

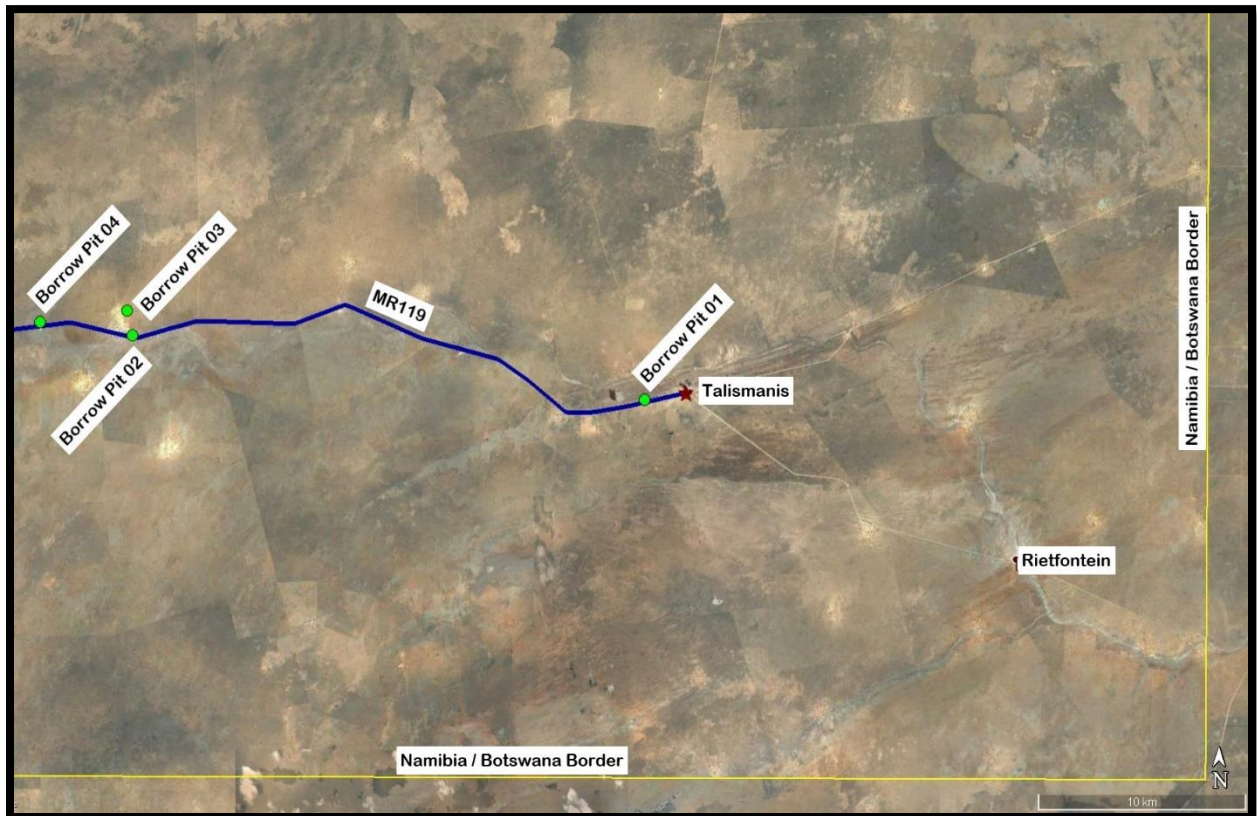
## Borrow Pits

Suitable materials are needed for the construction of the selected layer, subbase, shoulder, gravel wearing course and base course. Fill material is also required to ensure a vertical alignment appropriate for the chosen design speed.

