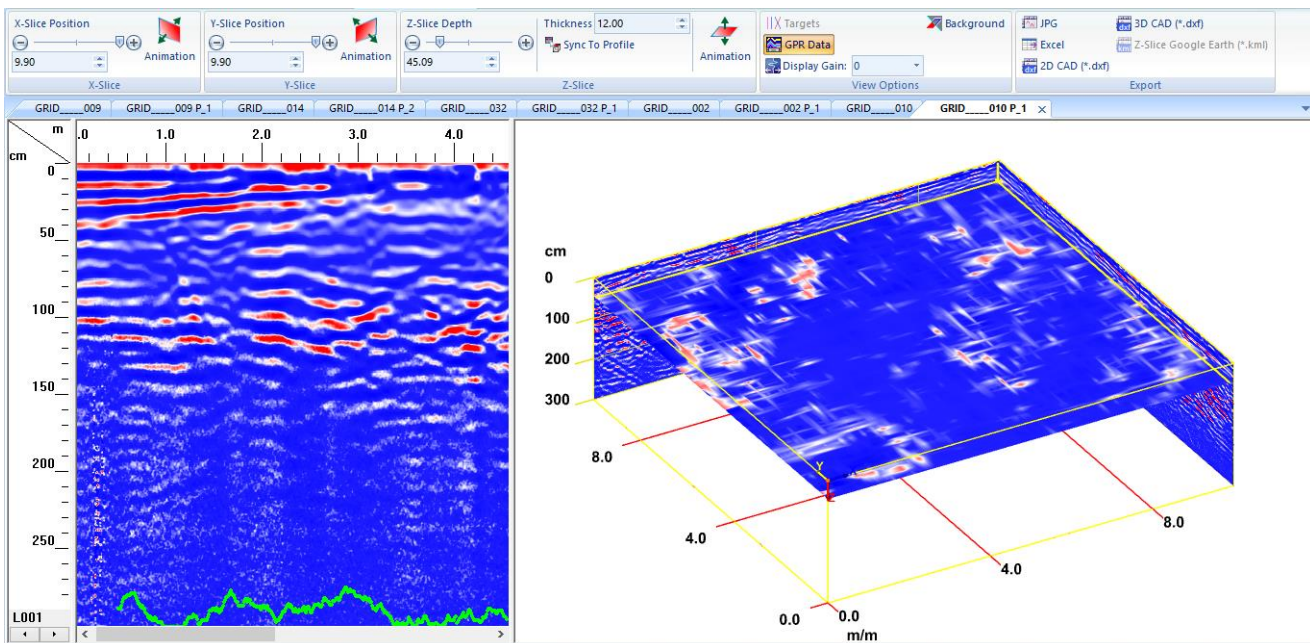
Scan 4: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.5 SCAN 5

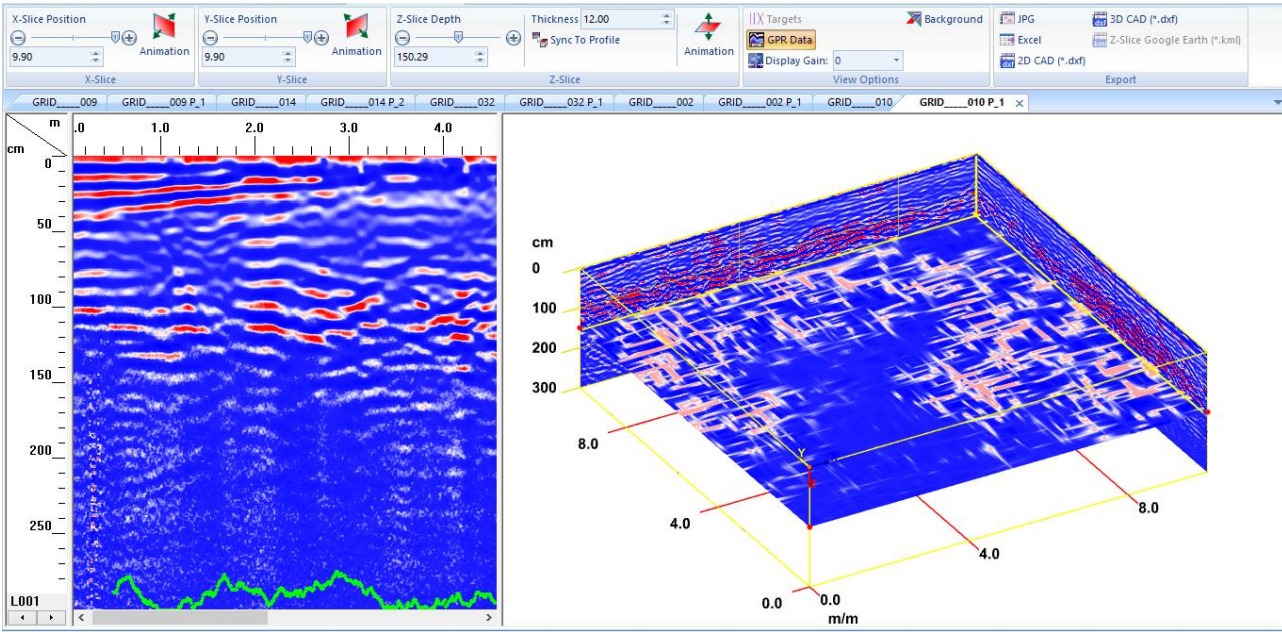


	C9	C10	C11	C8
Y:	89074,342	89071,518	89061,886	89064,806
X:	2901107,964	2901098,420	2901101,373	2901110,913
Z:	1656,260	1656,325	1656,141	1655,937

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

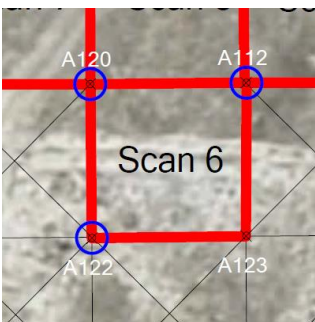


Scan 5: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



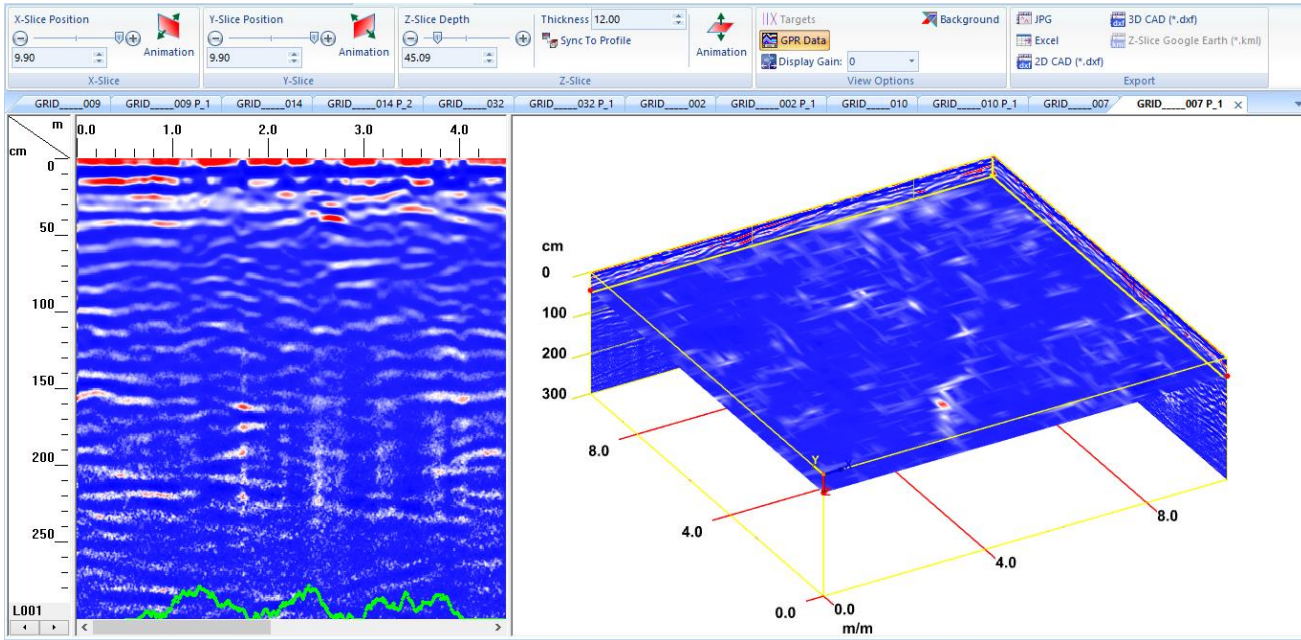
Scan 5: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.6 SCAN 6

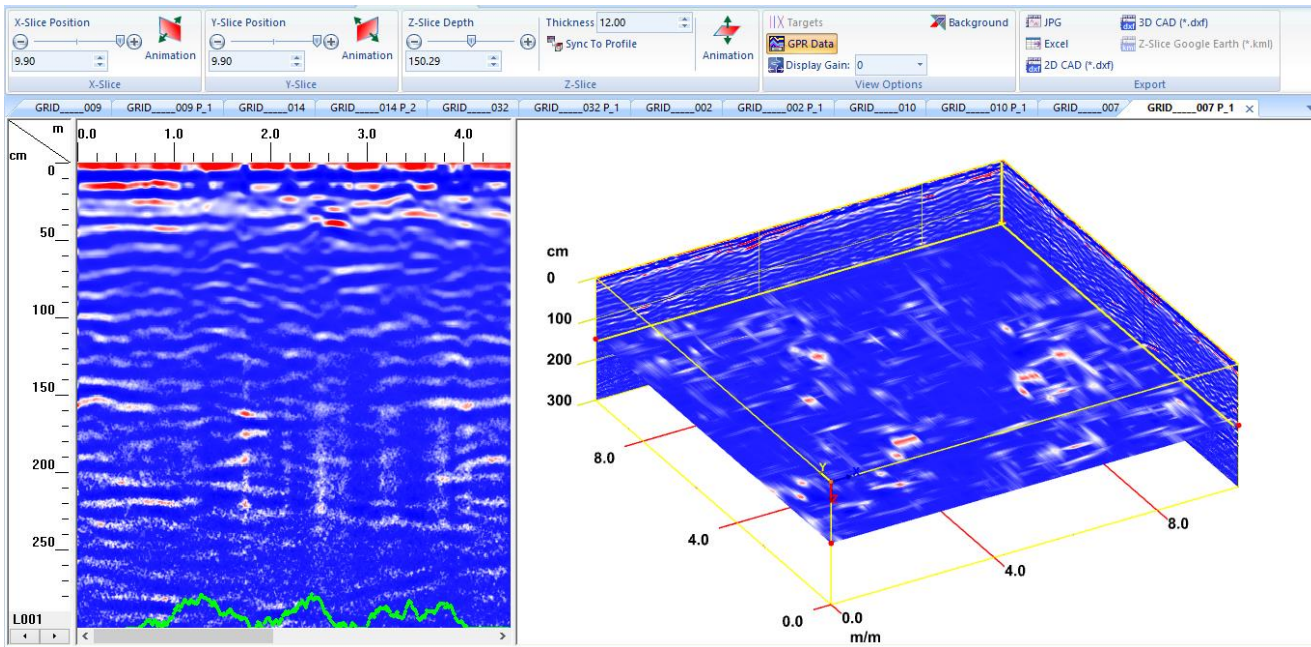


	A122	A120	A112	A123
Y:	89106,581	89106,699	89096,547	89096,555
X:	2901112,689	2901102,719	2901102,637	2901112,559
Z:	1657,430	1657,751	1657,330	1657,079

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

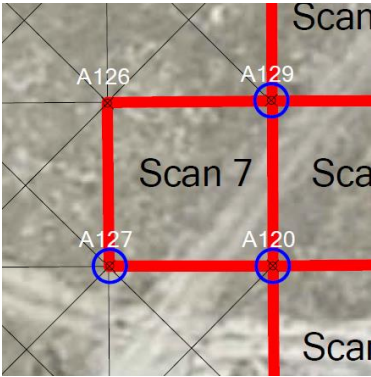


Scan 6: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



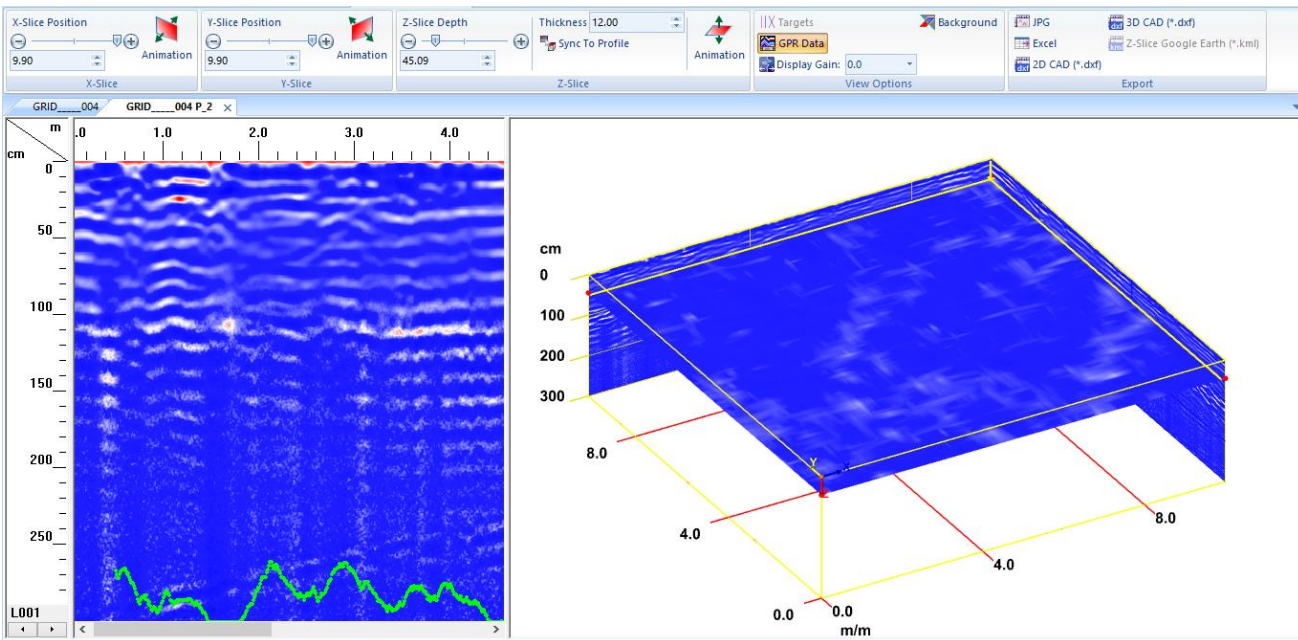
Scan 6: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.7 SCAN 7

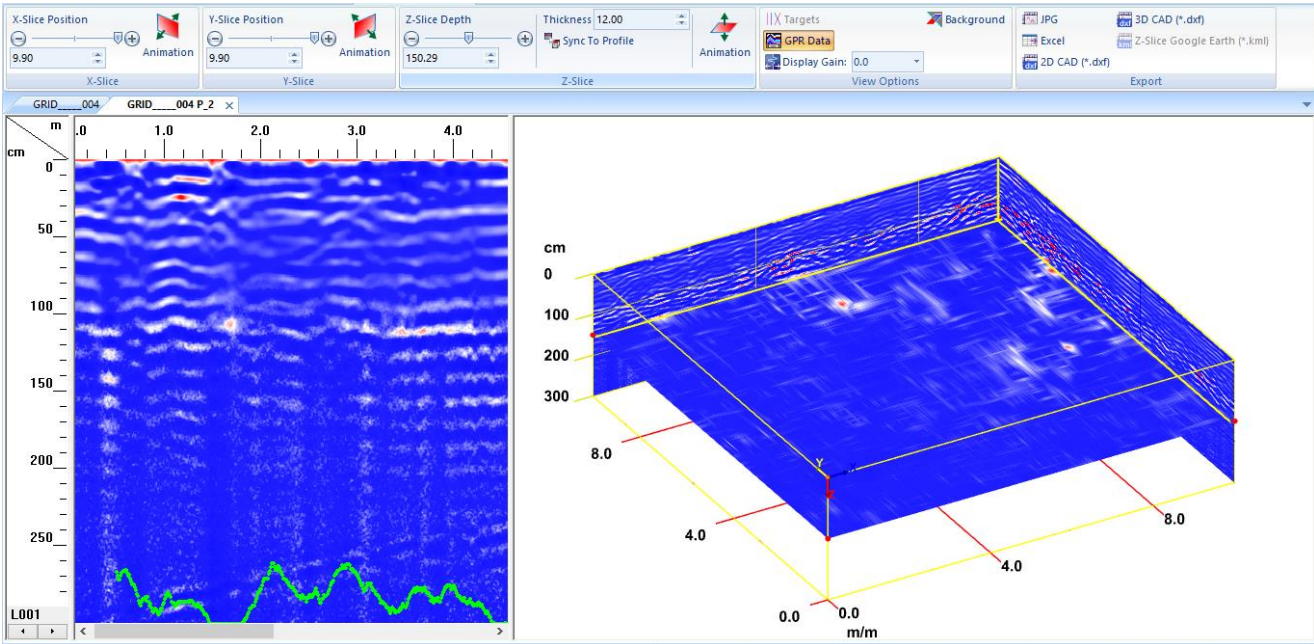


	A127	A126	A129	A120
Y:	89116,587	89116,718	89106,789	89106,699
X:	2901102,740	2901092,870	2901092,702	2901102,719
Z:	1658,318	1658,614	1658,096	1657,751

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

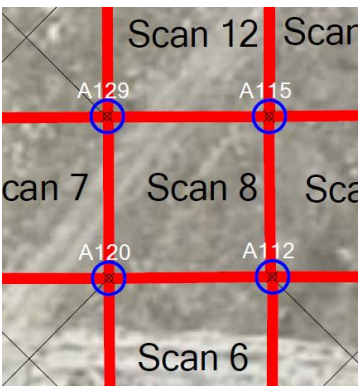


Scan 7: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



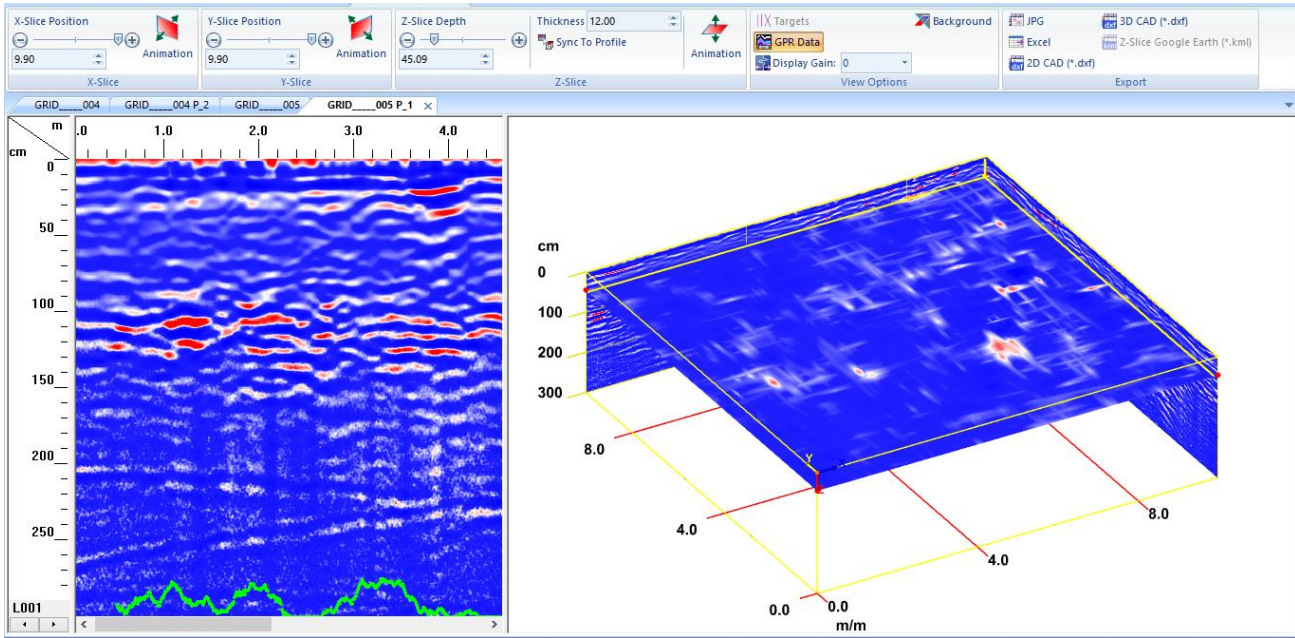
Scan 7: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.8 SCAN 8

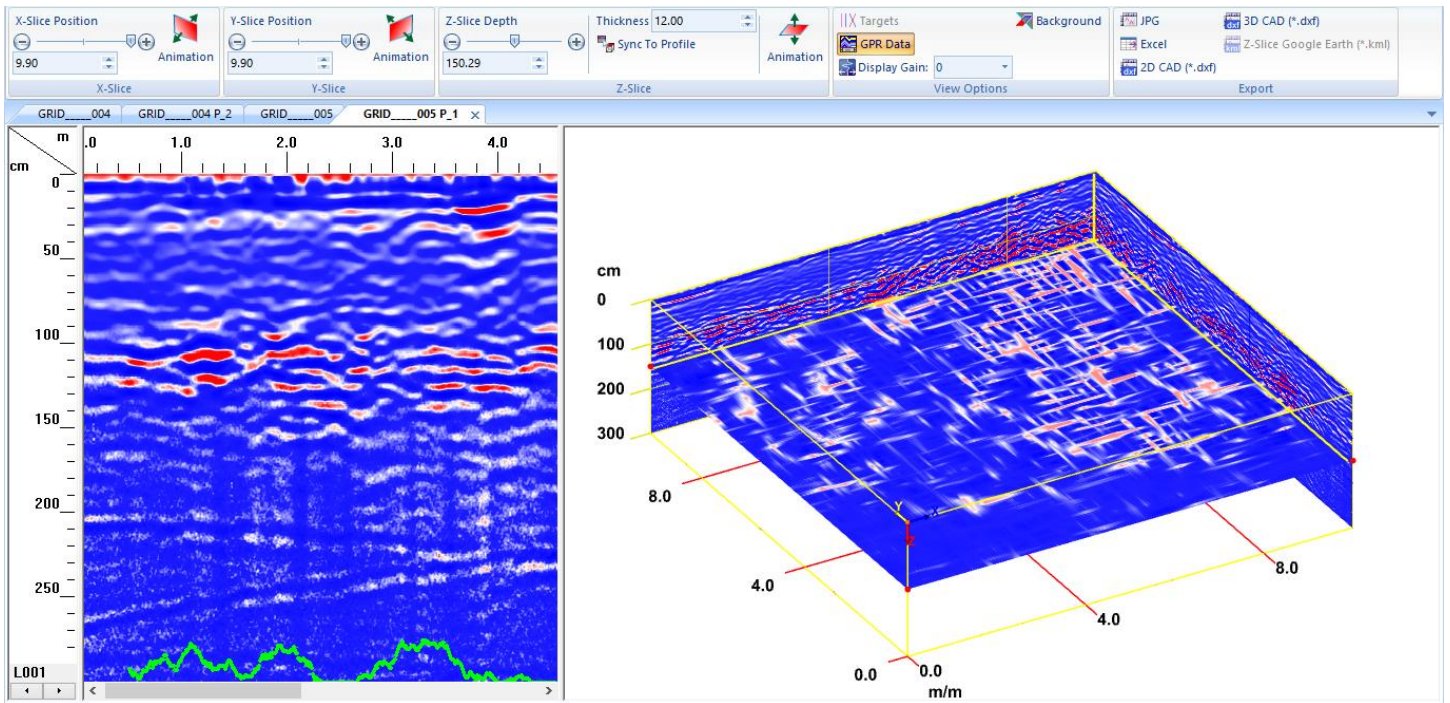


	A120	A129	A115	A112
Y:	89106,699	89106,789	89096,753	89096,547
X:	2901102,719	2901092,702	2901092,710	2901102,637
Z:	1657,751	1658,096	1657,771	1657,330

