

## 2016 Mineral Resources and Ore Reserves Update for Kwale

The Ore Reserves and Mineral Resources for Base Resources Limited's (ASX & AIM: BSE) ("Base Resources" or the "Company") 100% owned and operated Kwale Operation as at 30 June 2016 are summarised in Table 1 below.

**Table 1:** 2016 Kwale Mineral Resources and Ore Reserves estimate (Central Dune and South Dune) compared with previously reported 2015 Mineral Resources and Ore Reserves estimates, after allowing for depletion by mining during the year to 30 June 2016.

Category	2016 as at 30 June 2016									2015 after allowing for mining depletion to 30 June 2016						
	Material (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage			Material (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage		
						ILM (%)	RUT (%)	ZIR (%)						ILM (%)	RUT (%)	ZIR (%)
<b>Mineral Resources<sup>1</sup></b>																
Measured	78.3	3.79	4.8	26	1	59	13	6	105.6	4.69	4.5	27	2	50	13	6
Indicated	51.5	1.67	3.2	26	4	54	13	6	27.4	0.83	3.0	27	3	50	13	6
Inferred	4.8	0.16	3.2	23	2	57	14	6	0	0	0	0	0	0	0	0
<b>Total</b>	<b>134.6</b>	<b>5.62</b>	<b>4.2</b>	<b>26</b>	<b>2</b>	<b>57</b>	<b>13</b>	<b>6</b>	<b>132.9</b>	<b>5.52</b>	<b>4.1</b>	<b>26</b>	<b>3</b>	<b>50</b>	<b>13</b>	<b>6</b>
<b>Ore Reserves</b>																
Proved	71.4	3.58	5.0	26	1	59	13	6	85.9	4.16	4.8	27	2	53	13	6
Probable	31.1	1.10	3.5	26	4	55	13	6	14.6	0.52	3.5	26	3	50	13	6
<b>Total</b>	<b>102.5</b>	<b>4.68</b>	<b>4.6</b>	<b>26</b>	<b>2</b>	<b>58</b>	<b>13</b>	<b>6</b>	<b>100.4</b>	<b>4.66</b>	<b>4.6</b>	<b>27</b>	<b>2</b>	<b>53</b>	<b>13</b>	<b>6</b>

<sup>1</sup> Mineral Resources estimated at a 1% HM cut-off grade.

<sup>2</sup> Table subject to rounding errors.

The 2016 Kwale Mineral Resources as at 30 June 2016, are estimated to be 134.6Mt at an average heavy mineral ("HM") grade of 4.2% and 26% slimes containing 5.62Mt HM, based on a 1% HM cut-off grade. The 2016 Kwale Mineral Resources estimate represents a small increase of 1 per cent for total material tonnes and 2 per cent for contained HM tonnes, over the previously reported 2015 Kwale Mineral Resources estimate, after allowing for depletion by mining during the year.

Contained within the Mineral Resources are Ore Reserves estimated to be 102.5Mt at an average HM grade of 4.6 per cent as at 30 June 2016. The 2016 Kwale Ore Reserves estimate represents a small increase of 2 per cent in total ore tonnes and negligible change in contained HM tonnes, over the previously reported 2015 Kwale Ore Reserves estimate, after allowing for depletion by mining during the year.

Mineral Resources and Ore Reserves are reported in accordance with the JORC Code (2012 edition). Accordingly, the information in these sections should be read in conjunction with the respective explanatory Mineral Resources and Ore Reserves information included in Appendix 1.

## Mineral Resources

The 2016 Kwale Mineral Resources as at 30 June 2016, are estimated to be 134.6Mt at an average HM grade of 4.2% and 26% slimes containing 5.62Mt HM, based on a 1% HM cut-off grade.

The 2016 Kwale Mineral Resources estimate is the product of revised geological interpretations following further comprehensive mineralogical assessment of 1718 individual drill samples, observation of 5 test pits in the South Dune deposit and knowledge gained from mining, resulting in the inclusion of inferred resources not previously reported.

**Table 2: 2016 Kwale Mineral Resources estimate at a 1% HM cut-off compared with previously reported 2015 Mineral Resources estimate allowing for depletion by mining of the Central Dune deposit during the year to 30 June 2016.**

Category	2016 Kwale Mineral Resources Estimate as at 30 June 2016									2015 Kwale Mineral Resources Estimate after allowing for mining depletion to 30 June 2016						
	Ore (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage			Ore (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage		
						ILM (%)	RUT (%)	ZIR (%)						ILM (%)	RUT (%)	ZIR (%)
<b>Central Dune</b>																
Measured	35.4	2.13	6.0	24	0	59	13	6	45.3	2.51	5.5	26	(0)	54	14	6
Indicated	10.7	0.42	3.9	26	2	59	14	6	14.1	0.38	2.7	29	2	52	13	6
<b>Total</b>	<b>46.1</b>	<b>2.55</b>	<b>5.5</b>	<b>24</b>	<b>1</b>	<b>59</b>	<b>13</b>	<b>6</b>	<b>59.3</b>	<b>2.89</b>	<b>4.8</b>	<b>27</b>	<b>1</b>	<b>53</b>	<b>13</b>	<b>6</b>
<b>South Dune</b>																
Measured	42.9	1.66	3.9	27	2	59	14	6	60.3	2.18	3.6	28	4	46	13	6
Indicated	40.8	1.25	3.1	26	5	52	13	6	13.3	0.45	3.4	26	4	47	13	6
Inferred	4.8	0.16	3.2	23	2	57	14	6	0	0	0	0	0	0	0	0
<b>Total</b>	<b>88.5</b>	<b>3.07</b>	<b>3.5</b>	<b>26</b>	<b>3</b>	<b>56</b>	<b>13</b>	<b>6</b>	<b>73.6</b>	<b>2.63</b>	<b>3.6</b>	<b>27</b>	<b>4</b>	<b>46</b>	<b>13</b>	<b>6</b>
<b>Total Mineral Resources</b>																
Measured	78.3	3.79	4.8	26	1	59	13	6	105.6	4.69	4.5	27	2	50	13	6
Indicated	51.5	1.67	3.2	26	4	54	13	6	27.4	0.83	3.0	27	3	50	13	6
Inferred	4.8	0.16	3.2	23	2	57	14	6	0	0	0	0	0	0	0	0
<b>Total</b>	<b>134.6</b>	<b>5.62</b>	<b>4.2</b>	<b>26</b>	<b>2</b>	<b>57</b>	<b>13</b>	<b>6</b>	<b>132.9</b>	<b>5.52</b>	<b>4.1</b>	<b>26</b>	<b>3</b>	<b>50</b>	<b>13</b>	<b>6</b>

Table subject to rounding errors, resources estimated at a 1% HM cut-off grade.

The revised geological interpretations applied to the 2016 Kwale Mineral Resources estimate has resulted in a number of changes to resource classification from the previous estimate. In the previous estimate, the main determinant for classification was drill hole spacing, except for Ore3 in the Central Dune deposit, where, due to reduced confidence in grade continuity, the material was categorised as indicated irrespective of drill hole spacing. Revised geological interpretations have been applied to the 2016 Kwale Mineral Resources estimate, as discussed above, which has led to a decrease in material assigned to the measured category, compared to the previous estimate. In particular, changes have occurred in the following areas:

- In the areas of steep erosion near the three creeks of the Central Dune deposit, reduced confidence in grade continuity has led to material being categorised as indicated, irrespective of drill hole spacing.
- The thinner mineralised zones of the Central Dune deposit (primarily Ore3 and Ore25 – refer Figure 5) do not always have sufficient sample support to carry measured status, even in areas of tight drill spacing, and were therefore accorded indicated status.
- At the South Dune deposit, observed variability in mineralogy in Ore4, compared to Ore1, required it to be assigned indicated status regardless of drill hole spacing (refer Figure 6).

The 2016 Kwale Mineral Resources estimate represents a small increase of 1 per cent for total material tonnes and 2 per cent for contained HM tonnes, after allowing for depletion by mining of the Central Dune deposit during the year (refer Table 2). The updated 2016 Kwale Mineral Resources estimate forms the basis for the preparation and reporting of 2016 Kwale Ore Reserves estimate.

The Central Dune Mineral Resources at 30 June 2016, are estimated to be 46.1Mt at an average HM grade of 5.5%, based on a 1% HM cut-off grade, decreased from the 2015 Kwale Mineral Resources estimate due to mining depletion during the year of 10.1Mt of material containing 0.89Mt of in situ HM, with the difference due to the revised geological interpretations discussed above. The South Dune Mineral Resources at 30 June 2016, are estimated to be 88.5Mt at an average HM grade of 3.5% HM, based on a 1% HM cut-off grade, increased over the 2015 Kwale Mineral Resources estimate due to the revised geological interpretations as discussed above. The total 2016 Kwale Mineral Resources estimate at 30 June 2016, without allowance for depletion through mining during the year, has decreased by 6% for material tonnes and by 12% for HM tonnes when compared with the Mineral Resources estimate reported at 30 June 2015 (refer Table 3).

**Table 3:** Kwale Mineral Resources estimate at 30 June 2016 compared with the Kwale Mineral Resources estimate reported at 30 June 2015.

Category	2016 Kwale Mineral Resources Estimate as at 30 June 2016									2015 Kwale Mineral Resources Estimate as at 30 June 2015								
	Ore (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage			Ore (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage				
						ILM (%)	RUT (%)	ZIR (%)						ILM (%)	RUT (%)	ZIR (%)		
<b>Central Dune</b>																		
Measured	35.4	2.13	6.0	24	0	59	13	6	54.5	3.37	6.2	25	0	55	14	6		
Indicated	10.7	0.42	3.9	26	2	59	14	6	15.0	0.41	2.7	29	2	52	13	6		
<b>Total</b>	<b>46.1</b>	<b>2.55</b>	<b>5.5</b>	<b>24</b>	<b>1</b>	<b>59</b>	<b>13</b>	<b>6</b>	<b>69.4</b>	<b>3.78</b>	<b>5.4</b>	<b>26</b>	<b>1</b>	<b>54</b>	<b>13</b>	<b>6</b>		
<b>South Dune</b>																		
Measured	42.9	1.66	3.9	27	2	59	14	6	60.3	2.18	3.6	28	4	46	13	6		
Indicated	40.8	1.25	3.1	26	5	52	13	6	13.3	0.45	3.4	26	4	47	13	6		
Inferred	4.8	0.16	3.2	23	2	57	14	6	0	0	0	0	0	0	0	0		
<b>Total</b>	<b>88.5</b>	<b>3.07</b>	<b>3.5</b>	<b>26</b>	<b>3</b>	<b>56</b>	<b>13</b>	<b>6</b>	<b>73.6</b>	<b>2.63</b>	<b>3.6</b>	<b>27</b>	<b>4</b>	<b>46</b>	<b>13</b>	<b>6</b>		
<b>Total Mineral Resources</b>																		
Measured	78.3	3.79	4.8	26	1	59	13	6	114.8	5.55	4.9	26	2	51	13	6		
Indicated	51.5	1.67	3.2	26	4	54	13	6	28.3	0.86	3.0	27	3	50	13	6		
Inferred	4.8	0.16	3.2	23	2	57	14	6	0	0	0	0	0	0	0	0		
<b>Total</b>	<b>134.6</b>	<b>5.62</b>	<b>4.2</b>	<b>26</b>	<b>2</b>	<b>57</b>	<b>13</b>	<b>6</b>	<b>143.0</b>	<b>6.41</b>	<b>4.4</b>	<b>26</b>	<b>3</b>	<b>51</b>	<b>13</b>	<b>6</b>		

Table subject to rounding errors, resources estimated at a 1% HM cut-off grade.

