

**BK16**

# Botswana's Next Diamond Mine?

**AGM**

June 6, 2019



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# Index



- BK16 Update Presentation
- PL217/2019 OKF alluvial and Diamonds Prospect Update Presentation
- Xaudum Metals Project



# Company Profile



- Canadian Registered: TSX listed 1995: TSX.V listed 2001
- 45,347,310 shares issued and outstanding (June 1, 2019)
- 47,800,310 fully diluted common shares
- Principal Shareholders (Beneficially Owned, Controlled or Directed)

# Corporate Structure

## Tsodilo Resources Limited (TSD)

A public company listed on the Toronto Stock Exchange

Botswana Local Asset Status granted in 2004 – Ministry of Finance & Development Planning

## Tsodilo Resources Bermuda Limited (TSDBL)

100% owned by TSD

## Idada 361 (Pty) Ltd (South Africa)

70% owned by TSDBL

Notes: 1) Sandstorm Gold has a 1% NRS on the gold and silver prospecting license as well as a ROFR with respect any 3rd party bona-fide offer to purchase a metal royalty on the properties

## Newdico(Pty) Ltd. (Botswana)

100% owned by TSDBL

Provides exploration and drilling services, owns PL's from time to time

## Bosoto (Pty) Ltd. (Botswana)

100% owned by TSDBL

Precious stone license PL369/2014 [BK16] & PL217/2016  
Notes: 1) Lucara was granted a pre-emptive right to maintain its percentage ownership in Tsodilo as well as a right of first refusal to purchase all or any portion of the Company's or its subsidiaries rights, title or interest in or to the Company's BK16 Project pursuant to a ROFR  
2) Sandstorm Gold has a 1% GPR on the precious stone prospecting license (PL217/2016) as well as a ROFR with respect any 3rd party bona-fide offer to purchase stone royalty on the property

## Gcwihaba Resources (Pty) Ltd (Botswana)

100% owned by TSDBL

Metal (Base & Precious, Platinum Group Minerals, and Rare Earth Elements) Prospecting Licenses 020 – 026/2018  
Notes: 1) Sandstorm Gold has a 1% NRS on the metal prospecting licenses as well as a ROFR with respect any 3rd party bona-fide offer to purchase a metal royalty on the properties

# BK16 Kimberlite Discovery and Historical Work



## Snapshot:

- BK16 was discovered by De Beers
- Worked on historically by two other groups

BK16 Discovery  
and Historic  
Work

Revisited by  
Tsodilo  
Resources

Phase 1: LDD  
Sampling

Phase 1:  
Diamond Value

Phase 1: Size  
Frequency  
Distribution Modeling

Conclusions

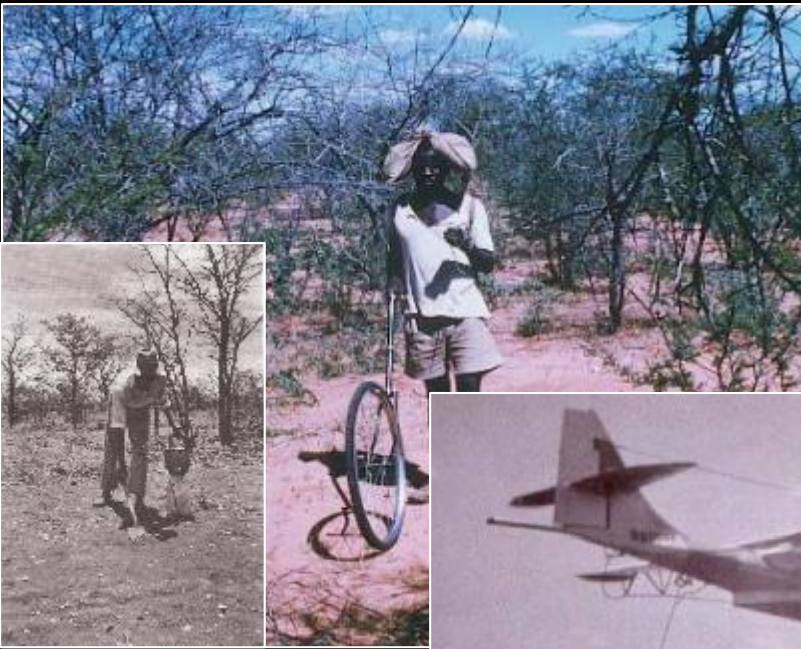
# BK16 Discovery (De Beers)

De Beers Early 1960's  
Cyclometer and soil sampling lines  
Identified mineral anomaly locations

## ➤ De Beers (State Grant 14/72 and 1/76)

- 1960's – general soil sampling and geophysics for kimberlite anomalies including BK16
- 1970 to 1972 – Drilling 705m; geophysics defined as 3.5 ha
- 1976 to 1984 – Pit to 36 meters with short tunnels within highly diluted kimberlite
- Defined a grade of 1.4 cpht

1976 to 1986 De Beers drilled holes and Dug Shaft Pit with limited tunnels at BK16



Photos M. Marx 1966



De Beers Airborne  
Geophysics 1968 to  
locate kimberlite bodies

# Historical Work

➤ Abandoned in 2008 due to:

- Considered too low grade
  - Although under sampled
- Global Economic Crisis
- Funding not available

Company	Licence	Period	Activity	CPHT
Auridiam Botswana Ltd.	PL119/94	1994 - 95	Percussion Drilling: 2 holes (Geocontracts Botswana) produced 11.8 t.	4.7 (3 stones: 0.264 ct)
Auridiam in JV Montgomery		1998	RC Drilling: 5 holes (811 m), 12¼ inch (Boart Longyear) produced 140 t – reduced to 56 t (+1.0mm).	4.1 (25 stones: 4.99 ct)
		2000	Tunnels from shaft extended treated 1,115 t.	1.8 cpht (79 stones; 19.57 ct)
Kenrod Engineering Services Ltd in JV SouthernEra	PL03/2005	2007	Percussion Drilling: 19 holes, 12 inch (2,278 m) produced 12.4t.	5.7 (5 stones; 0.71 ct)
Kenrod Eng. Serv. Ltd/SouthernEra (Mwana) in JV Firestone Diamonds		2008	Core Drilling 3 holes (622 m), Mida sampling (221 kg).	Diamond- bearing





# Historical Work

- Auridium and Montgomery JV
- Historical diamonds
  - Indications of large stone producer
- Tsodilo had stones re-classified in October 2018
  - 22.115 carats (from the from 1999 to 2000 Auridium Montgomery JV)
  - 5 diamonds classified as Type IIa
  - Highest stone = 478 \$/ct
  - Historical Stones average value = 164.17 \$/ct



**Historical Sample 2000 Packet 1**  
Showing clear similarities to Tsodilo's LDD Diamonds



**Historical Sample 2001 Packet 1:**  
0.875 ct; Impact feature noted



**Historical Tailings: 0.810 carat; I color; highly irregular**



# Tsodilo Resources Ltd. Revisits BK16



## Snapshot:

- Tsodilo Resources Ltd Revisits BK16
- Fresh Perspective
  - New modern sampling technologies
  - New modern processing technologies
  - Deliver step wise evaluation program
    - ✓ Phase 1: Moderate Sample to Update Diamond Valuation
    - ✗ Phase 2: Larger Sample: reduce uncertainty + improve grade constraints
    - ✗ Phase 3: Feasibility Study

BK16 Discovery  
and Historic  
Work

Revisited by  
Tsodilo  
Resources

Phase 1: LDD  
Sampling

Phase 1:  
Diamond Value

Phase 1: Size  
Frequency  
Distribution Modeling

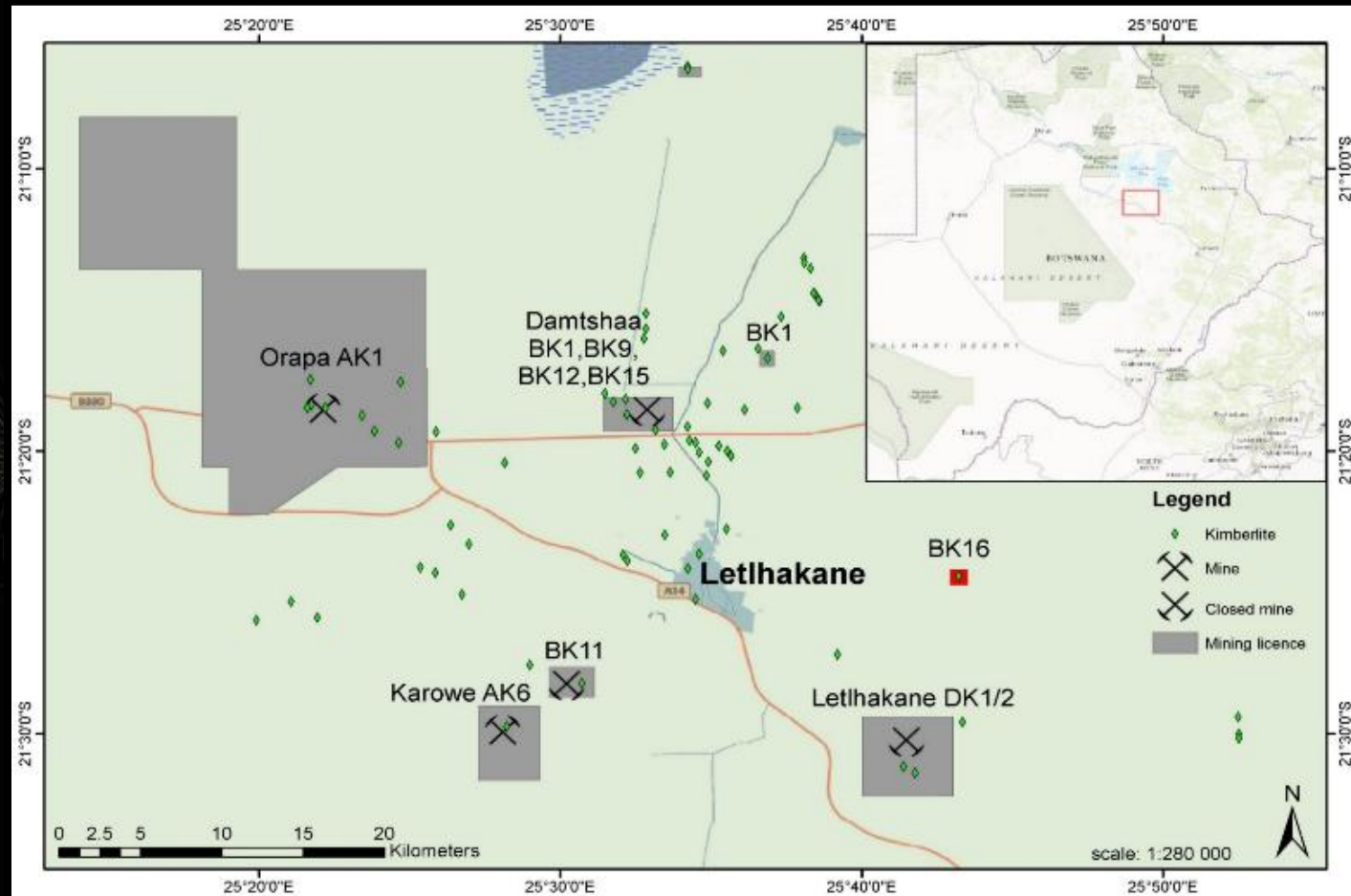
Conclusions

# BK16 Revisited: Diamond Country

- Granted PL369/2014
- Located in Orapa Kimberlite Field (OKF)
- 1km square license over the BK16
  - Initial grant October 2014 to end September 2017
  - Renewed for three years (Oct 2017 to Sep 2019)

## ➤ OKF Mines include

- Orapa Debswana
  - AK01, AK02, and AK07
  - ~12,000,000 carats mined annually
  - Tier 1 diamond mine
- Karowe Mine, Lucara Diamonds Corporation
  - AK06
  - ~250,000 carat mined annually
- Letlhakane mine closed in 2017
  - New treatment plant
  - Treating mine tailings dumps
  - Will keep the mine operational till 2043



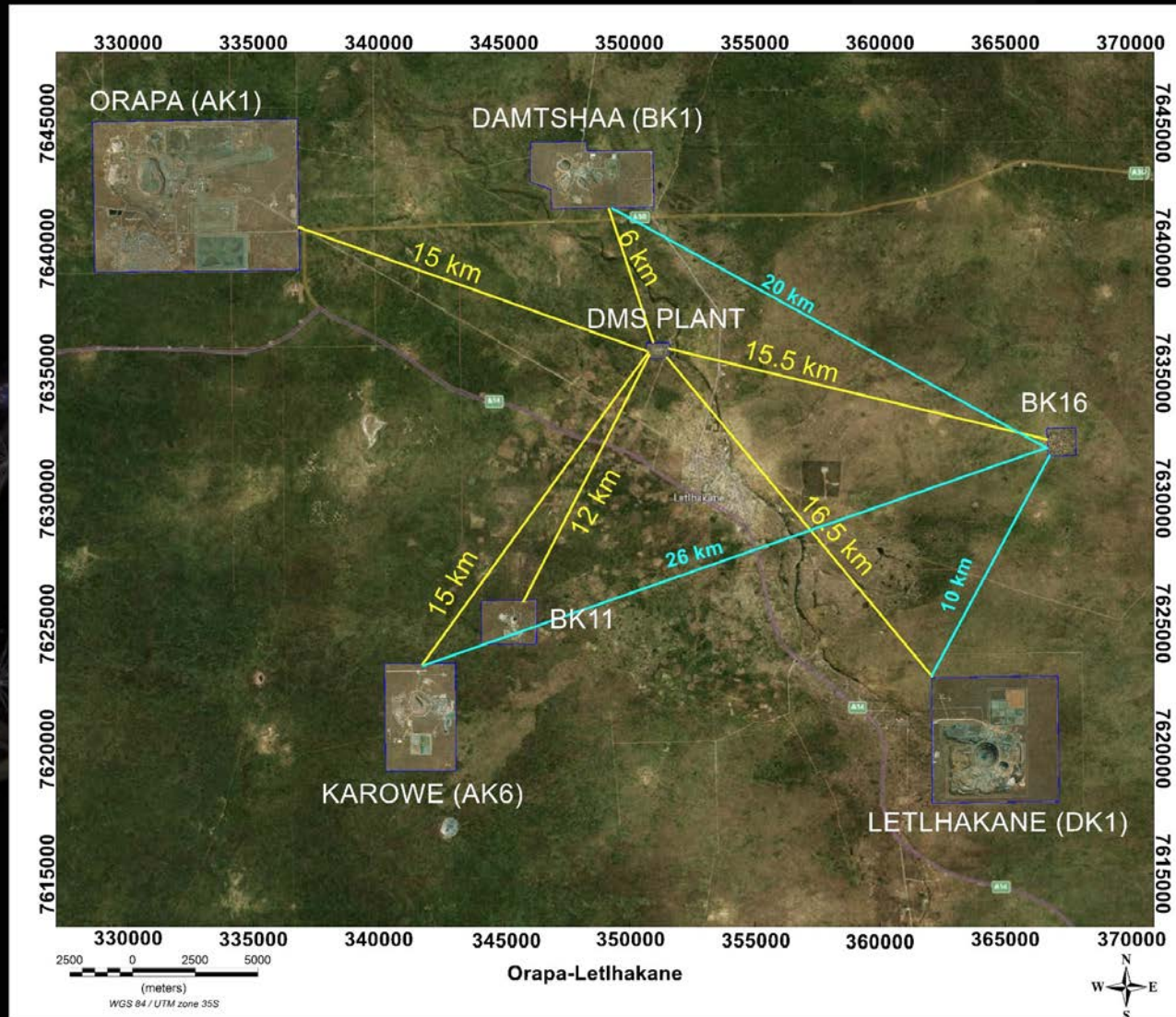
# Orapa Kimberlite Field

## ➤ BK16 Position

## ➤ Relative distances from major mines

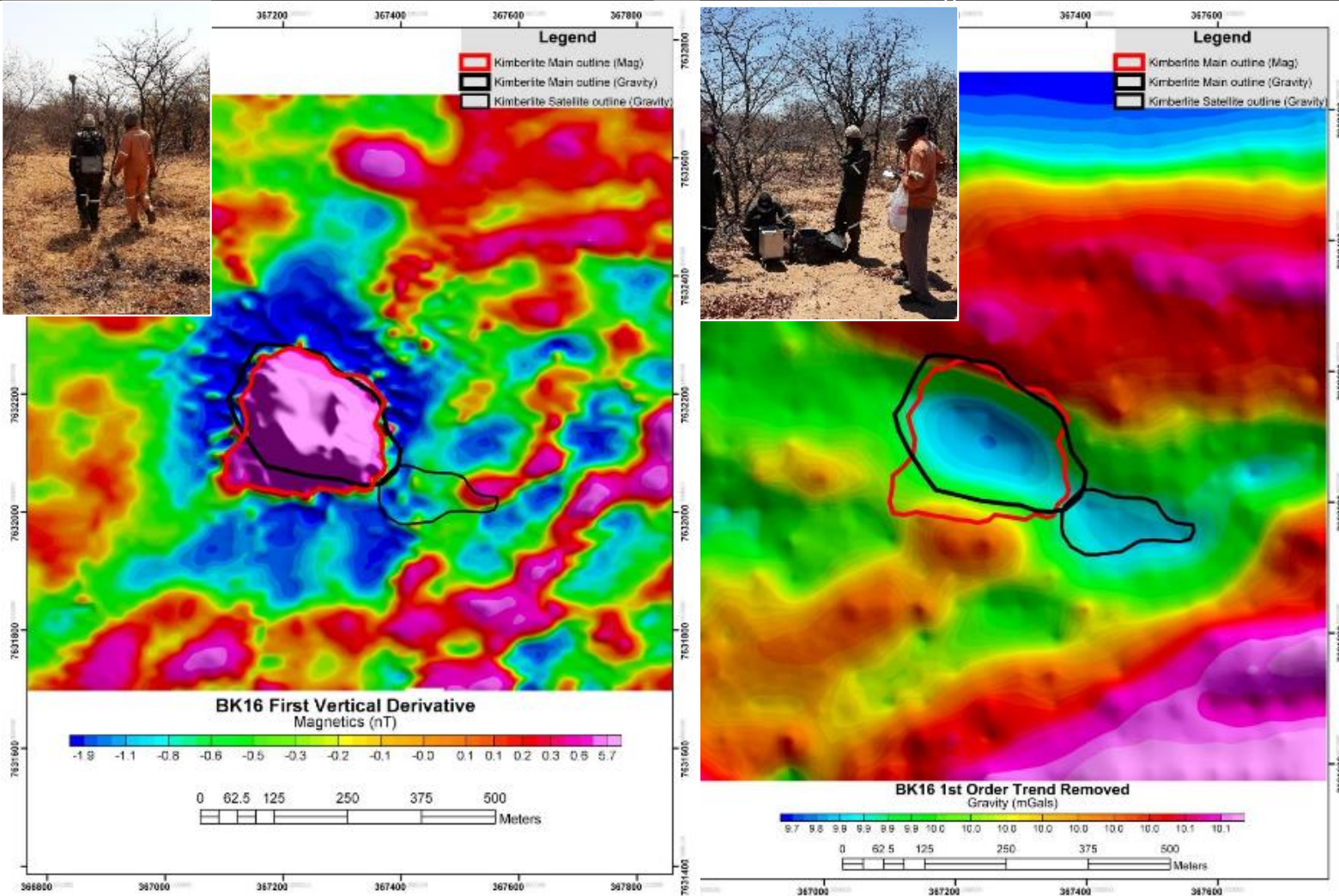
- 10km from Letlhakane
- 20km from Damtshaa
- 26km from Karowe (AK6)
- 30km from Orapa

## ➤ Relative distances to the DMS plant also shown



# BK16 Revisited: Geophysics

- Improved techniques
- New analyzing technologies
- Geophysical surveys
- 1km<sup>2</sup> BK16 license
  - High intensity ground magnetics
    - 51 line kilometers
  - 441 gravity survey stations
    - 50m grid



- BK16 ~5.9 hectares (2017)
  - Geophysics
  - Plus drill data
- De Beers ~3.5 hectares (1972)
- Significant improvement



