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هيئة المساحة الجيولوجية السعودية
Saudi Geological Survey

TECHNICAL REPORT
Cycle 2, Stage 4: Execution
Al Khashabi



Prepared for: **The Accelerated Exploration Programme Initiative, Saudi Geological Survey**

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GOLDEN COMPASS MSA CONSORTIUM

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Report prepared by The Golden Compass Mining and MSA Group Consortium (GCMSA) in conjunction with the SGS Accelerated Exploration Programme Initiative Team.

Contributors & Reviewers GCMSA :	General Manager	Dr. Roy Elliott	MAIG
	Exploration Manager (Acting)	Craig Blane	Pr.Sci.Nat., MGSSA
	Gold and Base Metal (GBM)Expert	John Barry	EurGeol, P.Geo., FSEG
	Senior Geologist	George Boadu	MGhIG
	Senior Geologist QAQC	Wesson Reid	MGSSA
	Senior Geologist GIS	Dr. Dora Paprika	Pr.Sci.Nat., MGSSA
	Exploration Geologist	Linda Sithole	Pr.Sci.Nat., GSSA
Contributors & Reviewers SGS :	Initiative Owner	Zaben Harbi	
	Project Manager	Anwar Jahdali	MAusIMM
	Operations Manager	Abdulrahman Al Obaidi	MAusIMM
	Team Leader	Tareq Jahlan	MAusIMM
	Exploration Geologist	Abdullah Al Otaibi	MAusIMM
	Exploration Geologist	Ayman Al Aryani	MAusIMM
	Andre Oelofsen	Technical Consultant	Pr.Sci.Nat., MAusIMM, MGSSA

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General Manager Dr. Roy Elliott	GBM Expert John Barry	Exploration Manager (Acting) Craig Blane

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EXECUTIVE SUMMARY

The Stage 4 Execution field programme for Al Khashabi commenced on 6 October 2024 and ended on 5 February 2025. During that time the following tasks were completed:

- Geological mapping - 21.1km^2 at 1:20,000 scale and six mineral occurrences (MODS) at 1:500 scale.
- 561 wadi samples collected for stream sediment geochemical analysis. (These samples were also analysed by a portable XRF analyser).
- 205 rock chip samples collected for assay and geochemical analysis
- 206 m of trenching excavated and logged
- 209 trench samples collected for assay and geochemical analysis
- Airborne Digital Terrain Model (DTM) survey carried out for entire AEP area

Geological and Tectonic Setting

The Al Khashabi AEP lies within the Suwaj Arc, a sub-component of the Afif Composite Terrane. The lack of basaltic volcanism within the AEP and the predominance of intermediate to felsic volcanics, and associated pyroclastic rocks, point to a mature island arc tectonic setting, or that of a juvenile continental margin arc. This type of tectonic setting bodes well for potential orogenic gold and porphyry Cu-Au deposit discoveries.

Deposit Model

The presence of narrow (<1m) discontinuous, auriferous quartz veins of variable grade, containing nominal amounts of base metals (Cu, Pb, Zn), with spatial associations to shears and faults, tends to confirm a subduction-related, orogenic gold deposit model for Al Khashabi. However, this does not necessarily preclude the possibility of finding other styles of subduction-related mineralisation within the AEP area, such as porphyry Au-Cu deposits, formed at deeper crustal levels.

Au mineralised quartz veins are seen to cut all major lithologies including basement diorites of the Burudan Complex, intermediate to felsic volcanic and associated pyroclastics of the Ar Rika Formation (Hulayfah Group) and syn- to late tectonic felsic intrusions.

Mineralisation

The two most prospective MODS for gold mineralisation, MODS 0427 and 0432, contain considerable amounts malachite in quartz vein material. Malachite is also recorded at MODS 0429 and MODS 0444, but to lesser degrees. However, the abundance of malachite should not be seen as a prerequisite for gold mineralisation as it often occurs in disproportionate amounts to the quantity of the original copper-bearing mineral, due to supergene enrichment.

Primary sulphides are restricted to minor disseminated pyrite. Aggregates of silver-grey metallic Pb-Te-Ag-As-S mineral intergrowths have been recorded at MODS 0427 0428, 0429 and 0432 as fracture infill in

quartz veins. These intergrowths have yet to be positively identified but bear a strong resemblance to Pb-Ag tellurides. If this is the case, this would be further endorsement for an intrusion-related, orogenic gold deposit model.

Alteration is very limited in scale and extent with minor hematite and carbonate alteration associated with quartz veining and shearing. The limited extent of alteration may reduce the potential for mineable Au grade extent into wall-rock adjacent to quartz veins.

Rock-chip and trench sample geochemistry shows that Au values broadly correlate with enhanced Pb and Cu values.

Gold mineralisation is largely localised and mainly confined to the six MODS on the AEP, which had already been identified during historical surveys. Even here, the grade and potential tonnages, as they stand at present, are unlikely to attract attention from an international mining concern, though a junior exploration company may be interested in testing the AEP's potential further. There no there is no evidence of active or recent artisanal mining activity with the AEP.

Structural Controls on Mineralisation

A stereographic analysis of the structural data has indicated the primary trend of quartz veining is north-westerly (Najd Trend) with a possible sub-ordinate northerly (Al Amar) trend. The dominant dip direction is to the NE, with dips in the range of 10-7o degrees.

On a property scale, the structural controls are not yet fully constrained, but a possible conjugate set of NW-trending and northerly-trending faults merits further consideration.

On a regional scale, the Al Khashabi AEP lines at the southern end of a NNW-trending, 50km-long belt of gold occurrences which may lie along a similarly trending splay off the Ar Rika Fault (Najd trend), located to the south of the AEP.

Wadi Sample Geochemistry

The vast majority of wadi geochemical samples returned values of less than 10 ppb Au, the maximum value registered was 38 ppb. The reasons for such poor results may be accounted for by limited primary Au mineralisation in the sampling area or due to poor dispersion of a relatively immobile element (Au) in an arid climate.

A cluster of relatively anomalous Cu values in the wadi samples show a strong spatial correlation with a hornblende diorite intrusion 1.5km north of MODS 0428. This intrusion contains a distinct porphyritic marginal facies of "appinite" (lamprophyre) on its western flank. Elsewhere in the world, in similar tectonic and geological settings, these type of rocks have been considered as lithological pathfinders for intrusion-related orogenic gold deposits.

A small cluster of relatively anomalous Pb values coincide on the ground with a syenogranitic intrusion between MODS 0427 and MODS 0432.

Six relatively anomalous As wadi samples appear to define a 4km-long, NW geochemical trend which contains MODS 0428, 0429 and MODS 0432. This trend may depict an underlying gold-mineralised structure.

Although the deep alluvial wadi sampling programme failed to produce any significant results, in the southwestern part of the AEP, it must be borne in mind that for safety reasons samples were taken at a maximum depth of 1.5m with the assistance of the excavator. Moreover, it can be determined from satellite imagery that the aeolian cover blankets an expansive wadi drainage system with extensive flood plain deposits. In such a case, severe or appreciable elemental dilution would occur, thus generating poor results.

Trenching

Promising Au assay intercepts were returned from trench sampling at MODS 0427 0432, though these results should be tempered by the fact that sampling occurred oblique to shallow dipping veins, so the true intercept width was not tested.

- Trench KSB_TR001 3.3m @ 3.04 g/t Au
- Trench KSB_TR002 1.0m @ 7.07 g/t Au
- Trench KSB_TR002 6.0m @ 4.39 g/t Au
- Trench KSB_TR003 1.0m @ 2.49 g/t Au
- Trench KSB_TR003 3.0m @ 14.31 g/t Au
- Trench KSB_TR004 1.0m @ 0.51 g/t Au

Recommendations

In regard to further exploration, it is recommended that a remote structural analysis be carried out using airborne geophysical data currently available in order to better constrain possible property-scale structural controls on mineralisation. In addition, it is proposed that a desktop Mutli-Spectral and Hyperspectral (MHS) remote sensing be undertaken in an attempt to identify potential zones of hydrothermal alteration, especially in the vicinity of major igneous intrusions.

It is also recommended that the geochemical sample pulps for wadi, trench and rock-chip samples be retained and stored at SGS for potential use. This would also include the wadi sub-sample splits taken for portable XRF (pXRF) analysis. These pulp and sub-samples are a valuable asset and should be treated accordingly.

However, as the results produced by the Stage 4 Execution Programme were of insufficient calibre, it is recommended that the project should not be advanced to Stage 5. This viewpoint is also held by the Gold and Base Metal Expert, John Barry.

Table of Contents

EXECUTIVE SUMMARY ..... **III**

1 INTRODUCTION **1**

2 LOCATION **2**

3 PROJECT OVERVIEW **3**

4 GEOLOGY AND MINERALISATION **4**

4.1 Regional Tectono-stratigraphic and Geological Setting 4

4.2 Regional Metallogenic Setting 6

4.3 Local Geology and Structure 9

4.3.1 Geology 9

4.3.2 Structure 10

4.4 Mineralisation 12

4.4.1 Overview 12

4.4.2 Details of the KSB MODS 12

4.5 Deposit Model and Controls on Mineralisation 18

4.5.1 Deposit Model 18

4.5.2 Structural Controls on Mineralisation 19

5 SUMMARY OF WORK COMPLETED **20**

5.1 Overview of Exploration Work Programme 20

5.2 Mapping and Sampling 26

5.2.1 Overview 26

5.2.2 Methodology 28

5.3 Wadi Sampling 30

5.3.1 Overview 30

5.3.2 Methodology 32

5.4 Deep alluvial wadi sampling 35

5.4.1 Overview 35

5.4.2 Methodology 39

5.5 Portable XRF analysis of wadi samples 39

5.5.1 Overview 39

5.5.2 Methodology 42

5.6 Trenching 42

5.6.1 Overview 42

5.6.2 Methodology....43
5.7 Database Compilation....46
5.7.1 Methodolgy....46
5.8 Sample Preparation and Chemical Analysis....47
5.8.1 Sample Preparation....48
5.8.2 Cleaning Process....48
5.8.3 Analytical Methods....49
6 QAQC....50
6.1 Overview....50
6.2 QAQC of Rock-chip and Trench Samples....52
6.2.1 Certified Reference Materials (CRMs)....52
6.2.2 Blank Certified Reference Material – "Blanks"....54
6.2.3 Laboratory Pulp Duplicates....55
6.3 Wadi Samples....56
6.3.1 Blank Certified Reference Material – "Blanks"....56
6.3.2 Laboratory Pulp Duplicates....56
6.4 Conclusion....57
7 HEALTH AND SAFETY....58
7.1 Risk Assessment....58
7.2 Toolbox Talks....58
8 RESULTS....59
8.1 Geological Mapping and Rock-chip Sampling....59
8.1.1 Overview....59
8.1.2 1:20,000 scale mapping....60
8.1.3 1:500 scale mapping....60
8.1.4 Main lithological units....68
8.1.5 Mineralisation....74
8.1.6 Structural analysis of quartz vein data....75
8.1.7 Rock-chip sample results....76
8.2 Wadi sampling and Deep Alluvial Wadi sampling....79
8.2.1 Wadi sampling....79
8.2.2 Deep Alluvial Wadi Samples....84
8.2.3 Portable XRF results of wadi sub-samples....85
8.3 Trenching Results....88
9 INTERPRETATION....92
9.1 Geological and Tectonic Setting....92

9.2 Deposit Model 92
9.3 Mineralisation 92
9.4 Possible Structural Controls of Mineralisation 94
9.5 Wadi sample and Deep Alluvial Wadi sample geochemistry 94
9.5.1 Wadi Samples 94
9.6 Deep Alluvial Wadi Sample 97
9.7 Portable XRF analysis of Wadi-sub samples 98
10 CONCLUSIONS 98
11 RECOMMENDATIONS 100
12 REFERENCES 102

List of Tables

Table 1-1 AEP Overview 1
Table 4-1 Stratigraphic nomenclature changes in the Al Khashabi area 9
Table 4-2 Grid Coordinates for KSB MODS (UTM 38N) 12
Table 5-1 Summary of Initial Work Plan (Stage 3 Report) 22
Table 5-2 Summary of Revised Work Programme 23
Table 5-3 Summary of GCMSA manpower involved in the geological mapping and rock chip sampling programme 28
Table 5-4 Summary of GCMSA manpower involved in the Geological mapping and wadi sampling programme 30
Table 5-5 Summary of GCMSA manpower involved in the wadi sampling programme. 35
Table 5-6 Summary of GCMSA manpower involved in the pXRF analysis programme. 40
Table 5-7 Schedule of trenching at Al Khashabi 42
Table 5-8 Summary of GCMSA manpower involved in the trenching. 43
Table 6-1 CRMS used during KSB rock-chip and trenching programmes 52
Table 6-2 Overall perfromance of CRMS used during KSB rock-chip and trench sample analyses 52
Table 8-1 pXRF analysis of silver-grey metallic mineral intergrowths 74
Table 8-2 Summary of significant assay and geochemical results from the KSB rock-chip sampling programme 78
Table 8-3 Summary of key trench Au assay intercepts at KSB 88

List of Figures

Figure 2-1 Map showing the location of the Al Khashabi Proejct 2
Figure 3-1 Satellite image of the Al Khashabi AEP showing topography and location of MODS 3
Figure 4-1 Al Khashabi in relation to the major tectono-stratigraphic terranes of the Arabian Shield 5
Figure 4-2 Al Khashabi AEP in relation to major mineral deposits and mineral occurrences 7
Figure 4-3 Regional gold occurrence trend in the Al Khashabi AEP area. 8
Figure 4-4 Geology of the Al Khashabi AEP 10
Figure 4-5 Geological map of the Al Khashabi AEP showing main structures 11
Figure 4-6 View looking north of major quartz vein ($N15^0/50^0E$) and ancient workings at MODS 0427 13
Figure 4-7 Ancient granitic grinding stone found 80m south of the workings at MODS 0427 14
Figure 4-8 View of ancient working at MODS 0428 15
Figure 4-9 View of extensive malachite-stained quartz vein scree from old workings at MODS 0432 16
Figure 4-10 Ancient test pit and quartz vein scree at MODS 0444 17
Figure 4-11 View of the village of Burudan from MODS 0444 18
Figure 4-12 Subduction-related model for the formation of orogenic gold deposits 19
Figure 5-1 Satellite image showing the MODS locations and Priority Focus Areas (PF-01 and PF-02) 21
Figure 5-2 Timeline of exploration work programme at KSB, October 2024-February 2025 25
Figure 5-3 KSB task completion status as of 5 February 2025 26
Figure 5-4 Geological mapping team surveying the terrain at KSB 27
Figure 5-5 Typical rock-chip sample collected from potentially mineralised outcrop at Al Khashabi 28
Figure 5-6 Map showing location of all wadi sample sites planned from satellite imagery for Phase 1 31
Figure 5-7 Wadi sampling in the Al Khashabi AEP 32
Figure 5-8 Example of wadi sample photographic record 34
Figure 5-9 Example of Wadi Sample Data Record Sheet 36
Figure 5-10 Map showing expansive area of alluvial and aeolian cover 37
Figure 5-11 Map showing location of deep alluvial wadi samples 38
Figure 5-12 Deep alluvial wadi sampling with the assistance of an excavator 39
Figure 5-13 GCMSA Exploration Geologist undertaking pXRF analysis 40
Figure 5-14 pXRF analyser interfaced with laptop 41
Figure 5-15 KSB_wadi sub-samples laid out for pXRF analysis 41
Figure 5-16 GCMSA geologists carrying out sampling at trench KSB_TR_01, MODS 0432 43
Figure 5-17 Summary of Database Validation Processes 47
Figure 5-18 Flow chart for Prep 31 48
Figure 5-19 ALS sample preparation and analytical methods for rock-chip and trench samples 49

Figure 5-20 ALS sample preparation and analytical methods wadi and deep alluvial wadi samples 50
Figure 6-1 Control Chart for AMIS 0519 (CRM) 53
Figure 6-2 Control Chart for AMIS 0579 (CRM) 53
Figure 6-3 Control Chart for AMIS 0895 (CRM) 54
Figure 6-4 Control Chart for CRM Blank – OREAS C26e 55
Figure 6-5 Scatter Plot for Laboratory Duplicates: Trench samples Au ppm 56
Figure 6-6 Control Chart for CRM Blank – AMIS 0980 57
Figure 6-7 Scatter Plot for Laboratory Pulp Duplicates: Wadi Samples :Cu ppm 57
Figure 7-1 Toolbox talk at KSB given by project Exploration Geologist during site visit by SGS-GCMSA Core Team management, 28 November 2024 59
Figure 8-1 1:20,000 scale geological map of Priority Focus Areas PF-01 and PF-02 61
Figure 8-2 1:750 scale geological map of MODS 0427 62
Figure 8-3 1:750 scale geological map of MODS 0428 63
Figure 8-4 1:750 scale geological map of MODS 0429 64
Figure 8-5 1:750 scale geological map of MODS 0430 65
Figure 8-6 1:750 scale geological map of MODS 0432 66
Figure 8-7 1:750 scale geological map of MODS 0444 67
Figure 8-8 Hand specimen diorite from outcrop near MODS 0444 68
Figure 8-9 Hand specimen of Andesite from near MODS 0432 69
Figure 8-10 Bleached quartz-feldspar-phyric rhyolite from central portion of PF-01 area 69
Figure 8-11 Hand specimen of coarse felsic pyroclastic rocks from near MODS 0432 70
Figure 8-12 Hand specimen of hornblend porphyry from north of MODS 0428 71
Figure 8-13 Hand specimen of syenogranite from MODS 0427 71
Figure 8-14 Hand specimen of felsite porphyry from MODS 0428 72
Figure 8-15 Expansive area of aeolian cover in the southwestern half of the AEP 73
Figure 8-16 Drainage system in the KSB AEP 73
Figure 8-17 Staining and disseminations of blebby malachite in quartz at MODS 0432 74
Figure 8-18 Graphic intergrowths of silver-grey metallic minerals in quartz from MODS 0427 75
Figure 8-19 Rose diagram showing strike direction of KSB quartz veins 75
Figure 8-20 Rose diagram showing prominent dip-direction of KSB quartz veins 76
Figure 8-21 Plan showing Au assay results for KSB rock-chip samples 77
Figure 8-22 Wadi sample geochemical results for Au (ppb) 79
Figure 8-23 Wadi sample geochemical results for Cu (ppm) 80
Figure 8-24 Wadi sample geochemical results for Pb (ppm) 81
Figure 8-25 Wadi sample geochemical results for Zn (ppm) 82
Figure 8-26 Wadi sample geochemical results for As (ppm) 83
Figure 8-27 Representative 1.5m profile though the aeolian and alluvial cover in the SW part of the KSB AEP (Sample site ID KSBSS0446) 84

Figure 8-28 pXRF versus ICP (Cu ppm)....85
Figure 8-29 pXRF versus ICP (Zn ppm)....86
Figure 8-30 pXRF versus ICP (Co ppm)....86
Figure 8-31 pXRF versus ICP (Ni ppm)....87
Figure 8-32 pXRF versus ICP (Cr ppm)....87
Figure 8-33 Section showing Au intercepts in trench KSB_TR_001, MODS 0432....89
Figure 8-34 Section showing Au intercepts in trench KSB_TR_002, MODS 0432....89
Figure 8-35 Photo showing shallow-dipping quartz vein shown in Figure 8-34 above of gold mineralised veins in trench KSB_TR_002, MODs 0432....90
Figure 8-36 Section showing Au intercepts in trench KSB_TR_003, MODS 0427....90
Figure 8-37 Photo showing shallow-dipping oxidised quartz vein shown in Figure 8-34 above in Au intercept zone in trench KSB_TR_003, MODS 0427....91
Figure 8-38 Section showing Au intercept in trench KSB_TR_004, MODS 0427....91
Figure 9-1 Silver-grey tellurides (?) infilling quartz vein fracture, MODS 0427....93
Figure 9-2 Ag-tellurides in quartz from type localtity Baia de Aries, Romania....93
Figure 9-3 Map showing location of anomalous Cu clusters in the KSB AEP area....95
Figure 9-4 Map showing possible alignment of anomalous As values in KSB AEP area....96
Figure 9-5 Map showing cluster of anomalous Pb values in the KSB AEP area....97

List of Appendices

Appendix 1: Mineral Exploration Map

Appendix 2: 1:500 Geological Maps

Appendix 3: Trench Geological Sections

Appendix 4: Trench Strip Logs

Appendix 5: QAQC Report

1 INTRODUCTION

The Accelerated Exploration Programme ("AEP") Initiative aims to identify prospective locations and conduct mineral exploration on the selected Projects to improve the level of geoscientific confidence and to upgrade those Projects with best potential to a level at which third parties may wish to invest in their further development.

During Task 2 of Phase 1, 30 locations were evaluated, and six locations were selected for further work, one of which is **Al Khashabi ("KSB")**. The reader is referred to Robertson (2022), for further information on the location review and selection process.

A three-stage process was followed in Phase 2 to develop detailed work programmes for each of the selected Projects before exploration activities commenced in Stage 4. Stage 1 involved receipt of data, compilation, digitization and validation of data and delivery of a final dataset for input into Stage 2. Stage 2 involved conducting a technical review of the data compiled in Stage 1 by an expert and presenting an opinion on the prospectivity of the project. During Stage 3, a gap analysis was conducted to inform an exploration programme and road map for each Project.

As part of Phase 2 Stage 4, exploration programmes were executed in order to generate the preliminary data to commence the process of potentially delivering an Exploration Target or Mineral Resource Estimate according to the JORC 2012.

This report is prepared at the end of the exploration program for KSB and is intended to document the work completed and results obtained during Stage 4.

An overview of the AEP Initiative is provided in **Table** 1-1**.**

Table 1-1
AEP Overview

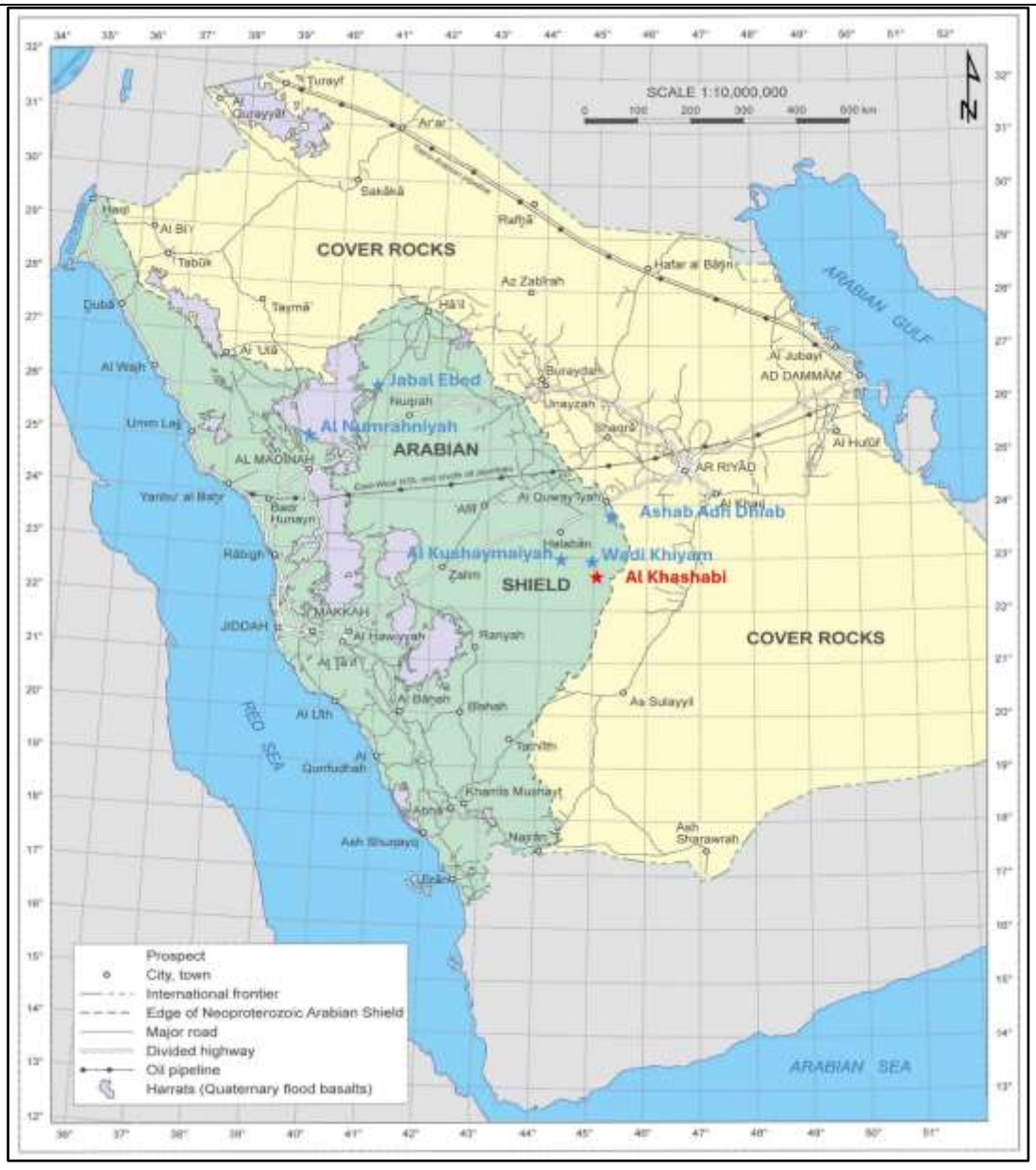
		Objective	Deliverable	Status
Phase 1	Task 2	Desktop Review and Ranking of 60 Targets	Report documenting the assessment of the review of 60 (Cycles 1,2,3) Task 2 targets with a ranking of each and recommendations	Completed
Phase 2	Stage 1	Data collection, validation, and digitization of data/reports	Database for each of the 15 projects containing all data provided by the SGS and data digitised by GCMSA	Completed
	Stage 2	Specialist Technical Review	Technical report for each of the 15 selected projects (Cycle 1: 6; Cycle 2: 6; Cycle 3: 3)	Completed
	Stage 3	Gap analysis, design of exploration plan and design of exploration project roadmap	Gap analysis for each project, a standardised roadmap to progress projects and an exploration programme for each of the 15 projects (Cycle 1: 6; Cycle 2: 6; Cycle 3: 3)	Completed
	Stage 4	Oversight of the execution of project	Monthly progress reports for each project during the execution phase	This Report
	Stage 5	Resource estimation and project evaluation	Mineral Resource / Exploration Target statement for each of the 15 projects and comprehensive supporting documentation Geological models in Datamine™/Leapfrog ™ format JORC (2012) compliant Technical Report authored by a Competent Person and signed off by the independent QAQC Manager for each of the 15 projects. Mineral Assessed Valuation for each of the projects. Comprehensive Auction Package.	

2 LOCATION

The Al Khashabi AEP is located in Riyadh Province some 320 km southwest of the capital city of Riyadh and 600km east of Jeddah. The nearest major settlement is the road-stop village of Burudan on Route 30, approximately 7km north of the AEP boundary.

Al Khashabi can be accessed by road from Riyadh, via Route 30, in about 3 hours by car.

Figure 2-1
Map showing the location of the Al Khashabi Proejct



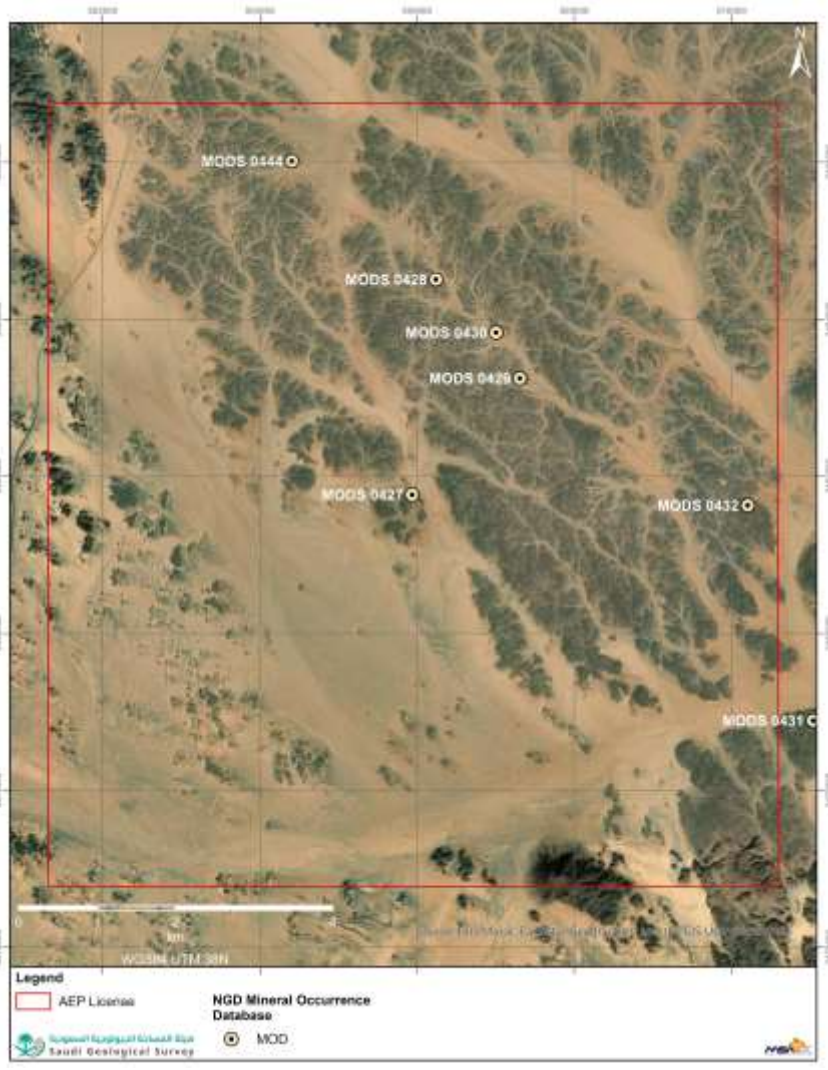
3 PROJECT OVERVIEW

The Al Khashabi AEP covers an area of 92.12 km^2 and is centred on six Mineral Occurrence Documentation System (MODS locations, namely, MODS 0427, 0428, 0429, 0430, 0432 and 0444 (**Figure 3-1**).

The two most prospective MODS are the gold-copper occurrences of MODS 0427 and MODs 0432.

The terrain in the northeast half of the licence is rocky and rugged (average elevation 1000m ASL) and drainage is predominantly to the southeast. In contrast, the southwest half of the AEP is extensively blanketed by thick sandy alluvial and aeolian cover, with relatively sparse outcrop. The average elevation in this terrain is around 750m ASL.

Figure 3-1
Satellite image of the Al Khashabi AEP showing topography and location of MODS



Ancient workings at Al Khashabi, also referred to as Wadi Arakah or Wadi Araqah in the legacy reports, and as Al Khushbi in more recent literature, were identified and mapped during reconnaissance of ancient mines and mineralised zones in 1972 by USGS geologists W.C. Overstreet and J.M. Whitlow, working on the adjacent Bi'r Ghamrah quadrangle (Brosset, 1974).

The ancient workings are believed to date from the 9th century. It is speculated that wandering Bedouin tribes happened upon an unusual green staining on the rocks – malachite and either suspected an association between the malachite and gold, or on closer inspection, they were able to find some visible gold.

In 1973-1974, BRGM mapped and sampled six ancient workings in the Wadi Arakah (Al Khashabi) area, which had exploited quartz veins hosted in "Halaban" volcanic rocks and associated dioritic intrusions. Following the launch of the National Geological Database (NGD) in December 2021, these workings were respectively assigned (MODS) status as MODS 0427, 0428, 0429, MODs 0430 and MODs 0432 (**Figure 3-1**)

A brief description and analyses of the original workings were recorded by BRGM on "Index Cards" and can be referenced in the appendices to the BRGM report in the SGS archive (ref: BRGM-74 JED 9 02) in Appendix 3 of the report (Brosset, 1974). Each index card gives the details of location (coordinates) of the occurrence, regional and local geology, description of the ore and gangue minerals and a table showing the results of chemical analyses of the samples.

The BRGM grab samples from the working returned between 1.0 g/t Au and 10.5g/t Au, with anomalous Cu and Pb values in quartz veins that contained appreciable amounts of pyrite. Detailed information on the ancient workings is available in Brosset, (1974) with reference to a geological map of Quadrangle 22/45C Umm Sulaym at 1:100,000 scale in the SGS archive reference BRGM-74 JED 9 04 both the products of regional mapping by BRGM (Brosset, 1973).

In a formal handover which took place in March- April 2023, GCMSA was presented with the Al Khashabi project-data package, along with other AEP projects. In December 2023, the project was short-listed for Cycle 2. Details of the KSB data package are documented by Malapur (2024).

4 GEOLOGY AND MINERALISATION

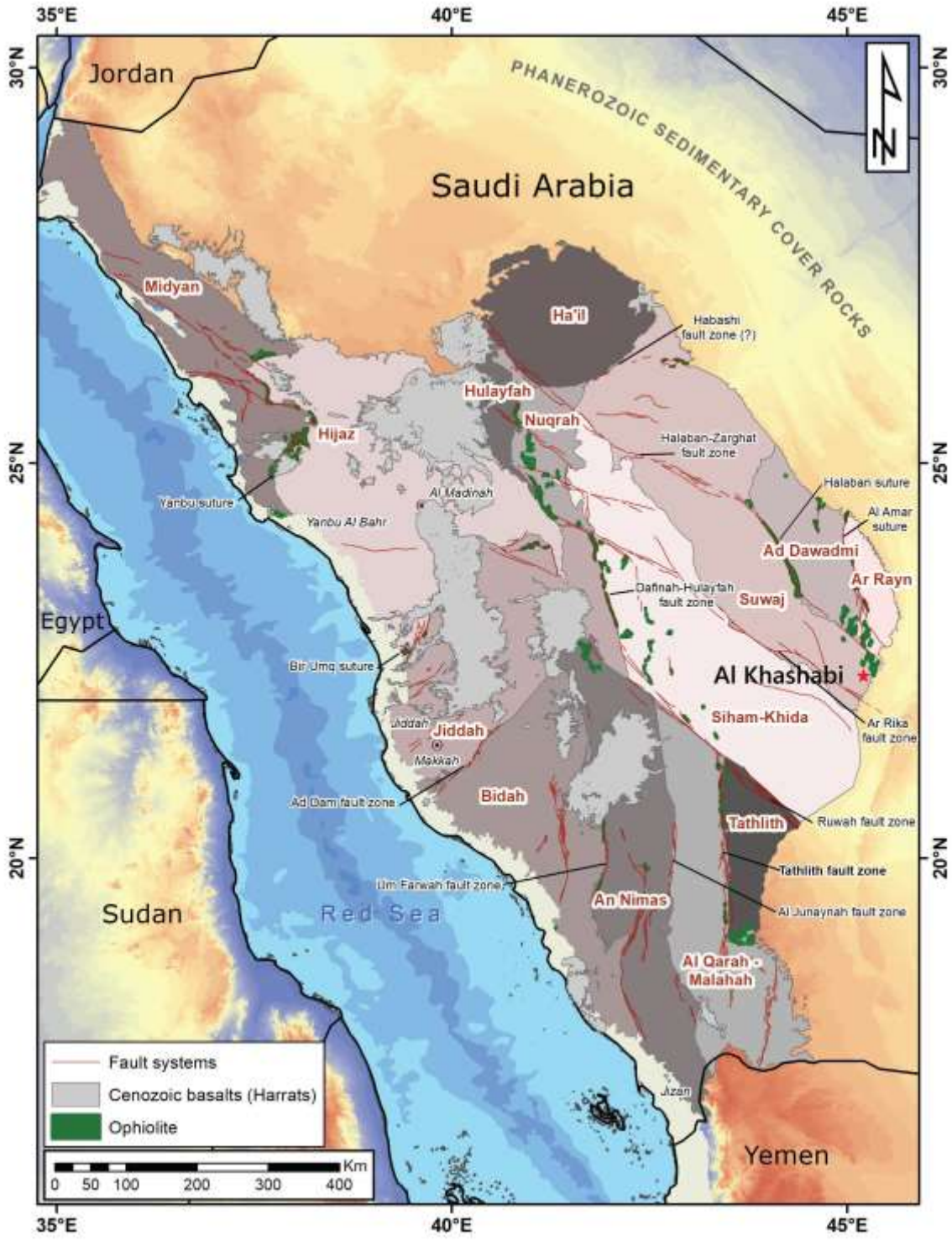
4.1 Regional Tectono-stratigraphic and Geological Setting

Primarily, the Al Khashabi AEP is contained within a dominantly Neoproterozoic accretionary terrane of the Arabian-Nubian Shield (ANS), which in turn comprises the northern juvenile segment of the East Africa Orogen.

Secondly, lying east of the Red Sea, the Arabian Shield component of the ANS, has traditionally been subdivided into a number of major tectono-stratigraphic "terranes" with the Al Khashabi AEP located at the southern end of the Afif Composite Terrane, near the juncture of the Ad Dawadimi and Ar Rayn terranes (**Figure 4-1**).

Figure 4-1

Al Khashabi in relation to the major tectono-stratigraphic terranes of the Arabian Shield



Source: Khasghari et al., (2024)

Thirdly, the Afif Composite Terrane has been divided into a number of sub-terranes, with the Al Khashabi AEP falling within Suwaj sub-terrane, formerly known as the Suwaj Arc (**Figure 4-1**). Here, the KSB AEP can be seen to be bracketed by the Halaban Suture boundary fault to the north and the Ar Rika Fault Zone to the south.

Scoping down further, Hassan et al., (2025), interpret the Suwaj sub-terrane as comprising four major lithological components as shown below:

- Oceanic mafic-ultramafic rocks (the Halaban Ophiolite),
- Cryogenian intrusives (the Suwaj Suite),
- Post-amalgamation sedimentary rocks (the Murdama Group),
- Late-Cryogenian to Ediacaran magmatism (late- to post-tectonic intrusive and volcanics).

The Al Khashabi AEP falls within the latter category.

4.2 Regional Metallogenic Setting

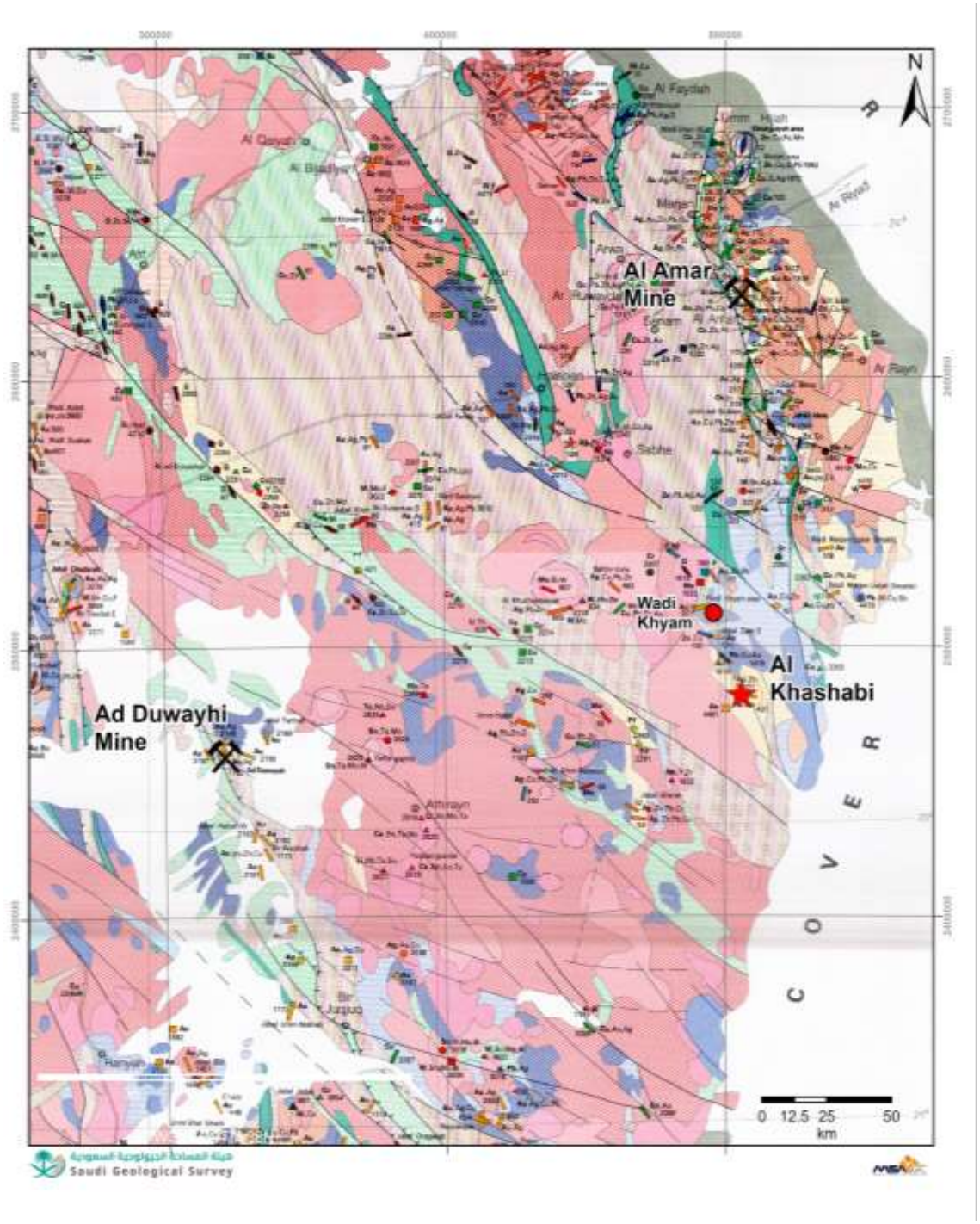
In terms of regional metallogenic setting, the Al Khashabi AEP is located 150 km due south of the Al Amar Au-Zn VMS-epithermal underground mine, which is sited on the N-S trending Al Amar Fault Zone (**Figure 4-2**). Minor gold deposits of the Bitran gold belt also follow this trend south of the Al Amar mine

The next closest major mineral deposit to KSB is the intrusion-related, orogenic gold deposit of Ad Duwayhi, located 140km to the WSW.

However, it's unlikely that the mineralisation at KSB is related to any of the two major mineral deposits described above as they occur in completely different metallogenic and tectono-stratigraphic domains.

