TSODILO RESOURCES LIMITED

BK16

Range Analysis of the Size Frequency of Diamonds Recovered from BK16 LDD Samples

23 January 2018

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- Readers are cautioned not to place undue reliance on these forward looking statements.

Executive Summary

- BK16 has been sampled to produce diamonds:
  - Discovery of higher quality diamonds (Type 2a)
  - Parcel demonstrates good shapes
  - 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 viability.

Variable	Unit of Measure	BK16 Sample	BK16 Published (Lawless 2018)	Current BK16 SFD Study			
				Min	P20	P80	Max
Grade	Cpht	3.8	8 to 10	4	5	7	8
Diamond Value	US$/carat	177	386 to 710	281	290	600	792
Kimberlite Value	US$/tonne	6.6	30 to 78	11	15	38	67

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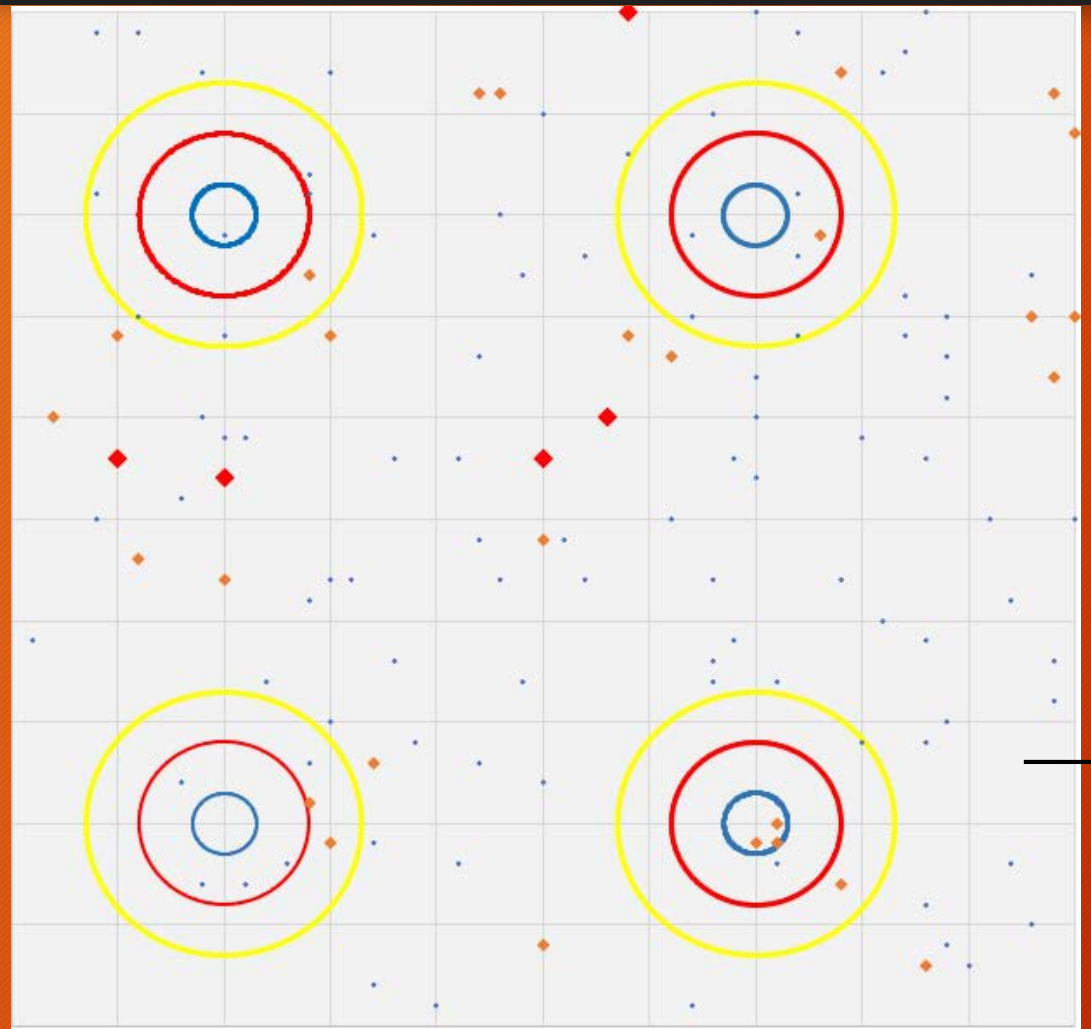
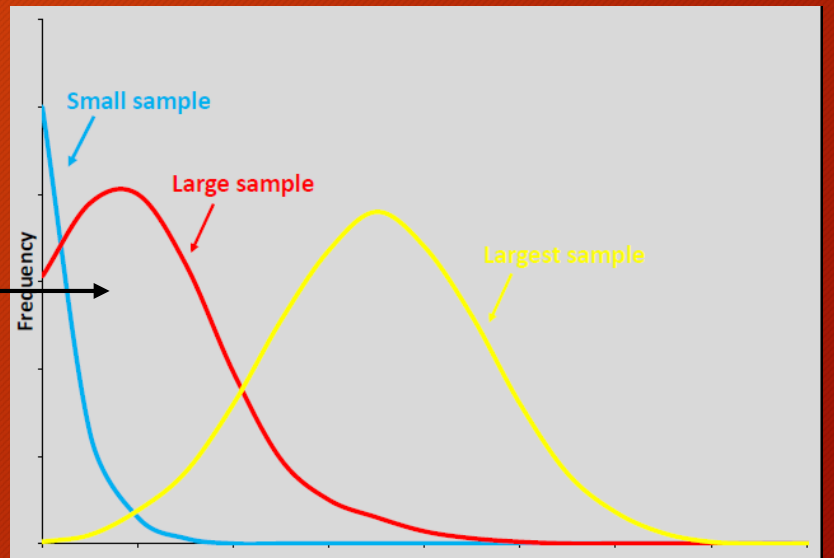
Sample Size ,Diamond Grade and Size Modelling



- Diamonds are particles that exist in very low concentration and difficult to sample
- 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
- Results from small samples require modelling to account for these effects