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

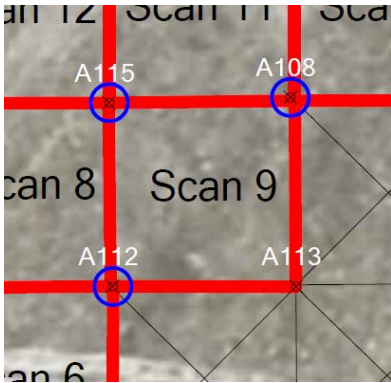


Scan 8: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



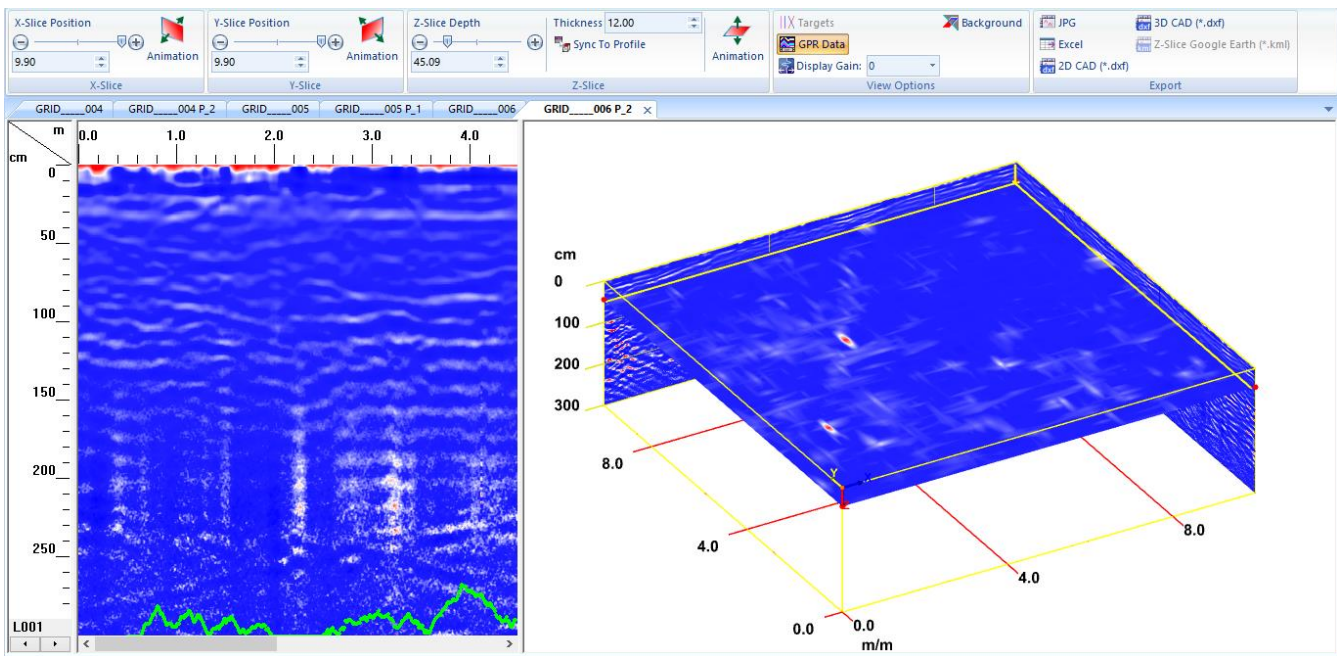
Scan 8: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.9 SCAN 9

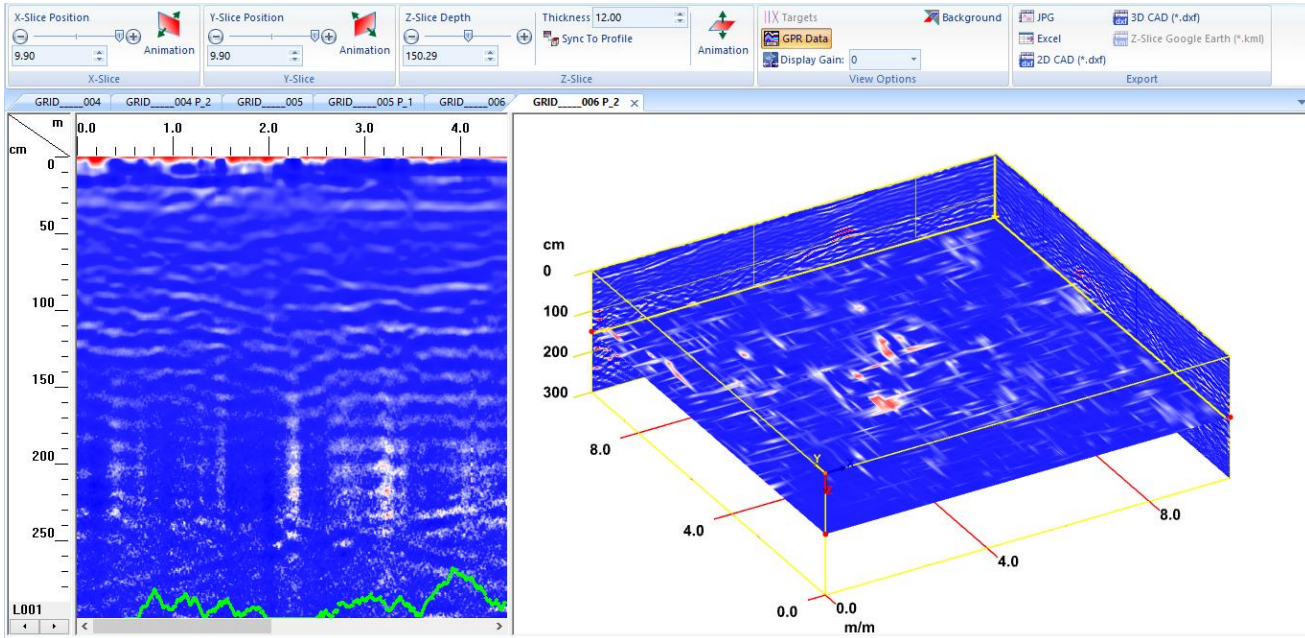


	A112	A115	A108	A113
Y:	89096,547	89096,753	89086,947	89086,629
X:	2901102,637	2901092,710	2901092,423	2901102,631
Z:	1657,330	1657,771	1657,403	1656,908

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

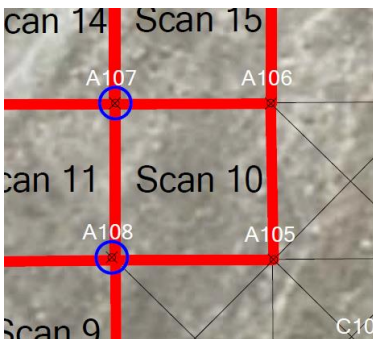


Scan 9: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



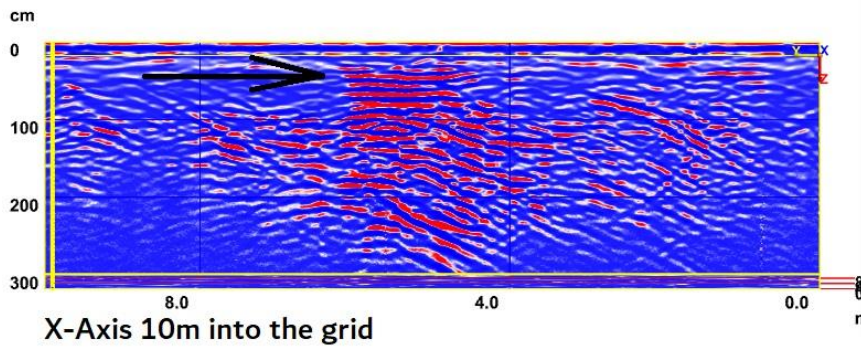
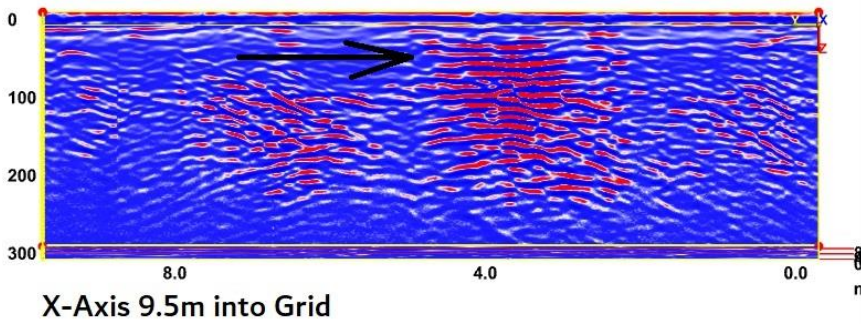
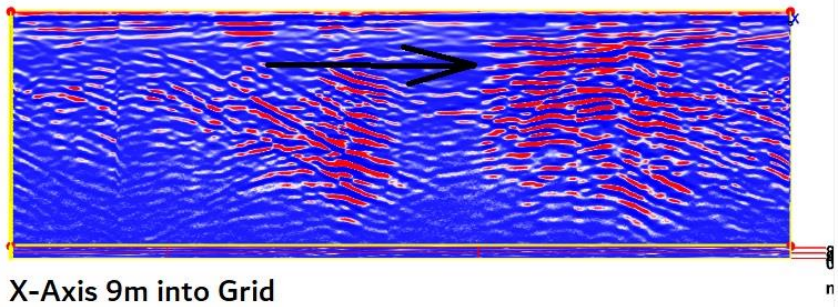
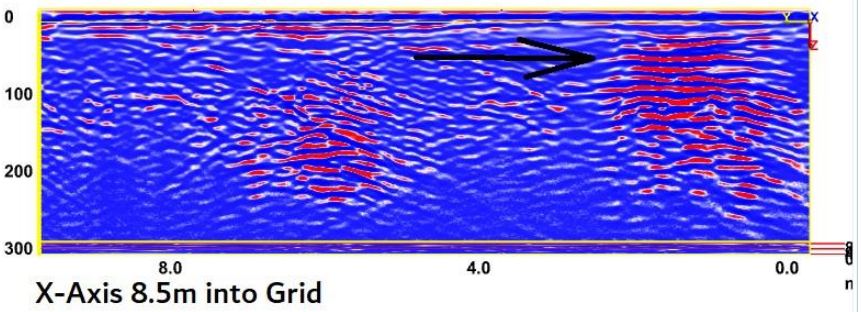
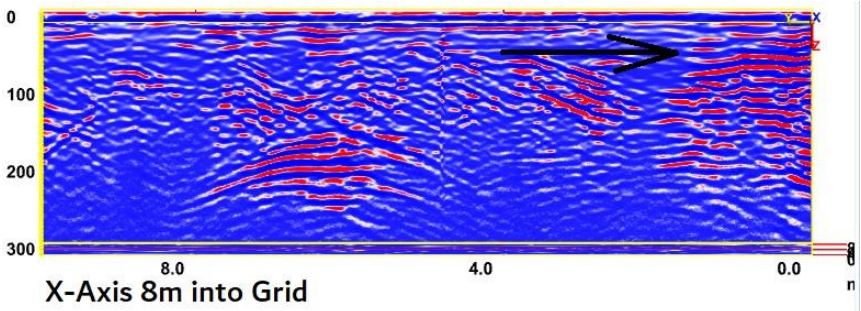
Scan 9: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.10 SCAN 10



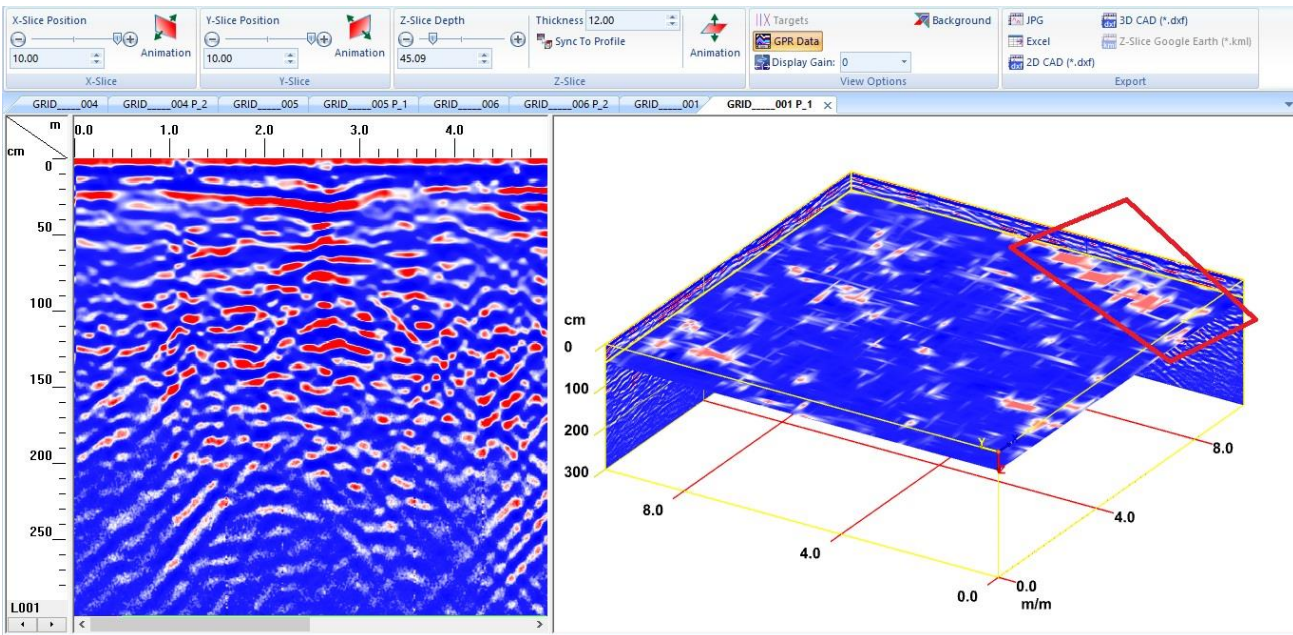
	A108	A107	A106	A105
Y:	89086,947	89086,735	89076,807	89076,623
X:	2901092,423	2901082,608	2901082,620	2901092,565
Z:	1657,403	1657,718	1657,450	1657,304

Investigation of each of the 42 individual scans found a repeated anomaly detected diagonally across the upper right corner of the scan. The depth of the anomaly is 250mm to 1,5m deep. This is would be too wide for a corpse and doesn't appear to be in the shape of a coffin. Nothing on the surface looked like an old grave and although this might be a grave where no coffin was used the only way to be sure will be to excavate and expose this area. Here follows the x-Axis scans that shows the anomaly:

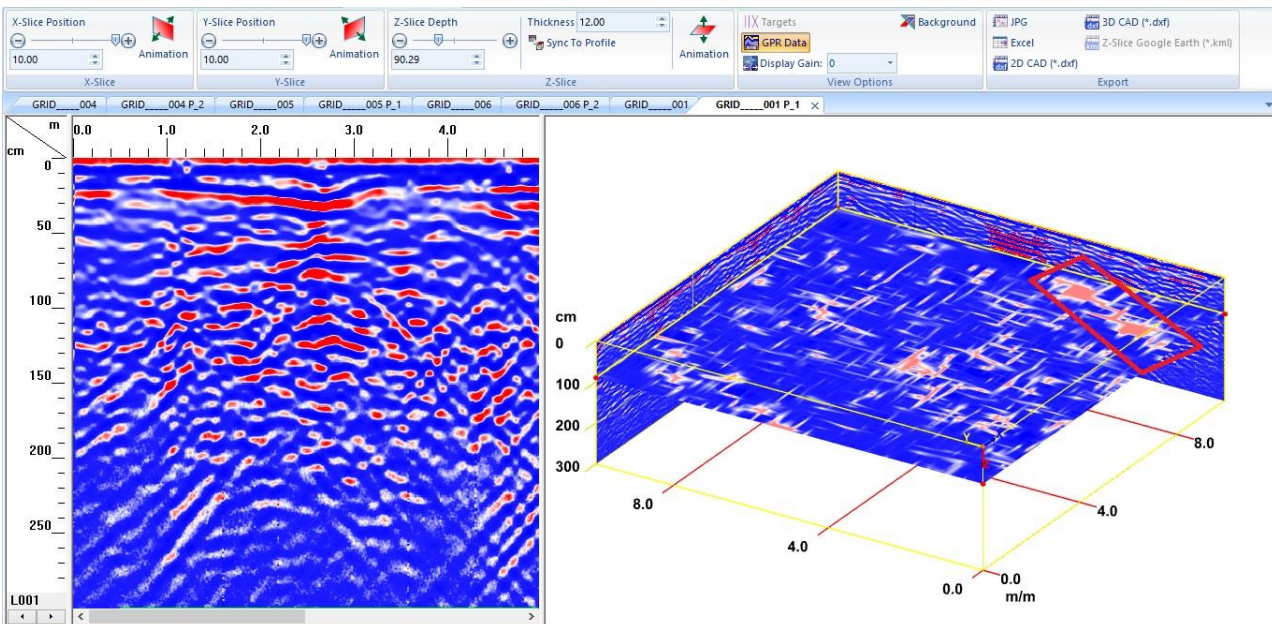




Scan 10: From 250mm to 1,5m deep a change in the conductivity of the soil is visible in the upper right corner.



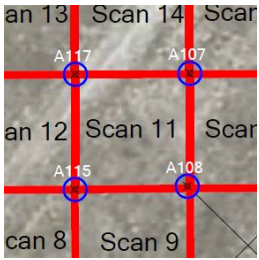
450mm deep.



900mm deep

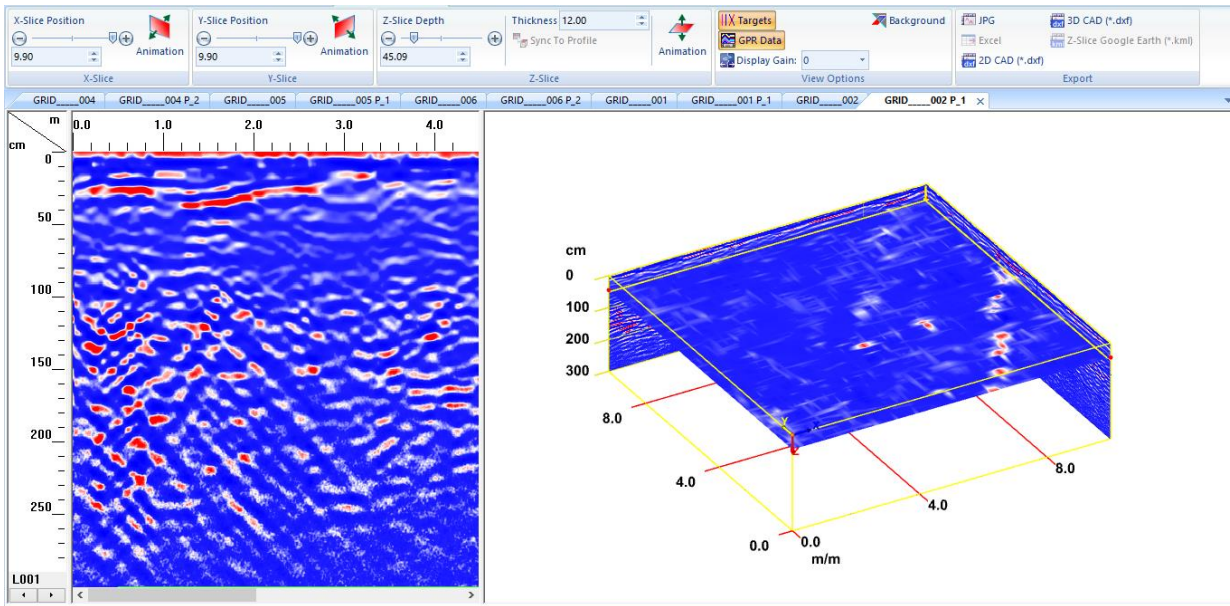


5.11 SCAN 11

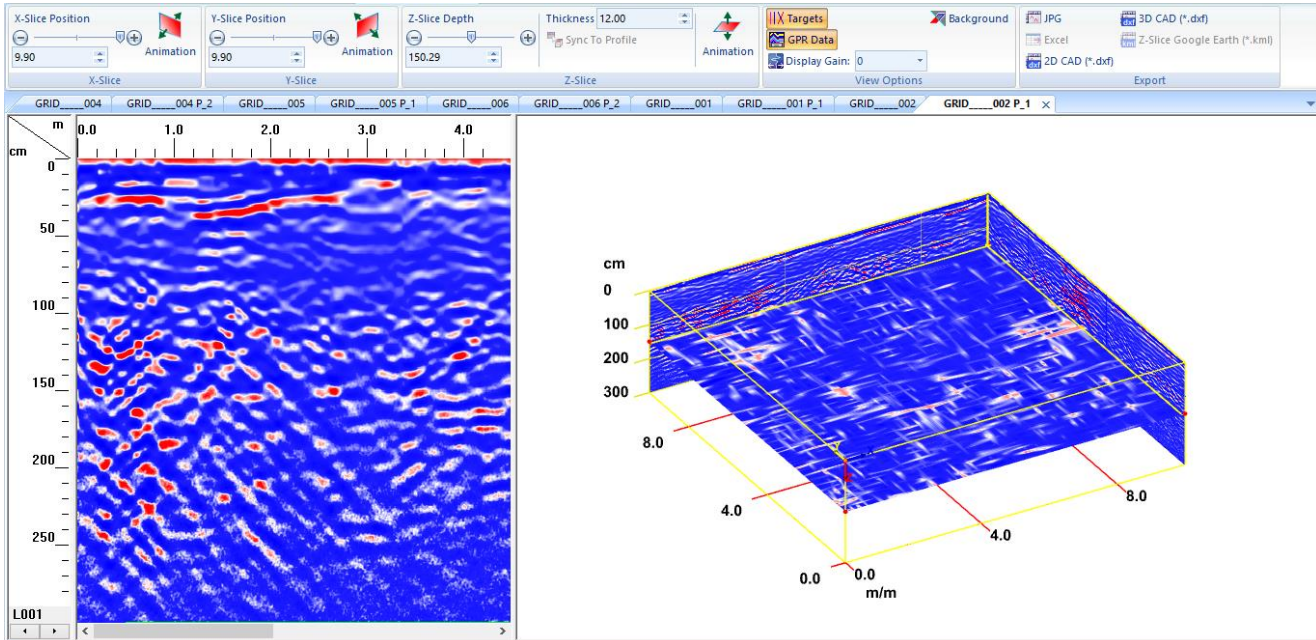


	A115	A117	A107	A108
Y:	89096,753	89096,720	89086,735	89086,947
X:	2901092,710	2901082,687	2901082,608	2901092,423
Z:	1657,771	1658,071	1657,718	1657,403

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

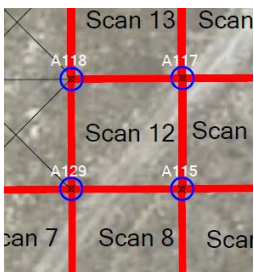


Scan 11: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



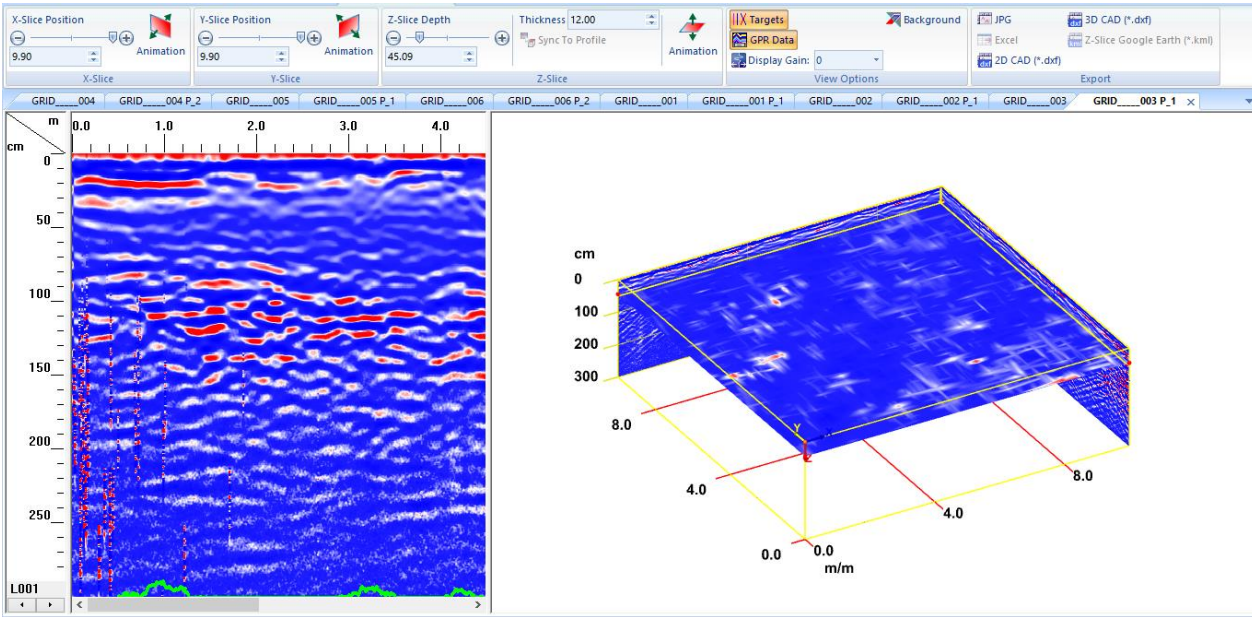
Scan 11: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.12 SCAN 12

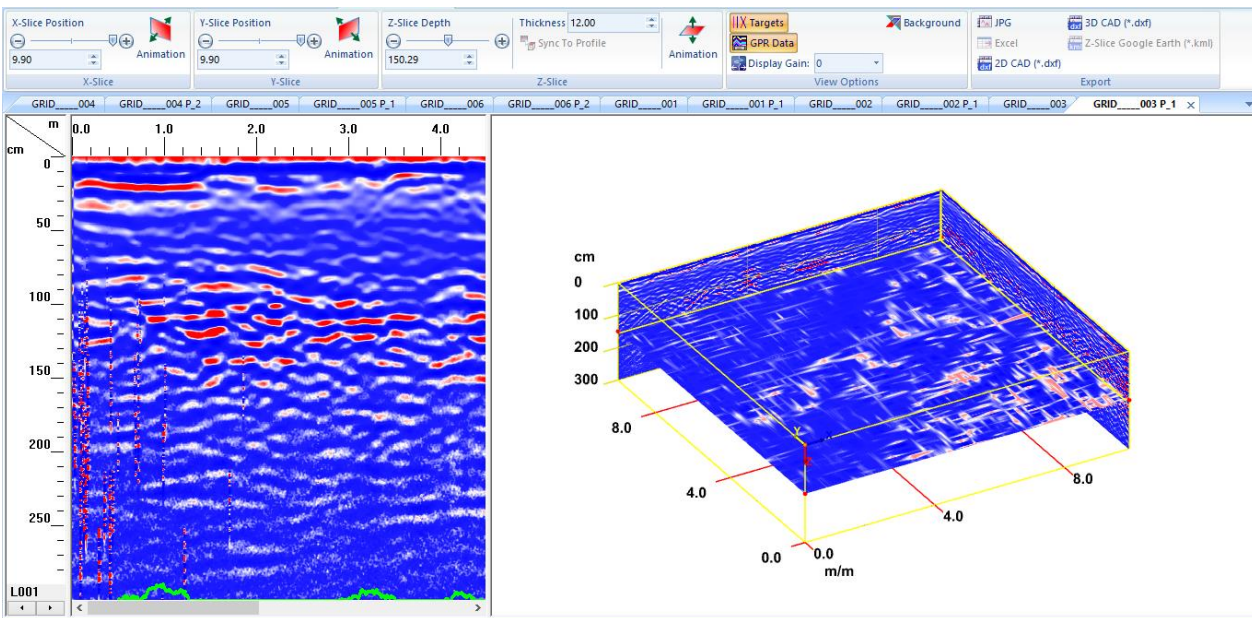


	A129	A118	A117	A115
Y:	89106,789	89106,770	89096,720	89096,753
X:	2901092,702	2901082,765	2901082,687	2901092,710
Z:	1658,096	1658,458	1658,071	1657,771

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.