Figure 4-2

Al Khashabi AEP in relation to major mineral deposits and mineral occurrences

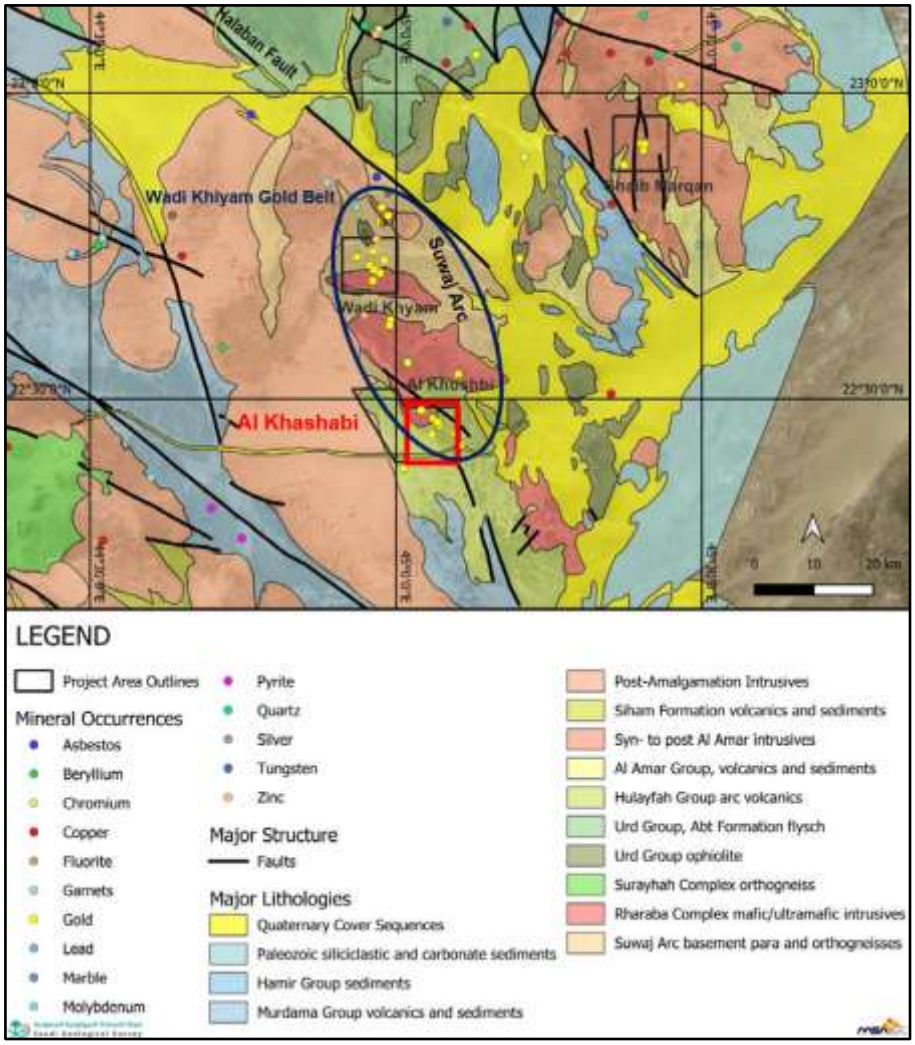


Source: BRGM 1995

Notwithstanding, it noted that the Al Khashabi MODS appear to lie along a 50km, NNW-trending belt, which includes the MODS of the Wadi Khiyam AEP area, 35 km to the NNW. (**Figure 4-3**).

Figure 4-3

Regional gold occurrence trend in the Al Khashabi AEP area.



Source: Ministry of Industry and Minerals, KSA (2024).

4.3 Local Geology and Structure

4.3.1 Geology

Until recently, the most relevant geological map available for the KSB AEP was the forty-year old 1:250,000 Wadi Al Mulayh Quadrangle, Sheet 22 H, compiled by Manivit et al (1985) of BRGM (**Figure 4-4**). This geological map also showed mineral occurrences and ancient mine sites. A revised version of this map in now available online, via the NGD portal, showing the revised geological formational names (**Table 4-1**). Unfortunately, this map does not have the same level of detail as the original BRGM map.

Changes in stratigraphic nomenclature over time and from region to region have made correlations difficult across the Arabian Shield cumbersome and the situation is no different in the AEP area. **Table 4-1** charts formational changes at Al Khashabi since the early 1970s.

Table 4-1
Stratigraphic nomenclature changes in the Al Khashabi area

Former name 1 (1960s)	Former Name 2 (1980s)	Current Name (2000s)
Halaban Formation	Khushaym Formation	Ar Rika Formation
Ruga'an Complex	Rharaba Complex	Burudan Complex

An excerpt from the modified Manivit et al 1985 map (**Figure 4-4**), demonstrates that the east and south the licence area are dominated by volcano-sedimentary units of the Arika Formation (hk), of the Hulayfah Group. These rocks which consist of andesites, rhyolites, dacites and associated pyroclastic rocks which fall under the umbrella of the Hulayfah Group (circa 720 Ma).

Basement diorites, gabbros and gabbro-norites of the Burudan Complex (ru) form an extensive outcrop in the northwest corner of the AEP, juxtaposed against the supracrustal rocks of the Ar Rika Formation. Elsewhere in the region the Burudan Complex returned a whole-rock Rb-Sr radiometric age of +687 Ma and U-Pb isotopic date of 734 Ma.

In **Figure 4-4,** a minor granitic intrusion is seen to cut the Ar Rika Formation in vicinity of MODS 0427, at the site of an ancient Cu-Au mine.

Figure 4-4
Geology of the Al Khashabi AEP



Source: Geological sheet 22H, Manivit et al., 1985 (BRGM)

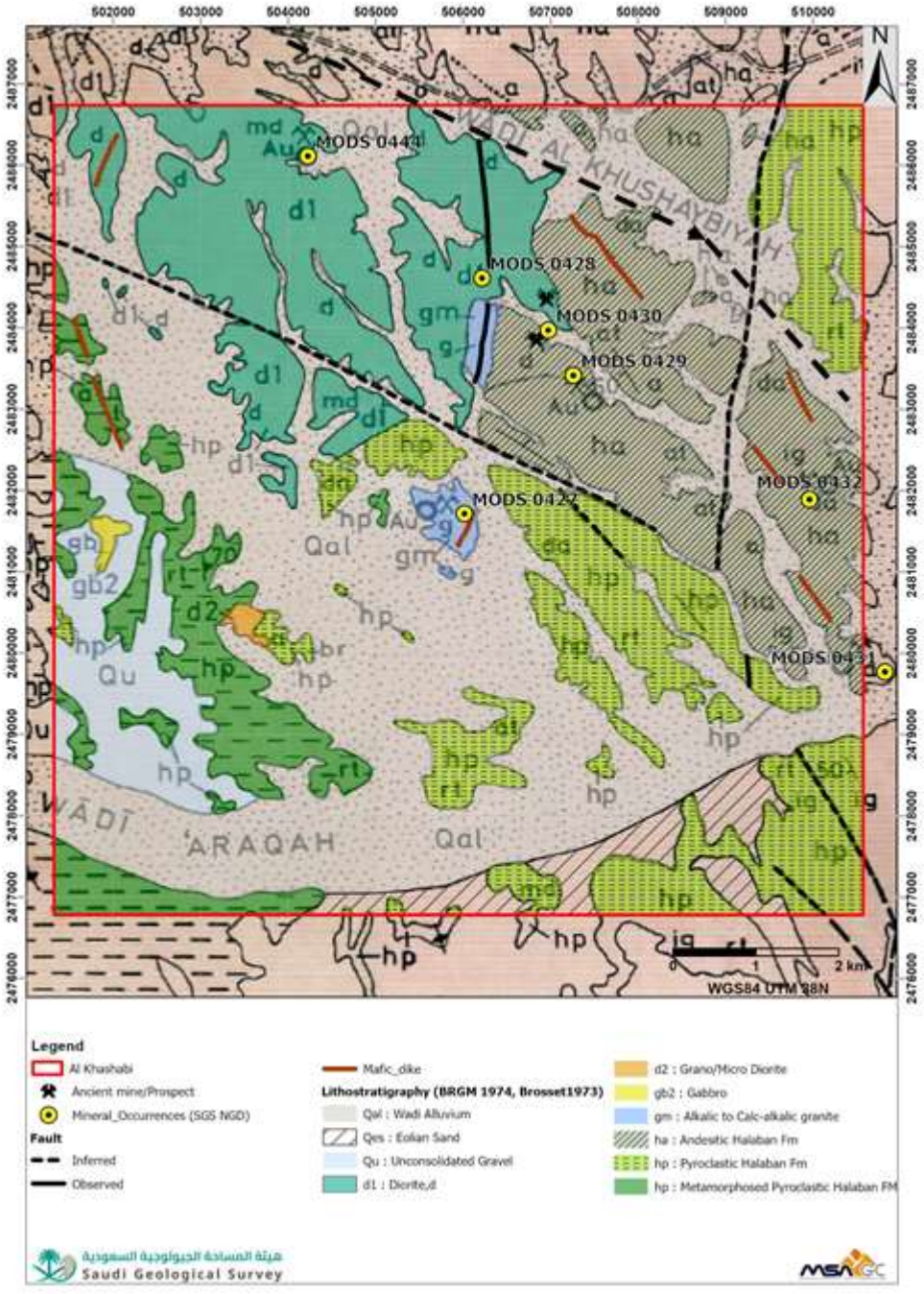
4.3.2 Structure

According to the 1:100,000 geological map produced by Brosset (1973) and subsequently published by BRGM (1974), the main structural framework of the KSB AEP is defined by a set of property-scale conjugate faults (**Figure 4-5**).

A sub-parallel pair of NW-trending faults, which bracket MODS 0428, 0429, 0430, 0432 and 0444, are consistent with the trend of Ar Rika Fault Zone to the south of the AEP and on a more regional-scale with the regional NW-trending Najd Fault System.

A second pair of faults are northerly-trending and may be related to the similarly trending regional-scale structure, the Al Amar Fault Zone, located about 50km east of Al Khashabi.

Figure 4-5
Geological map of the Al Khashabi AEP showing main structures



Source: Modified after BRGM (1974)

4.4 Mineralisation

4.4.1 Overview

Mineralisation at KSB occurs in narrow, discontinuous gold-bearing quartz veins, primarily hosted within meta-volcanic rocks of the Ar Rika Formation and various intermediate to felsic intrusions.

Quartz veins vary from milky white to smoky grey, ranging from 0.3m to 0.70m in width and 30m to 100m in length (Brosset, 1974). The quartz veins are brecciated in places, locally containing abundant malachite with sub-ordinate primary sulphides.

However, it should be noted that due to transfer of survey data across differing map projections and coordinate systems over time, there has been a major data shift in some of the MODS' coordinates that are recorded in the National Geographic Database (NGD), particularly MODS 0429, 0432, and 0444. According to observations carried out during the Stage 4 Execution programme, the correct coordinates for the all the MODS at KSB are shown in **Table 4-2** below.

Table 4-2
Grid Coordinates for KSB MODS (UTM 38N)

MODS_ID	Easting	Northing	Status
MODS 0427	505936	2481764	
MODS 0428	506238	2484506	
MODS 0429	507185	2483447	Revised
MODS 0430	507002	2483830	
MODS 0432	509828	2481921	Revised
MODS 0444	504160	2486174	Revised

4.4.2 Details of the KSB MODS

Prior to the commencement of the 2024-2025 exploration programme, the MODS at KSB had been described following fieldwork by Brosset of BRGM (1973-74) and a brief site visit by Rickards (2022). The work of these authors has been reviewed by Barry (2024) in the Al Khashabi Stage 2 Technical Report.

MODS 0427

- BRGM noted small ancient workings clearly targeting gold mineralisation. The workings comprised a series of trenches, spaced 100m-300m apart, excavated in quartz veins.
- Workings cover a NW-trending zone, about 300m long with an average width of 80 m.

- The host rock to the numerous veinlets is reported as "Halaban" pyroclastics intruded by an "alkali" granite. Two BRGM rock grab samples returned values 7g/t Au and 10g/t Au respectively.
- In a site visit report (Rickards, 2022), describes "*a milky quartz vein 0.7m wide and 70m long trending N15^0 / 50^{0}E in fissile mafic volcanic with minor smoky quartz veinlets to the west and granitic rocks to the east.*" (**Figure 4-6**).
- Barry (2024) noted that MODs 0427 is the most extensive of the KSB workings and returned the highest grades of rock grab samples.
- Remnants of ancient grinding stones where ore was ground were observed by geologists 80m south of the ancient workings during the recent field-programme (**Figure 4-7**).

Figure 4-6
View looking north of major quartz vein (*N15^0 / 50^{0}E*) and ancient workings at MODS 0427



Source: Rickards (2022)

Figure 4-7
Ancient granitic grinding stone found 80m south of the workings at MODS 0427



MODS 0428

- BRGM describe small-scale workings in diorite intruding "Halaban" andesitic rocks with veinlets of quartz, and granite dykelets but there is no record of any sample taken.
- Rickards (2022) notes *on the hill above the working there is a 30m long milky white quartz vein striking N295^0/20^{0}NE in metavolcanic country rock*
- Barry (2024) observes from the legacy reports that quartz veining is largely unexploited by ancient prospectors, intimating limited potential for this MODS.

Figure 4-8
View of ancient working at MODS 0428



Source: Rickards (2022)

MODS 0429

- BRGM describe small and shallow ancient workings consisting of one trench excavated in a quartz vein trending N10^{0}E, cutting metavolcanic rocks.
- The trench is about 20 metres long, one metre wide and 50 centimetres deep
- A single BRGM rock-grab sample from the vein returned an assay value of 1g/t gold
- Rickards (2022) describes a much longer excavation along the same trend at this site that is *"a 100m long line of shallow workings in hematite altered diorite on the eastern contact of a one-metre thick milky white quartz vein that trends at N10^0. The quartz vein is brecciated in places with malachite mineralization"*

MODS 0430

- BRGM record a small group of workings in a similar geological setting to MODS 0428 but there is no mention of any grab rock samples being taken.
- Rickards (2022) observed nearby "*a longer trench here that is 30m long exploiting a milky white quartz vein in a metavolcanic (dacite?), which trends NW-SE. There is minor hematite alteration in the quartz vein and country rock, the quartz vein is brecciated in places*".
- Rickards also reports "*some 20m to the east of the quartz vein that there is a two-metre wide and 200-m long zone of pinkish-white feldspathic alteration with pink crystals of feldspar*"

- Barry (2024) notes the small scale of the workings but suggests that the patchy alteration should be investigated for a possible gold-potassium signature.

MODS 0432

- Extensive malachite-rich quartz vein scree blanketing the landscape (**Figure 4-9**).
- Old workings approximately100m x 50m, oriented to the northwest.
- Milky-white quartz veins, hosted in andesitic volcanics and associated tuffs and breccias concealed by extensive scree.
- Undifferentiated plugs of diorite intruding andesite

Figure 4-9
View of extensive malachite-stained quartz vein scree from old workings at MODS 0432



MODS 0444

- BRGM describes small ancient workings consisting of one trench trending N20^{0}E, 1 5m long, 1m wide and 0.5m deep.
- Abundant quartz-vein scree with localised malachite and hematite staining on quartz on a hilltop
- One grab BRGM rock grab sample returned an assay value of 2.0 g/t Au

- Rickards (2022) describes a 50m-long milky white quartz vein with a N15^{0}E trend in andesite. There are three test pits developed along the quartz vein, varying from 3m to 5m in diameter (**Figure 4-10**).
- Barry (2024) downplays the potential of this MODS due to lack of alteration and disseminated sulphides in the wall-rock of the excavation.

Figure 4-10
Ancient test pit and quartz vein scree at MODS 0444



Figure 4-11
View of the village of Burudan from MODS 0444



4.5 Deposit Model and Controls on Mineralisation

4.5.1 Deposit Model

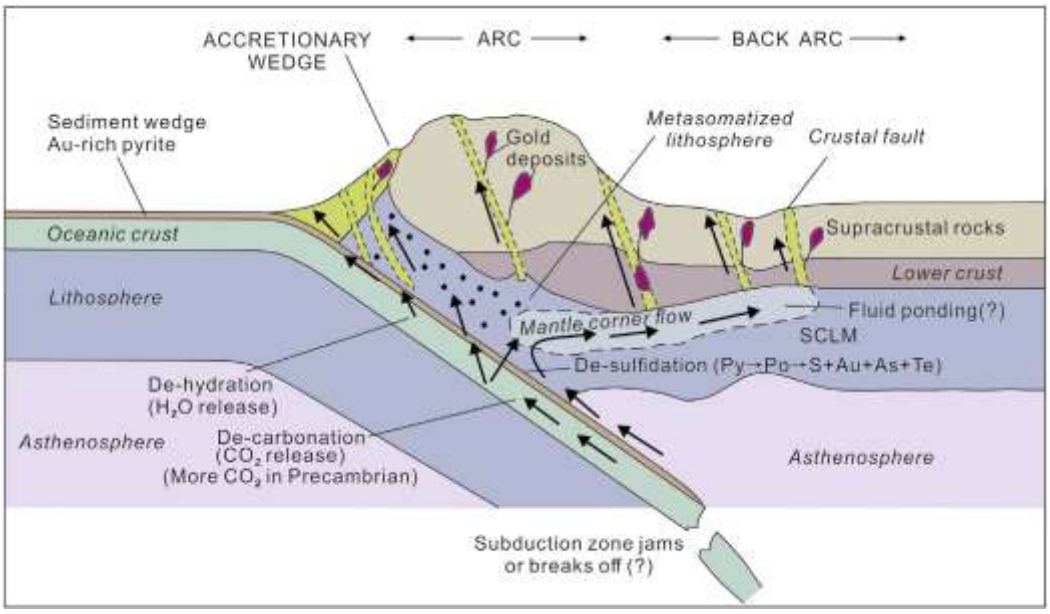
An orogenic lode-gold deposit model has been proposed for Al Khashabi by Robertson (2022).

In essence, orogenic gold deposits are epigenetic Au deposits, plus or minus nominal amounts of base metals. They commonly occur in metamorphic belts of accretionary and collisional orogens. The term was introduced by Groves et al., (1998) as an alternative to "mesothermal" lode-gold deposits, (Lindgren 1933), which in modern times, was considered to be too broad a category.

In terms of structural setting, orogenic gold deposits are invariably located along or adjacent to crustal-scale shear zones, hence often referred to as "shear-hosted" gold deposits. They commonly occur in the brittle-ductile transition zone between greenschist and amphibolite facies metamorphic rocks as quartz-carbonate vein stockworks and breccias. The age of these type of deposits range from Archaean to Phanerozoic.

Recent research, particularly on Chinese examples, invalidates popular continental metamorphic models for the genesis of orogenic gold deposits. Instead, according to Groves (2019), it supports a subduction-related model in which auriferous fluids are released during devolatilisation of the down-going slab and overlying pyrite-bearing sediment wedge or from lithospheric mantle metasomatised and fertilised by that fluid (**Figure 4-12**).

Figure 4-12
Subduction-related model for the formation of orogenic gold deposits



Source: Groves et al., (2019)

Orogenic gold deposits can be classified according to host rock lithology, namely, turbidite-, BIF-, intrusion and greenstone (volcano-sedimentary)-hosted, with Al Khashabi coming under the latter category.

In Saudi Arabia, some noteworthy orogenic gold deposits include As Suq, Jubal Qutman, Bi'r Tawilah, Ad Duwayhi, Sukhaybarat, Bulghah and Mansourah–Massarrah.

4.5.2 Structural Controls on Mineralisation

As noted above in Section 4.1.1, mineralisation at KSB occurs in narrow, milky-white to smokey grey, discontinuous Au-bearing quartz veins, hosted with a range of lithologies, including meta-volcanic rocks diorites and granites. The quartz veins, which range in width from 0.7m to 3.0m, are brecciated in places. Locally, the veins contain abundant malachite as blebby disseminations and fracture coatings, with sub-ordinate primary sulphides. In the 1995 BRGM metallogenic map (**Figure 4-2**), Au and Pb mineral occurrences are recorded in the Al Khashabi.

However, the local structural controls on mineralisation, prior to the commencement of the field programme, are poorly constrained. It is intimated from the available information, as outlined in Section 4.3.2, that mineralisation in the KSB AEP may be controlled either by regional scale NW-trending faults of the Najd System or by northerly-trending faults related to the Al Amar Fault Zone, or by both. The matter of structural controls of mineralisation will be addressed later in this report.

5 SUMMARY OF WORK COMPLETED

5.1 Overview of Exploration Work Programme

The exploration work plan presented below refers to the AEP Phase 2, Cycle 2, Stage 3 Work Program recommended for Al Khashabi. In regard to geological mapping and rock-chip sampling and trenching, the work program was designed around two Priority Focus Areas, PF-01 and PF-02, together totalling 21.1 km^2 (**Figure 5-1**), which contained all the MODS within the licence area. Wadi sampling, was carried out in both priority focus areas and in the remaining 78.9 km^2 of the licence area, referred to as the Regional Focus Area (RFA). A compilation of all the exploration work carried out in the Stage 4 Execution programme is presented in Appendix 1 – Mineral Exploration Map.

PF-01 – Consists of a 18.3 km^2 rectangular corridor centred on Au-related MODS 0428, 0429, 0430, 0430 and 0444 which may be aligned along a regional NW-trending (Najd) structure.

PF-02 – Consists of a 2.8 km^2 area centred on Cu-Au-bearing ancient working (MODs 0427) contained in a granitic stock.

Table 5-1 shows a summary of the initial Work Program as per the Stage 3 report. The indicated quantities are the maximum thought to be achievable in the given timeframe, realised metrics may be less.

The results from the field program during AEP Cycle 2, Stage 4 Execution will determine if the project is moved forward to AEP Cycle 2, Stage 5, which includes Geological Modelling, Exploration Target or Mineral Resource Estimation, Mineral Asset Valuation and preparation of bid packages.

Figure 5-1
Satellite image showing the MODS locations and Priority Focus Areas (PF-01 and PF-02)



The work program was designed in such a manner that the majority of work was planned on the Priority Focus Area, shifting to the Regional Focus Area when activity associated with the Priority Focus Area is on hold (e.g. while waiting for results of geochemical analyses.

However, during the first three months (6 October to 31 December 2024) a number of revisions were made to the program approved in the Stage 3 report. These revisions are described below and also listed in **Table 5-2.**

The timeline of the entire field program from 8 October 2024 until 5 February 2025 is summarised in **Figure 5-2** with the status of each task as of 5th February 2025 presented in **Figure 5-3**.

Table 5-1

Summary of Initial Work Plan (Stage 3 Report)

Task No.	Task	Description	Mapping (km^2)	Geophysical Survey line-kms	Rock Chip Samples	Geochemistry Samples	Trenching (m)	Trench Samples	Drilling (m)	Drilling Samples
Task 1	Airborne geophysics data review	Interpretation of legacy and recent (2021-2023) airborne magnetic survey data.								
Task 2	Remote Sensing	Acquisition and interpretation of ASTER multispectral satellite imagery								
Task 3a	Geological Mapping and Rock-chip sampling	1:500 scale mapping on known mineral occurrences within the Priority Focus Areas	0.15		100					
Task 3b	Geological Mapping and Rock-chip sampling	1:20,000 scale mapping over Priority Focus Areas	21		100					
Task 4	Wadi and Soil Geochemical Sampling	Geochemical sampling in selected areas inside and outside the Priority Focus Areas				1500				
Task 5	Structural Geology Study	Desktop and field based structural geology study	1							
Task 6	Trenching	Trenching within the Priority Focus Area focused on ancient workings and known mineral occurrences					400	400		
Task 7a	Ground IP Survey	Ground IP survey centred on Priority Focus Area		10						
Task 7b	Ground Magnetic Survey	Ground magnetic survey centred on Priority Focus Area		10						
Task 8	Diamond drilling	Drilling of mineralised targets identified by trenching and geological mapping							1000	1000
	QAQC samples	15% (Standards, blanks and Duplicates)			30	225		60		150
	Demobilisation	Demobilise from Burudan to Jeddah by road,								
Task 9	Interpretation and Reporting	Collation, interpretation and presentation of results								

Table 5-2
Summary of Revised Work Programme

Task No.	Task	Unit	Planned	Actual	% Complete	Status and Remarks
Task 1	Airborne geophysics data review	Removed from program				
Task 2	Remote Sensing	Removed from program				
Task 3a	Geological Mapping of five MODs at 1:500	Number of MODs	6	6	100	Completed
Task 3b	Geological Mapping of Priority Focus Areas (PF-01 and PF-02) - 21.1km	km^2	21.1	21.1	100	Complete
Task 3c (revised)	Rock chip sampling	Samples	200	205	102	Completed
Task 4a	Wadi and soil geochemical sampling (Phase 1)	Samples	404	400	99	Completed. Infill sampling (Phase) Not required owing to poor results
Task 4b (added)	Deep Alluvial Wadi sampling	Samples	149	149	100	Completed
Task 4c	Portable XRF analysis of wadi and deep alluvial wadi sub-samples	Samples	561	561	100	Completed
Task 5	Structural Geology Study	Removed from program				
Task 6	Trenching	Metres	240	209	87	Completed
Task 7a & b	Ground IP and Magnetics	Removed from program				
Task 8	Diamond drilling	Removed from program				
Task 9 (added)	Drone DTM Survey	km2	92	92	100	Completed
	QAQC samples	%	5	11.3		

Airborne Geophysics Data Review (Task 1) – Removed

The relevant data from the national airborne geophysical survey data (300m line spacing) produced by Sander Geophysics of Canada in 2022 was downloaded from the NGD portal. However, at the commencement of the Stage 4 field programme in September 2024, only airborne magnetic images, showing gradient-enhanced magnetic anomaly grid reduced to the pole (AMF_RTP), were available on the NGD portal, but no raw data or additional derived products were available at that time. As the regional geophysics had been previously discussed in the preceding KSB Stage 2 report, providing useful context of where Al Khashabi lies in the regional structural framework, it was decided not to proceed with a further airborne geophysics data review. It is appreciated that additional derivative files and data may now be available on the NGD portal and could prove to be extremely useful for future exploration

Remote Sensing (Task 2) – Removed

It was initially intended to acquire and interpret ASTER multi-spectral satellite imagery covering the licence area. However, an investigation into the availability of this public domain data revealed that the resolution of the data would not be sufficient for a detailed analysis and interpretation to be carried out for the Al Khashabi AEP area.

Wadi Sampling and Portable XRF Analysis (Task 4 a) - Revised

During the formalisation of the Stage 3 Report, it was decided to put a cap of a maximum of 1500 wadi samples to be collected during the field program. However, during the planning of the sample sites from satellite imagery during September 2024, it was decided to implement a primary phase of 412 samples and then have these analysed in the field camp by a portable XRF analyser (pXRF). Depending on these results, and possibly geochemical results returned from the ALS laboratory, a further phase of infill sampling would be conducted during the second half of the programme.

Deep Alluvial Wadi Sampling (Task 4b) - Added

This task was added in December 2024 in order to test the extensive area of deep alluvial and aeolian cover that blankets the southwestern half of the AEP.

Structural Study (Task 5) - Removed

It was originally planned to invite a structural special to site for a week to give an extra dimension to the geological mapping and trenching programs. However, by the end of December 2024, the findings from geological and structural mapping of the MODs, Priority Focus Areas (PF-01 and PF-02) and trenches was not of sufficient significance to warrant such a visit.

Trenching (Task 6) – Revised

In the Stage 3 report, 400m of trenching were assigned. However, observations made from geological mapping indicated that only 240m of ground were deemed to be worth trenching, comprising four trenches in total.

Ground geophysics survey (IP and Magnetics (Tasks 7a &b) - Removed

By late November 2024, a geophysical contractor could not be sourced and a decision was taken to remove the ground geophysics option from the field program. In any event there were no compelling targets generated by geological mapping.

Diamond Drilling (Task 8) – Removed

As for the ground geophysics surveys, the lack of drillable targets generated by geological mapping and also trenching, led to the removal of the diamond drilling option from the field program.

Drone Digital Terrain Model (DTM) - Added

An aerial (drone) DTM survey of the entire licence area was carried out over the project area in December 2024. The survey data has been used to provide base maps for geological mapping and to assist in geological interpretation of landforms by remote sensing.

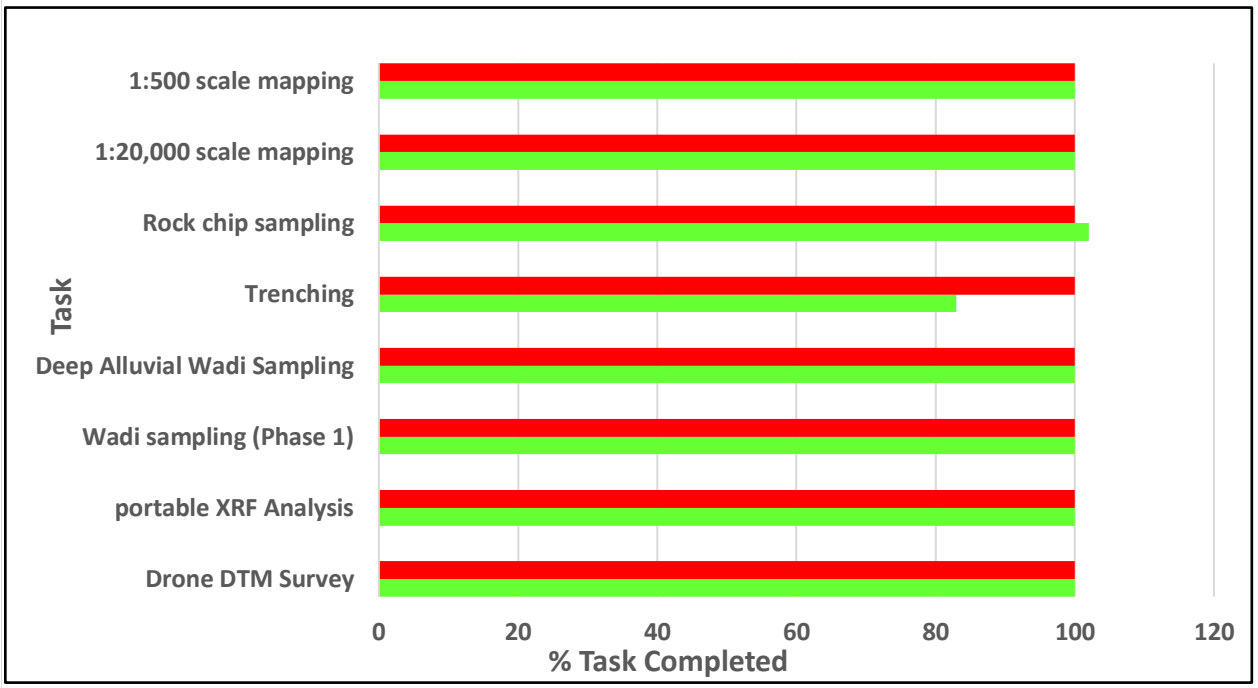
Figure 5-2

Timeline of exploration work programme at KSB, October 2024-February 2025



Figure 5-3

KSB task completion status as of 5 February 2025



5.2 Mapping and Sampling

5.2.1 Overview

Geological mapping and rock chip sampling planned for Al Khashabi was designed to identify geological features associated with gold and base metal mineralization and locate them with suitable precision. This was required in order to design follow-up trenches, expand the understanding of the mineralization system as a whole, collect samples to indicate potential grades and widths, and to identify geological features or indications of mineralization in areas within the AEP that were unknown

As outlined in Section 5.1 geological mapping and rock chip sampling were carried out in tandem in two target areas (**Figure 5-1**):

PF-01 – an 18.3 km^2 rectangular corridor centred on Au-related MODS 0428, 0429, 0430, 0430 and 0444 which may be aligned along a regional NW-trending (Najd) structure.

PF-02 – a 2.8 km^2 area centred on Cu-bearing ancient working (MODs 0427) contained in a granitic stock.

Mapping was carried out at two scales:

- Mapping of the MODs at 1:500.
- Mapping of the remaining area of the Priority Focus Areas (PF-01 and PF-02) at 1:20,000 scale.

Figure 5-4
Geological mapping team surveying the terrain at KSB



Rock chip sampling across this regional area was designed to confirm reports of existing mineralisation and identify new areas of potential mineralisation (**Figure 5-5**).

The following team was used to carry out the work geological mapping and rock-chip sampling:

The composition of the GCMSA team to carrying out geological mapping and rock chip sampling and the corresponding cumulative man-days required to complete the task is shown in **Table** 5-3

Figure 5-5
Typical rock-chip sample collected from potentially mineralised outcrop at Al Khashabi



Table 5-3
Summary of GCMSA manpower involved in the geological mapping and rock chip sampling programme.

Designation	Number of Staff	Man-Days
Senior Geologist	1	105
Exploration Geologist	0	0
Geotechnician	1	105

5.2.2 Methodology

The mapping and rock chip sampling programme was conducted under standard operating procedures **A05 SOP Field Mapping** and **A07 Grab and Chip Sampling.**

A base map was used showing the target areas overlying detailed satellite imagery. Mapping was conducted along traverses in a systematic fashion and by following lithological contacts and structural features. Mapping traverses were closely spaced in the Priority Focus area and Regional Focus area whereas they were widely spaced for the Reconnaissance mapping. The surface samples

were systematically collected over the Target Areas identified, across the exposed outcrops of alkali granites. The samples collected weighed 1–3 kg. Mapping and sampling focused on delineating potential zones of mineralization: e.g., zones of intense alteration, structural traps, etc.

The following procedure was followed during the surface mapping and sampling activities:

- A Garmin hand-held GPS was used to record track logs and observation waypoint coordinates and a standardized sheet used to record field observations (coordinates; waypoint number; lithology; colour; grain size; texture; weathering; structure, strike, dip, dip direction, alteration, mineralization, sample ID, photograph).
- Geological contacts and structures were drawn on the hardcopy base map. Additional notes and sketches were recorded in a field book together with photographs of relevant geological features.
- At each sampling site, the point location was taken and saved as a waypoint using a handheld GPS, and samples numbered in sequential order (KSBSS701, KSBSS702, etc).
- The GPS position format was set to UTM UPS and the Map Datum to WGS 84. The geological compass was adjusted for the magnetic declination applicable to the activity area at the time of the activity (in this case 3.53 degrees east of true north).
- Structural measurements were taken using a Brunton or Silva compass using the right-hand rule. The compass was corrected to account for local magnetic declination of 3.53 degrees east of north. The location of each observation point was noted.
- Field sampling sheets were completed on a daily basis. Geological contacts and structures were drawn on the hardcopy base map, and corresponding sketches and descriptions recorded in the field notebook. Samples were taken on fresh rock and representative of the potentially mineralized rock.
- Daily export: all data captured via the GPS units were uploaded each day after the completion of the day's field work.
- Data were subsequently captured in LogChief ™ loaded in tablets. The captured data were synchronized and uploaded on server.
- Photography was carried out in landscape format as standard, with a scale such as a hammer, pencil, compass or GPS. Photos were labelled as per the relevant sample number.
- A geological hammer and chisel were used to collect representative rock samples.
- Samples were placed in plastic sample bags, sample tickets inserted, and the bags fastened with cable ties. A sequential sample number was also written on the face of the bag with a permanent marker. The sealed bag was placed in a second bag with the second sample ticket inserted in the outer bag and tied with a cable tie.
- In the ticket book, a short description was written as a reference, such as sample location, type and position.

- Sampling positions: point features were created in a GIS environment with attributes allowing for type of sample (Grab/Rock Chip), sample number, description, element(s) analysed for, laboratory result and measurement unit, for example ppm, for each element.
- Interpretation of data was carried out by creating Geology polygon features in a GIS environment allowing for the capture of attributes such as rock type, code and description. The colours and hatching were taken from the SGS Dictionary.

5.3 Wadi Sampling

5.3.1 Overview

Following the completion of the Stage 3 report, the GCMSA General Manager (GM) for the project planned a total of 404 sample sites from satellite imagery for Phase 1 of the programme. (**Figure 5-6**). These sample sites are largely confined to 3^{rd,} 4th and 5th order wadis, less than 50m wide, in the rocky northeast half of the licence area. The instigation of second phase (Phase 2) of infill wadi sampling was contingent on the geochemical results obtained from Phase 1.

The extensive plain of alluvial and aeolian cover which blankets the southwest half of the license, was considered to be beyond the scope of standard wadi sampling practices and is addressed in Section 5.4 – Deep Alluvial Wadi Sampling.

The composition of the GCMSA team to carrying out the wadi sampling and the corresponding cumulative man-days required to complete the task is shown in **Table 5-3**. It should also be noted that two or three labourers were also employed to help with the manual work.

Table 5-4
Summary of GCMSA manpower involved in the Geological mapping and wadi sampling programme.

Designation	Number of Staff	Man-Days
Senior Geologist	0	0
Exploration Geologist	1	60
Geotechnician	1	60

Figure 5-6

Map showing location of all wadi sample sites planned from satellite imagery for Phase 1

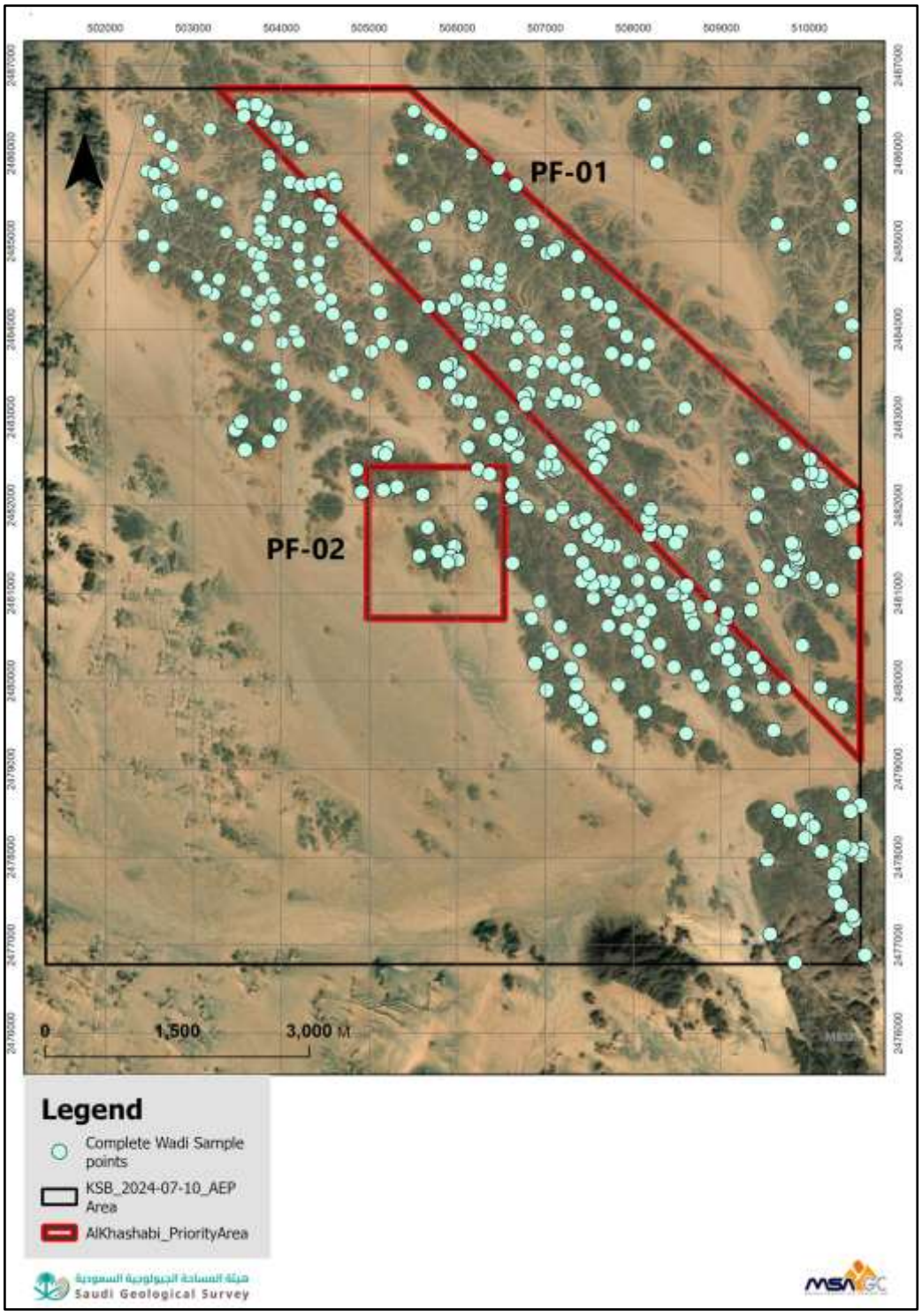


Figure 5-7
Wadi sampling in the Al Khashabi AEP



5.3.2 Methodology

The wadi sampling programme was conducted under standard operating procedures as detailed in **A09 Soil/Wadi Sampling.** Sampling was carried out in accordance with the protocols of the Geochemical Survey of Arabian Shield (GSAS) stipulations, especially in regard to sample fraction, (<2mm, >0.25m). In addition, general guidelines were drawn up by the GCMSA General Manager for the project, based on the SGS and GSAS protocols just referenced. The guidelines are as follows:

1. Bulk sample material is to be extracted at a minimum depth of 30cm at a pre-ordained site selected by the Project General Manager (GM). However, In the higher order wadis, it may not be possible to obtain this depth at every sample site. In cases such as these, depths of 10-20cm are acceptable, but careful note of the sample depth should be made in the sample record sheet.

2. Samples are to be taken at least 100m upstream from any disturbed ground (alluvial workings for example) or any human settlement, wherever possible.

3. If a sample cannot be taken at the allocated sample site, due to an obstruction such a tree or rock outcrop, then the sample site can be moved up to 5m without a new sample site being designated.

4. If for any other reason the sample cannot be taken at the allocated sample site, the head of the sampling team (Exploration Geologist) is authorised to relocate the sample site a maximum distance of 50m within the same wadi channel.

5. Samples are to be dry-sieved at the sample site usings stainless steel 30cm-diameter 2mm (10#) and 0.25 mm (60#) sieves to capture a sample fraction of <2mm to >0.25mm. The sample is to be collected in a 30cm stainless steel pan, then transferred to a doubled-up Ziplock plastic sample bag, labelled and photgraphed

6. A 30cm diameter stainless steel 5mm (4#) sieve will also be provided for instances where very coarse wadi material is encountered.

7. If the bulk sample material is deemed to contain any significant mositure, then the sample should not to processed. No degree of wet sieving is permitted

8. All sieves and sampling equipment are to be thoroughly cleaned after each sample collection. In addition, when reaching the next sample site, the sieves should be flushed through with material from the new sample site before the new sample is processed.

9. The optimum sample weight of sieved fraction is 2kg but 1.0kg to 1.5 kg is acceptable at sites with limited sample material. A note should be made in the sample record sheet in such cases.

10. Sieved samples are to be homogenised at the sample site using the "roly-poly" method on a $1m^2$ sheet of tarpaulin on the ground. The tarpaulin should be throughly dusted down after each sample is taken. In addition, a fresh sheet of tarpaulin should be used for each new working day. This homogenisation process is required in order to facilitate

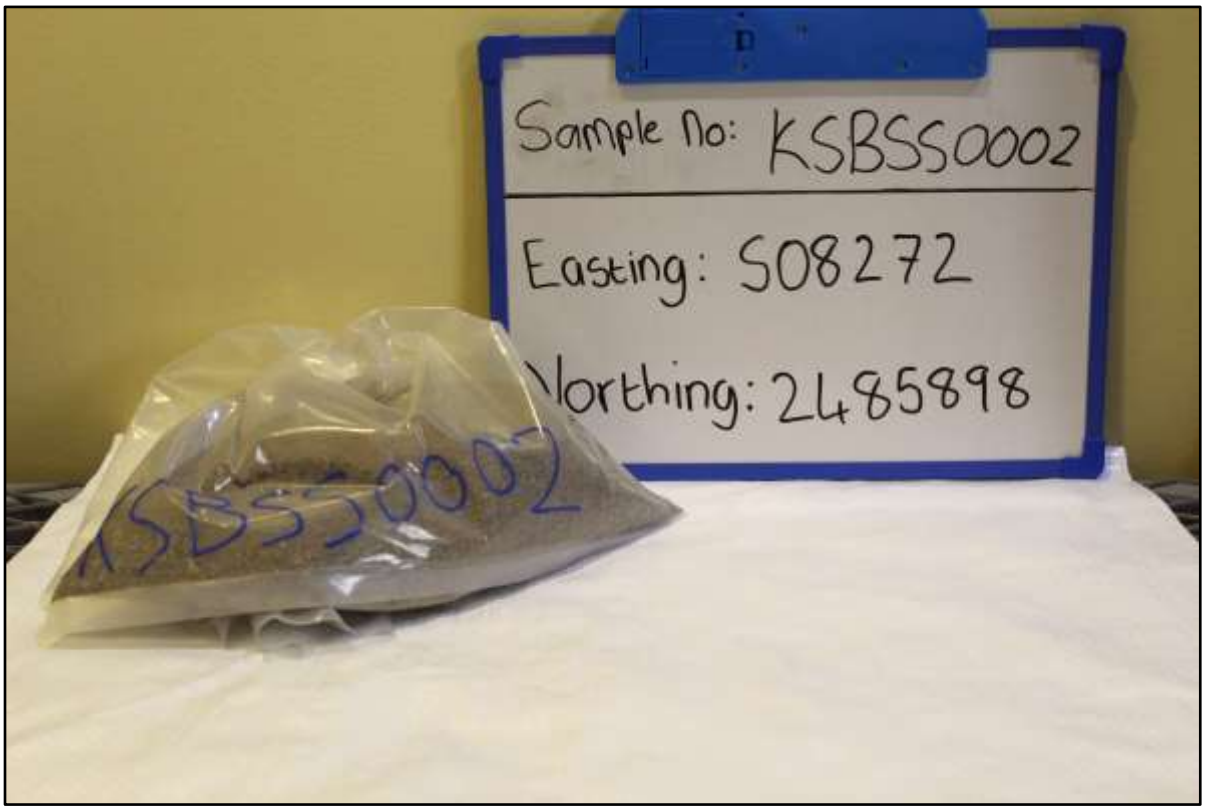
11. A 100-150g scoop split for each homogenised sample to be collected in a Kraft paper bag for portable XRF analysis at base camp (see separate SOP for pXRF analysis). The pXRF split sample should be allocated the same "actual" sample ID as the parent sample but with the suffix "px" added.