# BK16 Revisited: Geological Model

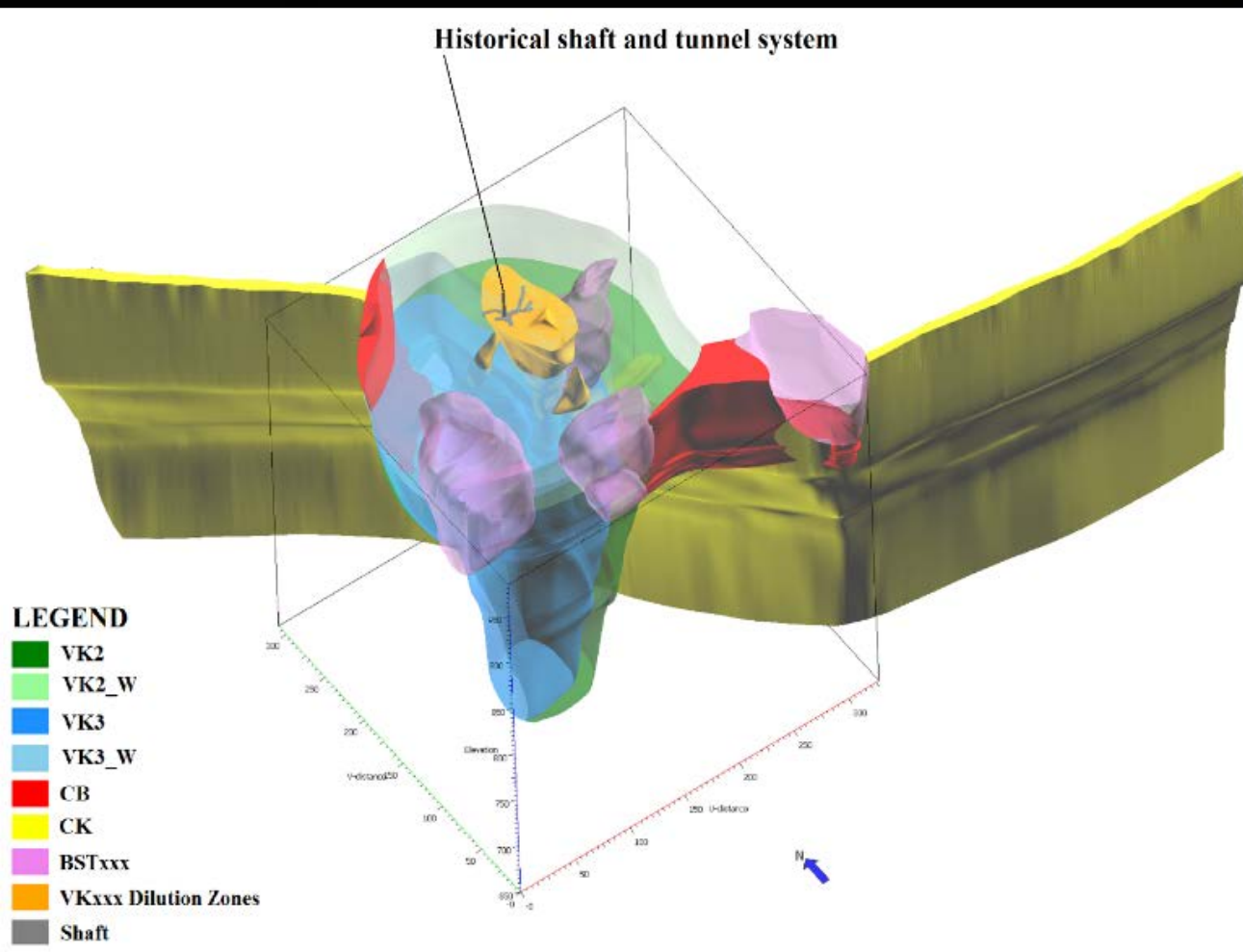
- GoCad 3D Geological Model
- Modelling Incorporates

- Tsodilo drill holes
  - 3,665m 2015 ore body delineation drilling
  - 3,668.75m 2017 pilot hole core drilling
  - 3,120m large diameter

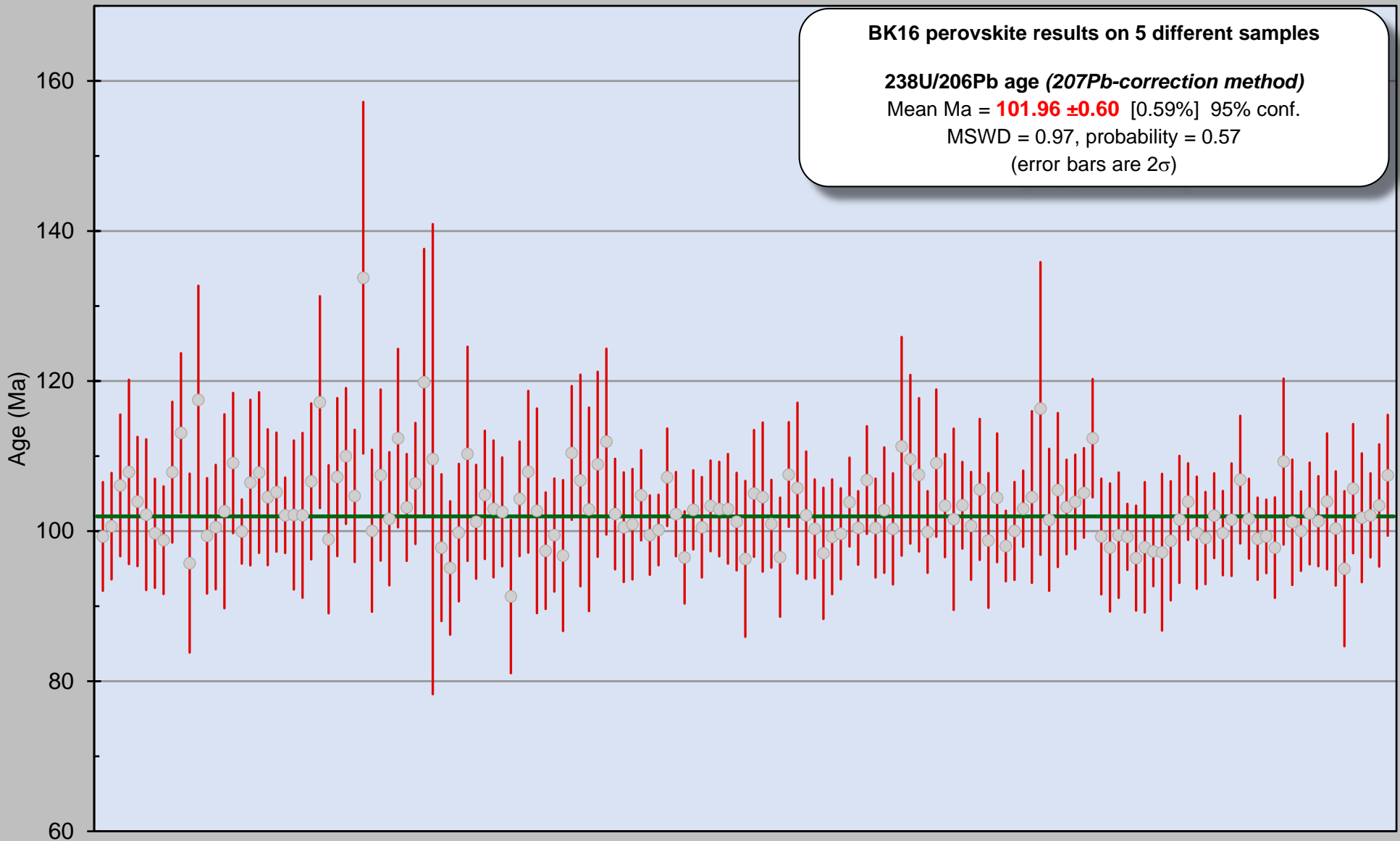
- Historical holes (3,695.25m)
  - 622.25m core drilling
  - 815m 12.25 inch RC drilling
  - 2,258m 6.5 inch RAB drilling

- Magnetic and Gravity data
- Historical Shaft and tunnel location

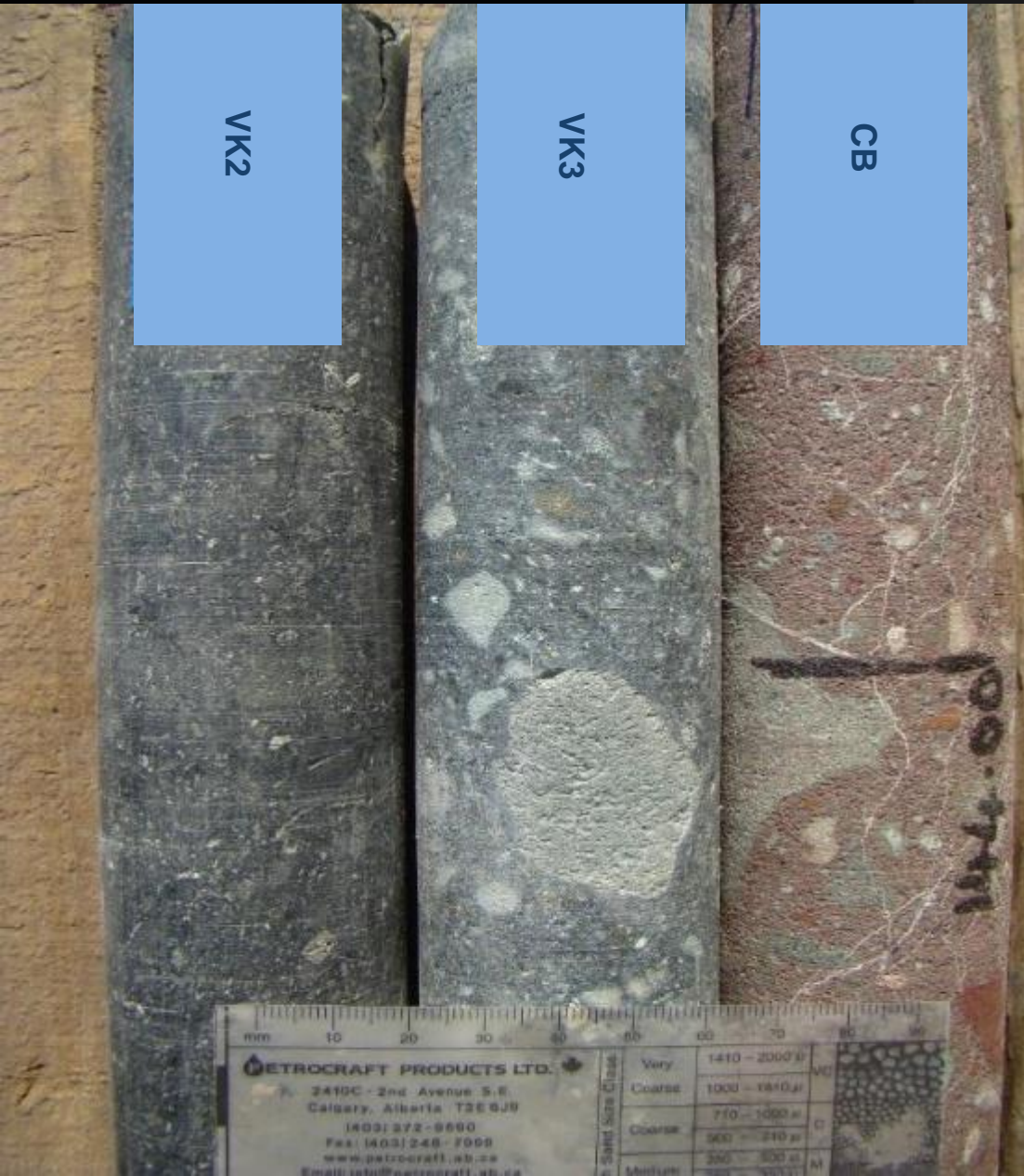
- Includes:
  - All Kimberlite Phases modelled separately
  - All internal Dilutions
  - Large mega xenoliths
- Exploration Target Tonnages
  - 18.2 to 20.1 Million Tonnes
  - To a depth of 450m



# BK16 Age (Geochronology)



# Kimberlite Geology



- Pipe is 5.9ha in size and beneath 25m of Kalahari sediments.
- Main phases of kimberlite identified:
  - CB = Country Rock Contact Breccia. CB is highly diluted by country rock xenoliths and is thought to represent the embryonic phase of kimberlite emplacement. Reddish colored, crustal xenolith- rich wall rock breccia. Quartz grain typical. Minor volumetrically.
  - VK2 = Volcaniclastic Kimberlite (Phase 2). VK2 phase is almost black when fresh and occupies the eastern part of the pipe. It has a magmaclastic texture and is a highly serpentinised volcaniclastic kimberlite with variable amounts of relatively unaltered basalt xenoliths. Contains pale green to white altered olivine macrocrysts, pholopite rich, ilmenite common. Magma clasts common.
  - VK3 = Volcaniclastic Kimberlite (Phase 3). VK3 is Macrocrystic slightly segregatory kimberlite, generally a grey when fresh and forms the western part of the pipe. It is a distinctively speckled volcaniclastic kimberlite due to common but relatively small (<10 cm) totally altered grey basalt xenoliths. Contains large olivine macrocrysts and perovskite and opaques are common.
  - VKxxx is a basalt xenolith dominated (up to 88 % by volume) volcaniclastic kimberlite, and occurs dominantly in the central upper part of the pipe, although is seen through out both VK2 and VK3 domains.
  - CK1 = Coherent Kimberlite. CK1 is a minor part of the intrusion and is a coherent kimberlite that was drilled in the southeast part of the pipe. It is a macrocrystic opaque-rich, and monticellite-phlogopite rich kimberlite phase. It is often extremely altered with near vertical carbonte veins. CK1 is interpreted as an early stage kimberlite dyke, probably a precursor dyke.



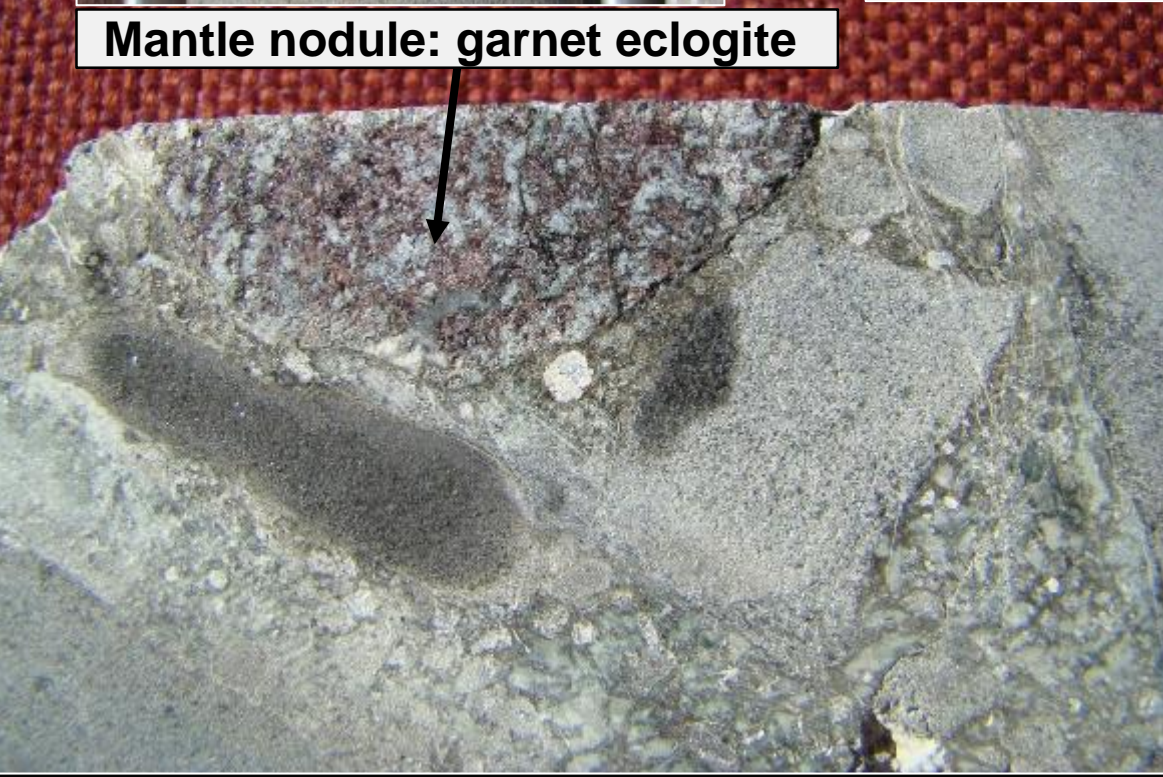
# Kimberlite Features

Macrocrystic Ilmenite

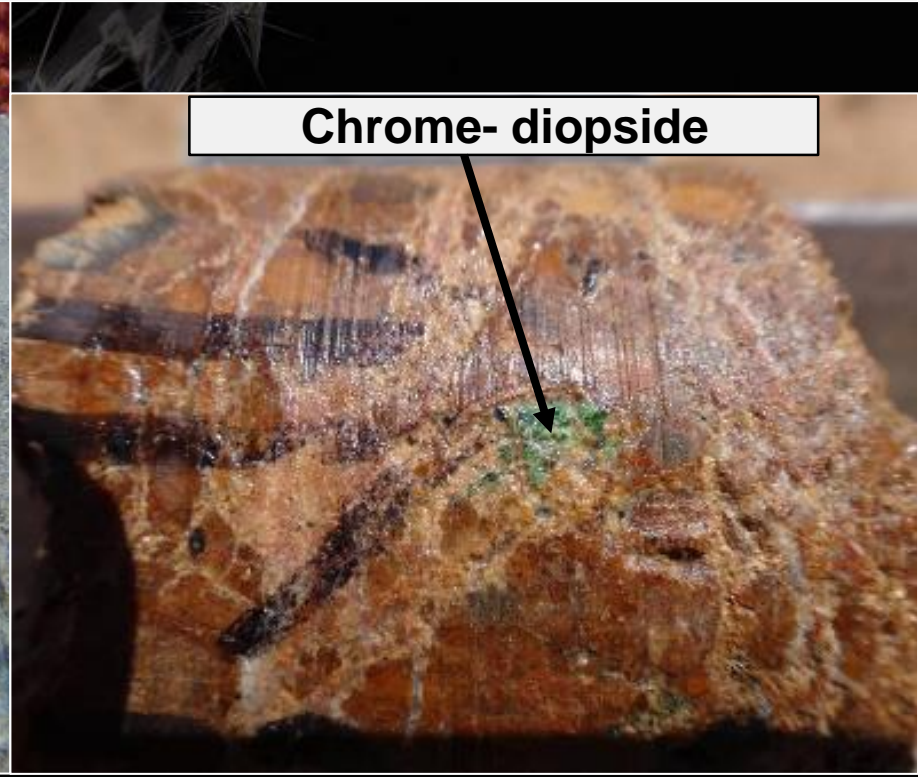


Large anhedral olivines

Mantle nodule: garnet eclogite



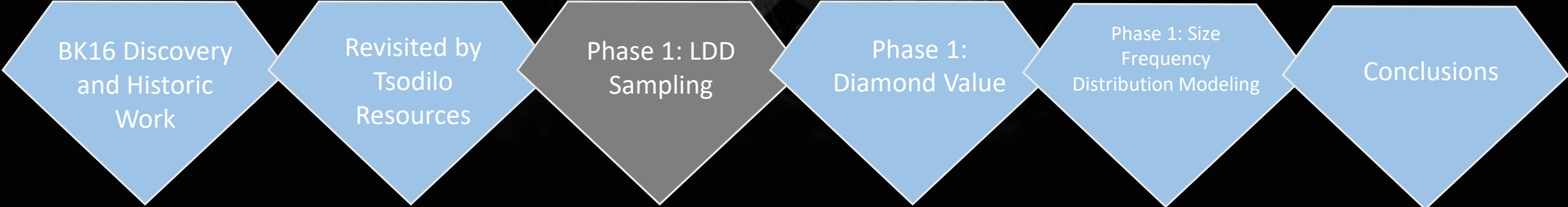
Chrome- diopside



# Phase 1: LDD Bulk Sampling and Processing



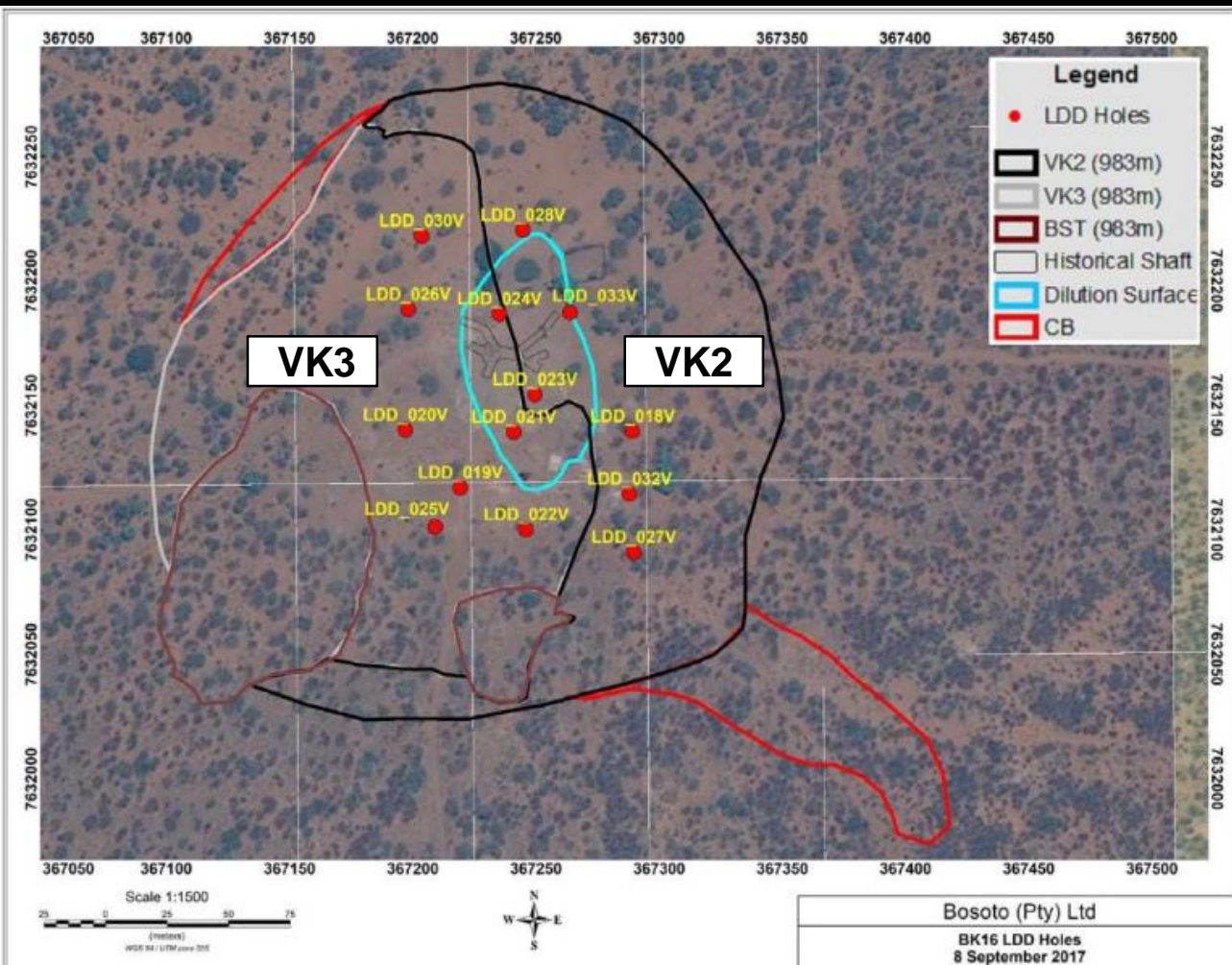
- **Phase 1 LDD sampling Purpose:**
  - ✓ 2,000 tonnes of kimberlite
  - ✓ Recover for diamond valuation purposes only (\$/carat)
  - ✗ Sample too small for direct measure of grade (cpht)