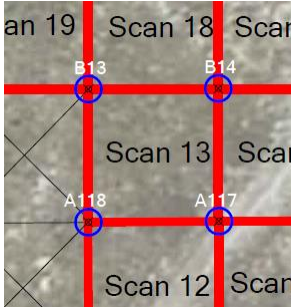
Scan 12: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



Scan 12: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

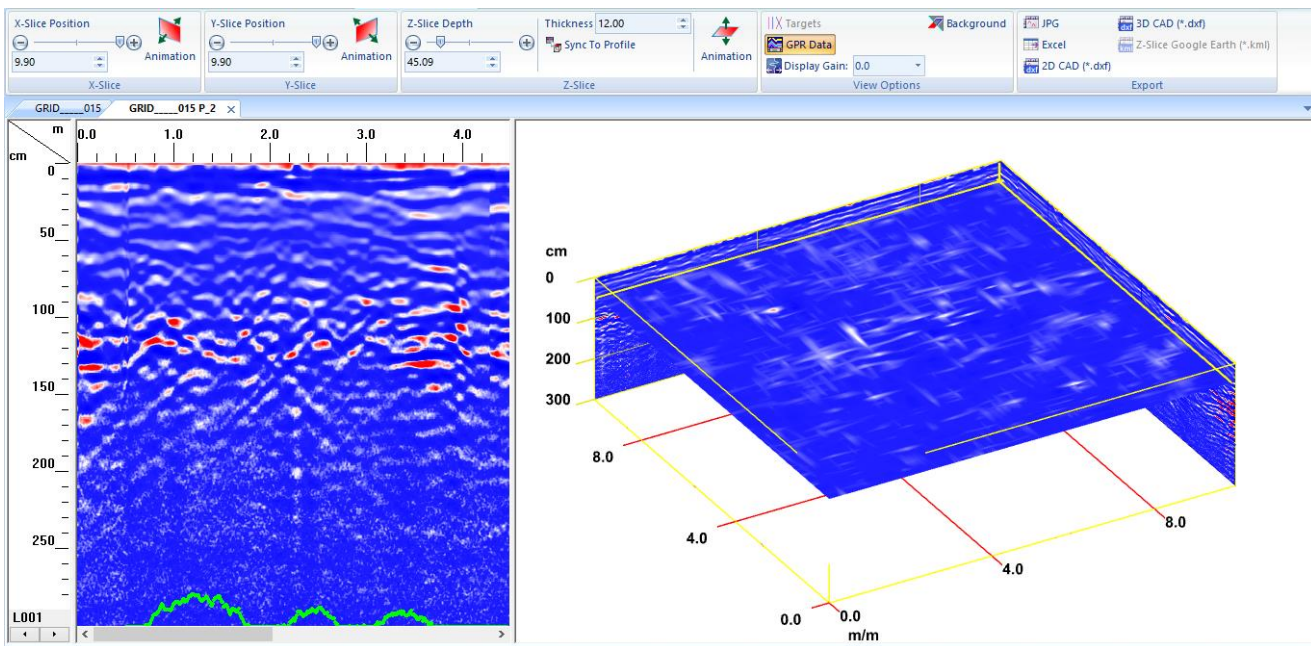


5.13 SCAN 13

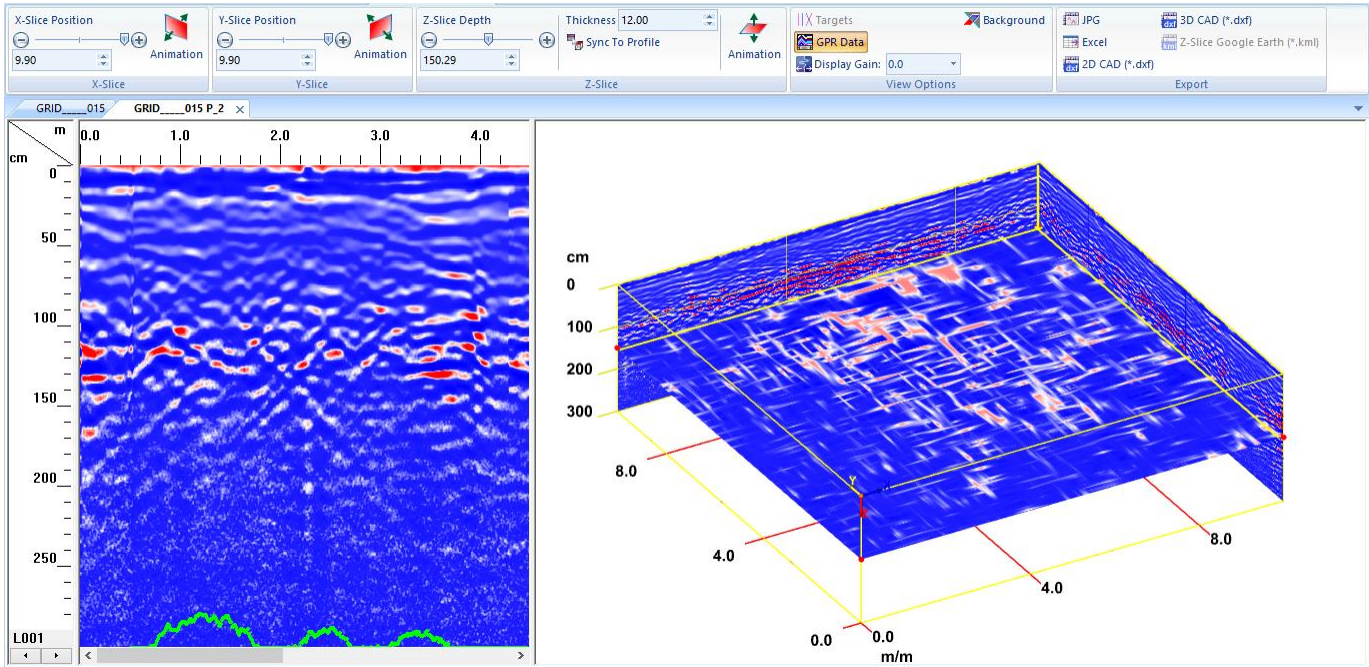


	A118	B13	B14	A117
Y:	89106,770	89106,766	89096,763	89096,720
X:	2901082,765	2901072,565	2901072,515	2901082,687
Z:	1658,458	1658,731	1658,329	1658,071

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

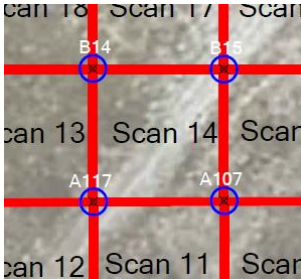


Scan 13: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



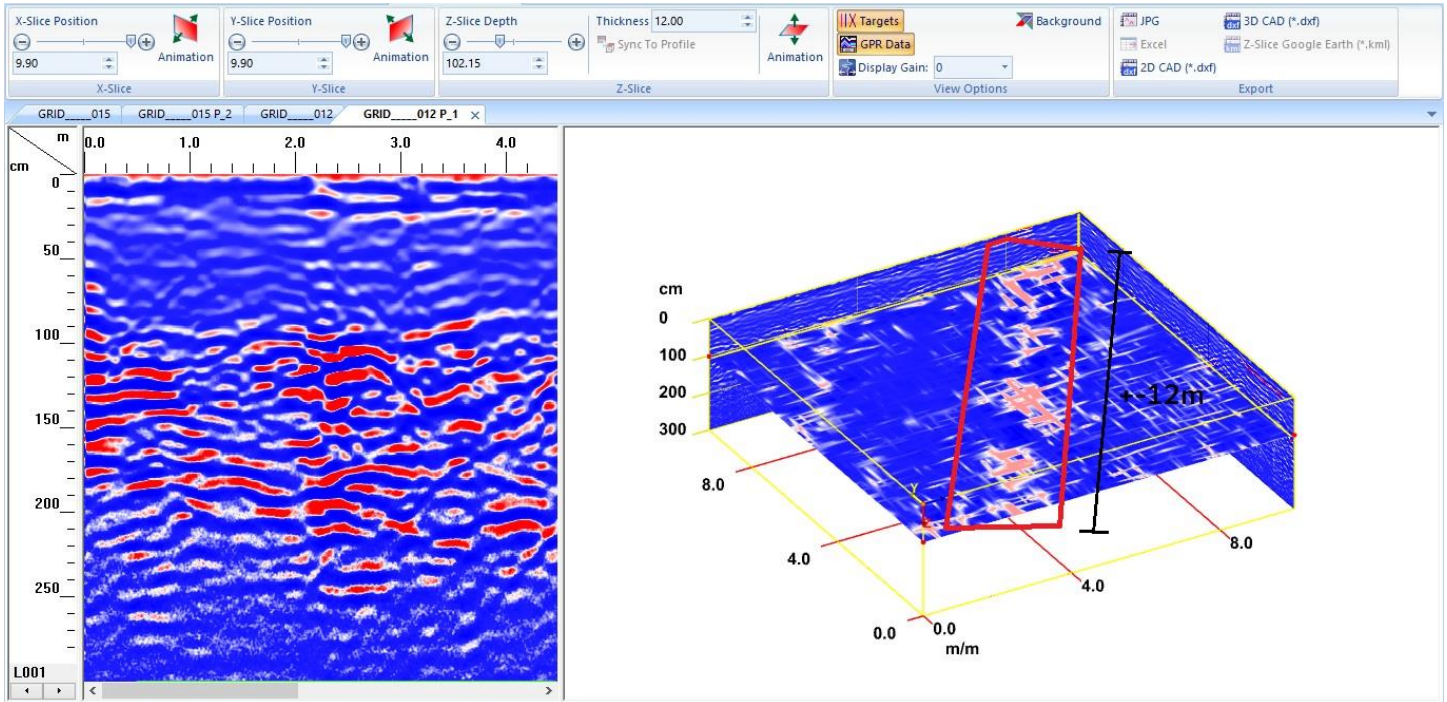
Scan 13: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.14 SCAN 14



	A117	B14	B15	A107
Y:	89096,720	89096,763	89086,749	89086,735
X:	2901082,687	2901072,515	2901072,558	2901082,608
Z:	1658,071	1658,329	1657,991	1657,718

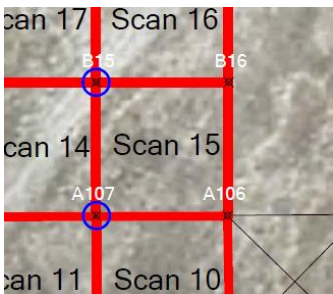
Investigation of each of the 42 individual scans did show a repeated anomaly across the scan area. The image below shows this:



At 1m deep a change in the conductivity in the soil is visible. This anomaly is +- 12m in length and is too long to be a grave and we believe this is just a n area in the soil that contains more moisture than the surrounding soil.

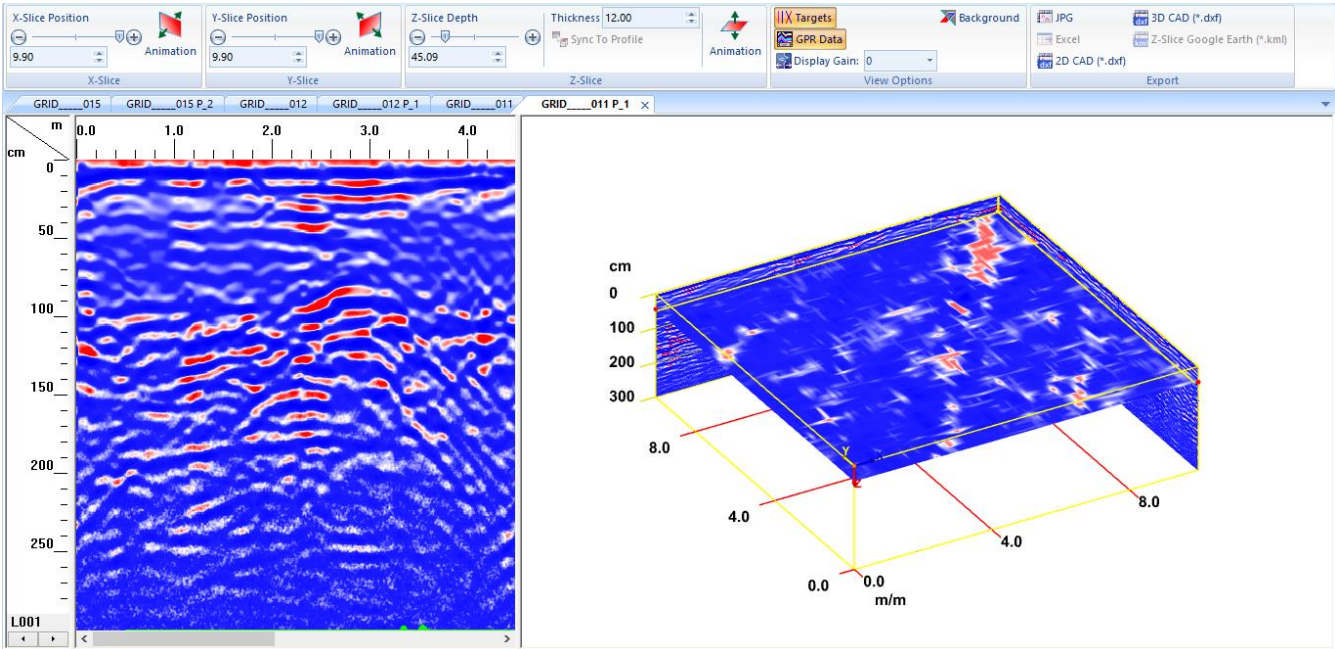
No other clear disturbance of the soil visible is visible.

5.15 SCAN 15

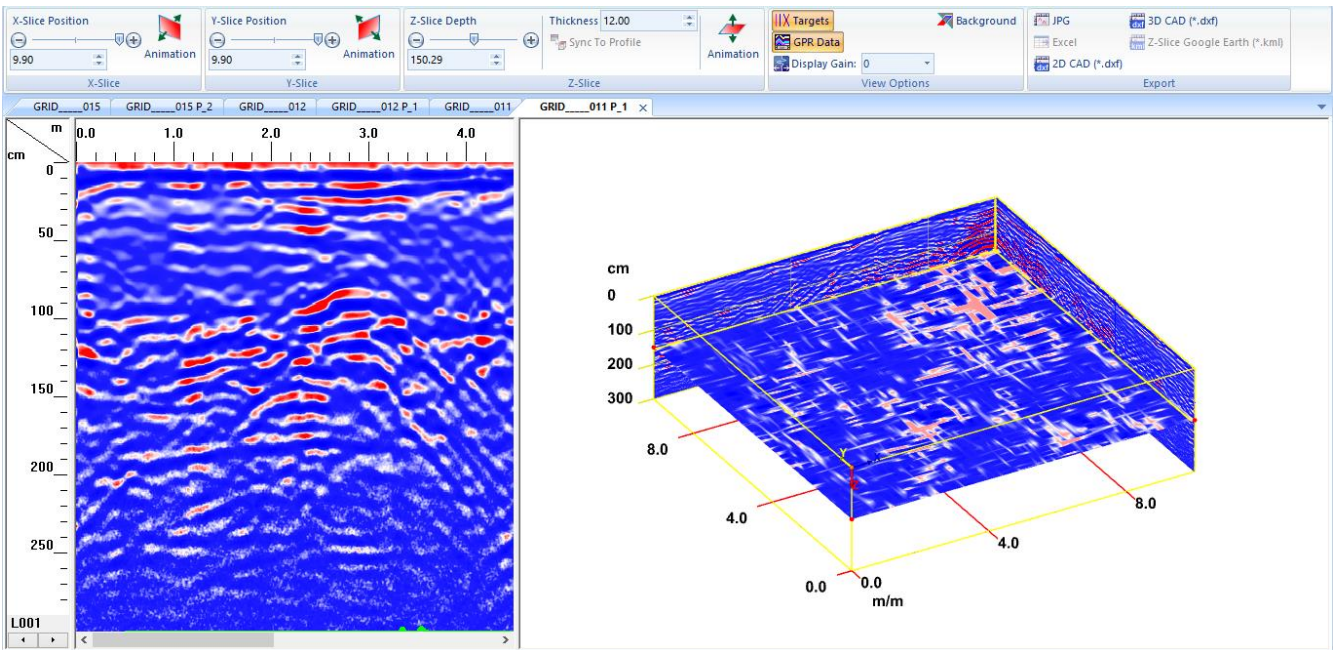


	A107	B15	B16	A106
Y:	89086,735	89086,749	89076,727	89076,807
X:	2901082,608	2901072,558	2901072,543	2901082,620
Z:	1657,718	1657,991	1657,576	1657,450

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.



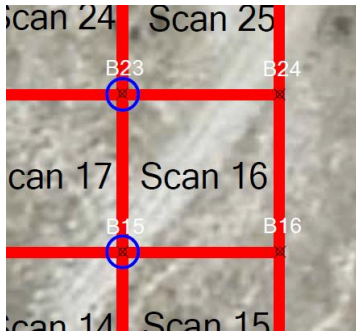
Scan 15: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



Scan 15: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

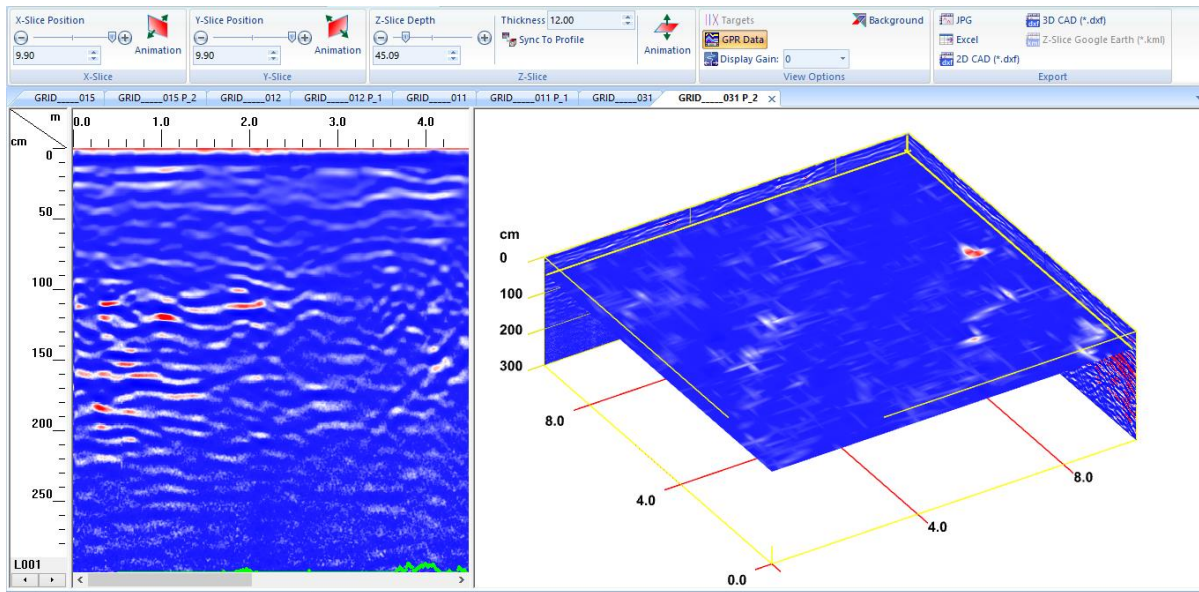


5.16 SCAN 16

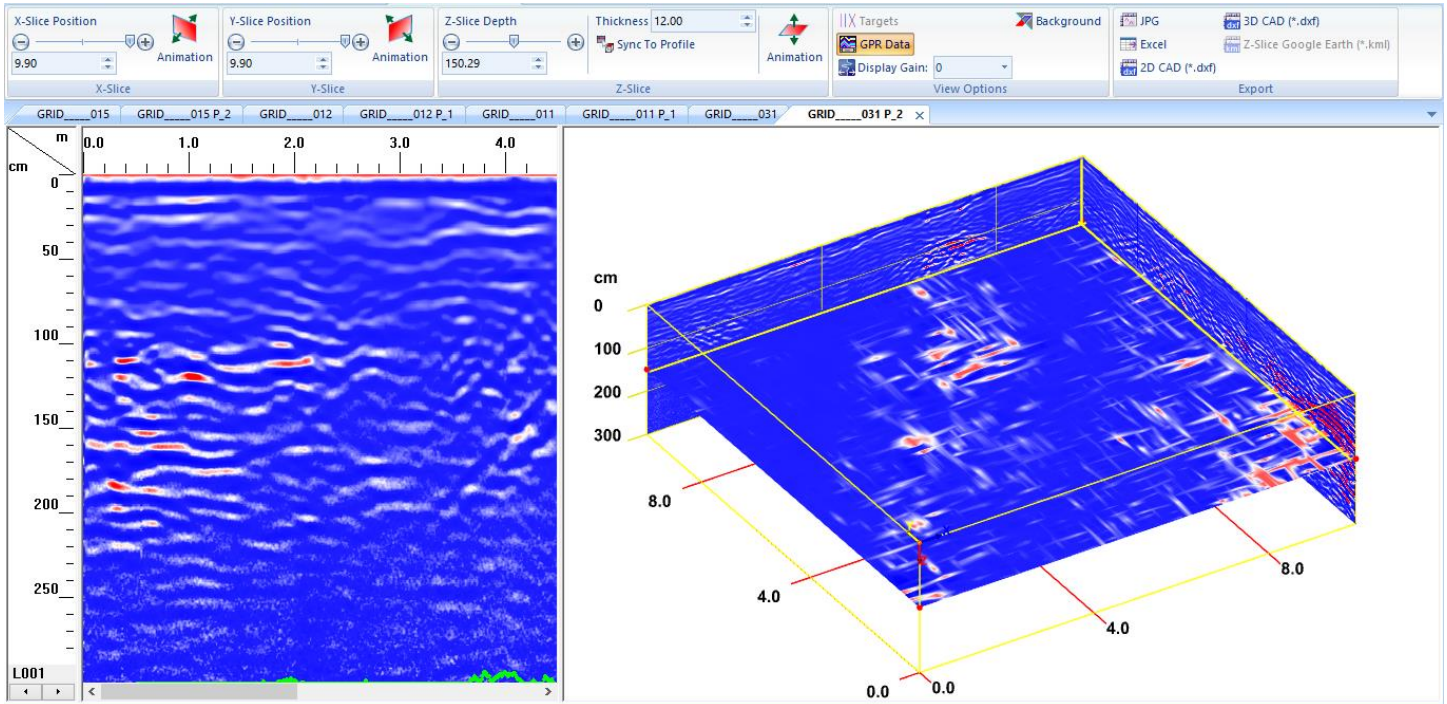


	B15	B23	B24	B16
Y:	89086,749	89086,764	89076,744	89076,727
X:	2901072,558	2901062,528	2901062,560	2901072,543
Z:	1657,991	1658,158	1657,819	1657,576