## Ore Reserves

The 2016 Kwale Ore Reserves as at 30 June 2016, are estimated to be 102.5Mt at an average HM grade of 4.6% and 26% slimes containing 4.68Mt of HM.

The 2016 Kwale Ore Reserves are based on the 2016 Mineral Resources model and knowledge gained from mining. The 2016 Kwale Ore Reserves estimate represents a small increase of 2 per cent in total ore tonnes and negligible change in contained HM tonnes, after allowing for depletion by mining of the Central Dune deposit during the year (refer Table 4).

**Table 4:** 2016 Kwale Ore Reserves estimate at 30 June 2016 compared with previously reported 2015 Kwale Ore Reserves after allowing for depletion by mining of the Central Dune deposit during the year to 30 June 2016.

Category	2016 Kwale Ore Reserves Estimate as at 30 June 2016									2015 Kwale Ore Reserves Estimate after allowing for mining depletion to 30 June 2016								
	Ore (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage			Ore (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage				
						ILM (%)	RUT (%)	ZIR (%)						ILM (%)	RUT (%)	ZIR (%)		
<b>Central Dune</b>																		
Proved	32.5	2.03	6.2	24	0	59	13	6	39.2	2.36	6.0	24	(0)	55	13	6		
Probable	8.4	0.35	4.1	26	1	59	13	6	5.0	0.16	3.2	28	2	52	13	6		
<b>Total</b>	<b>40.9</b>	<b>2.37</b>	<b>5.8</b>	<b>24</b>	<b>1</b>	<b>59</b>	<b>13</b>	<b>6</b>	<b>44.2</b>	<b>2.51</b>	<b>5.6</b>	<b>26</b>	<b>1</b>	<b>55</b>	<b>13</b>	<b>6</b>		
<b>South Dune</b>																		
Proved	38.9	1.56	4.0	27	1	59	14	6	46.7	1.80	3.9	28	3	49	14	6		
Probable	22.7	0.75	3.3	26	5	53	13	6	9.5	0.35	3.7	25	3	49	13	6		
<b>Total</b>	<b>61.6</b>	<b>2.31</b>	<b>3.8</b>	<b>27</b>	<b>3</b>	<b>57</b>	<b>13</b>	<b>6</b>	<b>56.2</b>	<b>2.15</b>	<b>3.8</b>	<b>27</b>	<b>3</b>	<b>49</b>	<b>14</b>	<b>6</b>		
<b>Total Ore Reserves</b>																		
Proved	71.4	3.58	5.0	26	1	59	13	6	85.9	4.16	4.8	27	2	53	13	6		
Probable	31.1	1.10	3.5	26	4	55	13	6	14.6	0.52	3.5	26	3	50	13	6		
<b>Total</b>	<b>102.5</b>	<b>4.68</b>	<b>4.6</b>	<b>26</b>	<b>2</b>	<b>58</b>	<b>13</b>	<b>6</b>	<b>100.4</b>	<b>4.66</b>	<b>4.6</b>	<b>27</b>	<b>2</b>	<b>53</b>	<b>13</b>	<b>6</b>		

Table subject to rounding errors.

The Central Dune Ore Reserves at 30 June 2016, are estimated to be 40.9Mt of ore and 2.37Mt of in situ HM, decreased from the 2015 Kwale Ore Reserves estimated due to mining depletion during the year of 10.0Mt of ore containing 0.88Mt of in situ HM, with the difference due to the other changes discussed above. Whilst mining has not yet commenced on this deposit, South Dune Ore Reserves at 30 June 2016 are estimated to be 61.6Mt of ore and 2.31Mt of in situ HM, increased over the 2015 Kwale Ore Reserves estimated due to the changes in the discussed above. The total 2016 Kwale Ore Reserves estimate at 30 June 2016 has decreased by 7% for material tonnes and by 16% for HM tonnes when compared with the Ore Reserves estimate reported at 30 June 2015 (refer Table 5).

**Table 5:** 2016 Kwale Ore Reserves estimate at 30 June 2016 compared with 2015 Kwale Ore Reserves estimate reported at 30 June 2015.

Category	2016 as at 30 June 2016									2015 as at 30 June 2015								
	Ore (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage			Ore (Mt)	In Situ HM (Mt)	HM (%)	SL (%)	OS (%)	HM Assemblage				
						ILM (%)	RUT (%)	ZIR (%)						ILM (%)	RUT (%)	ZIR (%)		
<b>Central Dune</b>																		
Proved	32.5	2.03	6.2	24	0	59	13	6	48.3	3.21	6.6	24	0	56	13	6		
Probable	8.4	0.35	4.1	26	1	59	13	6	5.8	0.18	3.2	28	2	52	13	6		
<b>Total</b>	<b>40.9</b>	<b>2.37</b>	<b>5.8</b>	<b>24</b>	<b>1</b>	<b>59</b>	<b>13</b>	<b>6</b>	<b>54.2</b>	<b>3.39</b>	<b>6.2</b>	<b>25</b>	<b>1</b>	<b>56</b>	<b>13</b>	<b>6</b>		
<b>South Dune</b>																		
Proved	38.9	1.56	4.0	27	1	59	14	6	46.7	1.80	3.9	28	3	49	14	6		
Probable	22.7	0.75	3.3	26	5	53	13	6	9.5	0.35	3.7	25	3	49	13	6		
<b>Total</b>	<b>61.6</b>	<b>2.31</b>	<b>3.8</b>	<b>27</b>	<b>3</b>	<b>57</b>	<b>13</b>	<b>6</b>	<b>56.2</b>	<b>2.15</b>	<b>3.8</b>	<b>27</b>	<b>3</b>	<b>49</b>	<b>14</b>	<b>6</b>		
<b>Total Ore Reserves</b>																		
Proved	71.4	3.58	5.0	26	1	59	13	6	95.0	5.01	5.3	26	2	54	13	6		
Probable	31.1	1.10	3.5	26	4	55	13	6	15.4	0.54	3.4	26	3	50	13	6		
<b>Total</b>	<b>102.5</b>	<b>4.68</b>	<b>4.6</b>	<b>26</b>	<b>2</b>	<b>58</b>	<b>13</b>	<b>6</b>	<b>110.4</b>	<b>5.54</b>	<b>5.0</b>	<b>26</b>	<b>2</b>	<b>54</b>	<b>13</b>	<b>6</b>		

Table subject to rounding errors.



## Mineral Resources & Ore Reserves Governance

A summary of the governance and internal controls applicable to Base Resources Mineral Resources and Ore Reserves processes are as follows:

### Mineral Resources

- Review and validation of drilling and sampling methodology and data spacing, geological logging, data collection and storage, sampling and analytical quality control;
- Geological interpretation – review of known and interpreted structure, lithology and weathering controls;
- Estimation methodology – relevant to mineralisation style and proposed mining methodology;
- Comparison of estimation results with previous mineral resource models, and with results using alternate modelling methodologies;
- Visual validation of block model against raw composite data; and
- Use of external Competent Persons to assist in the preparation of JORC Mineral Resources updates.

### Ore Reserves

- Review of potential mining methodology to suit deposit and mineralisation characteristics;
- Review of potential Modifying Factors, including cost assumptions and commodity prices to be utilised in mining evaluation;
- Ore Reserves updates intimated with material changes in the above assumptions;
- Optimisation using appropriate software packages for open pit evaluation;
- Design based on optimisation results; and
- Use of external Competent Persons to assist in the preparation of JORC Ore Reserves updates.

## Competent Persons Statements

### Mineral Resources

The information in this report that relates to Mineral Resources is based on information compiled by Mr. Scott Carruthers who is a Member of The Australasian Institute of Mining and Metallurgy. Mr. Carruthers is employed by Base Resources, owns 147,171 Base Resources shares and has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr. Carruthers consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

### Ore Reserves

The information in this report that relates to Ore Reserves is based on information compiled by Mr. Per Scrimshaw and Mr. Scott Carruthers. Mr. Scrimshaw and Mr. Carruthers are both Members of The Australasian Institute of Mining and Metallurgy. Mr. Scrimshaw is employed by Entech, a mining consultancy engaged by Base Resources to prepare Ore Reserves estimation for the Kwale Project. Mr. Carruthers is employed by Base Resources and owns 147,171 Base Resources shares. Mr. Scrimshaw and Mr. Carruthers have sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr. Scrimshaw and Mr. Carruthers consent to the inclusion in this report of the matters based on their information in the form and context in which it appears.



## Supporting Information Required Under ASX Listing Rules, Chapter 5

The supporting information below is required, under Chapter 5 of the ASX Listing Rules, to be included in market announcements reporting estimates of Mineral Resources and Ore Reserves.

Section 1, Section 2, Section 3 and Section 4 of JORC Table 1 can be found in Appendix 1.

### Requirements applicable to the Mineral Resources Estimate

A summary of the information used to prepare the Kwale Mineral Resources estimate as presented in this report is as follows.

The Kwale Operation is located on Special Mining Lease No. 23 (“**SML23**”) (lying within the Kwale exploration license SPL173 comprising an area of 177 km<sup>2</sup>) which is located approximately 50 kilometres south of Mombasa and approximately 10 kilometres inland from the Kenyan coast (refer Figure 1).

The Kwale Project comprises two areas, separated by the Mukurumudzi River, that contain economically viable concentrations of heavy minerals. These are the Central Dune and the South Dune deposits. A sub-economic third deposit, the Kwale North Dune deposit is not currently included in published resources.

The project was initially owned by Tiomin Resources Inc. (“**Tiomin**”) who conducted drilling in 1997 and then by Base Resources who drilled out the Central Dune and South Dune deposits during October-December 2010 and January to February 2013 drilling phases within the Kwale exploration license SPL173 in Figure 2.

Mineral Resources estimation work previously carried out on the Kwale deposits is as follows:

- 2006 by Tiomin;
- 2010 by Base Resources via a consulting company, Creative Mined Pty Ltd, and under the direction of the Competent Person, Scott Carruthers; and
- 2014 by GNJ Consulting, and under the direction of the Competent Person, Greg Jones.

The rocks of the area are essentially of sedimentary origin and range in age from Upper Carboniferous to Recent. Three divisions are recognised: the Cainozoic rocks, the Upper Mesozoic rocks (not exposed on the area) and the Duruma Sandstone Series giving rise to the dominant topographical feature of the area: the Shimba Hills. The Shimba grits and Mazeras sandstone are of Upper Triassic age and form the Upper Duruma Sandstone.

The Margarini sands form a belt of low hills running parallel to the coast. They rest with slight unconformity on the Shimba grits and Mazeras sandstone. This formation was deposited during Pliocene times and consists of unconsolidated sediments derived from the Duruma Sandstone Series. The Margarini sands are believed to be of aeolian origin, deposited as coastal dunes after conditions of intense erosion.

The Kwale deposits are a subset of the Margarini sands and are generally poorly stratified and contain a fraction of silt of around 30 per cent. Heavy minerals, mainly ilmenite, rutile and zircon, are locally concentrated and are abundant in some places, giving rise to deposits such as Central Dune and South Dune.

The geological interpretations for each deposit considered the data in the drill logs, the detailed mineralogy, knowledge gained from mining the Central Dune deposit, and observation of 5 test pits in the South Dune deposit. Four geological domains have been identified at the Central Dune deposit and two domains are present at the South Dune deposit. These were used and honoured during the geological modelling.

The right to mine the Kwale Central Dune and South Dune deposits was granted to the Kwale Operations previous owner by the Government of Kenya under SML23 on 6 July 2004. SML23 was assigned to Base Titanium Limited (a wholly owned



subsidiary of Base Resources) in July 2010, with consent from the Commissioner of Mines and Geology of the Government of Kenya.

SML23 has a term of 21 years from 6 July 2004, and provides the right to carry out mining operations for the production of ilmenite, rutile and zircon and is renewable on materially the same terms.