# Phase 1: LDD Bulk Sampling Program

- 24" large-diameter drill holes (LDD)
- 14 LDD holes drilled

- 2,077 tonnes of kimberlite
- Mainly VK2 and VK3
- Minor CB and VKxxx



- Samples every 12m
  - ~5 tonnes of washed chips
- Bagged in 2 tonne bulk bags
- Sealed and transferred to DMS Plant
  - Dense Media Separation
  - Produces concentrate
  - Transferred in Barrels
- Concentrated X-Ray Sorted
  - Bourevestnik (BV) Polus-M



# Phase 1: LDD Bulk Sampling Program



24 inch bit

- Gave large chips
- Worked closely with drillers

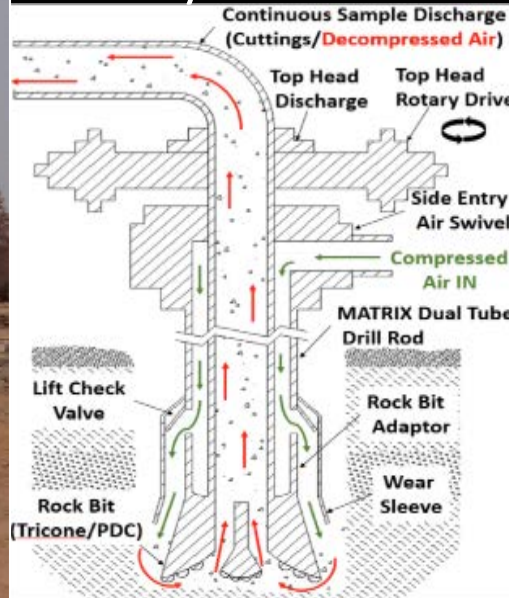
- **Elephant LDD Rig**
  - 150 tonnes of pull back
  - Reverse flood air assist (RFAA)
  - 24 inch bits
  - tungsten carbide inserts

- Correct penetration rates
- Drill bit wear not excessive
- Low grinding
- Low diamond breakage



“Elephant” LDD rig

## RFAA System



# Importance of chip size

Generally a high percentage of large chips was produced

- On line real time particle size distribution analysis was undertaken by rig geologists
- Monitoring this in combination with drilling rates allowed us to closely monitor the situation
- If there was a change in chip percent and drill penetration rates, we would work closely with drillers to ensure they understood the importance of maintaining chip size over drill speeds
- This ensured that our results were good and was confirmed by excellent low diamond breakage
- Screen Underflow was also monitored to ensure no >1mm diamonds were lost to slimes



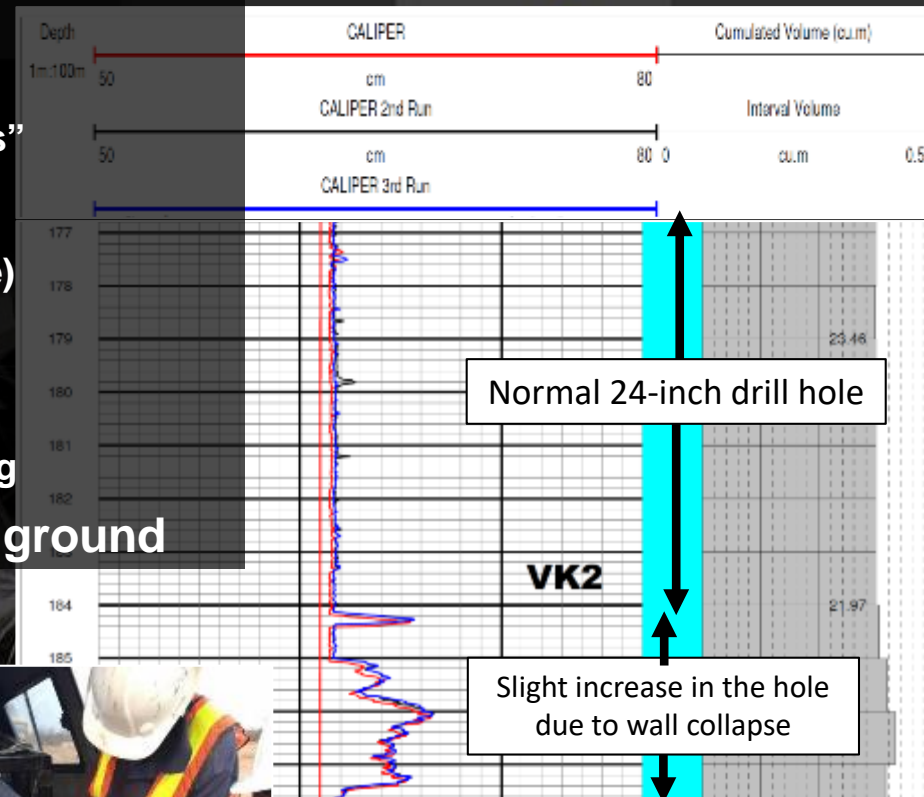
Fines produced was low



Nice large chips seen

# Caliper Measurements: Importance of accurate tonnage

- Samples taken every 12m
  - Around 5 tonnes of washed chips recovered by mass
  - Washing chips results in mass loss at <1mm to “slimes”
- Caliper is important to get volume of hole
  - For each 12m sample taken (standard industry practice)
- Volume of hole is converted to tonnage
  - Multiplying volume by density of kimberlite
  - Average domain densities used, taken from core drilling
- Each 12m sample = ~8.5 tonnes removed from ground



# Tonnages Continued

Material washed at shaker screens at drill site and separated at 1mm.

Material <1mm goes to slimes



- 2,076.7 tonnes extracted (Caliper) / 1,243.8 tonnes of washed chips sent to DMS plant (Measured by weighing sample bags)
- Recovery = ~60% (loss to slimes (<1mm) = ~40%)

Kimberlite Phase	Tonnes Extracted (Caliper)
VK2	736.8
VK3	1,249.4
VKxxx	63.4
CB	27.2
<b>Total</b>	<b>2,076.7</b>



Kimberlite Phase	Tonnes Treated Dry (DMS Plant)	Recovery %
VK2	468.1	58.07
VK3	725.5	63.53
VKxxx	29.5	46.46
CB	20.7	76.24
<b>Total</b>	<b>1,243.8</b>	<b>59.89</b>

# 10 tph Dense Media Separation (DMS) Plant



- **Located in Letlhakane**
  - Crushing
  - Screening
  - Concentration by DMS
- **Sample storage laydown area**
- **10 tph capacity**
  - Water recycling dam
  - Scrubber
  - Primary (Jaw) and Secondary (Cone) Crushing
  - Dense Media Separation (DMS) FeSi cyclone
- **Concentrate Sample Produced**



Water Recycling Dam



Sample Laydown



DMS Cyclone



# X-Ray Recovery Unit

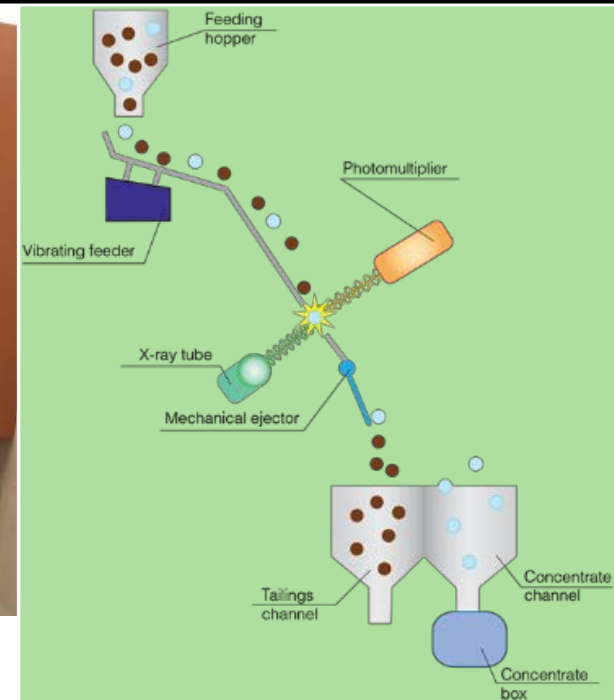
- Concentrate securely taken to Maun X-Ray Sorter
- Bourevestnik (BV) Polus-M - X-Ray Sorter
- Concentrate sample prosed through unit on top
  - Passed through drier to create dry feed
  - Screen sorted to 1-3mm and 3-8mm
  - +8mm fraction straight to hand sorting



Drying and Screening



Bourevestnik Polus-M X-Ray sorter



# Phase 1: Diamond Valuation

- ✓ **Concept Proven**
- ✓ **High Value Diamonds**
- ✗ **Need larger sample to ensure representative sampling of larger diamonds**
- ✗ **Sample too small for direct measure of grade (cpht)**



BK16 Discovery  
and Historic  
Work

Revisited by  
Tsodilo  
Resources

Phase 1: LDD  
Sampling

Phase 1:  
Diamond  
Value

Phase 1: Size  
Frequency  
Distribution  
Modeling

Conclusions

# Phase 1: Diamond Valuation

## ➤ Diamonds sorted in Maun shipped To Gaborone

- Brinks Security Services
- I Hennig
  - Diamond Technology Park (DTP)
  - Verified by Department of Mines rep
  - Acid Cleaned “boiled” at Lucara facilities

## ➤ Valuation and breakage studies

- Mr. Ray Ferraris of QTS Kristal Dinamika
- Weight of each stone confirmed
- Sieved Diamond Trading Company (“DTC”) mass carater/grainer system for +1 DTC sieve class (~>1mm)
- Each stone valued separately
  - Price point, \$ per carat, and total \$ value for each stone
- Assessed for breakage and Impact damage
  - Classified by Mr. Ferraris and Dr. Paddy Lawless

*“While this is statistically a very small sample; the presence of such high color clean high-yielding shapes bodes well for the future” Ray Ferraris*



S021: 1.535 carat; \$755 per carat; J color;  
Octahedron



S101: 1.410 carat; \$748 per carat; J color;  
rounded Dodecahedron

***“This production is very similar to the Karreevlei diamond production in South Africa in that it is dominated by white high quality dodecahedrons diamonds of ” Ray Ferraris***



**S024: 1.38 carat; \$705 per carat; F color; Dodecahedron**



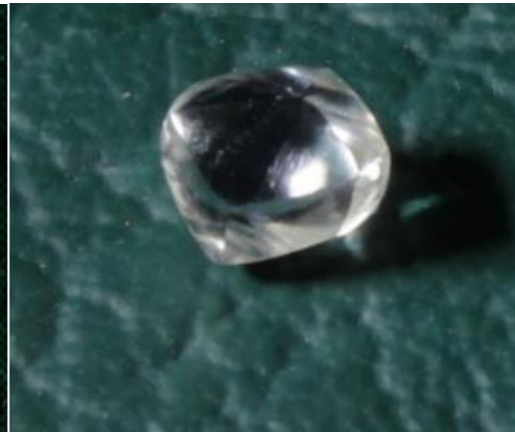
**S066: 0.965 carat; \$565 per carat; J color; Dodecahedron**



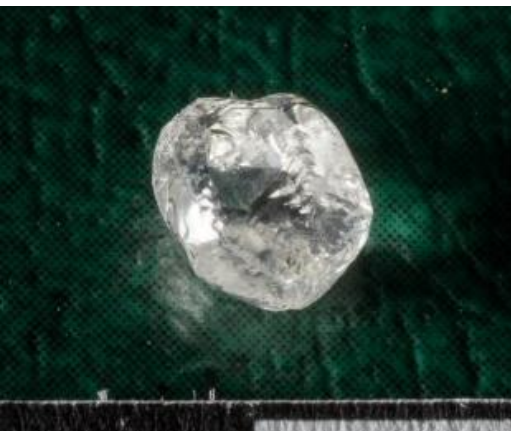
**S021: 0.705 carat; \$465 per carat; F+ color; Dodecahedron**



**S164: 0.745 carat; \$405 per carat; J color; Dodecahedron**



**S008: 0.815 carat; \$375 per carat; G+ color; Irregular Dodec**



**S229: 0.730 carat; \$350 per carat; F+ color; Irregular Dodec**



**S229: 1.935 carat; \$350 per carat; DE color; Irregular Dodec**



**S142+S143: 0.920 carat; \$245 per carat; yellow color; Dodecahedron**



# Phase 1: LDD Diamond Valuation

Number of LDD Diamonds	Carats	\$ per carat
502	77.940	176.80

*“This is quite unusual to have such a low amount of Medium and Strong fluorescence compared to most productions world-wide.”*  
Ray Ferraris

*“The BK16 is unlike most of the Botswana Kimberlitic goods due to a small population of lower quality Clivage and Rejection goods, minimum darker browns as well as no Boart qualities”* Ray Ferraris

## ➤ Mr. Ferraris said of BK16 Diamonds

- *“Very attractive mostly white goods”*
  - *“many clean stones”*
  - *“mainly Dodecahedral population”*
  - *“a few small octahedrons”*
  - *“no cubes”*
  - *“a few triangular maccles in the small sizes”*
- *“Smaller population of lower quality Clivage and Rejection”*
  - *“compared to other Botswana Kimberlites”*
- *“No boart at all”*
- *“A few yellow diamonds”*
- *“Very low brown diamonds of all shades, especially the darker browns”*
- *“A few small to moderate size Type IIa which are mostly white stones”*
- *“Low levels of Fluorescence seen” – “low impact on diamond price”*
- *“Out of 248 stones”*
  - *“Only 4 with Medium fluorescence (1.6%)”*
  - *“Only 3 with Strong fluorescence (1.2%)”*



# Phase 1: LDD Diamond Breakage

Mr. Ferraris Breakage Categories			Dr. Lawless Breakage Categories		
Description	Number	%	Description	Number	%
Unbroken	350	69.7	Unbroken - 0	344	68.5
Chipped	88	17.5	Chipped - Ch	101	20.1
Lightly Broken	39	7.8	Significant - 1	22	4.4
Heavily Broken	16	3.2	Serious - 2	23	4.6
Fragment	9	1.8	Severe - 3	5	1.0
			Very Severe - 4	7	1.4
Total	502		Total	502	

*“The Drilling program was very well managed as the Breakage Index for these LDD Samples at 12.35% is very low compared to the international average.”*

*“The Project Due Diligence as seen with the presentation, packing, sealing, sample descriptors and detail was world-class”*

Ray Ferraris

## ➤ Diamond Breakage Studies

- Diamonds can break Naturally
  - During emplacement
  - or eruption

## ➤ But can also break Un-Naturally During Extraction

- Drilling
- Mining
- Processing

## ➤ Breakage Studies only look at Un-Natural breakages

## ➤ Conclusions for the LDD Diamonds recovered

- Low level of Un-Natural or “fresh” breakage
- Well Managed LDD and DMS plant programs
- Low Breakage Index 12.35%
  - LDD programs can often exceed 30% Breakage Index

# Phase 1: Type II Diamond Analysis

Hole ID	Sample	Material Type	Carats	Type IIa	Color	Yehuda Type II Reading
LDD_020V	S055	VK3	0.550	Type IIa - D color	D	Type IIa Mixed
LDD_020V	S055	VK3	0.410	Type IIa - D color	D	Type IIa Mixed
LDD_022V	S110	VK3	0.215	Type IIa Brown	D	Type IIa Brown
LDD_022V	S111_R	VK3	0.250	Type IIa Light Brown	D	Type IIa Brown
LDD_026V	S009	VK3	0.090	Type IIa - D color	D	Type IIa Mixed
LDD_019V	S137	VK3	0.085	Type IIa - D color	D	Type IIa White
LDD_020V	S050	VK3	0.065	Type IIa - D color	D	Type IIa White
LDD_019V	S144	VK3	0.040	Type IIa - D color	D	Type IIa White
Historical	2000 Packet 3	NA	0.350	Type IIa - irregular very white	D	Type IIa White
Historical	1999 Packet 3	NA	0.160	Type IIa - irregular clean very white	E	Type IIa Mixed
Historical	2000 Packet 2	NA	0.040	Type IIa - small flat broken chip	D	Type IIa White
Historical	1999 Packet 1	NA	0.035	Type IIa - fragment	F+	Type IIa White
Historical	1999 Packet 2	NA	0.035	Type IIa chipped - Impact	DE	Type IIa White

## ➤ Type II diamonds

- rare diamonds
- no measurable nitrogen
- generally devoid of impurities
- tend to have low fluorescence

## ➤ 3.8 % of Diamonds tested were identified as high quality type IIa diamonds

- Predominantly D color
- Tested on the Yehuda Colorimeter

## ➤ Fluorescence

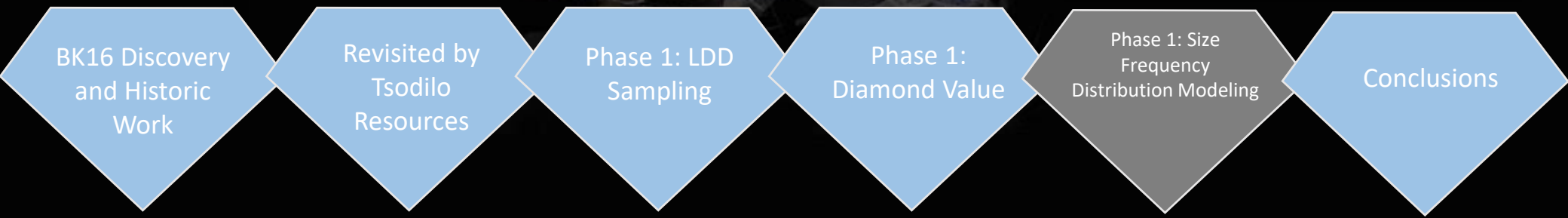
- 2.8% Medium to Strong
- Unusually Low
- Low impact on price

***“The fact that Type IIa diamonds are also present and the lack of weaker Rejection and Boart goods makes a big statement” Ray Ferraris***

# Phase 1: Size Frequency Distribution Modelling



- ✓ Very High Value Diamonds Possible
- ✓ Higher Grade Possible
- ✗ Need larger sample to decrease uncertainty in diamond value and realize some larger stone
- ✗ Need larger sample to decrease uncertainty in grade





# Phase 1: Size Frequency Distribution Modelling

- Conducted by Mr. Stephen Coward (Interlaced)
- Size frequency gives indications of a coarse diamond distribution
- Due to small size of samples, and coarse SFD, coarse stones not yet recovered
- Potential Size frequency and \$/ct has been modelled:
  - Using a combination of simulation and extrapolation
  - Comparison to similar deposits- Karowe's AK6 deposit
- Models of grade, size and value suggests:
  - This deposit has potential to host a coarse size distribution
  - This deposit has potential to have high value stones
  - If both can be demonstrated through next phase of sampling BK16 could become a valuable asset
- Additional work is ongoing to define the parameters of the sampling required to demonstrate economic viability.