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

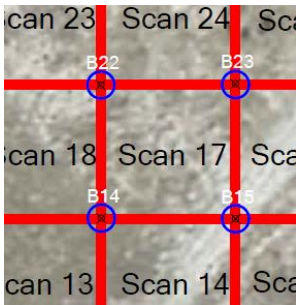


Scan 16: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



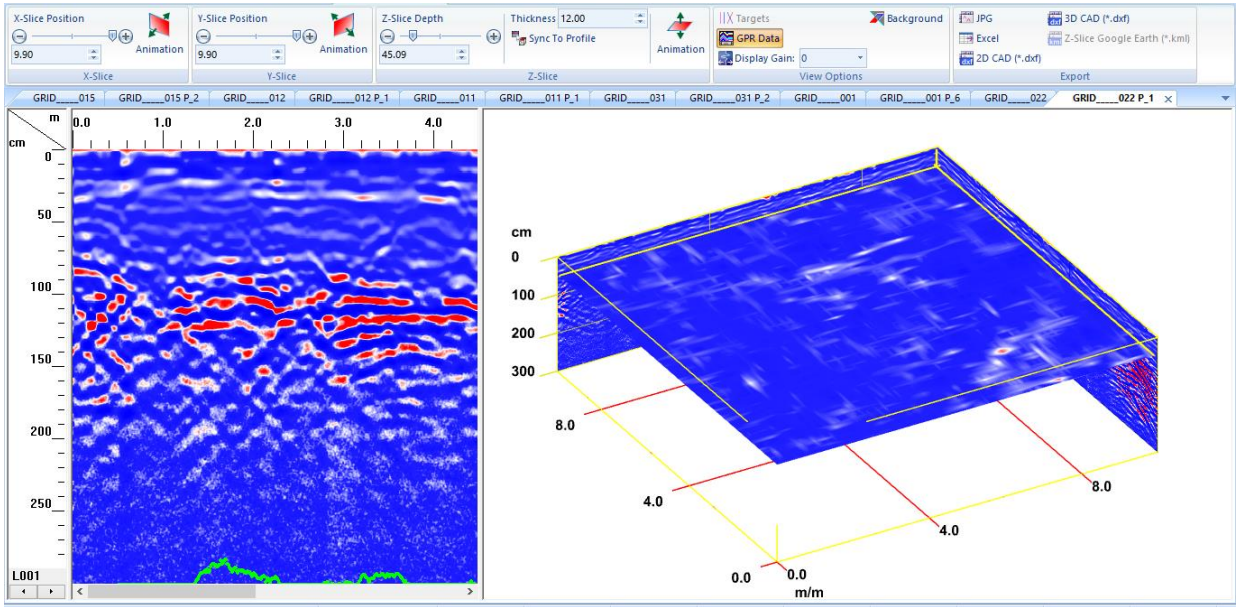
Scan 16: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.17 SCAN 17

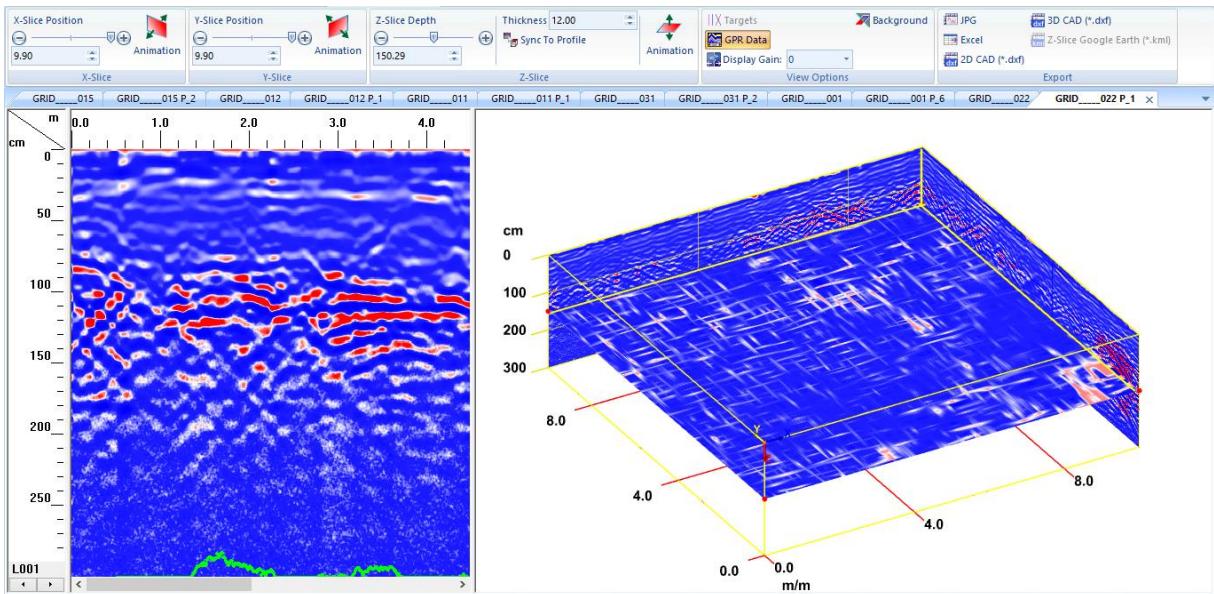


	B14	B22	B23	B15
Y:	89096,763	89096,804	89086,764	89086,749
X:	2901072,515	2901062,592	2901062,528	2901072,558
Z:	1658,329	1658,622	1658,158	1657,991

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.



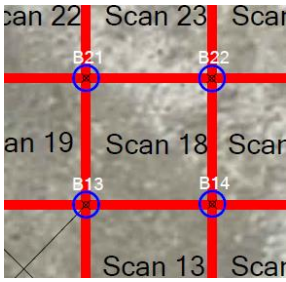
Scan 17: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



Scan 17: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

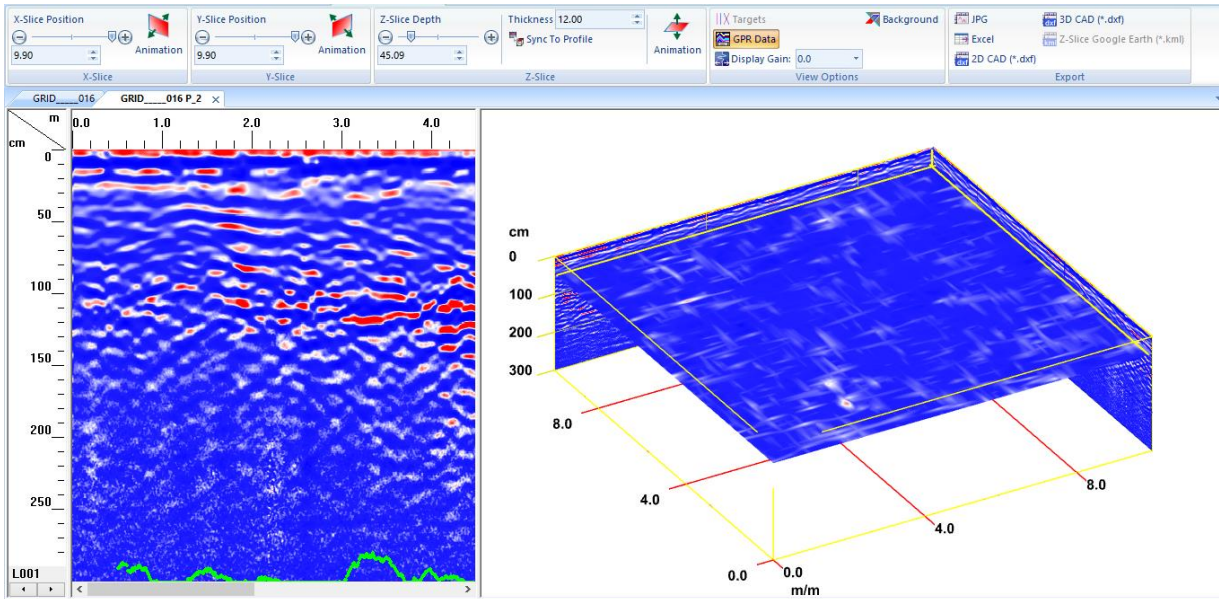


5.18 SCAN 18

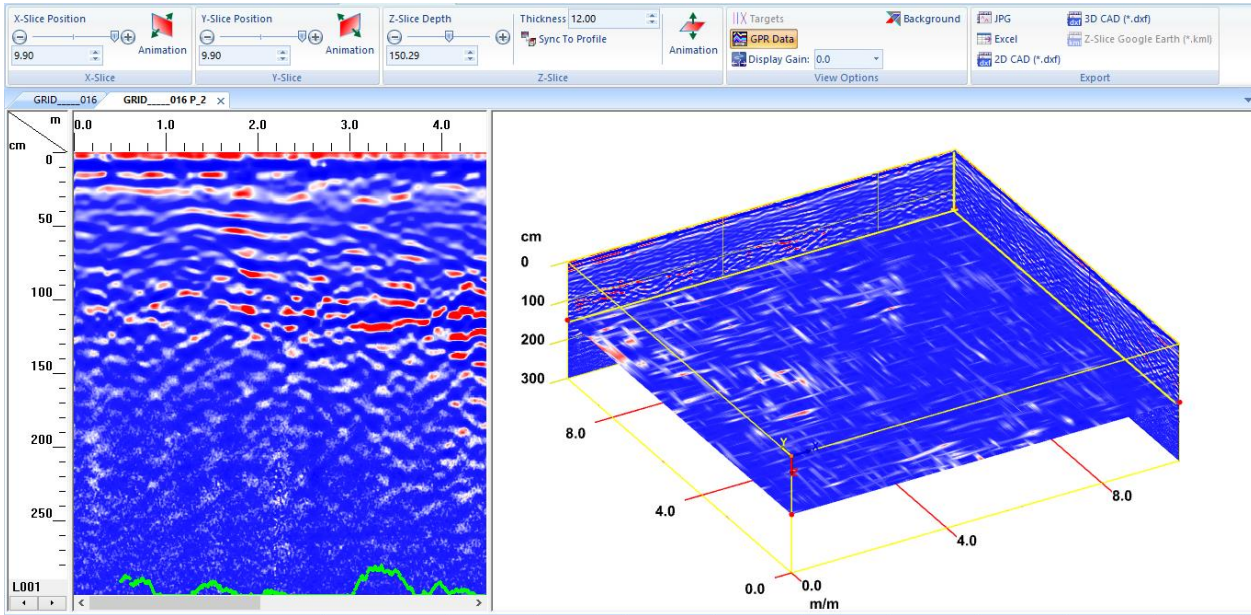


	B13	B21	B22	B14
Y:	89106,766	89106,754	89096,804	89096,763
X:	2901072,565	2901062,569	2901062,592	2901072,515
Z:	1658,731	1659,044	1658,622	1658,329

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

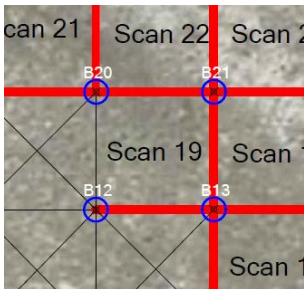


Scan 18: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



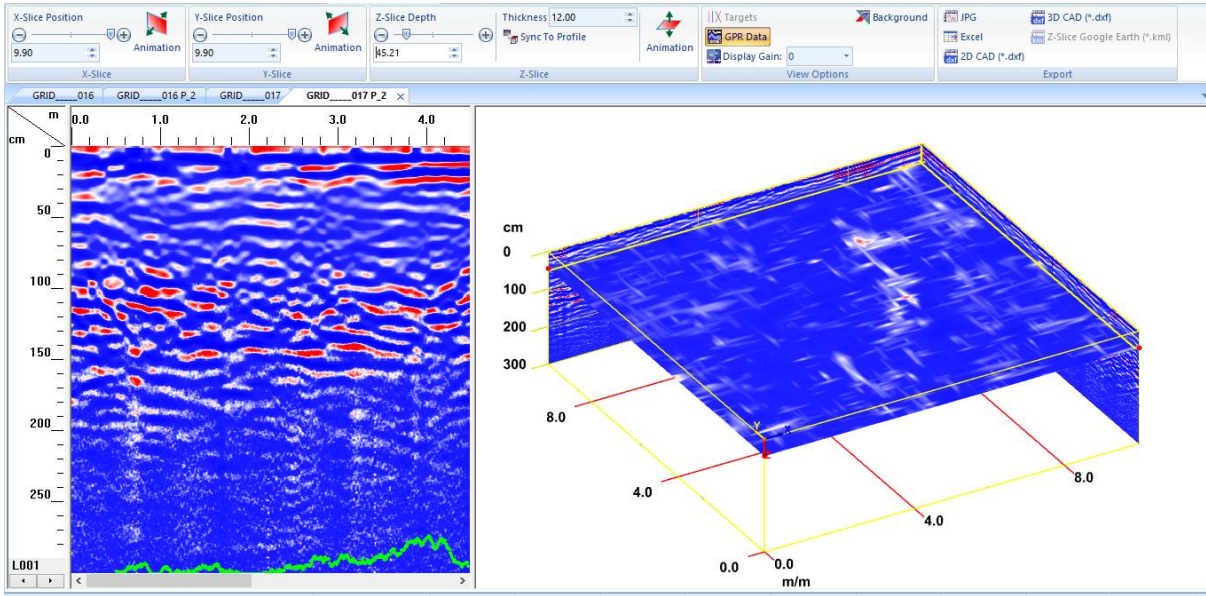
Scan 18: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.19 SCAN 19

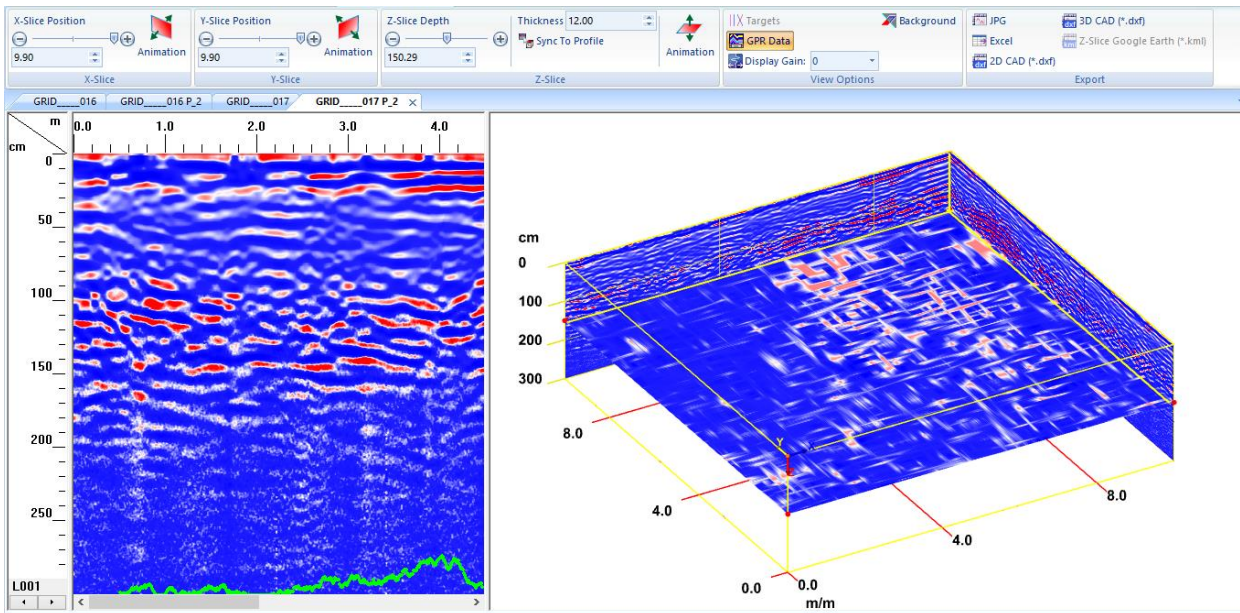


	B12	B20	B21	B13
Y:	89116,774	89116,764	89106,754	89106,766
X:	2901072,592	2901062,584	2901062,569	2901072,565
Z:	1659,182	1659,557	1659,044	1658,731

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.



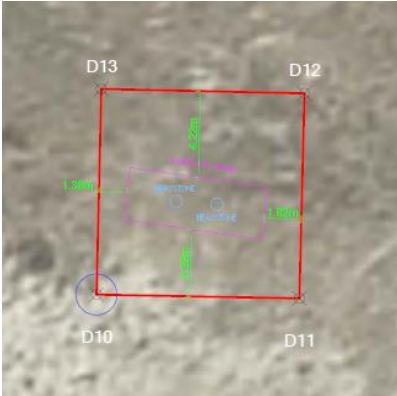
Scan 19: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



Scan 19: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.



5.20 SCAN 20

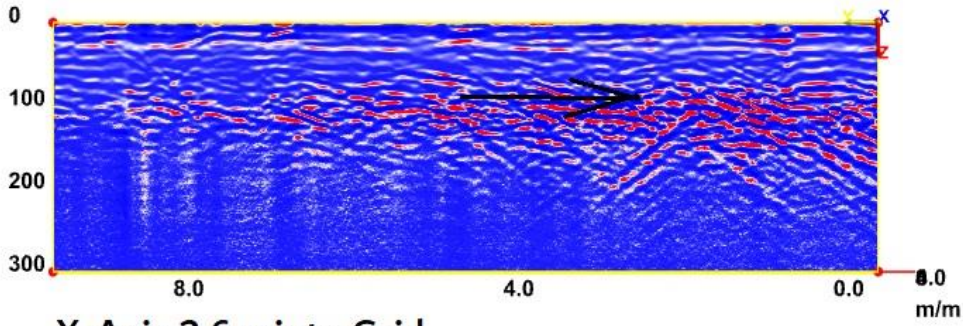


	B18	B26	B27	B19
Y:	89136,757	89136,759	89126,759	89126,764
X:	2901062,590	2901052,551	2901052,582	2901062,534
Z:	1660,151	1660,586	1660,250	1659,912

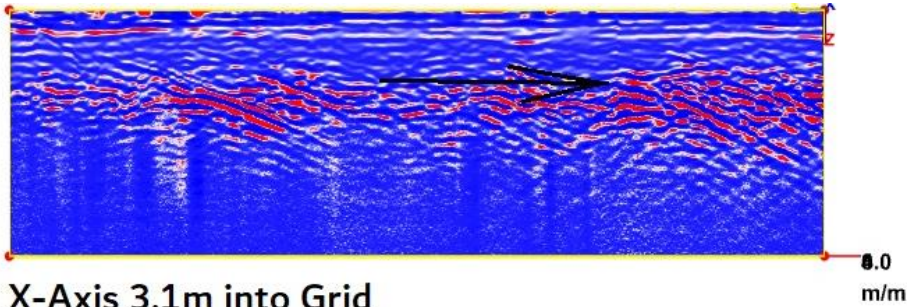
Scan 20 was on a area where there is a possible grave because of the rock stacked there. The following image shows the rocks:



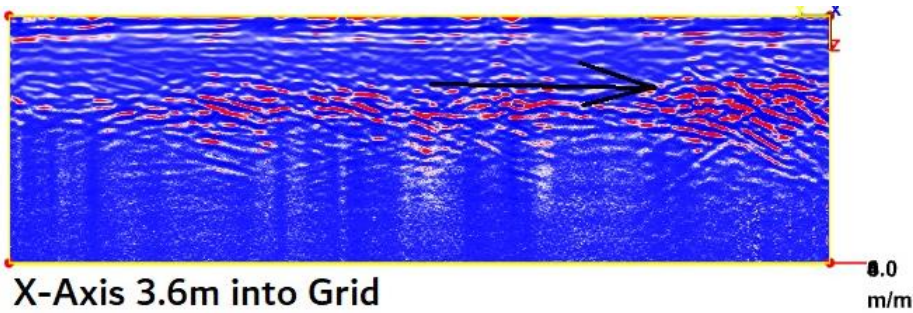
Investigation of each of the 42 individual scans did show and anomaly from around 800mm below the ground in this area. Here follows the X-Axis scans where it can be seen most clearly:



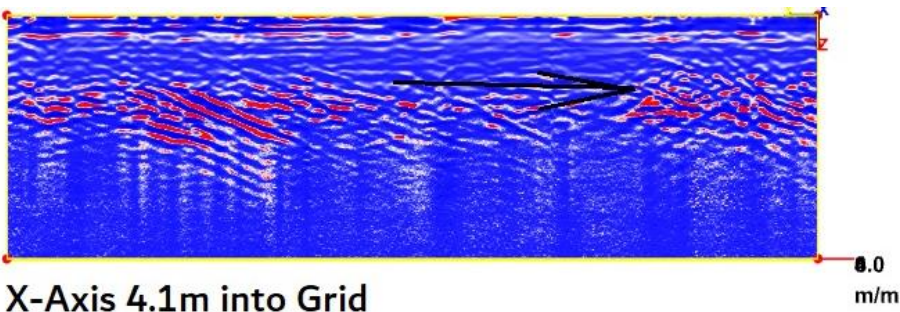
X-Axis 2.6m into Grid



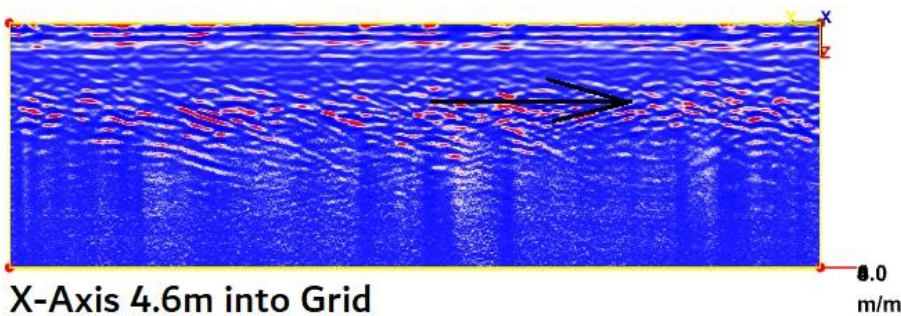
X-Axis 3.1m into Grid



X-Axis 3.6m into Grid



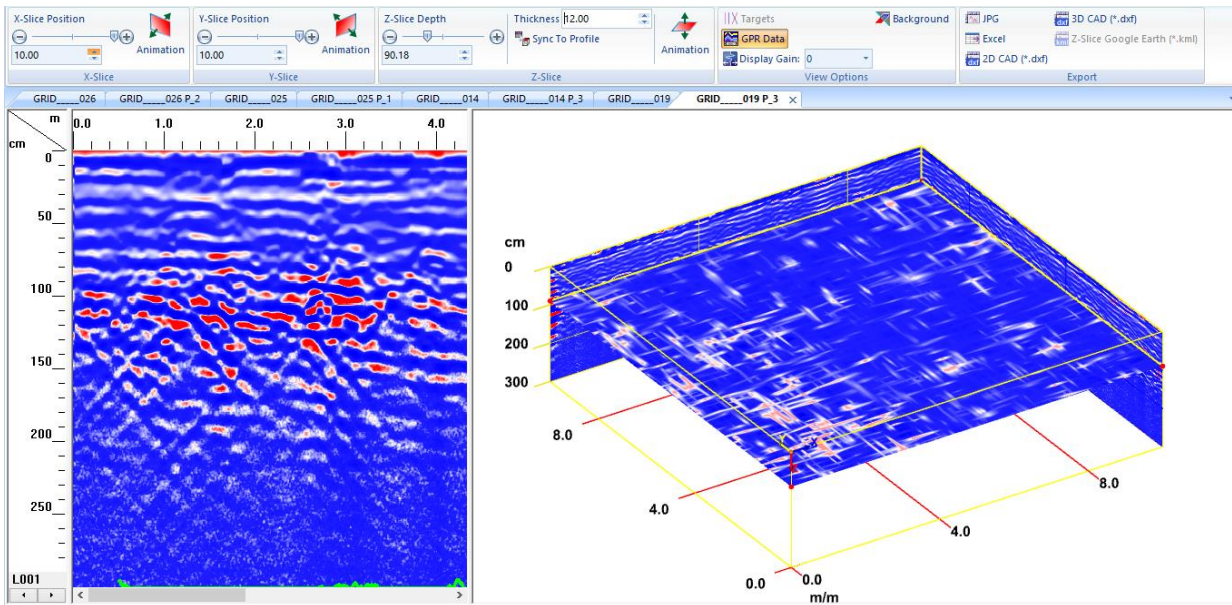
X-Axis 4.1m into Grid



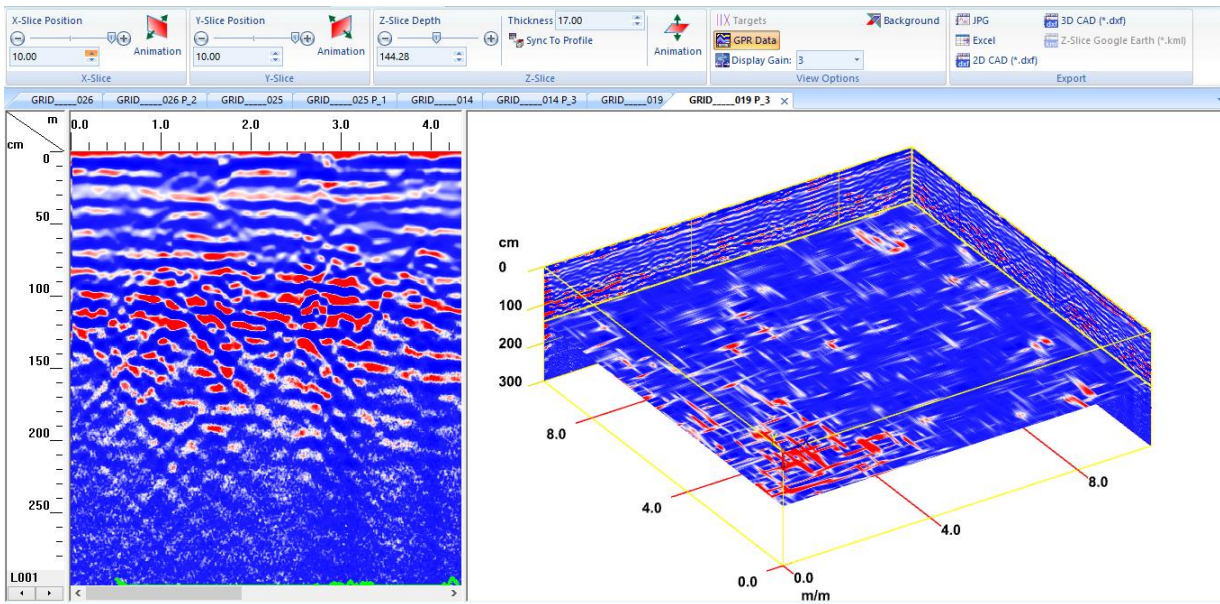
X-Axis 4.6m into Grid



The 120mm 3D image slice that shows the scan from above did not return a clear image of this anomaly.



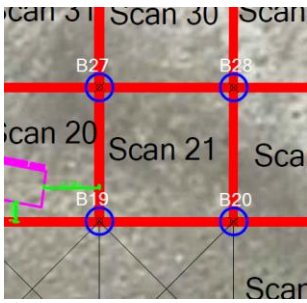
Scan 20: a 120mm slice at 900mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



Scan 20: a 170mm slice at 1.4m deep. It does show an anomaly but its not at the exact same position weher we expect this grave to be.

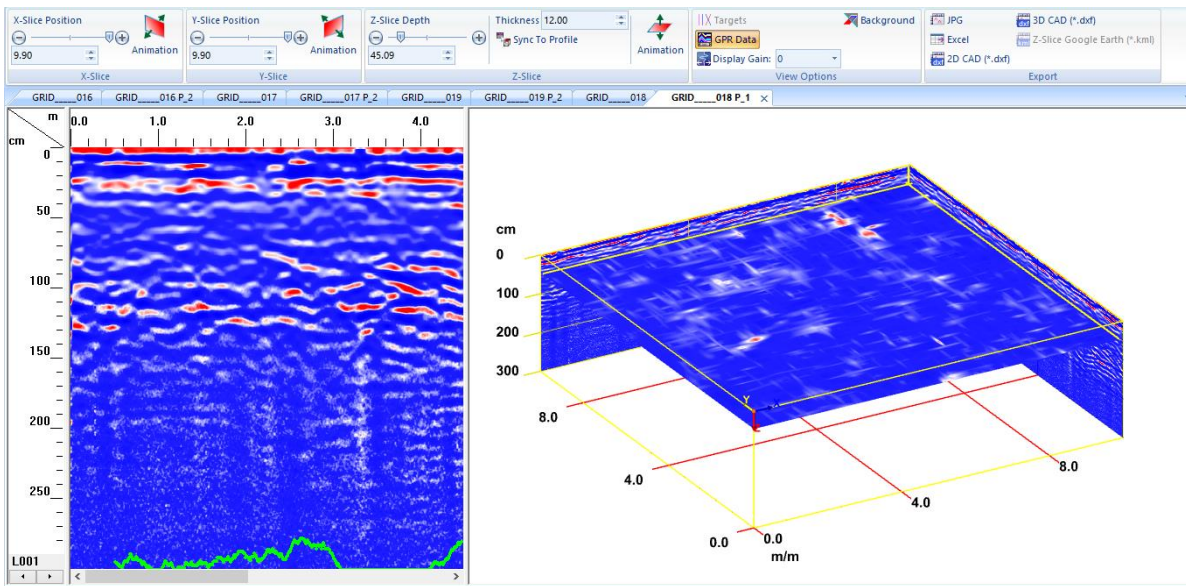


5.21 SCAN 21

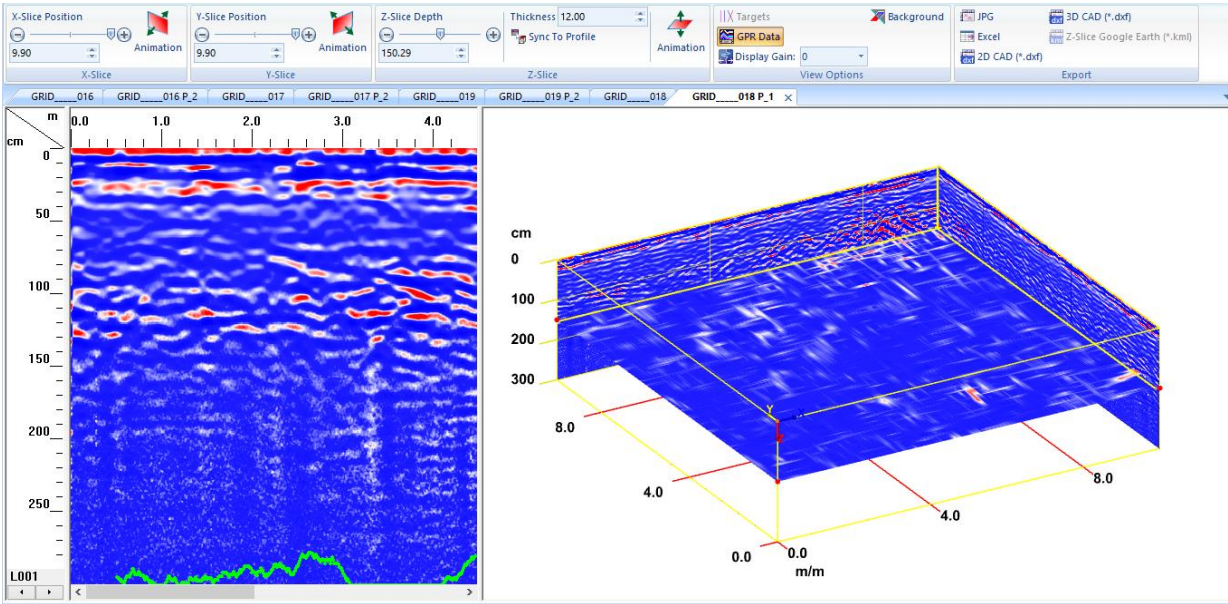


	B19	B27	B28	B20
Y:	89126,764	89126,759	89116,745	89116,764
X:	2901062,534	2901052,582	2901052,590	2901062,584
Z:	1659,912	1660,250	1659,827	1659,557

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

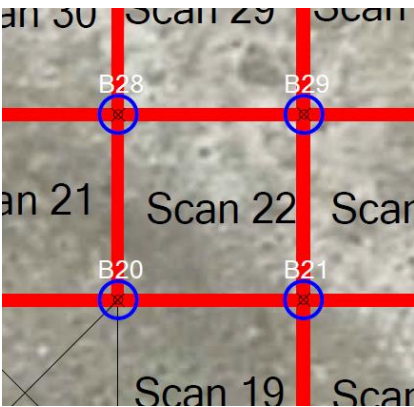


Scan 21: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



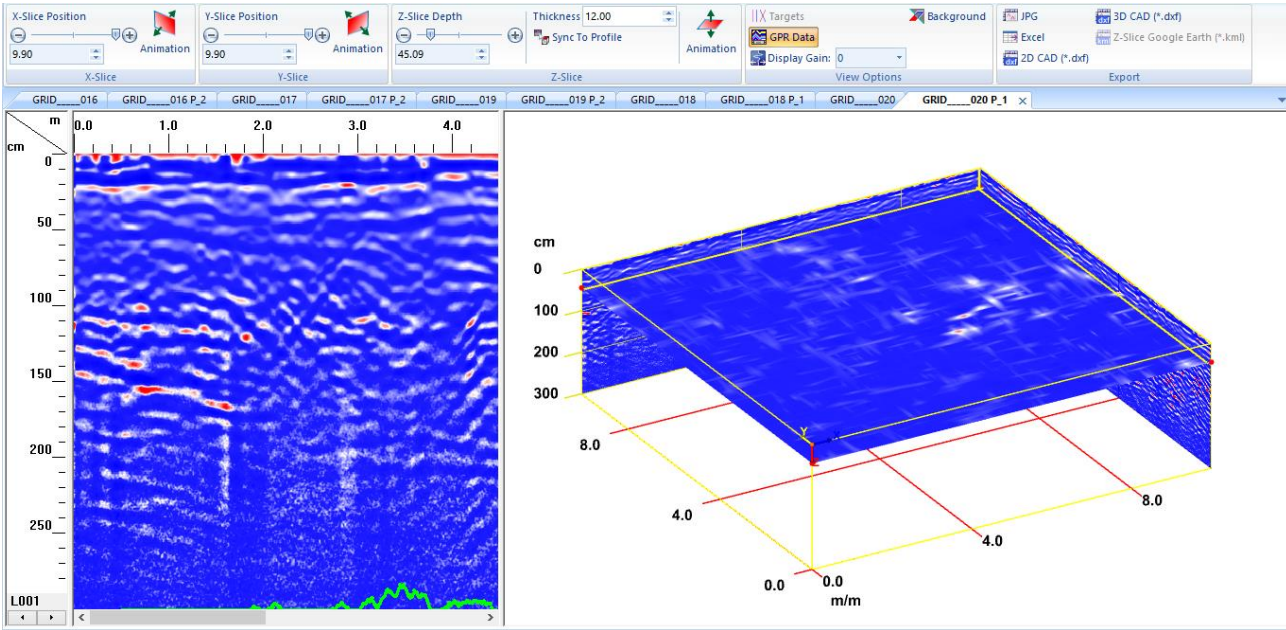
Scan 21: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.22 SCAN 22

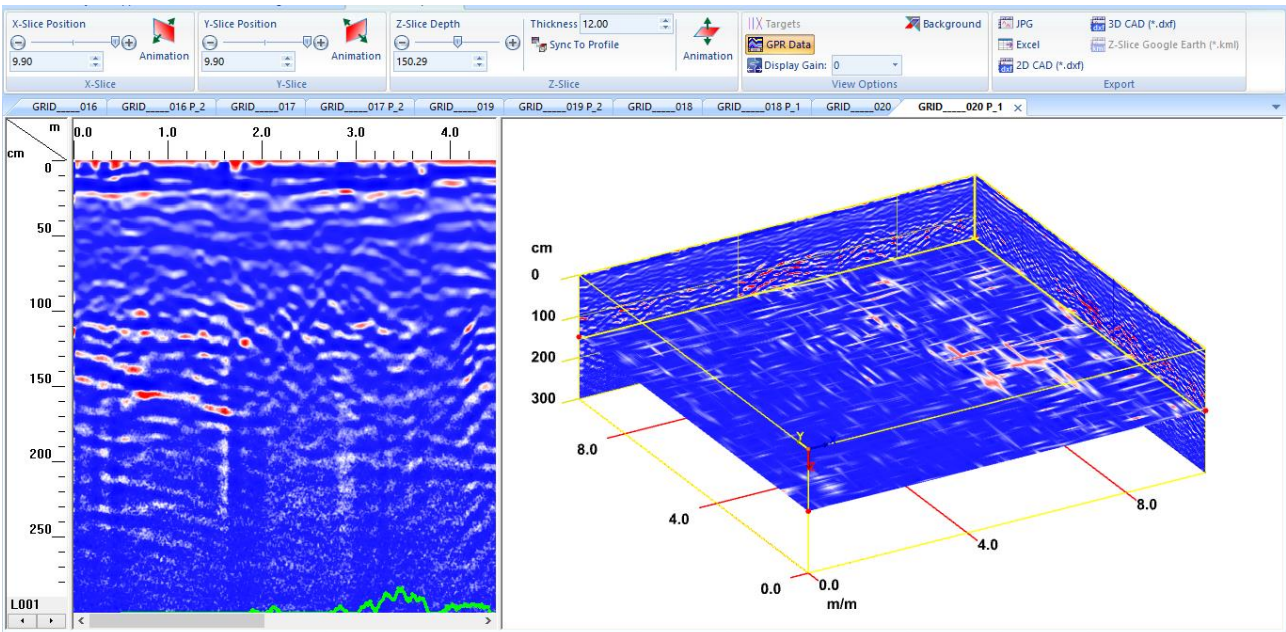


	B20	B28	B29	B21
Y:	89116,764	89116,745	89106,721	89106,754
X:	2901062,584	2901052,590	2901052,575	2901062,569
Z:	1659,557	1659,827	1659,360	1659,044

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

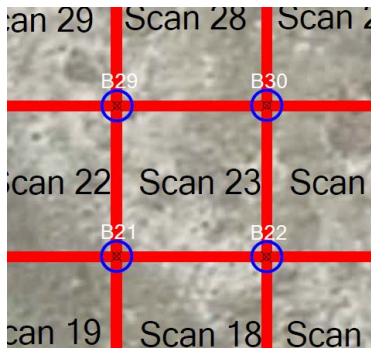


Scan 22: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



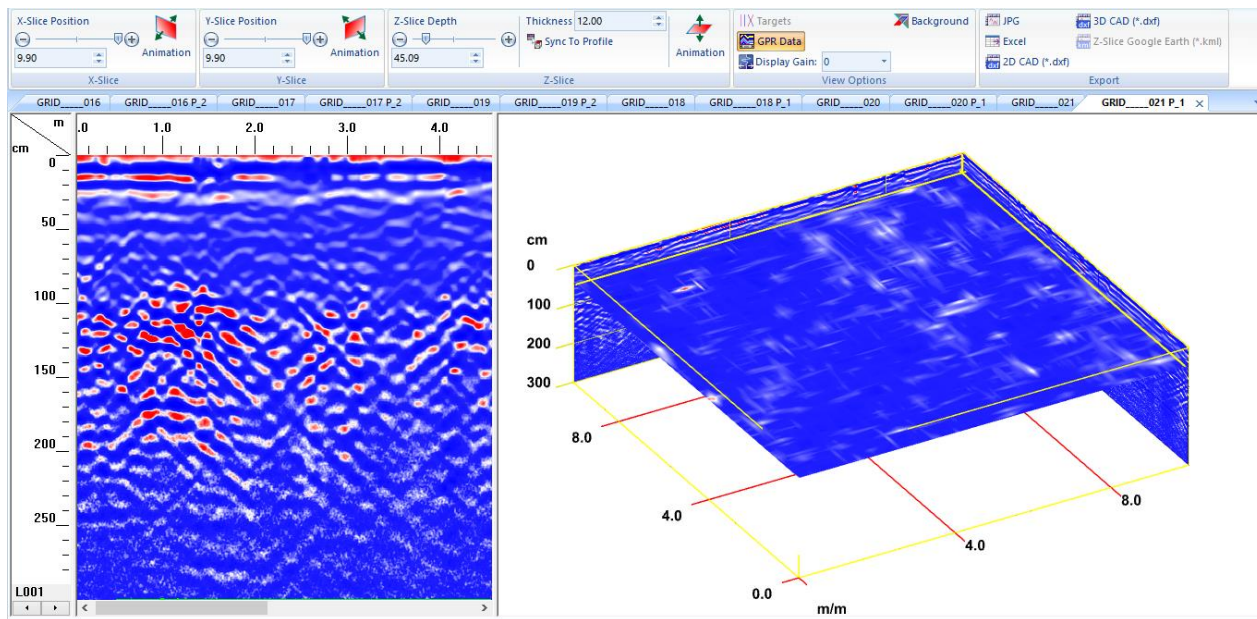
Scan 22: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.23 SCAN 23

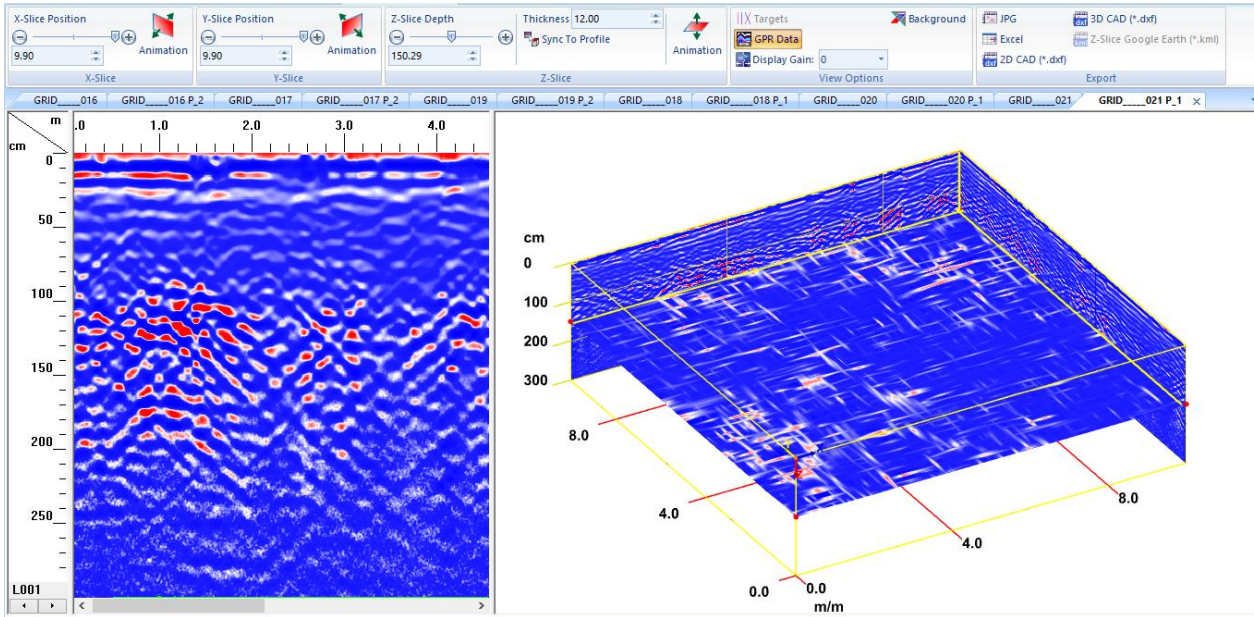


	B21	B29	B30	B22
Y:	89106,754	89106,721	89096,788	89096,804
X:	2901062,569	2901052,575	2901052,559	2901062,592
Z:	1659,044	1659,360	1659,014	1658,622

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

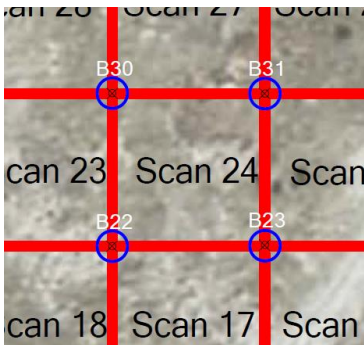


Scan 23: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



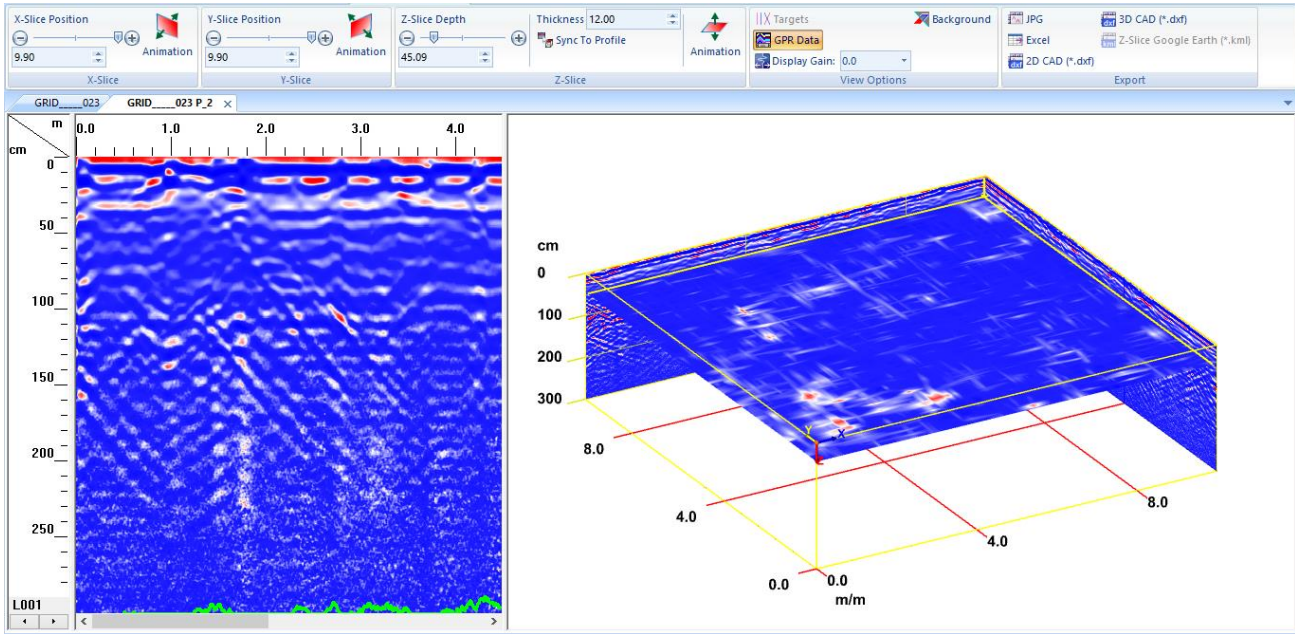
Scan 23: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.24 SCAN 24