The environment and land use in Kwale County is defined as humid and intensive subsistence agriculture/mixed farming/forestry. The approximate population for Kwale County is 500,000 persons.

Tiomin conducted drilling in 1997 at Kwale using a variety of drilling methodologies. Subsequent to acquiring the project, Base Resources carried out drilling using primarily reverse circulation air core (“RCAC”) via Wallis Drilling and a small number of hand auger holes. The RCAC drilling was conducted in two campaigns, from October to November 2010 and then in January to February 2013.

RCAC drilling was used to obtain 1 to 3m samples from which approximately 1.2 - 2.5kg was collected using a rotary splitter beneath a cyclone. Samples were then dried, weighed, and screened for material less than 45µm (slimes) and +1mm (oversize).

Approximately 100 grams of the screened sample was then subjected to a HM float/sink technique using the heavy liquid, tetra-bromo-ethane (TBE with an SG of 2.92 - 2.96gcm<sup>-3</sup>). The resulting HM concentrate was then dried and weighed as were the other separated constituent size fractions (the minus 45µm material being calculated by difference).

Mineral assemblage analyses were conducted by Base Resources in order to characterise the mineralogical and chemical characteristics of specific mineral species and magnetic fractions. These mineral assemblage samples were subjected to magnetic separation using a Carpc magnet capturing magnetic, middling (combined together with the magnetic fraction) and non-magnetic fractions which were then subjected to XRF analysis. The XRF analysis was then used to calculate by formula and ratios, the percentage of mineral species that constitute the valuable and non-valuable HM.

Drill hole, collar and assay data was captured and managed in the form of an MS Access database

A standard precision analysis was conducted on the key assay fields: HM, slimes or clay (“SL”) and oversize (“OS”)<sup>1</sup> for both laboratory and drill rig (field duplicate) samples. Normal scatter and QQ plots were prepared for HM, SL and OS for laboratory and drill rig.

A topographic DTM was prepared by Base Resources in GEMCOM™ format which was based on a LIDAR survey.

Construction of the geological grade model was based on coding model cells below open wireframe surfaces, comprising topography, geology and basement.

Model cell dimensions of 50m x 50m x 3m in the XYZ directions was selected for the Central Dune and South Dune deposits allowing for sub splits down to 12.5 m x 12.5 m x 0.75 m.

Interpolation was undertaken using various sized search ellipses to interpolate for the primary grade fields (HM, SL, OS, and mineralogy), and index fields (hardness). Inverse distance weighting (“IDW”) to a power of 3 was used for primary assay fields whilst nearest neighbour was used to interpolate index fields.

The criteria used for classification was primarily the drill spacing and sample interval, with consideration also given to the continuity of mineral assemblage information (Ore4 at the South Dune deposit), the reduced level of confidence surrounding the areas of steep erosion (Central Dune deposit), and the variable nature of Ore3 at the Central Dune deposit. In general, measured status required a drill spacing of 100 m x 120m or closer. The estimates presented herein used a 1% HM cut-off. The 1% HM cut-off was selected for reporting to allow for comparison to historical reporting.

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<sup>1</sup> For a definition of these assay fields please refer to Appendix 1.



Mining methods considered are those currently employed: dozer trap mining with D11 dozers and hydraulic mining with high pressure water jets. The presently employed thickening, concentration and mineral separation plants and day to day recoveries comprise the metallurgical methods considered, and are similar to other mineral sand operations around the world.



Figure 1: Plan showing location of Kwale Project area covered by Exploration License SPL173.

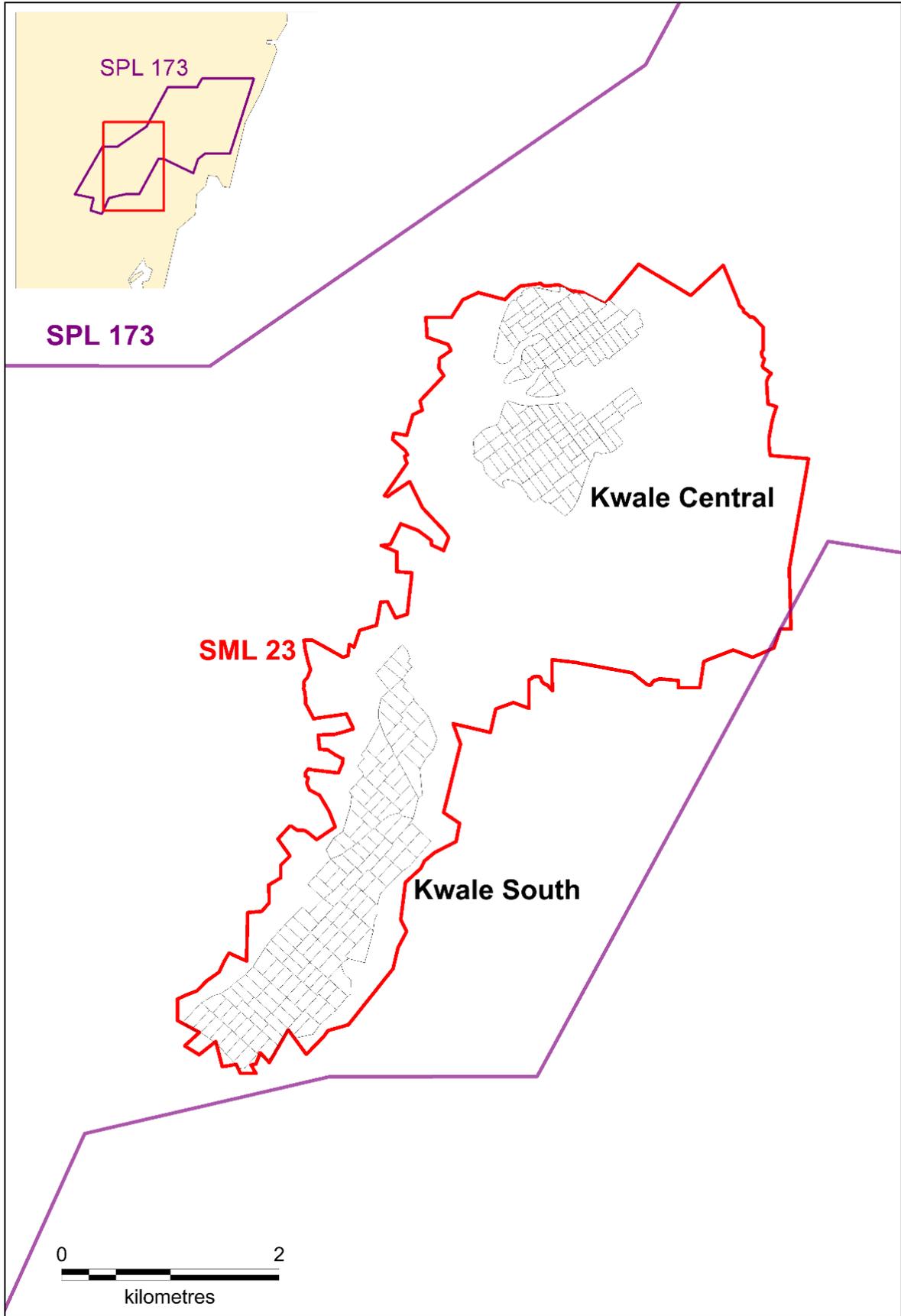
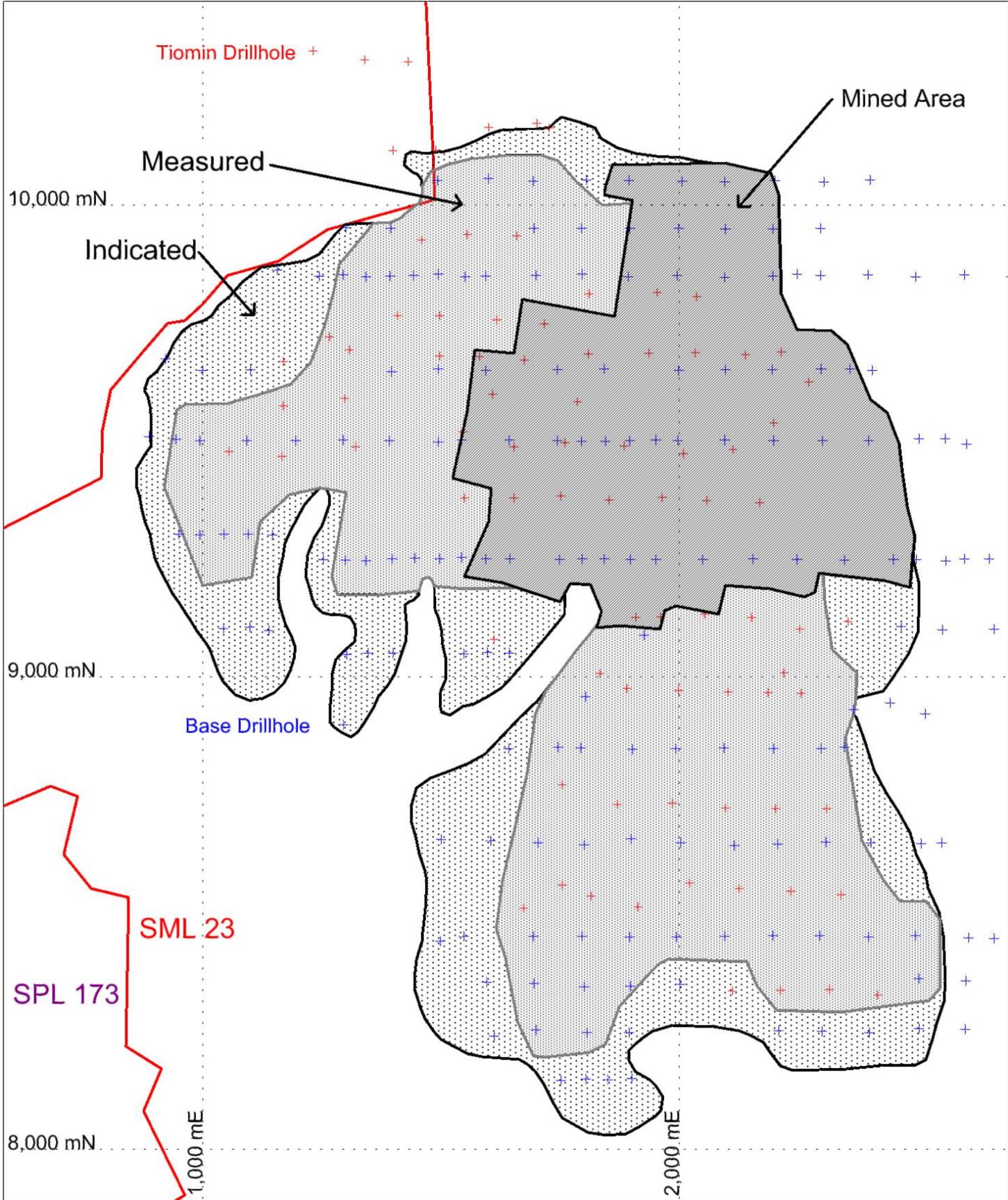
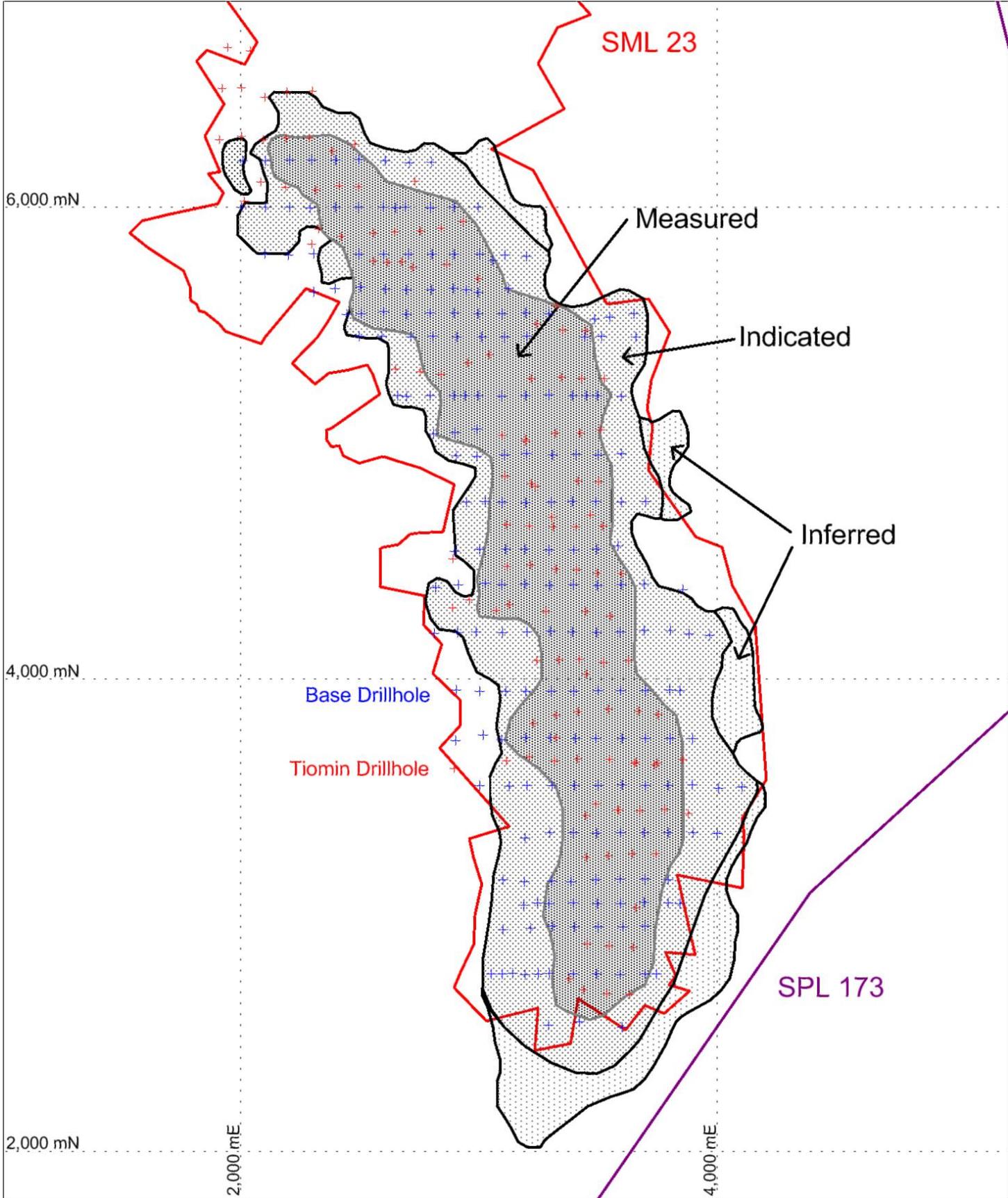