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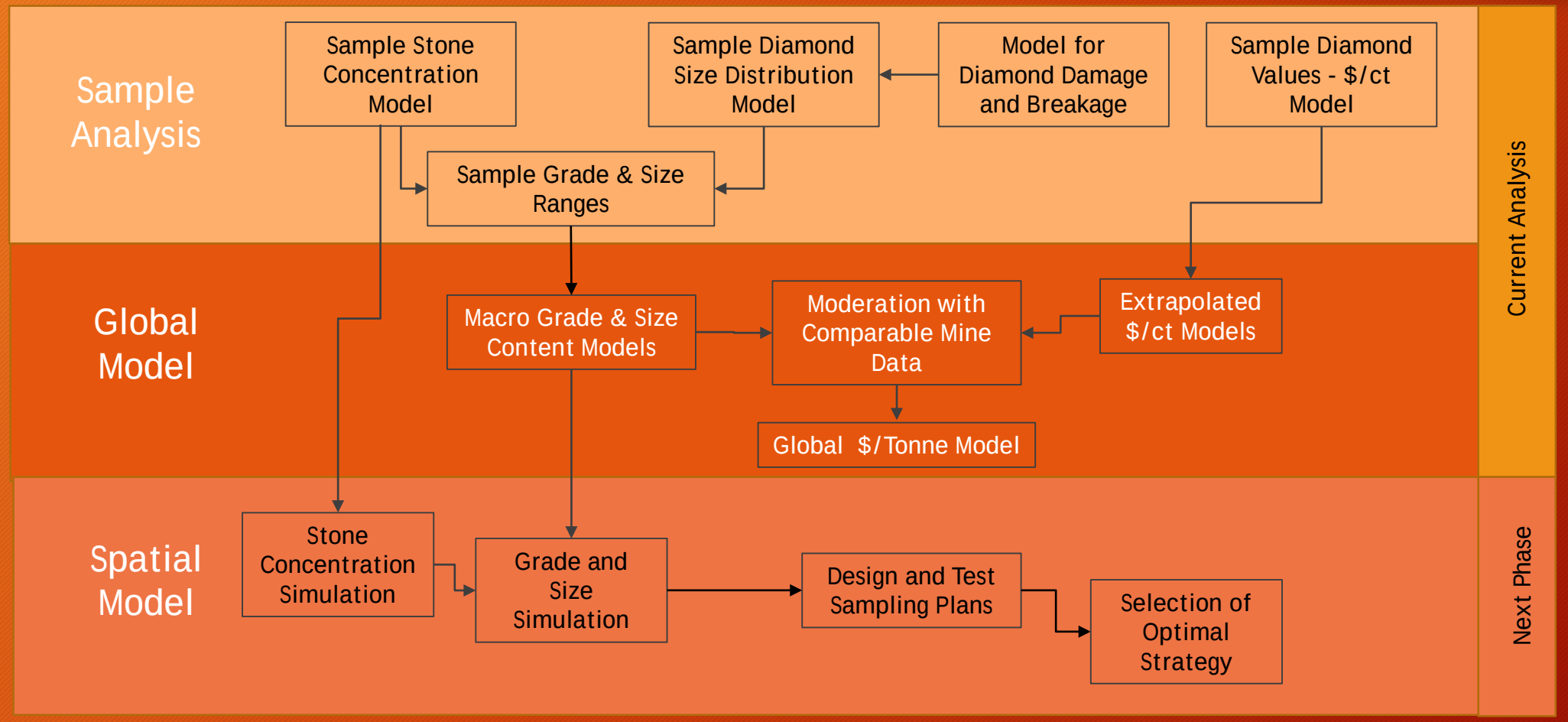
Sampling Strategy - Methodology



Current Analysis:

- Analyse sample data to determine plausible ranges for inputs into global models
- Use these values to set parameters for global models
- Simulate outputs of global models based on sample ranges