12. The sampling team should make special note if a whitish-grey or cream powder is encountered in the sample profile, as this often reflects the presence of caliche (a calcium-magnesium carbonate) whose presence in the sample may have an adverse effect on the analytical process.

13. All sieved samples, along with XRF splits, are to be photographed on a mini-whiteboard with sample number clearly visible and the coodinates of the sample written on the whiteboard

with a non-permanent marker (**Figure 5-8**). The photography should be carried out at base camp at the end of each working day.

Figure 5-8
Example of wadi sample photographic record



14) As for contol samples, one blank and one field (variance) duplicate sample should be inserted every 20 samples on an alternating basis. No Certified Reference Material samples (CRMs) will be necessary given the anticipated low of concentrations of Au and pathfinder elements. The field (variance) duplicate sample should be taken within 3m of the original sample, if possible, 10m at the outset. The designation of laboratory duplicates will be the responsibilty of the project GM.

15) In order to avoid any possible contamination, members of the sampling team should avoid weaing metallic jewellery on their hands and wrists. Extreme caution should also be exercised if Zn-based sun-screen cream has been applied to exposed skin.

16) In no way, should sampled material be forced through the sieves by hand or by otherwise.

17) After sampling is complete, the hole from which the sample was extracted should be backfilled.

18) It is the responsibility of the sampling team leader to visually check for obvious oversize material in the sample fraction. The percentage of oversize material should be then be recorded and the Senior Geologist alerted immediately.

19) Soil samples, whenever taken, are to be collected and processcessed along the guidelines presented above.

20) Wadi sample data should be recorded in accordance with the standard Sample Data Record Sheet (**Figure 5-9**).

21)

5.4 Deep alluvial wadi sampling

5.4.1 Overview

In order to sample the extensive alluvial and aeolian cover that blankets the southwestern half of the licence area (**Figure 5-10**), 10 test pits were initially opened by excavator in order to gauge the depth and nature of cover. This revealed that a thin veneer <0.50m aeolian sand mantled alluvial and alluvial flood plain deposits, resting on a residual soil substrate.

Following this, a series of 149 sample sites were planned on a grid pattern of 400m x 100m for deep (1.5m) alluvial sampling, with the assistance of an excavator (**Figure 5-11 and Figure 5-12**). For safety reasons, a depth-constraint of 1.5m was strictly imposed for excavations in unconsolidated material. All samples collected were taken from a depth of 1.5m

The composition of the GCMSA team to carrying out the wadi sampling and the corresponding cumulative man-days required to complete the task is shown in **Table 5-5**. It should also be noted that two or three labourers were also employed to help with the manual work.

Table 5-5
Summary of GCMSA manpower involved in the wadi sampling programme.

Designation	Number of Staff	Man-Days
Senior Geologist	0	0
Exploration Geologist	1	60
Geotechnician	1	60

Figure 5-9

Example of Wadi Sample Data Record Sheet

Planned Sample_ID	Planned Easting	Planned Northing	UTM Zone	Actual Sample_ID	Waypoint Number	Actual Easting	Actual Northing	Sample Fraction	Sample weight (kg)	pXRF Sample_ID	Name of Sampler	Sample Date	Sample Depth (cm)	Photo1_ID	Photo2_ID	Remarks (examples)
Blank																
KSB_WAD_0289	506272	2485898	38 Q	KSBSS0002	LKSB0001	506272	2485898	<2mm (10#), >0.25m	2	KSBSS0002pX	Linda Sithole	10/12/2024	30	KSB_WAD_0289_PH001_2024-10-12	KSB_WAD_0289_PH002_2024-10-12	A mixture of fine silt/clay through to coarse gravel along a shallow dipping dry drainage area. The location point is adjacent to a diorite acres. Minimal dry/ dead vegetation is present.
KSB_WAD_0006	506465	2485842	38 Q	KSBSS0003	LKSB0002	506466	2485836	<2mm (10#), >0.25m	2	KSBSS0003pX	Linda Sithole	10/12/2024	30	KSB_WAD_0006_PH001_2024-10-12	KSB_WAD_0006_PH002_2024-10-12	The original location point had to be moved 5m south due to the amount of diorite boulders and cobbles within the drainage system. The new location was along the banks of the valley where there river would normally have minimal energy. Dry grass was present in the area.
KSB_WAD_0008	506665	2485641	38 Q	KSBSS0004	LKSB0003	506665	2485641	<2mm (10#), >0.25m	2	KSBSS0004pX	Linda Sithole	10/12/2024	30	KSB_WAD_0008_PH001_2024-10-12	KSB_WAD_0008_PH002_2024-10-12	A mixture of fine silt/clay through to cobble sized diorite along the bank of the drainage area. Minimal dry/ dead grass is present in the location.
KSB_WAD_0312	507145	2484943	38 Q	KSBSS0008	LKSB0007	507142	2484947	<2mm (10#), >0.25m	1.8	KSBSS0008pX	Linda Sithole	10/13/2024	30	KSB_WAD_0312_PH001_2024-10-13	KSB_WAD_0312_PH002_2024-10-13	sample is taken from a west dipping drainage system. The area is comprised of cobbles and coarse gravel that is associated with sand, silt and clay. This area is calcareous at required depth.
KSB_WAD_0310	507022	2484864	38 Q	KSBSS0009	LKSB0008	507019	2484863	<2mm (10#), >0.25m	2	KSBSS0009pX	Linda Sithole	10/13/2024	30	KSB_WAD_0310_PH001_2024-10-13+P9:P12	KSB_WAD_0310_PH002_2024-10-13+P9:P12	The location point has an eastern dip and it is comprised of coarse gravel, sand, silt and clay material with minimal vegetation.
KSB_WAD_0311	507101	2484834	38 Q	KSBSS0010	LKSB0009	507373	2484833	<2mm (10#), >0.25m	1.8	KSBSS00010pX	Linda Sithole	10/13/2024	30	KSB_WAD_0311_PH001_2024-10-13	KSB_WAD_0311_PH002_2024-10-13	The sampling location is positioned within northwards dipping drainage system that is comprised of some cobbles. Coarse gravel, sand silt and clay material. Dry vegetation is present in the area.
KSB_WAD_0401	505727	2485270	38 Q	KSBSS0017	LKSB0016	505735	2485272	<2mm (10#), >0.25m	2	KSBSS00017pX	Linda Sithole	10/14/2024	30	KSB_WAD_0401_PH001_2024-10-14	KSB_WAD_0401_PH002_2024-10-14	The location point was positioned within a south dipping drainage system with coarse gravel fragments of diorite, associated with sand, silt and clay. "pyroclasts" and some meta volvanics were observed. Minimal vegenation was documented.
KSB_WAD_0075	505880	2485396	38 Q	KSBSS0018	LKSB0017	505881	2485397	<2mm (10#), >0.25m	2	KSBSS00018pX	Linda Sithole	10/14/2024	30	KSB_WAD_0075_PH001_2024-10-14	KSB_WAD_0075_PH002_2024-10-14	This sampling point was north-east of KSB_WAD_0401. Sampling was also conducted within a southward drainage system comprised of gravel, sand, silt and clay material; coarser material is found at depth. Animal droppings, dry vegation and ants were documented.
KSB_WAD_0403	506222	2484735	38 Q	KSBSS0019	LKSB0018	506216	2484733	<2mm (10#), >0.25m	2.2	KSBSS00019pX	Linda Sithole	10/14/2024	30	KSB_WAD_0403_PH001_2024-10-		The location point is within a southward drainage system comprised of sand, silt and clay with minimal gravel and vegation is documented.
Field duplicate of KSB_WAD_0403				KSBSS0020	LKSB0029	506213	2484736	<2mm (10#), >0.25mm (60#)		KSBSS00029pX	Linda Sithol	10/15/2024	30	KSB_WAD_0403_PH001_2024-10-		This sample is collected within the same drainage system as KSB_WAD_0403, however 3 m up stream.
KSB_WAD_0346	506186	2484568	38 Q	KSBSS0021	LKSB0019	506194	2484572	<2mm (10#), >0.25m	2.4	KSBSS00021pX	Linda Sithole	10/14/2024	30	KSB_WAD_0346_PH001_2024-10-14	KSB_WAD_0346_PH002_2024-10-14	The point is within a drainage system that is comprised of coarse grravel through silt material infill. Oxide rich milky to glassy Quartz cobbles and pebbles are common in the area in association with diorite and metavolcanic cobbles.
KSB_WAD_0349	506156	2484536	38 Q	KSBSS0022	LKSB0020	506156	2484536	<2mm (10#), >0.25m	2	KSBSS00022pX	Linda Sithole	10/14/2024	30	KSB_WAD_0349_PH001_2024-10-14	KSB_WAD_0349_PH002_2024-10-14	The point is within a drainage system that is comprised of coarse grravel through to silt material infill. Oxide rich milky to glassy Quartz cobbles and pebbles are common in the area in association with diorite and metavolcanic cobbles.
KSB_WAD_0345	506259	2484547	38 Q	KSBSS0023	LKSB0021	506269	2484550	<2mm (10#), >0.25m	2.2	KSBSS00023pX	Linda Sithole	10/14/2024	30	KSB_WAD_0345_PH001_2024-10-14	KSB_WAD_0345_PH002_2024-10-14	The area is mainly comprised of cobbles, coarse gravel through to silt within a dranag system with minimal vegetaion. Diorite and quartz cobbles are common in the area.

Figure 5-10
Map showing expansive area of alluvial and aeolian cover

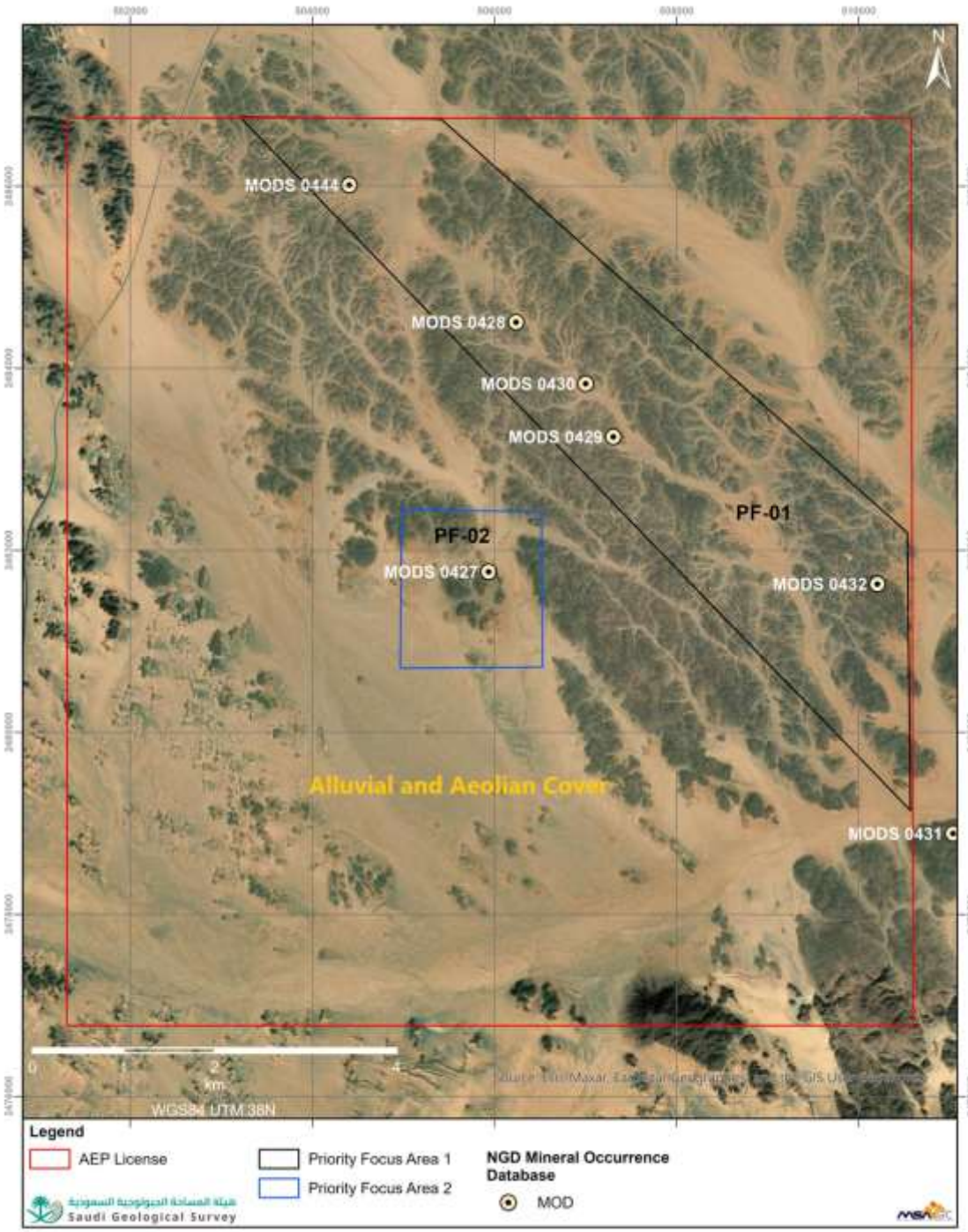


Figure 5-11

Map showing location of deep alluvial wadi samples



5.4.2 Methodology

The methodology and protocols used for the deep alluvial wadi sampling are the same as those described for the standard wadi sampling, described in Section 5.3.2 above. The only significant difference is the minimum sample depth of 1.5m as opposed to 30cm. One point that was emphasised in the deep alluvial program was in regard to aeolian material. If Aeolian sand was still encountered at a depth of 1.5m, then no sample would be taken.

Figure 5-12
Deep alluvial wadi sampling with the assistance of an excavator



5.5 Portable XRF analysis of wadi samples

5.5.1 Overview

A 150g homogenised split of the parent wadi sample was taken at the sample site for portable XRF (pXRF) analysis, with particular attention paid to Au path finder elements such as Cu, Zn, Pb, As, Bi and W. The device used is a Niton XL3t Gold+ model (**Figures 5-13, 5-14 and 5-15**).

This plan was implemented in order to give preliminary geochemical results ahead of the ALS laboratory results so that follow up field work could be undertaken at the soonest opportunity., with the lag time for laboratory results. Originally it was planned that all the pXRF analysis would be carried out at the field camp. However, due to technical and logistical problems, it was decided to move the analysis site to a controlled environment in the SGS compound in Jeddah. A total of 561 wadi and deep alluvial wadi sub samples were analysed, plus the appropriate a number of field duplicates.

Table 5-6
Summary of GCMSA manpower involved in the pXRF analysis programme.

Designation	Number of Staff	Man-Days
	0	0
Exploration Geologist	1	11
Geotechnician	1	5

Figure 5-13
GCMSA Exploration Geologist undertaking pXRF analysis



Figure 5-14
pXRF analyser interfaced with laptop

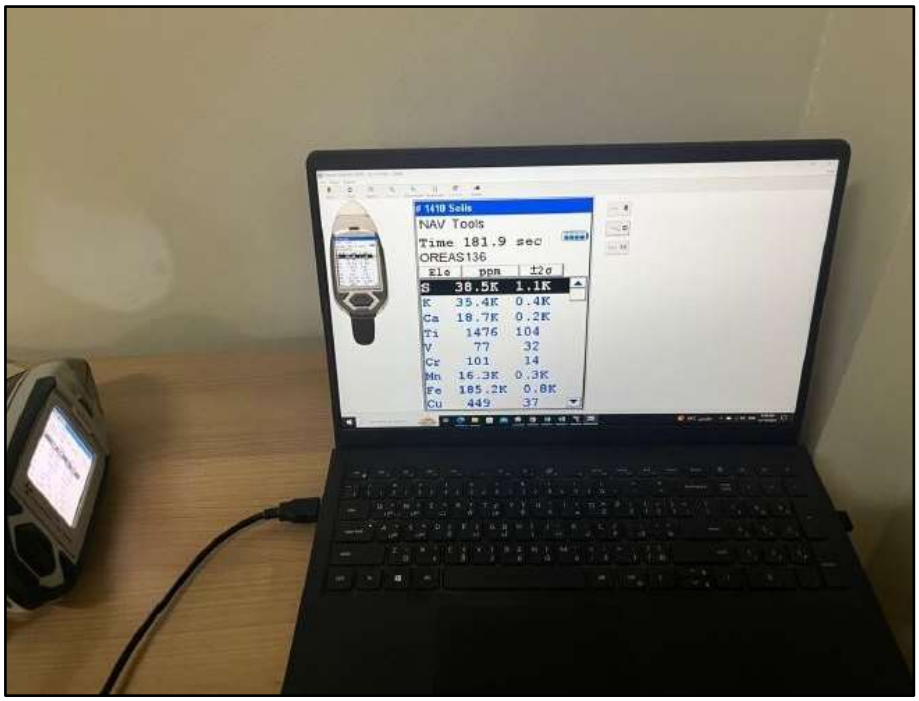


Figure 5-15
KSB_wadi sub-samples laid out for pXRF analysis



5.5.2 Methodology

The portable XRF analysis of wadi samples was carried out in accordance with the draft SOP-Sample Analysis by Portable X-Ray Fluorescence (pXRF) Anlayser for Elemental Determination. V1 (September, 2024).

Prior to the start of the programme, the accuracy of the instrument was measured against commercial Certified Reference Materials (CRMS) such as OREAS 611b, silica blanks, and also against the geochemical results of 10 sample pulps from another project (Jabal Akkash), which had been analysed in the SGS chemical laboratory by ICP-OES analysis in August 2024.

During the daily pXRF analytical sessions, regular system checks were carried out, alternating every 20 samples or so with the testing of the instrument standard (CCRMP TILL-4PP 180-646) and silica blank. Checks were also run against the commercial standard OREAS 611b.

On a normal working day, allowing for a 60 to 120-second analysis time, some 40-45 routine samples could be processed.

5.6 Trenching

5.6.1 Overview

Based on geological mapping data, only 240 line-metres of ground were deemed to be worth trenching, and (**Table 5-7**). Two trenches were excavated at MODs 0427 (**Figure 8-6**) and two at MODs 0432 (**Figure 8-2**). Unfortunately, the excavator encountered difficulties in the hard rock at trench TR04, at MODS 0427 and only 206 m (86%) of the program was completed.

Trenching was started on 14 December 2024 with all excavations, sampling and logging completed by the end of the month.

Table 5-7
Schedule of trenching at Al Khashabi

Trench_ID	Planned Length (m)	Actual Length (m)	Coords_Start_x	Coords_Start_y	Azimuth	Comments
KSB_TR_001	50	49	509800	2481925	90	MODS 0432 (Cu)
KSB_TR_002	80	52	509820	2481950	90	MODS 0432 (Cu)
KSB_TR_003	50	47	505860	2481700	90	MODS 0427 (Au)
KSB_TR_004	60	58	505920	2481720	65	MODS 0427 (Au
TOTAL (m)	240	206				

Figure 5-16
GCMSA geologists carrying out sampling at trench KSB_TR_01, MODS 0432



Table 5-8
Summary of GCMSA manpower involved in the trenching.

Designation	Number of Staff	Man-Days
Senior Geologist	1	15
Exploration Geologist	1	15
Geotechnician	1	10

5.6.2 Methodology

The objective of the trenching program is to characterize the style of mineralization and controls on mineralization, obtain grade and width data, and to use the results to inform the drilling

program. The trenching program was conducted using standard operating procedure **A09 SOP Trenching**.

5.6.2.1 Location and Excavation

The location of the trenches was established in the field by the Senior Geologist. The start and end of every trench was sited with a handheld GPS. A peg with the trench ID was hammered into the ground at the start and end point of the trench and marked END and START. As a convention, the start of each trench was at the southern or eastern end of the trench.

- Trenches were planned and sited in the field such that they were perpendicular to the strike of the exploration target.
- The excavator operator was shown the exact position of the trench including width, depth, and length prior to commencing excavation.
- Where steeper slopes existed that could have affected excavator stability, the trench direction was on or as close as possible to the direction of maximum slope angle, irrespective of the dip direction of the mineralized or target structure (i.e. a direction where the excavator itself is not leaning over sideways to any potentially dangerous extent).
- A rock breaker attachment was used to expose harder intervals.
- Danger tape was used to demarcate the perimeter of the excavations.

Excavation of each trench was monitored and inspected by an Exploration Geologist to ensure that the trench was excavated to the required length, width and depth.

5.6.2.2 Trench Mapping

Trench mapping guidelines followed include:

- The trench was metre marked using a tape measure from left to right, with vertical white lines spray painted (non-lead paint) every metre on the wall (**Figure 5-14**). This assisted with mapping.
- Mapping started at the same side on both the sidewall and floor of the trench, which would be the north or west facing side. However, a few trenches were mapped on the south facing side in the event of better exposed intersections on that side. Mapping was undertaken from left to right along the face and floor of the trench.
- The trench wall was mapped on millimetre-scale graph paper, including overburden depth, rock type, alteration and mineralisation. Mapping was done prior to sampling.
- Photographs were taken of any interesting aspect of the geology, structure, alteration or mineralization.
- The Exploration Geologist responsible for the mapping supervised and guided the sampling team.

- All information recorded for each trench was entered into a TRENCH_SAMPLING_SHEET.

5.6.2.3 Trench Sampling

The Senior Geologist planned the trench sampling once the mapping was completed. Where lithology was consistent throughout the trench exposure, samples were collected on a metre basis Sample widths were adjusted where there were changes in lithology, alteration, mineralisation or structure. The Senior Geologist completed the TRENCH_SAMPLING_SHEET with coordinates and azimuth at the zero end of the trench, plus sample numbers, from and to positions, and where standards and blanks were to be inserted. This sheet was given to the Exploration Geologist undertaking the sampling. Sampling was done in the same direction as the direction of mapping.

5.6.2.4 Sampling Procedures

- The sample interval was taken from the sampling sheet prepared during mapping.
- Trench channel sampling was carried out using a geological hammer, with even chipping horizontally along the sidewall of the trench at least 20 cm above the floor, with a collecting tray beneath.
- A sample of 1.5 kg to 2 kg size was collected from each sample interval.
- Each sample was placed in a plastic sample bag and one of the tear-off sample tickets placed inside the bag. The bag was then tied with a cable tie. The sample was double bagged by placing it into another sample bag and the second tear-off ticket the tie off with a cable tie.
- Samples were numbered according to the TRENCH_SAMPLING_SHEET prepared by the Senior Geologist.
- The project name, location, type and position, and a short description were written on the remaining sample ticket book leaf, along with the sample date.
- Sample IDs were allocated to standards, blanks and duplicates at the time of sampling to ensure the QAQC samples maintain the numerical sequence in accordance with the QAQC SOP.

The sample information and all associated geological and survey data were captured in MS Excel™ at the end of each field day. The Senior Geologist reviewed data daily prior to upload to the server. Once on the server, the data were assessed by the General Manager and, if acceptable, were handed over to the Database Manager for entry into the project database.

5.6.2.5 Rehabilitation

Following the Competent Person (John Barry) site visit to inspect the trenches on 23 January 2025, all four trenches were backfilled following the suspension of field activities on 5 February 2025.

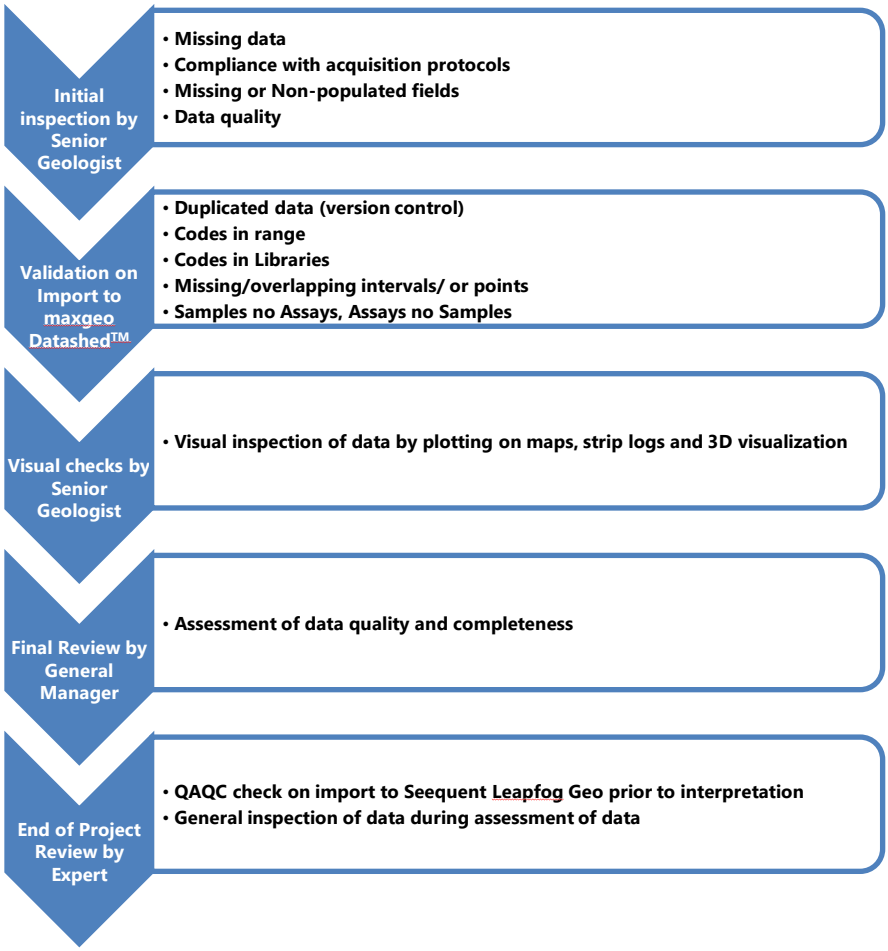
5.7 Database Compilation

5.7.1 Methodolgy

- Daily progress reports were submitted by the Senior Geologist to the Team Leader and copied to the General Manager and Operations Manager.
- Weekly Dashboards were reviewed by the General Manager and shared across the Core Team.
- At the end of each month, the work completed was compiled in the form of a Monthly report and shared by the General Manager to the Core Team members.
- The data generated during mapping and rock chip sampling were entered into LogChief ™ as follows:
    - Field observations were captured into the customised template of FIELD_OBSERVATION_SHEET and SAMPLE SHEET by the Exploration Geologists and Senior Geologist.
    - The data were entered into LogChief™ using PT_MAPPING and PT_SAMPLING.
    - The entered data were synced using tablets with LogChief ™.
- All observation points and sampling details are available in hard copy as well as in MS Excel™ file format.
- The synced data were validated by the Database Manager in Jeddah for import into a SQL server database using Maxgeo DataShed™ software.
- Data Validation processes include the following steps;
    - Initial inspection by the Senior Geologist.
    - Data were imported into Maxgeo DataShed™ and undergoes automated validation checks. Any non-compliant data were held in an incoming table until all checks are passed before transfer to the destination tables.
    - Visual checks were conducted by the Senior Geologist by plotting the data on plans.
    - Final review was conducted by the General Manager who assessed completeness of the dataset and quality.
    - End of project review was undertaken by the Expert prior to data interpretation including checks on import into specialist software and inspection of data during data quality assessment.
- Chemical analysis results were received from ALS Arabia in the prescribed format required for direct importation into Maxgeo DataShed™ and merged with the sample data.
- All KSB project data are securely stored in the dedicated AEP Initiative database on the SGS server and are backed up.

- The database is access-controlled, with SGS IT department having administrator level access. User access is controlled by the following permissions
    - Database Manager – Read/Write access
    - Senior Geologist – Read/Write with limits imposed by data entry application
    - Exploration Geologist – Write-only with limits imposed by data entry application
    - General Manager – Read-only via ODBC connections
- QAQC data and reporting are managed in maxgeo DataShed™.

Figure 5-17
Summary of Database Validation Processes



5.8 Sample Preparation and Chemical Analysis

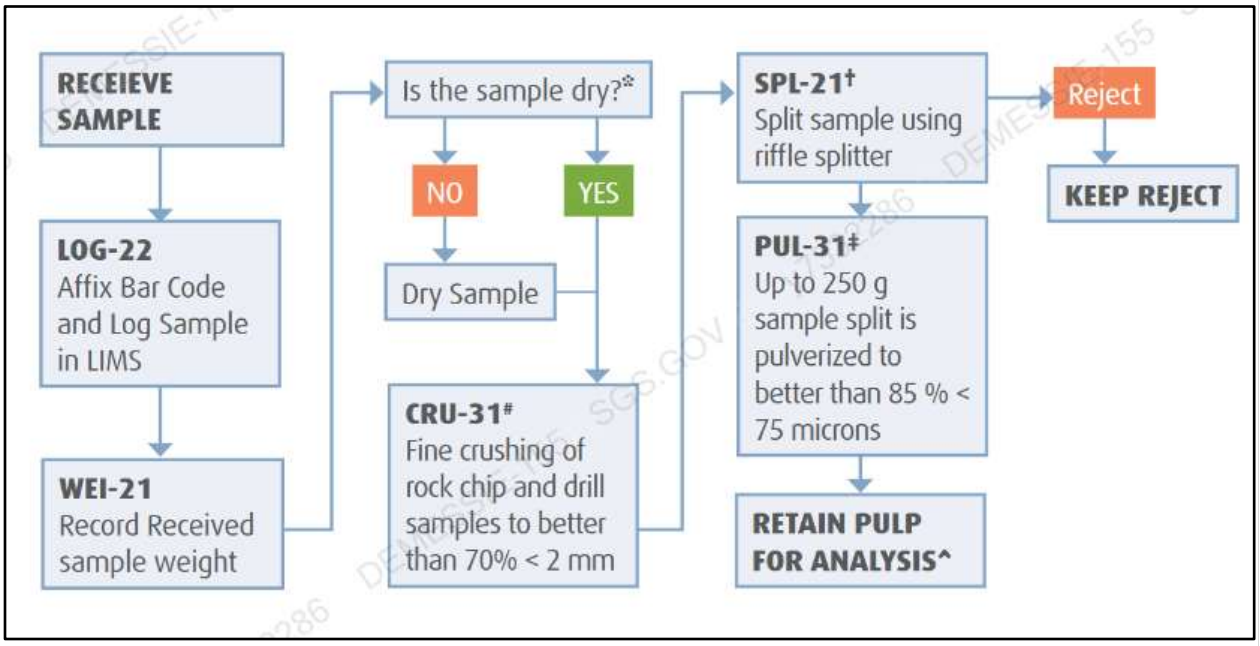
Samples were submitted to ALS Arabia with physical address Street 62, Industrial Area 1, Phase 4, Jeddah 21254, Saudi Arabia. The Minerals (Geochemistry) Division of ALS Arabia is accredited in

accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*.

5.8.1 Sample Preparation

Each sample received by ALS was digitally logged into their laboratory information management system (LIMS), confirmed against the sample submittal form, and the received weight captured. Barcodes were used to track samples throughout the laboratory procedures as samples were scanned at each point to ensure traceability. All wadi, rock-chip and trench samples were treated with the same sample preparation method, **Prep-31**. Each sample was split using a Boyd crusher/rotary splitter combination, fine-crushed to 75% passing 2mm, and up to 250g was pulverized to 85% passing 75µm. (**Figure 5-19**).

Figure 5-18
Flow chart for Prep 31



5.8.2 Cleaning Process

Carryover is the contribution of elements of interest to a sample from the previous sample prepared (crushed and/or pulverized). As part of the standard quality control procedures to minimize carryover, washes (barren material run through the equipment) are added to the crusher and pulverizing bowls at the start of each new batch of samples to clean the equipment. The crusher and pulverizing bowls are also cleaned with compressed air or a vacuum between every sample to remove any remaining loose material from the equipment.

5.8.3 Analytical Methods

Rock-chip and trench samples from were analysed by ALS Arabia. Gold analysis was carried out by fire assay on a 25g pulp sub-sample with finish by atomic absorption spectrometry ("AAS") using method code **Au-AA25** Multi-element analysis for 34 trace elements was carried out by four-acid digestion with a finish by Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES), method code **ME-ICP61** (**Figure 5-19**).

Figure 5-19
ALS sample preparation and analytical methods for rock-chip and trench samples

SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
LOG-24	Pulp Login - Rcd w/o Barcode
SPL-22Y	Split Sample - Boyd Rotary Splitter
PUL-31	Pulverize up to 250g 85% <75 um
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
Au-AA25	Ore Grade Au 30g FA AA finish	AAS
ME-ICP61	34 element four acid ICP-AES	ICP-AES

Following an aqua regia digest on a 25g pulp sub-sample, wadi and deep alluvial wadi samples were analysed for Au and multi-elemental analysis by a combination of ICP-AES and ICP-MS (Method Code **AuME-TL43**), as shown in **Figure 5-20**.

Figure 5-20

ALS sample preparation and analytical methods wadi and deep alluvial wadi samples

SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
LOG-24	Pulp Login - Rcd w/o Barcode
SPL-22Y	Split Sample - Boyd Rotary Splitter
PUL-31	Pulverize up to 250g 85% <75 um
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
AuME-TL43	25g Trace Au + Multi Element PKG	

6 QAQC

6.1 Overview

Appropriate quality assurance and quality control ("QAQC") monitoring is a critical aspect of the sampling and assaying process in any exploration program. Monitoring the quality of laboratory analyses is fundamental to ensuring the highest degree of confidence in the analytical data and providing the necessary confidence to make informed decisions.

QAQC on sampling and assaying was achieved by monitoring four essential components of that sequence:

- Field sample collection
- Laboratory sample preparation and sub-sampling
- Analytical accuracy and precision
- Reporting (clerical or data transfer) accuracy

The use of **standards** or **certified reference materials ("CRMs")** provides a measure of analytical accuracy and is useful in identifying any short or long-term drift and biases. Standards should be similar in chemical composition (matrix matched) to the routine samples, have a certified mean value and an associated confidence interval, and be certified for the analytical method being used.

Through the monitoring of the expected value of the CRMs within a sample batch, the accuracy of the assay process can be monitored.

Blank samples which have been established as barren by previous analysis, serve to detect contamination during the sample preparation and assay process and to act as a "wash" after the analysis of known high grade samples. They are also useful to monitor mis-sequencing of samples during sample preparation and analysis. Blank samples should be inserted at the beginning and end of each batch to monitor between-batch contamination and internally within and immediately following mineralised intervals in order to monitor within-batch contamination.

Duplicate samples can be created at any point in the sampling and sub-sampling process where the mass of the sample is being reduced (i.e. the sample is split and a reject is created). Duplicate samples are used in determining the quality of sample collection, sample preparation and analytical precision and reproducibility. Comparison of assay duplicate and field duplicate data can indicate where imprecision in the data originates from, i.e. sample preparation versus assay process. The inclusion of duplicate samples and their comparative analysis is essential for determining the level of precision, and hence repeatability, of the analytical method.

The results of quality control samples are used to accept or reject the results of sample batches analyzed by the laboratory. Laboratory data were reviewed on a batch-by-batch basis. In order to accept/reject samples or batches.

QAQC was monitored using standard operating procedure **A06 SOP Quality Assurance /Quality Control (QAQC)**. QAQC samples were inserted into the stream of samples comprising each batch. Although these are obviously distinguishable as QAQC samples, they follow the sequential numbering of the batch, and their identity is never revealed to the laboratory.

QC samples comprised a minimum of 15% of all sample submissions for batches containing drilling and trenching samples. QAQC samples insertion was done as follows for each batch of samples:

- The start and end of every batch was a coarse blank. Additional blanks were inserted in every 20th sample position thereafter, alternating between coarse blanks and pulp blanks.
- A duplicate was inserted in position 5 and every 20th sample thereafter.
- A CRM was inserted in position 10 and every 20th sample thereafter randomly and equally distributing between low, medium and high grade CRMs.

The QAQC results for Al Khashabi were reported in a QAQCR Report exported from Maxgeo DataShed.

The main aspects of the QAQC results are summarised in the sections below, whilst the entire QAQC report is present in **Appendix 5.**

6.2 QAQC of Rock-chip and Trench Samples

6.2.1 Certified Reference Materials (CRMs)

Three gold CRMs, namely, AMIS 0519, AMIS 0579 and AMIS 0895, were used during the assay and geochemical analysis of KSB rock-chip and trench samples (**Table 6-1**). The performance of these respective CRMS is shown **in Figures 6-1, 6-2 and 6-3**. Out of the 18 analyses carried out, all CRMs fell within the acceptable limits of 3 Standard Deviations and 17 out of 18 of the results fell within 2 Standard Deviations (Table 6-2).

Table 6-1
CRMS used during KSB rock-chip and trenching programmes

CRM	Description	Certified Concentration	2 Standard Deviations	Certified Concentration	2 Standard Deviations
		ppm Au	ppm Au	ppm Cu	ppm Cu
AMIS 0519	Greenstone, South Africa	1.61	0.1	77	2
AMIS 0579	Gold Oxide Ore, Medium, Colorado	0.604	0.055	140	12
AMIS 0895	Greenstone, South Africa	4.97	0.56	276	47

Table 6-2
Overall perfromance of CRMS used during KSB rock-chip and trench sample analyses

CRM_ID	No. of samples Analysed	No. of results within 2SDs	No. of results within 3SDs	Comments
AMIS 0519	7	7	7	100% pass at 2 SDs level
AMIS 0579	7	6	7	1 Marginal Fail at 2 SDs level
AMIS 0895	4	11	11	100% pass rate at 2SDs level

Figure 6-1
Control Chart for AMIS 0519 (CRM)

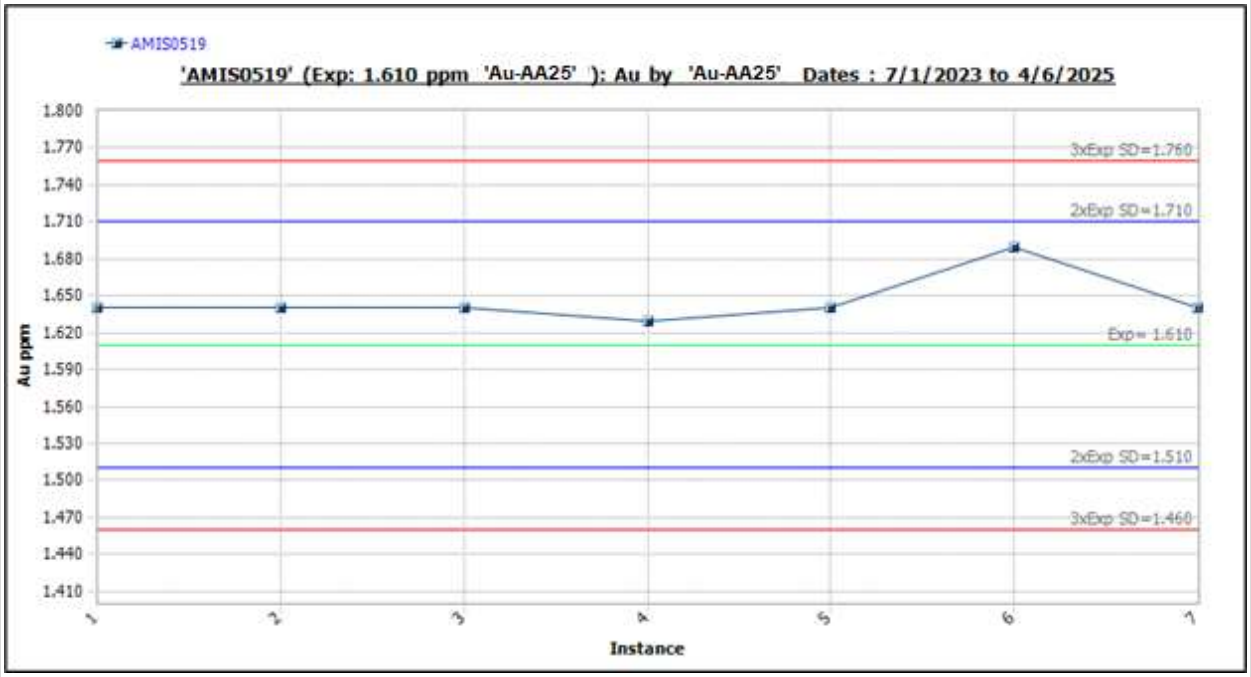


Figure 6-2
Control Chart for AMIS 0579 (CRM)

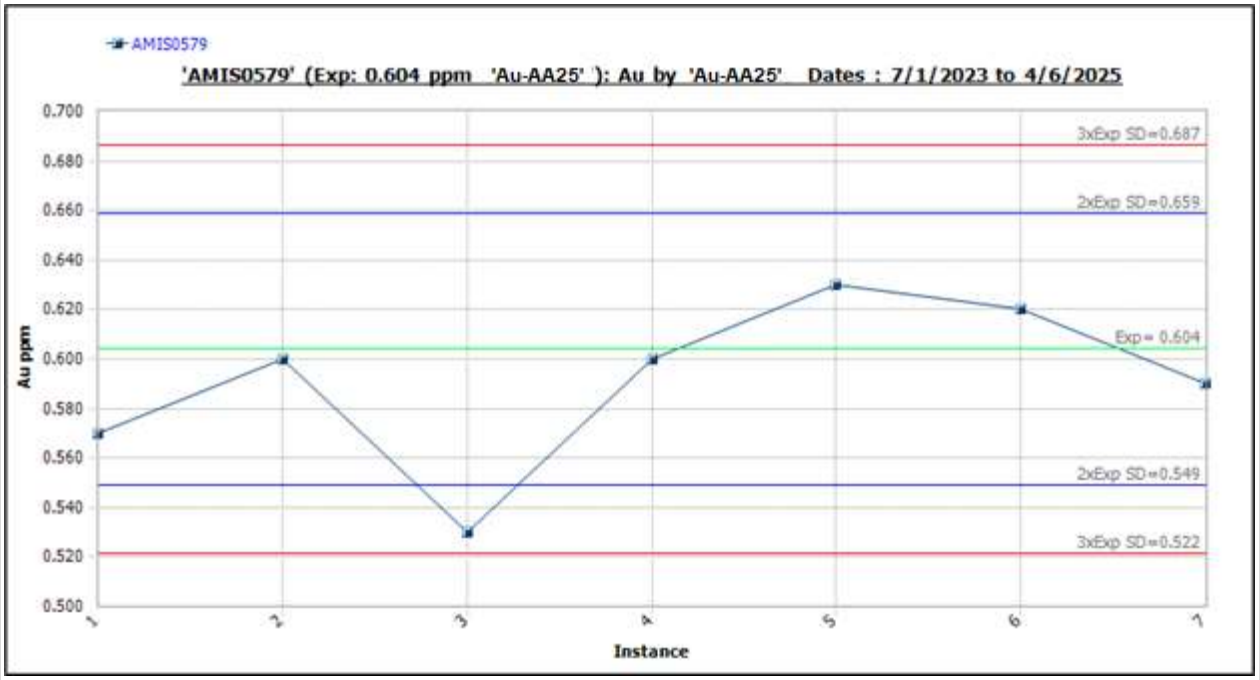
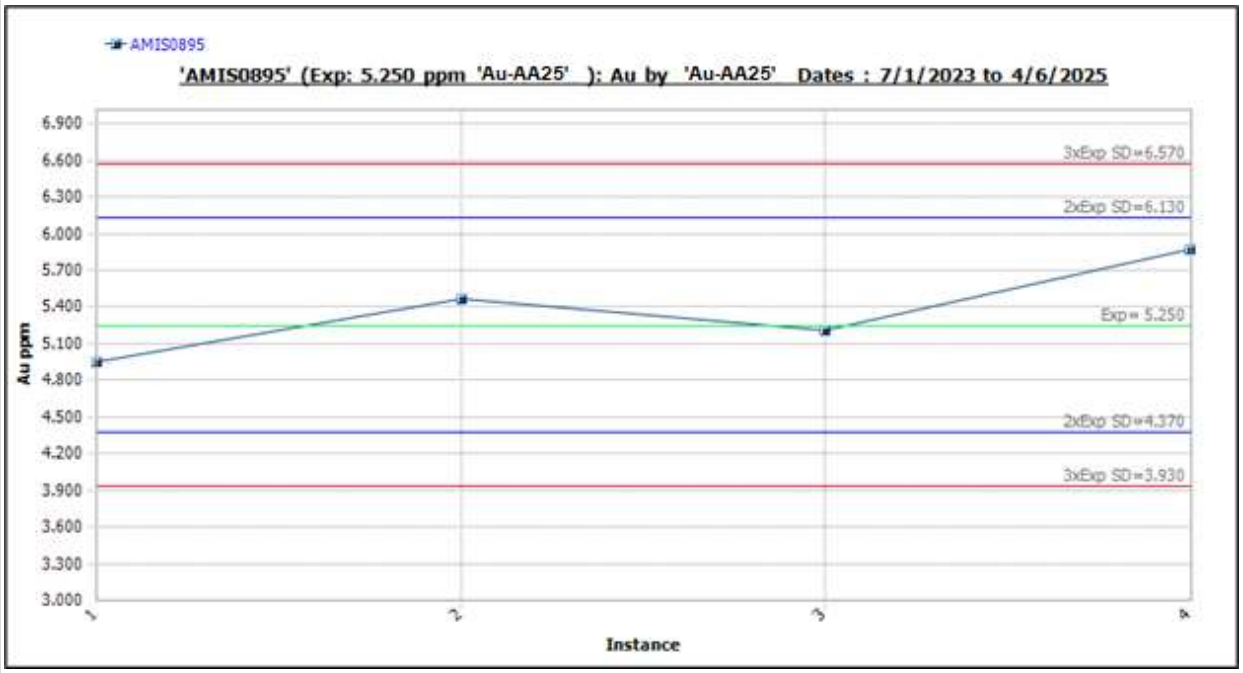


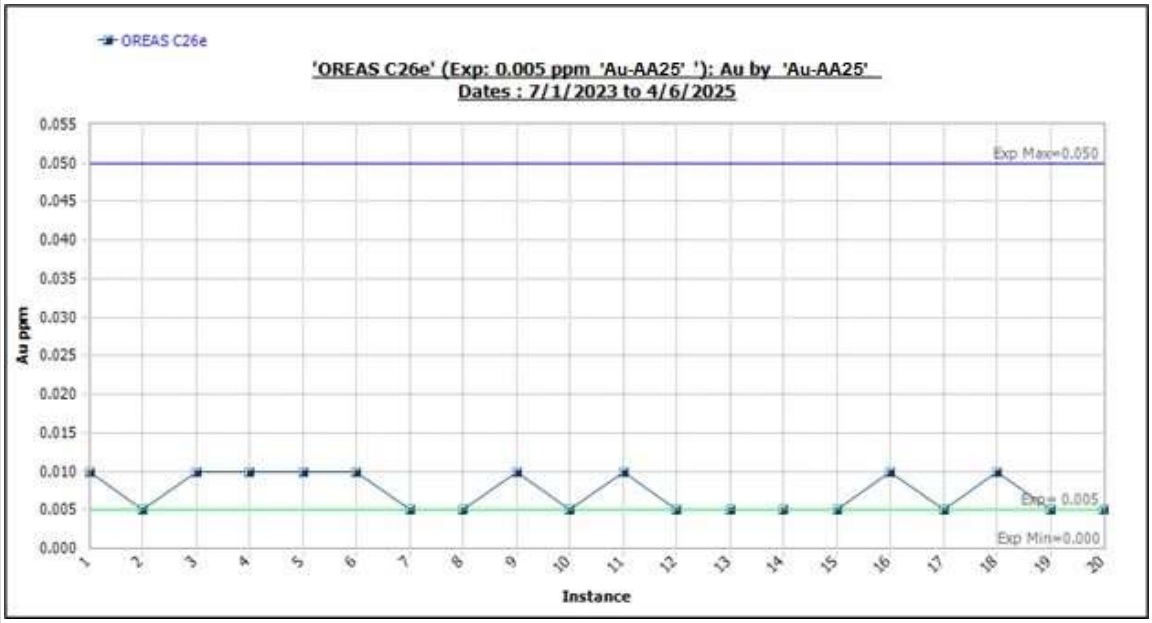
Figure 6-3
Control Chart for AMIS 0895 (CRM)



6.2.2 Blank Certified Reference Material – "Blanks"

The standard reference "blank" material used to for rock-chip and trench samples was OREAS C26e – a coarse (8mm) basalt blank taken from a fresh olivine tholeiitic basalt, near Melbourne, Australia. The results of all 20 analyses carried out for OREAS C26e fell within the range of 0.005 to 010 ppm Au, well within the limit of 0.050 ppm Au (Figure 6-4).

