

Zone	AT	Description	
E	5m	Supergene-enriched ore below Kalahari unconformity.	
V	3m	Banded braunite lutite with alternating bands of small and large (2mm and greater) pink carbonate ovoids. Ovoids are of ellipsoidal shape and larger ones are zoned with white core and pink rim.	
W	3.5m	Braunite lutite containing alternating bands of small and medium sized (1mm-2mm) pink and white carbonate ovoids. Banded appearance at the top grades into laminated appearance towards the bottom, with the presence of thin white carbonate laminae.	
X	X1	1.5m	Massive braunite lutite, containing large spherical, dark grey carbonate ovoids and lenticles.
	X2	2m	Braunite lutite with irregular-shaped, grey and white, medium to large carbonate ovoids, as well as white carbonate lenticles. Mottled appearance.
	X3	2m	Braunite lutite containing medium and small, pink spherical ovoids, with occasional larger zoned ovoids.
Y	Y1	1m	Laminated dark grey braunite lutite with small white carbonate ovoids and thin white carbonate laminae.
	Y2	2m	Braunite lutite with brown and grey carbonate laminae with interspersed small and medium sized red carbonate ovoids.
	Y3	5m	Braunite lutite with light grey, brown and white carbonate laminae, with occasional small white carbonate ovoids and thin red carbonate laminae. Laminated appearance.
	Y4	1m	Braunite lutite with brown and grey bands and many small and medium-sized red ovoids. Banded appearance with distinct red colour.
Z	3.5m	Banded appearance with alternating bands rich in small and medium sized white ovoids and thin white carbonate lenses.	
M	M1	1.5m	Massively textured braunite lutite, containing medium sized, grey and white carbonate ovoids and lenses.
	M2	0.5m	Massively textured braunite lutite with alternating bands of white carbonate ovoids and lenses.
	M3	3.5m	Massively textured braunite lutite, with alternating bands containing irregular shaped white ovoids and bands characterized by white carbonate lenses. Irregular shape of carbonate ovoids is responsible for mottled appearance.
	M4	2m	Massively textured braunite lutite, containing small to medium sized and irregular shaped white carbonate ovoids. Very few thin white carbonate lenses. Mottled appearance.
C	C1	1m	Laminated braunite lutite with brown and black laminae. Abundant medium-sized red carbonate ovoids.
	C2	5m	Laminated braunite lutite with light brown and black laminae. Abundant white carbonate laminae and occasional red carbonate ovoids in black laminae. Overall red-brown laminated appearance.
N	3.5m	Laminated braunite lutite with many medium sized white carbonate ovoids and thin white carbonate laminae.	
B	2m	Laminated brownish-red jacobsonite lutite, with medium sized carbonate ovoids and pink-white carbonate laminae.	
L	3m	Laminated hematite lutite with thick pink carbonate laminae.	

Figure 2.3. Lithostratigraphic subdivision of the manganese ore bed at Mamatwan mine. AT-average thickness of zone/subzone in study area (modified after Preston, 2001).