Phase 2:

- Spatial model will allow for design and testing of multiple sample strategies
- This will lead to the selection of the best approach to the next phase of sampling

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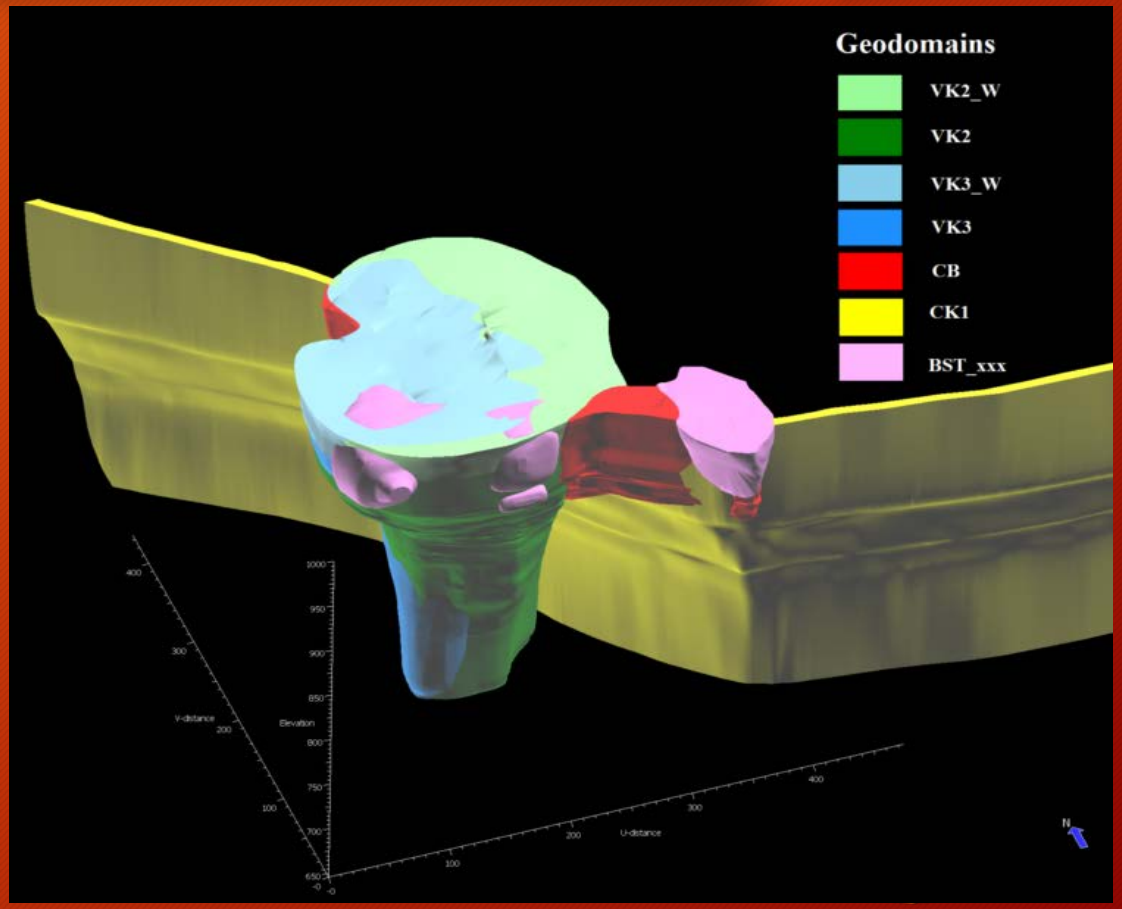
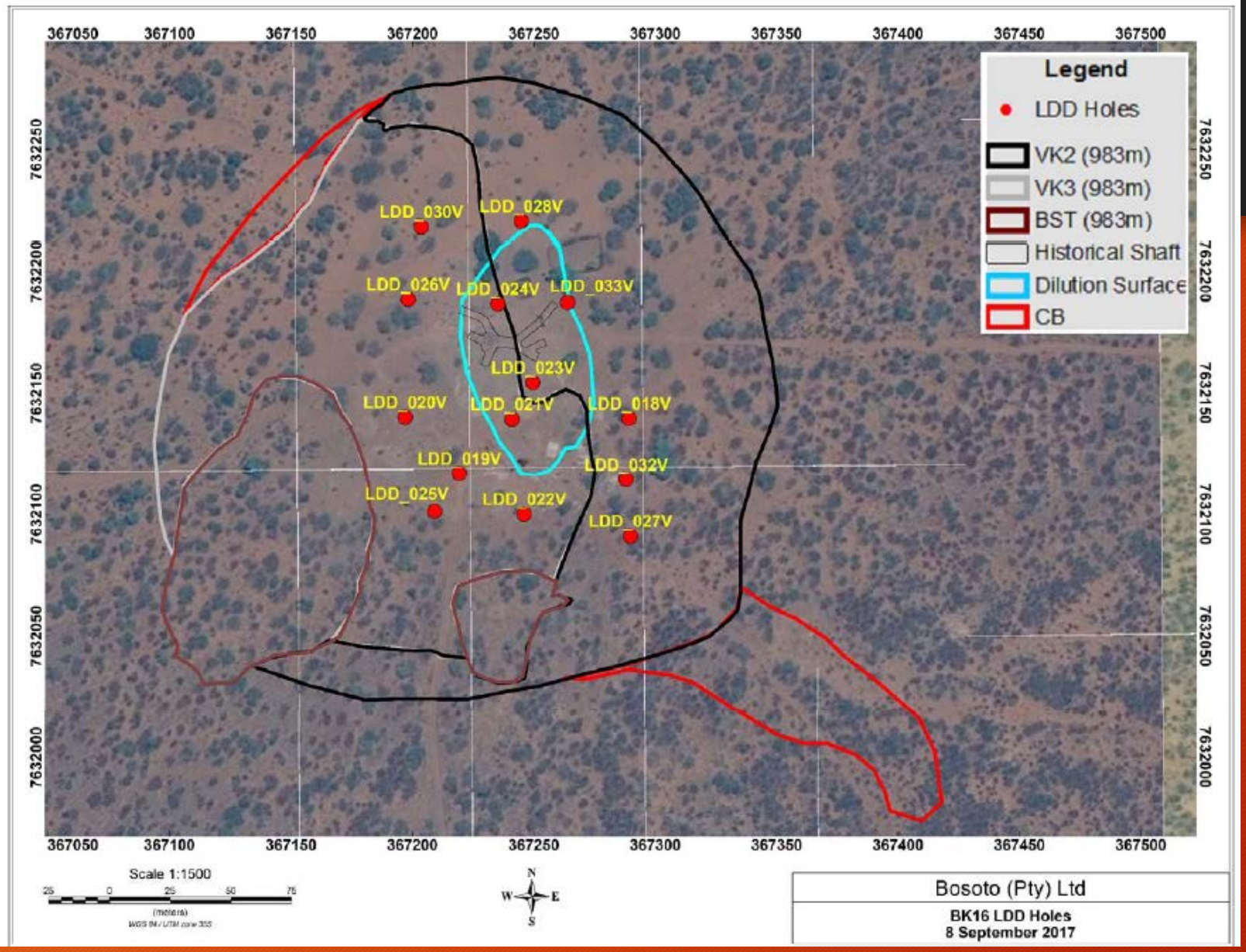
Geological Model for BK16