Figure 6-4
Control Chart for CRM Blank – OREAS C26e

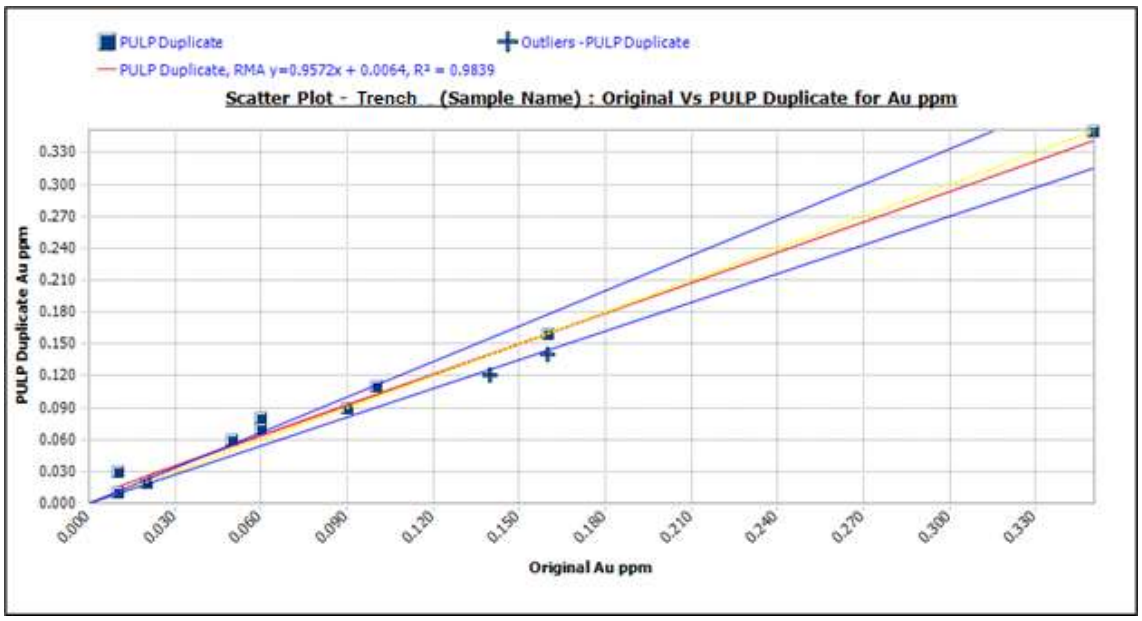


6.2.3 Laboratory Pulp Duplicates

The QAQC analysis of laboratory duplicate samples pairs for rock-chip and trench samples was carried out separately. In both cases, the precision of the analytical method was assessed using scatterplot graphs identifying samples outside of ± 10% window as "outliers". **Figure 6-5** below shows the results for 13 laboratory pulp duplicate trench samples for Au. It can be seen that there are marginal failures, but these are not considered significant as they occur at very low concentrations (<0.15 ppm Au).

Figure 6-5

Scatter Plot for Laboratory Duplicates: Trench samples Au ppm



6.3 Wadi Samples

6.3.1 Blank Certified Reference Material – "Blanks"

Of the 12 AMIS 0908 silica chip blank standards analysed during the wadi sample analytical programme, all samples fell below expected 0.005 Au ppm limit (**Figure 6-6).**

6.3.2 Laboratory Pulp Duplicates

The results of 30 laboratory pulp duplicate wadi samples are shown in **Figure 6-7** for Cu.

Only two of the samples were deemed to be outliers, falling outside the ± 10% linear regression window.

Figure 6-6
Control Chart for CRM Blank – AMIS 0980

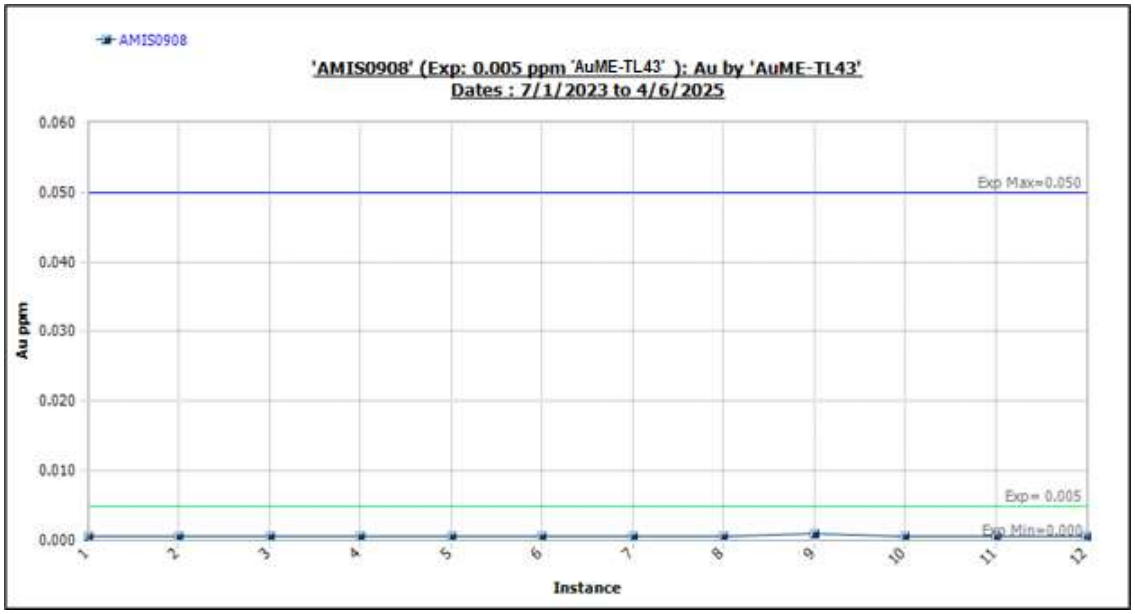
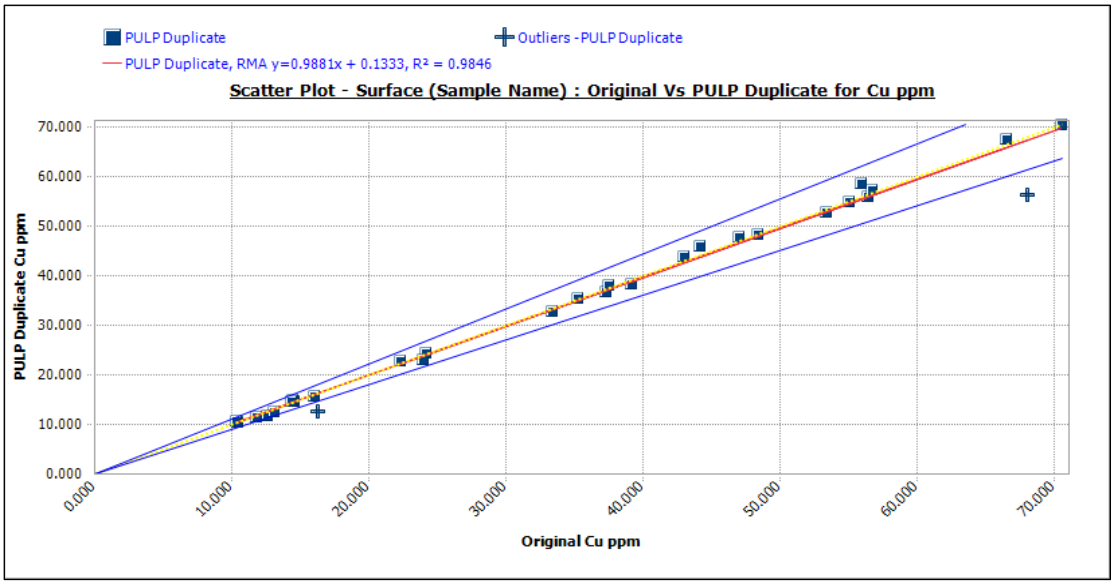


Figure 6-7
Scatter Plot for Laboratory Pulp Duplicates: Wadi Samples :Cu ppm



6.4 Conclusion

In The sample preparation, security and analytical procedures are considered to be appropriate and adequate for an exploration program of this nature. Based on the results of the QAQC program, the Al

Khashabi AEP assay and geochemical data accurately represent the original contents of the underlying samples with a high degree of confidence in terms of accuracy and precision.

7 HEALTH AND SAFETY

7.1 Risk Assessment

A risk assessment was conducted before commencing any new activity or if there was a change to an activity, e.g. a new location, new equipment, or a new circumstance. The risk assessment identified the main risk factors and mitigation measures that need to be put in place to minimize the risk. The Senior Geologist reviewed and approved the risk assessment before work commenced.

An Emergency Response Plan ("ERP") was established as part of emergency preparedness protocols. In addition, GCMSA has an appointed Health and Safety manager, Mr. Ayman Haddad, to visit the project sites on a regular basis.

7.2 Toolbox Talks

Each day was commenced by a toolbox talk aimed at addressing general health and safety concerns pertaining to field activities scheduled for that particular day. These discussions encompassed various topics, such as the importance of maintaining proper housekeeping, utilization of suitable personal protective equipment (PPE), conducting risk assessments and implementing corresponding mitigation measures, managing fatigue, ensuring hydration particularly during the hottest hours of the day, and addressing general hazards associated with the operation of field equipment during sampling (**Figure 7-1**).

Figure 7-1
Toolbox talk at KSB given by project Exploration Geologist during site visit by SGS-GCMSA Core Team management, 28 November 2024



8 RESULTS

(See also Mineral Exploration Map – **Appendix 1**)

8.1 Geological Mapping and Rock-chip Sampling

8.1.1 Overview

As detailed in Section 5 above, geological mapping at Al Khashabi was carried out at both 1:500 and 1:20,000 scales within Priority Focus Areas, PF-01 and PF-02, as planned in the Stage 3 report (Elliott. 2024). The 1:500 scale mapping focussed on the six MODS, whilst the 1;20,000 scale mapping provided better information on the regional geological setting, for the PF-01 and PF-02 areas, with the potential for new discovery.

A total of 1256 observation points were recorded and 136 structural measurements made during the course of the mapping programmes.

8.1.2 1:20,000 scale mapping

A number of diverse lithologies were identified during the 1:20,000 scale geological mapping, namely, diorites from the Burudan Complex, intermediate to felsic volcanic rocks and associated pyroclastics of the Ar Rika Formation (Hulayfah Group) and a number syn- to late orogenic felsic intrusions and dykes. The spatial relationships between these rock types are presented below in **Figure 8-1**.

In the latter part of the mapping program, in order to complete mapping on schedule, Drone Digital Terrain Model (DTM) survey data was used to map remotely with follow-up ground-checking.

8.1.3 1:500 scale mapping

As indicated in Section 5, the primary purpose of the 1:500 scale mapping was to upgrade the sparse information available in the legacy reports on the six MODS - 0427, 0429, 0430, 0432 and 0444, in order to get a better understanding of the geology and mineralisation in the KSB AEP.

The geological maps of the six MODs are shown below in **Figures 8-2 to 8-7**. Some of the maps are presented at a scale of 1:750 in order to give a better perspective (see also **Appendix 2** – 1:500 Geological Maps.

Figure 8-1

1:20,000 scale geological map of Priority Focus Areas PF-01 and PF-02

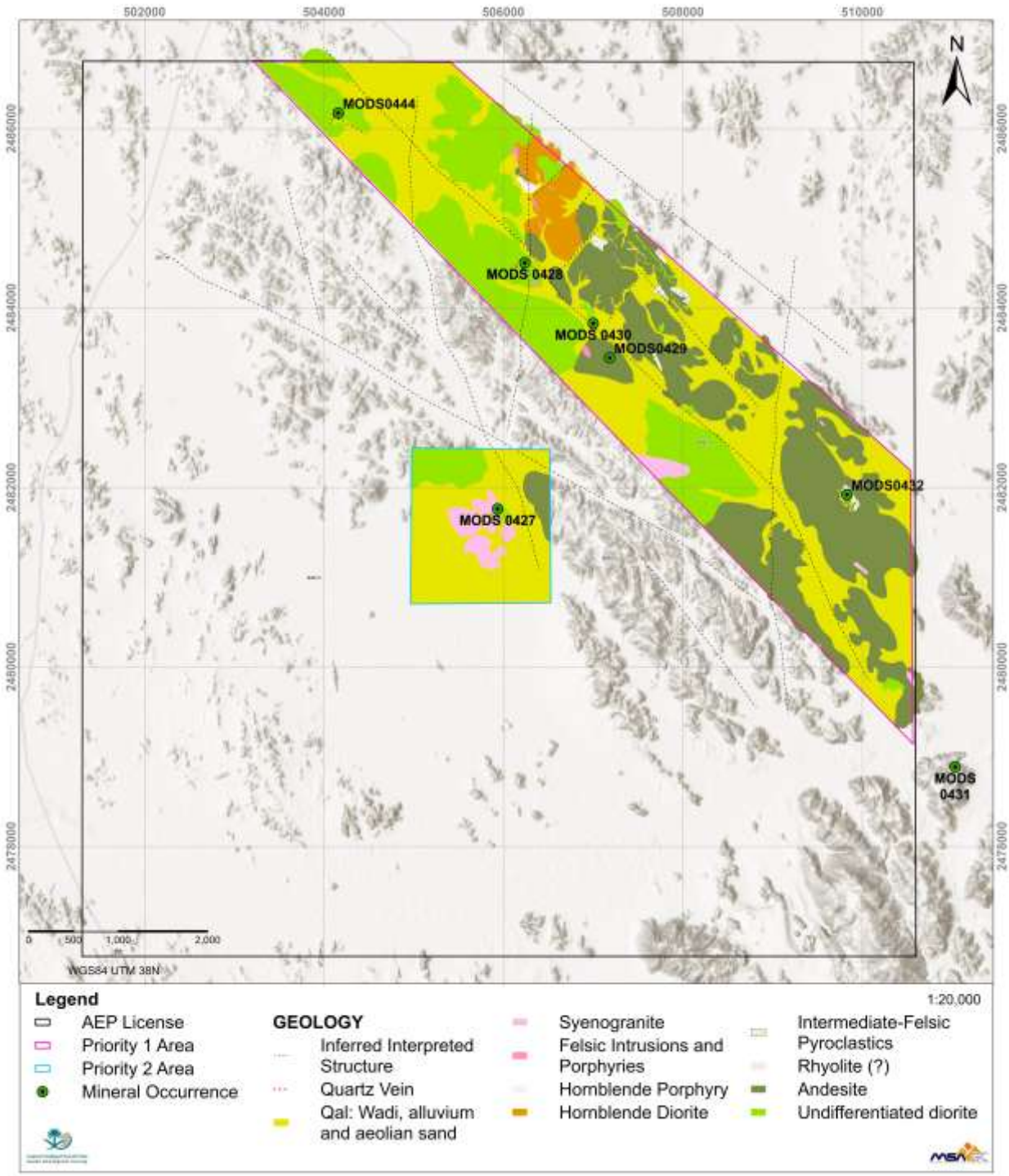


Figure 8-2
1:750 scale geological map of MODS 0427

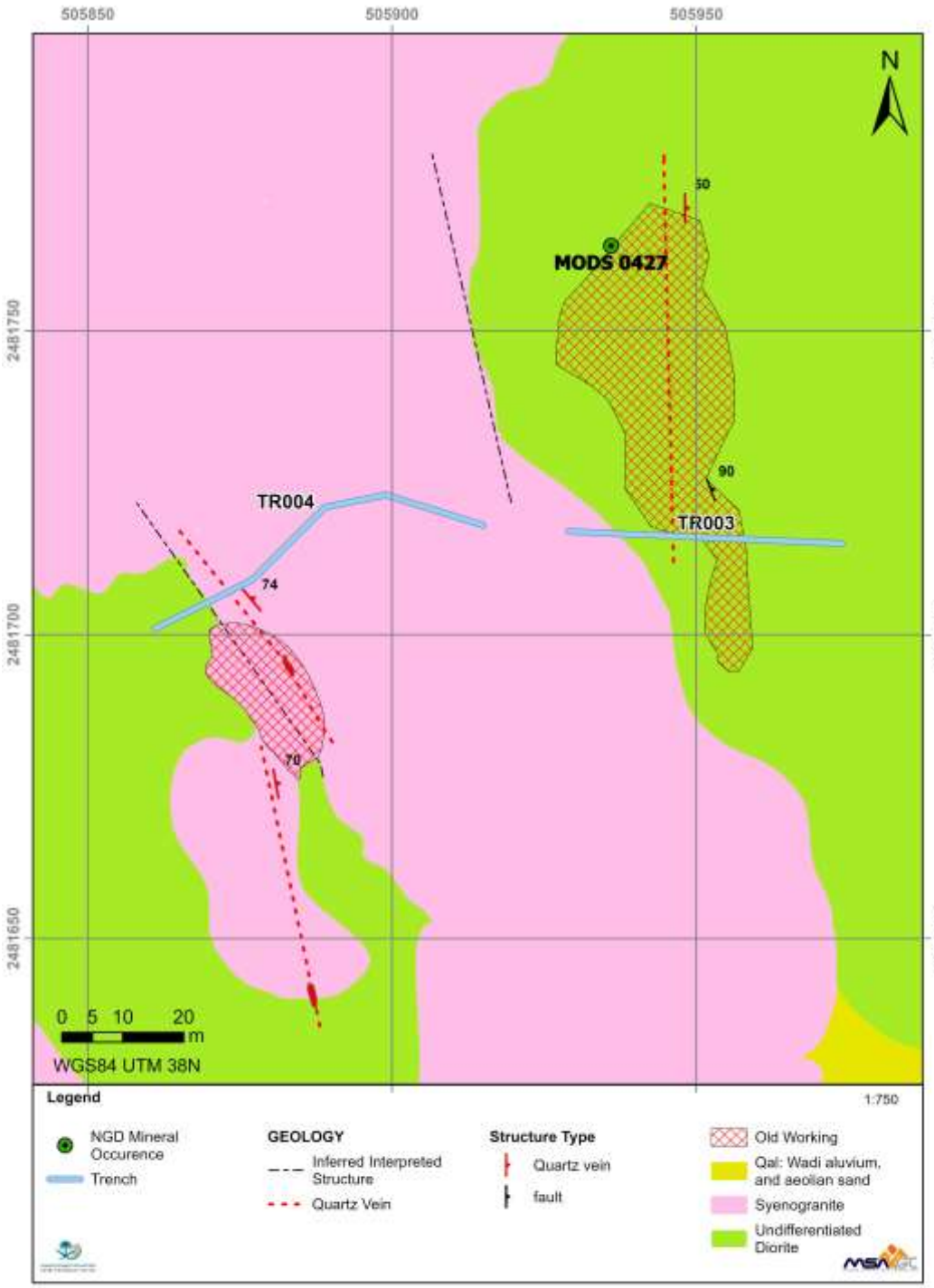


Figure 8-3
1:750 scale geological map of MODS 0428

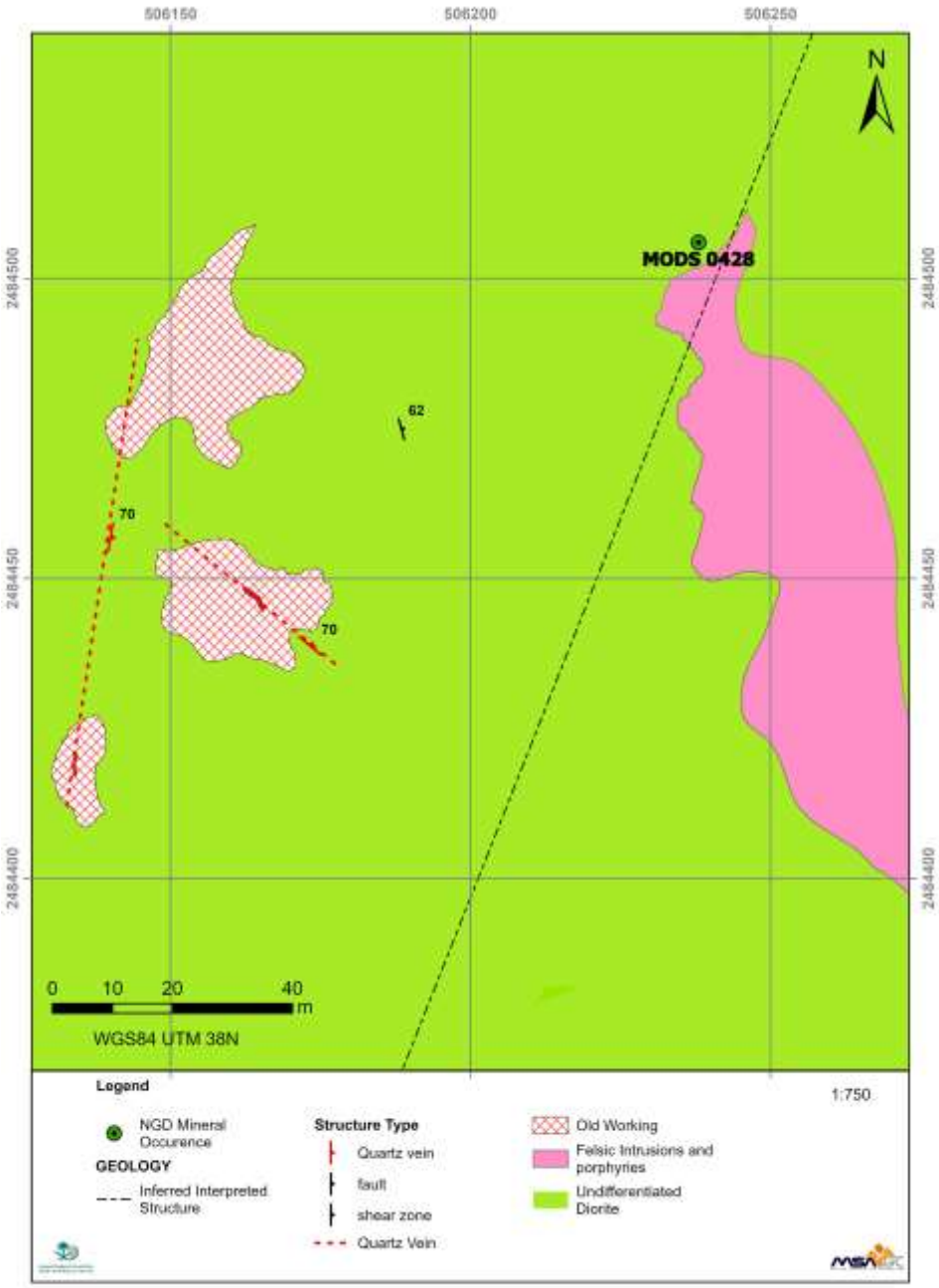


Figure 8-4
1:750 scale geological map of MODS 0429

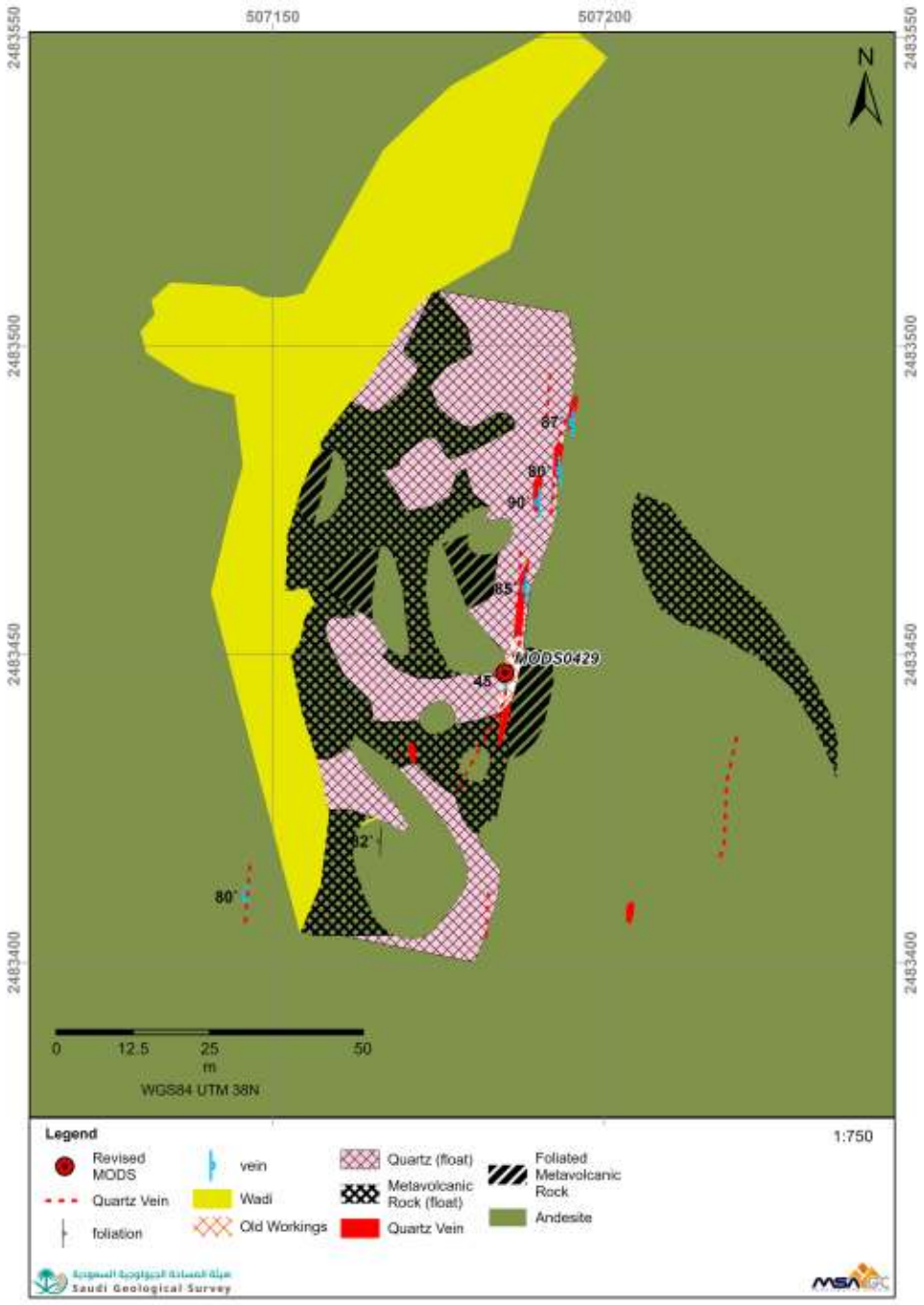


Figure 8-5
1:750 scale geological map of MODS 0430

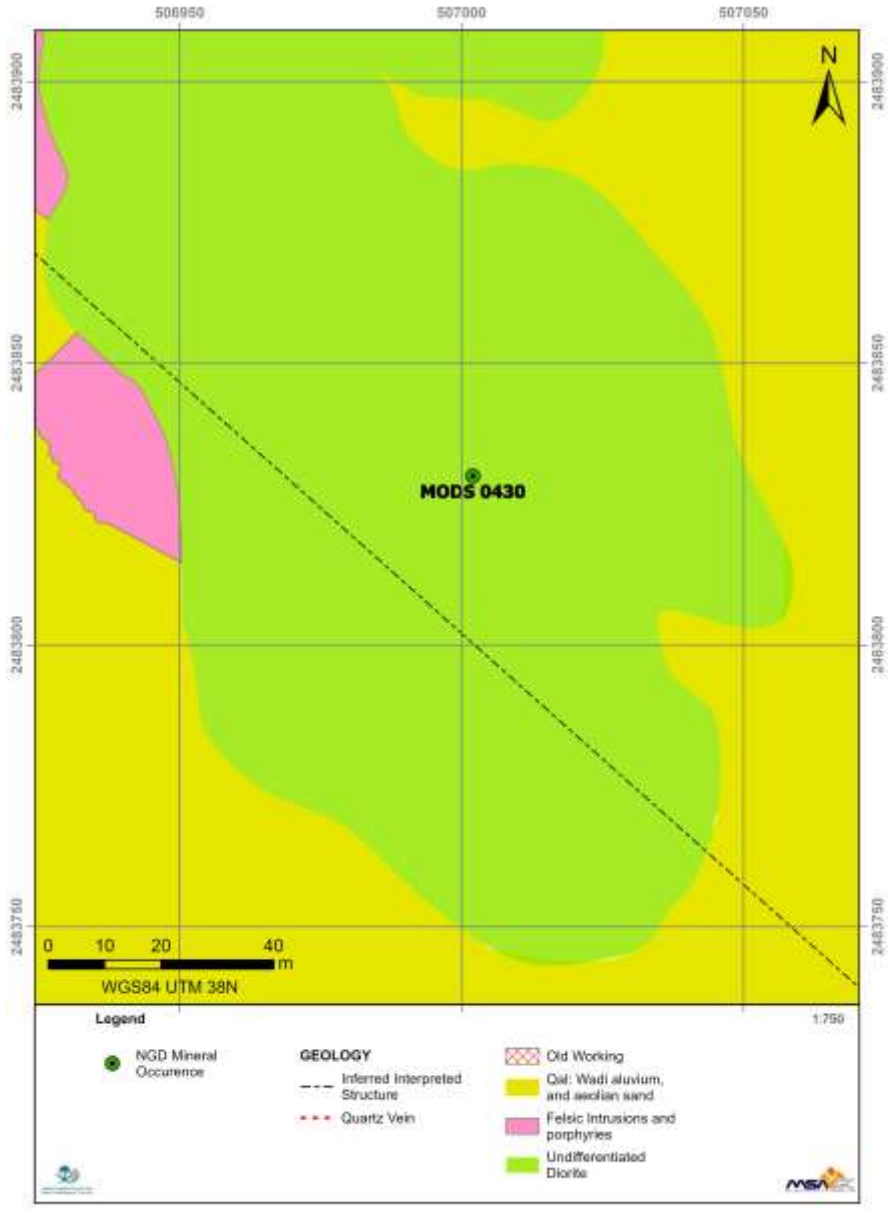


Figure 8-6
1:750 scale geological map of MODS 0432

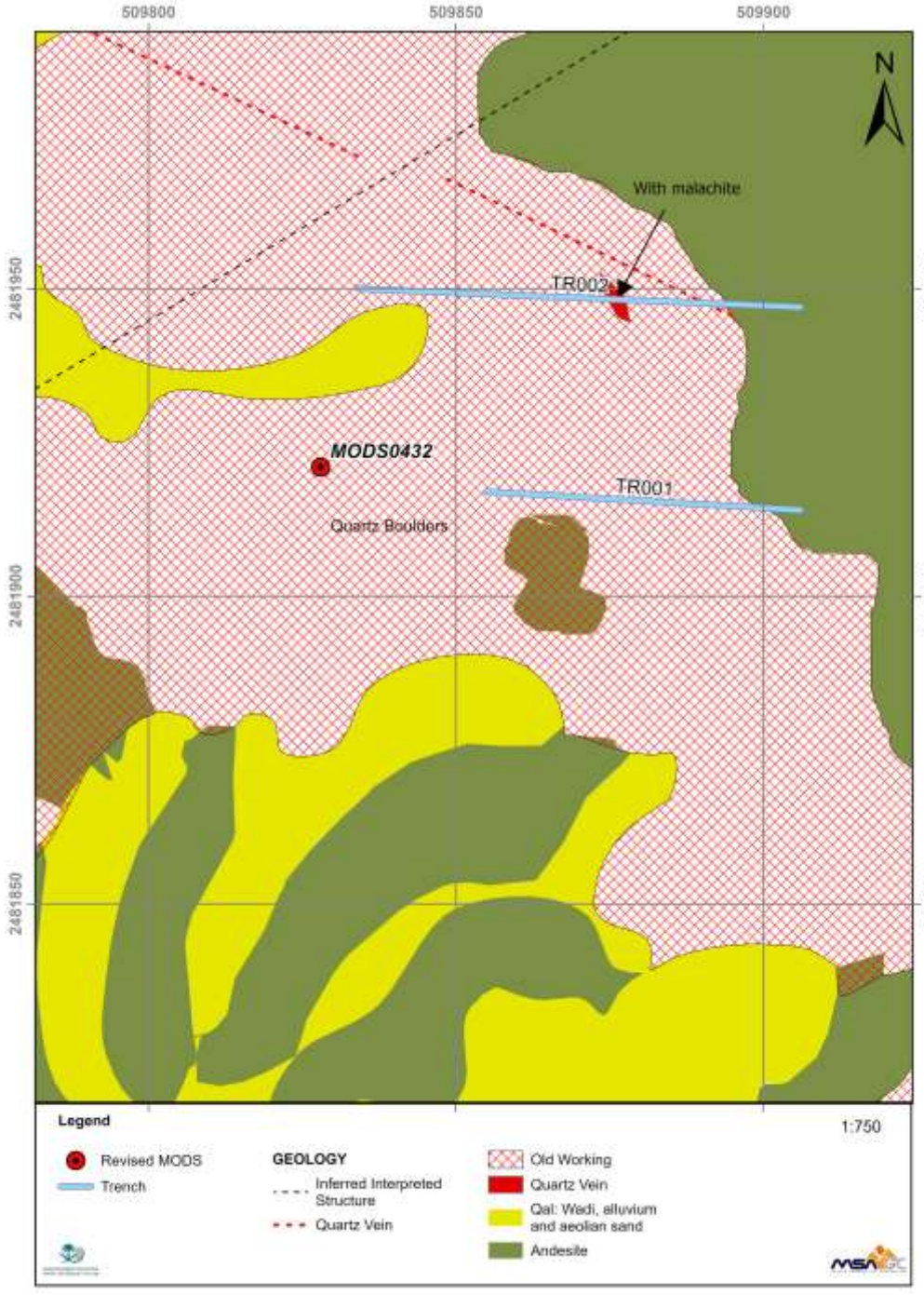
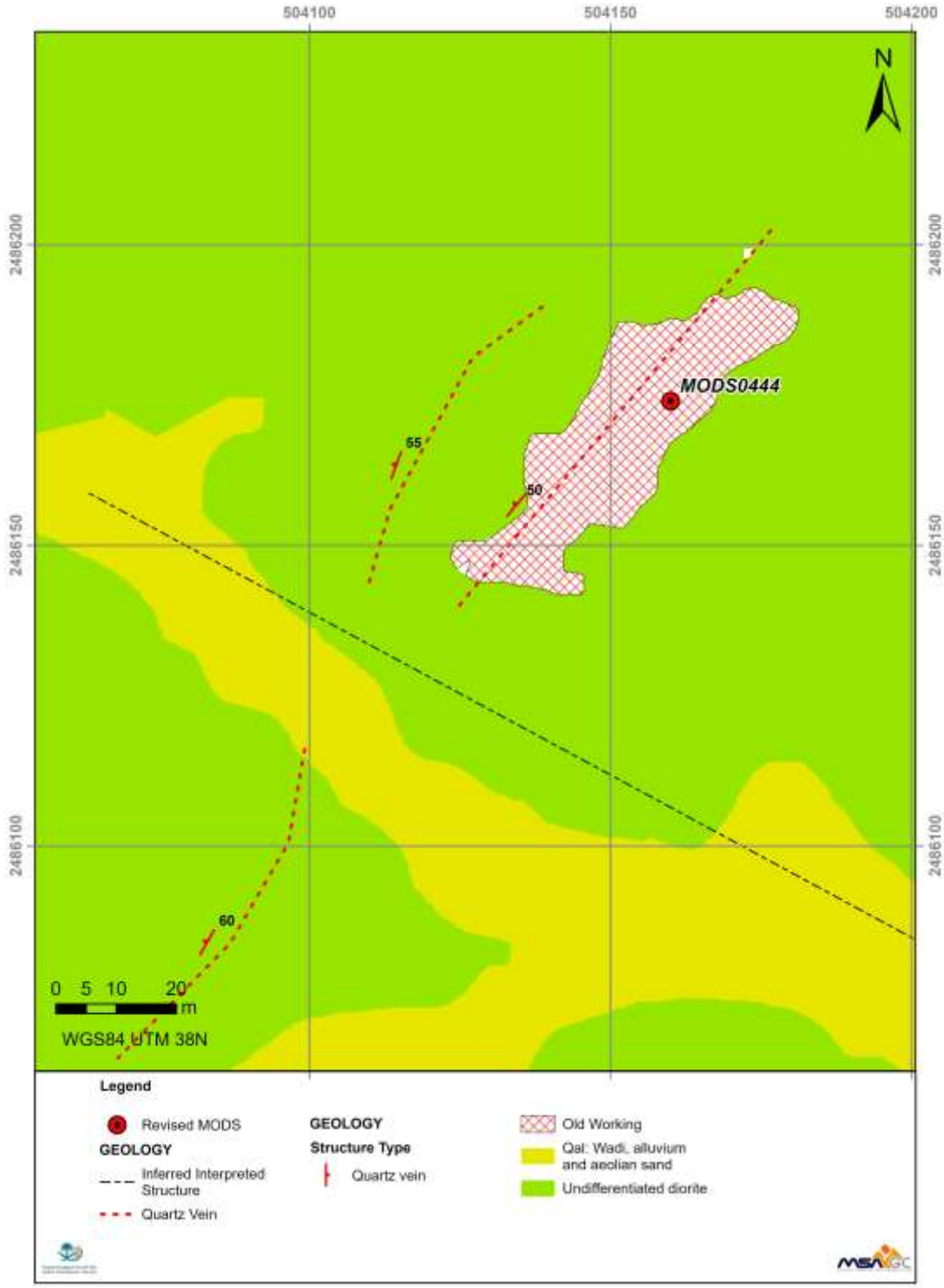


Figure 8-7
1:750 scale geological map of MODS 0444



8.1.4 Main lithological units

The different lithological types identified and mapped during both 1:500 and 1:20,000 surveys are described below. They are introduced by what is considered to be the oldest to the youngest.

8.1.4.1 Diorites

The basement dioritic rocks that outcrop in the northern part of Priority Focus area PF-01 form part of an inlier of the Burudan Complex, which is juxtaposed against younger volcanic rocks and associated pyroclastics of the Ar Rika Formation.

Taken from an outcrop near MODS 0444, **Figure 8-8** shows a hand specimen of a mesocratic, medium to coarse-grained, homogeneous, equigranular diorite of the Burudan Complex, displaying chloritised prisms of amphibole which gives the rock a greenish colour.

Other diorite types are present in the PF-01 and PF-02 areas but these have yet to be fully differentiated.