Figure 2: Location of Kwale deposits with respect to Exploration License SPL173.



**Figure 3:** Plan showing Kwale Central Dune deposit, location of drill holes used for resource estimation, SML boundary, measured and indicated 1% HM cut-off resource outlines and mined out area.



**Figure 4:** Plan showing Kwale South Dune deposit, location of drill holes used for resource estimation, tenure boundaries and the measured, indicated and inferred 1%HM cut-off resource outlines.

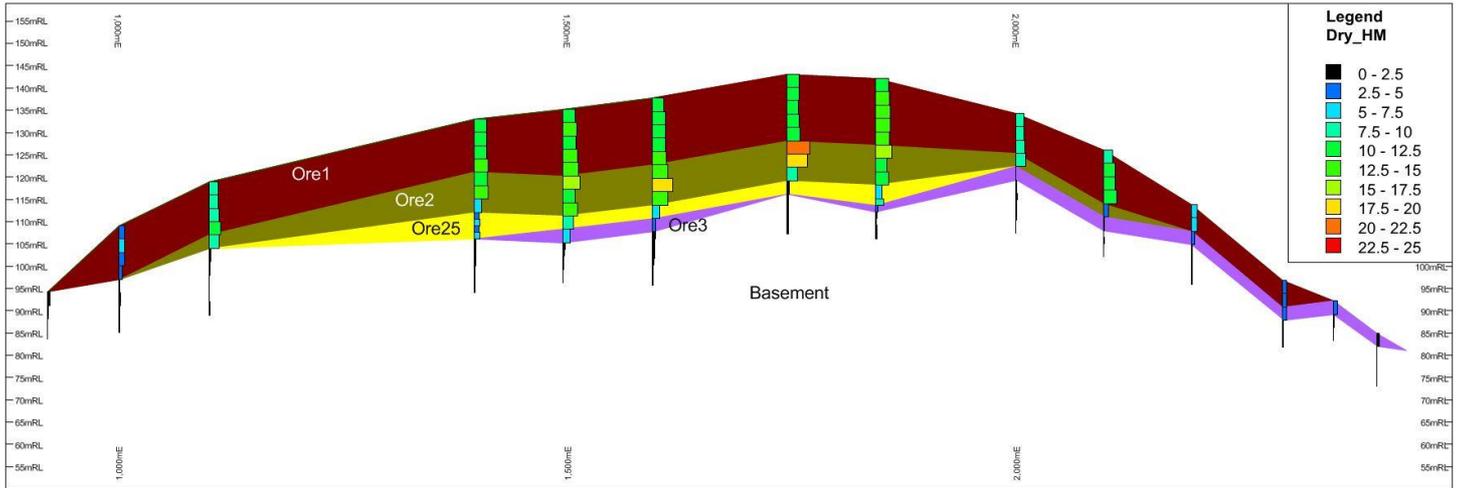


Figure 5: Schematic cross-section of the Kwale Central Dune deposit showing geology and HM grade relationships between geological domains (5 x vertical axis).

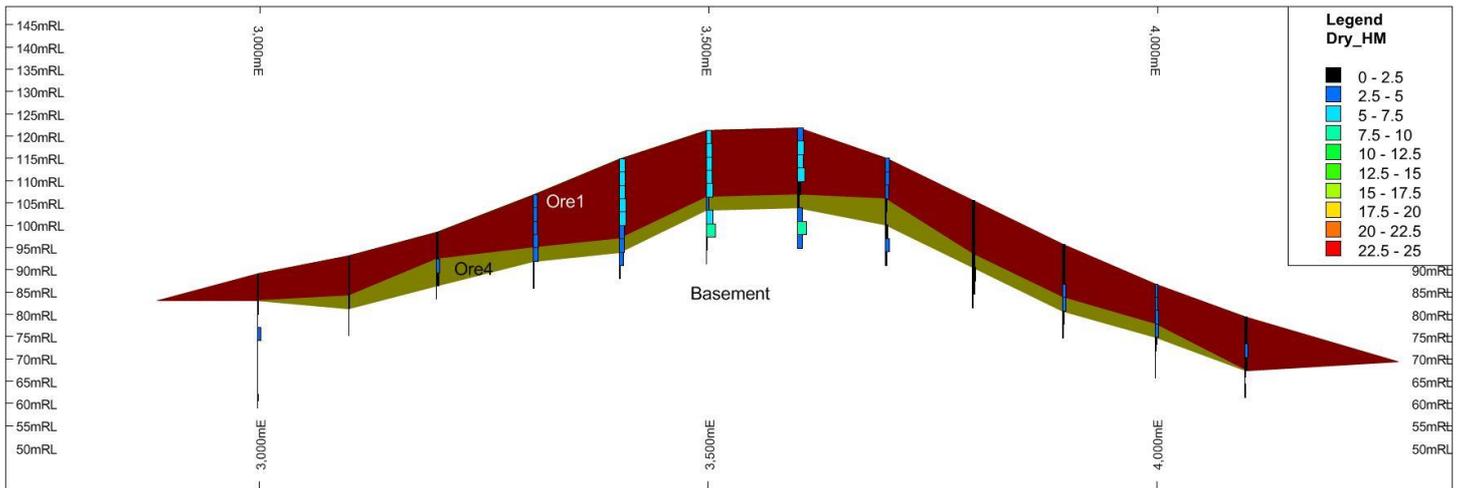


Figure 6: Schematic cross-section of the Kwale South Dune deposit showing geology and HM grade relationships between geological domains (5 x vertical axis).



## Requirements applicable to the Ore Reserves Estimate

In addition to the above information used to prepare the Mineral Resources estimate, a summary of the further information used to prepare the Ore Reserves estimate as presented in this report is as follows.

The Kwale Operations is an ongoing mining operation and this estimate takes into consideration the updated 2016 Mineral Resources model compliant with the JORC Code (2012 edition) and revised mining recovery parameters based on knowledge gained from mining. In particular, recovery of Ore3 has been further discounted based on continuing mine production performance as well as revised interpretation of the extent of this zone in the updated 2016 Mineral Resources model.

Measured Mineral Resources are converted to Proved Ore Reserves and Indicated Mineral Resources are converted to Probable Ore Reserves. Inferred Mineral Resources are excluded from reporting.

Mining commenced at the Kwale Operations in October 2013 on the higher grade Kwale Central Dune deposit. First production of ilmenite and rutile began in December 2013. Zircon production commenced in February 2014, as did the first bulk shipment from the Likoni port facility.

Taking into consideration experience gained from mining operations at Kwale Central Dune deposit, open pit optimisation studies were conducted using CAE NPV Scheduler software, followed by detailed pit design and scheduling (using GEOVIA Surpac and Minesched software). Operating cost inputs were collated from Base Resources operating budget, revenue parameters based on price forecasts by TZMI consultants and processing recoveries based on actual plant performance. This analysis is at a higher level than would be the case for a feasibility study.

Mining at Kwale Operations is based on a conventional dozer trap mining unit (“DMU”), using Caterpillar D11T dozers to feed the DMU. A supplementary hydraulic mining unit (“HMU”) has recently been commissioned and will target mine blocks of high slime and low face height around the periphery of the deposit. Mining blocks are notionally designed on 140m by 70m (Central Dune) or 180m by 90m (South Dune) dimensions and due to the geometry of the deposit, minimum mining width never drops below the mining block size.

Appropriate modifying factors have been considered in mine design. The mining method employed is non-selective and there is no ore/waste discrimination. Economic cut-off is determined by cash flow method on a cell basis, however sub-economic regions are included as a planned diluting material where they are deemed unable to be selectively mined. Basement material reporting within the pit design is likewise included as a planned dilution material. There is no further application of mining dilution factors.

Mining recovery considers the experience gained at Kwale Operations to date and includes limiting the maximum depth of Ore3 material in the Central Dune deposit to 1m. Previous estimates used a more optimistic 3m, which operations have been unable to achieve in practise. In the South Dune deposit, mine design has excluded hard material by raising the pit floor where modelling indicates such material may be present. For both Central Dune and South Dune deposits a 0.2m provision for topsoil has been allowed for and this material is excluded from recovery through mining feed operations.

Lower grade areas have been removed from the 2016 Ore Reserves estimation, largely due to limiting the maximum depth of Ore3 material in the Central Dune deposit to 1m (refer to Figure 7). An increase in the footprint of the South Dune deposit, which in previous resource modelling had been constrained to a tighter boundary for grade interpolation than used for the update 2016 Mineral Resources model, has resulted in the extension of the economic pit boundary (refer to Figure 8).