- The Kimberlite has two main phases:
  - VK2 and VK3
- Several breccia phases
- Dyke extends from pipe, open to boundary
- BK16 has been dated and shown to be marginally older than AK1, the kimberlite that is mined at Orapa
- Overlain with ~25m of overburden



Source :De Wit et al., 2017

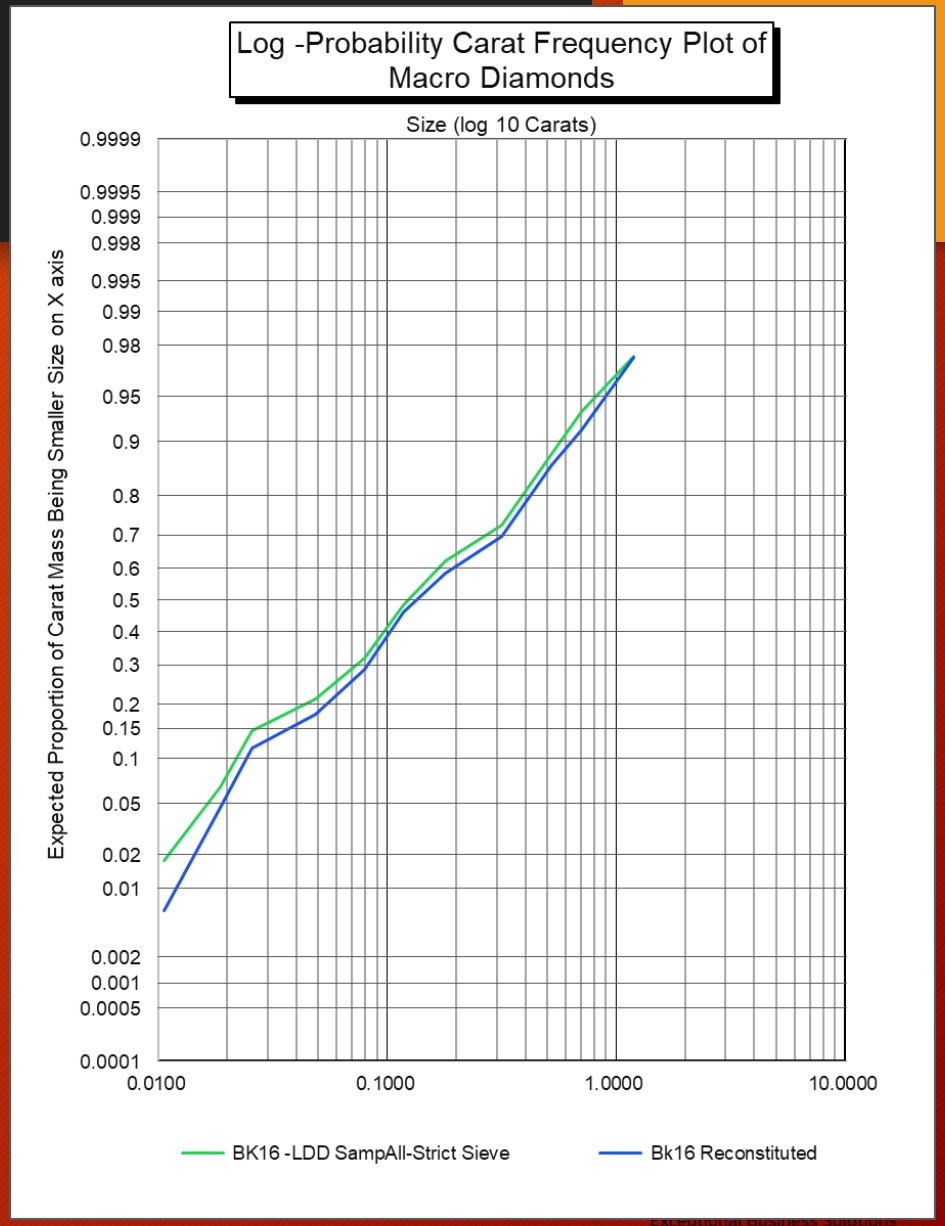
Recent Sample Results



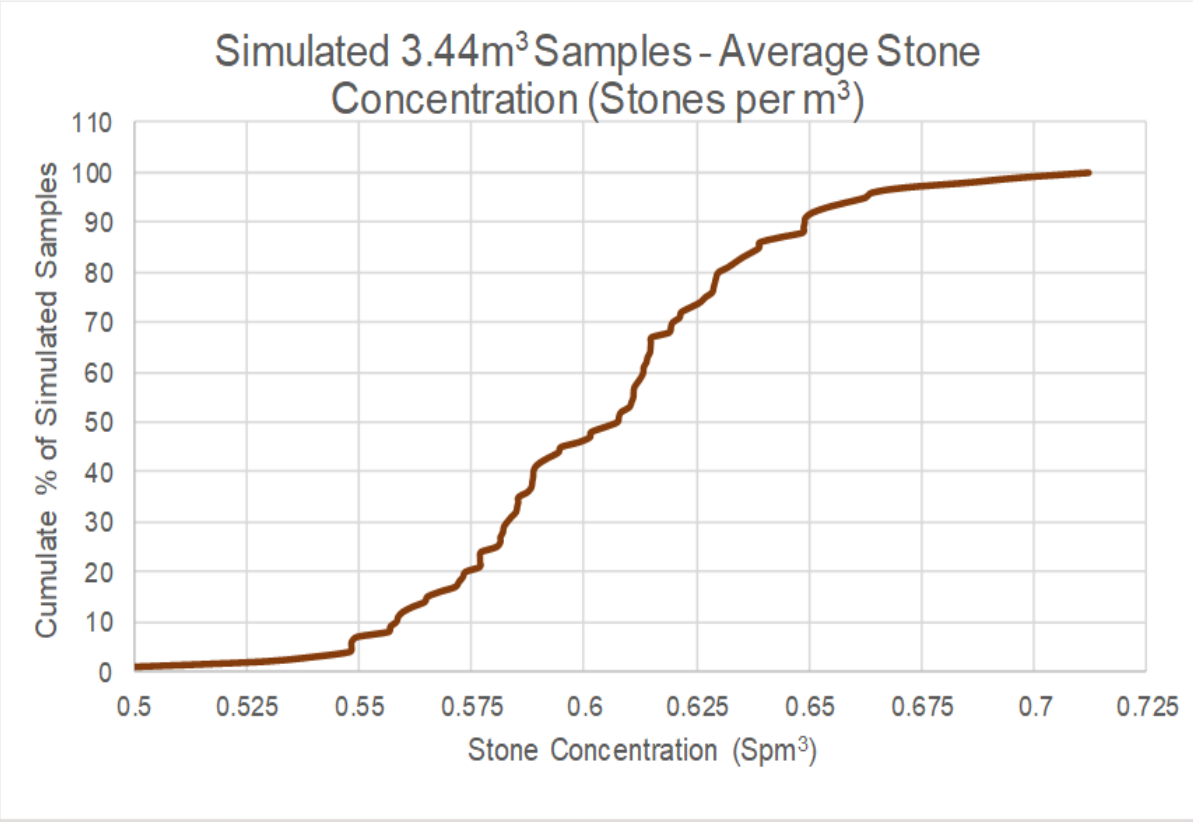
Descriptive Statistic	Value	Units
Holes	14	each
Total Volume	835.3	m3
Average Density	2.5	tonnes per m^3
Tonnes Kimberlite	2077	tonnes
Number of Samples	243	each
Average Volume per Sample	3.4	m3
Average Tonnes per sample	8.55	tonnes
Diamond Mass total	77.94	cts
Stones in Samples	503	each
Average Diamond Size	0.15	cts/stone
Stones per sample	2.1	stones/sample
Stones per m3 including baren samples	0.604	Stones/m^3
Stones per m3 excluding baren samples	0.77	Stones/m^3
Average Sample Grade	3.75	ctpht
Total Assessed Value	13,780	US $
$/Carat	176.80	$/ct
$/Tonne	6.63	$/tonne

Diamond Damage Assessment

- Diamonds were individually assessed for damage by two Experts
- Approximately 60% of the stones did not display any signs of fresh damage
- 20% showed minor chipping and the remainder had mixed degrees of severity
- Most of the movement of stones between classes in SFD following reconstitution occurs in the -1 to +3 sieve sizes
- Applying the average reconstitution factors to the $/ct per sieve class results in an increase of ~7% to the bench $/ct
- Applying 100% recovery assumption to the chips, the change reduces to less than 2%
- The impact on SFD models are not material
- This outcome reflects the benefits of the implementation of best practice drilling and diamond recovery Techniques