Figure 8-8
Hand specimen diorite from outcrop near MODS 0444



8.1.4.2 Andesites, rhyolites and associated pyroclastic rocks of the Ar Rika Formation

In the PF-01 area, there appears to be a transition from SE to NW of andesites, and associated tuffs and breccias to felsic volcanics and pyroclastic rocks. The absence of mafic volcanics is conspicuous.

Figure 8-9 shows a representative hand specimen of andesite, which is typically mesocratic, medium-grained, equigranular to mildly porphyritic, and weakly chloritized and epidotised giving the rock a green colour.

Figure 8-9
Hand specimen of Andesite from near MODS 0432



Figure 8-10
Bleached quartz-feldspar-phyric rhyolite from central portion of PF-01 area



North and west of MODS 0428 and 0430, felsic pyroclastics and breccias were observed. These rocks are characteristically mid-grey and consist of an aphanitic to fine-grained, felsic matrix containing 30% coarse (10-40mm) sub-angular clasts of altered quartz and felsic volcanics (**Figure 8-11**).

Figure 8-11
Hand specimen of coarse felsic pyroclastic rocks from near MODS 0432



8.1.4.3 Syn- to late-orogenic intrusives

A distinctive **hornblende porphyry** unit was mapped 1.5m north of MODS 0428, where it occurs as a 100m-wide, semi-circular marginal facies on the western flank of a major dioritic intrusion. The rock is characterised by 45-50% by coarse-grained, prismatic, hornblende phenocrysts (10-30mm) with 45-50% interstitial creamy plagioclase matrix (**Figure 8-12**).

Outcrops of **syenogranite** are much in evidence at MODS 0427 where they form three discreet bodies, the largest having dimensions of 900m x 300m, elongated in a northwest orientation. In hand specimen, the rock is typically pinkish, coarse-grained, weakly porphyritic and characterised by 15-20% subhedral to euhedral K-feldspar phenocrysts (**Figure 8-13)**.

At MODS 0428, a major NNW-trending, **felsite porphyry** sill is seen to cut metavolcanic rocks. This lithology, which is of likely rhyo-dacitic composition, consists of 35% euhedral plagioclase laths (5-15mm) set in a pale grey-brown, aphanitic, siliceous groundmass (**Figure 8-14**).

Figure 8-12

Hand specimen of hornblend porphyry from north of MODS 0428



Figure 8-13

Hand specimen of syenogranite from MODS 0427



Figure 8-14
Hand specimen of felsite porphyry from MODS 0428



8.1.4.4 Alluvial and Aeolian Cover

Approximately 49km^2, or over 50% of the licence area, is blanketed by alluvial or aeolian cover or both. In the northeastern quadrant of the AEP, the Wadi Al Khushaybiyah drains to the southeast for over 6km with an average width of 500m. In the southwestern half of the AEP, a veneer of aeolian sand conceals a major wadi drainage system with extensive flood plain deposits. The drainage system consists of the E-W draining Wadi Ar Rika and a major unnamed, bifurcating, north bank tributary (**Figures 8-15** and **8-16**).

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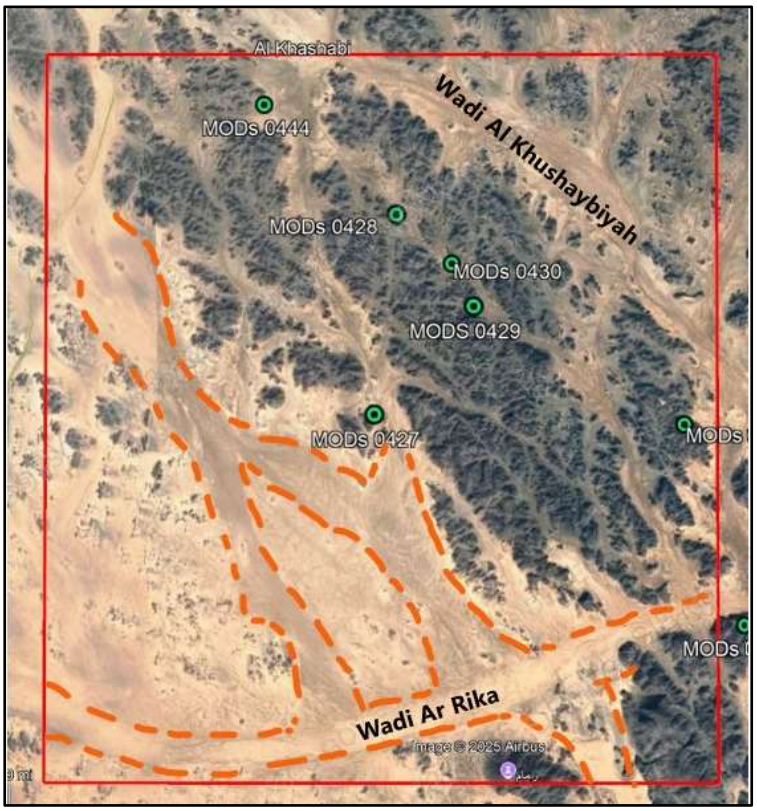
Figure 8-15

Expansive area of aeolian cover in the southwestern half of the AEP



Figure 8-16

Drainage system in the KSB AEP



8.1.5 Mineralisation

Gold-bearing quartz veins, plus or minus carbonate, are ubiquitous and can be observed cutting a diverse range of lithologies. At the two best mineralised sites, MODS 0427 and MODS 0432, quartz veins are seen to contain abundant staining and blebby disseminations of malachite (**Figures 8-17**) and sub-ordinate primary sulphide, namely pyrite.

However, at MODS 0427, 0428, 0429 and 0432 aggregates of a silver-grey metallic mineral were also identified infilling fractures in quartz veins. These minerals are recti-linear in habit and form intricate graphic intergrowths (**Figure 8-18**).

A portable XRF analysis of these minerals (and part of the quartz vein) returned the results presented in **Table 8-1.**

Table 8-1

pXRF analysis of silver-grey metallic mineral intergrowths

Pb ppm	S %	As ppm	Ag ppm	Cu ppm	Fe ppm	Te ppm	Sb ppm	Sn ppm	Se ppm	Si %	Ca ppm	Bi ppm	Mo	W	Zn
9647.7	2.45	563	31	13	110	236	92	48	13	37	536	<LOD	<LOD	<LOD	<LOD

Anomalous values were obtained for Pb, As, Ag, S, Te and Sb. (Note <LOD indicates less than "Limit of Detection".

Figure 8-17

Staining and disseminations of blebby malachite in quartz at MODS 0432



Figure 8-18
Graphic intergrowths of silver-grey metallic minerals in quartz from MODS 0427



8.1.6 Structural analysis of quartz vein data

A stereographic analysis of the quartz vein data collected during the Stage 4 Execution Programme demonstrated that the primary orientation of quartz veins is to the NW with sub-ordinate trends to the N-NNE and ENE (**Figure 8-19**). **Figure 8-20** demonstrates that the quartz veins generally dip to the northeast.

Figure 8-19
Rose diagram showing strike direction of KSB quartz veins

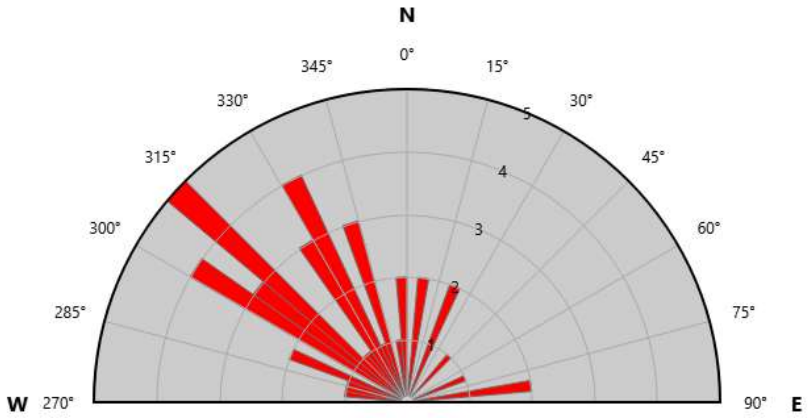
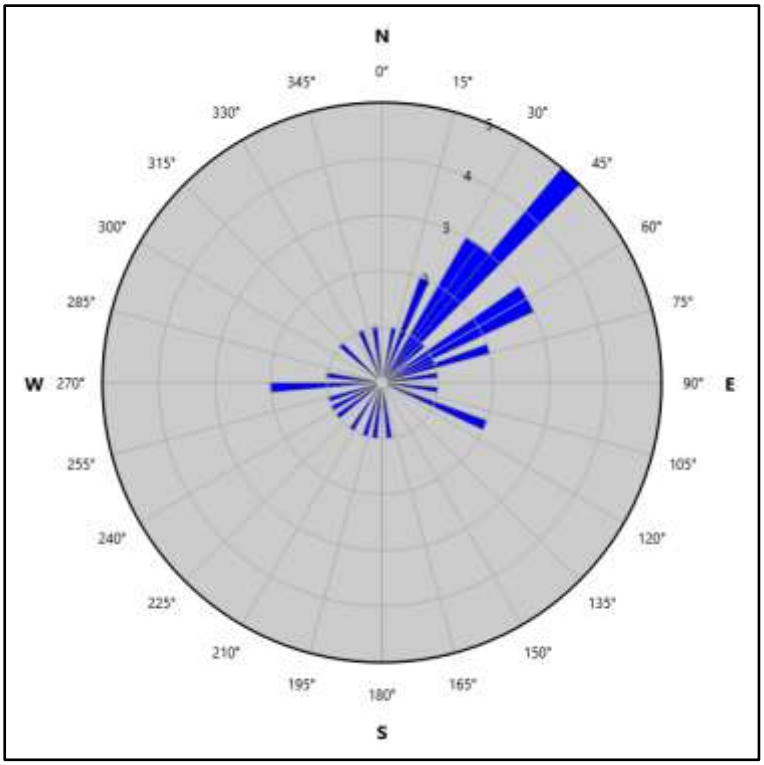


Figure 8-20
Rose diagram showing prominent dip-direction of KSB quartz veins



8.1.7 Rock-chip sample results

The gold analysis for over 200 rock chip samples have been plotted up in **Figure 8-21** and the ten samples with gold concentrations above one gram summarised in **Table 8-1.** In summary, almost 90% of the samples had Au values of 0.1 ppm or less, 5% had from 0.1 to 1.00 Au ppm and 5% (10 samples) with values in the range of 1.00 -10.00 ppm. However, only three samples (KSBSS0728, -753 and 922) in the highest range were taken in-situ, the rest being grab samples from quartz-vein scree around the old workings.

Figure 8-21

Plan showing Au assay results for KSB rock-chip samples

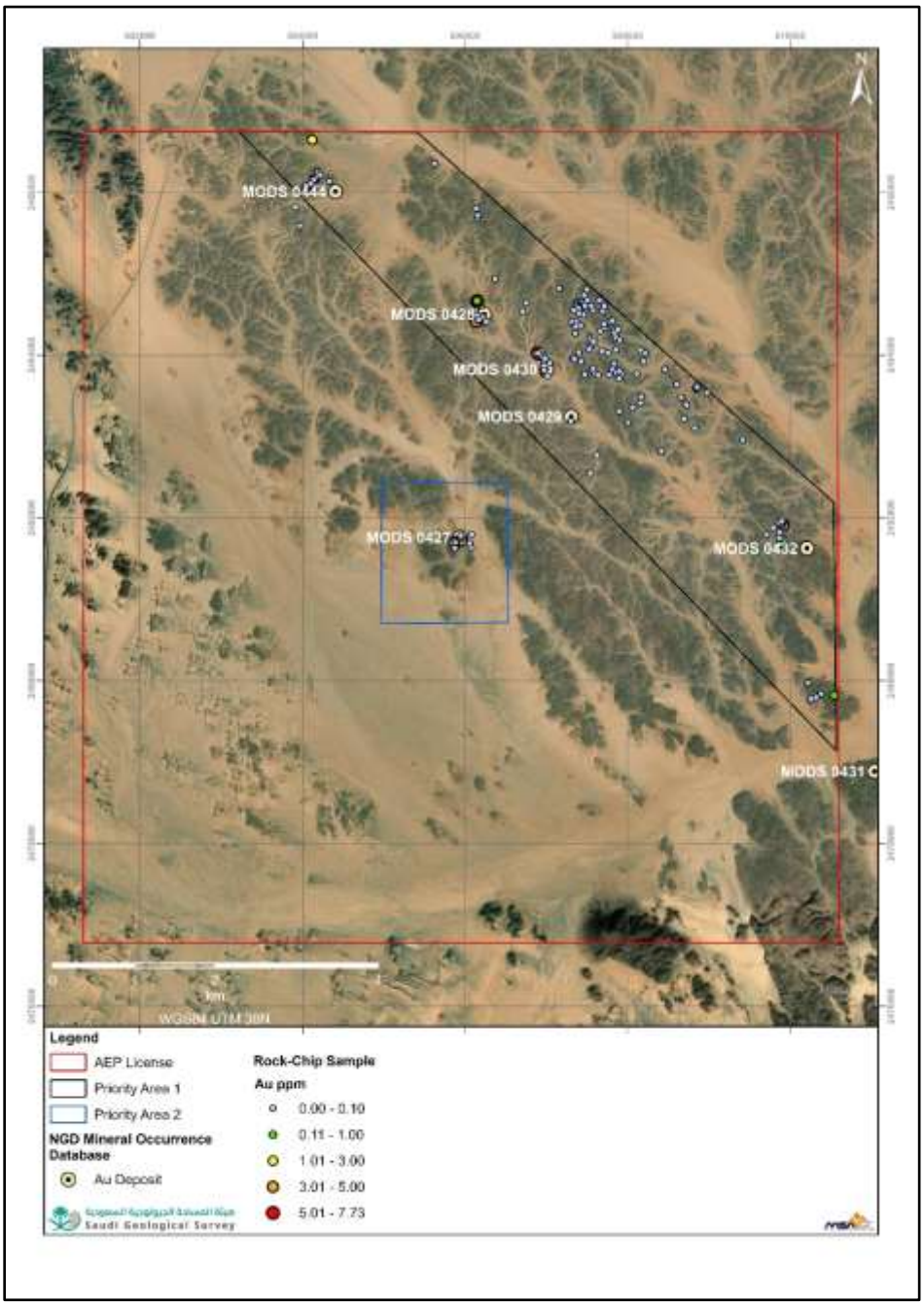


Table 8-2

Summary of significant assay and geochemical results from the KSB rock-chip sampling programme

Sample_ID	X UTM 38 N	Y UTM 38 N	Au ppm	Ag ppm	As ppm	Cu ppm	Pb ppm	Zn ppm	Sample_Description	General Location
KSBSS0714	506150	2484669	6.67	<0.5	2.5	0.5	12	2	Quartz vein scree with hematite staining	190m NNW of MODS 0428
KSBSS0718	506140	2484431	6.82	2.6	25	92	73	5	Quartz vein scree with hematite and malachite staining on fractures	110 SW of MODS 0428
KSBSS0722	506898	2484013	3.92	<0.5	50	7	108	2	Quartz vein scree taken from workings around trench excavation.	230m NW of MODS 0430
KSBSS0724	506892	2484027	7.73	7	118	94	674	7	Quartz vein scree taken from workings around trench excavation.	230m NW of MODS 0430
KSBSS0728	506140	2484413	4.39	1.3	22	179	277	3	Oxidised vitreous to white quartz vein with fractures, pervasive Fe-staining	130m SW of MODS 428
KSBSS0748	505950	2481729	3.75	2.1	104	10	44	36	Milky white, angular quartz vein scree from historical mine workings	MODS 0427
KSBSS0753	505875	2481700	1.85	0.9	6	14	421	61	Brecciated milky quartz vein in shear zone in syenogranite with disseminated pyrite.	MODS 0427
KSBSS0766	509918	2481919	3.01	2.5	5	285	623	3	Angular quartz scree with malachite staining around old workings	MODs 0432
KSBSS0767	509892	2481940	1.06	17.6	96	2920	627	2	Angular quartz scree with malachite staining around old workings	MODs 0432
KSBSS0922	504119	2486649	2.35	2	2.5	79	4	12	Highly weathered fractured milky quartz vein hosted in chloritised diorite (D1)	700m NNW of MODS 444

8.2 Wadi sampling and Deep Alluvial Wadi sampling

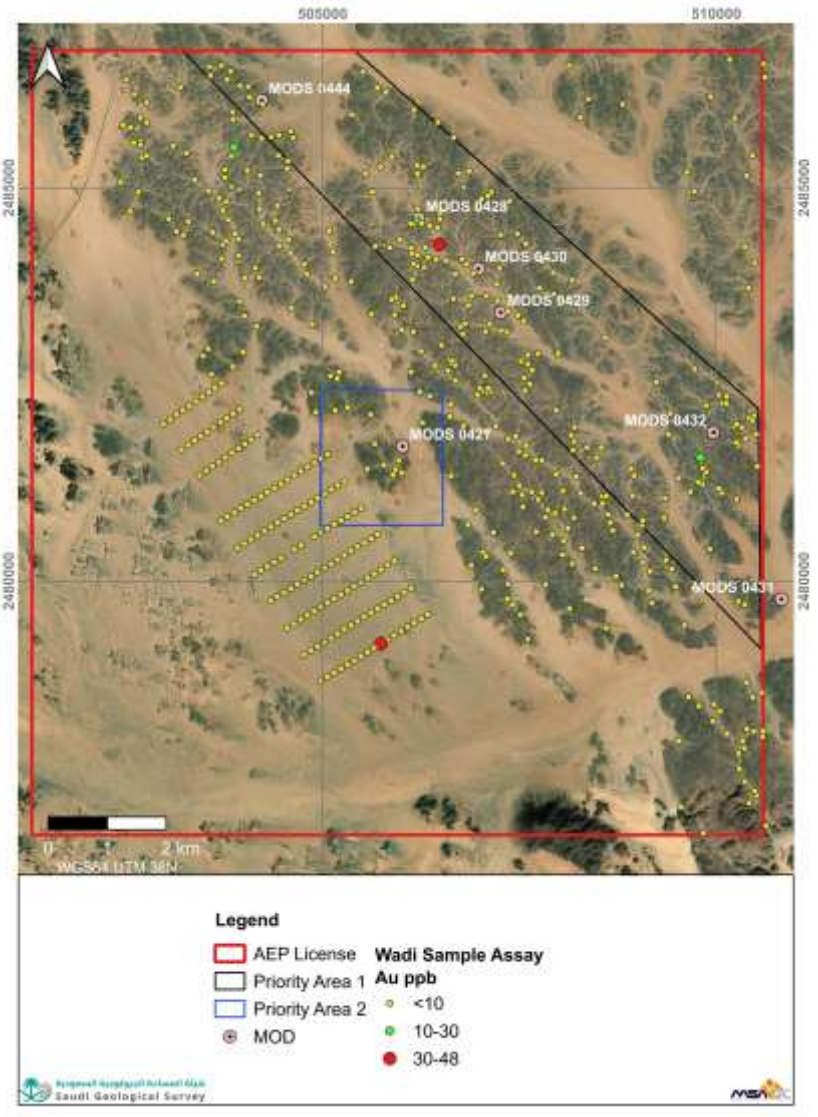
8.2.1 Wadi sampling

The results of the 400 wadi samples that were submitted to the ALS laboratory in Jeddah have been plotted up for Au, Cu, Pb, Zn and As. None of these elements appear to show any clear spatial or numerical correlation with each other.

Gold (Au)

The Au results were disappointing with less than 99% of the samples returning values of below 10 ppb Au. One sample fell in the range of 10-30 ppb and one sample in the range 30-48 ppb Au. The maximum value returned was 48 ppb at a location between MODS 0428 and 0430 (**Figure 8-22**).

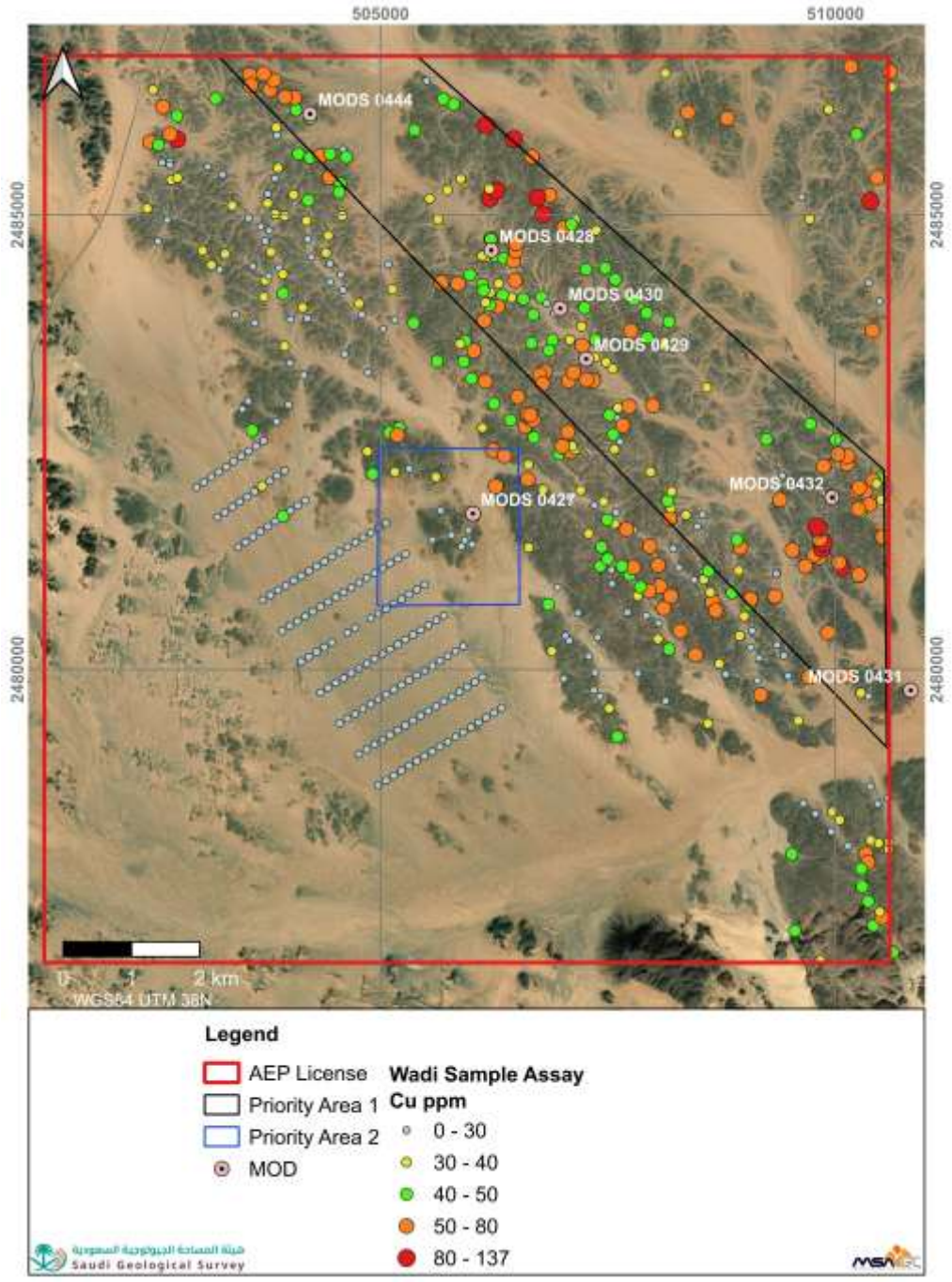
Figure 8-22
Wadi sample geochemical results for Au (ppb)



Copper Cu

Compared to gold, Cu values weakly elevated with top of the range values of 80-137 ppm. Two clusters in this range can be observed. One around MODS 0432 and the other about 1.5km due north of MODS 0428 (Figure 8-23). For reference the average concentrations of Cu in the earth's crust is 68 ppm (Earnshaw and Greenwood, 1997) and in urban soils, 39 ppm (Alekseenko and Alekseenko, 2014).

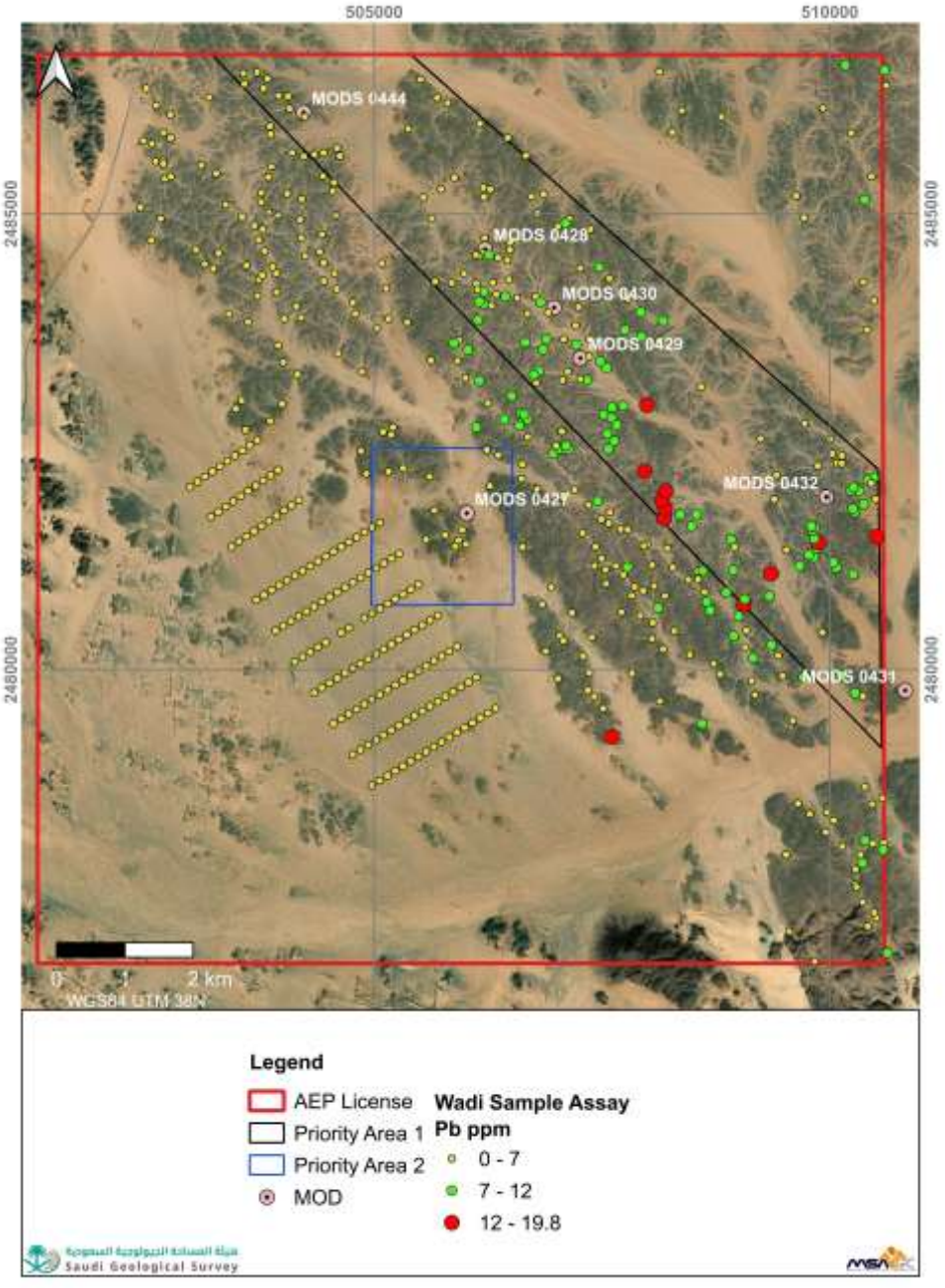
Figure 8-23
Wadi sample geochemical results for Cu (ppm)



Lead (Pb)

The vast majority (over 98%) of Pb values fall in the range 2-10 ppm with less than 2% in the range of 10.1 to 18.4 ppm (**Figure 8-24**) For reference the average concentrations of Pb in the earth's crust is 13 ppm (Earnshaw and Greenwood 1997) and in urban soils, 54 ppm (Alekseenko and Alekseenko (2014).

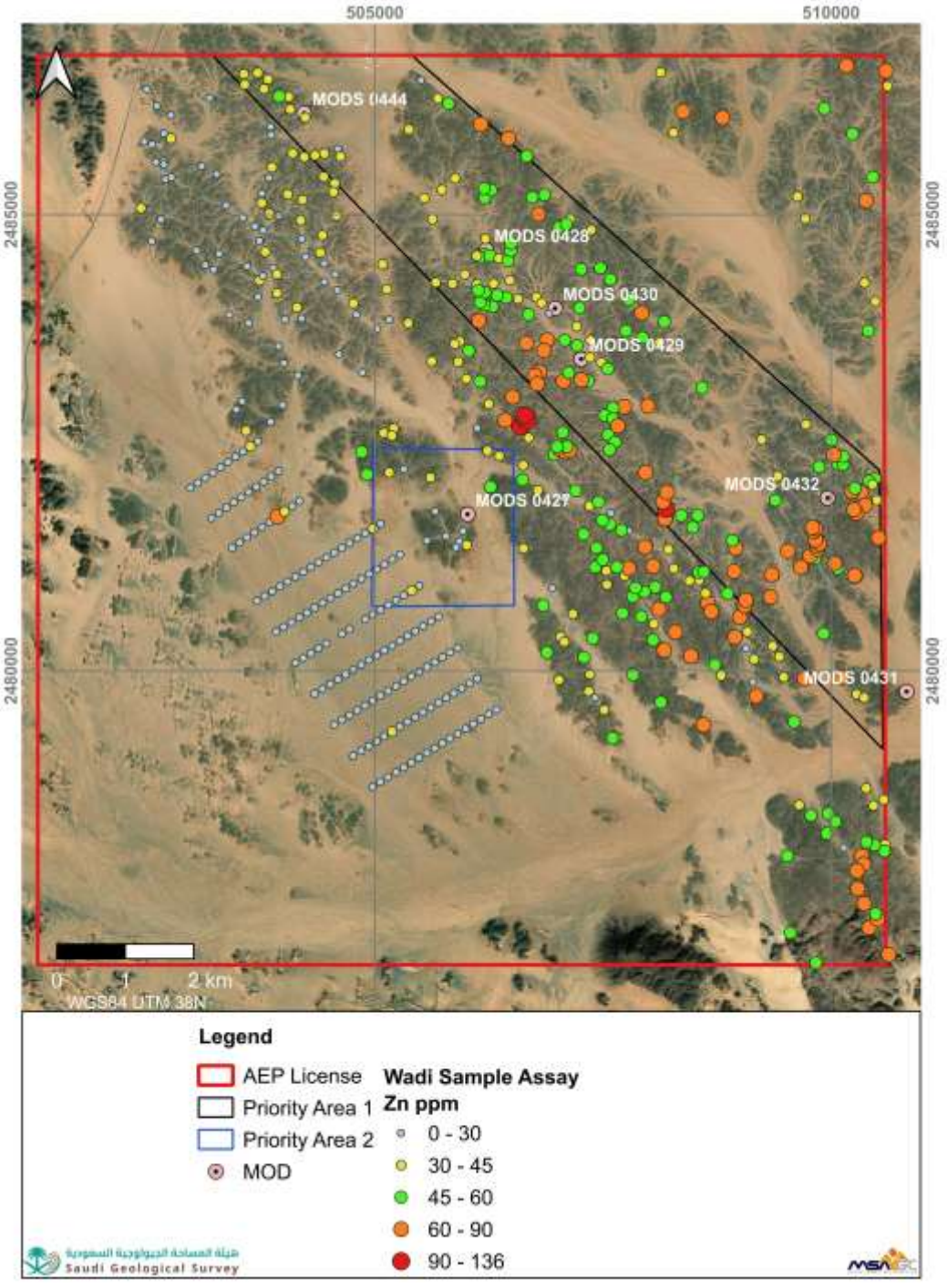
Figure 8-24
Wadi sample geochemical results for Pb (ppm)



Zinc (Zn)

The Zn wadi sample results are presented in Figure 8-20 and show a small clustering of top range (91-136 ppm) values about 500m south of MODS 0429 between Priority Focus Areas PF-01 and PF-02 (**Figure 8-25**).

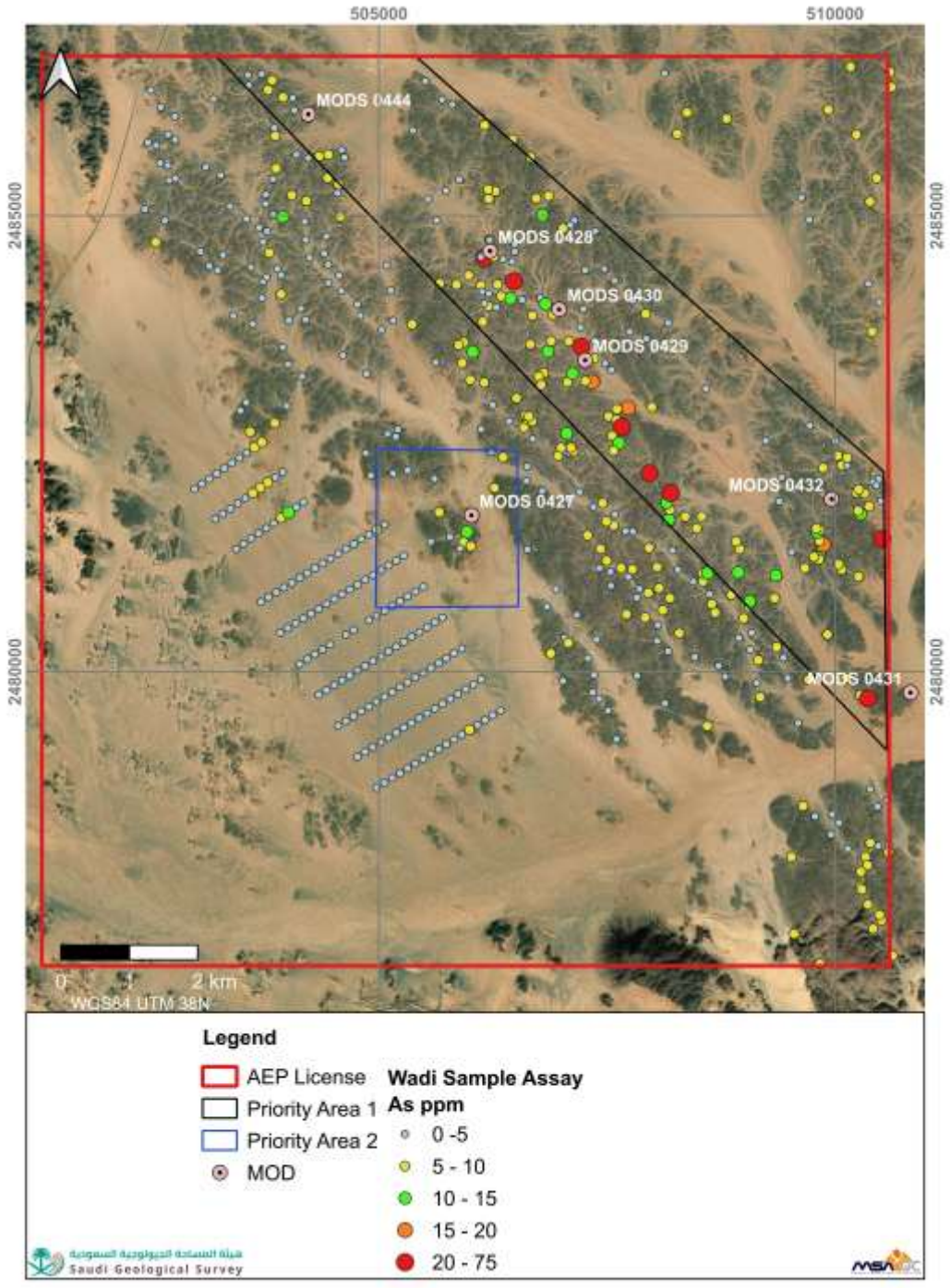
Figure 8-25
Wadi sample geochemical results for Zn (ppm)



Arsenic (As)

Figure 8-26 shows that six out of the eight top of the range (20-75 ppm) As values appear to lie along a linear feature trending southeast for over 4km from MODS 0428.

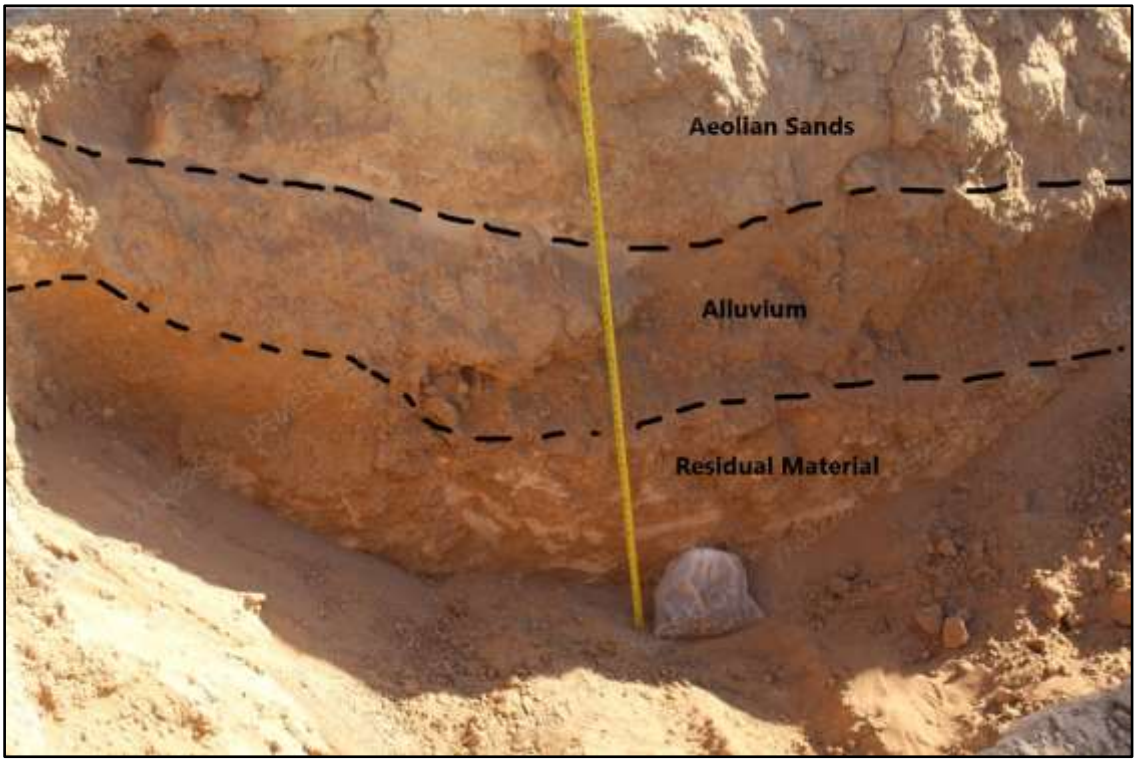
Figure 8-26
Wadi sample geochemical results for As (ppm)



8.2.2 Deep Alluvial Wadi Samples

The profile of the deep cover in the southwest of the KSB AEP was tested to a maximum depth of 1.5m by the excavator-assisted pitting programme. The profile was seen to consist of variable thicknesses of aeolian sands mantling alluvial material, both of which rested on a residual soil substrate. Only two sites (KSBSS0499 and KSBSS503) could not be sampled, as the entire profile consisted of aeolian sand. A representative section of an entire profile is shown in **Figure 8-27**. However, it must be noted, that it was not always possible to clearly differentiate between the alluvial material and underlying residual, soil but in general, residual soils were encountered near rock outcrop at the margins of the grids.

Figure 8-27
Representative 1.5m profile though the aeolian and alluvial cover in the SW part of the KSB AEP (Sample site ID KSBSS0446)



The geochemical results from the deep alluvial wadi sampling programme were disappointing with 99% of the results falling below 5 ppb Au (**Figure 8-22**). The highest Au value obtained was 32 ppb from sample KSBSS0570. Copper values ranged from 1-41 ppm, (**Figure 8-23**) Pb from 0.9-5.4 ppm (**Figure 8-24**), Zn from 2-67 ppm (**Figure 8-25**) and As from 2-14ppm (**Figure 8-26).**

8.2.3 Portable XRF results of wadi sub-samples

The portable analyser results for Au pathfinder elements Cu and Zn for wadi samples were fairly comparable with those obtained by ICP analysis at ALS. **Figure 8-28** and **Figure 8-29** show the comparison between the two analytical methods for 50 selected elements for Cu and Zn, respectively.

For other pathfinder elements such as As and Pb, the correlation was not as good, as the pXRF analyser does not operation efficiently at very low elemental levels close to the detection limit, as was the case at Al Khashabi for Pb and As.

Figure 8-28
pXRF versus ICP (Cu ppm)

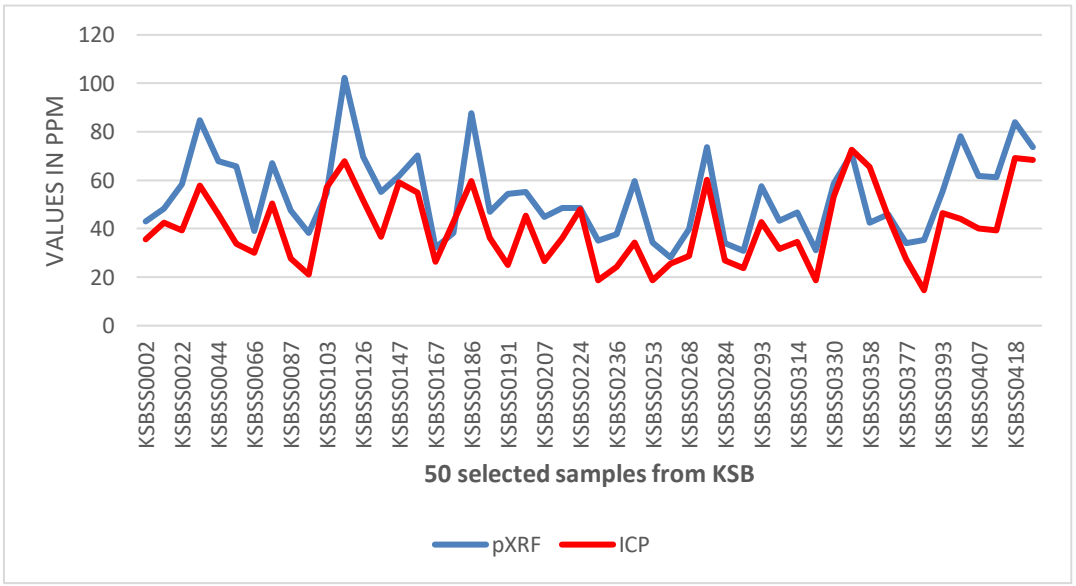
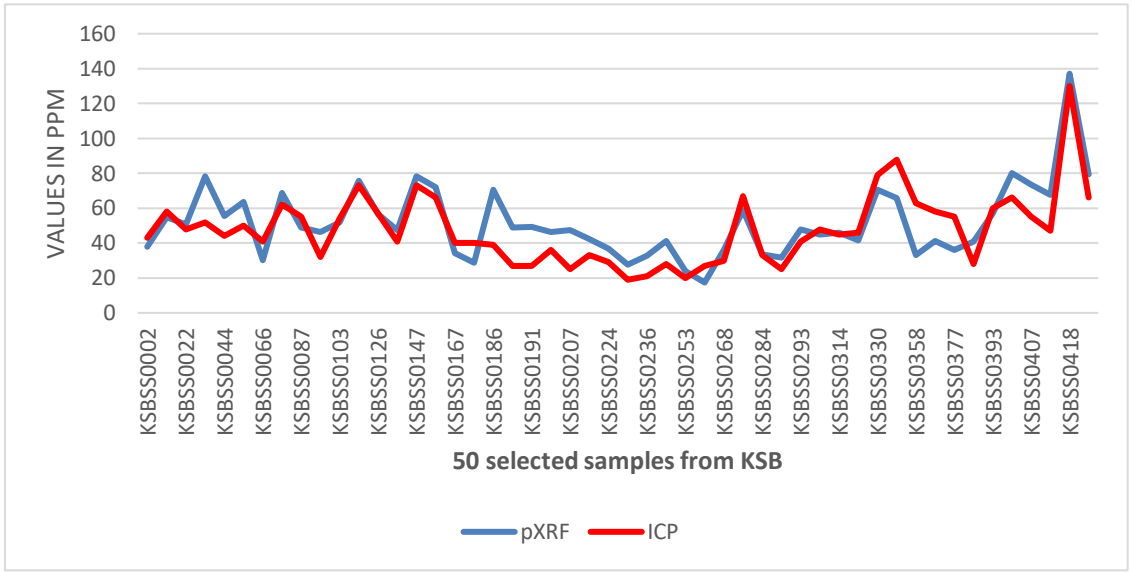


Figure 8-29
pXRF versus ICP (Zn ppm)



However, for other elements such as cobalt (Co), nickel (Ni) and to a lesser degree, chromium (Cr) the ICP results for wadi samples seriously under-reported the pXRF results (**Figures 8-30, 8-31 and 8-32** respectively). This trend is unusual as it is normally the reverse (see Section 9.7 for interpretation).