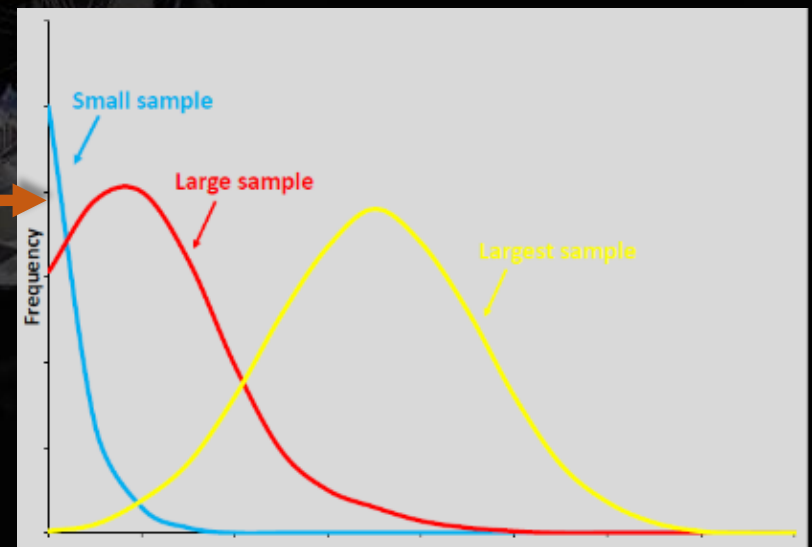
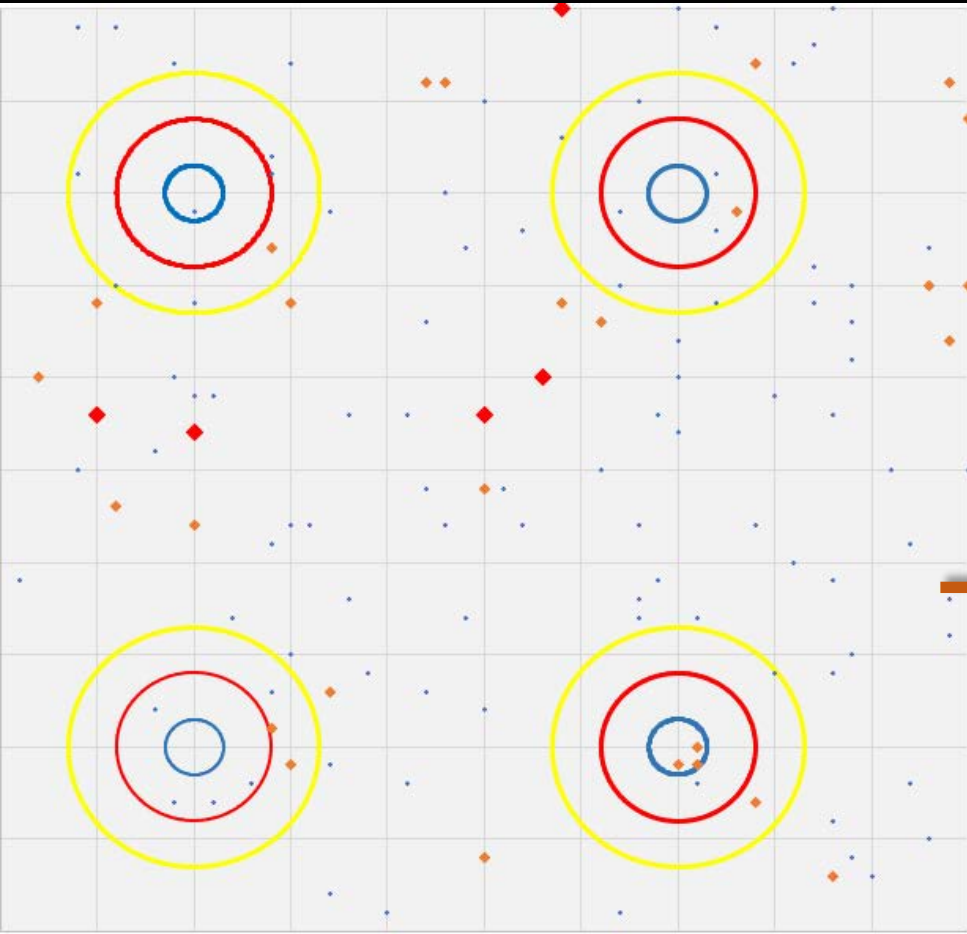
Variable	Unit of Measure	BK16 Sample	Current BK16 SFD Study			
			Min	P20	P80	Max
Grade	Cpht	3.8	4	5	7	8
Diamond Value	US\$/carat	177	281	290	600	792
Kimberlite Value	US\$/tonne	6.6	11	15	38	67



# Notes: Sample Size, Diamond Grade and Size Modelling

*"The process of sample acquisition and processing to recover diamonds is complex and cannot be considered an 'assay,' as is the case for many types of metallic mineral sampling. This often results in material differences, between the raw diluted recovered grade from a set of samples and the true insitu grade of the target"* Stephen Coward

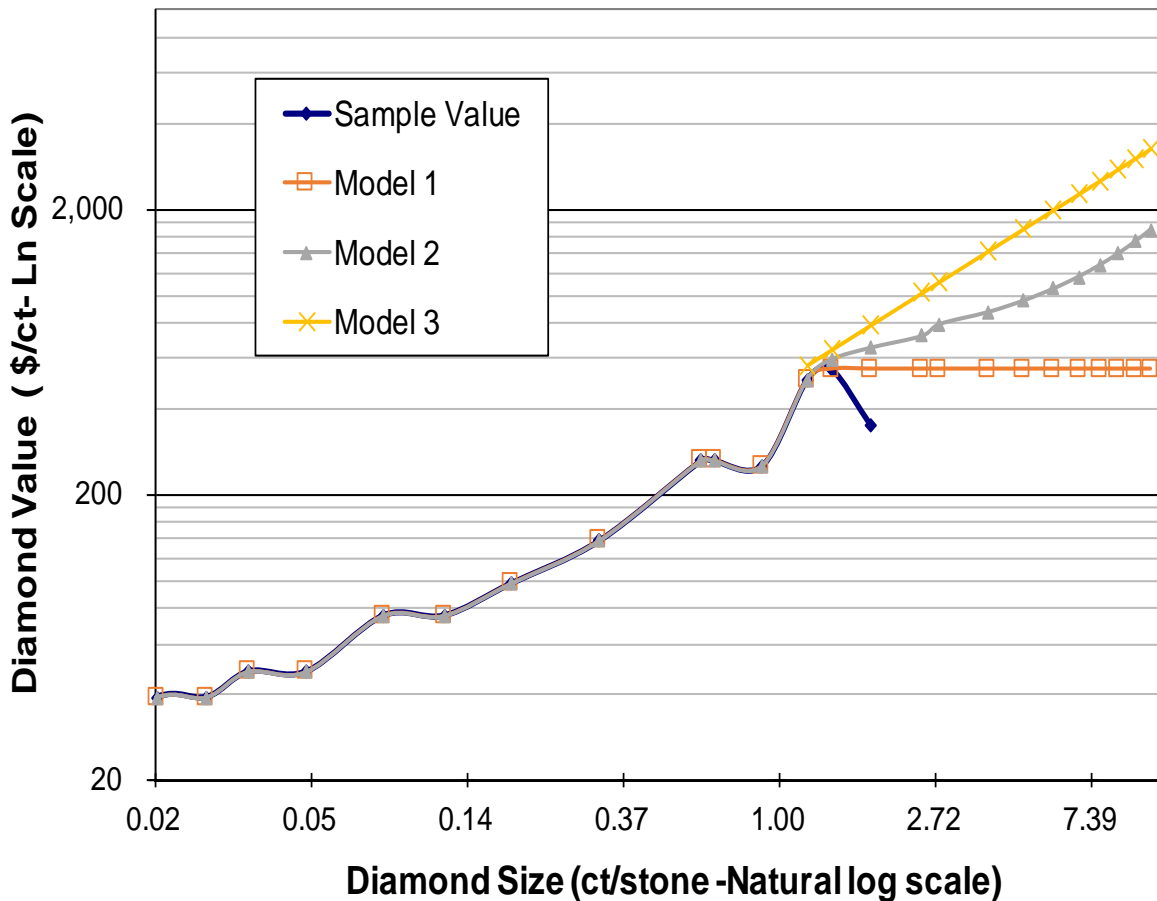
- **Diamonds are particles that exist in very low concentration**
  - **Difficult to sample full range of natural variations**
  - **Under representation of Large Diamonds in small samples**
  - **Such as BK16 Phase 1 LDD program**
- **Results from small samples require modelling to account for these effects**
- **However as sample size gets larger:**
  - **More diamonds are recovered in each sample**
  - **Sample grades become more representative of the spread in the deposit**
  - **The ratios of larger stones to smaller stones becomes more similar to the in-situ values**



# Phase 1: Size Frequency Distribution Modelling

- BK16 Value Modelling
- Range of BK16 modelled Diamond Values

Extrapolated Models of \$/ct per Sieve Class



- Model 1 (orange line) = \$298 per carat
  - Traditional Conservative extrapolation
  - Clearly under represents value of larger diamonds
- Model 2 (grey line) = \$453 per carat
  - Incremental increase
  - Proportional increment extrapolated
  - May not account for true value of larger diamonds
- Model 3 (yellow line) = \$792 per carat
  - Optimistic Model
  - Assumes assortment is the same in upper size classes
  - Tries to account fully for higher values of larger stones

# Comparison to AK6 (Karowe)

## ➤ BK16 Value Modelling vs AK6 Value (production)

### ➤ BK16 values are higher than AK6

- Generally similar in values
- In fine ranges up to 1 carat
- Above 1 carat the AK6 slope increases
- AK6 had a large jump in the value of stones above 10 carats

### ➤ However no exceptionally large stones of this type recovered at BK16 thus

### ➤ However BK16 is clearly under sampled

It is not possible to predict the curve beyond the current extrapolations

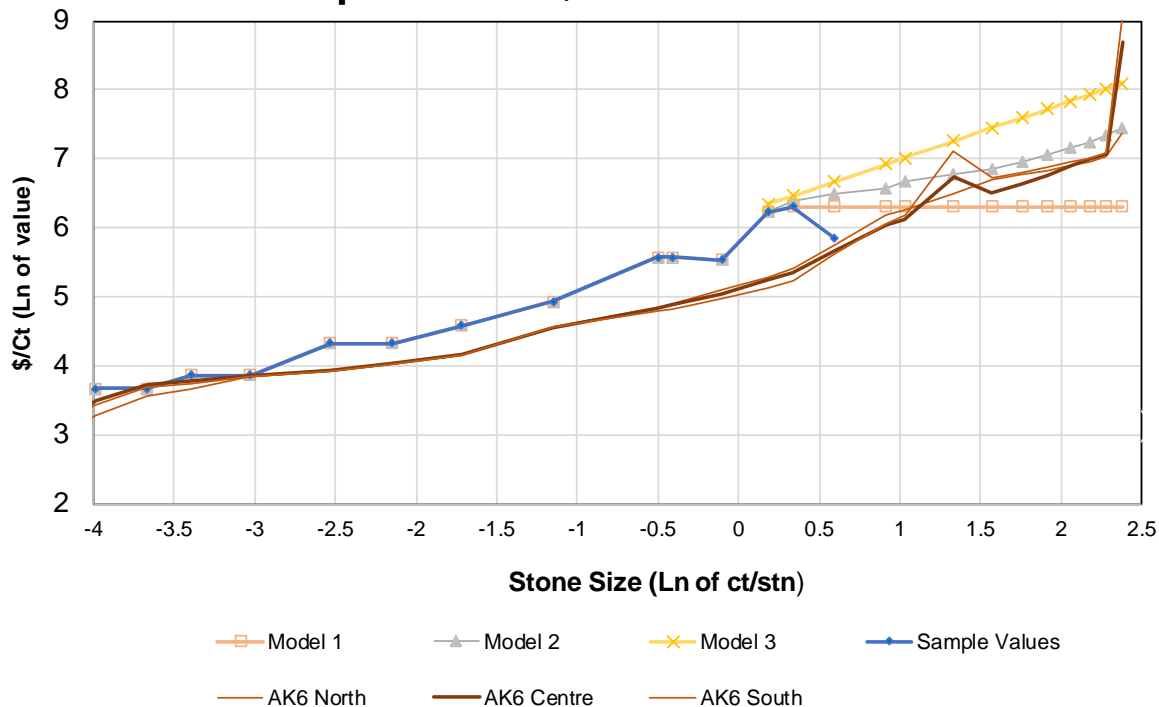
### ➤ However, current extrapolations are based on a clear under-sampling from BK16

Given the presence of Type IIa diamonds seen at BK16

### ➤ Potential for significant upside trend when a larger sample is taken

*\*The values for Karowe (AK6) are based on the Open pit Mineral Reserve Estimate as at May 2018, Nowicki, 2018. Note - the grade of AK6 has gone down over time, but the \$/ct and \$/tonne have steadily increased over time as evidence and thus confidence has increased in the large high quality component of their diamond population.*

### Comparison of \$/ct - BK16 to AK6



Variable	Unit of Measure	Current BK16 SFD Study				*Karowe (AK6)		
		Min	P20	P80	Max	North	Centre	South
Grade	Cpht	4	5	7	8	13	14	12
Diamond Value	US\$/carat	281	290	600	792	222	367	716
Kimberlite Value	US\$/tonne	11	15	38	67	29.68	53.46	91.22

# Conclusions



## ➤ Deliver step wise Evaluation Program

- ✓Phase 1: Diamond Value Concept Proven
- ✓Higher Value Diamonds Modeled
- ✓Higher Grade Possible

- ✗Phase 2: Larger Sample: reduce uncertainty and improve grade constraints
- ✗Phase 3: Feasibility Study

BK16 Discovery  
and Historic  
Work

Revisited by  
Tsodilo  
Resources

Phase 1: LDD  
Sampling

Phase 1:  
Diamond Value

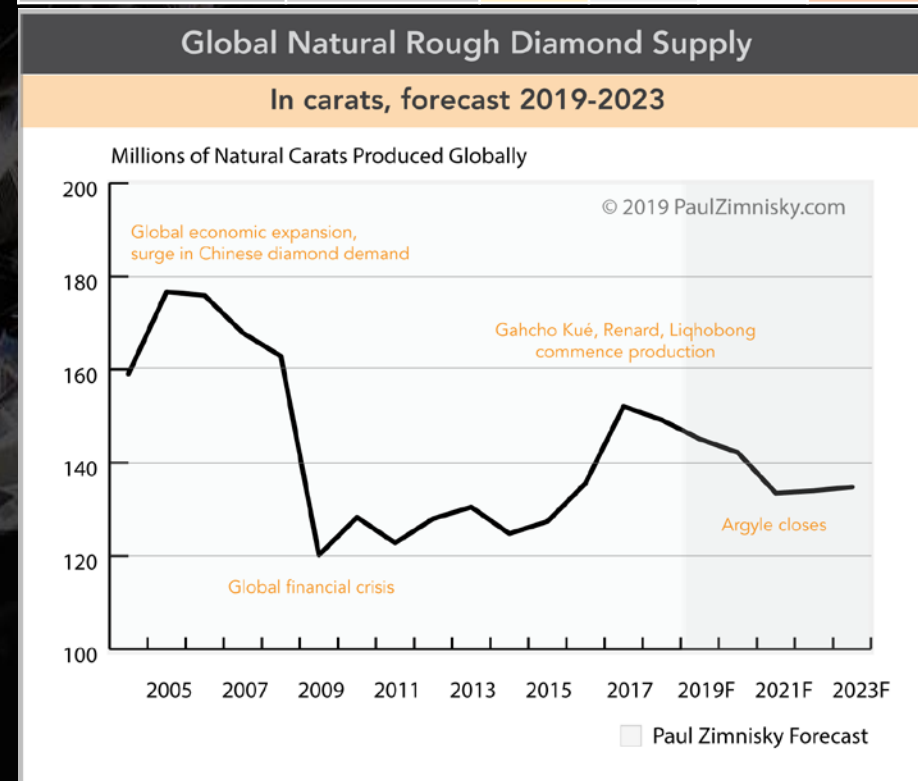
Phase 1: Size  
Frequency  
Distribution Modeling

Conclusions

# Conclusions: BK16 is well placed to enter market

- **BK16 has a course size distribution**
  - Set to produce large high quality diamonds
  - Botswana is a low risk jurisdiction
- **BK16 already shows striking similarities to AK6 (Lucara)**
- **Other mines that are similar to BK16's current results are:**
  - **Kloffiefontein (Petra Diamonds)**
    - Grade = 3 to 8 cpht, and value = 500 to 525 \$/carat
  - **Kareevlei (Blue Rock Diamonds)**
    - Grade = 3 to 4.5 cpht, and Value = 300 to 380 \$/carat
  - **Mothae (Lucapa)**
    - Grade = 2.7 to 3 cpht, and Value = 1,000 to 1,200 \$/carat

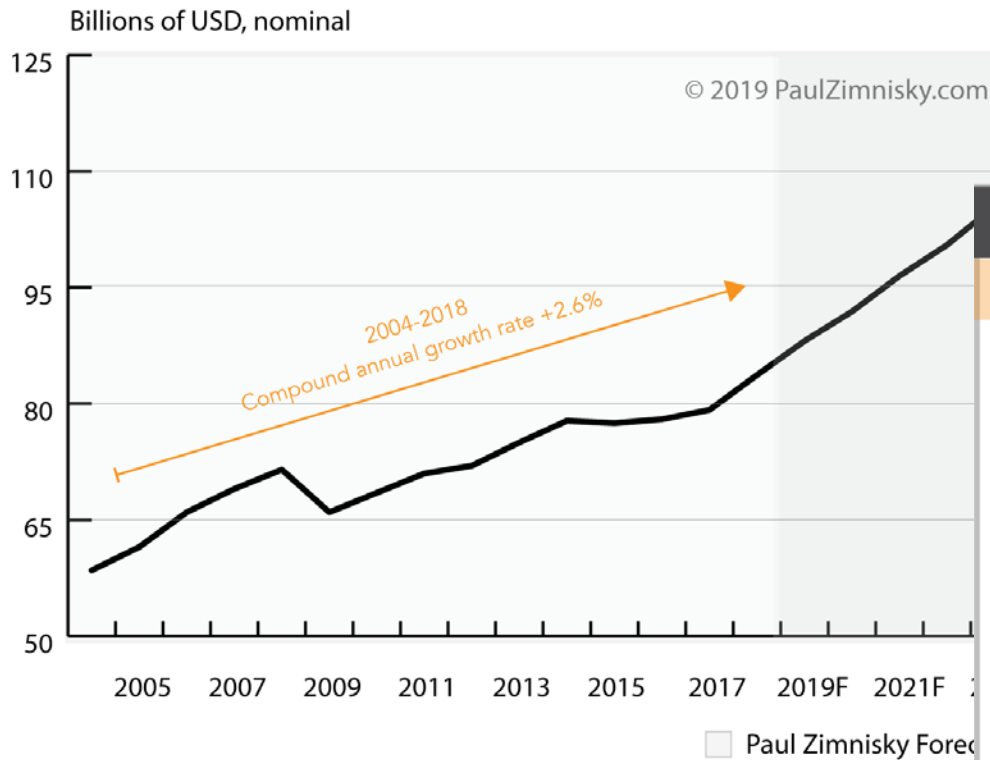
Variable	Unit of Measure	Current BK16 SFD Study			
		Min	P20	P80	Max
Grade	Cpht	4	5	7	8
Diamond Value	US\$/carat	281	290	600	792
Kimberlite Value	US\$/tonne	11	15	38	67