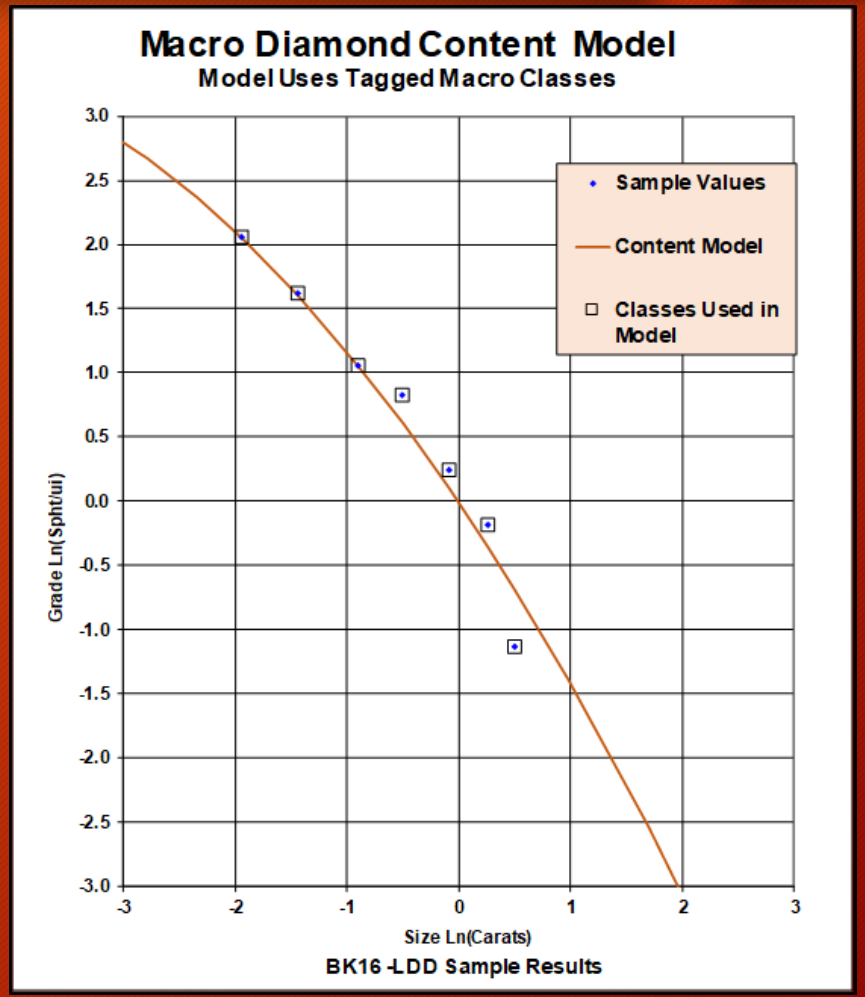
Sample Stone Concentration Model



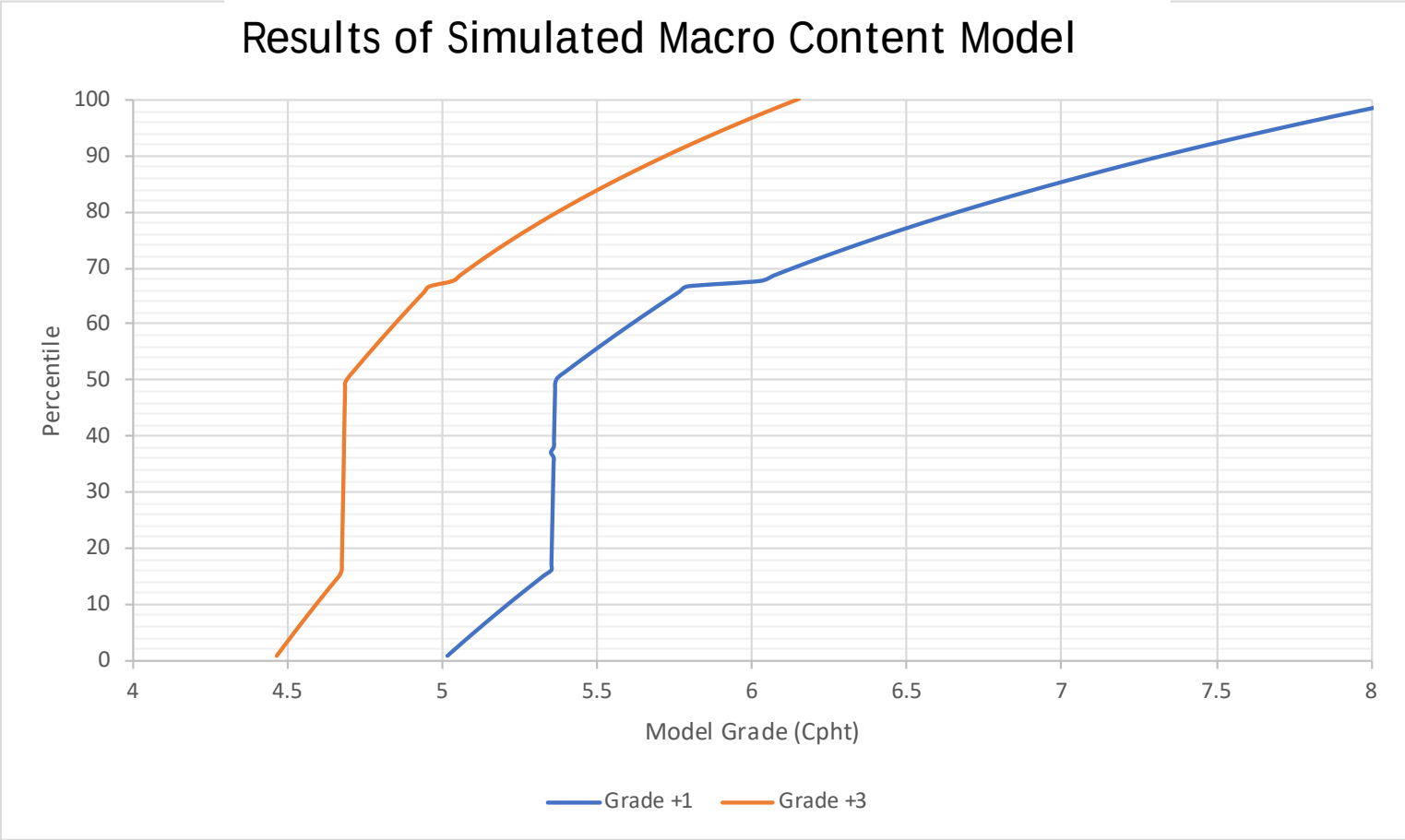
- Distribution fitted to the observed stone concentrations in stones per m^3 (SPM^3)
- 100 iterations of 243 simulated LDD samples to assess uncertainty of stone concentration
- Plot shows iterations ranged by average grade lowest to highest to give a percentile plot
- These simulated stone concentrations are used as inputs in the grade and size range analysis model

Macro Content SFD Model

- Based on the grade size relationships observed in many kimberlites,
- Uses of a curve to a stone grade model (Same procedure is used for macro-micro modelling)
- Size classes with no stones are not included in the model
- The parameters that result in the “Best fit” curve can be found by minimising the difference between the actual and model results in each size class
- There are several approaches to using this model in a simulation, but in this case the range of the model was tested using parameter sensitivity given the small parcel size



In Situ Grade and Size – Macro Content Model Sensitivity



- Simulation of different a, b and c parameters fitted to model to asses model sensitivity
- Most variation in grade is a function of the ‘B’ parameter which drives fines content
- The models suggests that the grade could vary between 5 and 8 cpht