Figure 8-30
pXRF versus ICP (Co ppm)

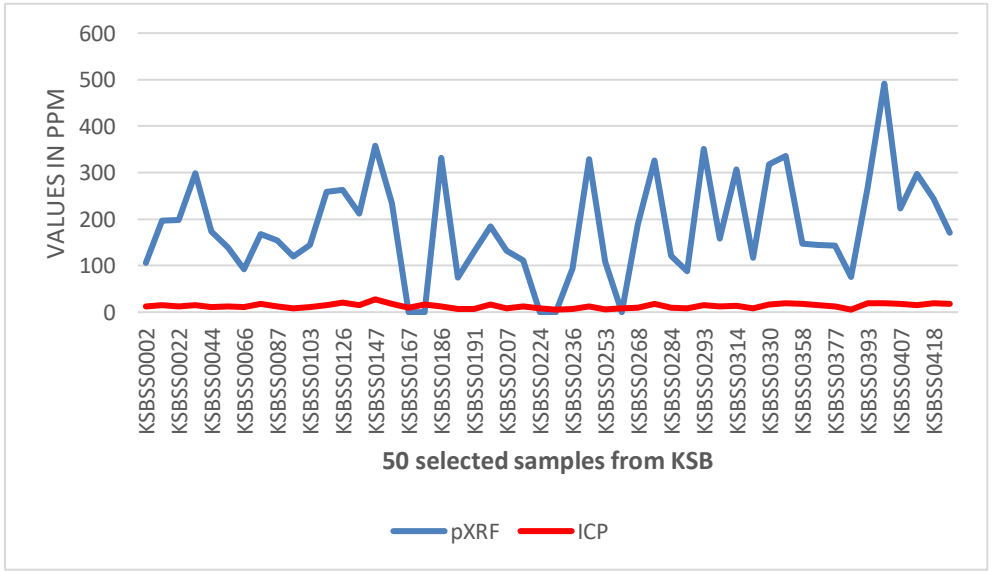


Figure 8-31
pXRF versus ICP (Ni ppm)

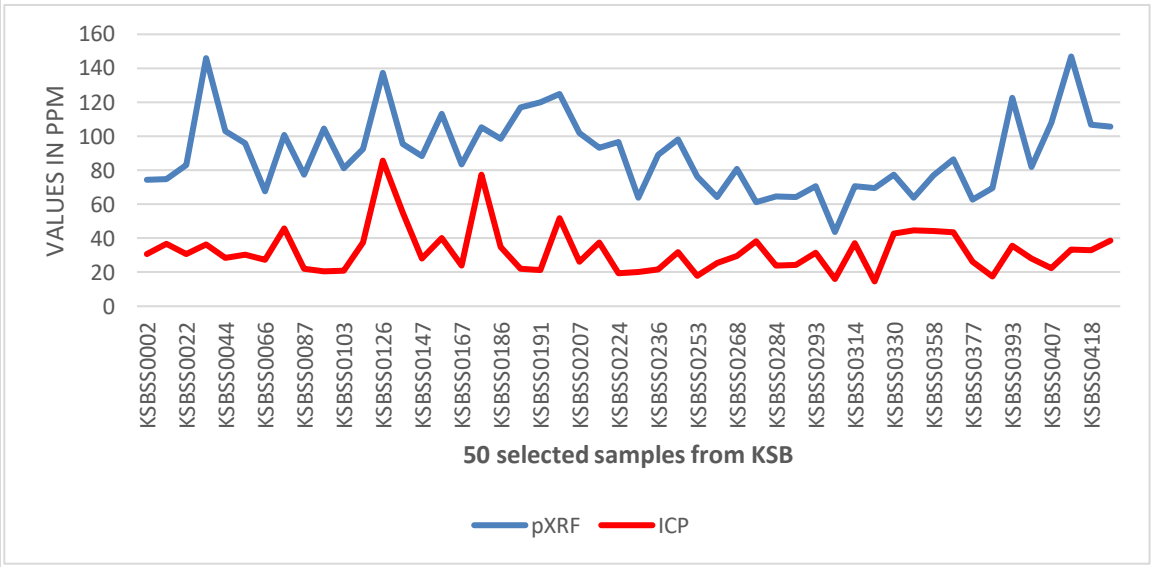
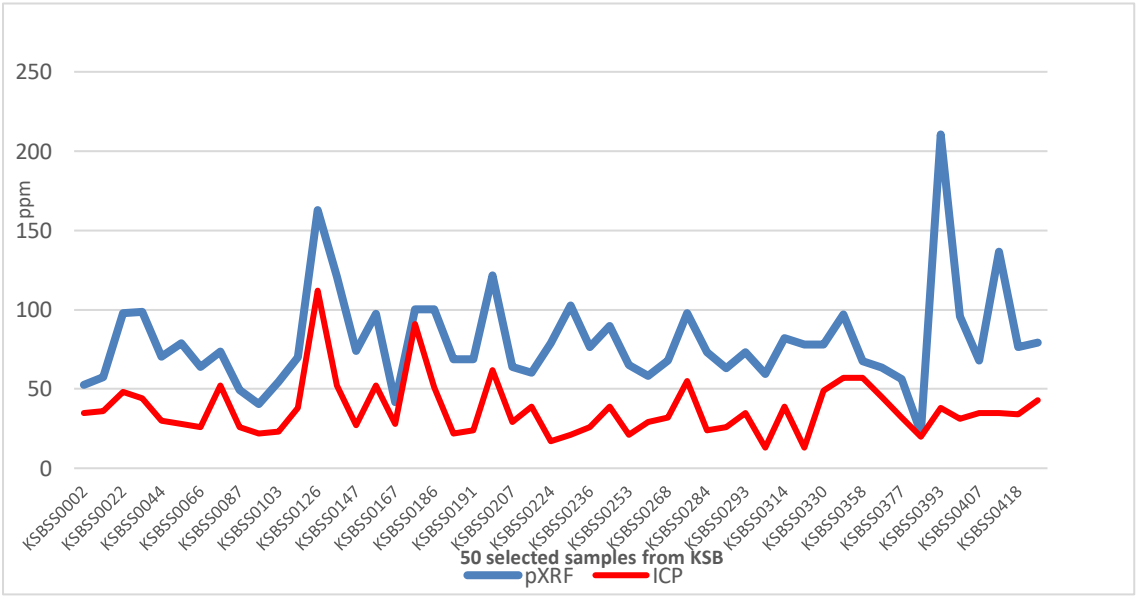


Figure 8-32
pXRF versus ICP (Cr ppm)



8.3 Trenching Results

The key Au assay intercepts returned from ALS for the Al Khashabi trench samples are summarised in Table 8-3 below. Plans of the trenches at MODS 0427 and MODS 0432 are shown in Figures 8-2 and 8-6 respectively.

Table 8-3
Summary of key trench Au assay intercepts at KSB

Trench_ID	From (m)	To (m)	Interval (m)	Av. Grade g/t Au	Comments
KSB_TR_001	29	32.2	3.2	3.04	NW-trending quartz vein, dipping 80 NE
KSB_TR_002	6	7	1	7.07	NW-trending quartz vein dipping 28 NE in highly weather diorite
KSB_TR_002	27	33	6	4.39	Sub-horizontal quartz vein cutting contact between oxidised diorite and volcanics
KSB_TR_003	19	20	1	2.49	Shear zone trending NNW, dipping 60 degrees NE, in saprolitic syenogranite
KSB_TR_003	26	29	3	14.31	Qtz vein, in saprolitic syenogranite, NW-trending dipping 50 degrees NE
KSB_TR_004	31	32	1	0.51	Minor qtz vein stockwork in saprolitic syenogranite

Note: Sampled widths are likely exaggerated when sampling sub-horizontal quartz veins.

These intercepts occur in quartz veining which vary from near near-flat-lying to steeply dipping. Moreover, It is important to note that samples are collected horizontally along the length of the trench, oblique (low angle) to flat lying veins, as per the trench sampling SOP A09. The result is that width of mineralisation may be exaggerated in some cases and will not reflect true widths.

In the **Figures 8-33**, **8-34**, **8-36** and **8-38** below, the Au intercepts are superimposed on the geological trench log. For trenches KSB_TR_02 and KSB_TR_03, a photograph of the corresponding Au intercept in the trench is also shown (**Figures 8-35** and **8-37** respectively).

See also **Appendix 3** for trench geological sections and **Appendix 4** for trench strip logs.

Figure 8-33

Section showing Au intercepts in trench KSB_TR_001, MODS 0432

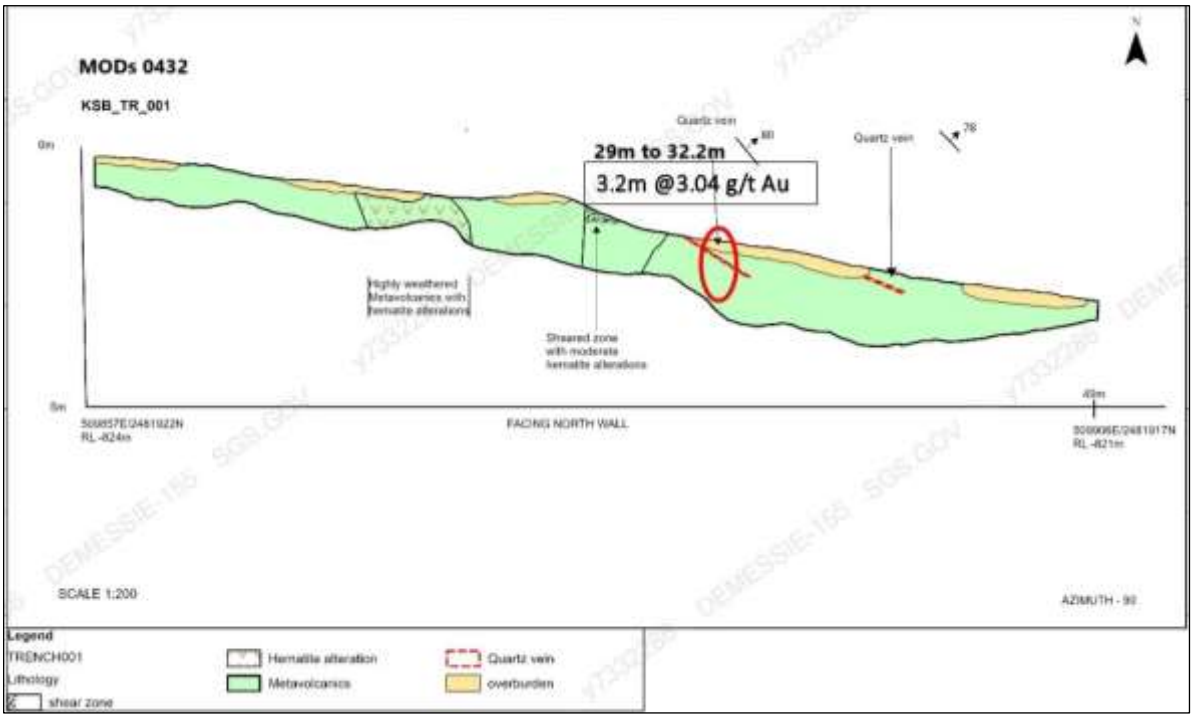


Figure 8-34

Section showing Au intercepts in trench KSB_TR_002, MODS 0432



Figure 8-35

Photo showing shallow-dipping quartz vein shown in Figure 8-34 above of gold mineralised veins in trench KSB_TR_002, MODs 0432



Figure 8-36

Section showing Au intercepts in trench KSB_TR_003, MODS 0427

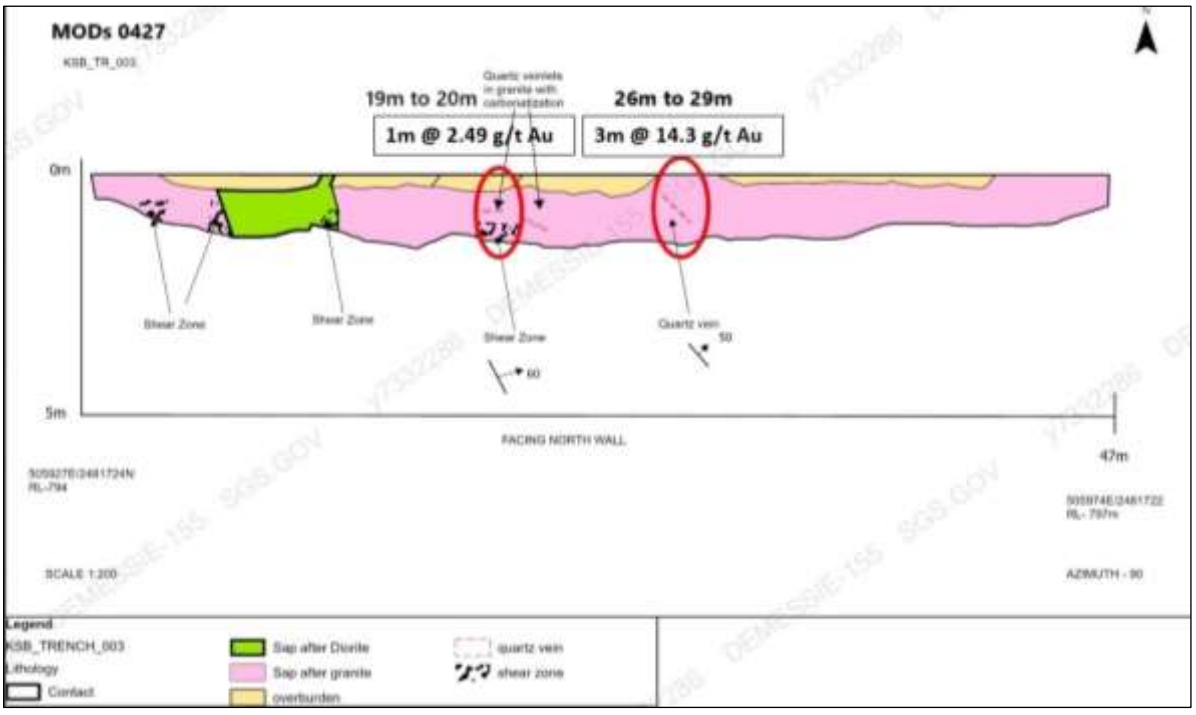


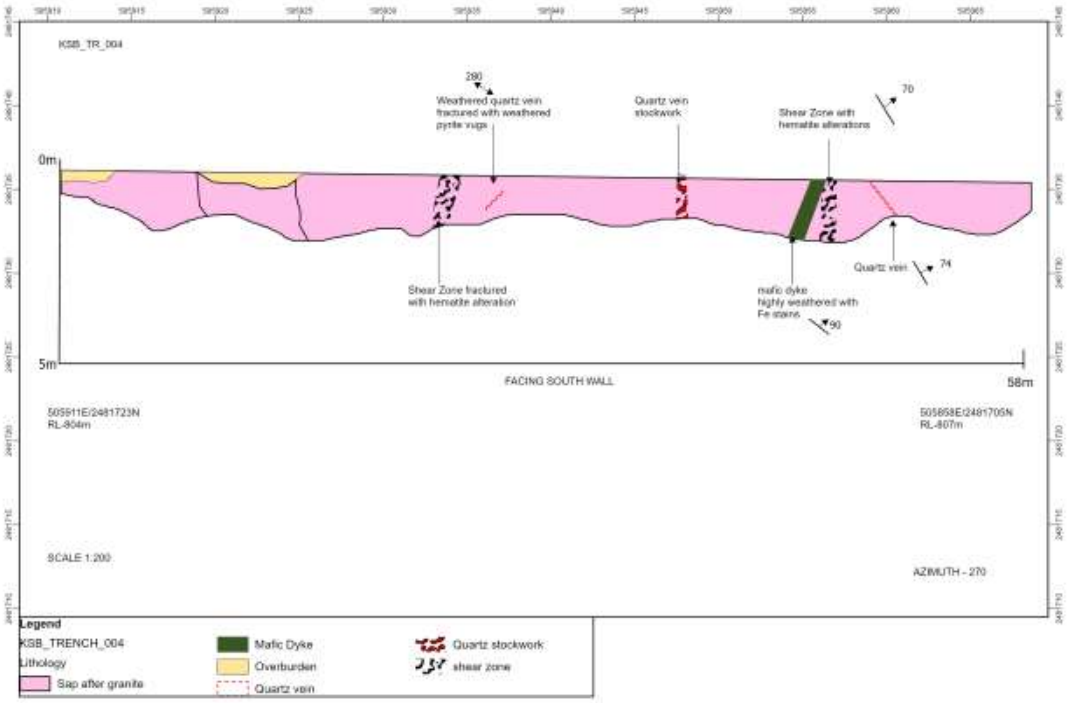
Figure 8-37

Photo showing shallow-dipping oxidised quartz vein shown in Figure 8-34 above in Au intercept zone in trench KSB_TR_003, MODS 0427



Figure 8-38

Section showing Au intercept in trench KSB_TR_004, MODS 0427



9 INTERPRETATION

9.1 Geological and Tectonic Setting

The lack of basaltic volcanism within the AEP and the predominance of intermediate to felsic volcanics and associated pyroclastic rocks, point to a mature island arc tectonic setting or that of a juvenile continental margin arc, more likely the latter. This hypothesis is consistent with the regional geological setting whereby the Al Khashabi AEP area and surrounding region is positioned within the Suwaj Arc.

9.2 Deposit Model

The orogenic gold deposit model originally proposed by Robertson (2022) is endorsed by the following findings.

- The presence of narrow (<1m) discontinuous, auriferous quartz veins with variable grade.
- The spatial association of the quartz veins with intermediate to felsic intrusions and faults or shears
- The occurrence of nominal amounts of base metals (Cu, Pb, Zn) associated with the gold mineralisation.
- A proposed magmatic arc tectonic setting (Section 9.1).

9.3 Mineralisation

Gold-mineralised quartz veins are seen to cut a broad range of host lithologies including diorite of the basement Burudan Complex, andesites and pyroclastics of the Ar Rika Formation, and syn- to late tectonic felsic intrusions. The occurrence of sulphide minerals is restricted to rare, disseminated pyrite in quartz veins and to narrow wall-rock alteration margins.

Rare silver-grey, recti-linear metallic minerals found as fracture infill in quartz veins MODS 0427, 0428, 0429 and 0432 are here interpreted as aggregates of, Pb-Ag tellurides, arsenopyrite and possibly galena. This mineral package also endorses an intrusion-related orogenic gold style of mineralisation.

A comparison between the silver-grey metallic mineralisation and the type locality for the Ag-bearing telluride sylvanite is shown in **Figures 9-1** and **9-2** –below.

As noted above, the secondary copper mineral malachite ($Cu_2CO_3(OH)_3$) is found in abundance in quartz vein material at MODS 0432 and in lesser amounts at MODS 0427, 0429 and 0444. It is not particularly diagnostic of orogenic gold deposits, though in Saudi Arabia, it has been recorded as a subordinate phase in orogenic gold deposits such as Hazm Shubat (Malapur, 2024). In the right supergene environment, small amounts of primary copper can generate disproportionate amounts of malachite, so it's occurrence at Al Khashabi is not seen as particularly significant.

Figure 9-1 Silver-grey tellurides (?) infilling quartz vein fracture, MODS 0427	Figure 9-2 Ag-tellurides in quartz from type localtity Baia de Aries, Romania
	

Note: The tellurides specimen from the type locality (**Figure 9-2**) is not considered typical, but rare and rich. The texture defined by the telluride intergrowths is known as "Schrifterz" texture.

9.4 Possible Structural Controls of Mineralisation

As demonstrated by the stereographic analysis in Section 8.1.5, the dominant trend for quartz veining within the AEP is NW, which is consistent with that the regional Najd Fault System. A minor northerly trend may reflect the influence of the Al Amar Fault Zone to the east. The dominant dip direction of the quartz vein set is to the NE with dips from 10-85 degrees. A sub-ordinate dip direction is to the SW with dips of 50- 70 degrees. From the limited data, it is not possible to resolve if either of these two dip directions is preferentially mineralised.

However, the interpreted NW Najd trend for the quartz veining does not account for the regional NNW trend of the gold occurrence belt discussed in Section 4.2. It could well be, that this trend is controlled by a NNW-trending splay fault from the Ar Rika Fault Zone, also part of the Najd Fault System, located south of the Al Khashabi AEP.

9.5 Wadi sample and Deep Alluvial Wadi sample geochemistry

9.5.1 Wadi Samples

Gold (Au)

As discussed in Section 8 above**,** the Au wadi sample results proved to be disappointing, with the vast majority of the results (circa 95%) falling in the range below 10 ppb. This outcome may be due to one or a combination of factors.

1) The lack of significant primary mineralisation in the sampling area
2) The lack of dispersion caused by Au immobility in an arid climate

Copper (Cu)

The distribution of Cu values in the licence area has proved interesting. Two noteworthy clusters of the higher range (80-137 ppm Cu) can be identified (**Figure 9.3**). One, as anticipated, around MODS 0432 where malachite is abundant and the second about 1.5 km north of MODS 0428 where there is no record of the secondary copper mineral.

In the latter case, the Cu cluster has a strong spatial correlation with a major hornblende diorite intrusion, which in turn has a localised "appinitic" marginal facies on its western flank, as discussed in Section 8 above. The presence of anomalous copper, albeit a weak one, in a form other than malachite, may be a vector towards intrusion-related mineralisation at this locality.

In addition, Rock (1989) notes the spatial correlation between marginal facies "appinites" (lamprophyres) and intrusion-related orogenic gold deposits, on a global scale from Archaean to Phanerozoic.

Arsenic (As)

Above background values of As (20-75 ppm) define a possible four-kilometre-long, NW-SE geochemical trend, containing MODS 0428, 0429 and 0430. It is conceivable that this trend depicts a gold mineralised structure running sub-parallel to the Najd trend (**Figure 9-2**). Whether this trend is real or just a line-of-sight effect remains to be seen.

Figure 9-3
Map showing location of anomalous Cu clusters in the KSB AEP area

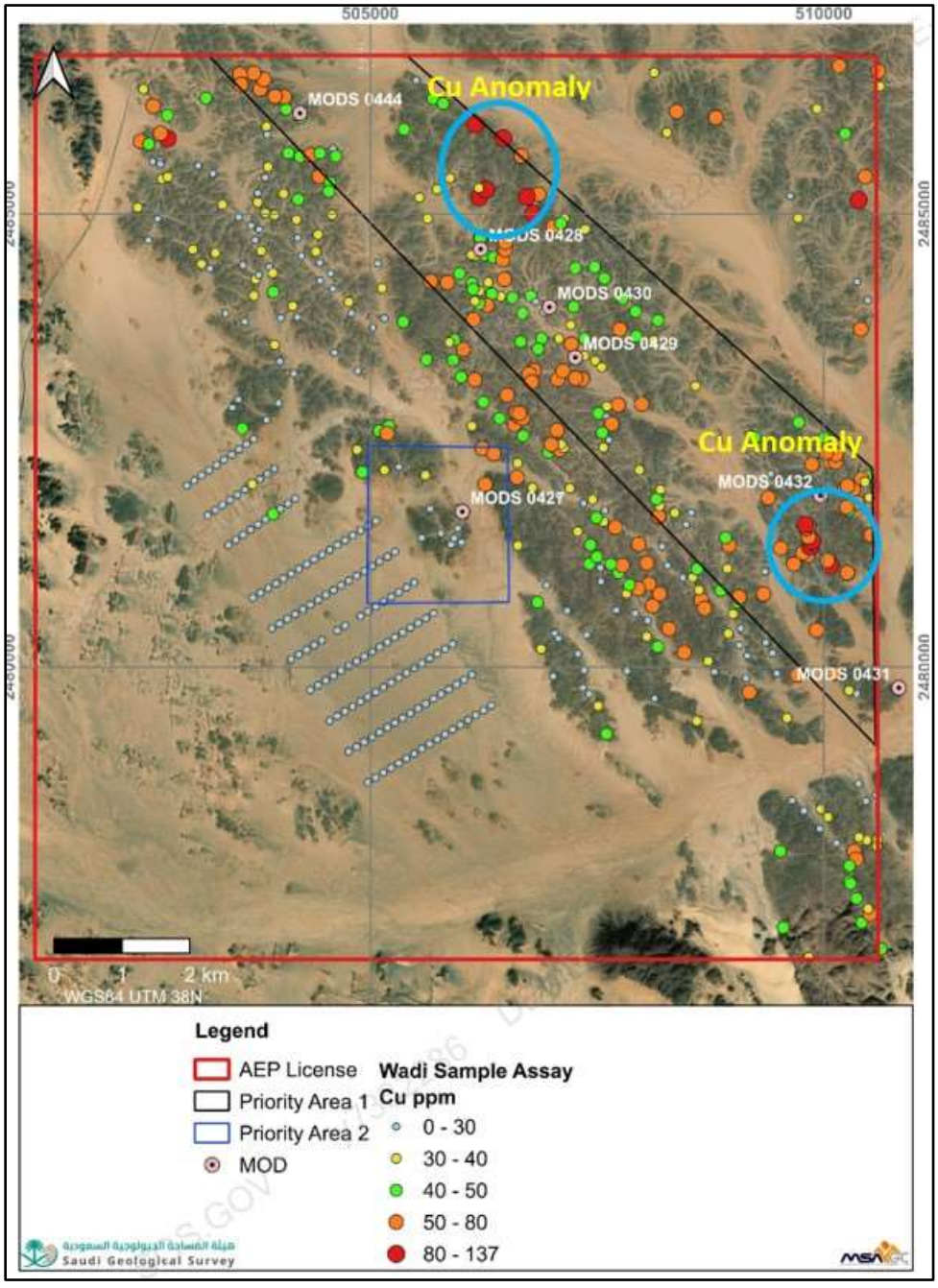
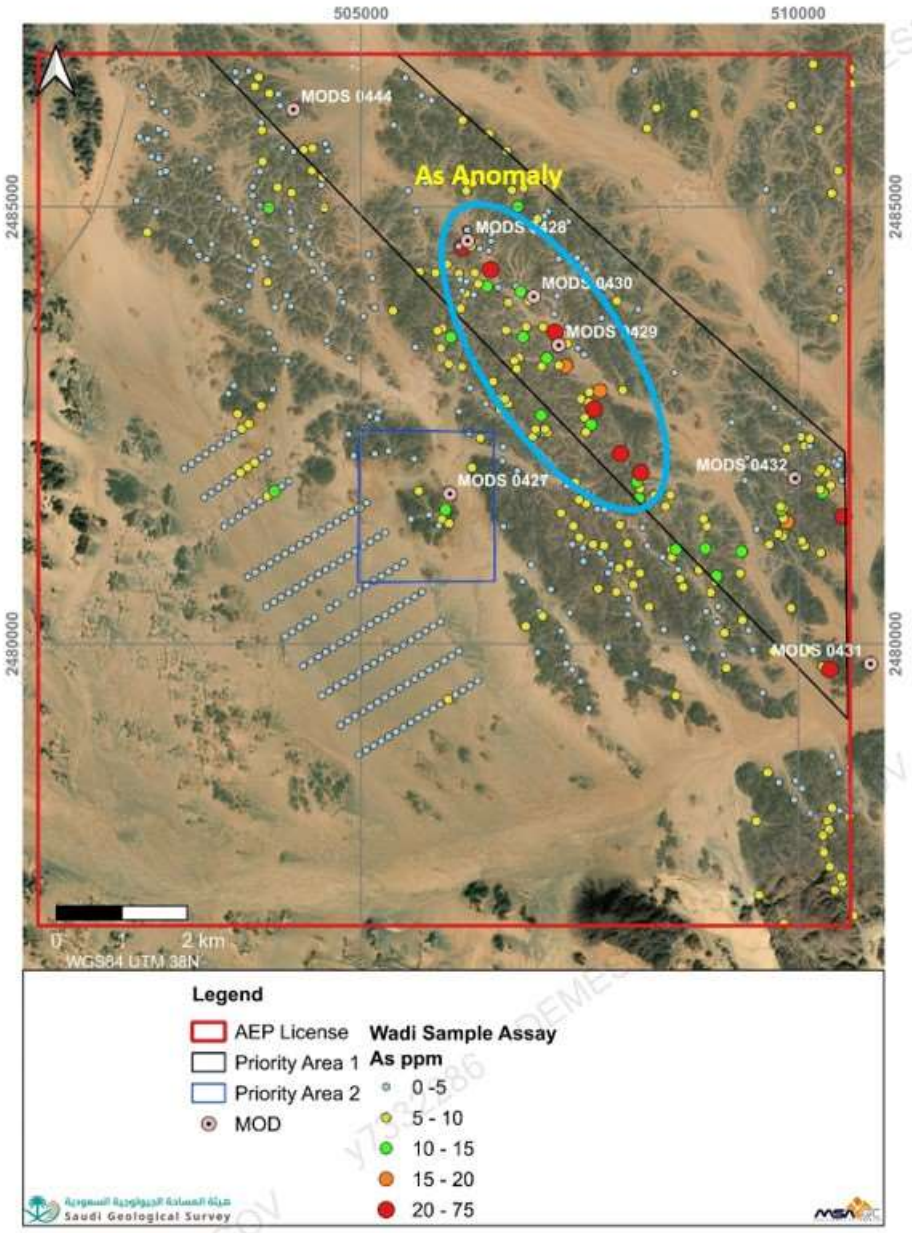


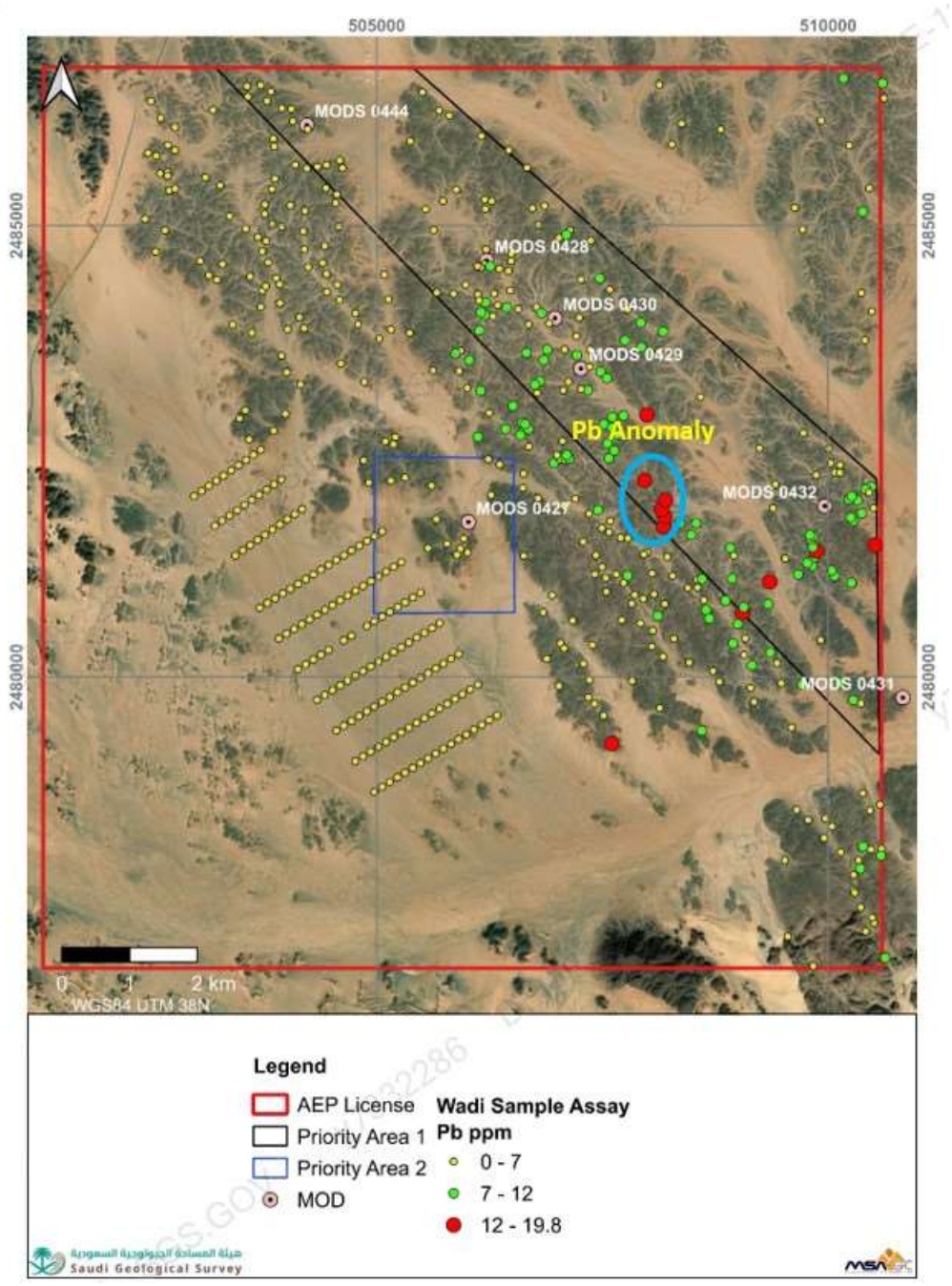
Figure 9-4
Map showing possible alignment of anomalous As values in KSB AEP area



Lead (Pb)

A cluster of relatively anomalous (12-20ppm) Pb values lies between MODS 0427 and 0432 where it shows a strong spatial correlation with a small syenogranitic intrusion (**Figure 9-5**). The possible significance of this is that anomalous Pb, often coupled with tellurium (Te), is one of the signature elements of intrusion-related orogenic gold deposits. Unfortunately, tellurium is not one of the multi-elements tested in the analytical method for wadi samples, so this hypothesis cannot be checked

Figure 9-5
Map showing cluster of anomalous Pb values in the KSB AEP area



9.6 Deep Alluvial Wadi Sample

The reason for such a poor showing in the gold and base metals in the Deep Alluvial Wadi sample results can readily be explained by one or a combination of the same factors described in Section 9.5.1 above. However, in addition, it can be determined from satellite imagery that the aeolian cover

blankets an expansive wadi drainage system with extensive flood plain deposits. In such a case, severe or appreciable elemental dilution would occur, generating similar results as what were returned for this programme.

9.7 Portable XRF analysis of Wadi-sub samples

The reason for the under-reporting of the elements Co, Cr and Ni for ICP analysis with respect to pXRF analysis of wadi sub-samples (Section 8.2.3) is due to the fact that these elements may be contained in refractory minerals that only underwent partial dilution during the Aqua Regia digest.

10 CONCLUSIONS

The main conclusions drawn from the results of the KSB Stage 4 Execution programme are detailed below.

1. The lack of basaltic volcanism within the AEP and the predominance of intermediate to felsic volcanics, and associated pyroclastic rocks, point to a mature island arc tectonic setting, or that of a juvenile continental margin arc. This type of tectonic setting bodes well for potential of orogenic gold and porphyry Cu-Au deposit discoveries.
2. The presence of narrow (<1m) discontinuous, auriferous quartz veins of variable grade, containing nominal amounts of base metals (Cu, Pb, Zn), with spatial associations to shears and faults, tends to confirm a subduction-related, orogenic gold deposit model for Al Khashabi, as originally proposed by Robertson (2022). However, this does not necessarily preclude the possibility of finding other styles of subduction-related mineralisation within the AEP area, such as porphyry Au-Cu deposits, formed at deeper crustal levels
3. Au mineralised quartz veins are seen to cut all major lithologies including basement diorites of the Burudan Complex, intermediate to felsic volcanic and associated pyroclastics of the Ar Rika Formation (Hulayfah Group) and syn- to late tectonic felsic intrusions.
4. A stereographic analysis of the structural data has indicated the primary trend of quartz veining is north-westerly (Najd Trend) with a possible sub-ordinate northerly (Al Amar) trend. The dominant dip direction is to the NE, with dips in the range of 10-70 degrees.
5. On a property scale, the structural controls are not yet fully constrained, but a possible conjugate set of NW-trending and northerly-trending faults merits further consideration.
6. On a regional scale, the Al Khashabi AEP lines at the southern end of a NNW-trending, 50km-long belt of gold occurrences which may lie along a similarly trending splay off the Ar Rika Fault (Najd trend), located to the south of the AEP.
7. The two most prospective MODS for gold mineralisation, MODS 0427 and 0432, contain considerable amounts malachite in quartz vein material. Malachite is also recorded at MODS 0429

and MODS 0444, but to lesser degrees. However, the abundance of malachite should not be seen as a prerequisite for gold mineralisation, as it often occurs in disproportionate amounts to the quantity of the original copper-bearing mineral, due to supergene enrichment.

8. Primary sulphides are restricted to minor disseminated pyrite. Aggregates of silver-grey metallic Pb-Te-Ag-As-S mineral intergrowths have been recorded at MODS 0427 0428, 0429 and 0432 as fracture infill in quartz veins. These intergrowths have yet to be positively identified but bear a strong resemblance to Pb-Ag tellurides. If this is the case, this would be further endorsement for an intrusion-related, orogenic gold deposit model.
9. Alteration is very limited in scale and extent with minor hematite and carbonate alteration associated with quartz veining and shearing. The limited extent of alteration may reduce the potential for mineable Au grade extent into wall-rock adjacent to quartz veins.
10. Rock chip and grab sample geochemistry shows that Au values broadly correlate with enhanced Pb and Cu values.
11. The vast majority of wadi geochemical samples returned values of less than 10 ppb Au, the maximum value registered was 38 ppb. The reasons for such poor results may be accounted for by limited primary Au mineralisation in the sampling area and to poor dispersion of a relatively immobile element (Au) in an arid climate.
12. A cluster of relatively anomalous Cu values in the wadi samples show a strong spatial correlation with a hornblende diorite intrusion 1.5km north of MODS 0428. This intrusion contains a distinct porphyritic marginal facies of "appinite" (lamprophyre) on its western flank. Elsewhere in the world, in similar tectonic and geological settings, these type of rocks have been considered as lithological pathfinders for intrusion-related orogenic gold deposits.
13. A small cluster of relatively anomalous Pb values coincide on the ground with a syenogranitic intrusion between MODS 0427 and MODS 0432.
14. Six relatively anomalous As wadi samples appear to define a 4km-long, NW geochemical trend which contains MODS 0428, 0429 and MODS 0432. This trend may depict an underlying gold-mineralised structure.
15. Although the deep alluvial wadi sampling programme failed to produce any significant results, in the southwestern part of the AEP, it must be borne in mind that for safety reasons samples were taken at a maximum depth of 1.5m with the assistance of the excavator. Moreover, it can be determined from satellite imagery that the aeolian cover blankets an expansive wadi drainage system with extensive flood plain deposits. In such a case, severe or appreciable elemental dilution would occur, thus generating poor results.
16. Promising Au assay intercepts were returned from trench sampling at MODS 0432, though these results should be tempered by the fact that sampling occurred oblique to shallow dipping veins, so the true intercept width was not tested.
17. Gold mineralisation is largely localised and mainly confined to the six MODS on the AEP, which had already been identified during historical surveys. Even here, the grade and potential tonnages, as

they stand at present, are unlikely to attract attention from an international mining concern, though a junior exploration company may be interested in testing the AEP's potential further.

18. There is no evidence of active or recent artisanal mining activity with the AEP.

11 RECOMMENDATIONS

The recommendations made below are based on the fact that only 50% of the Al-Khashabi AEP has been tested and that there is potential for "blind" mineralisation in the southwest half of the AEP, which is mantled by expansive and relatively deep alluvial and aeolian cover.

Remote Structural Analysis

The gold mineralisation identified at the KSB AEP to date is clearly structurally controlled. The detailed structure at both property and prospect scales is still poorly understood. An in-depth analysis of the SGS Drone Digital Terrain Model (DTM) survey data, which is already available, should be carried out in an attempt to address this matter before any further field mapping is undertaken.

This should be carried out in conjunction with the recent airborne geophysical survey data (300m line-spacing), produced by Sander of Canada in 2022. These data are now fully accessible on the National Geological Database (NGD) portal. Such a study was initially recommended in the Stage 3 report but at the start of the of the Stage 4 Execution programme the geophysical survey data was only available in the form of TIFF file images, without the underlying data.

An airborne (drone) magnetic survey would be extremely useful in delineating structural trends, especially in the areas of deep alluvial and aeolian cover that dominates the southwestern half of the license area.

Multi-Spectral and Hyperspectral (MHS) Remote Sensing

This task was originally proposed in the Stage 3 report, using public domain data, but after further investigation the resolution of the available data was deemed to be of insufficient quality to carry out the work of identifying potential hydrothermal alteration to a satisfactory level.

This is particularly important given the fact that the recent field programme has highlighted anomalous Cu values coincident with a major dioritic intrusion, thereby indicating potential for porphyry Au-Cu style mineralisation and associated zonal hydrothermal alteration, such as potassic, phyllic, propylitic or sericitic, which may be detectable using commercial grade MHS imagery or surveys.

Deep –penetrating ground geophysics (Typhoon^{TM})

A deep-penetrating ground geophysics survey, such as the Typhoon^{TM} system, produced and marketed by Ivanhoe Electric would be ideal for testing the expansive, flat ground of alluvial and Aeolian cover in the southwestern half of the licence area for potential porphyry Au-Cu and sulphide-

related mineralisation. If the results of the Remote Structural Analysis the MHS analysis described above, proved positive, then the possibility of using deep-penetrating geophysics could be considered.

However. as the results produced by the Stage 4 Execution Programme were of insufficient calibre, it is recommended that the project should not be advanced to Stage 5. This viewpoint is also held by the Gold and Base Metal Expert, John Barry.