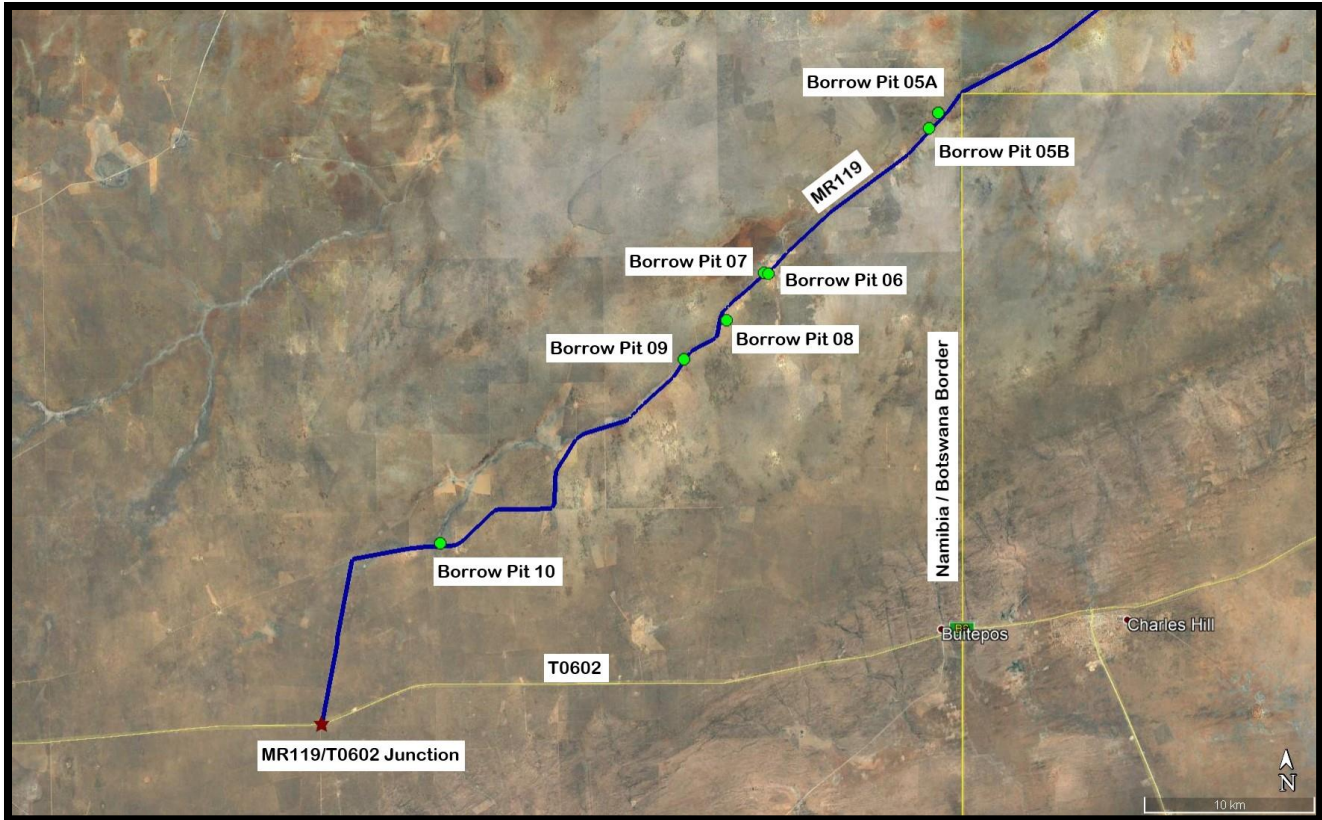
To achieve the abovementioned, suitable material is required from borrow pits. These pits are opened using various heavy-duty machines and the material is hauled from the pit to the required sections of the road where the material is needed. It is imperative that the material excavated complies with the engineering standards required for the construction of the road and is therefore tested on a regular basis.

Another important issue is hauling distance. The borrow pits cannot be situated too far from the section of the road where the material is needed, therefore borrow pits cannot be located too far apart (incurring costs due to hauling).

It is anticipated that a total of eleven (11) borrow pits will be used for this project. The following table depicts the relevant information of each:



Borrow Pit :		<b>01</b>	
Location :	142+600 km		LHS
Distance to CL :	150		m
Coordinate (Lat and Long)	21° 50' 46.5215" S		20° 44' 13.6464" E
Lo 22/19 (Y and X)	-179698.8357		-16059.10041
Borrow Pit :		<b>02</b>	
Location :	116+600 km		LHS
Distance to CL :	100		m
Coordinate (Lat and Long)	21° 49' 13.4580" S		20° 29' 54.8700" E
Lo 22/19 (Y and X)	-155060.2343		-19181.45664
Borrow Pit :		<b>03</b>	
Location :	116+600 km		LHS
Distance to CL :	1150		m
Coordinate (Lat and Long)	21° 48' 36.8820" S		20° 29' 44.1528" E
Lo 22/19 (Y and X)	-154763.2817		-20309.70922
Borrow Pit :		<b>04</b>	
Location :	112+600 km		LHS
Distance to CL :	200		m
Coordinate (Lat and Long)	21° 48' 54.7344" S		20° 27' 19.8108" E
Lo 22/19 (Y and X)	-150611.3565		-19800.17183
Borrow Pit :		<b>05A</b>	
Location :	55+900 km		LHS
Distance to CL :	350		m
Coordinate (Lat and Long)	22° 00' 37.7028" S		19° 59' 08.0700" E
Lo 22/19 (Y and X)	-101876.5133		1439.129951
Borrow Pit :		<b>05B</b>	
Location :	54+900 km		LHS
Distance to CL :	150		m
Coordinate (Lat and Long)	22° 01' 04.1448" S		19° 58' 51.1644" E
Lo 22/19 (Y and X)	-101386.3633		2249.403934



Borrow Pit :		<b>06</b>	
Location :	42+000 km		LHS
Distance to CL :	100		m
Coordinate (Lat and Long)	22° 05' 37.7304" S		19° 53' 12.1272" E
Lo 22/19 (Y and X)	-91612.91606		10605.73868
Borrow Pit :		<b>07</b>	
Location :	42+100 km		RHS
Distance to CL :	100		m
Coordinate (Lat and Long)	22° 05' 40.3476" S		19° 53' 19.1940" E
Lo 22/19 (Y and X)	-91815.03178		10687.42726
Borrow Pit :		<b>08</b>	
Location :	38+300 km		RHS
Distance to CL :	100		m
Coordinate (Lat and Long)	22° 07' 13.1916" S		19° 51' 40.7448" E
Lo 22/19 (Y and X)	-88976.63076		13527.18897
Borrow Pit :		<b>09</b>	
Location :	34+800 km		LHS
Distance to CL :	100		m
Coordinate (Lat and Long)	22° 08' 25.1988" S		19° 50' 25.5012" E
Lo 22/19 (Y and X)	-86807.78519		15730.13935

Borrow Pit :	15+000 km	<b>10</b>	LHS
Location :	200		m
Distance to CL :	22° 14' 06.6660" S		19° 42' 07.5816" E
Coordinate (Lat and Long)	-72490.19526		26161.43378
Lo 22/19 (Y and X)			