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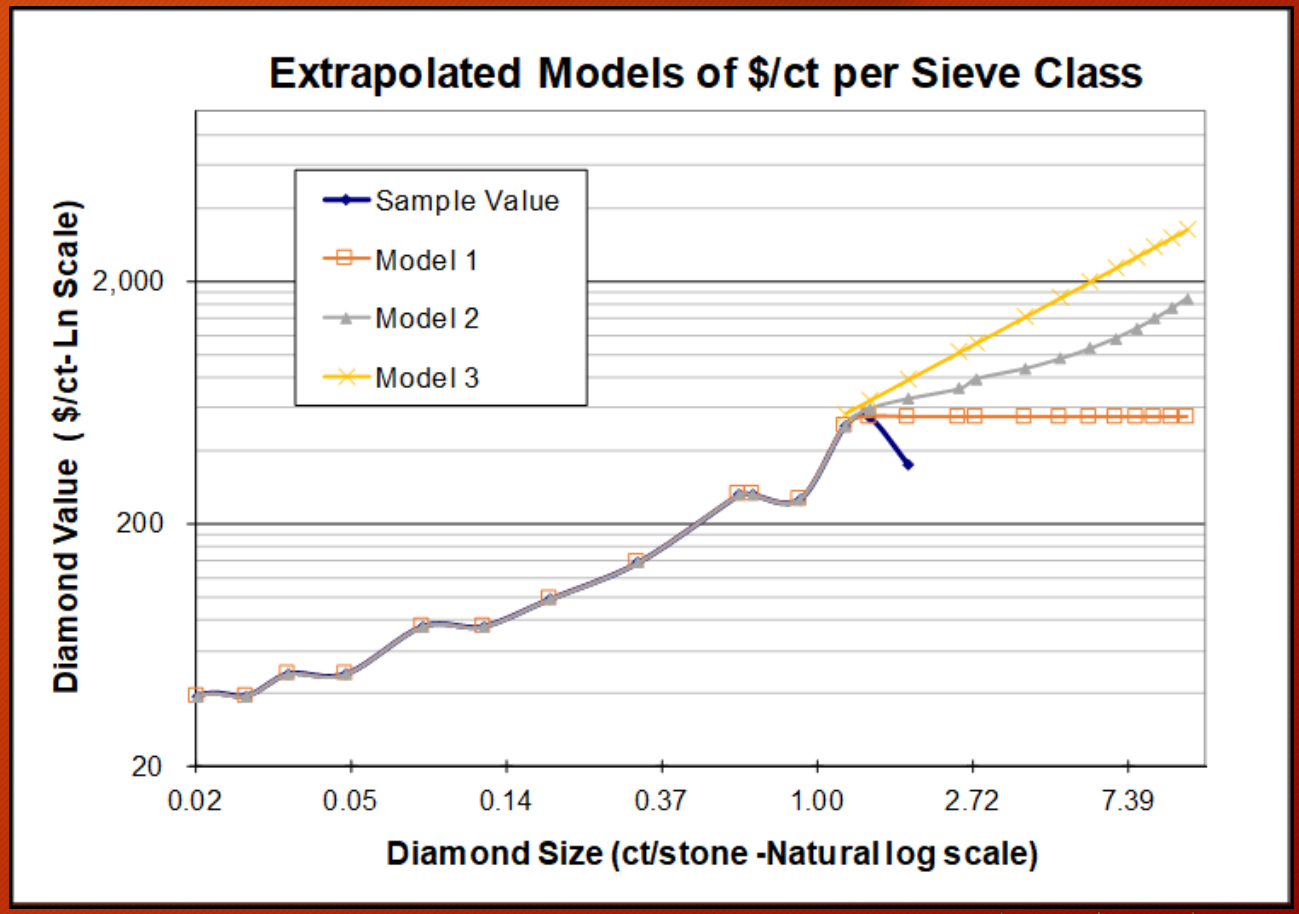
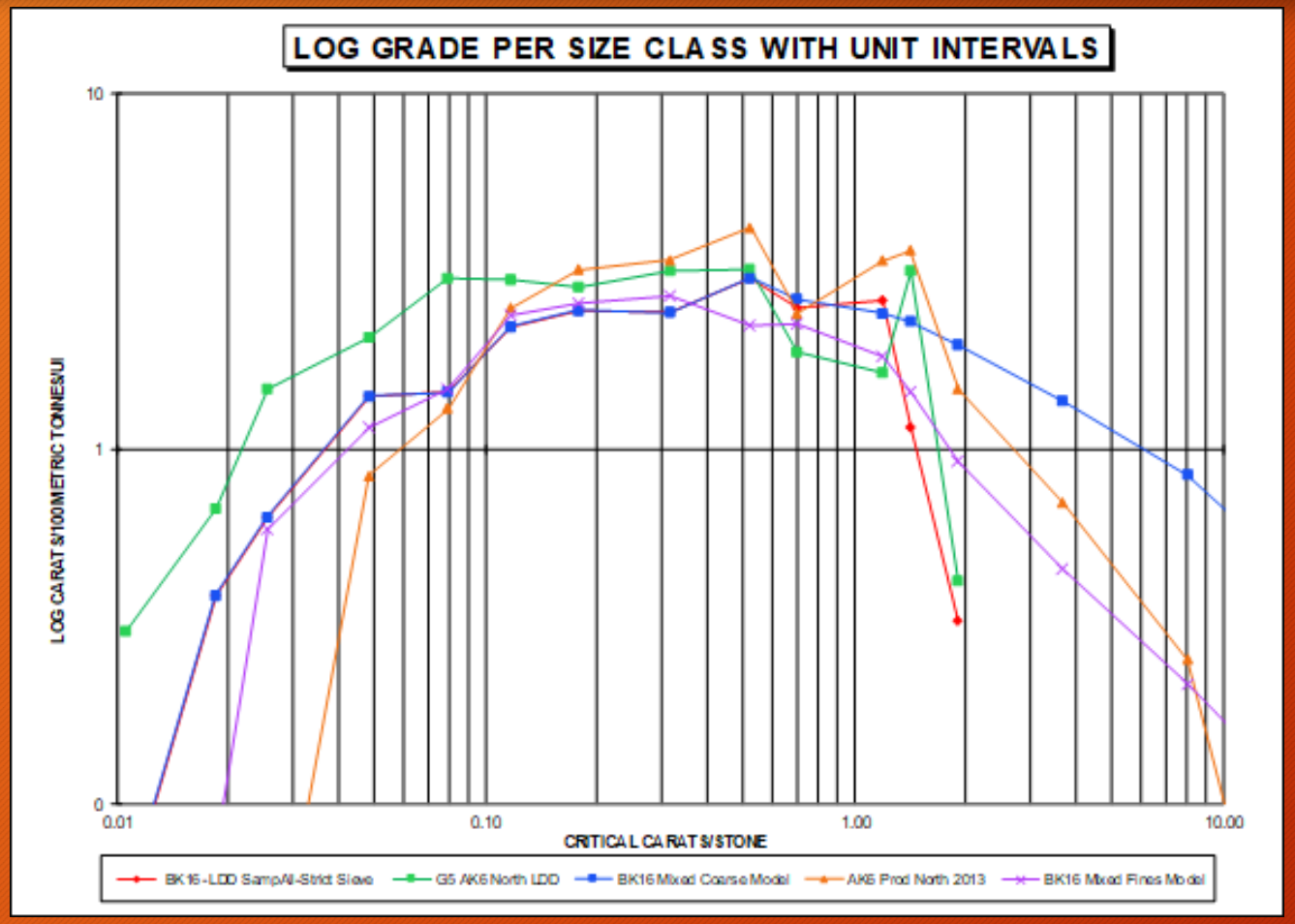
$/ct Models