The ore is processed via screens, thickeners and spirals, as in almost every other mineral sands operation, to produce a concentrate. This is processed using magnetic and conductor separators to produce ilmenite and rutile products. The remaining material is further processed using classifiers, wet tables and cleaned with conductor separators to produce



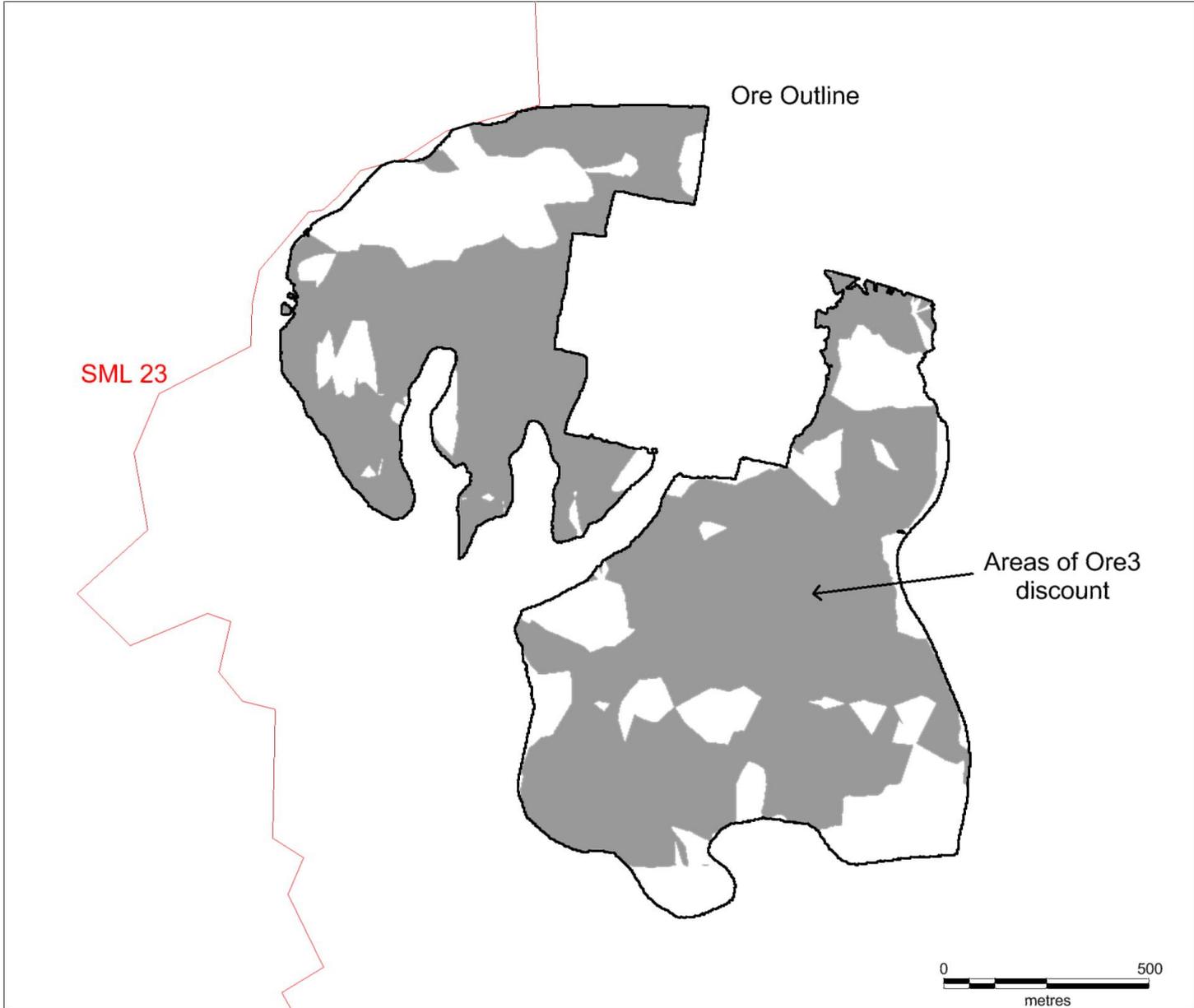
zircon and recover further rutile. This is not an unusual process for mineral sands, but has been tailored to suit the higher than normal proportion of kyanite, which has similar physical properties to zircon.

Base Resources has all agreements in place to allow ongoing mining and processing. The company operates a comprehensive Stakeholder Engagement Plan in concert with a Community Development Plan. Close liaison with stakeholders is maintained through the operation of series of liaison committees representing those affected by the mine's presence.

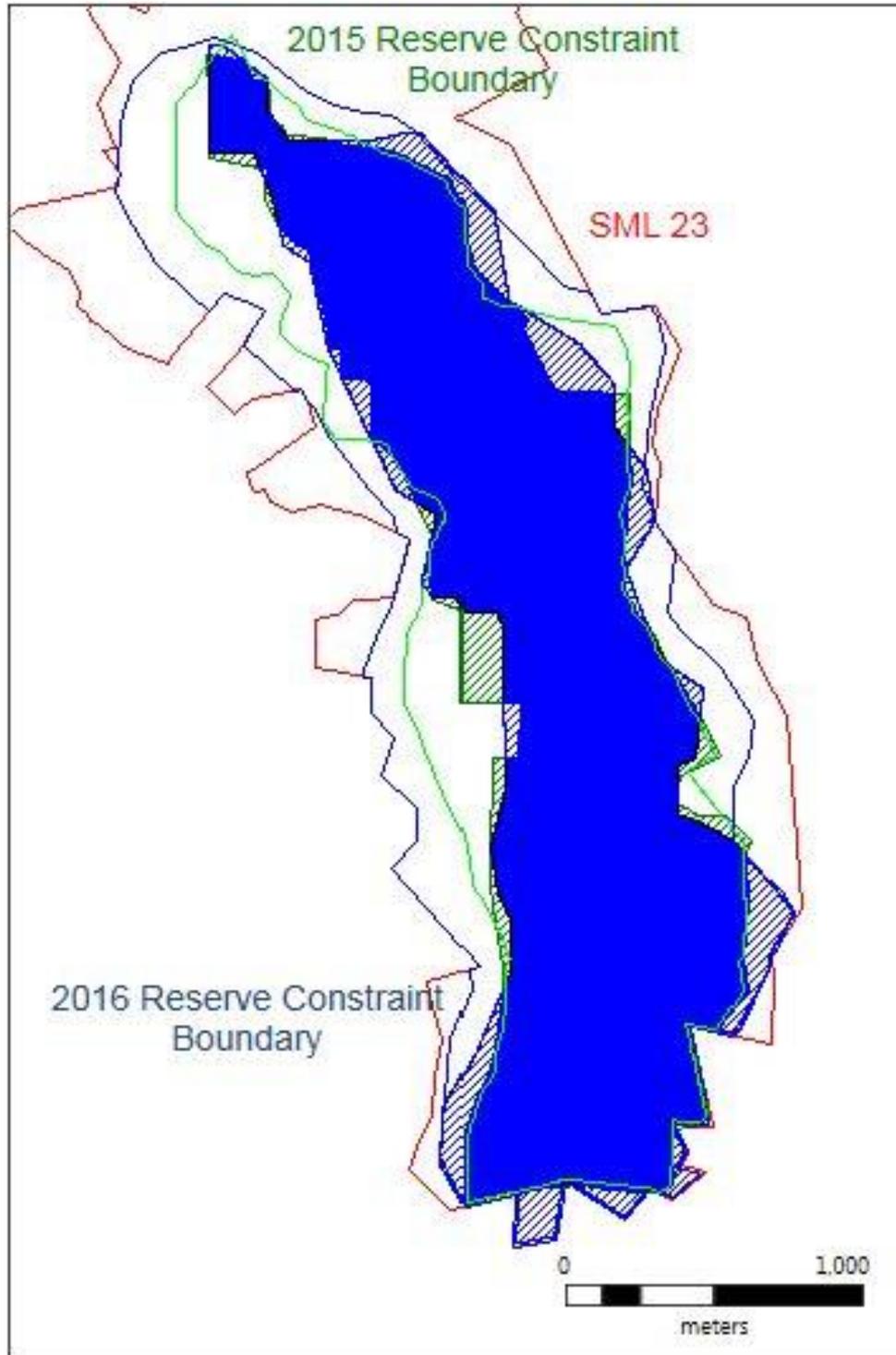
The right to mine the Kwale Operations Central Dune and South Dune deposits was granted to the Kwale's previous owner by the Government of Kenya under SML23. The SML23 was assigned to Base Titanium Limited (a wholly owned subsidiary of Base Resources) in July 2010, with consent from the Commissioner of Mines and Geology of the Government of Kenya.

SML23 has a term of 21 years from 6 July 2004, and provides the right to carry out mining operations for the production of ilmenite, rutile and zircon and is renewable on materially the same terms.

All required infrastructure necessary for Kwale Operations is complete, including construction of the process plant, 132kV power line, 8km bitumen access road from the highway, camp, Likoni storage shed and ship loading facility and an 8G1 dam on the Mukurumudzi River that will supply most of the water for the project, supplemented by a bore field.



**Figure 7:** Plan showing Kwale Central Dune deposit and areas where Ore3 recovery has been limited to 1m depth (local mine grid) in the 2016 Ore Reserves estimate.



**Figure 8:** Plan showing Kwale South Dune deposit, 2016 Ore Reserves estimate in blue, with gains over the previous 2015 estimate shown as blue striping and losses from the previous 2015 estimate shown as green striping (local mine grid). The areas constraining the 2015 and 2016 Ore Reserves are green and blue polygons respectively. The 2016 Ore Reserves constraint is the intersection of the boundary of SML23 and the indicated resource boundary. The previous 2015 Ore Reserves constraint was the optimised pit boundary from the 2011 Ore Reserves estimate.



## APPENDIX 1: Table 1, JORC Code 2012

## Section 1: Sampling Techniques and Data

Criteria	Explanation	Comment
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	The Kwale Central Dune and South Dune deposits were drilled and sampled using Reverse Circulation Air-Core (RCAC), top drive rotary open hole and hand auger drill holes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Duplicate field and laboratory samples were taken at accepted industry standard ratios of approximately 1 in 20 to 1 in 40.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	RCAC drilling was used to obtain a 1 to 3 m samples from which approximately 1.2-2.5 kg was collected using a rotary splitter beneath a cyclone. The sample was then dried, de-slimed (material less than 45 µm removed) and then oversize (material +1mm) was removed.  Approximately 100g of the resultant sample was then subjected to a heavy mineral (HM) float/sink technique using tetra-bromo-ethane (TBE: SG=2.92-2.96 gcm-3).  The resulting HM concentrate was then dried and weighed.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RCAC drilling utilising 71 mm diameter air-core accounts for approximately 75 per cent of the total drilling for the Kwale Project. All holes are drilled vertical with no downhole surveying to confirm hole direction.  Top drive Rotary and auger (mechanised and hand) represent the other approximately 25 per cent of total drilling metres

Criteria	Explanation	Comment
<i>Drill sample recovery</i>	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	<i>Base Resources logged sample quality at the rig as either good, moderate or poor, with 'good' meaning not contaminated and of an appropriate sample size (recovery), 'moderate' meaning not contaminated, but sample over or undersized, and 'poor' meaning contaminated or grossly over/undersized.  Ground conditions were slightly damp, with approximately 25 per cent silt/clay, meaning that best sample quality was achieved by slow penetration with as little water injection as possible.</i>
	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	<i>Sampling on the drill rig is observed to ensure that rotary splitter remains clean and water is used to flush the cyclone after each drill string (3 m).</i>
	<i>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</i>	<i>No relationship is believed to exist between grade and sample recovery. The high percentage of clay and low hydraulic inflow of groundwater results in a sample size that is well within the expected size range.</i>
<i>Logging</i>	<i>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resources estimation, mining studies and metallurgical studies.</i>	<i>Tiomin conducted some logging of colour and sometimes lithology and Base Resources collected detailed qualitative logging of geological characteristics to allow a comprehensive geological interpretation to be carried out.</i>
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i>	<i>Logging of RCAC samples recorded estimated slimes, washing, colour, lithology, dominant grainsize, coarsest grainsize, sorting, induration type, hardness, estimated rock and estimated HM.</i>
	<i>The total length and percentage of the relevant intersections logged.</i>	<i>All drill holes were logged in full and approximately 100 per cent of samples were assayed and used in the resource estimation exercise.</i>
<i>Sub-sampling techniques and sample preparation</i>	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	<i>Tiomin collected the sample for the full 3 m and split the sample manually.</i>