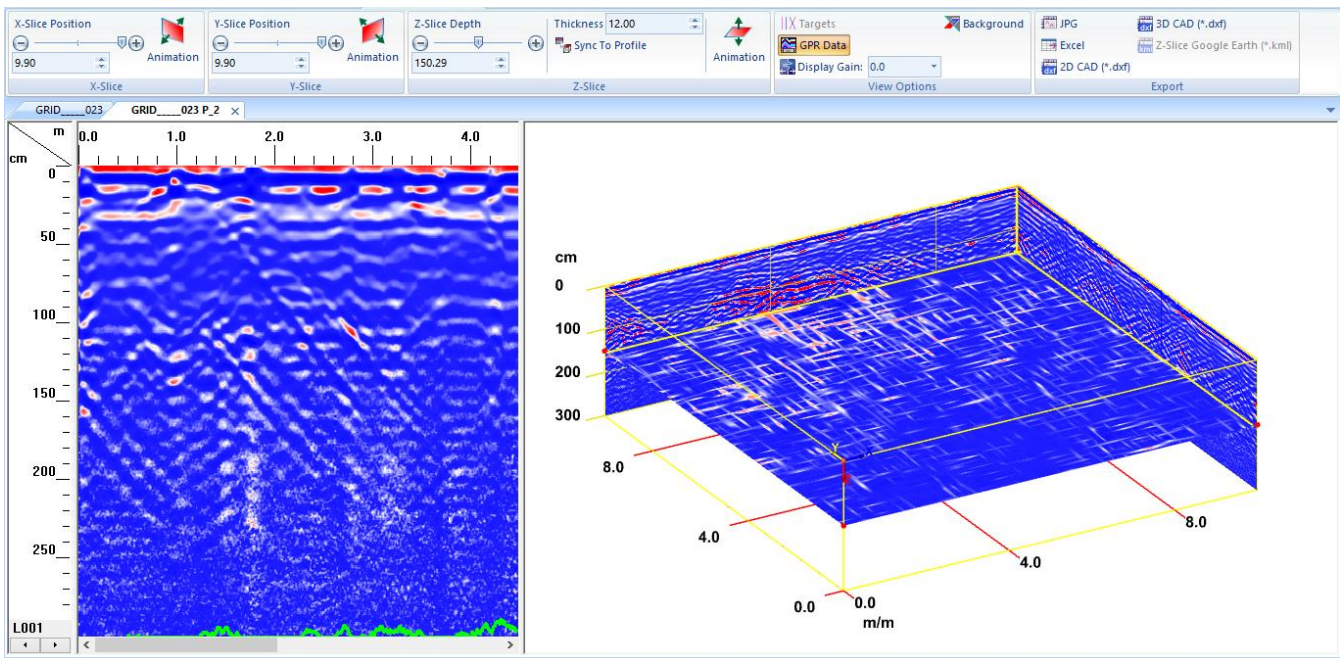


	B22	B30	B31	B23
Y:	89096,804	89096,788	89086,755	89086,764
X:	2901062,592	2901052,559	2901052,574	2901062,528
Z:	1658,622	1659,014	1658,400	1658,158

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

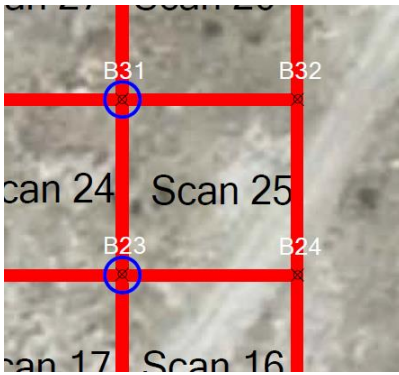


Scan 24: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



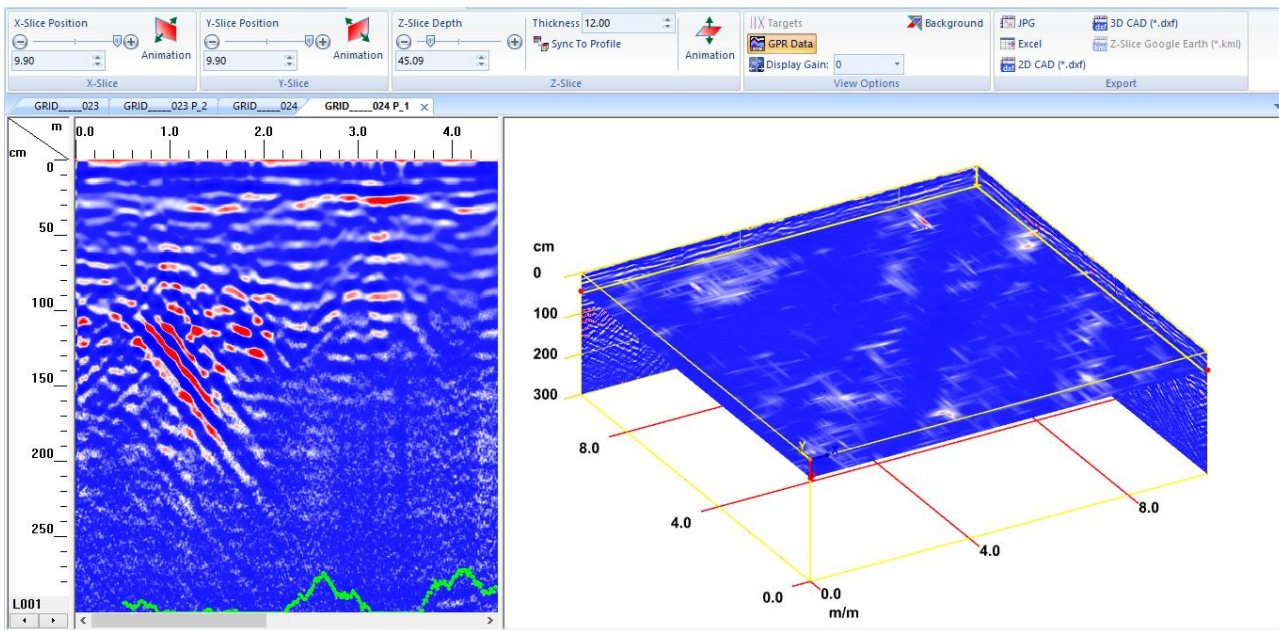
Scan 24: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.25 SCAN 25

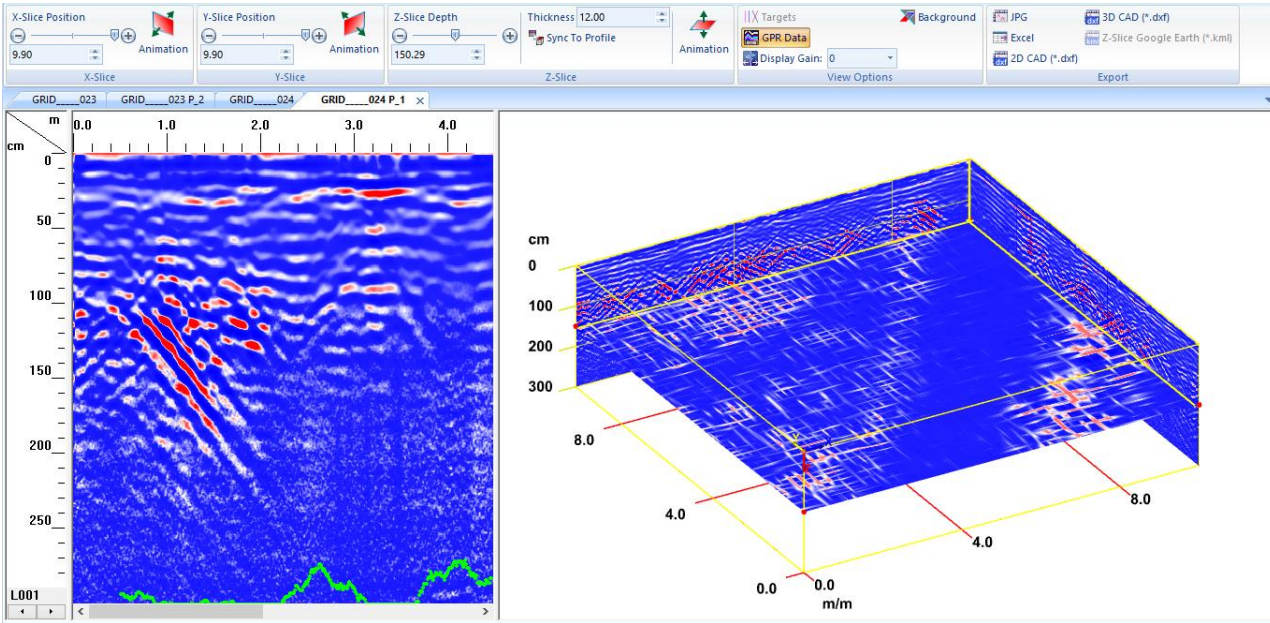


	B23	B31	B32	B24
Y:	89086,764	89086,755	89076,744	89076,744
X:	2901062,528	2901052,574	2901052,558	2901062,560
Z:	1658,158	1658,400	1658,139	1657,819

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

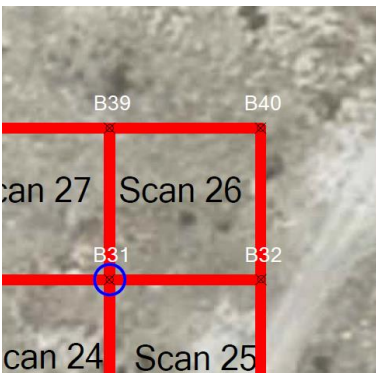


Scan 25: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



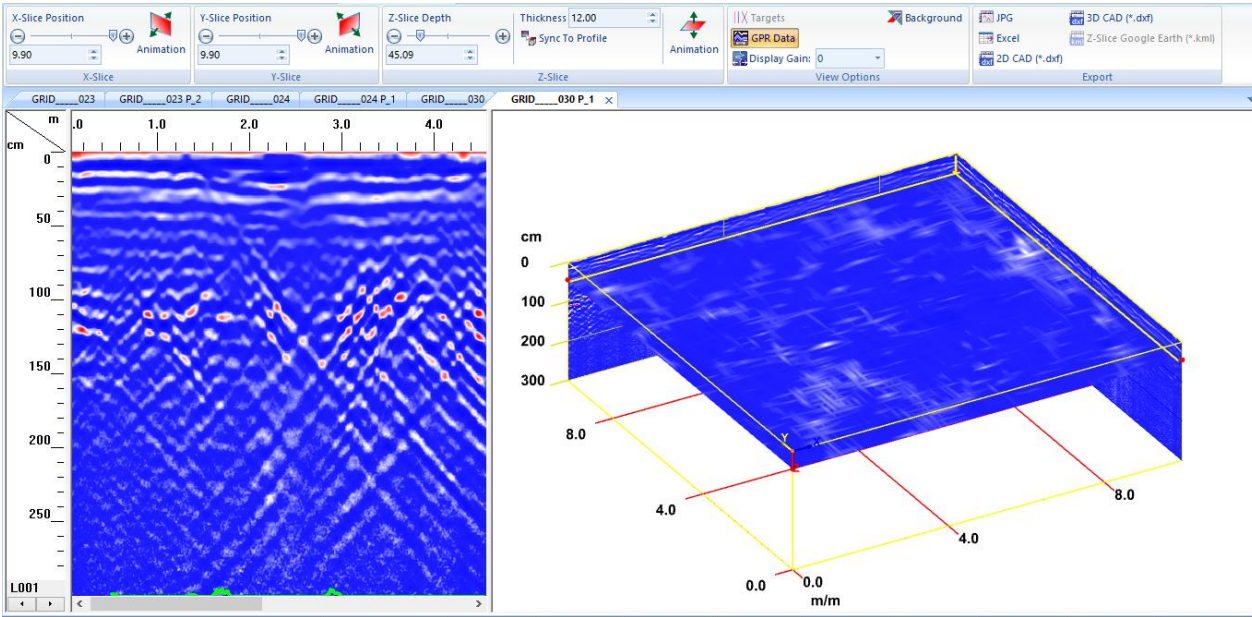
Scan 25: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.26 SCAN 26

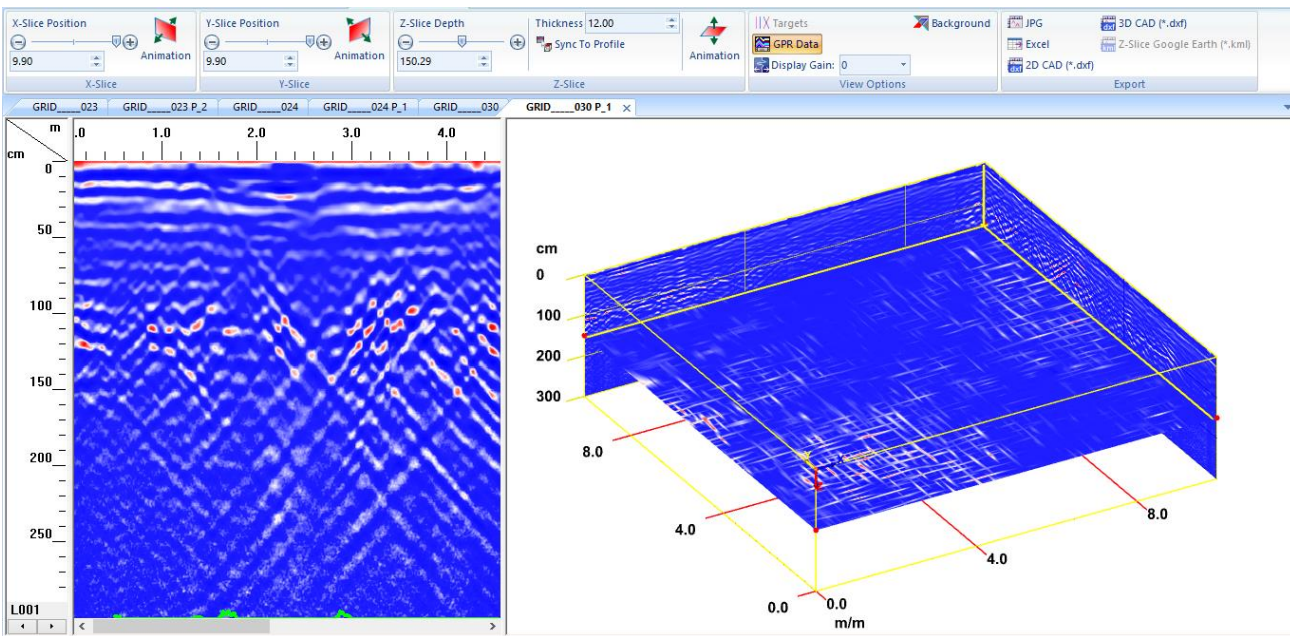


	B31	B39	B40	B32
Y:	89086,755	89086,753	89076,766	89076,744
X:	2901052,574	2901042,584	2901042,573	2901052,558
Z:	1658,400	1658,858	1658,244	1658,139

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

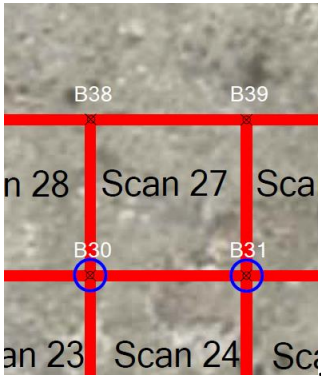


Scan 26: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



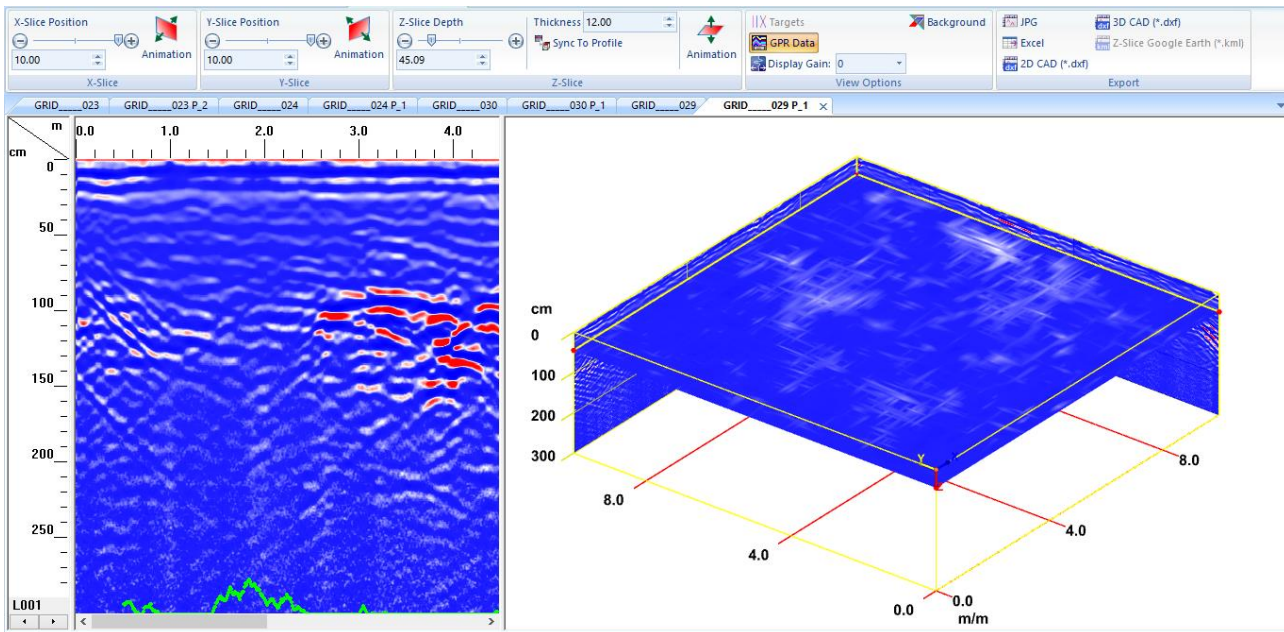
Scan 26: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.27 SCAN 27

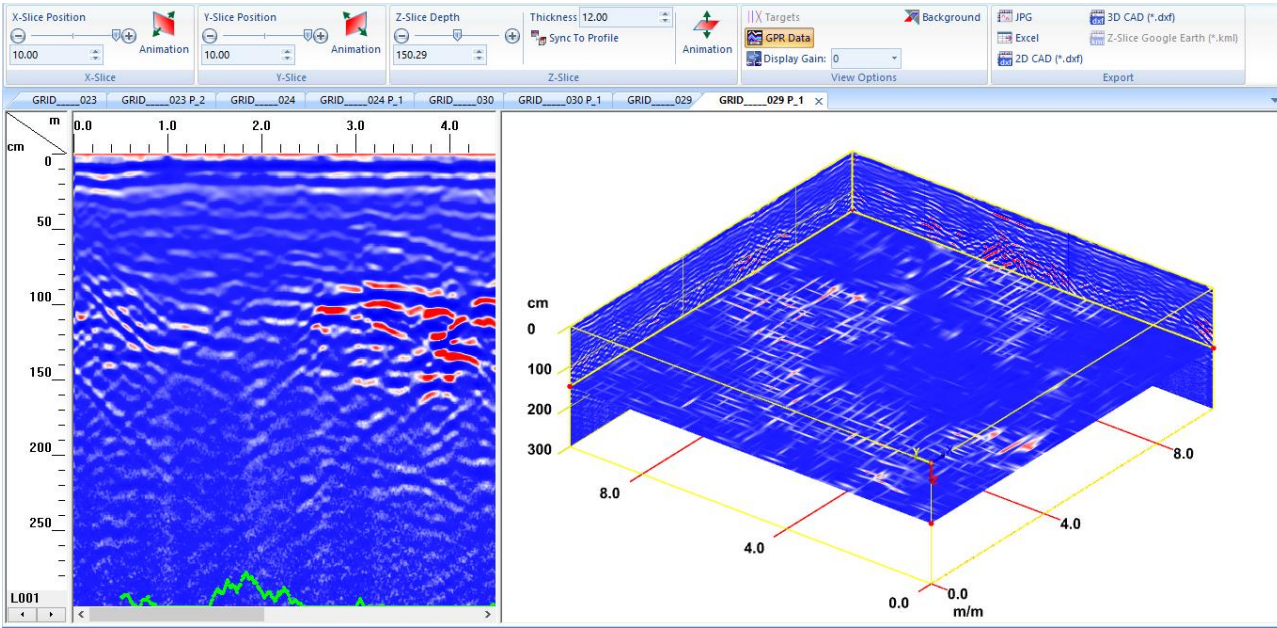


	B30	B38	B39	B31
Y:	89096,788	89096,756	89086,753	89086,755
X:	2901052,559	2901042,553	2901042,584	2901052,574
Z:	1659,014	1659,227	1658,858	1658,400

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

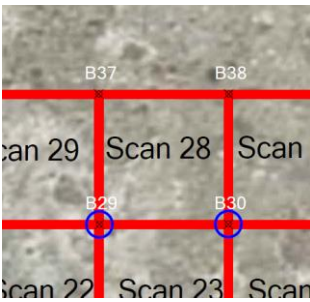


Scan 27: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



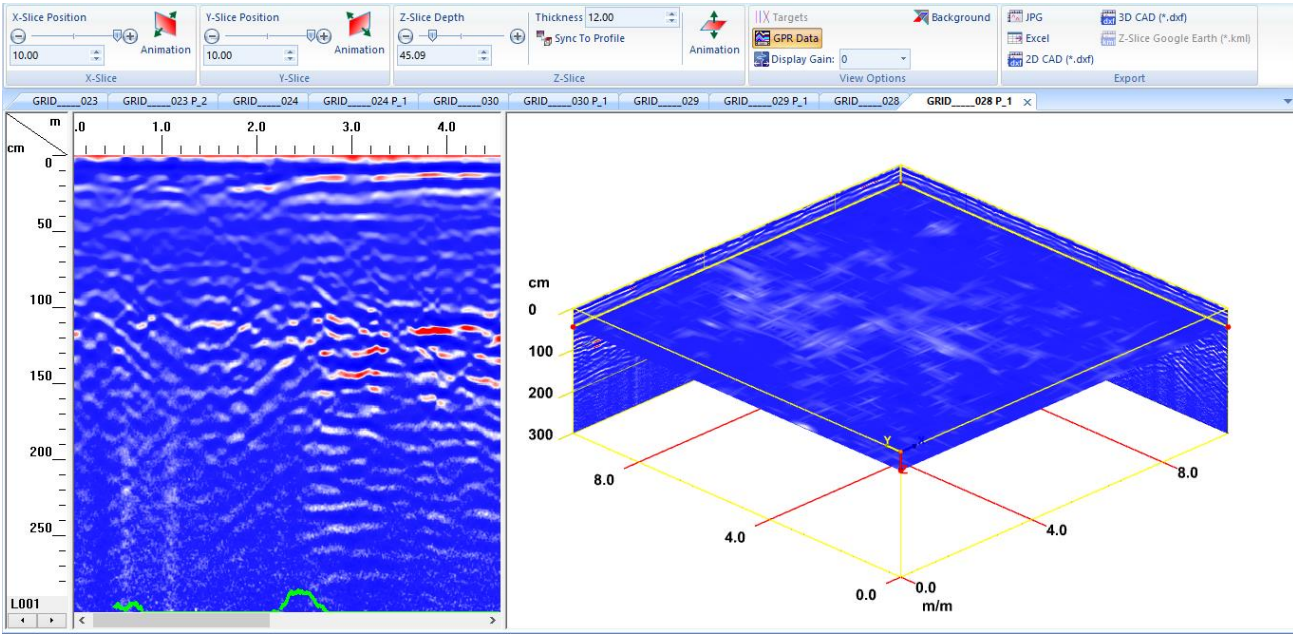
Scan 27: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.28 SCAN 28