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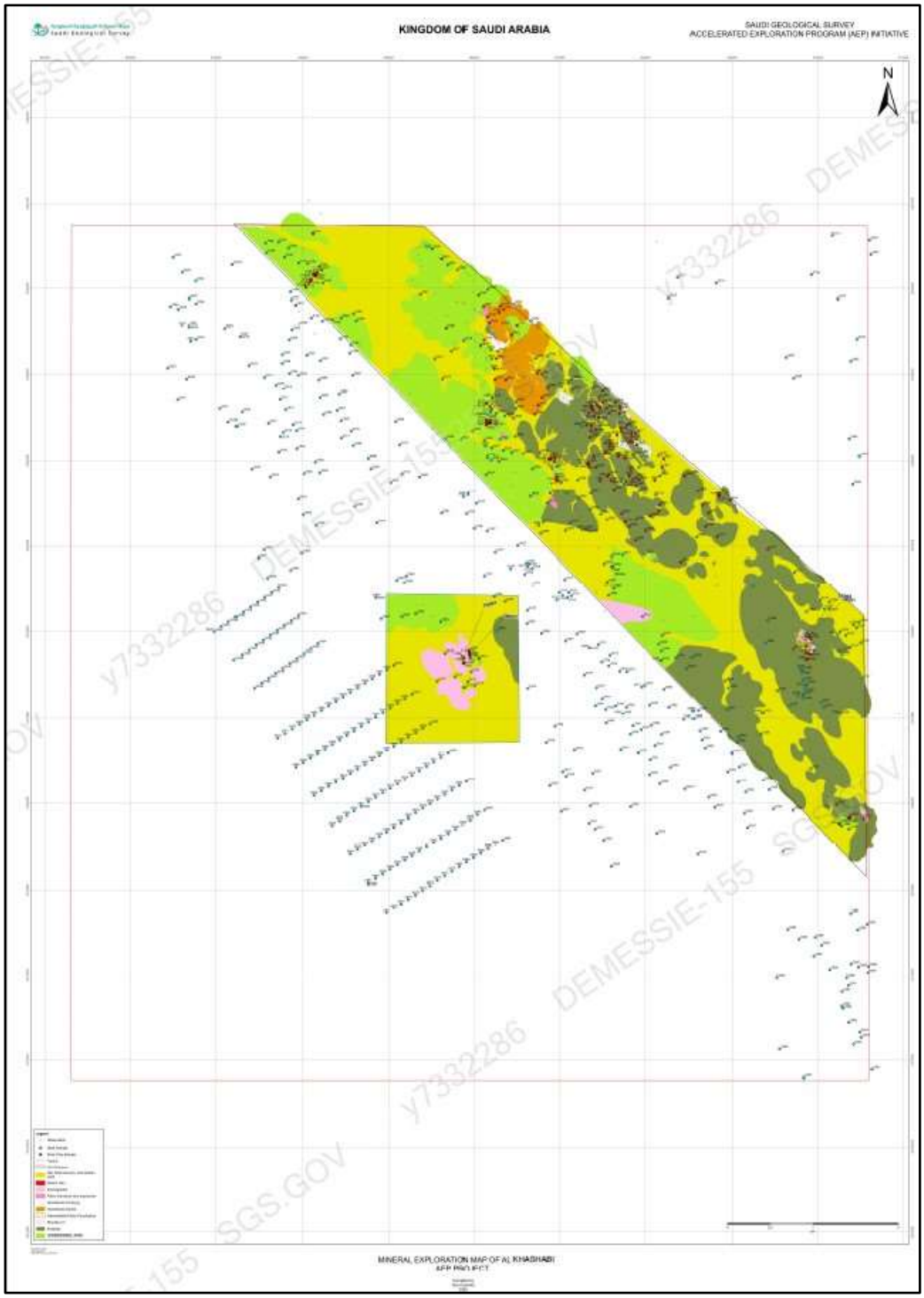
Saudi Geological Survey (SGS) 2024. Field Operation Manual Volume II: Standard Operating Procedures and Templates. April 2024.

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APPENDIX 1:

Mineral Exploration Map

KSB – Mineral Exploration Map



APPENDIX 2:

1:500 Geological Maps

(Presented at 1:750 scale)

Figure 1- MODS 0427

(showing trench locations)

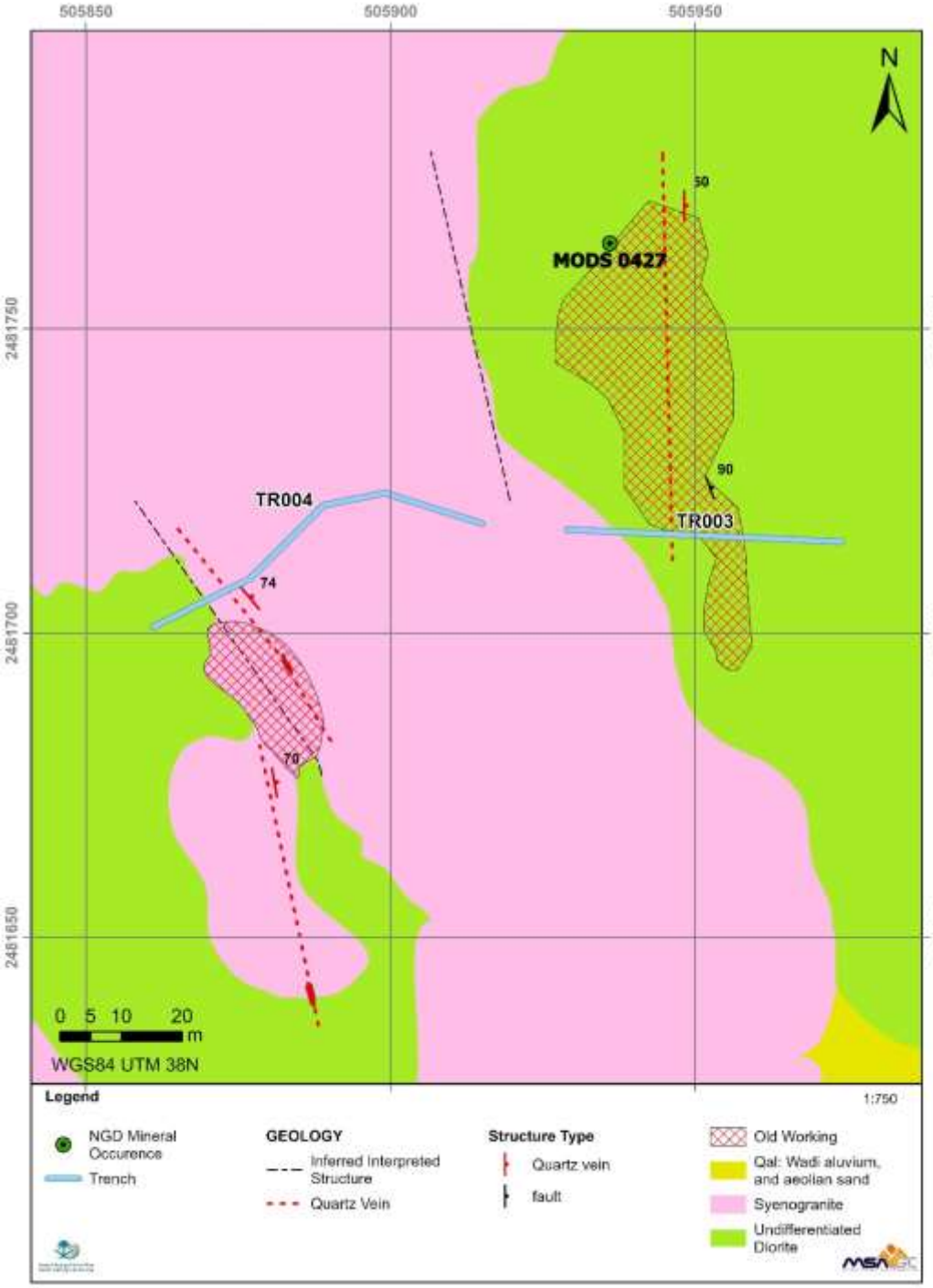


Figure 2 – MODS 0428

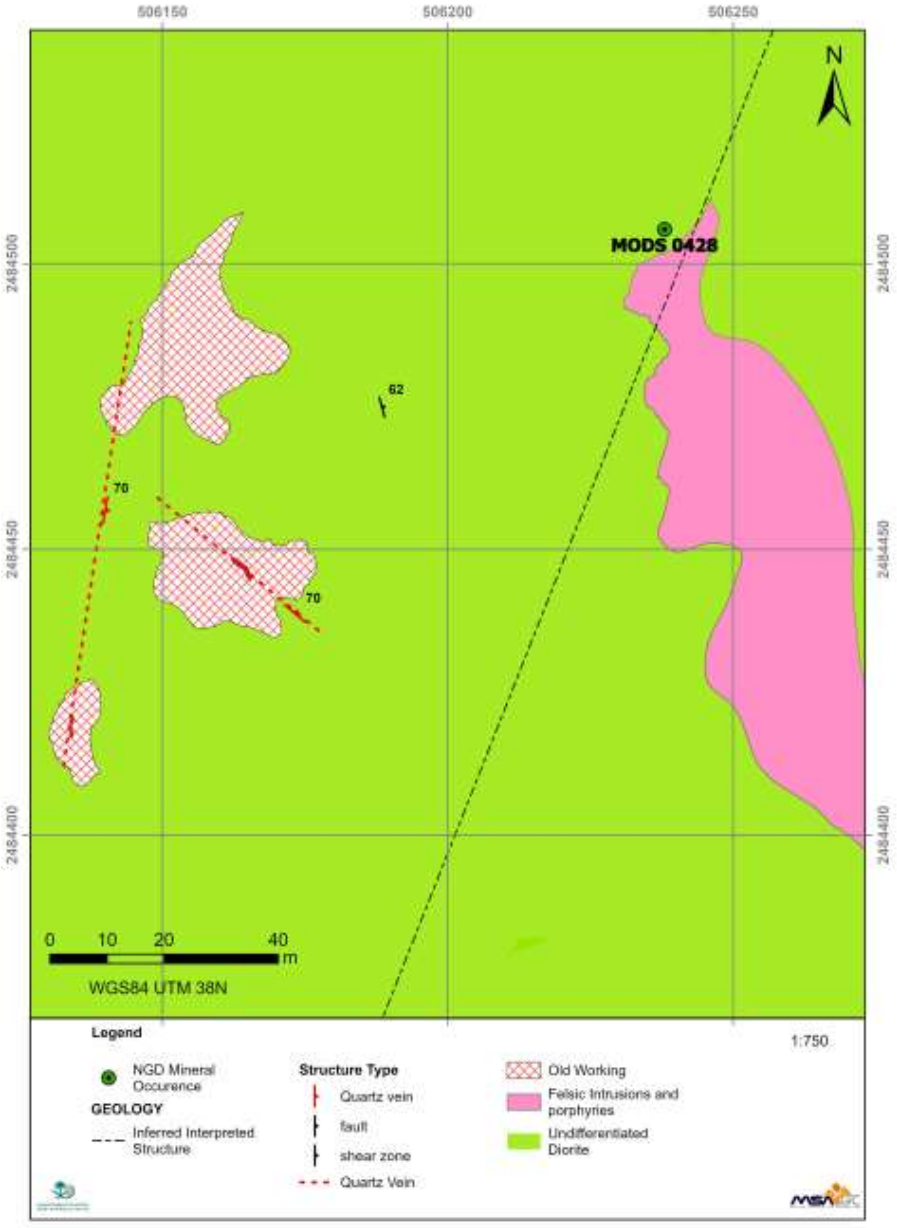


Figure 3 – MODS 0429

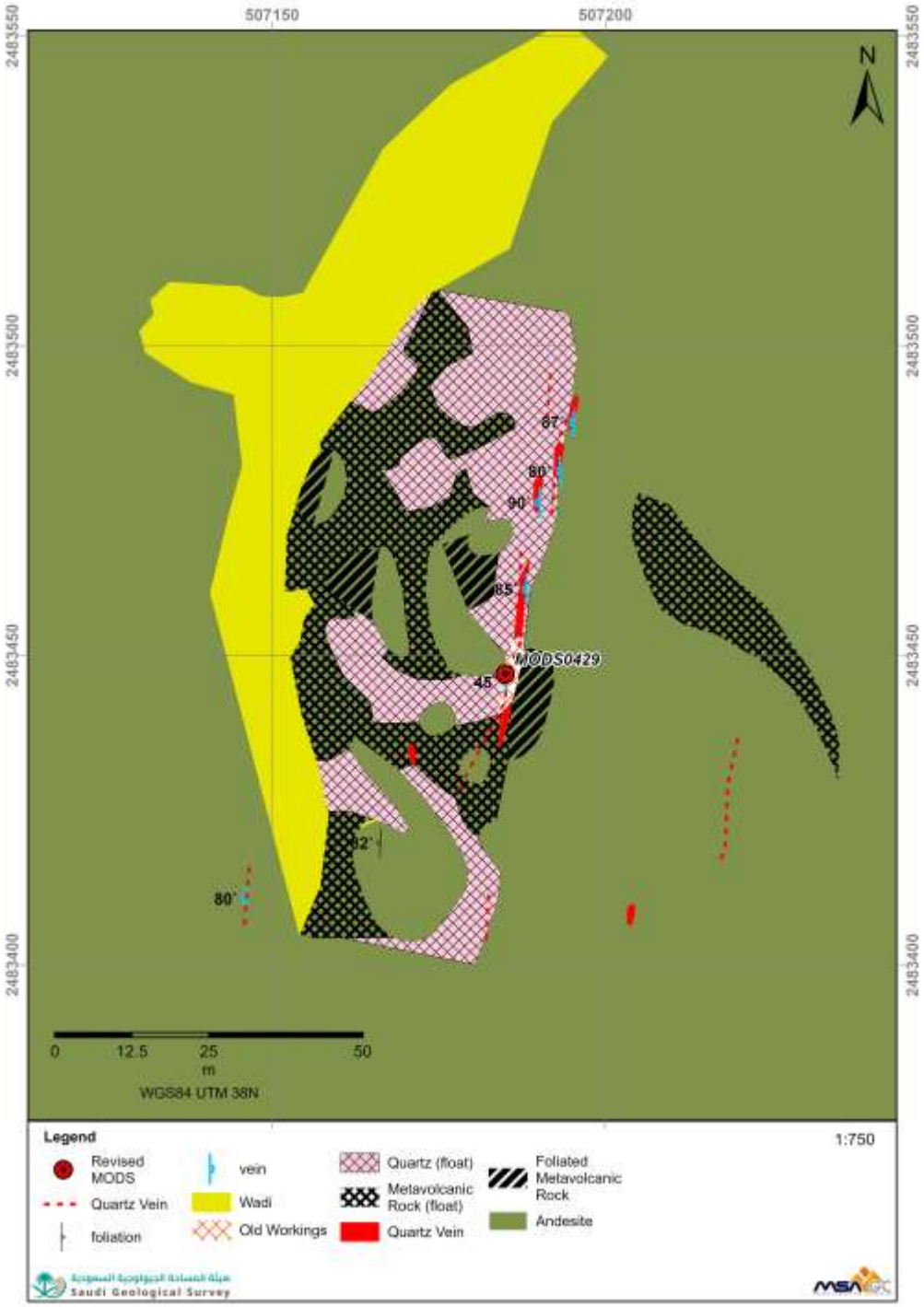


Figure 4 – MODS 0430

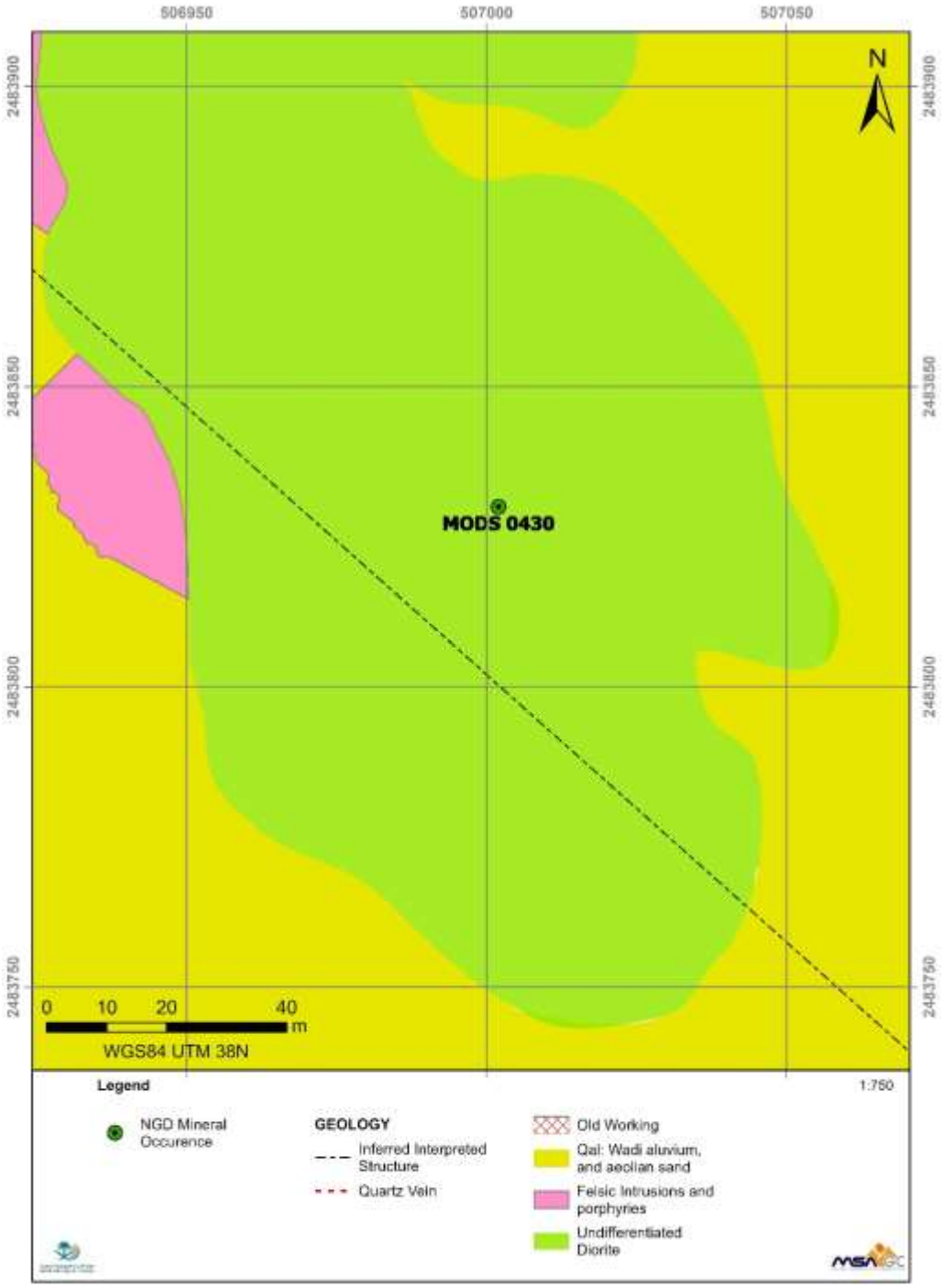


Figure 5 – MODS 0432

(showing trench locations)

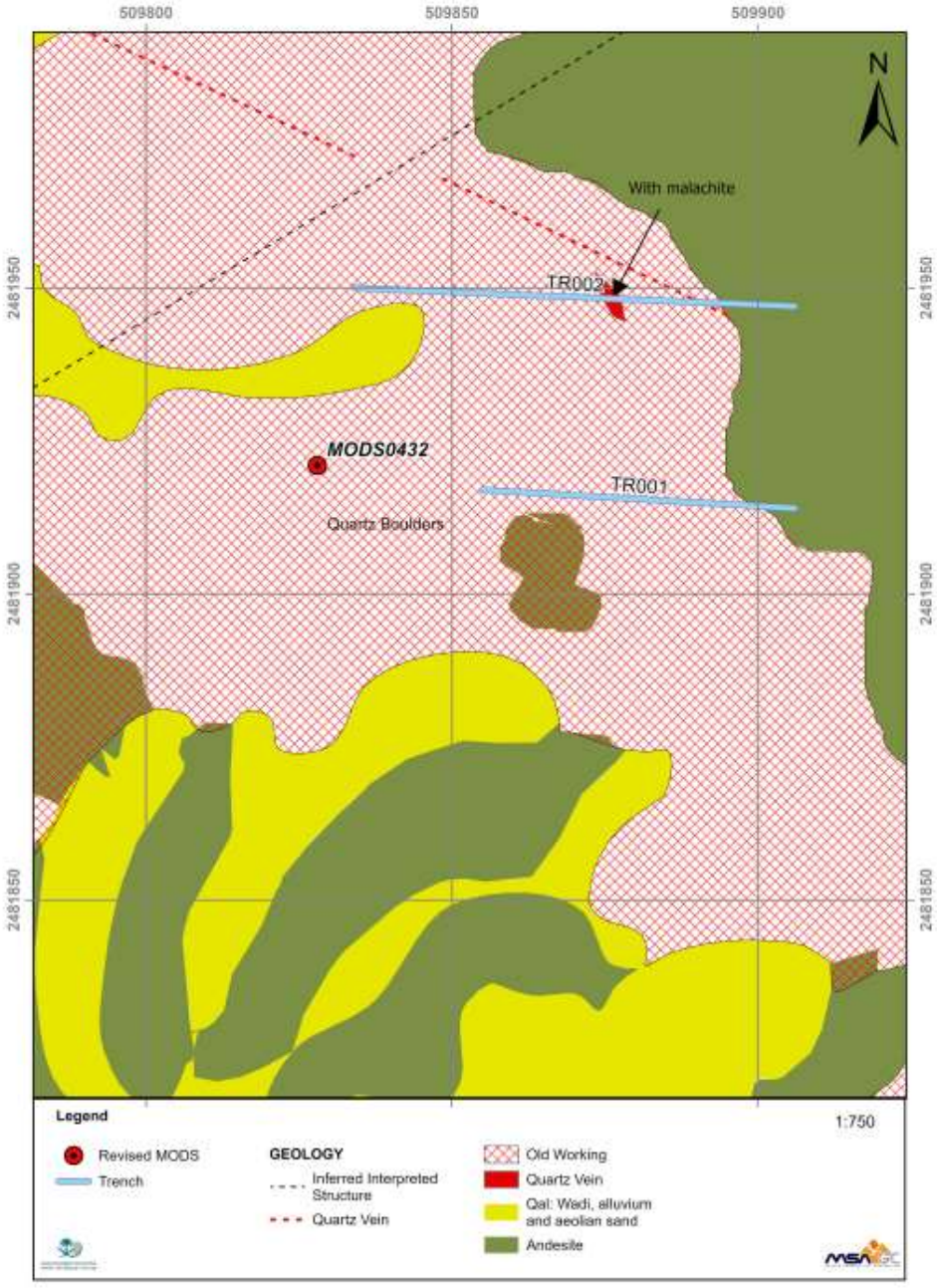
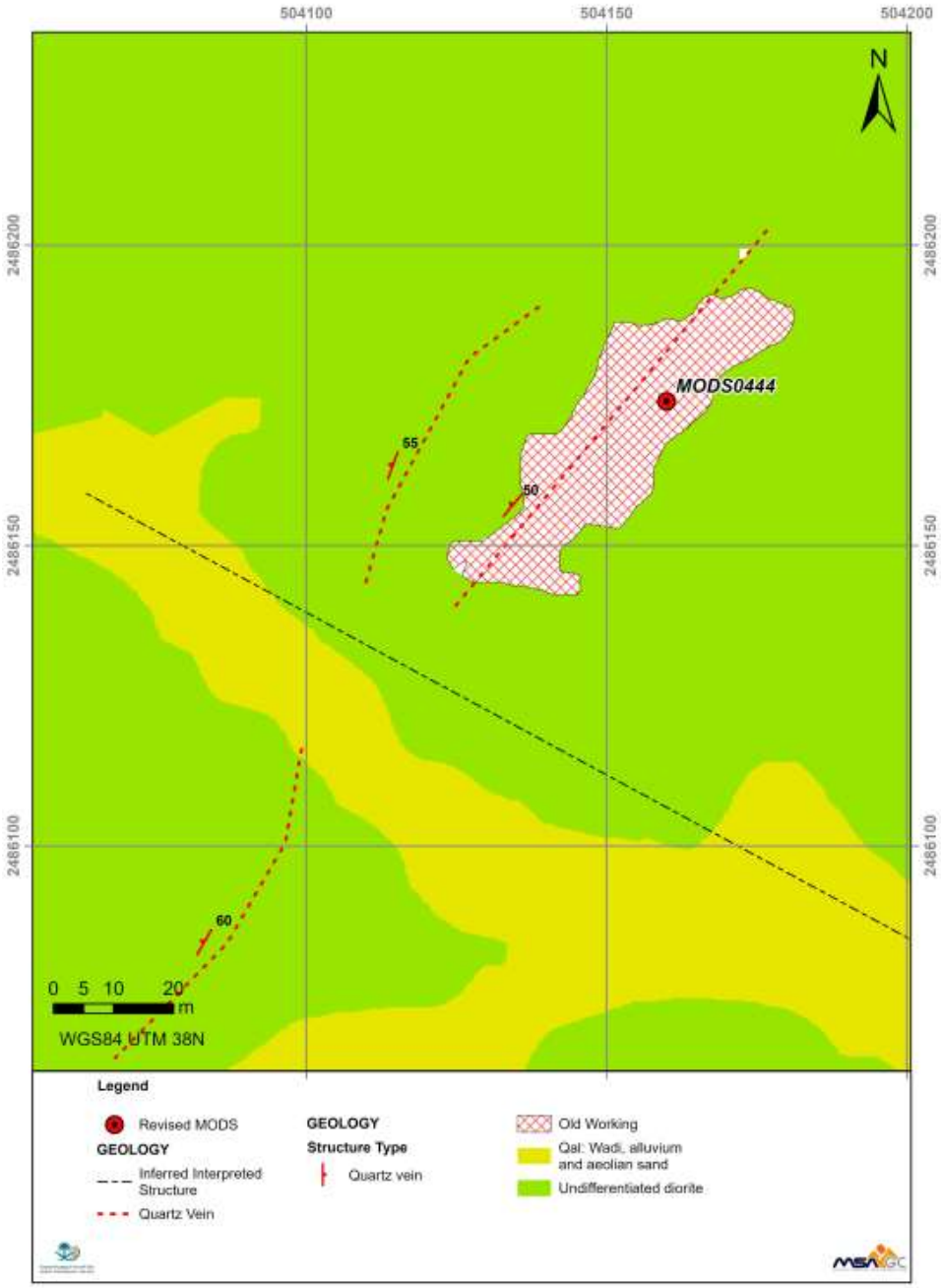


Figure 6 – MODS 0444



APPENDIX 3:

Trench Geological Sections

Figure 1 – Trench KSB_TR_001

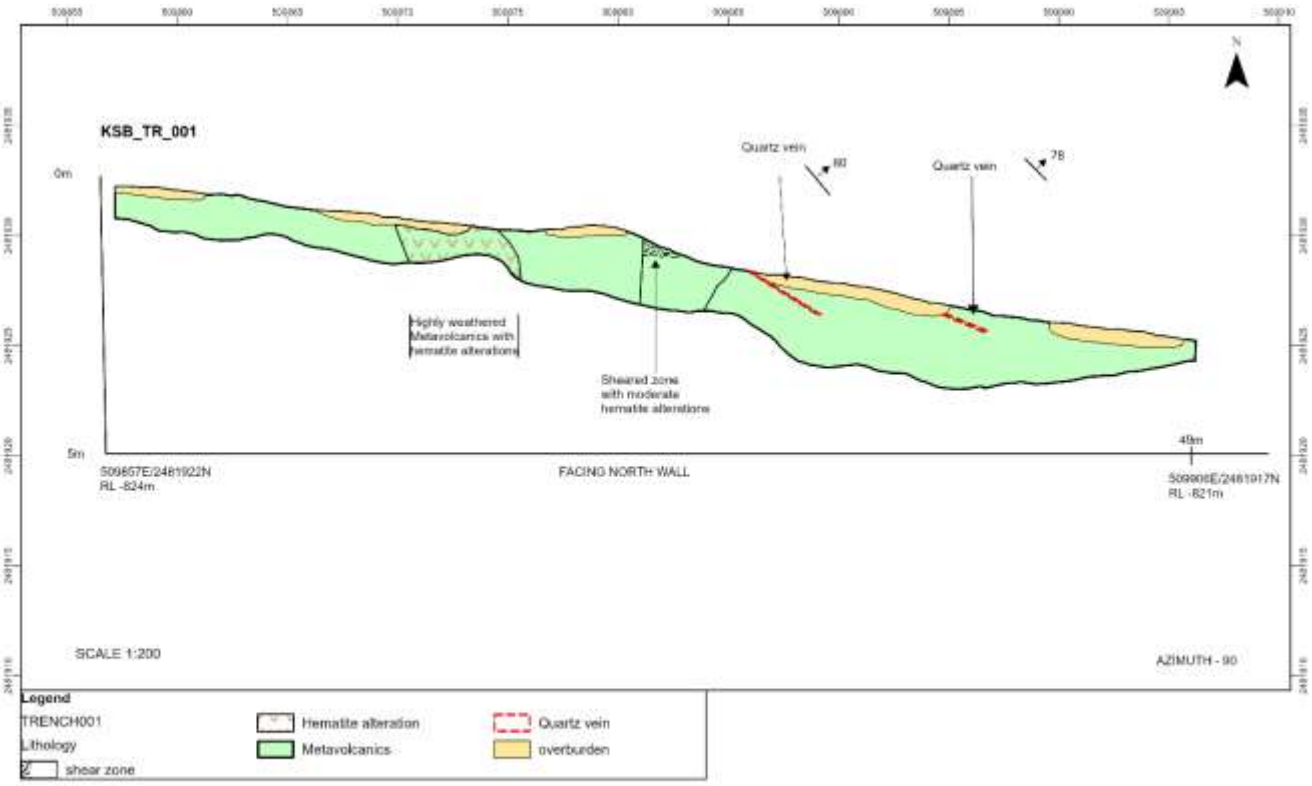


Figure 2 – Trench KSB_TR_002

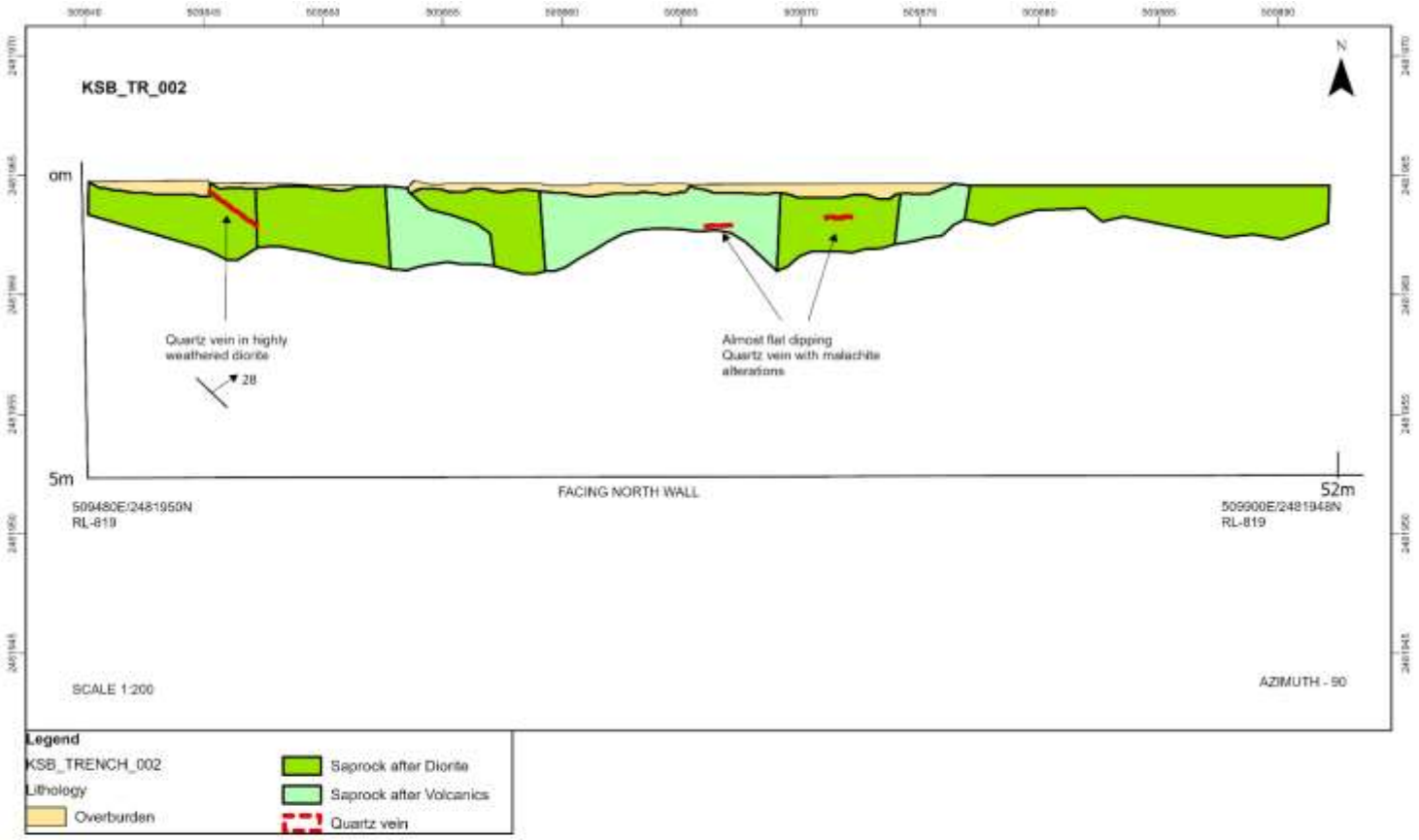


Figure 3 – Trench KSB_TR_003

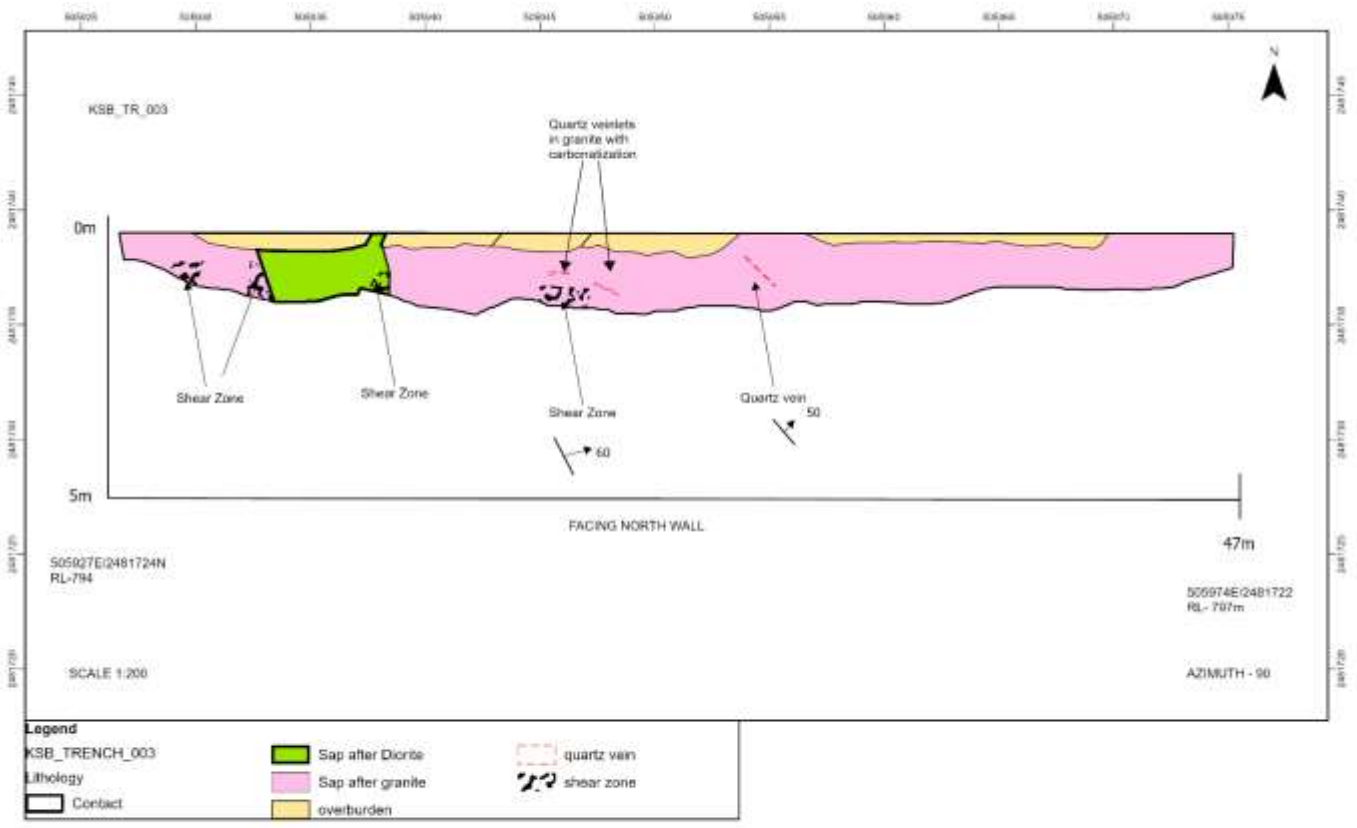
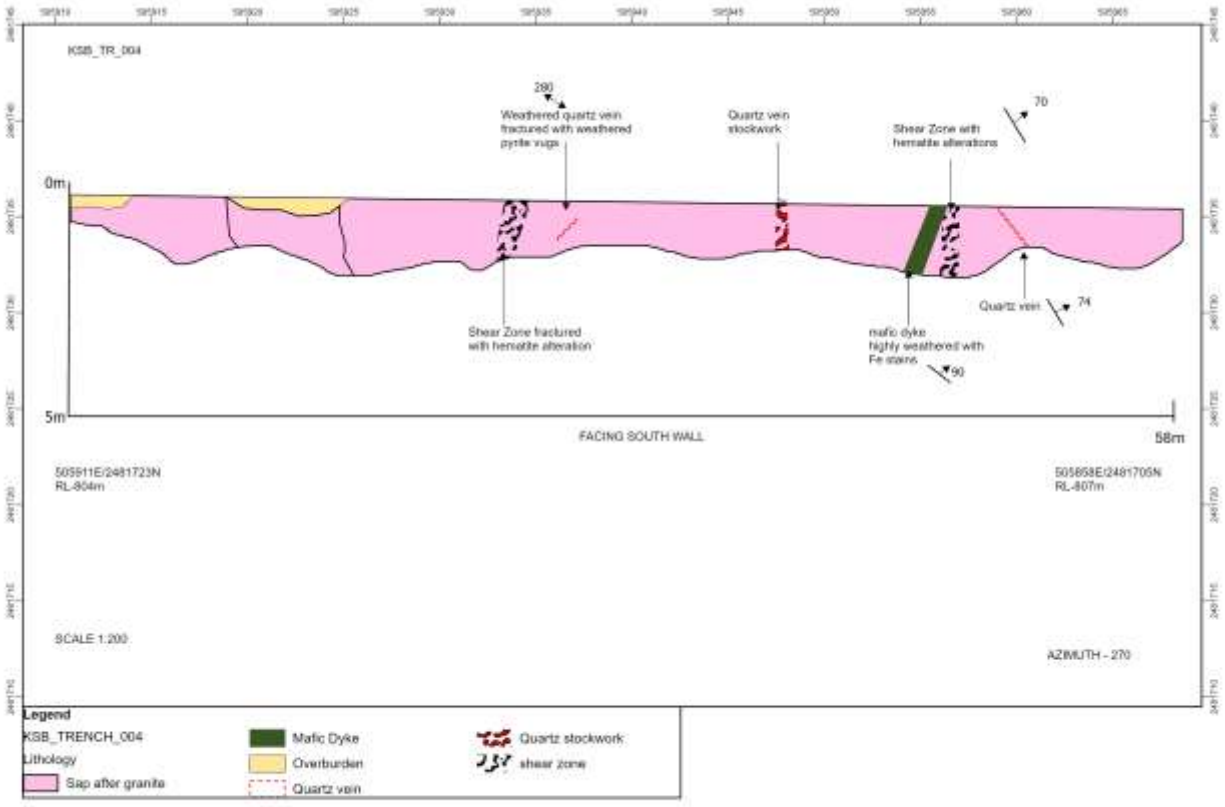


Figure 4 – Trench KSB_TR_004



APPENDIX 4:

Trench Strip Logs

Figure 1 – Trench KSB_TR_001

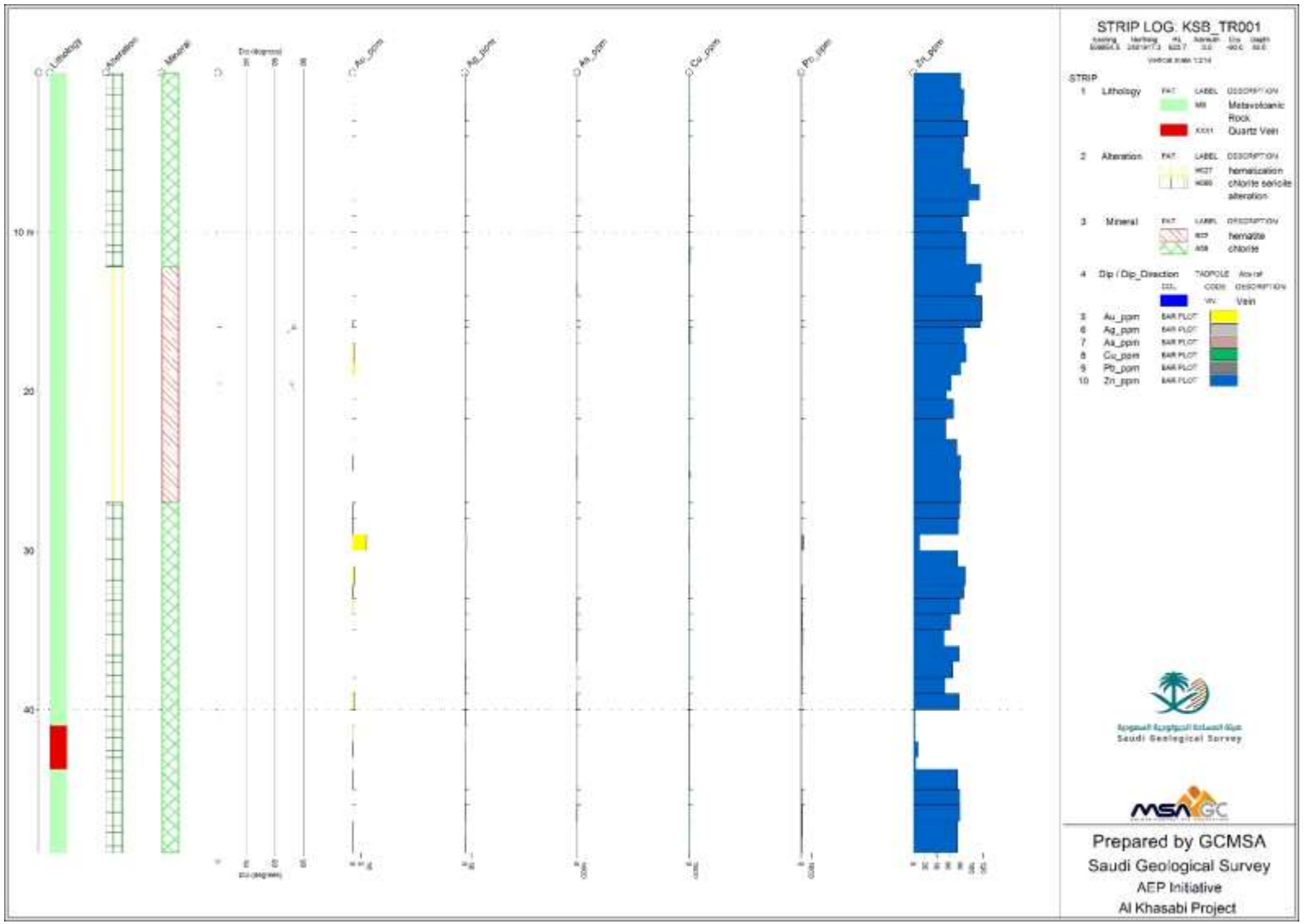


Figure 2 – Trench KSB_TR_002

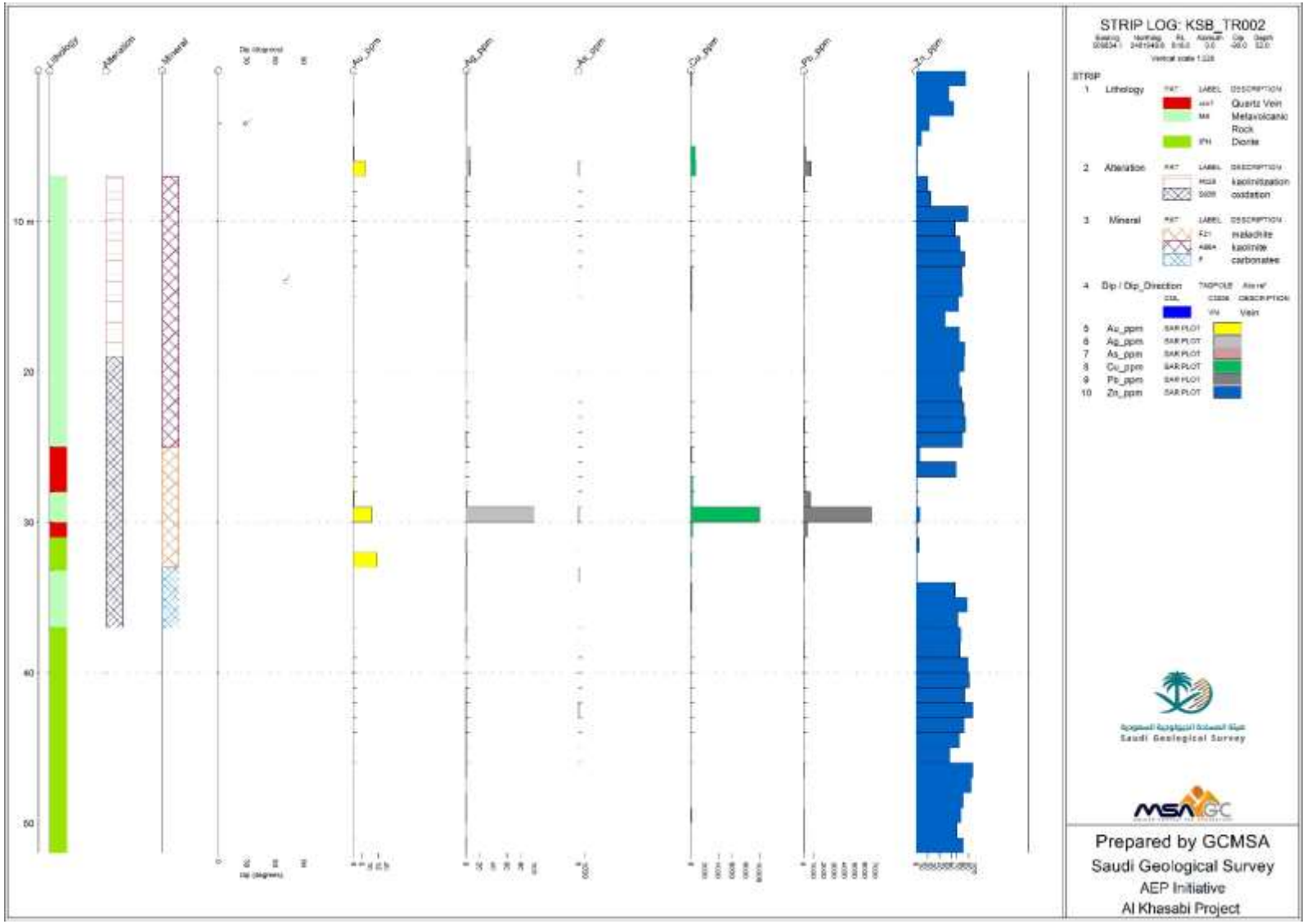


Figure 3 – Trench KSB_TR_003

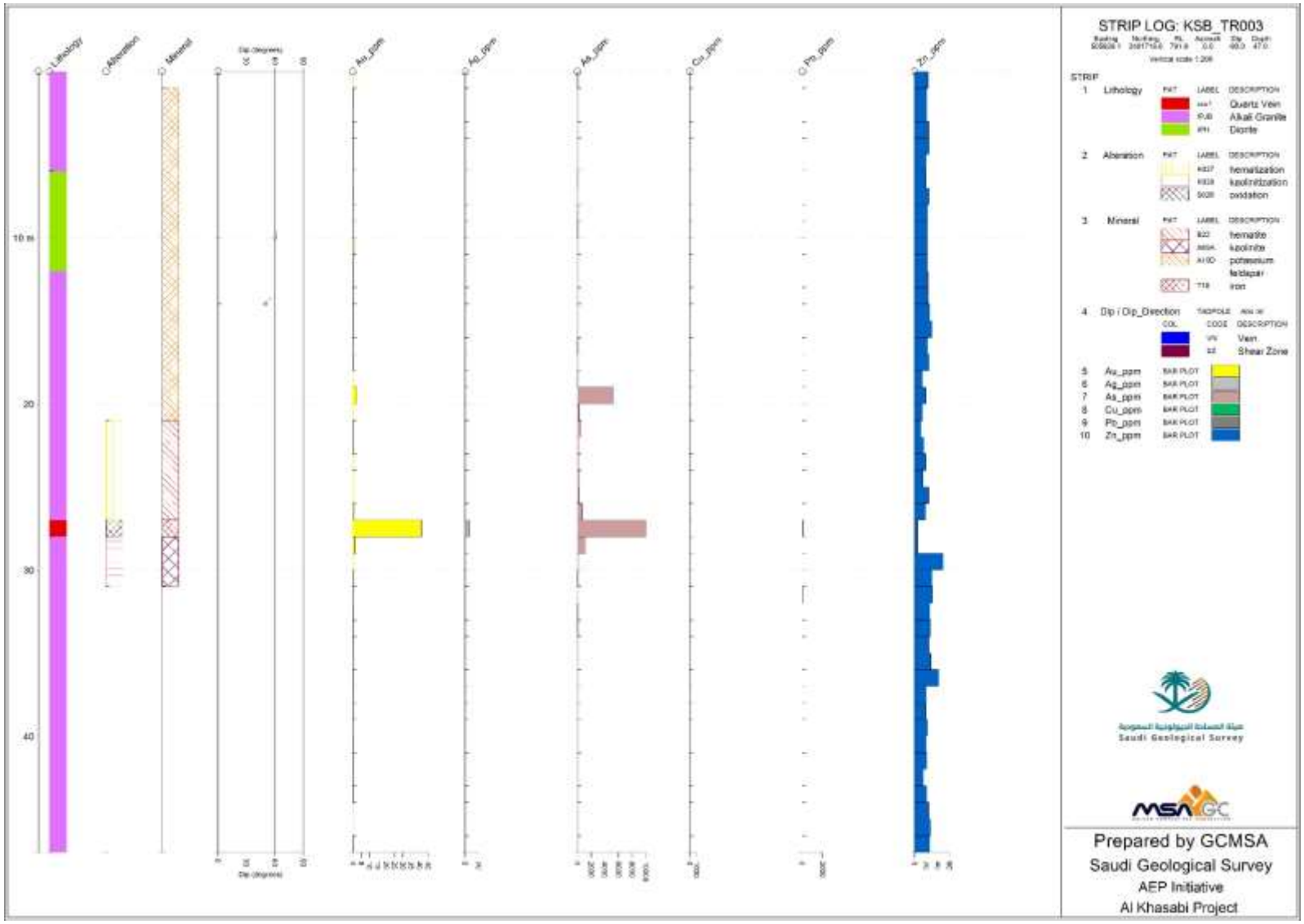
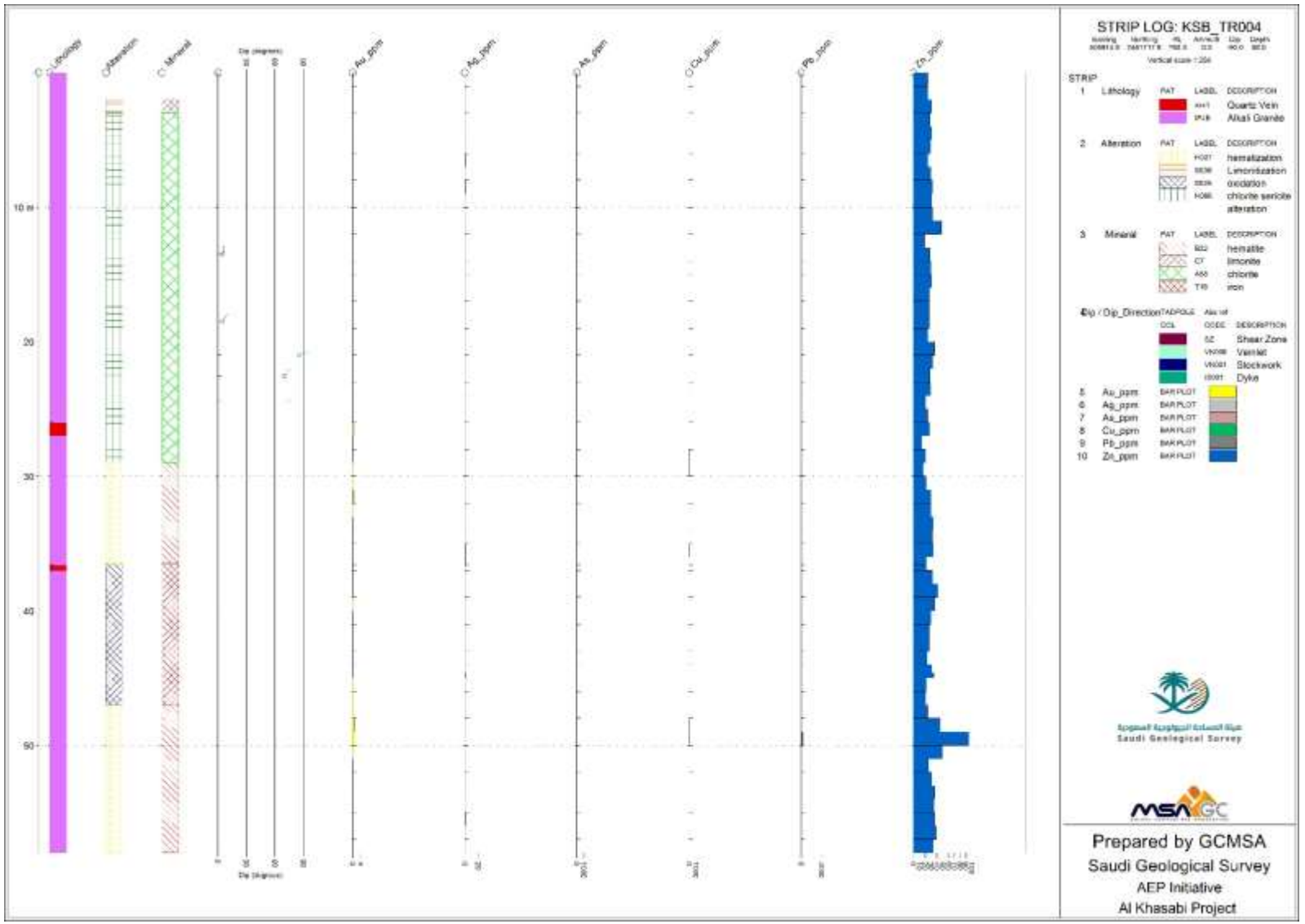


Figure 4 – Trench KSB_TR_004



APPENDIX 5:

QAQC Report

QAQCR Summary Report produced 6/1/2025

Date Range used: 7/1/2023 to 4/6/2025

Laboratory Summary

Laboratories	ALS Arabia - Jeddah	SGS Laboratory
No. of Batches	7	0
No. of DH Samples	209	0
No. of QC Samples	34	0
No. of Standard Samples	212	0

QC Category Ratios

QC_Category	DH Sample Count	QC Sample Count	Ratio of QC Samples to DH Samples
Lab Pulp Checks	209	21	1:10
PULP Duplicate	209	13	1:16

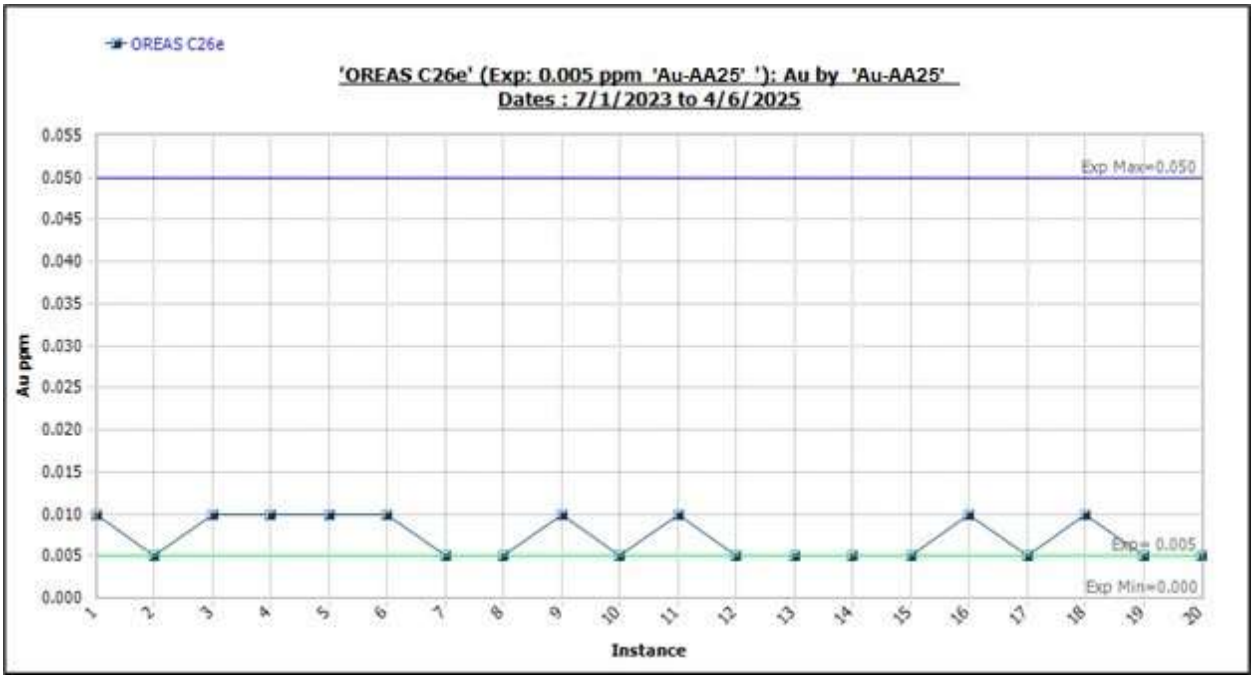
Standard Type Ratios

Standard Type	DH Sample Count	Standard Type Count	Standard Sample Count	Ratio of QC Standard to DH Samples
Blank_LAB	209	2	59	1:4
CRM	209	5	50	1:4
CRM_LAB	209	18	103	1:2

Au Standards Submitted with Original Assays (Rock chip and trench)

Au Standard(s)					No. of Samples	Calculated Values			
Std Code	Method	Exp Method	Exp Value	Exp SD		Mean Au	SD	CV	Mean Bias
OREAS C26e	AU-AA25	AU-AA25	0.005	0.0150	20	0.007	0.003	0.3520	45.00%

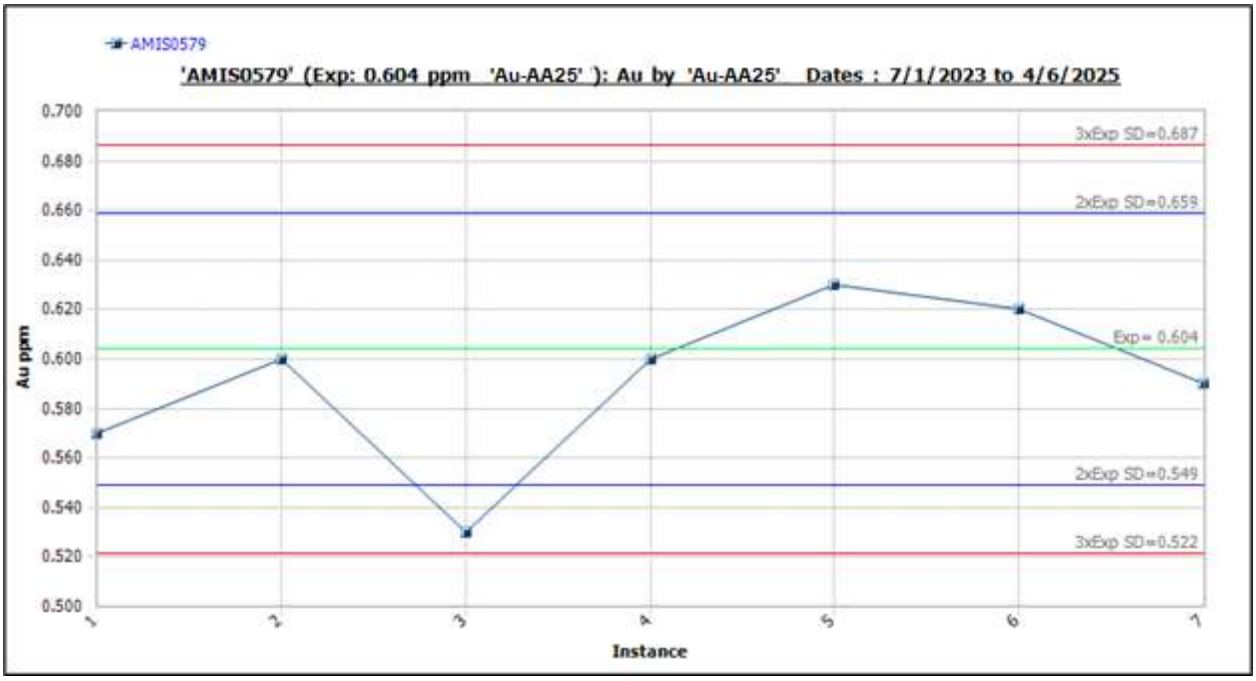
Standard OREAS C26e : Outliers Included



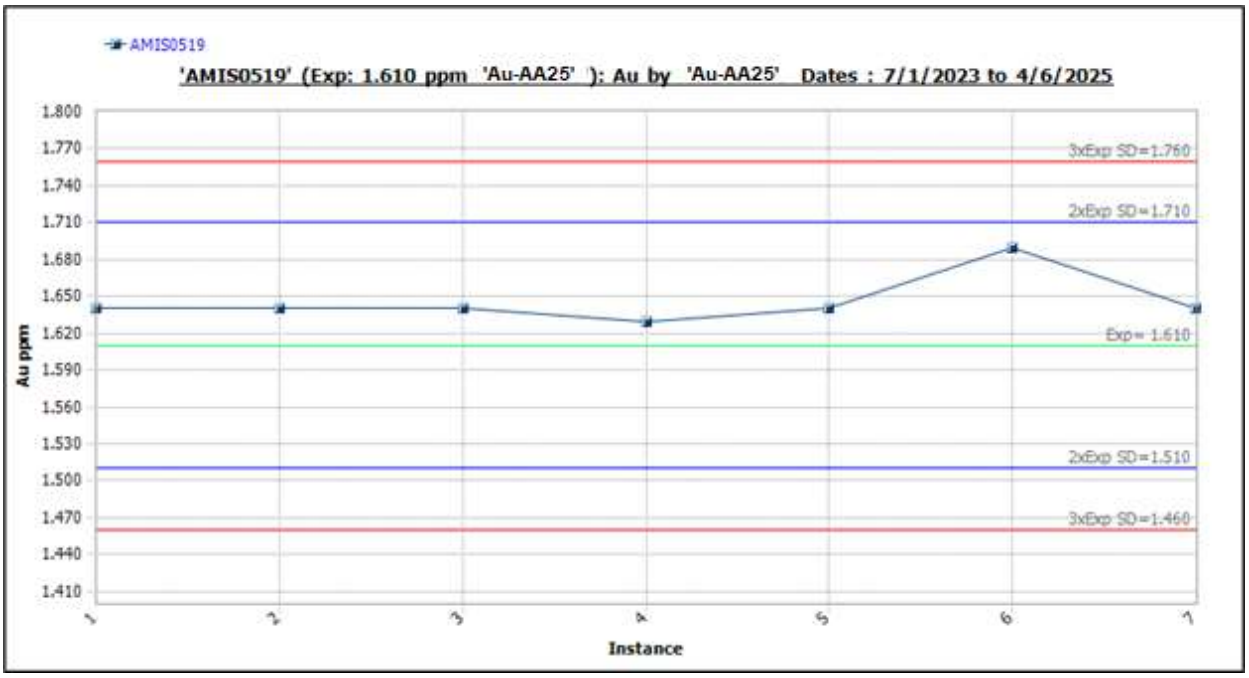
Au Standards Submitted with Original Assays (CRMsRock chip and trench)

Au Standard(s)					No. of Samples	Calculated Values			
Std Code	Method	Exp Method	Exp Value	Exp SD		Mean Au	SD	CV	Mean Bias
AMIS0579	AU-AA25	AU-AA25	0.604	0.0275	7	0.591	0.033	0.0564	-2.08%
AMIS0519	AU-AA25	AU-AA25	1.610	0.0500	7	1.646	0.020	0.0121	2.22%
AMIS0895	AU-AA25	AU-AA25	5.250	0.4400	4	5.375	0.392	0.0730	2.38%

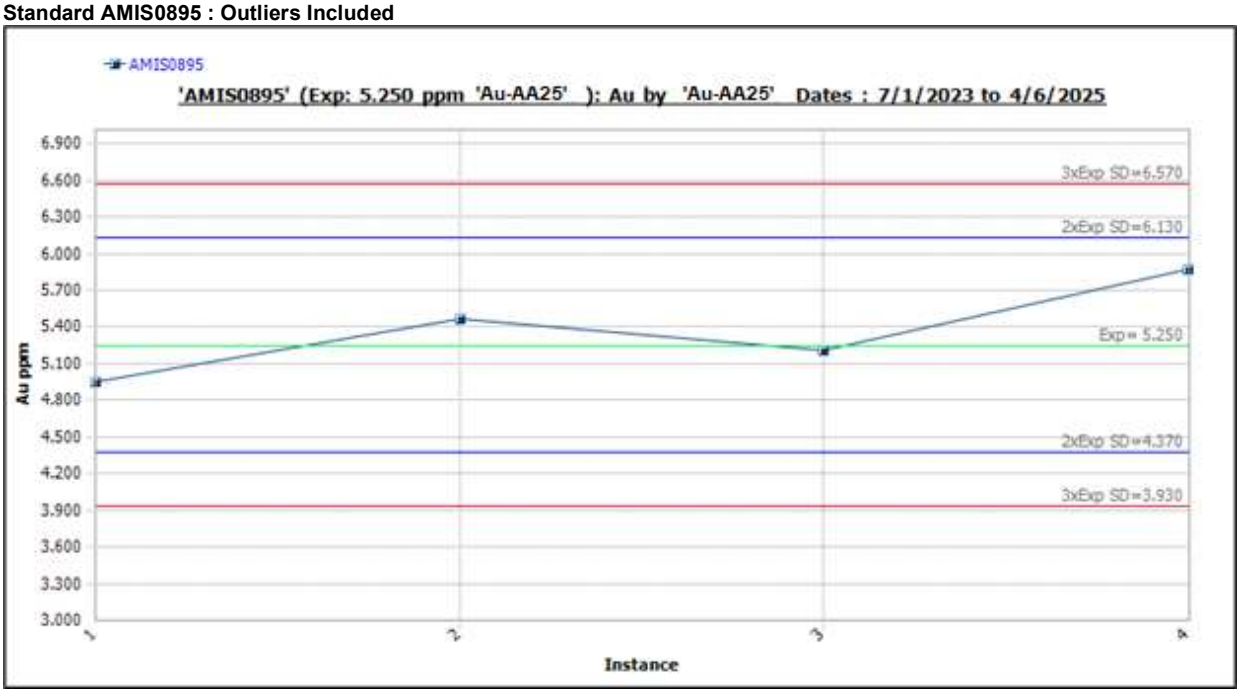
Standard AMIS0579 : Outliers Included



Standard AMIS0519 : Outliers Included



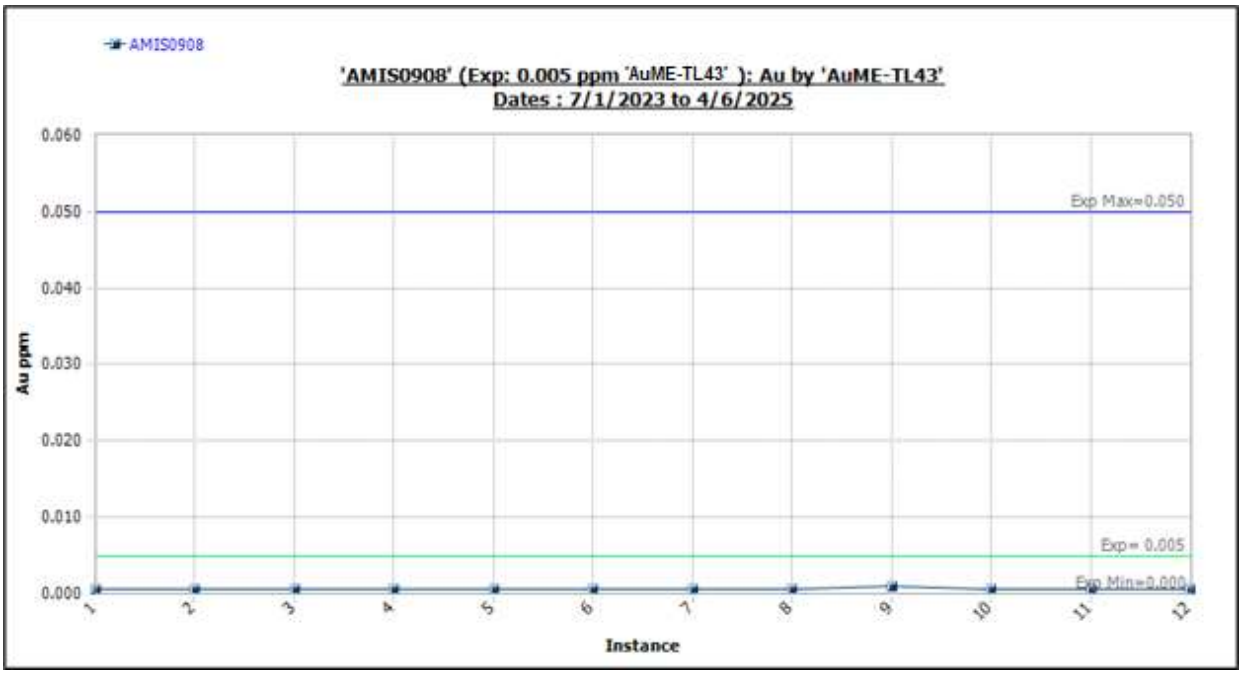
Standard AMIS0895 : Outliers Included



Au Standards Submitted with Original Assays (Blanks: Wadi Samples)

Au Standard(s)					No. of Samples	Calculated Values			
Std Code	Method	Exp Method	Exp Value	Exp SD		Mean Au	SD	CV	Mean Bias
AMIS0908	AuME-TL43	AuME-TL43	0.005	0.0150	12	0.001	0.000	0.2665	-89.17%

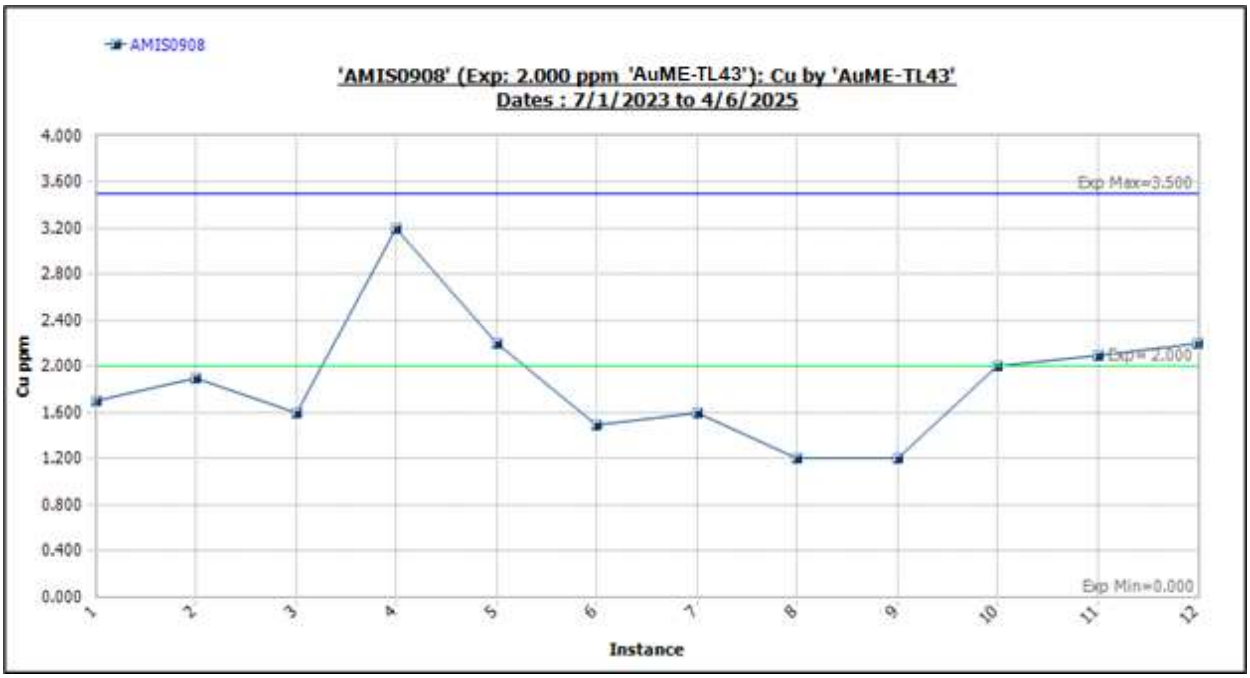
Standard AMIS0908 : Outliers Included



Cu Standards Submitted with Original Assays(Blanks: Wadi Samples)

Cu Standard(s)					No. of Samples	Calculated Values			
Std Code	Method	Exp Method	Exp Value	Exp SD		Mean Cu	SD	CV	Mean Bias
AMIS0908	AuME-TL43	AuME-TL43	2.000	0.5000	12	1.867	0.545	0.2919	-6.67%

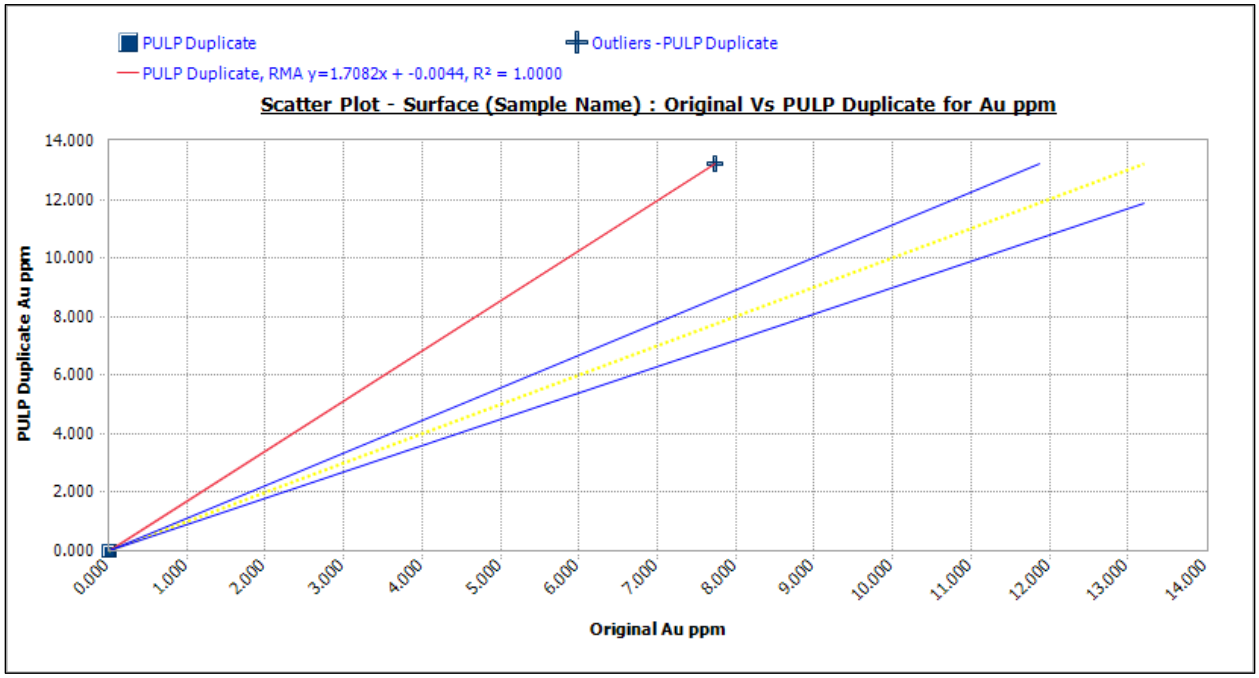
Standard AMIS0908: Outliers Included



Surface Physical Original (Au) v Repeat: PULP Duplicate - Methods: AU-AA25(Duplicates Rock Chip)

No. of Samples	mean Au1	mean Au2	SD Au1	SD Au2	CV Au1	CV Au2	sRPHD (mean)
12	0.65	1.11	2.13	3.65	3.28	3.29	-4.96

Scatter Plot - Surface (Sample Name) : Original Vs PULP Duplicate for Au ppm



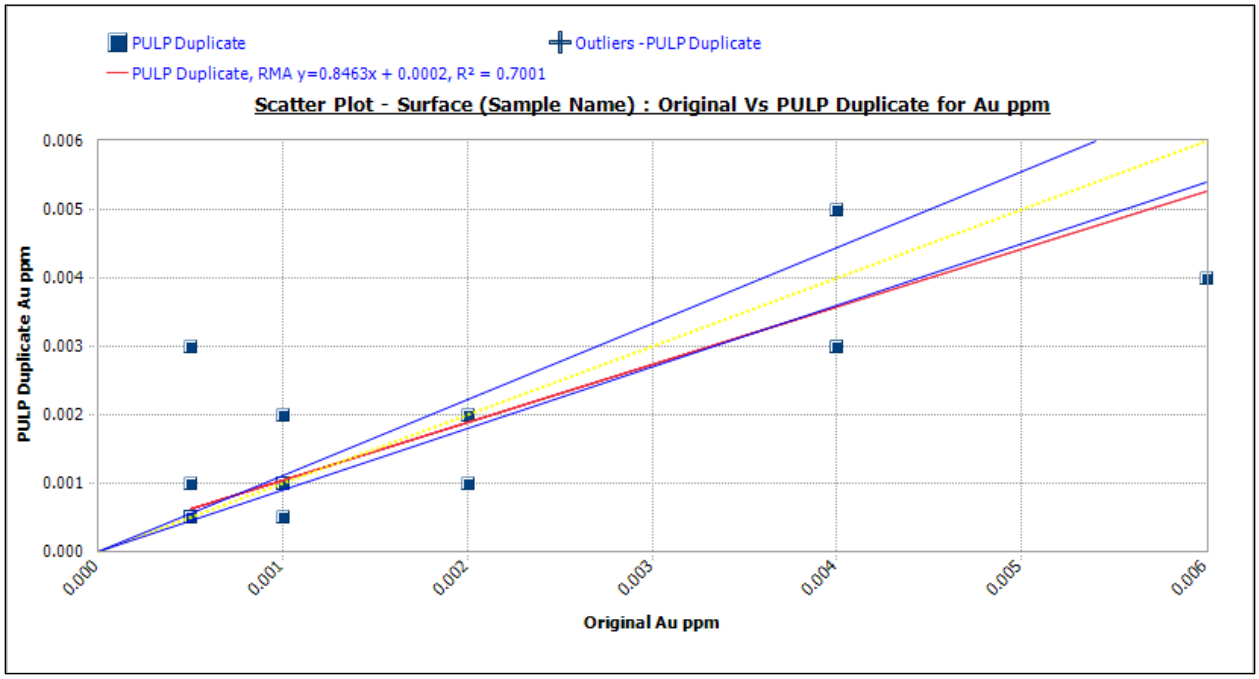
Bad Repeats

Lab	Batch	Data Set	Sample Id	Repeat Id	Repeat Type	Method	Element	Orig Value	Rpt Value	Diff(%)
ALS Arabia - Jeddah	JD25003259	KSB	KSBSS0724	KSBSS0725	PULP Duplicate	AU-AA25	Au	7.730	13.200	70.76

Surface Physical Original (Au) v Repeat: PULP Duplicate - Methods: AuME-TL43 (Duplicates Wadi Sample)

No. of Samples	mean Au1	mean Au2	SD Au1	SD Au2	CV Au1	CV Au2	sRPHD (mean)
30	0.00	0.00	0.00	0.00	0.97	0.83	-1.13

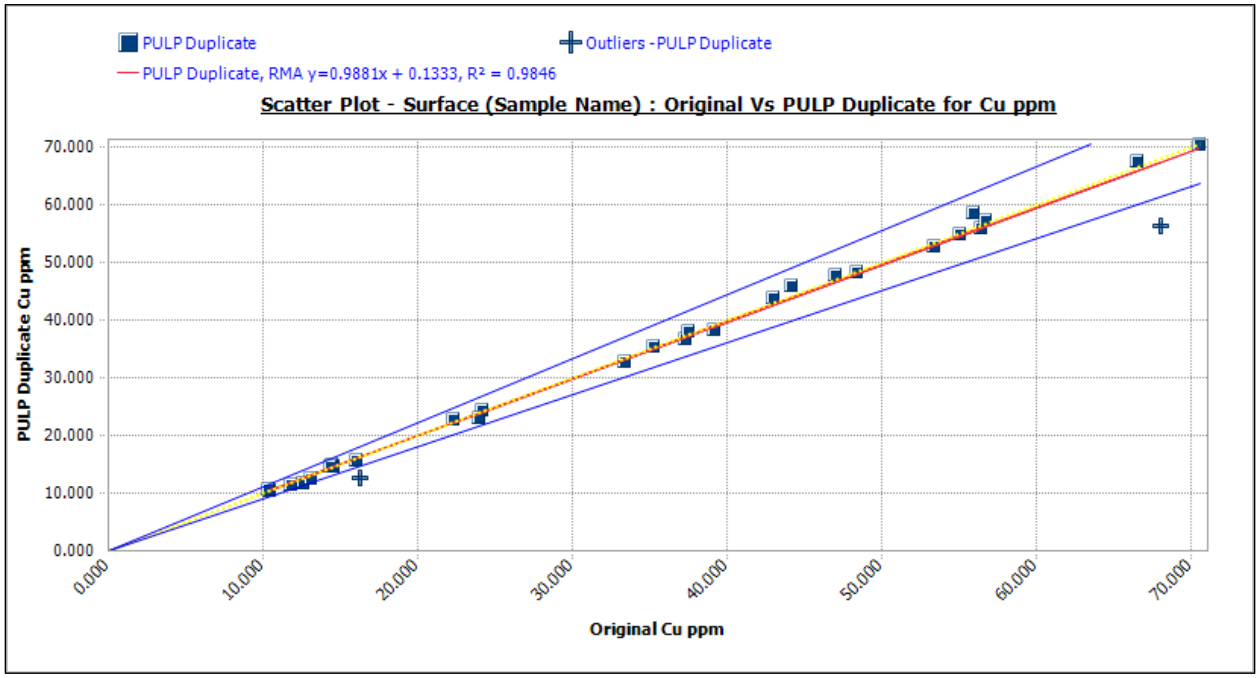
Scatter Plot - Surface (Sample Name) : Original Vs PULP Duplicate for Au ppm



Surface Physical Original (Cu) v Repeat: PULP Duplicate - Methods: AuME-TL43

No. of Samples	mean Cu1	mean Cu2	SD Cu1	SD Cu2	CV Cu1	CV Cu2	sRPHD (mean)
30	35.04	34.75	19.21	18.98	0.55	0.55	0.47

Scatter Plot - Surface (Sample Name) : Original Vs PULP Duplicate for Cu ppm



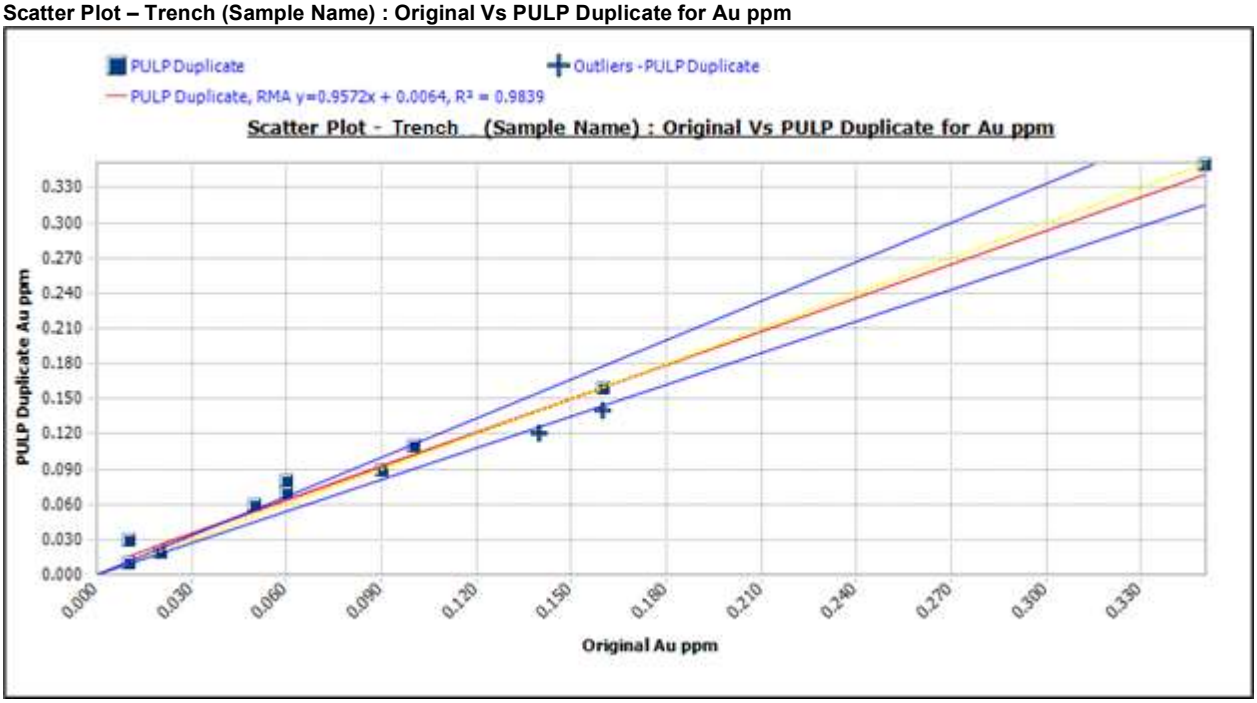
Bad Repeats

Lab	Batch	Data Set	Sample Id	Repeat Id	Repeat Type	Method	Element	Orig Value	Rpt Value	Diff(%)
ALS Arabia - Jeddah	JD24346312	KSB	KSBSS0005a	KSBSS0005b	PULP Duplicate	AuME-TL43	Cu	68.100	56.200	-17.47
ALS Arabia - Jeddah	JD25034513	KSB	KSBSS0565	KSBSS0567	PULP Duplicate	AuME-TL43	Cu	16.300	12.600	-22.70

Trench Physical Original (Au) v Repeat: PULP Duplicate - Methods: AU-AA25 (Duplicates Trenches_)

No. of Samples	mean Au1	mean Au2	SD Au1	SD Au2	CV Au1	CV Au2	sRPHD (mean)
13	0.09	0.10	0.09	0.09	0.95	0.89	-5.50

Scatter Plot – Trench (Sample Name) : Original Vs PULP Duplicate for Au ppm



Bad Repeats

Lab	Batch	Data Set	Sample Id	Repeat Id	Repeat Type	Method	Element	Orig Value	Rpt Value	Diff(%)
ALS Arabia - Jeddah	JD25003256	KSB	KSBTR0064	KSBTR0065	PULP Duplicate	AU-AA25	Au	0.140	0.120	-14.29
ALS Arabia - Jeddah	JD25003256	KSB	KSBTR0084	KSBTR0085	PULP Duplicate	AU-AA25	Au	0.160	0.140	-12.50