Criteria	Explanation	Comment
	<i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i>	<i>Base Resources rotary split the samples on the drill rig. Samples were split and logged wet however any artesian water that was intersected was noted. Approximately one quarter of the original sample was retained.  The sample size was approximately 1.2-2.5 kg and is considered to be appropriate compared with the grain size of the material being sampled.</i>
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	<i>Sample preparation is consistent with industry best practice.</i>
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	<i>QA/QC in the form of laboratory and rig duplicates were used to monitor laboratory performance. Laboratory and rig duplicates were submitted at the rate of approximately 1 in 20 each for a combined submission rate of one in 10.</i>
	<i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i>	<i>Analysis of sample duplicates was undertaken by standard geostatistical methodologies to test for bias and to ensure that sample splitting was representative.</i>
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	<i>Given that the grain size of the material being sampled is sand and approximately 70 to 300 <math>\mu\text{m}</math>, an approximate sample size of 1.2 - 2.5 kg is more than adequate.</i>

Criteria	Explanation	Comment
<p>Quality of assay data and laboratory tests</p>	<p>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</p>	<p>Tiomin used a standard flow sheet and detailed QA/QC was undertaken.</p> <p>The Base Resources laboratory flow sheet deslimes the sample prior to oven drying to prevent clay minerals being baked onto the HM grains. A separate sample was split and dried to determine moisture content, which was then back calculated to correct the assayed grades.</p> <p>Every 20th sample was duplicated. HM was separated from light minerals by a sink/float process using TBE.</p> <p>The sample analysis process produced the following assays:</p> <ul style="list-style-type: none"> <li>- heavy mineral ('HM') &gt; 45 µm, &lt; 1 mm, &gt; 2.96 SG</li> <li>- slime ('SL') &lt; 45 µm</li> <li>- oversize ('OS') &gt; 1 mm</li> </ul> <p>To maintain QA/QC, two duplicate assaying procedures were implemented.</p> <p>Every 20th sample in the laboratory was split and both sub-samples processed through the entire assaying procedure.</p> <p>Two samples were collected at the rig at every 20th sample and subjected to the complete assaying process.</p> <p>Every day, five standard samples were subjected to moisture content, desliming and oversize determinations to ensure samples were not exhibiting bias.</p> <p>1718 individual drill samples underwent mineral assemblage determination via magnetic separation using a Carpc magnet and XRF analysis of magnetic fractions.</p> <p>The percentage of mineral species that constitute the HM was calculated by formula.</p>

Criteria	Explanation	Comment
	<i>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i>	
	<i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i>	<i>All HM assaying for the Kwale Central Dune and South Dune deposits was carried out by Western GeoLabs (WGL) with the exception of some check assays which were carried out either by Diamantina Laboratories (Diamantina) or Independent Diamond Laboratories (IDL).  No blanks, standards or duplicates were submitted by Base Resources as part of the drilling program at the Central Dune and South Dune deposits.</i>
<i>Verification of sampling and assaying</i>	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	<i>Verification of intersections was limited to checking for variance between logged estimates of grade and the assayed grades. Where there was unexplained variance, samples were re-submitted for assay.</i>
	<i>The use of twinned holes.</i>	<i>Twinned holes were used on a limited basis and were used as verification of down hole continuity of geology and assayed grades on a broad basis.</i>
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	<i>The Tiomin data was presented as a Microsoft Access database. No comment may be made about Tiomin's data entry procedures.  Data collected by Base Resources was entered digitally in the field and uploaded to Microsoft Access and managed as a database.</i>
	<i>Discuss any adjustment to assay data.</i>	<i>Minor adjustments to assay data was made prior to model interpolation, including removal of obvious outliers.</i>
<i>Location of data points</i>	<i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resources estimation.</i>	<i>Tiomin surveyed drill holes by differential global positioning system ('DGPS').  Base Resources used a real time kinematic global positioning system ('RTK GPS').</i>
	<i>Specification of the grid system used.</i>	<i>The grid system used is the Arc1960 (zone 37 South). Modelling was conducted in a rotated local mine grid.</i>

Criteria	Explanation	Comment
	<i>Quality and adequacy of topographic control.</i>	<i>A LiDAR survey was conducted in November 2013 and this was used to provide the elevations of the drill holes, and is accurate to +/- 15 cm.</i>
<i>Data spacing and distribution</i>	<i>Data spacing for reporting of Exploration Results.</i>	
	<i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resources and Ore Reserves estimation procedure(s) and classifications applied.</i>	<i>Based on the experience of the competent person, the data spacing and distribution through the drill hole programs is considered adequate for the assigned Mineral Resources classifications. HM grade continuity was verified using variography of the discrete geological domains.</i>
	<i>Whether sample compositing has been applied.</i>	<i>No sample compositing or de-compositing has been applied. The majority of sampling was taken on 3 m intervals with some 1 m intervals drilled for geological boundary definition on a vertical basis. Sample length weighting was used during the interpolation process.</i>
<i>Orientation of data in relation to geological structure</i>	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	<i>Sample orientation is vertical and approximately perpendicular to the dip and strike of the mineralisation resulting in true thickness estimates. Drilling and sampling is carried out on a regular rectangular grid that is broadly aligned and in a ratio consistent with the anisotropy of the orebody.</i>
	<i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i>	<i>There is no apparent bias arising from the orientation of the drill holes with respect to the strike and dip of the deposit.</i>
<i>Sample security</i>	<i>The measures taken to ensure sample security.</i>	<i>All samples are numbered, with samples split and residues stored along with HM sinks.</i>
<i>Audits or reviews</i>	<i>The results of any audits or reviews of sampling techniques and data.</i>	<i>GNJ Consulting Pty Ltd and IHC Robbins conducted reviews of the Mineral Resources estimates completed by Base Resources.</i>

## Section 2: Reporting of Exploration Results

Criteria	Explanation	Comment
<i>Mineral tenement and land tenure status</i>	<i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i>	<i>The resource lies within the granted Special Mining Lease No.23. Mining is currently taking place on the Kwale Central deposit. An ad valorem royalty of 2% is payable to the previous owners, and a 2.5% royalty is payable to the Kenyan government.</i>
	<i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i>	<i>There are no known impediments to the security of tenure for the Kwale Project deposits.</i>
<i>Exploration done by other parties</i>	<i>Acknowledgment and appraisal of exploration by other parties.</i>	<i>The previous owners of the project (Tiomin Kenya Ltd) undertook exploration over the Kwale Project as detailed above.</i>
<i>Geology</i>	<i>Deposit type, geological setting and style of mineralisation.</i>	<i>The Kwale Central Dune and South Dune deposits are aeolian detrital heavy mineral sand deposits.</i>
<i>Drill hole Information</i>	<p><i>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:</i></p> <ul style="list-style-type: none"> <li><i>- easting and northing of the drill hole collar</i></li> <li><i>- elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li><i>- dip and azimuth of the hole</i></li> <li><i>- down hole length and interception depth</i></li> <li><i>- hole length.</i></li> </ul> <p><i>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</i></p>	<i>There are no drill hole results that are considered material to the understanding of the exploration and resource drill out. Identification of the wide and thick zone of mineralisation is made via multiple intersections of drill holes and to list them all would not give the reader any further clarification of the distribution of mineralisation throughout the deposit.</i>

Criteria	Explanation	Comment
<i>Data aggregation methods</i>	<i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</i>	<i>No grade cutting was undertaken, nor compositing or aggregation of grades made prior or post the grade interpolation into the block model. Selection of the bottom basal contacts of the mineralised domains were made based on discrete logging and grade information collected and assayed by Base Resources and Tiomin.</i>
	<i>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</i>	<i>Does not apply</i>
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	<i>No metal equivalents were used for reporting of Mineral Resources.</i>
<i>Relationship between mineralisation widths and intercept lengths</i>	<i>These relationships are particularly important in the reporting of Exploration Results.</i>	<i>All drill holes are vertical and perpendicular to the dip and strike of mineralisation and therefore all interceptions are approximately true thickness.</i>
	<i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.  If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</i>	
<i>Diagrams</i>	<i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i>	<i>Refer to main body of report.</i>

Criteria	Explanation	Comment
<i>Balanced reporting</i>	<i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i>	<i>Reporting of results is restricted to Mineral Resources estimates generated from geological and grade block modelling.</i>
<i>Other substantive exploration data</i>	<i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i>	<i>Bulk density is derived from algorithm.</i>
<i>Further work</i>	<i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i>	<i>Drilling in areas of inferred resource is planned for Q4 2016.</i>
	<i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	<i>Refer to main body of report.</i>

### Section 3: Estimation and Reporting of Mineral Resources

Criteria	Explanation	Comment
<i>Database integrity</i>	<i>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resources estimation purposes.</i>	<p><i>The surveying, logging and assay data is stored in a Microsoft Access database.</i></p> <p><i>The drill logs were recorded electronically at the rig for the Base Resources drilling program, and the hole locations recorded by hand-held GPS at the time of drilling. The hand-held GPS locations were used by the RTK GPS operator to locate the holes.</i></p> <p><i>Each field of the drill log database was verified against allowable entries and any keying errors corrected.</i></p> <p><i>At the completion of each hole, an entry was made to a hand-written drilling diary. The diary recorded the hole name, date, depth, number of samples, time of start and finish, a description of the location of the hole in relation to the last hole and other things. Such a diary provides valuable evidence if there is an error in hole naming or surveying.</i></p>
	<i>Data validation procedures used.</i>	<i>Visual and statistical comparison was undertaken to check the validity of results.</i>
<i>Site visits</i>	<i>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</i>	
	<i>If no site visits have been undertaken indicate why this is the case.</i>	<i>Several site visits were undertaken by the competent person, who previously held a full time position on site and is very familiar with the deposit and sampling history.</i>
<i>Geological interpretation</i>	<i>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</i>	<i>The geological interpretation was undertaken by competent person and site personnel using all logging, sampling data and observations of the test pits. There is a high level of confidence in the geological interpretation.</i>
	<i>Nature of the data used and of any assumptions made.</i>	<i>The interpreted zones were used to control the wireframed zones in the resource model.</i>

Criteria	Explanation	Comment
	<i>The effect, if any, of alternative interpretations on Mineral Resources estimation.</i>	<i>The weight of mutually supportive data weakens the case for a materially divergent geological interpretation.</i>
	<i>The use of geology in guiding and controlling Mineral Resources estimation.</i>	<i>The Mineral Resources estimate was controlled by the geological / mineralised surfaces and beneath the topographic surface.</i>
	<i>The factors affecting continuity both of grade and geology.</i>	<i>The Kwale Project deposits sits on top of an erosional high which is dissected by streams. The extent of geological and mineralised zones is constrained by the erosional surface surrounding the basement high.</i>
<i>Dimensions</i>	<i>The extent and variability of the Mineral Resources expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resources.</i>	<i>The Kwale Central deposit is approximately 2 km long, 600-1400m wide and approximately 20-40 m thick on average. Mineralisation is present from surface over the majority of the deposit.</i>  <i>The Kwale South deposit is approximately 4 km long, 300-900m wide and approximately 12-20 m thick on average. Mineralisation is present from surface over the majority of the deposit.</i>
<i>Estimation and modelling techniques</i>	<i>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</i>	<i>Surpac was used to estimate the Mineral Resources. Inverse distance weighting techniques were used to interpolate assay grades from drill hole samples into the block model and nearest neighbour techniques were used to interpolate index values into the block model. The regular dimensions of the drill grid and the anisotropy of the drilling and sampling grid allowed for the use of inverse distance methodologies as no the clustering of samples was required.</i>  <i>Appropriate and industry standard search ellipses were used to search for data for the interpolation and suitable limitations on the number of samples and the impact of those samples was maintained. An inverse distance weighting of three was used so as not to over smooth the grade interpolations.</i>  <i>Hard domain boundaries were used and these were defined by the geological surfaces that were interpreted.</i>