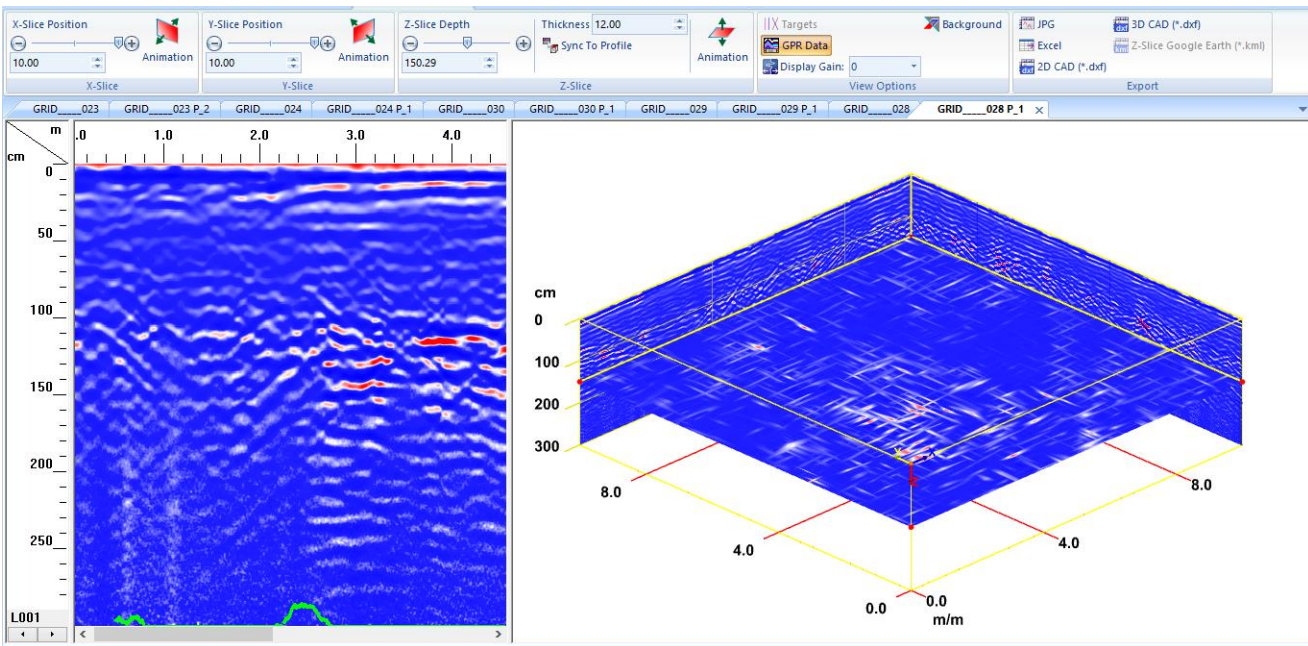


	B29	B37	B38	B30
Y:	89106,721	89106,769	89096,756	89096,788
X:	2901052,575	2901042,554	2901042,553	2901052,559
Z:	1659,360	1659,665	1659,227	1659,014

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

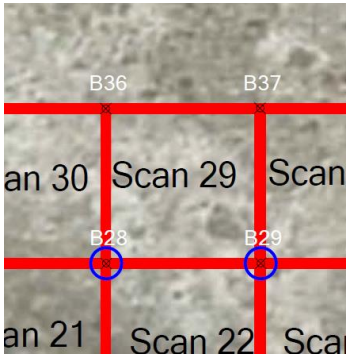


Scan 28: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



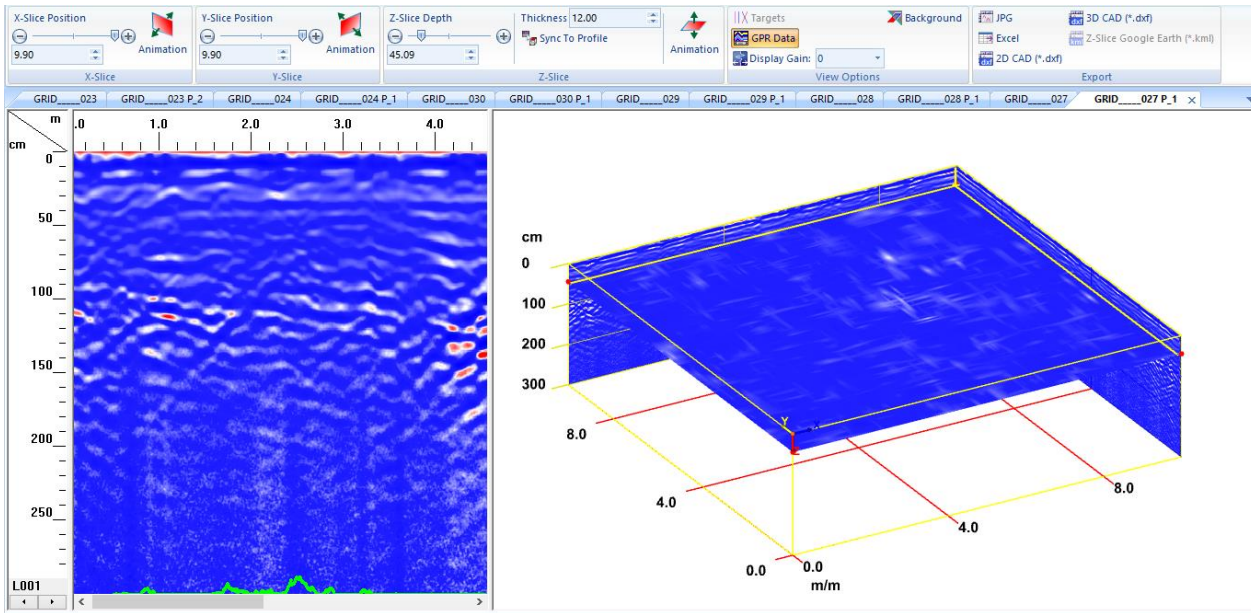
Scan 28: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.29 SCAN 29

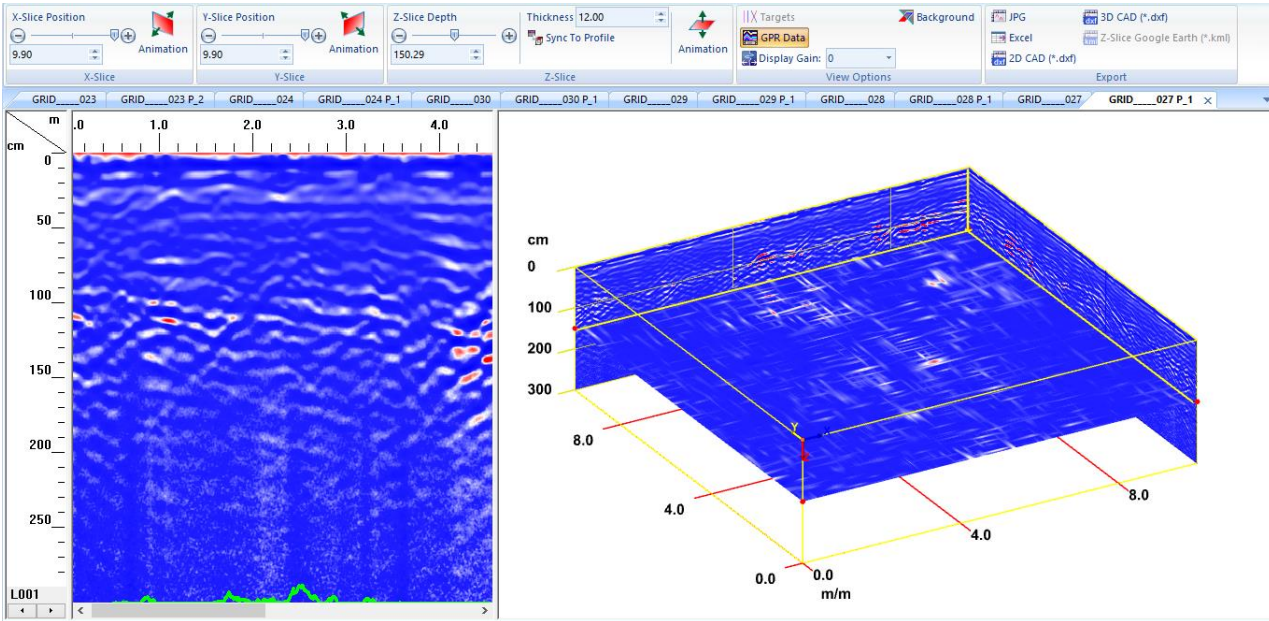


	B28	B36	B37	B29
Y:	89116,745	89116,778	89106,769	89106,721
X:	2901052,590	2901042,584	2901042,554	2901052,575
Z:	1659,827	1660,104	1659,665	1659,360

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.

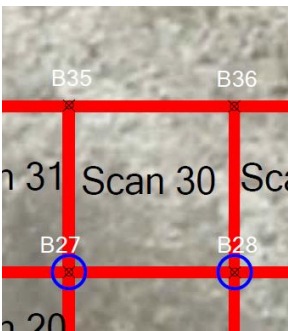


Scan 29: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



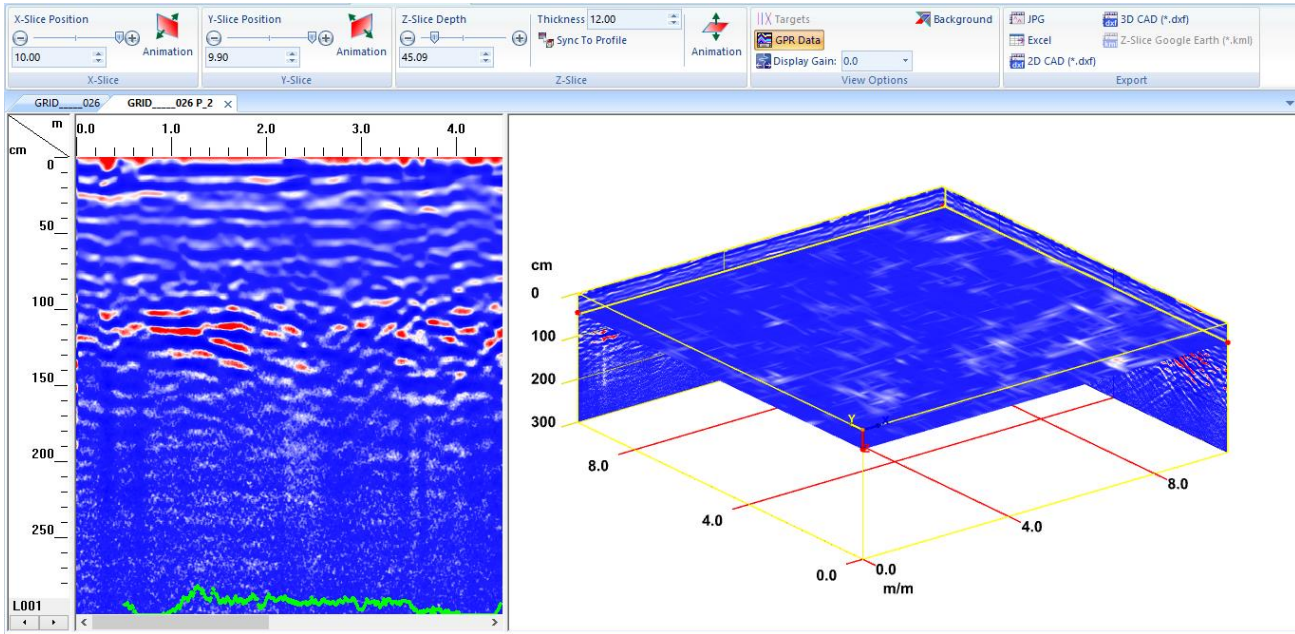
Scan 29: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

5.30 SCAN 30

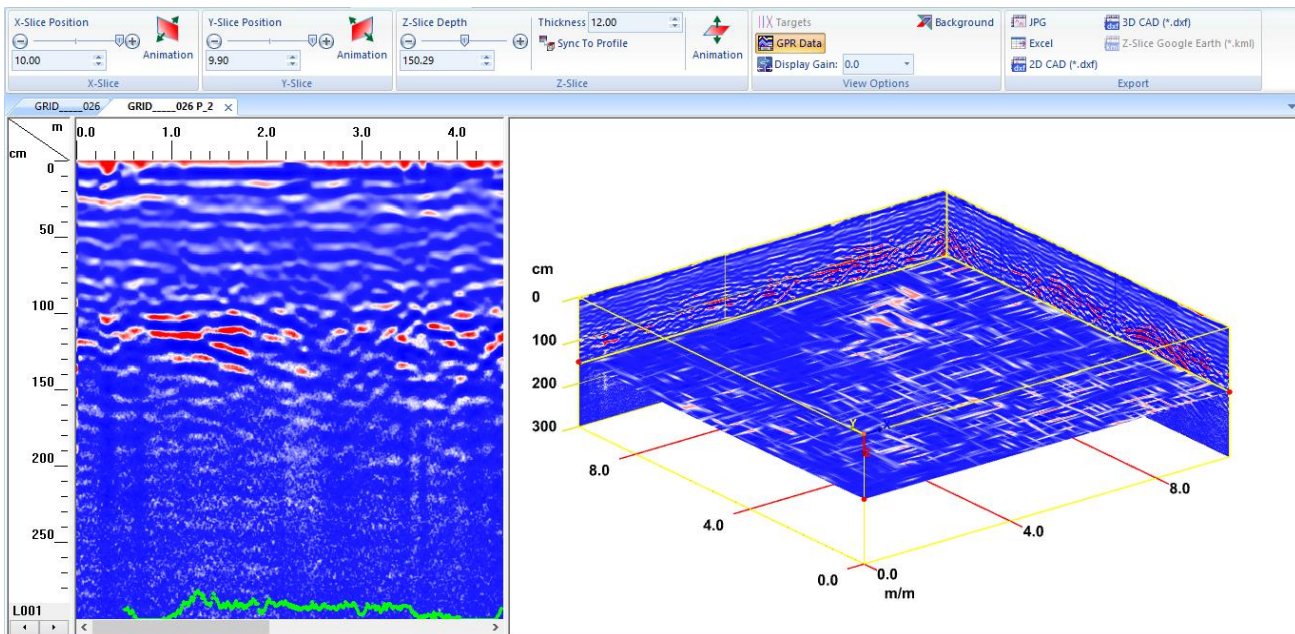


	B27	B35	B36	B28
Y:	89126,759	89126,755	89116,778	89116,745
X:	2901052,582	2901042,522	2901042,584	2901052,590
Z:	1660,250	1660,491	1660,104	1659,827

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.



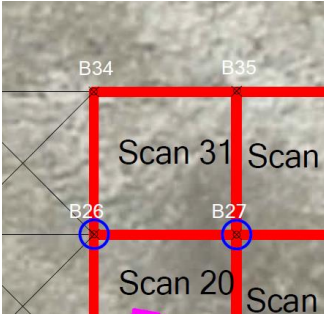
Scan 30: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.



Scan 30: a 120mm slice at 1,5m deep. No clear disturbance of the soil in the size and shape of a grave visible.

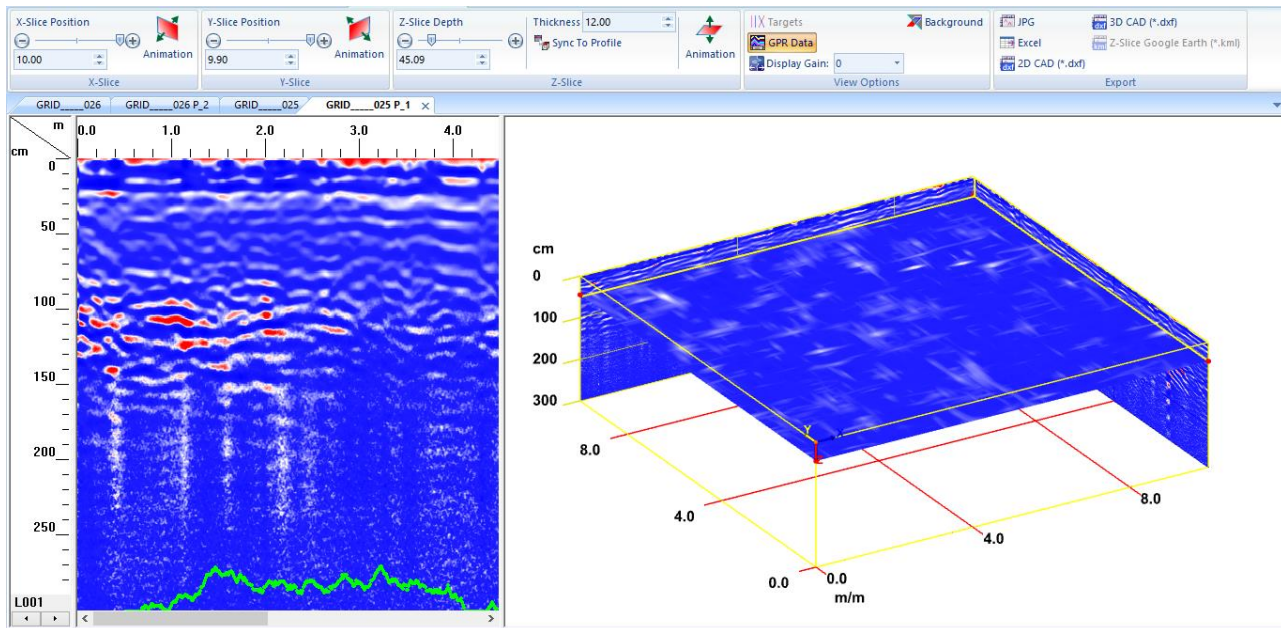


5.31 SCAN 31

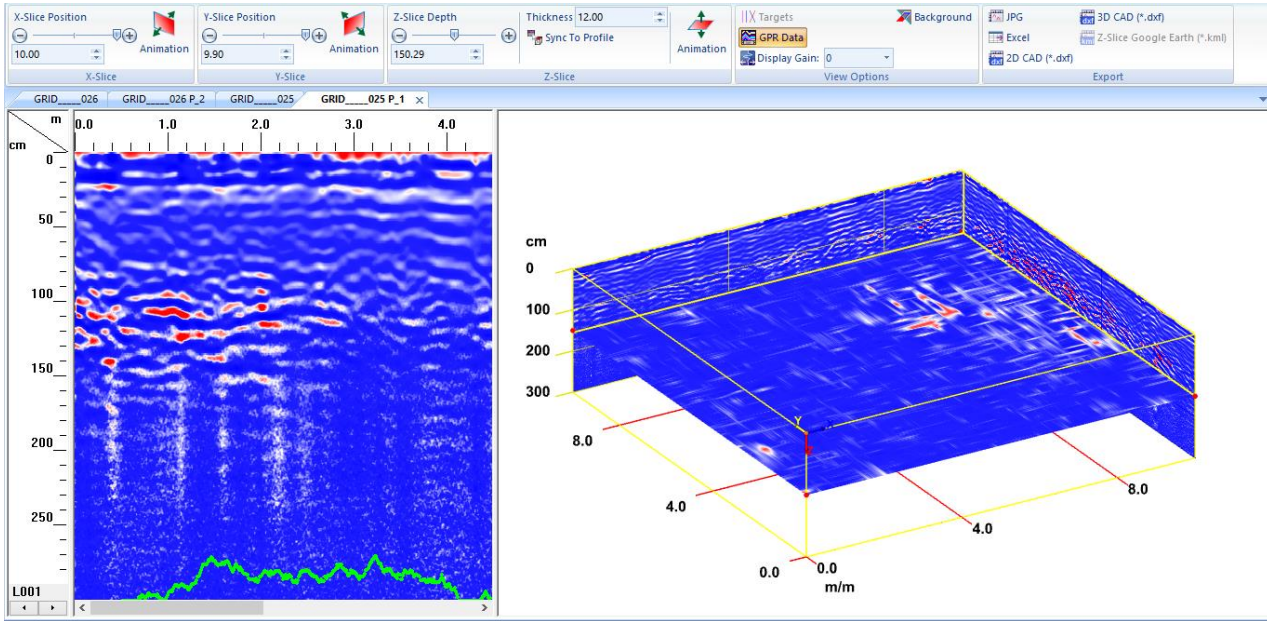


	B26	B34	B35	B27
Y:	89136,759	89136,776	89126,755	89126,759
X:	2901052,551	2901042,571	2901042,522	2901052,582
Z:	1660,586	1661,048	1660,491	1660,250

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.



Scan 31: a 120mm slice at 450mm deep. No clear disturbance of the soil in the size and shape of a grave visible.

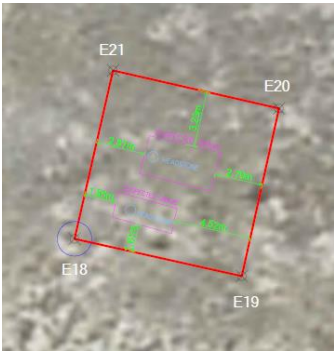


Scan 31: a 120mm slice at 1,5m deep. No clear disturbance of the soil visible.



5.32 SCAN 32

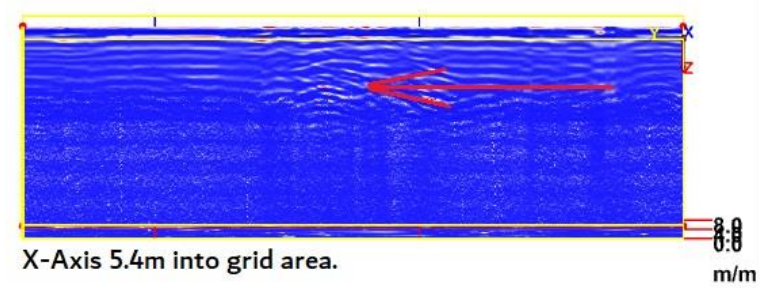
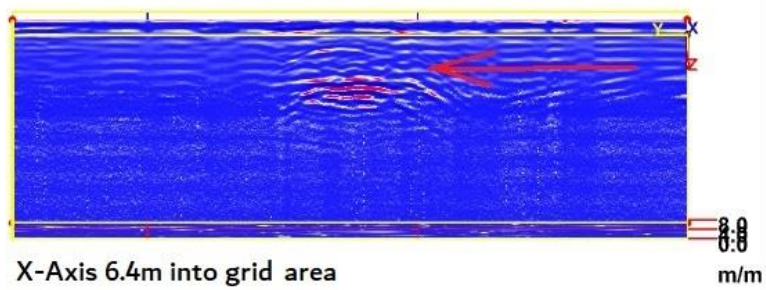
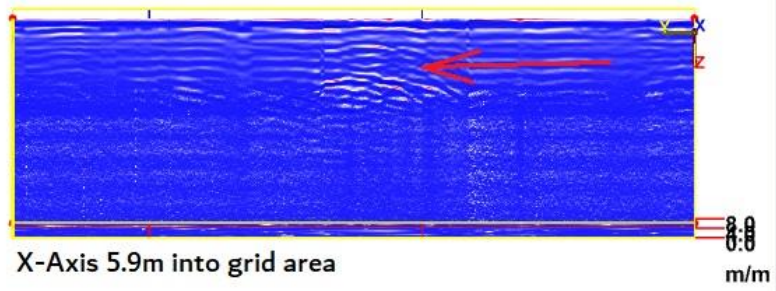
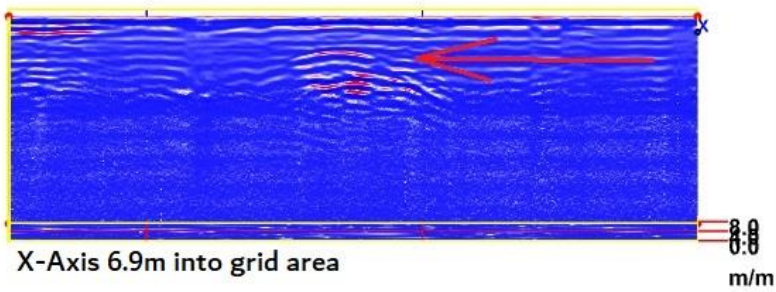
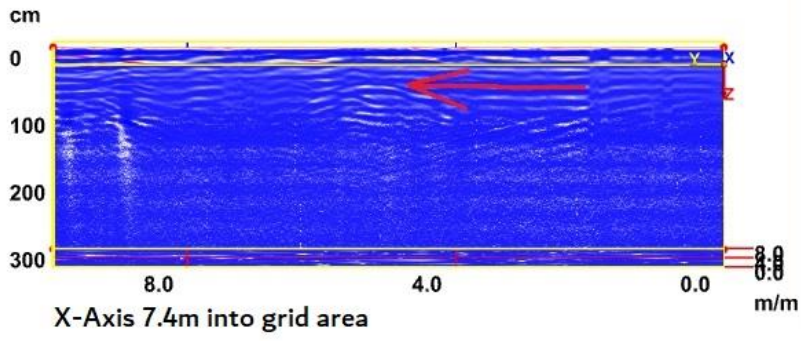
On scan 32 two areas are suspected graves.