# Conclusions: Market trends

## Global Diamond Jewelry Demand

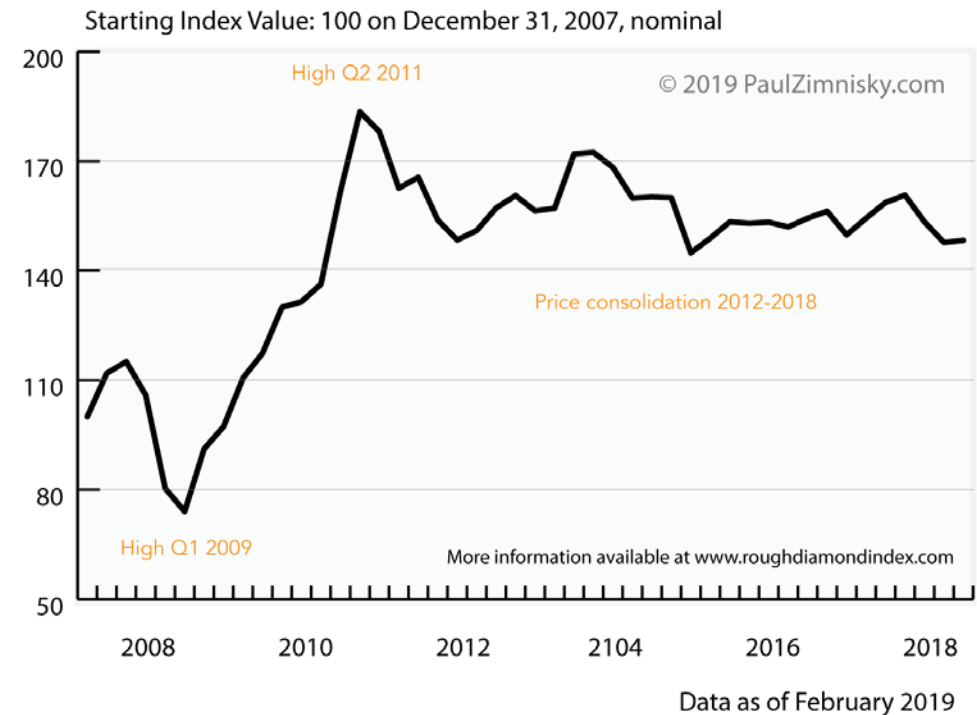
In sales dollars, forecast 2019-2023



- Quality of the BK16 diamonds will place well in market
  - Lab grown diamonds only effects low quality market
  - Demand for lower quality grade goods is decreasing
  - Demand for high quality natural diamonds is increasing
  - BK16 goods will fit well into this higher end of market

## 10-Year Rough Diamond Price History Indexed

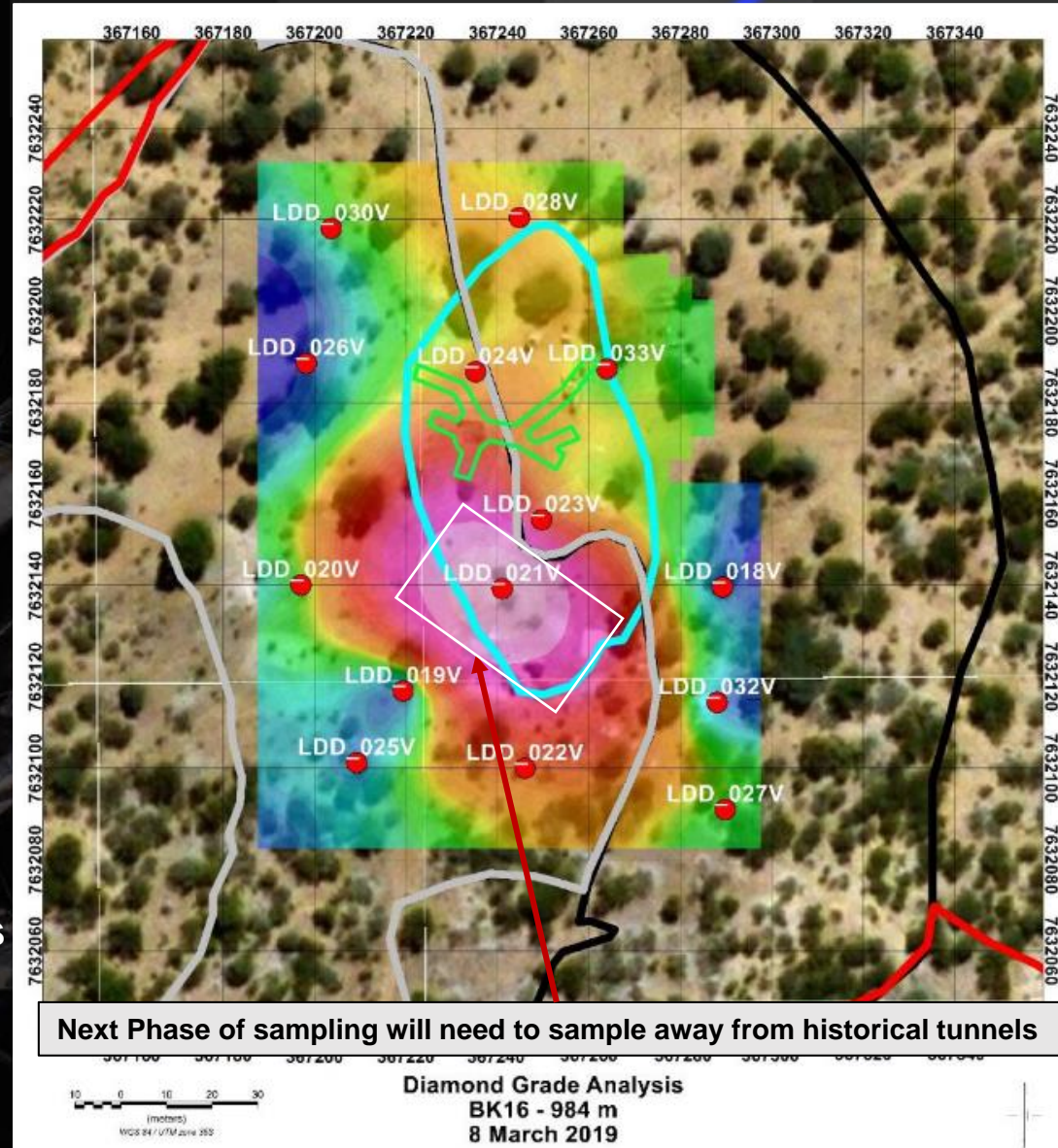
Zimnisky Global Rough Diamond Price Index



- Price of Diamonds is somewhat plateauing
- However the price of higher quality goods is increasing
- Demand for higher quality larger goods is increasing
- Diamond jewelry demand is increasing

# BK16 next phase

- BK16 is the most prospective of the kimberlites currently being evaluated in the Orapa Kimberlite Field
- Next stage of Evaluation:
  - Step 1 Larger Sample:
    - Need to take a larger sample
    - ~20,000 tonne bulk sample
    - Probably as a new Surface dug sample (Box Cut)
  - Will Give:
    - Better indication of real grade
    - Confirm presence of high quality large diamonds
    - Increase certainty in Value of diamonds
    - Better constrain inputs for economic model
  - Step 2 Feasibility Study
    - Full engineering studies
    - To define all mining parameters

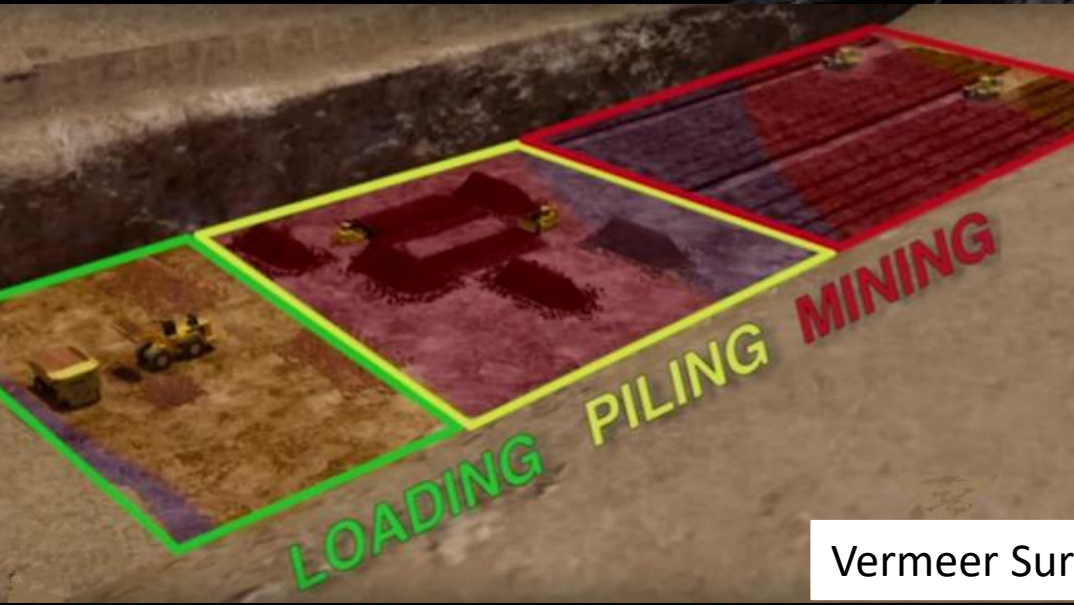




# Bulk Sample – “Box-Cut”

- Simple trench style box cut is envisaged to collect ~20,000 tonnes of kimberlite for a bulk sample
- Exploring conventional cutting methods
- Plus exploring surface mining with Vermeer

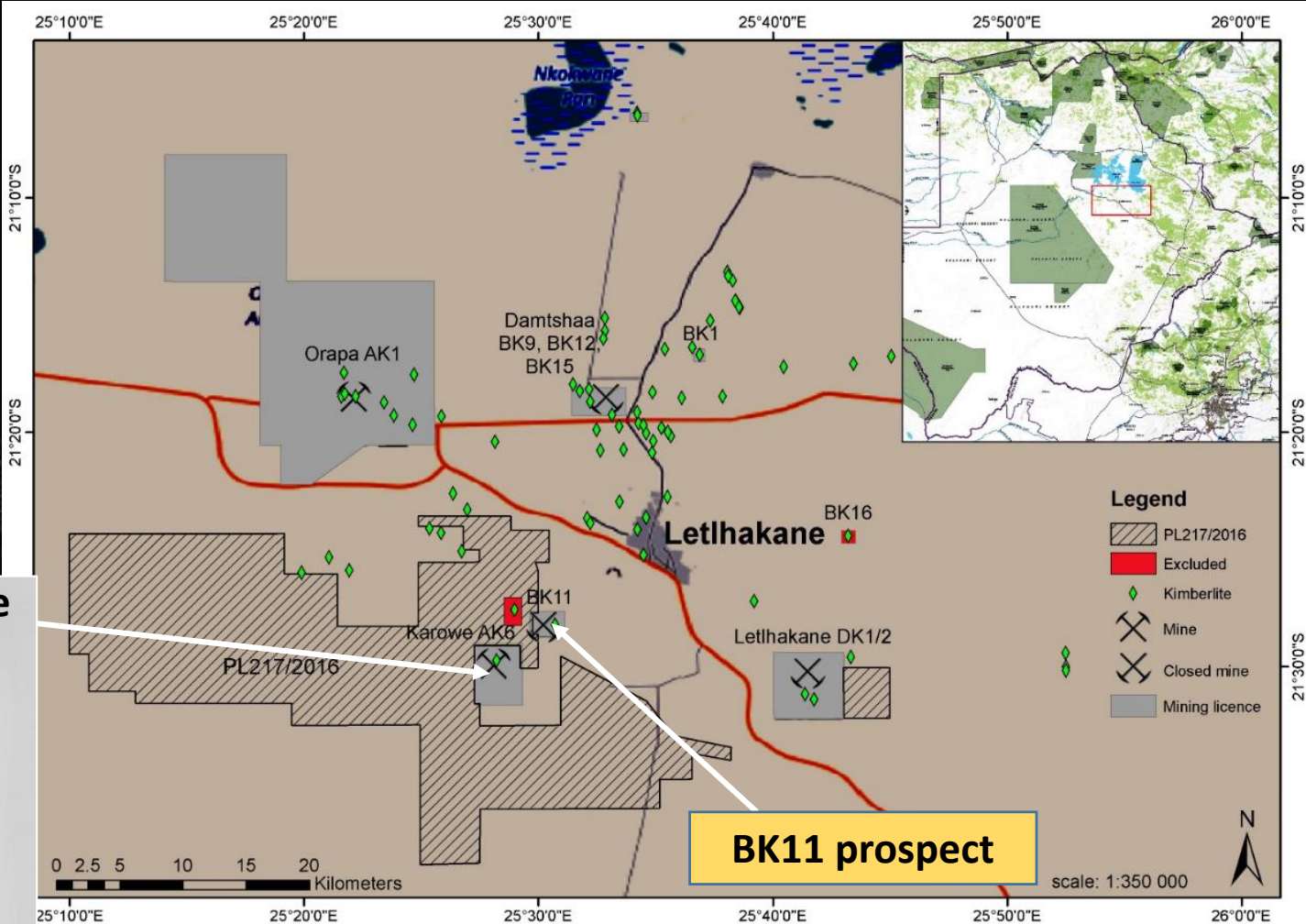
Box-Cut Design



Vermeer Surface Mining

# PL 217/2016 – OKF Alluvial and Kimberlite Diamond Prospect

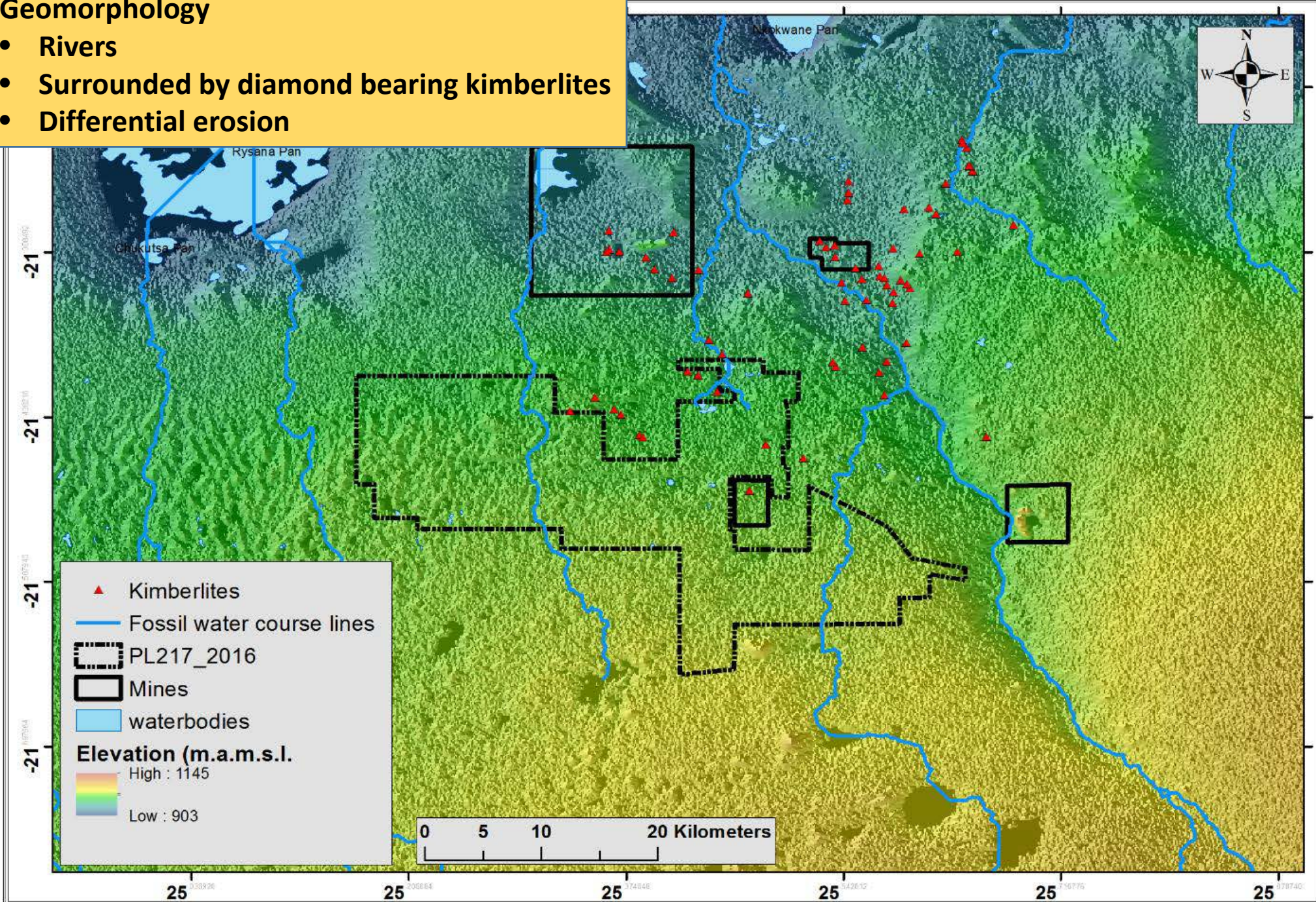
- 1. Diamond licence
- 2. Kimberlite looking targets based on geophysics
- 3. Exciting Alluvial potential: downstream from diamondiferous kimberlites and a large diamond producer