Criteria	Explanation	Comment
	<i>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resources estimate takes appropriate account of such data.</i>	<i>The resource estimate was checked against previous resource estimates and these were detailed in the report. The final resource estimate for the Central and South Dune deposits was a similar tenor of tonnage and grade as previous resource estimates.  Reconciliation of current mining operations validates the resource estimate with respect to production.</i>
	<i>The assumptions made regarding recovery of by-products.</i>	<i>No assumptions were made during the resource estimation as to the recovery of by-products.</i>
	<i>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</i>	<i>All potentially deleterious elements were included as part of the mineral composite analysis and were included in the modelling report. There is no significant sulphide mineralisation.</i>
	<i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i>	<i>The average parent cell size used for the interpolation for the Kwale Central deposit was approximately the standard drill hole spacing in the X and Y direction. Given that the average drill hole spacing was 100 m east-west and 100 m north-south and with 3 m samples the parent cell size was 50 x 50 x 3 m (where the Z or vertical direction of the cell was nominated as the same distance as the sample length).  For the Kwale South deposit the average parent cell size used was approximately half that for the average drill hole spacing in the north-south and east-west directions and the same as the dominant sample spacing down hole. This resulted in a parent cell size of 50 x 50 x 3 m.</i>
	<i>Any assumptions behind modelling of selective mining units.</i>	<i>No assumptions were made regarding the modelling of selective mining units however it is assumed that a form of dry mining will be undertaken and the cell size and the sub cell splitting will allow for an appropriate dry mining ore reserve to be prepared. Any other mining methodology will be more than adequately catered for with the parent cell size that was selected for the modelling exercise for each deposit.</i>

Criteria	Explanation	Comment
	<i>Any assumptions about correlation between variables.</i>	<i>No assumptions were made about correlation between variables.</i>
	<i>Description of how the geological interpretation was used to control the resource estimates.</i>	<i>The Mineral Resources estimate was controlled to an extent by the geological / mineralisation and basement surfaces.</i>
	<i>Discussion of basis for using or not using grade cutting or capping.</i>	<i>Grade cutting or capping was not used during the interpolation because of the regular nature of sample spacing and the fact that samples were not clustered nor wide spaced to an extent where elevated samples could have a deleterious impact on the resource estimation.</i>  <i>Sample distributions were reviewed and no extreme outliers were identified either high or low that necessitated any grade cutting or capping.</i>
	<i>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</i>	<i>Validation of grade interpolations were done visually In Surpac by loading model and drill hole files and annotating and colouring and using filtering to check for the appropriateness of interpolations. Statistical distributions were prepared for model zones from both drill holes and the model to compare the effectiveness of the interpolation. Along strike distributions of section line averages (swath plots) for drill holes and models were also prepared for comparison purposes.</i>
<i>Moisture</i>	<i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</i>	<i>Tonnages were estimated an assumed dry basis. This is based on test work carried out on the bulk density which was determined on a dry weight basis.</i>
<i>Cut-off parameters</i>	<i>The basis of the adopted cut-off grade(s) or quality parameters applied.</i>	<i>Cut-off grades for HM from 1 to 5% were used to prepare the reported resource estimate. These cut-off grades were based on current operating parameters at the Kwale operation. The cut-off grade used at the mine is between 2 and 3% HM.</i>

Criteria	Explanation	Comment
<i>Mining factors or assumptions</i>	<i>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</i>	<p><i>The mining method is assumed to be by D11 dozers feeding a dozer trap, supplemented by high pressure hydraulic mining. The minimum mining block size for the dozers is about 160 x 80 metres. Blocks less than 5m thick would require some type of auxiliary mining. Only limited blending of ore may be achieved with the dozers.</i></p> <p><i>The minimum mining block size for the hydraulic miner is larger, but the ore may be blended from top of face to bottom. The minimum face height for hydraulic mining is yet to be determined.</i></p> <p><i>Neither method is considered a selective mining method, but the nature of mineralisation, being a single thick zone, does not require selectivity.</i></p> <p><i>Given the thickness of the Kwale South deposit, dilution is not considered to be an issue for dozer trap.</i></p>
<i>Metallurgical factors or assumptions</i>	<i>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</i>	<i>The metallurgical recovery and separability factors are similar to other mineral sand operations. There are no fine grained lower shoreface sediments. The level of kyanite is greater than at other deposits, and the mineral separation plant has been designed to cater for this. Recoveries of ilmenite, rutile and zircon are 98.2%, 93.3% and 74.5% respectively from pit to product at the neighbouring Kwale Central mine.</i>

Criteria	Explanation	Comment
<i>Environmental factors or assumptions</i>	<i>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</i>	<i>Thickened clay tailings are being disposed inside a tailing storage facility that is being constructed from sand tailings. The facility will be complete by March 2018 and from then sand tailing will take place in the mined void. Separation plant tailing is disposed with the sand tails.</i>
<i>Bulk density</i>	<i>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</i>	<i>An extensive program of test work was designed by GNJ Consulting and implemented by Base Resources utilising a procedure to collect Troxler nuclear density meter measurements and HM and SL assays. These were used in the development of an algorithm to estimate the bulk density of in situ material within the deposit based on variable HM and clay (SL).</i>
	<i>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.</i>	<i>This sampling was undertaken within the mineralised ore zones of the Kwale Central deposit during mining operations and representative sampling was undertaken for those domains.  It is considered appropriate to utilise the new bulk density algorithm for the Kwale South deposit given that the geological units are closely related and part of the same sequence (given the close local proximity this is also a reasonable assumption).</i>

Criteria	Explanation	Comment
	<i>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</i>	<p><i>Assumptions were made regarding packing factor of sand, bulk density of HM, sand and clay in the development of the bulk density algorithm. The algorithm was refined using nuclear density meter measurement of the soil profile being sampled.</i></p> <p><i>Ongoing test work is planned to take place in order to further refine and build a database of results to support the ongoing use of the bulk density algorithm.</i></p> <p><i>Once mining commences on the Kwale South deposit bulk density test work will continue to be undertaken.</i></p> <p><i>The use of a bulk density algorithm is considered industry standard practice for the estimation of mineral sands Mineral Resources.</i></p>
<i>Classification</i>	<i>The basis for the classification of the Mineral Resources into varying confidence categories.</i>	<i>The resource classification for the Kwale Central Dune and South Dune deposits was based on the following criteria: drill hole spacing; experimental semi-variograms; the quality of QA/QC processes; and the distribution of mineral assemblage samples.</i>
	<i>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</i>	<i>The classification of the Measured and Indicated Mineral Resources for the Kwale Central Dune and South Dune deposits were supported by all of the criteria as noted above.</i>
	<i>Whether the result appropriately reflects the Competent Person's view of the deposit.</i>	<i>The Competent Person considers that the result appropriately reflects a reasonable view of the deposit categorisation.</i>
<i>Audits or reviews.</i>	<i>The results of any audits or reviews of Mineral Resources estimate.</i>	<i>GNJ consulting and IHC Robbins undertook audits of the resource estimates, and found them to be suitable for reserve optimisation</i>

Criteria	Explanation	Comment
<i>Discussion of relative accuracy/ confidence</i>	<i>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resources estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</i>	<i>There was no geostatistical process undertaken for the interpolation (such as variography or conditional simulation) during the resource estimation of the Kwale Central Dune and South Dune deposits.  However, qualitative assessment of the Mineral Resources estimate along with comparison with previous resource estimates (within a tolerance of +/- 5 per cent) points to the robustness of this particular resource estimation exercise.</i>
	<i>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</i>	<i>The estimates are global</i>
	<i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i>	<i>Mine site reconciliations show close comparison between production numbers and estimated values for Kwale Central.</i>

Section 4: Estimation and Reporting of Ore Reserves

Criteria	Explanation	Comment
<i>Mineral Resources estimate for conversion to Ore Reserves</i>	<p><i>Description of the Mineral Resources estimate used as a basis for the conversion to Ore Reserves.</i></p> <p><i>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</i></p>	<p><i>Base Titanium's 2016 Kwale Mineral Resources estimate.</i></p> <p><i>Mineral Resources are inclusive of the Ore Reserves.</i></p>
<i>Site visits</i>	<p><i>Comment on any site visits undertaken by the Competent Person and the outcome of those visits. If no site visits have been undertaken indicate why this is the case.</i></p>	<p><i>One of the competent persons works on site at the time the Ore Reserves estimate was completed and visited the pit several times per week.</i></p>
<i>Study status</i>	<p><i>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</i></p>	<p><i>The most recent study prior to operations commencing was a detailed feasibility study.</i></p> <p><i>The project is now operational and study inputs are based on operational costs, design and mine plan.</i></p>
<i>Cut-off parameters</i>	<p><i>The basis of the cut-off grade(s) or quality parameters applied.</i></p>	<p><i>Cut-off is economic by maximum cash flow method. A value model is constructed that assigns costs and revenue after application of appropriate process recoveries.</i></p> <p><i>There is no ore/waste definition due to the mining method employed and dunal mineralisation.</i></p>

Criteria	Explanation	Comment
<i>Mining factors or assumptions</i>	<p><i>The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resources to Ore Reserves (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).</i></p> <p><i>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</i></p> <p><i>The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.</i></p> <p><i>The major assumptions made and Mineral Resources model used for pit and stope optimisation (if appropriate).</i></p> <p><i>The mining dilution factors used.</i></p> <p><i>The mining recovery factors used.</i></p> <p><i>Any minimum mining widths used.</i></p> <p><i>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</i></p> <p><i>The infrastructure requirements of the selected mining methods.</i></p>	<p><i>Mineral Resources are converted to Ore Reserves by pit optimization as a guide for detailed design and scheduling.</i></p> <p><i>The project is currently being mined using a dozer trap method (DMU) and is about to commence supplementary feed using a hydraulic mining unit (HMU).</i></p> <p><i>The pit slopes are generally about 50 degrees in Ore1 and 45 degrees in Ore2 and 3 and the study uses more conservative slope angles of 35 degrees.</i></p> <p><i>The ore is mined in blocks measuring between 140 x 70 meters (Central Dune deposit) and 180 x 90 meters (South Dune deposit). The geometry of the deposit is large enough that minimum mining width never drops below these block sizes.</i></p> <p><i>No inferred material is included in the study.</i></p> <p><i>There is no ore/waste discrimination and sub-economic material that cannot be selectively mined is included as planned dilution in the ore feed.</i></p> <p><i>Mining Recovery of Ore3 material is discounted by truncating design to no more than 1m of this material.</i></p> <p><i>Mining Recovery of Hardness 5 material is discounted by raising pit floor to exclude from design.</i></p> <p><i>Mining Recovery makes provision for a 0.2 m topsoil profile.</i></p> <p><i>Infrastructure is in place and operational.</i></p>