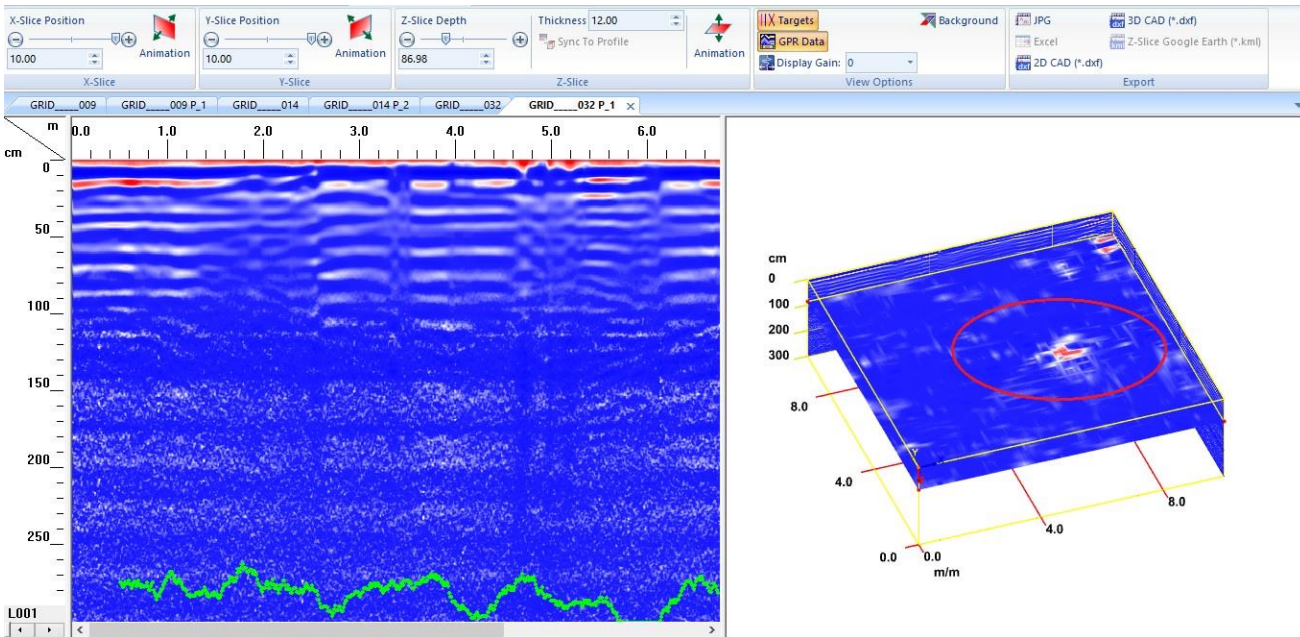
	E18	E21	E20	E19
Y:	89088,400	89086,172	89076,548	89078,702
X:	2901015,083	2901005,324	2901007,526	2901017,243
Z:	1659,687	1659,752	1659,341	1659,299



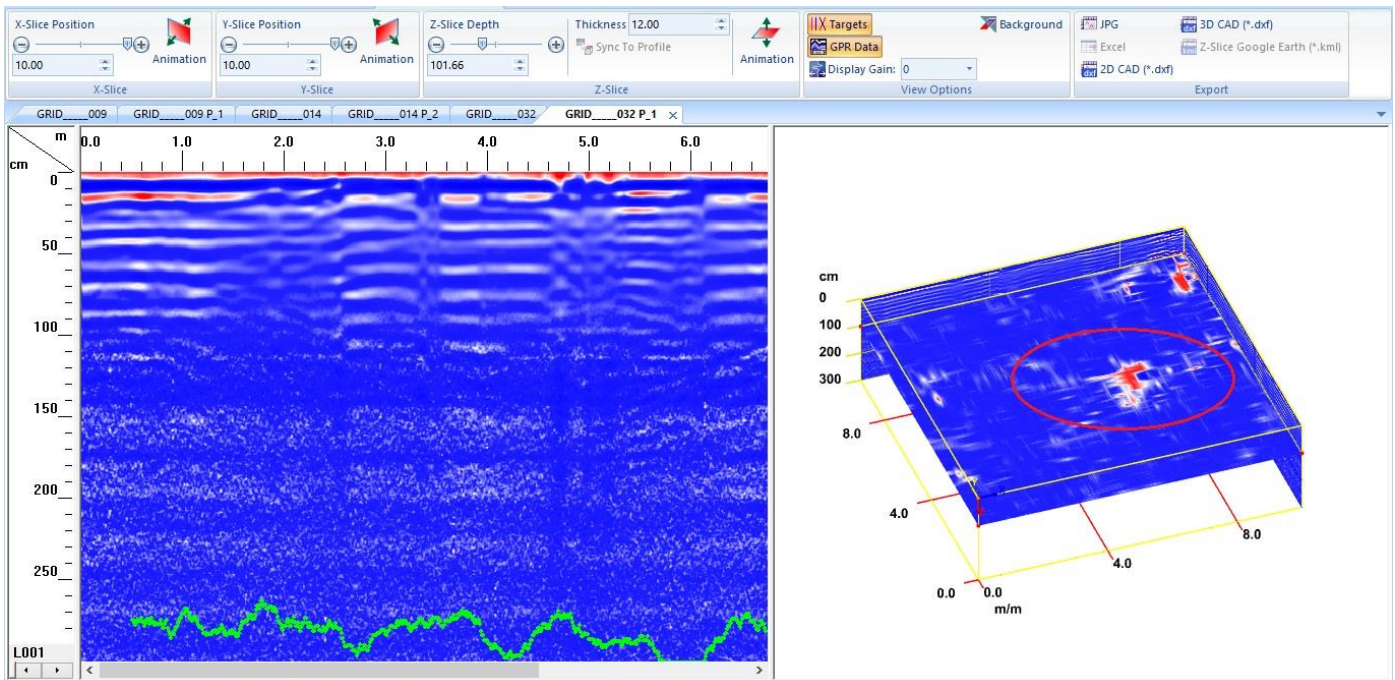
Investigation of each of the 42 individual scans found a repeated anomaly detected on the X-Axis scans from 5.4m into the grid area to 7.4m in. The following images shows this anomaly.



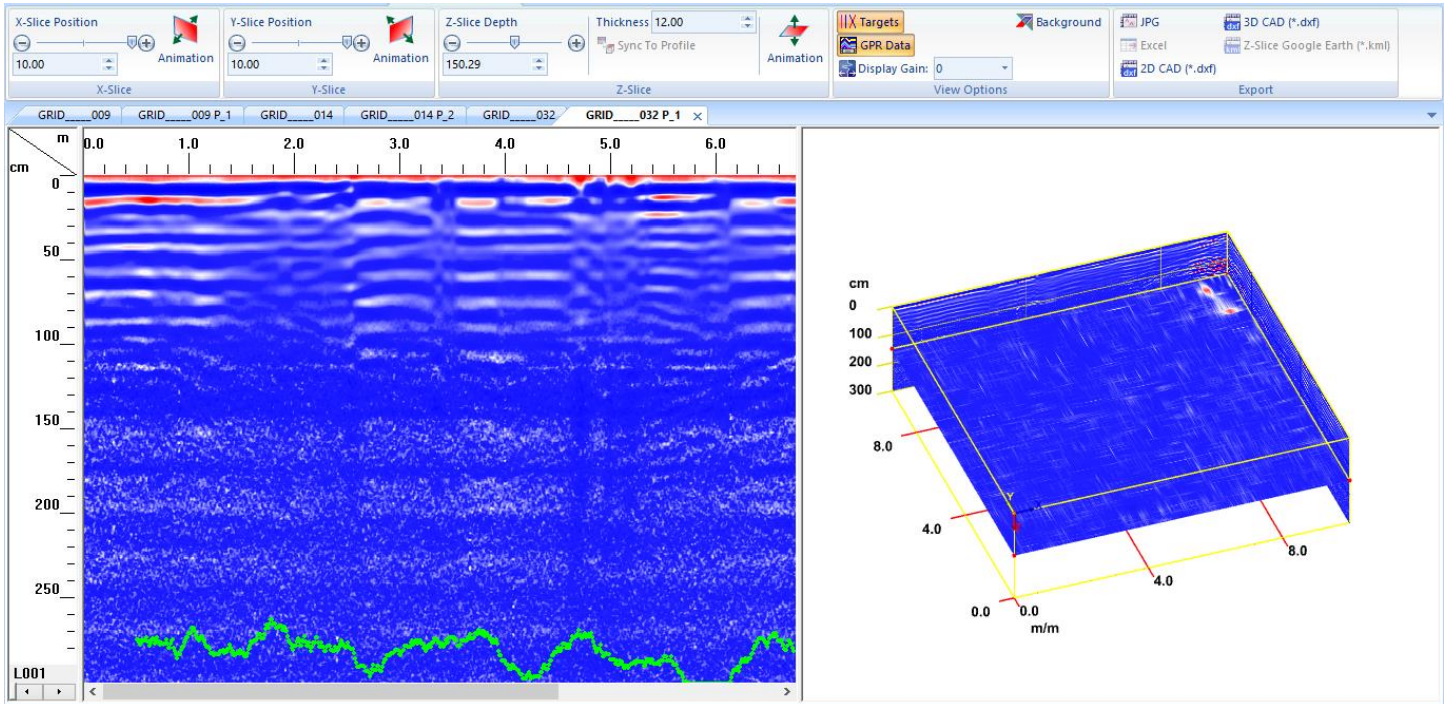
Scan 32: a 120mm slice at 700mm – 1100mm deep shows a anomaly in the soil on the area where one of the suspected graves are located.



860mm deep.



1010mm deep.



Scan 32: a 120mm slice at 1,5m deep. No clear disturbance of the soil visible.



5.33 SCAN 33

Scan 33 was over two a suspected grave. On the left side of the image is a possible burial mound and on the right was a possible headstone.



	D6	D9	D8	D7
Y:	89081,471	89079,867	89070,046	89071,639
X:	2900950,562	2900940,680	2900942,408	2900952,207
Z:	1660,586	1660,721	1660,270	1660,100



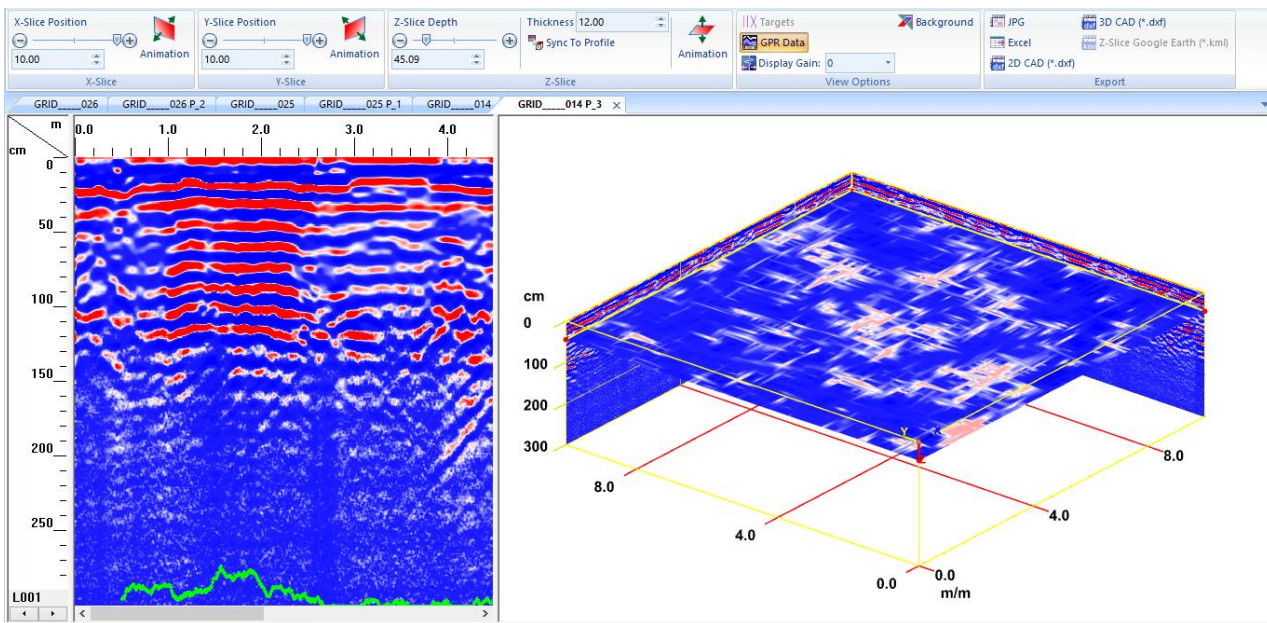
Possible Burial Mound.



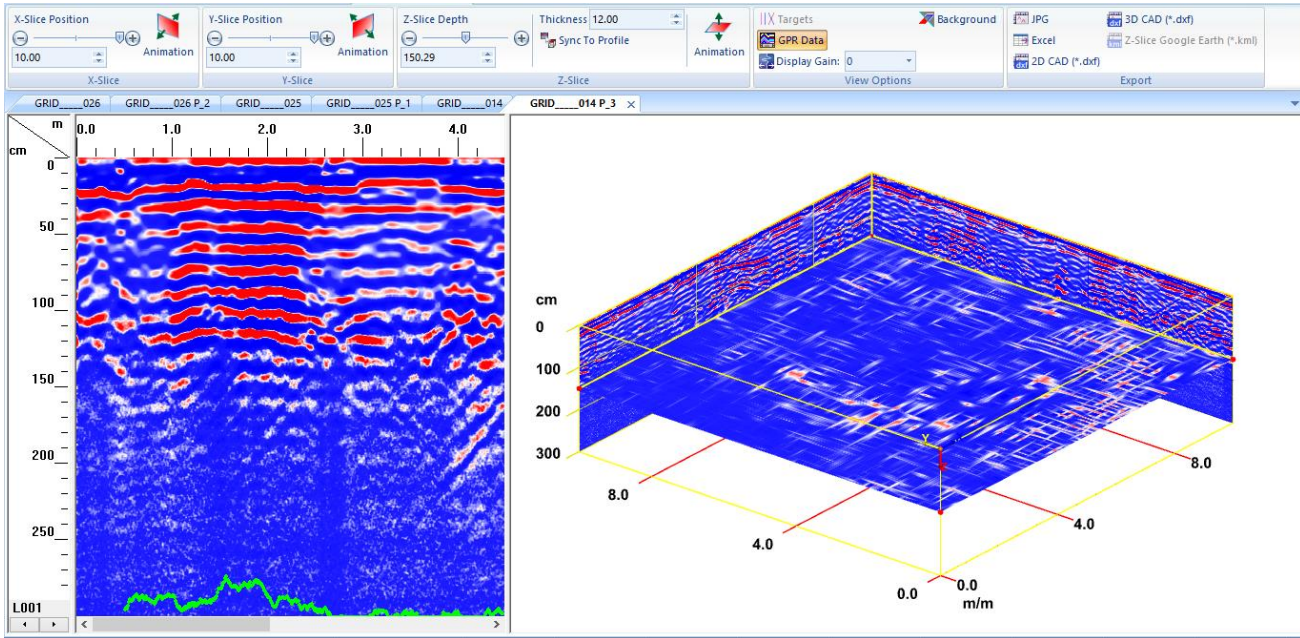
Possible Headstone

Not one of the two possible graves returned distinct anomalies in the size and shape of a human body.

Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.



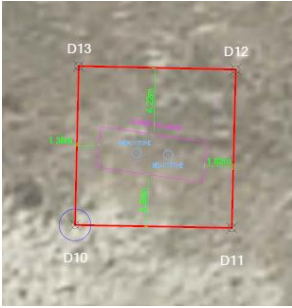
Scan 33: a 120mm slice at 450mm deep. No clear disturbance of the soil visible.



Scan 33: a 120mm slice at 1,5m deep. No clear disturbance of the soil visible.



5.34 SCAN 34



	D10	D13	D12	D11
Y:	89102,887	89102,651	89092,711	89092,962
X:	2900948,922	2900938,887	2900939,104	2900949,109
Z:	1661,638	1661,830	1661,270	1661,099

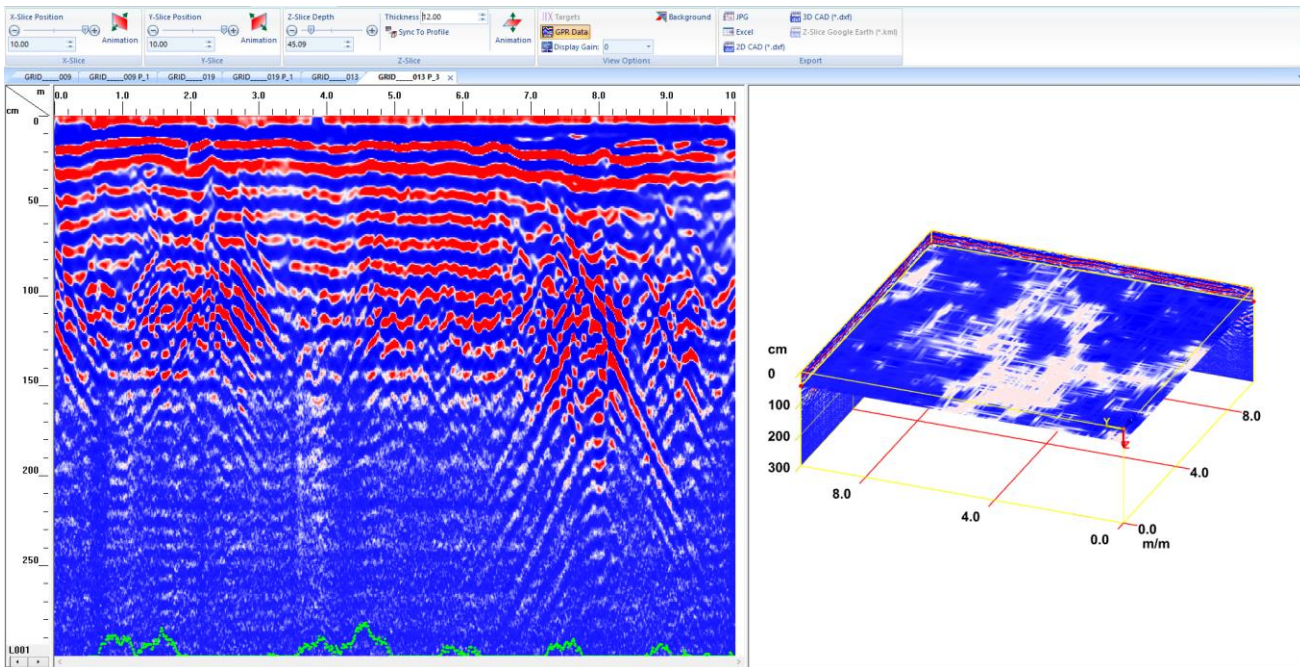
Scan 34 was on a area where it seems there are two grave headstones.



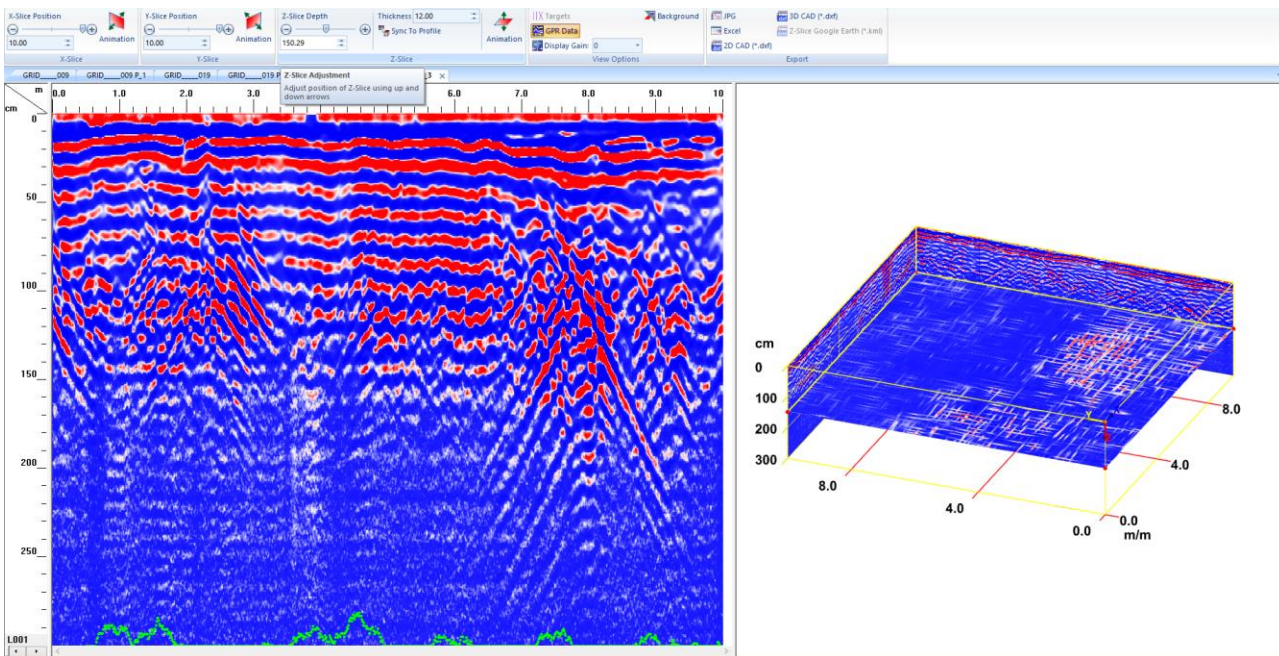
The area was put under extra scrutiny to make determine if any anomaly can be detected around these rocks and none were detected.



Investigation of each of the 42 individual scans did not show any repeated anomalies across the grid area.



Scan 1: a 120mm slice at 450mm deep. No clear disturbance of the soil visible. Although this image might appear to show an anomaly the change in colour that was observed is not out of the ordinary and this is due to changes in soil types and moisture levels below the ground.



Scan 1: a 120mm slice at 1,5m deep. No clear disturbance of the soil visible.



6 SUMMARY

	Findings	Note
Scan 1	Nothing Detected	
Scan 2	Nothing Detected	
Scan 3	Nothing Detected	
Scan 4	Nothing Detected	
Scan 5	Nothing Detected	
Scan 6	Nothing Detected	
Scan 7	Nothing Detected	
Scan 8	Nothing Detected	
Scan 9	Nothing Detected	
Scan 10	Anomaly Detected	Not in the size and shape of a grave.
Scan 11	Nothing Detected	
Scan 12	Nothing Detected	
Scan 13	Nothing Detected	
Scan 14	Anomaly Detected	Not in the size and shape of a grave. Nothing on ground level to suggest this location to be a grave.
Scan 15	Nothing Detected	
Scan 16	Nothing Detected	
Scan 17	Nothing Detected	
Scan 18	Nothing Detected	
Scan 19	Nothing Detected	
Scan 20	Anomaly Detected	Possibly a grave. Rocks on ground level at the same position where the anomaly was detected.
Scan 21	Nothing Detected	
Scan 22	Nothing Detected	
Scan 23	Nothing Detected	
Scan 24	Nothing Detected	
Scan 25	Nothing Detected	
Scan 26	Nothing Detected	
Scan 27	Nothing Detected	
Scan 28	Nothing Detected	
Scan 29	Nothing Detected	
Scan 30	Nothing Detected	
Scan 31	Nothing Detected	
Scan 32	Anomaly Detected	Possibly a grave. Rocks on ground level at the same position where the anomaly was detected.
Scan 33	Nothing Detected	The Concrete block and rocks that appear to be a grave headstone and a burial mound suggests these could be a grave sites but the scan returned no clear anomaly below the ground.
Scan 34	Nothing Detected	Two big rocks that are protruding from the ground appear to be grave headstones and suggests this could be a grave site, but the scan returned no clear anomaly below the ground.



7 CONCLUSION

At only 2 positions the grid scan returned images that could be interpreted to be a grave. These were at scan position 20 and 32. There are two other positions where anomalies were detected (scan 10 and 14) but in both these cases the anomaly is too big to be a human body.

The age of these possible graves and the fact that it is not clear if coffins were ever used makes this a difficult area to determine with certainty where graves are located. We cannot say with certainty what the area where nothing was detected has no graves. Although the soil conditions were favourable for scanning and we got good feedback on the radar, it could be that the condition of the corpses that we are detecting have deteriorates too much over the years for the radar to detect it. But the two positions where it seems most possible that the image that was returned from the scanner resembles human remains suggests that our findings are correct and that the 32 other scan sites does not have any graves on it.

Subscan is confident that the GPR machines and the method that were used to detect the graves follow global best practice for this application.