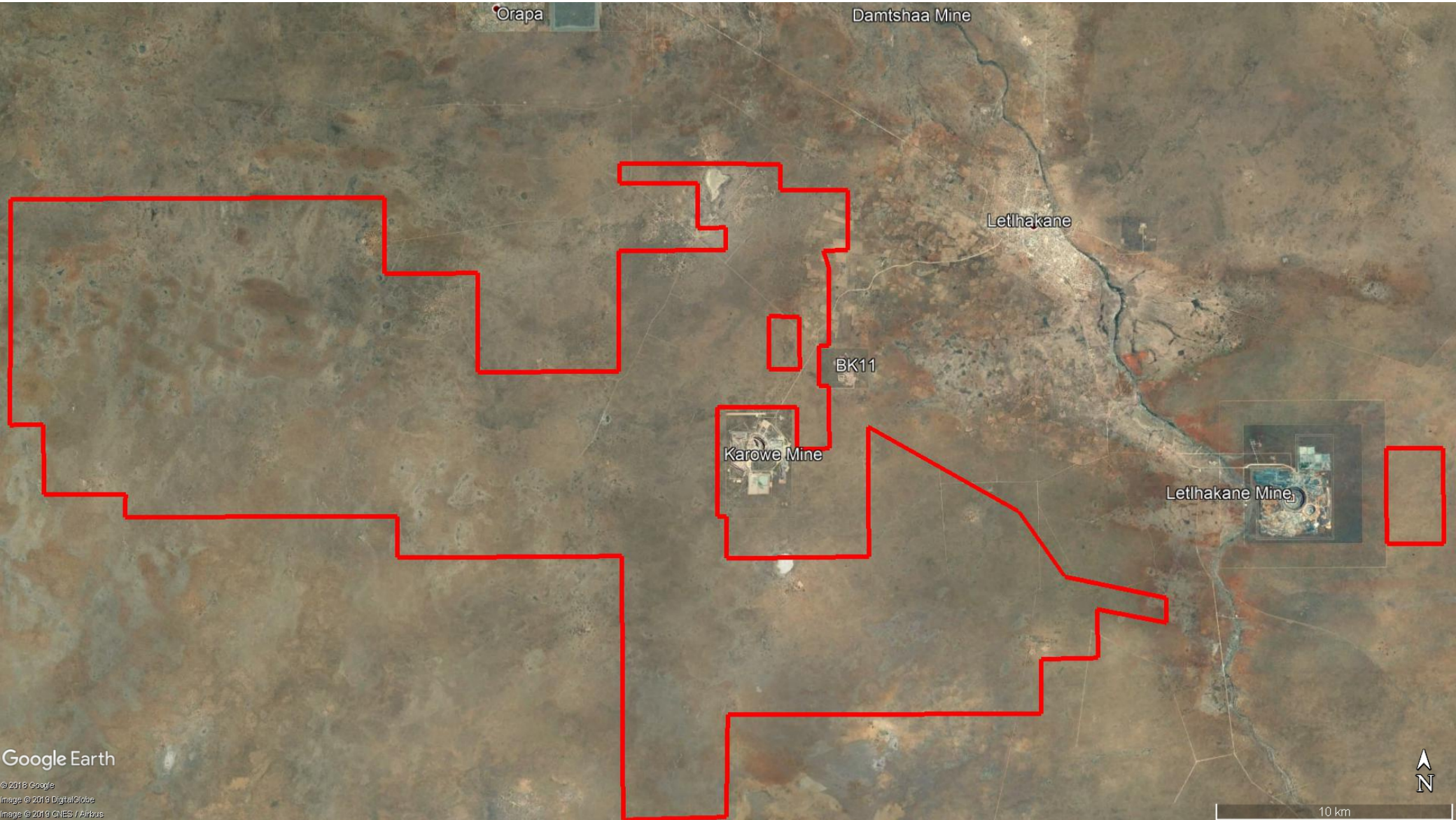


**BK11 prospect**

# Geomorphology

- Rivers
- Surrounded by diamond bearing kimberlites
- Differential erosion





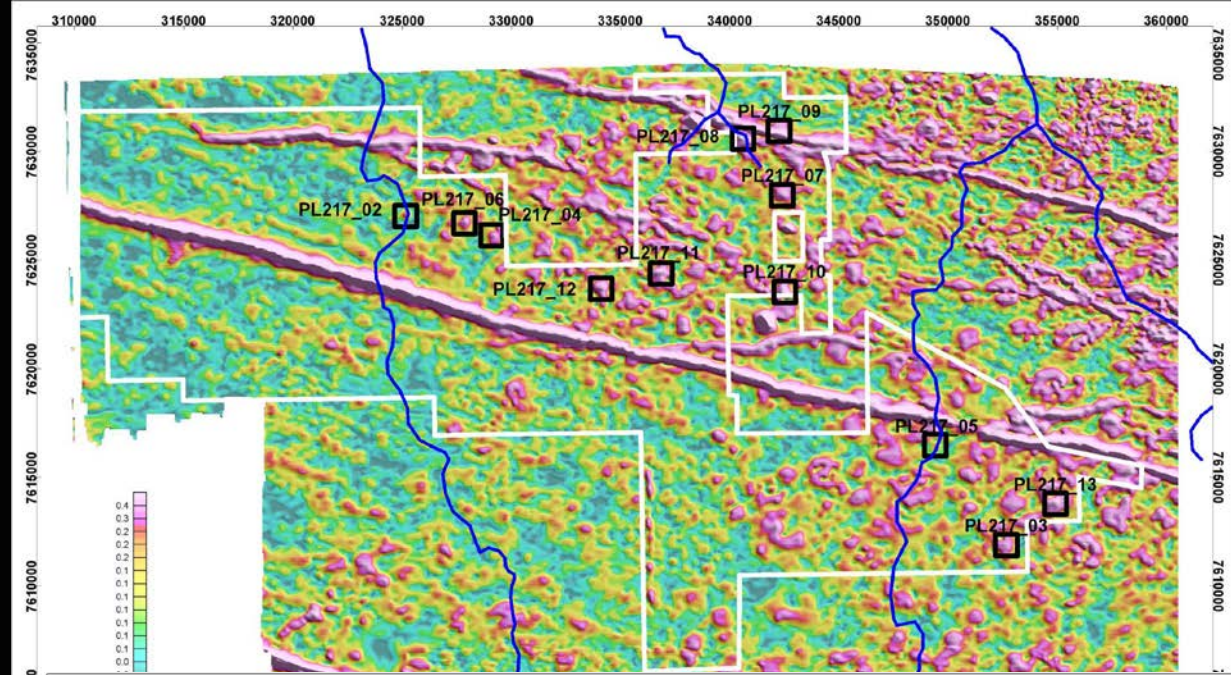
Google Earth

© 2018 Google  
Image © 2019 DigitalGlobe  
Image © 2019 CNES / Airbus

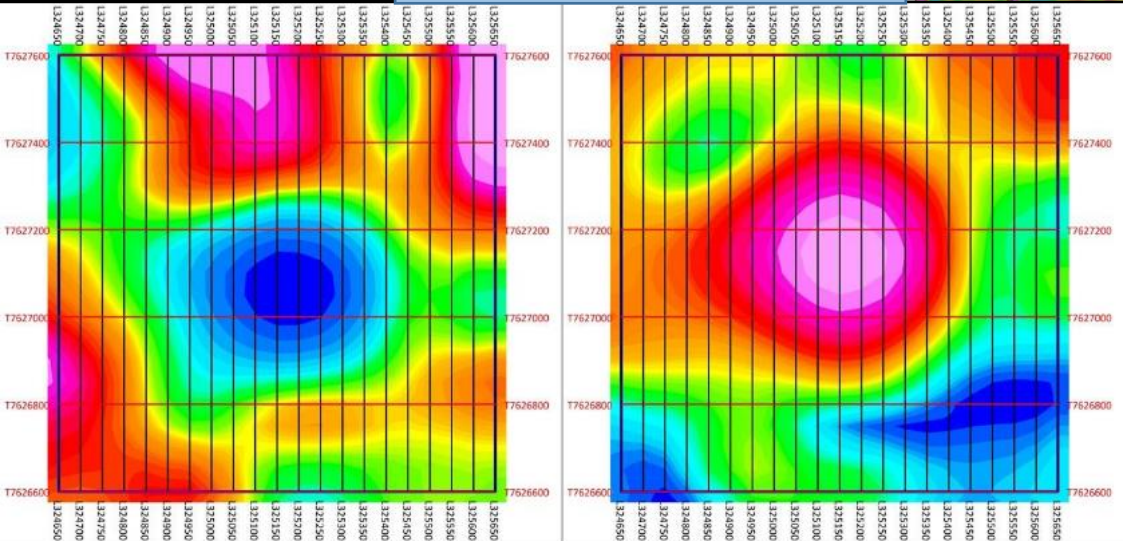
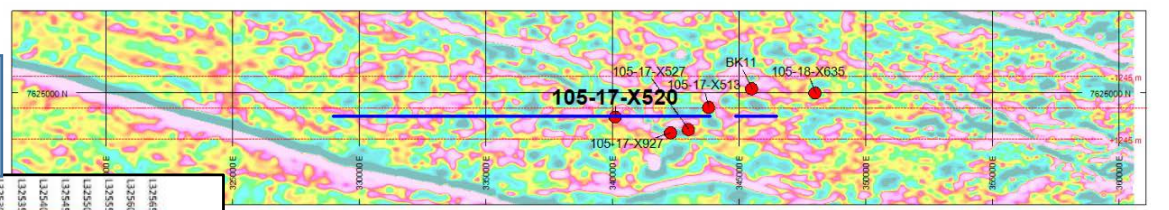
10 km

## Air magnetic data:

- Initially 26 targets identified
- Additional modelling reduced this to 12 targets
- Ground magnetic surveys completed over 3 targets

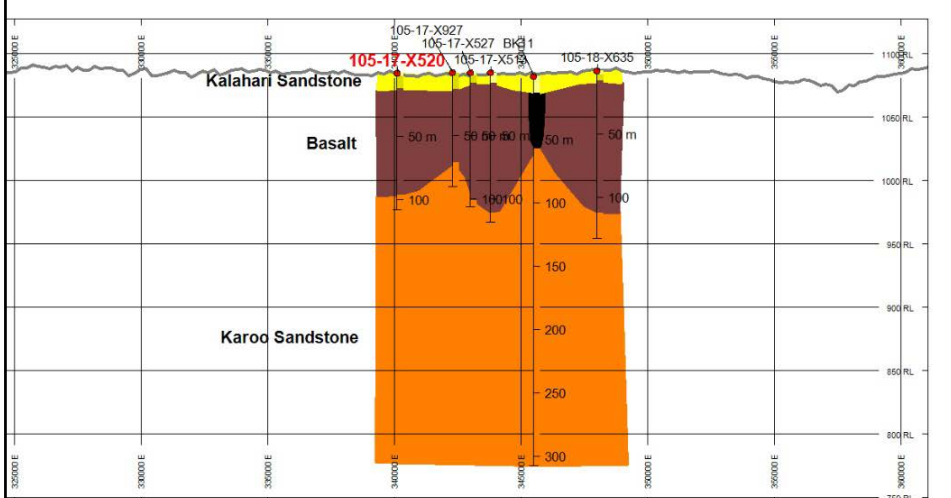


## Kimberlite potential

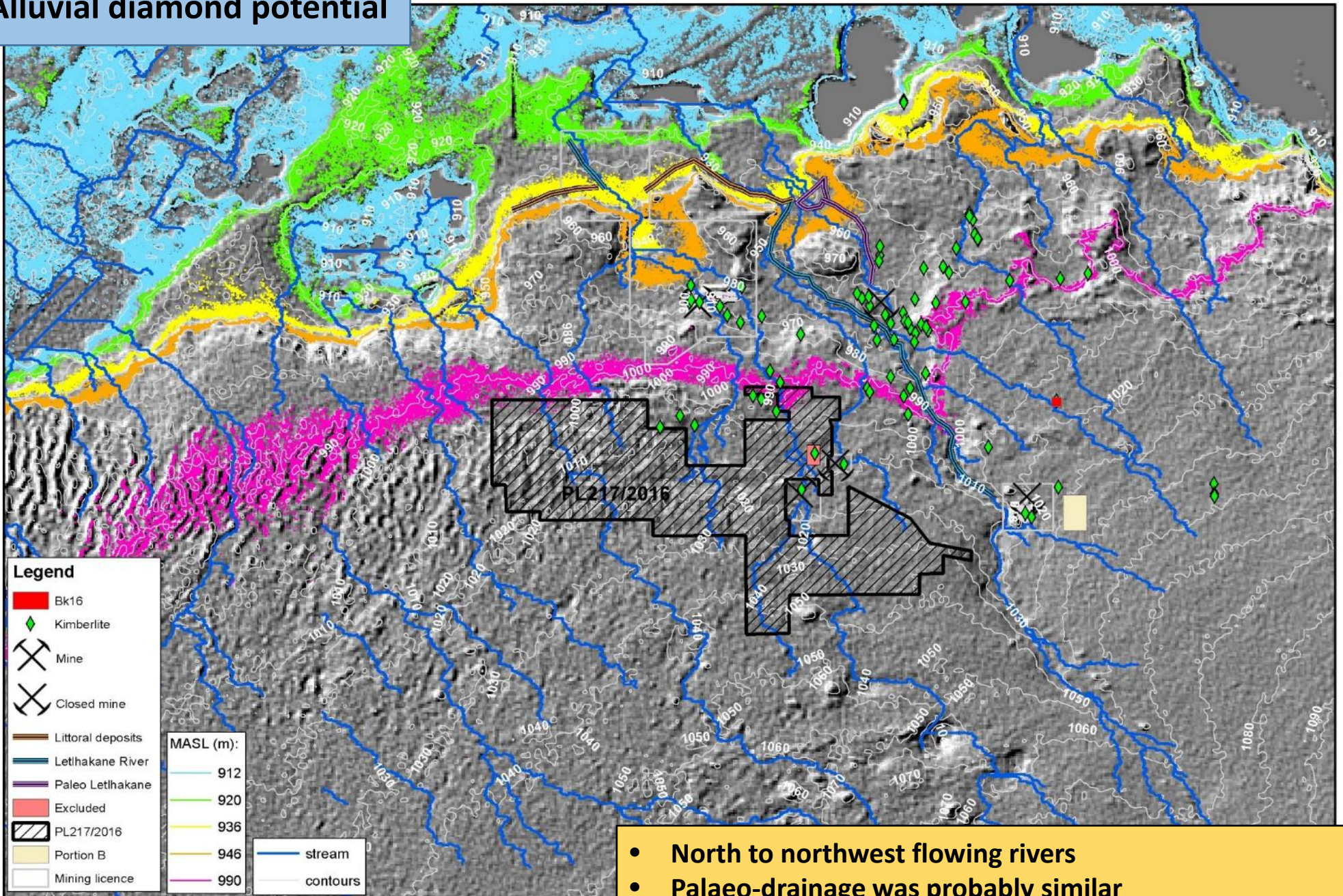


(A) PL217\_02 First Vertical Derivative

(B) PL217\_02 Analytical Signal



# Alluvial diamond potential



**Legend**

- Bk16
- Kimberlite
- Mine
- Closed mine
- Littoral deposits
- Lethakane River
- Paleo Lethakane
- Excluded
- PL217/2016
- Portion B
- Mining licence

**MASL (m):**

- 912
- 920
- 936
- 946
- 990

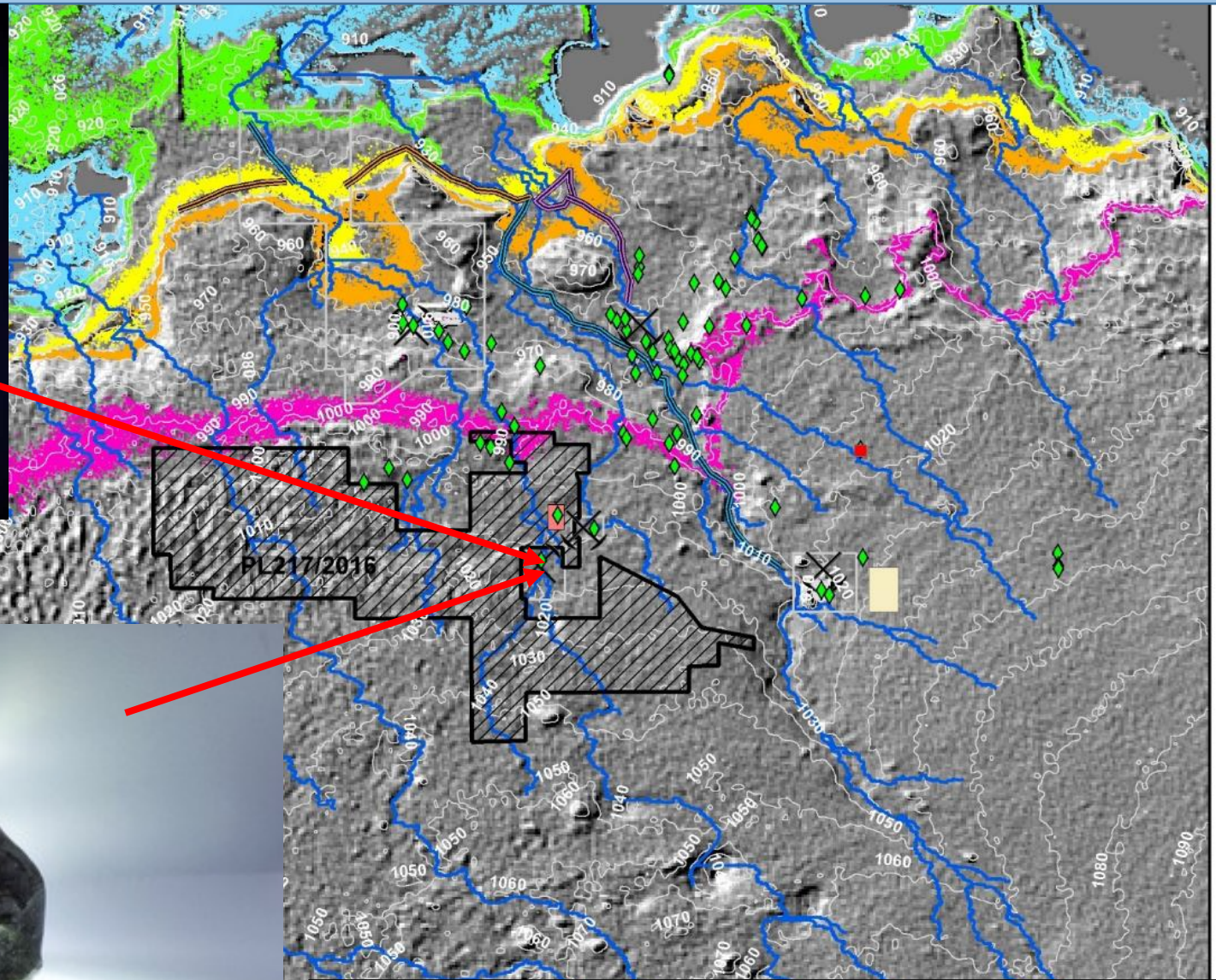
stream  
contours

- North to northwest flowing rivers
- Palaeo-drainage was probably similar
- Sources are known to contain high quality large diamonds

# DO BIG STONES LURK IN PALAEO DRAINAGES? WHY NOT!



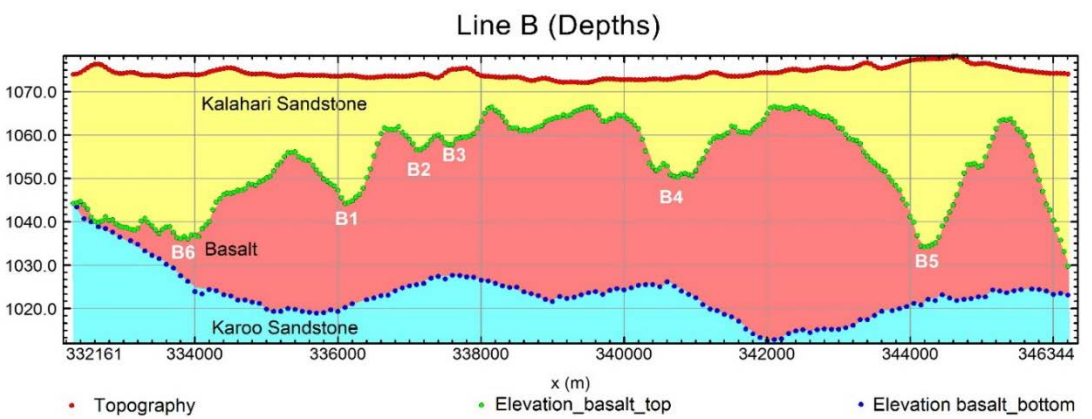
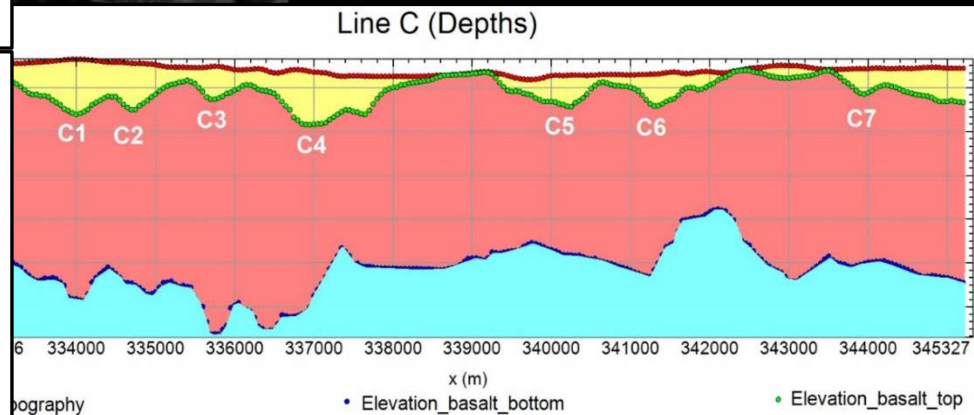
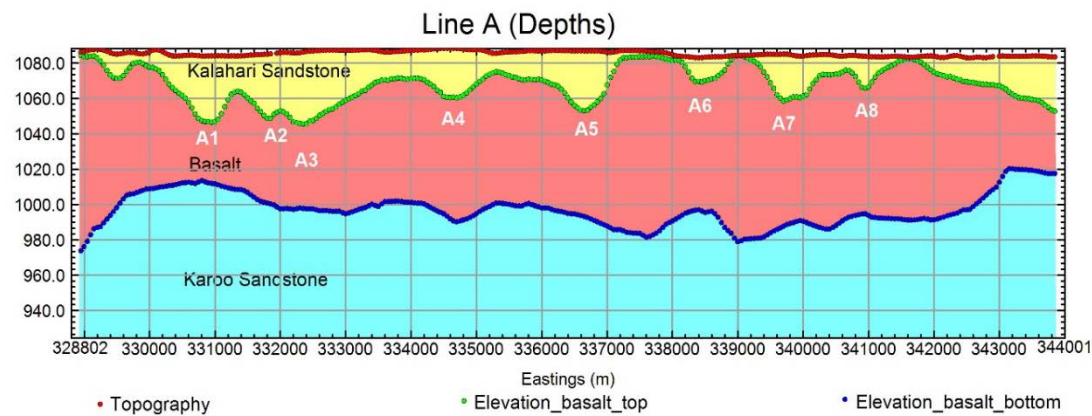
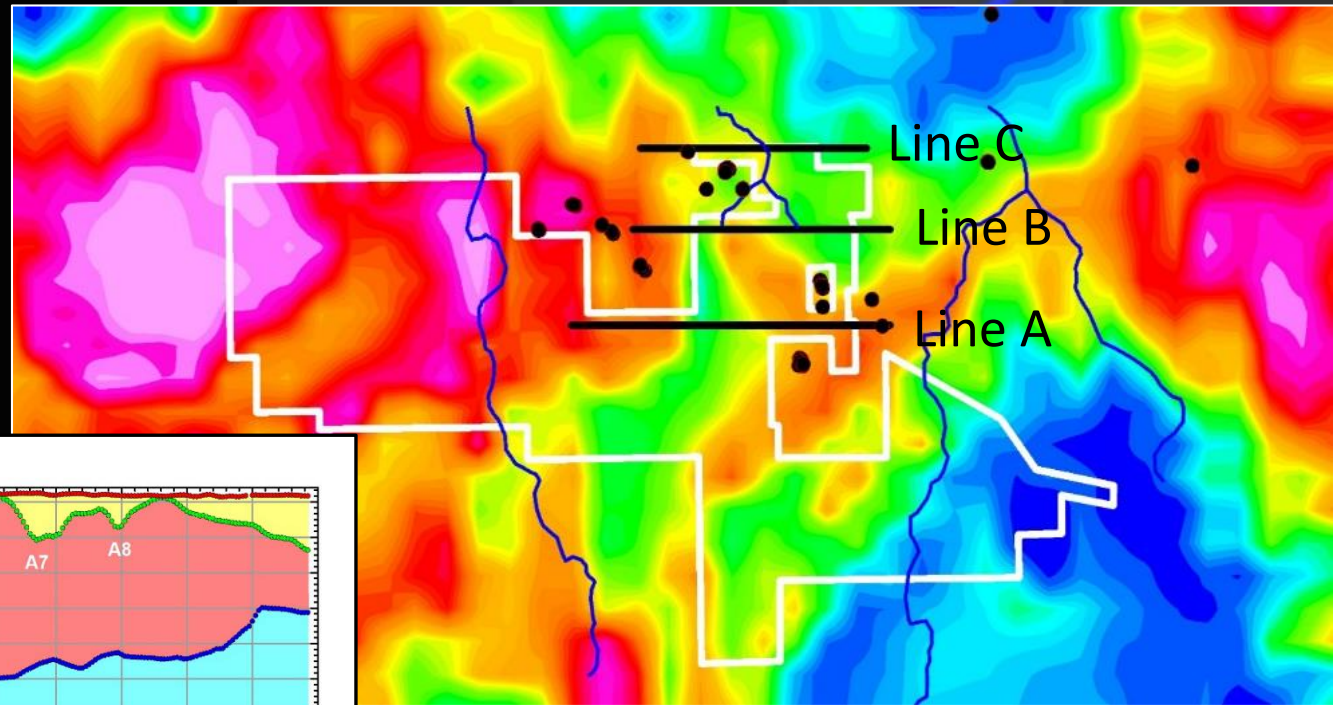
1,109 carats – Karowe Mine