Criteria	Explanation	Comment
<p><i>Metallurgical factors or assumptions</i></p>	<p><i>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</i></p> <p><i>Whether the metallurgical process is well-tested technology or novel in nature.</i></p> <p><i>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</i></p> <p><i>Any assumptions or allowances made for deleterious elements.</i></p> <p><i>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</i></p> <p><i>For minerals that are defined by a specification, has the Ore Reserves estimation been based on the appropriate mineralogy to meet the specifications?</i></p>	<p><i>The ore is processed via screens, thickeners and spirals as is almost every other mineral sands operation to produce a concentrate. This is processed using magnetic and conductor separators to produce ilmenite and rutile products. The remaining material is further processed using classifiers, wet tables and cleaned with conductor separators to produce zircon and recover some more rutile.</i></p> <p><i>This is not an unusual process for mineral sands, but has been tailored to suit the higher than normal proportion of kyanite, which has similar physical properties to zircon.</i></p> <p><i>The plant design was based on the results of metallurgical test work conducted as part of the definitive feasibility study.</i></p> <p><i>Test work on site is ongoing to find ways to improve zircon and rutile recovery.</i></p> <p><i>Wet plant design recovery is 96.3%, 93.3%, 95.7% for Ilmenite, Rutile and Zircon respectively.</i></p> <p><i>Dry plant design recovery is 99%, 99%, 77.8% for Ilmenite, Rutile and Zircon respectively.</i></p> <p><i>The updated Mineral Resources estimate upon which this Ore Reserves incorporates updated mineralogical assessment of 1718 individual drill samples.</i></p>

Criteria	Explanation	Comment
<i>Environmental</i>	<p><i>The status of studies of potential environmental impacts of the mining and processing operation.</i></p> <p><i>Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.</i></p>	<p><i>All environmental approvals are in place and there is also a monitoring and reporting process.</i></p> <p><i>There is no waste material.</i></p> <p><i>There are two tailings streams: sand and clay. The sand tails are clean sand having been washed in concentrator. The clay tails are flocculated and thickened prior to pumping.</i></p> <p><i>There is an approved tailing storage facility, which is a dam with walls constructed from sand tails to contain the clay tails.</i></p>
<i>Infrastructure</i>	<p><i>The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.</i></p>	<p><i>The plant has been constructed. A 132 kV power line has been erected and supplies electricity to the site. An 8km bitumen access road from the highway has been constructed. There is a camp that was built to house construction employees that is being used to house operational shift workers. Base Resources constructed a dedicated storage shed ship loading facility to export bulk products; containerised product is shipped through Mombasa Port's container terminal. An 8 G1 dam on the Mukurumudzi River has been constructed to supply most of the water for the project, supplemented by a bore field.</i></p>

Criteria	Explanation	Comment
Costs	<p><i>The derivation of, or assumptions made, regarding projected capital costs in the study.</i></p> <p><i>The methodology used to estimate operating costs.</i></p> <p><i>Allowances made for the content of deleterious elements.</i></p> <p><i>The source of exchange rates used in the study.</i></p> <p><i>Derivation of transportation charges.</i></p> <p><i>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</i></p> <p><i>The allowances made for royalties payable, both Government and private.</i></p>	<p><i>Capital has been expended and is sunk.</i></p> <p><i>Operating costs were collated and supplied by the site from the latest operating budget.</i></p> <p><i>Deleterious minerals kyanite and monazite are present. A large section of the plant is devoted to separating kyanite from zircon. Monazite is present in small amounts and it is mixed with the slime tails and disposed of.</i></p> <p><i>All Revenue and Costs inputs are in USD.</i></p> <p><i>The cost of transportation from the plant to the port is in accordance with the transport contract.</i></p> <p><i>Treatment costs were derived from the actual costs from May 2015 to April 2016.</i></p> <p><i>Royalties of 2.5% and 2% are payable to the Kenyan government and the previous owners respectively, though for this study a more conservative 7% has been used (incorporating increased Kenyan government royalty).</i></p>
Revenue factors	<p><i>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</i></p> <p><i>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</i></p>	<p><i>Sales price forecasts current at the time of the Ore Reserves estimate were used.</i></p> <p><i>Product price forecasts are supplied by TZMI, industry consultants.</i></p>

Criteria	Explanation	Comment
Market assessment	<p>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</p> <p>A customer and competitor analysis along with the identification of likely market windows for the product.</p> <p>Price and volume forecasts and the basis for these forecasts.</p> <p>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</p>	<p>Demand for mineral sands products has generally been closely linked to growth in global GDP. Historically demand has grown on average at 3% per annum. This has become more volatile in recent years due to very large swings in re-stocking and de-stocking events throughout the supply chains during and following the global financial crisis. In the case of zircon the lack of availability and very high prices during 2010-2012 led to significant substitution in the main end use sector (ceramics). There is growing consensus that this period of volatility has now passed and demand will again be aligned closely with GDP growth moving forward. Base Resources performs its own internal assessment of the market and also subscribes to the various market outlook and commentaries provided by TZMI. The latest consensus indicates prices for ilmenite and rutile firmly improving over the next 12 months while prices for zircon are expected to remain relatively flat.</p>
Economic	<p>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</p> <p>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</p>	<p>As an operating mine with sunk construction cost, no feasibility study will be undertaken as part of this Ore Reserves estimation. However, the inputs to the optimization process are the price forecasts of TZMI and operating cost data from Base Resources.</p> <p>Economic analysis is based on discounted operating surplus (at 10% discount rate) and sensitivities +/- 30% have been conducted on individual product Revenue, Operating Fixed and Variable costs.</p> <p>A 'stressed' flat product price model has also been considered in economic analysis and the project remains operationally cash positive under this model.</p>
Social	<p>The status of agreements with key stakeholders and matters leading to social licence to operate.</p>	<p>Base Resources has all agreements in place to allow ongoing mining and processing. The company operates a comprehensive Stakeholder Engagement Plan in concert with a Community Development Plan. Close liaison with stakeholders is maintained through the operation of series of liaison committees representing those affected by the mines presence.</p>

Criteria	Explanation	Comment
<i>Other</i>	<p><i>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</i></p> <p><i>Any identified material naturally occurring risks.</i></p> <p><i>The status of material legal agreements and marketing arrangements.</i></p> <p><i>The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study.</i></p> <p><i>Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</i></p>	<p><i>The material legal agreements relating to the Kwale Mine are the Special Mining Lease No.23 and Investment Agreement with the Government of Kenya. Both legal instruments remain valid, legally binding and enforceable as warranted by the Government most recently in September 2012 in a direct agreement with the company and the Lenders.</i></p>
<i>Classification</i>	<p><i>The basis for the classification of the Ore Reserves into varying confidence categories.</i></p> <p><i>Whether the result appropriately reflects the Competent Person's view of the deposit.</i></p> <p><i>The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</i></p>	<p><i>Based on the geological resource estimation categories: measured = proved, indicated = probable, inferred = excluded from reserve estimation.</i></p>
<i>Audits or reviews</i>	<p><i>The results of any audits or reviews of Ore Reserves estimates.</i></p>	<p><i>No audit or review of this Ore Reserves estimate has been undertaken.</i></p>

Criteria	Explanation	Comment
<p><i>Discussion of relative accuracy/ confidence</i></p>	<p><i>Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserves estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</i></p> <p><i>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</i></p> <p><i>Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserves viability, or for which there are remaining areas of uncertainty at the current study stage.</i></p> <p><i>It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i></p>	<p><i>Experience of mining at the Central Dune deposit indicates that the lowest geological domain (Ore3) has exaggerated thickness and grade of HM in the model when compared to reality. Because of this experience, the current Mineral Resources estimate incorporates revised geological interpretation of geological zones which reduces the amount of Ore3 in the Mineral Resources. In addition, during mine design, the thickness of Ore3 has been limited in this Ore Reserves estimate to a maximum of 1m.</i></p> <p><i>The maximum thickness of Ore3 allowed for in the Ore Reserves has been validated through reconciliation of actual mine recovery of this ore zone through mine operations.</i></p> <p><i>No particular modifying factors have a material impact on Ore Reserves viability, even the limiting of Ore3 to 1m only removes low grade marginal material. The bulk of the operating margin is derived from the overlying geological zones: Ore 1, Ore 2 and Ore25.</i></p> <p><i>The statement refers to global estimates.</i></p>

## GLOSSARY

<b>Mineral Resources</b>	Mineral Resources are a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are subdivided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.
<b>Measured Resource</b>	A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.
<b>Inferred Resource</b>	An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.
<b>Indicated Resource</b>	An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.
<b>Ore Reserves</b>	Ore Reserves are the economically mineable part of Measured and/or Indicated Mineral Resources.
<b>Competent Person</b>	The JORC Code requires that a Competent Person must be a Member or Fellow of The Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a 'Recognised Professional Organisation'.  A Competent Person must have a minimum of five years' experience working with the style of mineralisation or type of deposit under consideration and relevant to the activity which that person is undertaking.
<b>JORC</b>	The Joint Ore Reserves Committee: The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ('the JORC Code'), as published by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia.
<b>Variography</b>	A geostatistical method that investigates the spatial variability and dependence of grade within a deposit. This may also include a directional analysis.
<b>LIDAR survey</b>	LIDAR is a remote sensing technology that measures distance by illuminating a target with a laser and analysing the reflected light.
<b>DTM</b>	Digital Terrain Model
<b>XRF analysis</b>	A spectroscopic method used to determine the chemical composition of a material through analysis of secondary X-ray emissions, generated by excitation of a sample with primary X-rays that are characteristic of a particular element.
<b>Inverse distance weighting</b>	A statistical interpolation method whereby the influence of data points within a defined neighborhood around an interpolated point decreases as a function of distance.

# CORPORATE PROFILE

Base Resources Limited ABN 88 125 546 910

## DIRECTORS

<b>Keith Spence</b>	Non-Executive Chairman
<b>Tim Carstens</b>	Managing Director
<b>Colin Bwye</b>	Executive Director

<b>Sam Willis</b>	Non-Executive Director
<b>Michael Anderson</b>	Non-Executive Director
<b>Michael Stirzaker</b>	Non-Executive Director
<b>Malcolm Macpherson</b>	Non-Executive Director

## COMPANY SECRETARY

Chadwick Poletti

## NOMINATED ADVISOR & BROKER

### RFC Ambrian Limited

As Nominated Advisor:

Andrew Thomson or Stephen Allen

Phone: +61 (0)8 9480 2500

As Broker:

Jonathan Williams

Phone: +44 20 3440 6800

## SHARE REGISTRY

### ASX

#### Computershare Investor Services Pty Limited

Level 11, 172 St Georges Terrace

PERTH WA 6000

Enquiries: 1300 850 505 / +61 (3) 9415 4000

[www.computershare.com.au](http://www.computershare.com.au)

### AIM

#### Computershare Investor Services PLC

The Pavilions

Bridgwater Road

BRISTOL BS99 6ZZ

Enquiries: +44 (0) 870 702 0003

[www.computershare.co.uk](http://www.computershare.co.uk)

## AUSTRALIA MEDIA RELATIONS

### Cannings Purple

Annette Ellis / Andrew Rowell

Email: [aellis@canningspurple.com.au](mailto:aellis@canningspurple.com.au) /  
[arowell@canningspurple.com.au](mailto:arowell@canningspurple.com.au)

Phone: +61 (0)8 6314 6300

## UK MEDIA RELATIONS

### Tavistock Communications

Jos Simson / Emily Fenton

Phone: +44 (0) 207 920 3150

## KENYA MEDIA RELATIONS

### Africappractice (East Africa)

Evelyn Njoroge / James Njuguna / Joan Kimani

Phone: +254 (0)20 239 6899

Email: [jkimani@africappractice.com](mailto:jkimani@africappractice.com)

## PRINCIPAL & REGISTERED OFFICE

Level 1, 50 Kings Park Road

West Perth WA 6005

Email: [info@baseresources.com.au](mailto:info@baseresources.com.au)

Phone: +61 (0)8 9413 7400

Fax: +61 (0)8 9322 8912