- Raw data: 177 $/ct
- Model 1 (orange line) :
  - Conservative extrapolation of maximum observed values into upper classes
  - Average diamond value of 298 $/ct
  - ~70% of the value coming from extrapolation.
- Model 2 (grey line)
  - Extrapolation increase highest populated size classes,
  - Average diamond value of 453 $/ct
  - ~80% of the value coming from extrapolation
- Model 3 (yellow line)
  - An optimistic model extends observed
  - quality assortment into the upper size classes,
  - This model returned an average diamond value of 792 $/ct
  - ~84% of the value coming from extrapolation



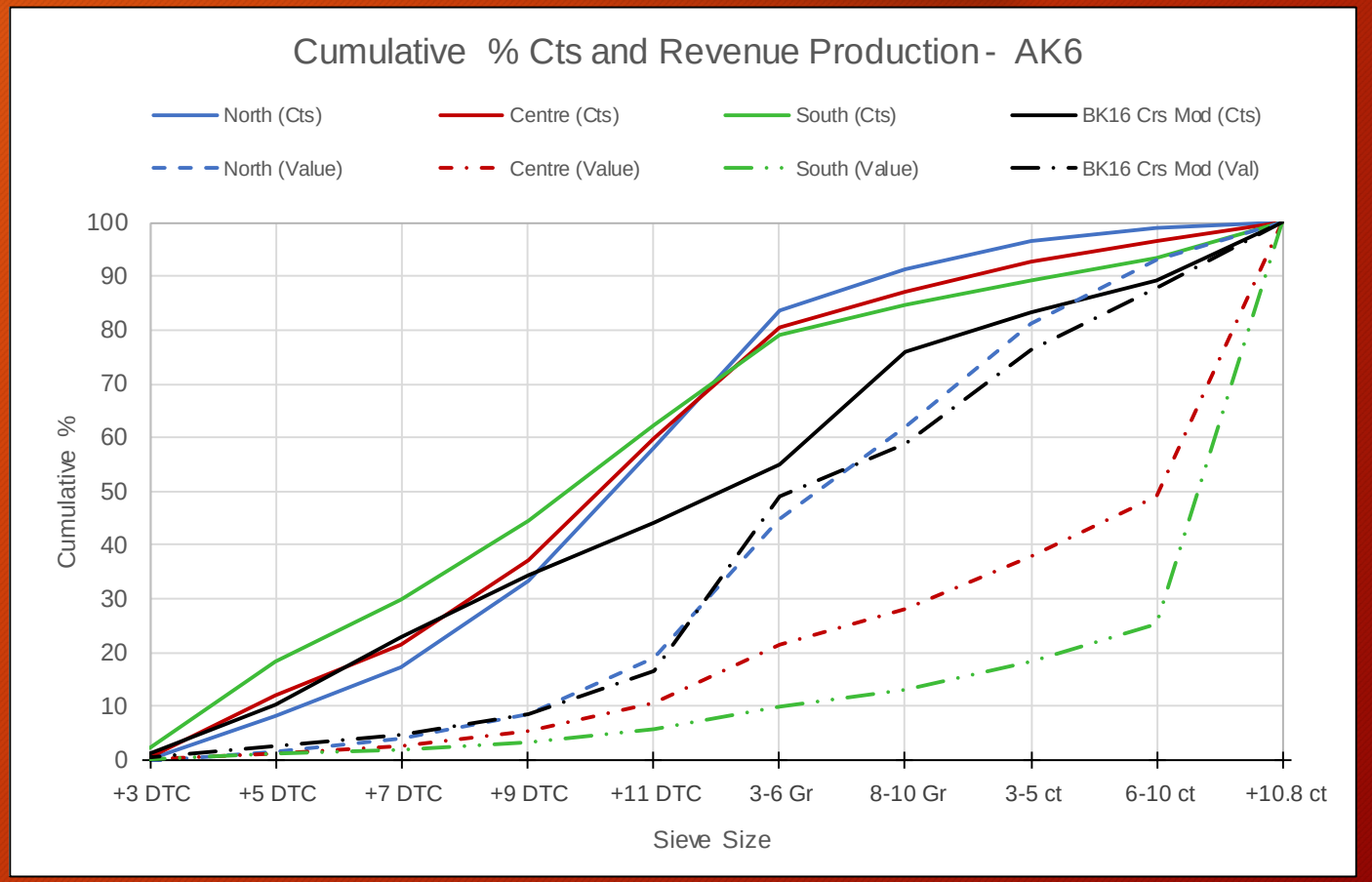
Comparative Grade and Size Models



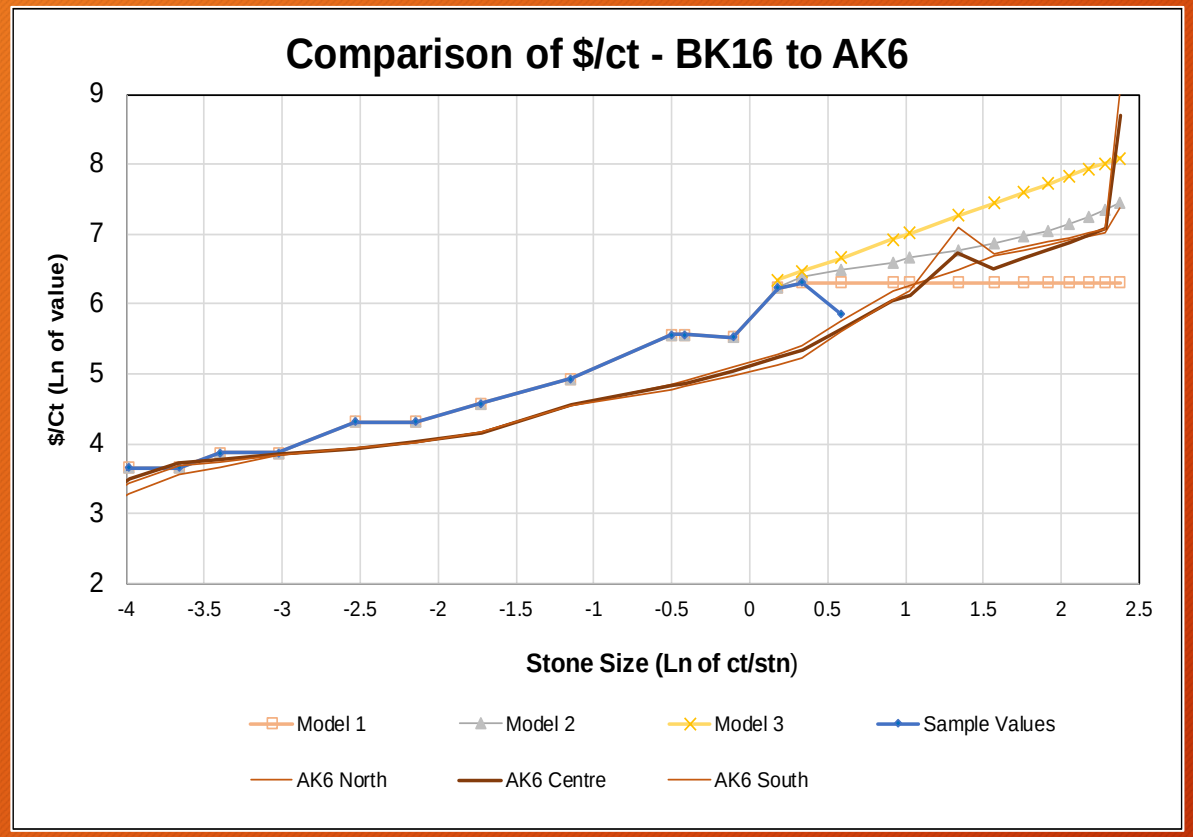
- Figure shows relationship between diamond size on x-axis and the Diamond grade (cpht) on the y-axis
- Sample (LDD) Grade-Size curves will always differ from full scale production curves
- BK16 LDD results (Red) are coarser but similar shape to the rescaled AK6 LDD results (Green)
- Rescaled production distribution from AK6 (Orange) shows an expected shift from fine LDD results to coarse production results
- Coarse and fine content models were developed for BK16
- The BK16 models straddle the AK6 north production distribution
- These can be used in combination to assess the range of potential outcomes