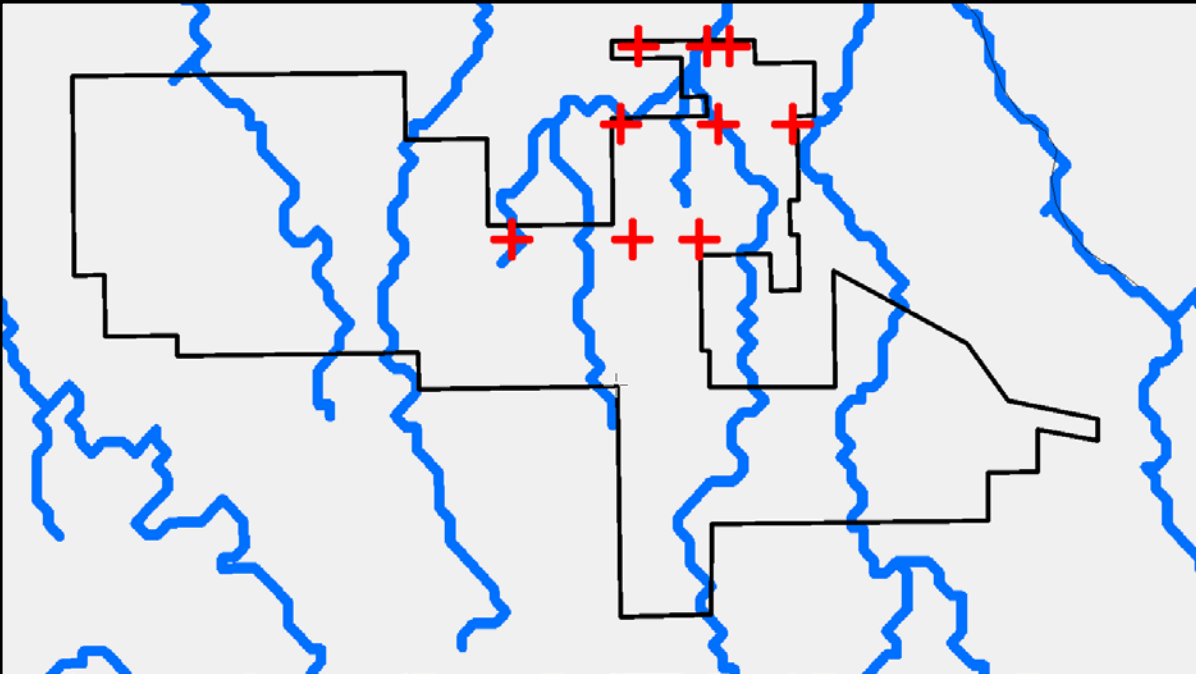
1,758 carats – Karowe Mine

- North to northwest flowing rivers
- Palaeo-drainage was probably similar
- Sources are known to contain high quality large diamonds

- 3 gravity lines surveyed to identify subsurface channels
- Gravity lows are associated with less dense material
- Several potential paleo-channels identified close to present-day drainages (~15-40m)





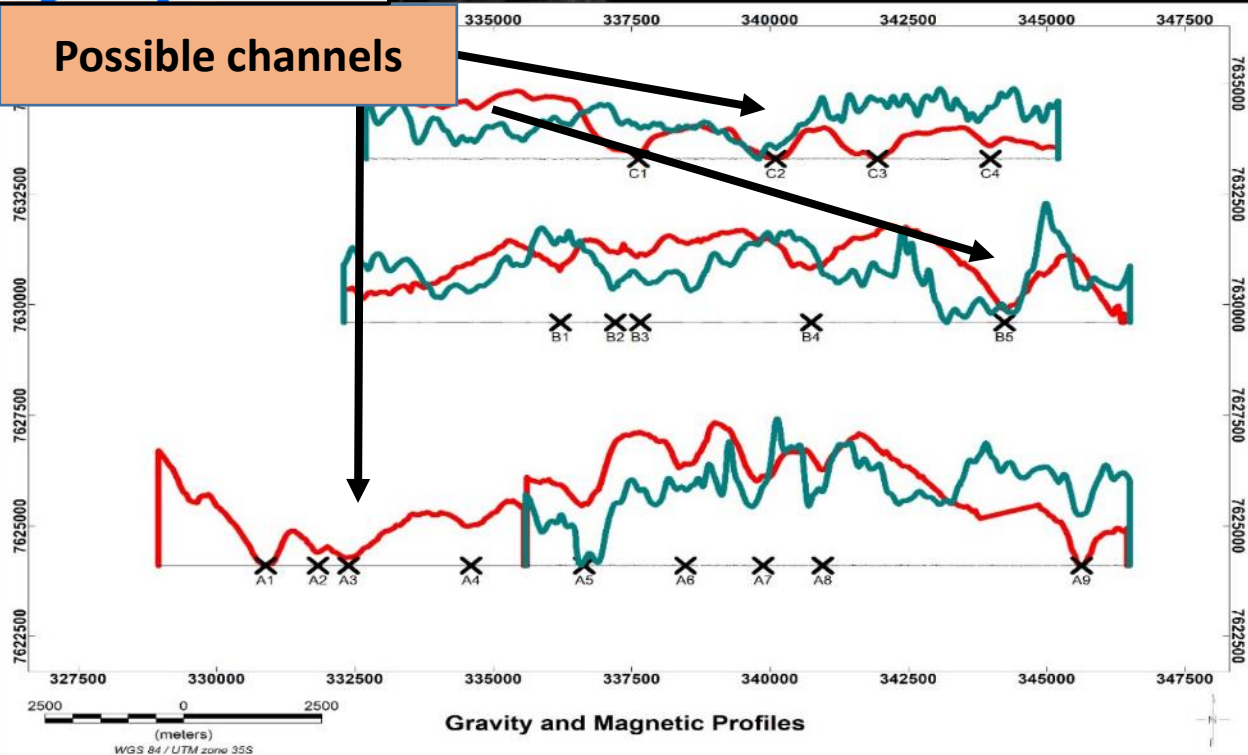


## Next Stage Short Term

- Soil Sampling to focus targets
- High definition geophysical surveys to further delineate targets

## Next Stage Sampling

- Drill several holes along the gravity lows using Company drills
- If gravel intersected select sites for excavation
- Extract several tons for treatment through Company DMS plant



# Xaudum Iron Formation Project

“The Tip of the Iceberg”



# Xaudum Iron Formation Project – Northwest Botswana

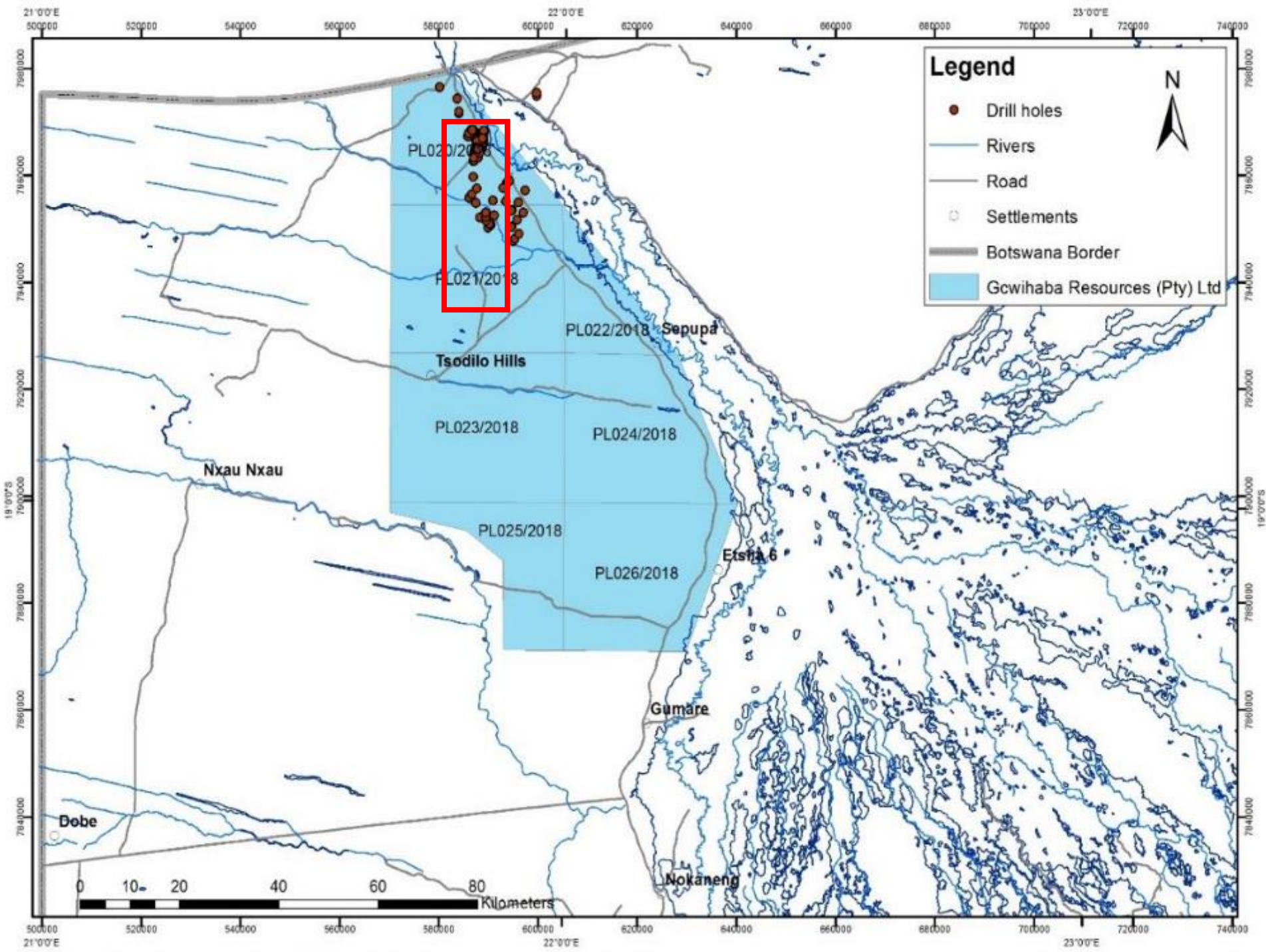
## *Index*

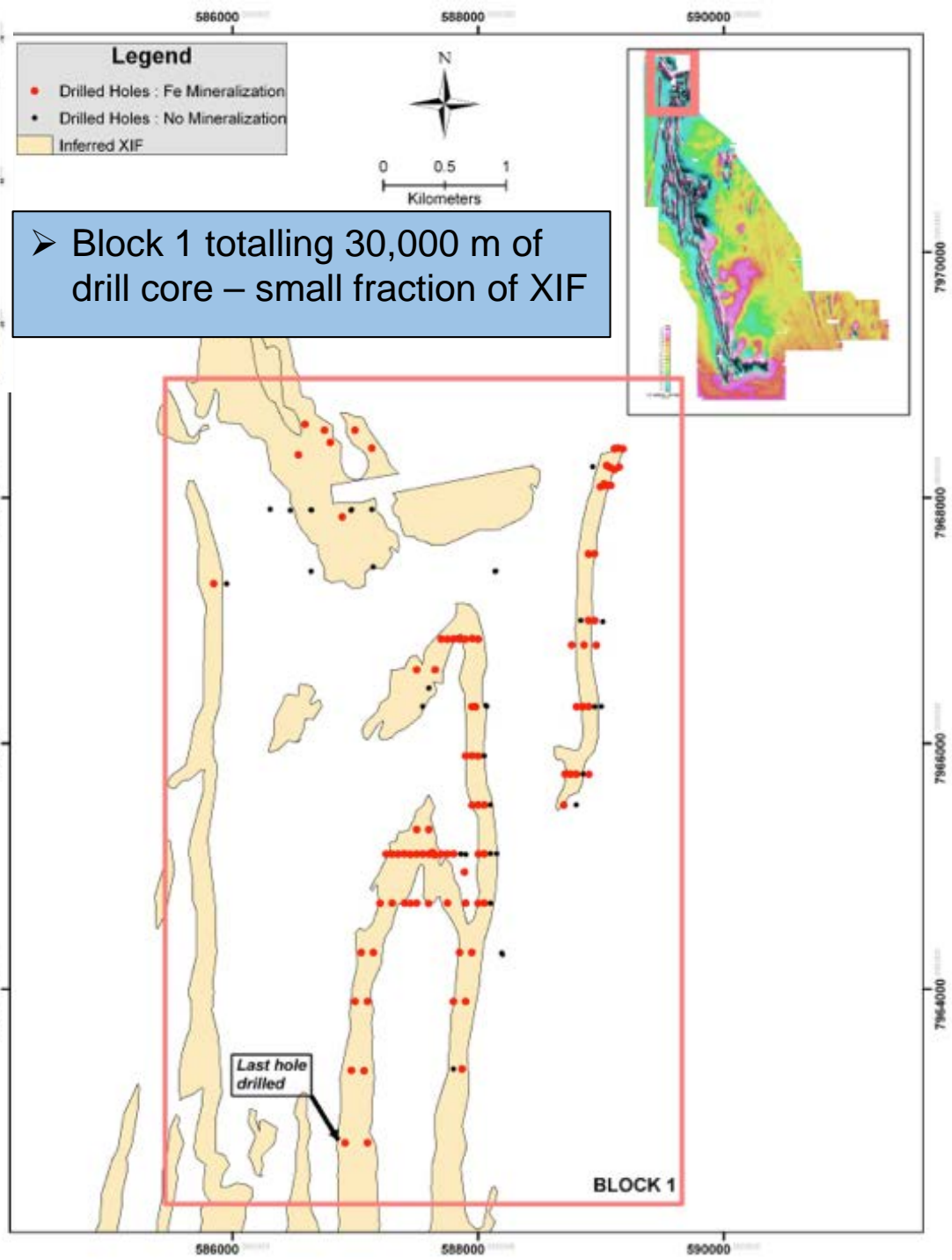
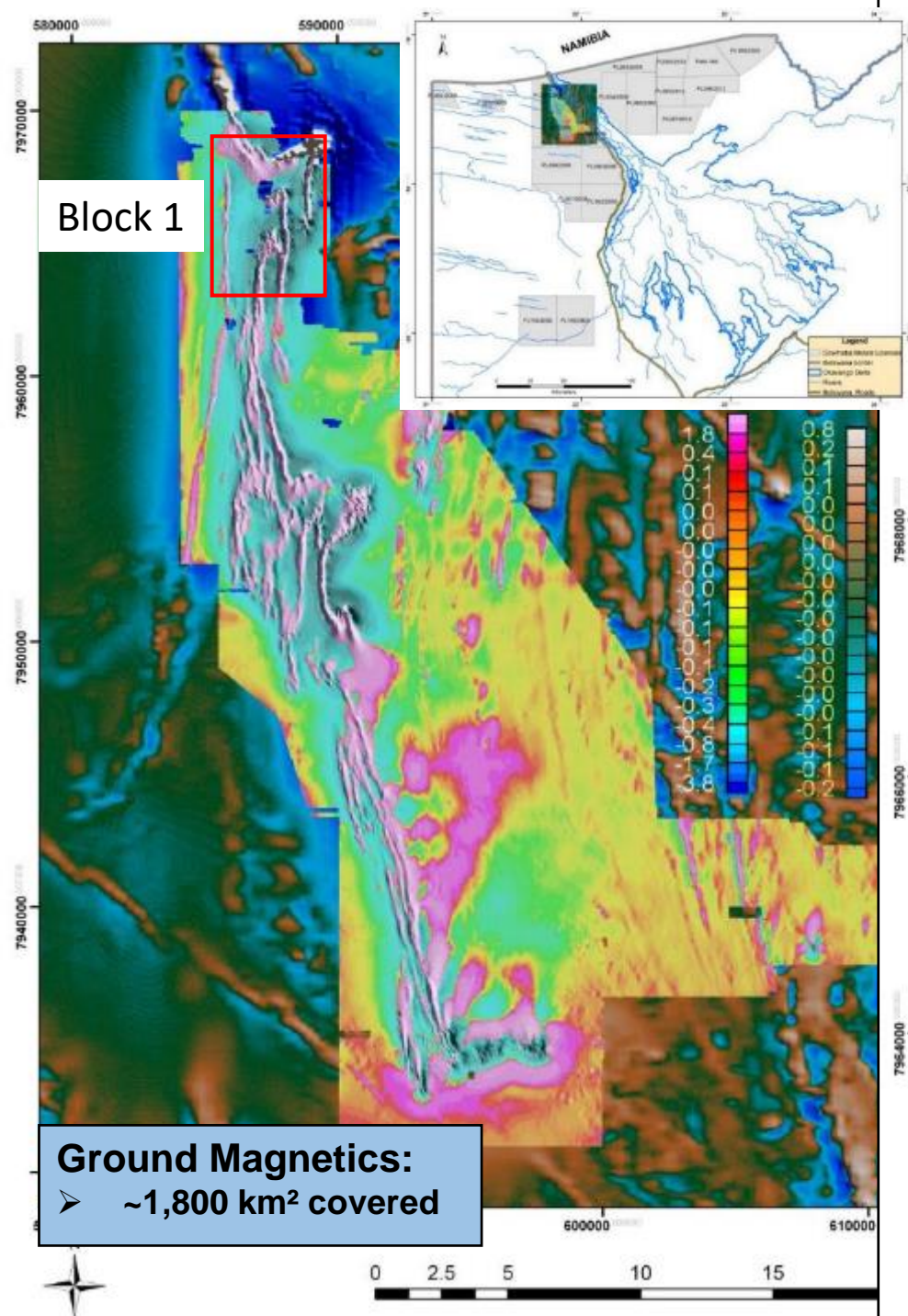
- 1. Xaudum Iron Project  
Summary Presentation*
- 2. Appendix 1 – Iron  
Project Summary for  
Preliminary Economic  
Assessment (PEA)*