BK16 Models Overlayed on AK6 Production

- BK16 Coarse SFD model tracks centre pipe diamond model to +9, but then becomes coarser than all three lobes
- Revenue curve follows that of North lobe



BK16 vs AK6 $/ct Comparisons



- Production valuation of AK6 can be compared to the models for BK16
- The sample valuation is higher in the smaller size class than AK6
- The extrapolated models straddle the AK6 production results
- Combinations of the actuals, extrapolation and AK6 values were used to determine feasible ranges for BK16

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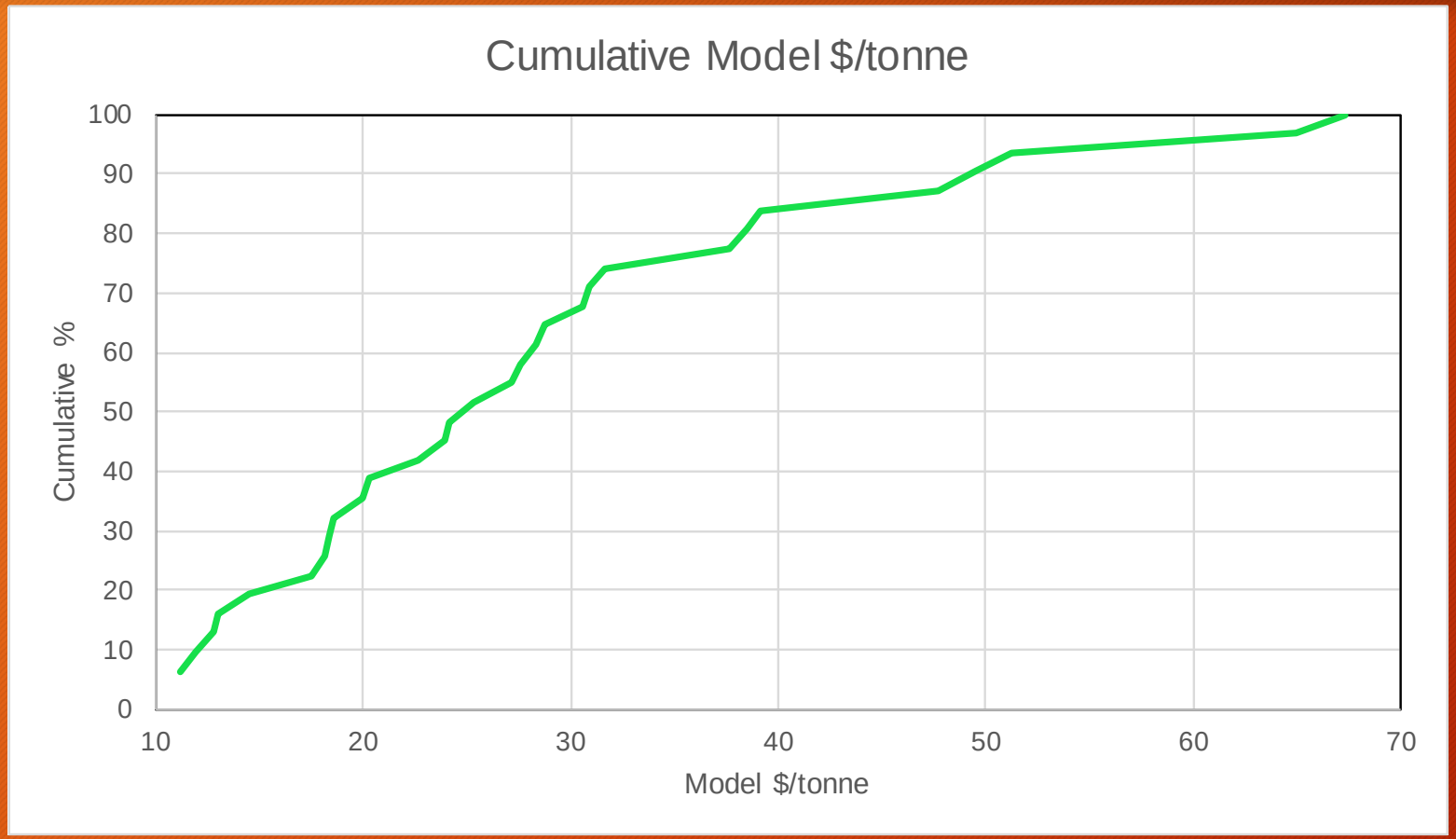
Cumulative Curve for $/tonne



- The options presented thus far include over 30 combination of size, grade, and $/ct to derive a range of $/tonne values
- These can be shown as a cumulative distribution
- This suggests a P20 to P80 range from 15 $/tonne to 38 $/tonne

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Summary Model Results

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

- Sample grades are low with indications of a coarse size distribution
- $/ct models suggest a high quality component is present
- Models for size and grade suggest BK16 could support a viable operation if the large size diamonds reflect the quality of diamonds observed in the sample parcel
- Additional sampling will be designed to validate the plausible ranges of the coarse end of the diamond size distribution and the quality assortment of these larger goods.

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