# XIF Project – Northwest Botswana

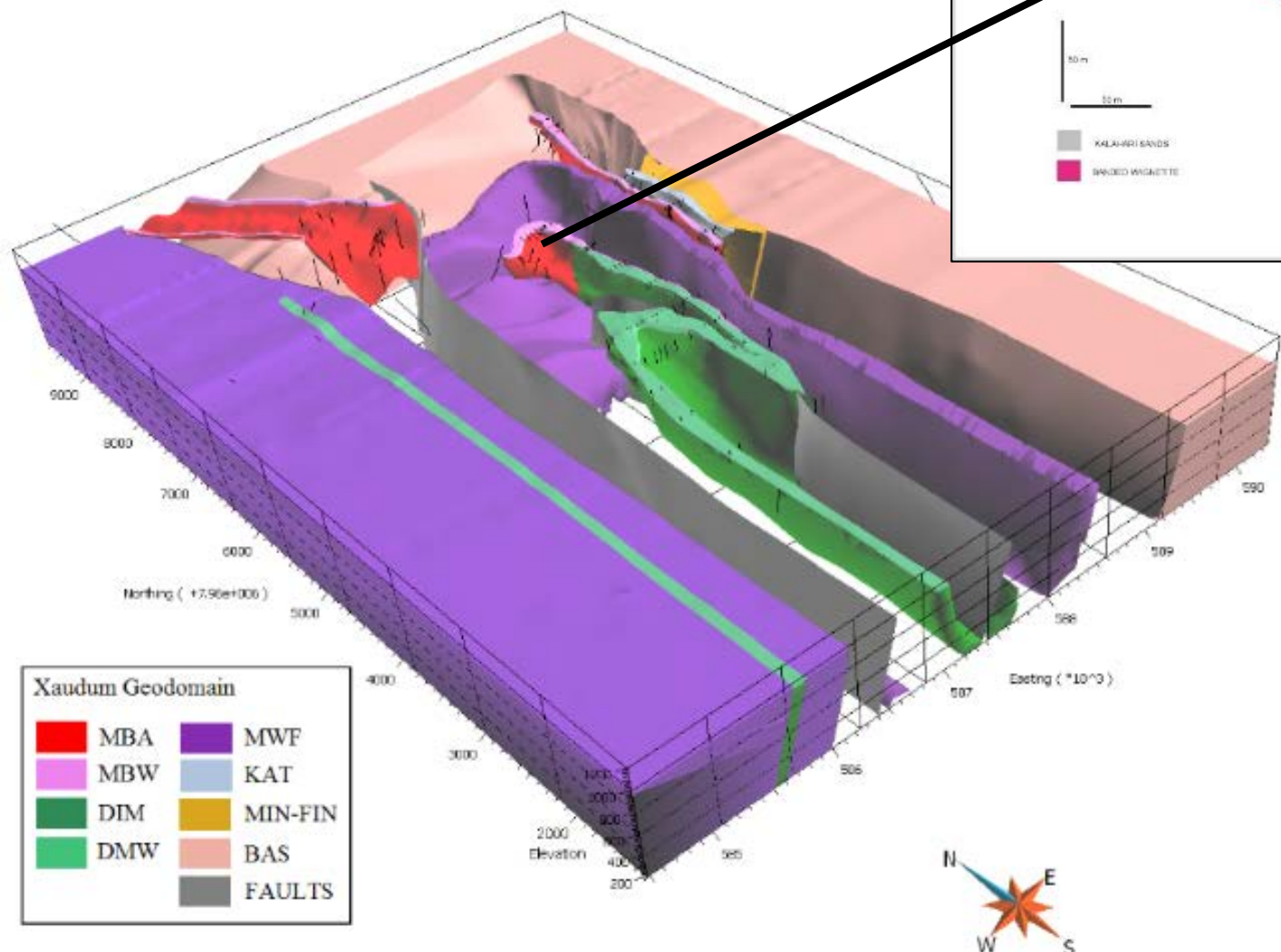
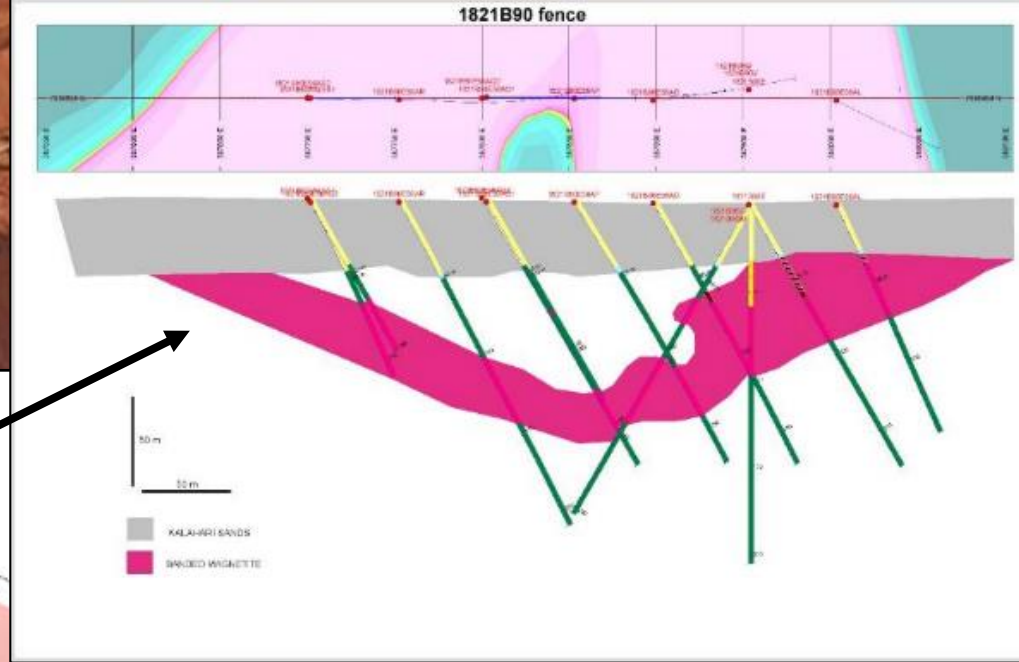






➤ Block 1 totalling 30,000 m of drill core – small fraction of XIF

# Deposit Modelling

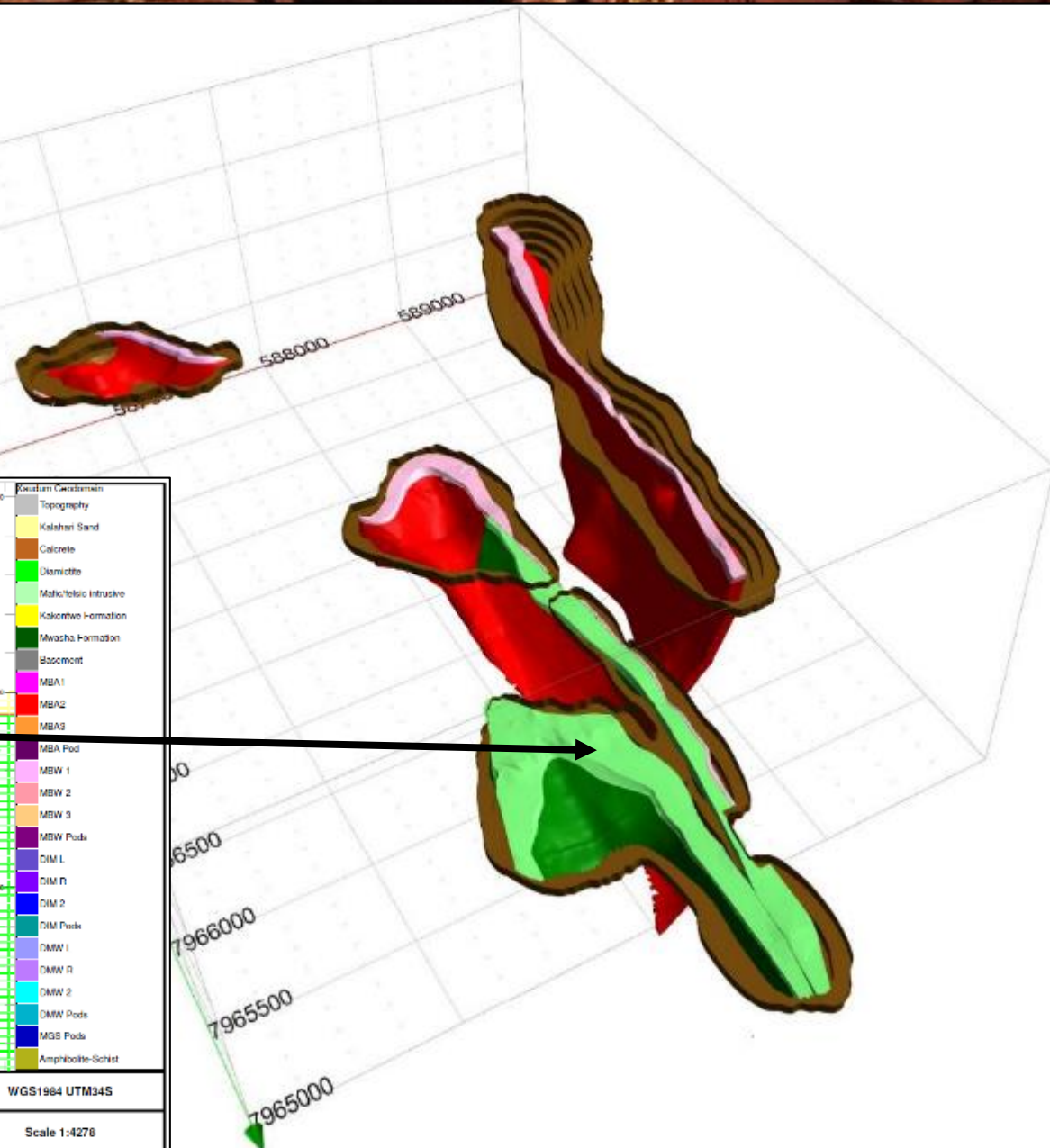
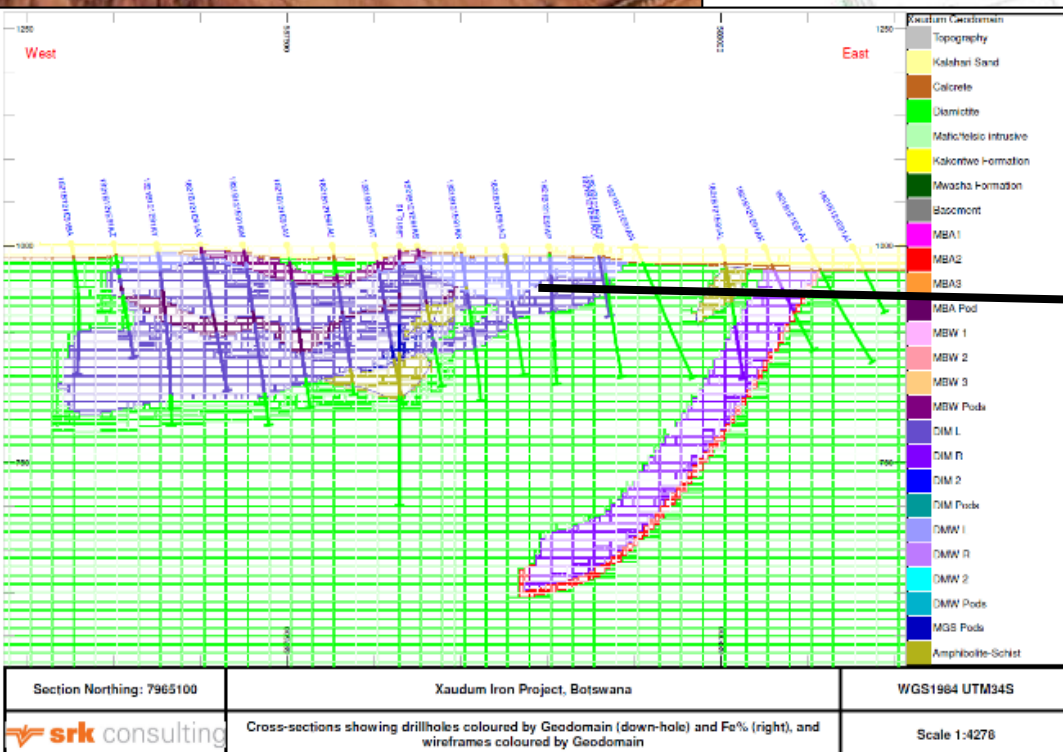


- East – West drilling across main strike of mineralization
- Fold hinges best for large areas of mineralization
- GOCAD 3D modeling software



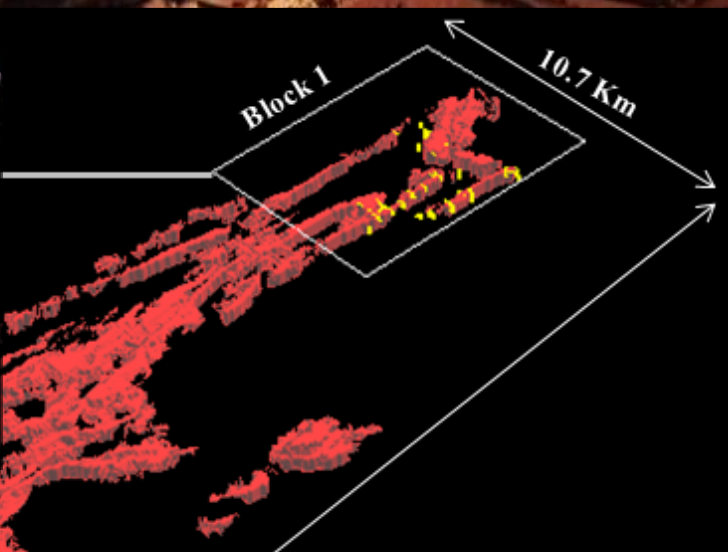
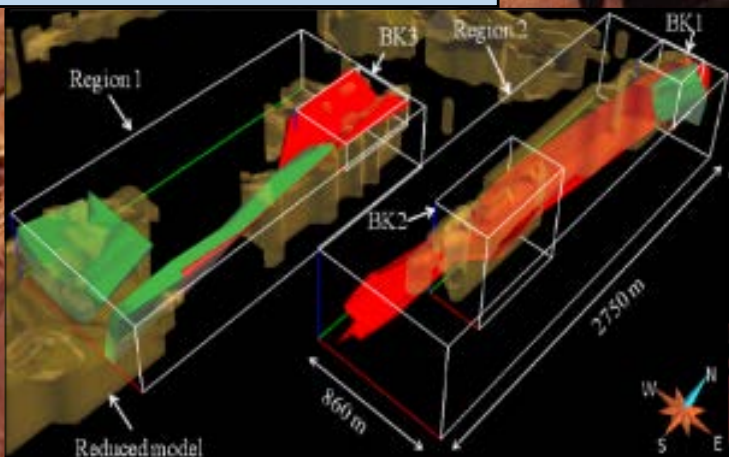
# Grade Estimation and Pit Optimization by SRK

	In-Situ Fe %	Concentrate Fe %
High Grade	35.6	67.9
Low Grade	20.9	66.4
High Grade Weathered	34.3	66.4
Low Grade Weathered	20.5	67.7





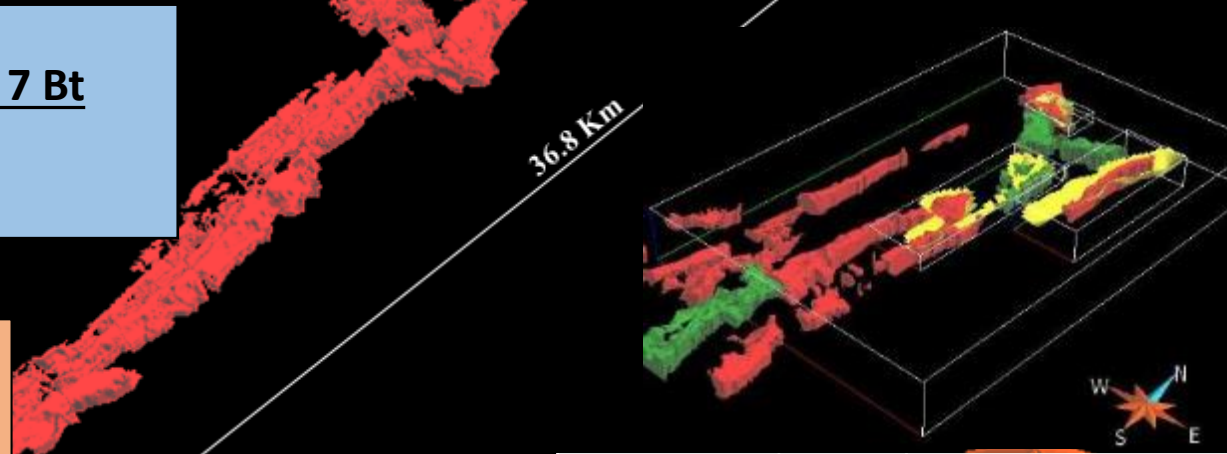
# “The Rest of the Iceberg”



- Conservative exploration target of 5 - 7 Bt
- Grade 15 – 40 % Fe\*



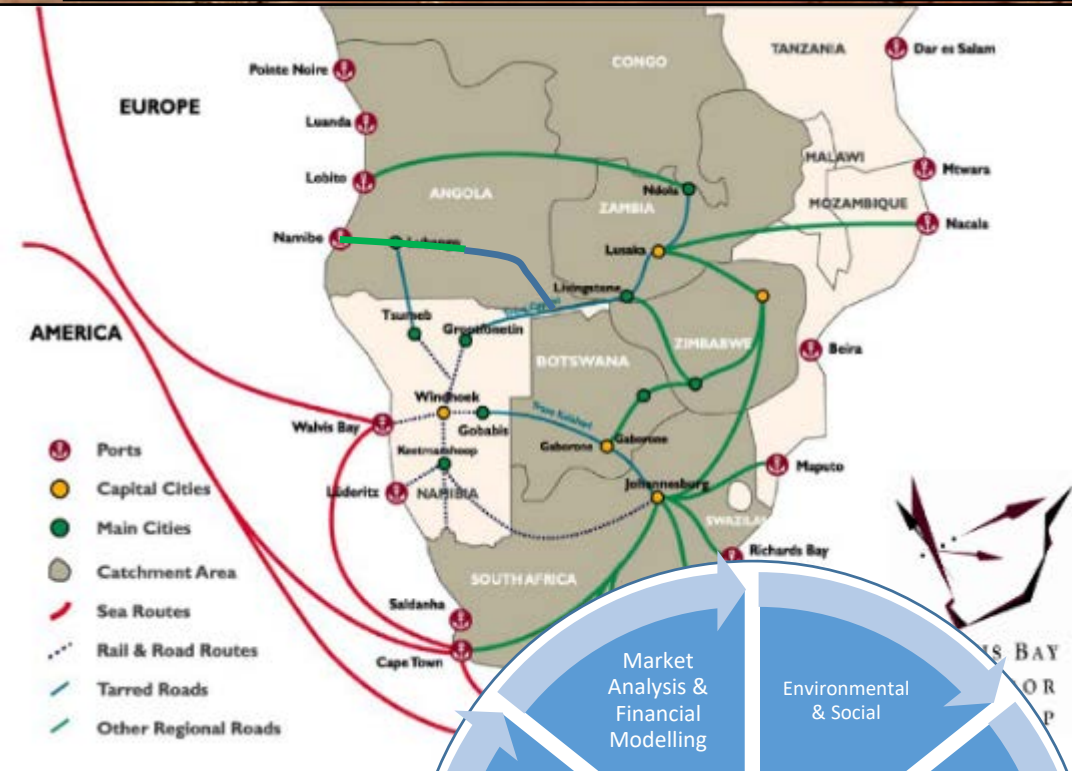
*\*It is important to note that the tonnages and grade quoted in this exploration target is conceptual in nature, there has been insufficient exploration to define a mineral resource and that it is uncertain if further exploration will result in the target being delineated as a mineral resource as defined by NI 43-101.*



Local Block 1	Min	Max	Actual SRK MRE
(All)	(Mt)	(Mt)	441 Mt
<b>TOTAL</b>	273	388	

**Red area = Ground magnetic inversion model**  
 Current drill holes in yellow.

# The Next Stage – Preliminary Economic Assessment



- Environmental Study
- Economic Viability of the project giving the best Option and Approach
- Trade-off studies for achieving the project objectives
- Process Design Criteria (PDC)
- Process description
- Principle equipment definition
- Principle Opex calculations for the plant
- Block Flow Diagrams (BFD's) for the various beneficiation options.
- Preliminary capital and operating cost estimate for the identified options.
- Assessment of the positive impact to the Botswana economy given its drive to diversify its economy away from Diamond based revenue.
- PEA will review:
  - Infrastructure
    - Mine, plant, beneficiation
    - Transport road and rail
    - Water supply
    - Electrical power availability
    - Housing, and communications
  - Human Capacity building local employment and skill development generated
  - Technology and methodology improvements (green tech)

**Infrastructure Project**

# Iron Project Summary – Potential Tier 1 Mining Project

- Potential Tier 1 project
- Potential mine life of over 100 years
- Development of Ngamiland (NW Botswana) one of Botswana poorest regions
- Potential for employment of thousands of Botswana
- Could generate huge revenues for the population and taxes for the Government to move away from reliance on Diamond revenue



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