

# Greenvale Silicon Pty Ltd

**DIATOMACEOUS EARTH INVESTMENTS PTY. LTD.  
GREENVALE SILICON PTY. LTD.  
(Greenvale Silicon Joint Venture - GVSJV)**

## **EXPLORATION PERMITS FOR MINERALS (EPM) 25110**

**Partial Relinquishment Report  
For 37 Sub Blocks Relinquished 12 December 2017**



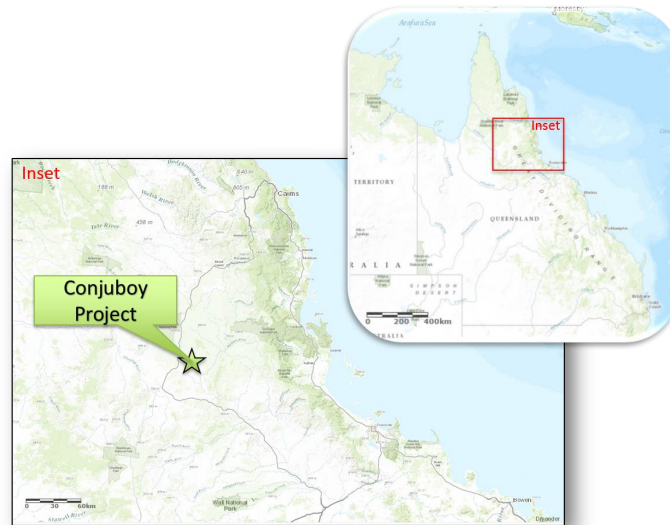
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Agripower Australia Limited – 20 February 2018

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Cover Photo: Examples of mapping sites where diatomite has been identified and sampled within EPM25110  
(Note Site – 100919 is weathered basement and not part of the diatomaceous earth sequence.  
This Cambrian sequence forms the base of the diatomite deposit)

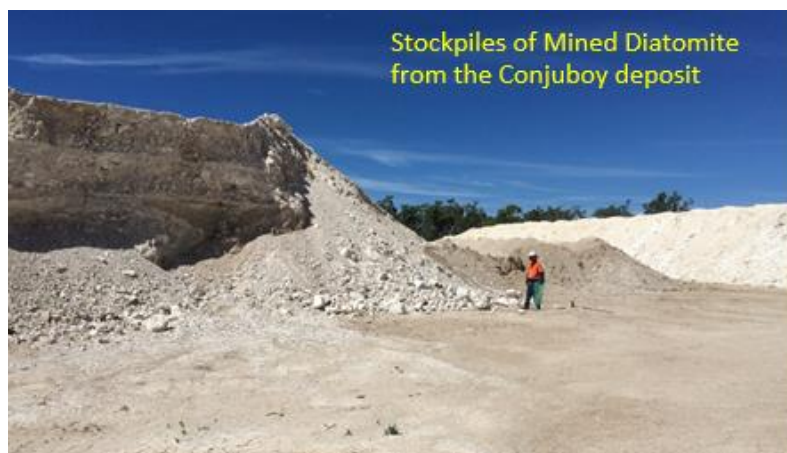
## SUMMARY

Diatomaceous Earth Investments Pty Ltd. (“DEI”) and Greenvale Silicon Pty. Ltd. (“GVS”), under Joint Venture Agreement, namely, “Greenvale Silicon Joint Venture (GVSJV)” hold two Mineral Development Licences (MDL’s 325 and 326), four Exploration Permits for Minerals (EPM’s 13236, EPM13995, EPM19573 and EPM25110); and one Mining Lease (ML 10279) over the Conjuboy Diatomaceous Earth Deposit.



These tenements cover the Conjuboy Diatomaceous Earth Deposit, 48km north of the town of Greenvale, North Queensland. The project comprises a diatomite-bearing sequence.

Diatomaceous Earth, more commonly known as “Diatomite” in as an industrial mineral and are found more commonly in sedimentary successions formed from collections of the fossilized skeletal remains of single-celled aquatic algae.



This report is presented as the partial relinquishment report of 37 sub-blocks relinquished from EPM25110 that was submitted to the Department of Natural Resources and Mines on 8 December 2017 and approved as same by an authorised delegate for the Minister on 12 December 2017.

The relinquished areas of EPM25110 lie considered to be outside of the geological, geophysical and geochemical region of interest in terms of the GVSJV exploration model. The area has also been fully assessed by the GVSJV geology team by ongoing field mapping and it is understood that the area does not contain diatomite bearing sequences of economic interest to the group.

## **TABLE OF CONTENTS**

<b>SUMMARY.....</b>	<b>2</b>
<b>1. INTRODUCTION .....</b>	<b>6</b>
1.1. LOCATION .....	6
1.2. TOPOGRAPHY .....	7
<b>2. GENERAL TENURE INFORMATION .....</b>	<b>8</b>
2.1. PERCENTAGE HOLDING .....	8
2.2. GRANT AND EXPIRY DATES FOR THE PROJECT TENEMENTS.....	8
2.3. BLOCKS AND SUB-BLOCK INFORMATION EPM25110 .....	9
2.4. PARTIAL RELINQUISHMENTS .....	10
<b>3. LAND USE AND NATIVE TITLE.....</b>	<b>13</b>
3.1. NATIVE TITLE .....	13
3.2. LAND USE AND BACKGROUND TENURE .....	13
<b>4. GEOLOGICAL DATA .....</b>	<b>14</b>
4.1. REGIONAL GEOLOGY .....	14
4.2. BASIN ARCHITECTURE AND LOCAL GEOLOGY .....	16
4.3. LOCAL GEOLOGY OF THE RELINQUISHED AREA OF EPM25110.....	18
<b>5. EXPLORATION RATIONALE .....</b>	<b>21</b>
<b>6. REASON THE HOLDER HAS PARTIALLY RELINQUISHED THE AREA .....</b>	<b>22</b>

## **LIST OF FIGURES and TABLES**

Figure 1 - Conjuboy Project Location .....	6
Figure 2 – Typical Local topographic variations seen at the Project Site .....	7
Figure 3 - Conjuboy Diatomaceous Earth Project Tenements .....	9
Figure 4 – Partial Relinquishment area of EPM25110 .....	11
Figure 5 – Comparison maps before and after partial relinquishment of 37 sub-blocks from EPM25110 .....	12
Figure 6 – Background Tenure behind EPM25110 .....	13
Figure 7 – Background Tenure behind EPM25110 and the relationship of Landholders with the relinquished sub-blocks .....	14
Figure 8 – Regional Geology of the Conjuboy Project Tenement Portfolio .....	15
Figure 9 – Basin Architecture where tectonic movement from the south stopped river flow and formed an inland lake .....	16
Figure 10 – Chemical weathering processes that form a regolith profile .....	17
Figure 11 – Schematic Basin Architecture .....	18
Figure 12 – Satellite image of the relinquished parts of EPM25110 .....	19
Figure 13 – Typical Pisolitic laterite profile sitting atop of older weathered Cambrian Basement sequences within the project area .....	20
Figure 14 – Typical illustration of the weathered basement Cambrian Volcanics that underlie the Diatomite resources at the Conjuboy Diatomite Deposit. ....	20
Figure 15 - Diatomaceous Earth Resources within the Tenement Portfolio – Dec 2017 .....	21
Table 1 - Percentage Holdings of Diatomaceous Earth Joint Venture Partners .....	8
Table 2 - Conjuboy DE Project Tenement Assignments .....	8
Table 3 - Tenement Details for the EPM25110 prior to the partial relinquishment being approved .....	10
Table 4 - The 37 sub-blocks to be relinquished from the tenure are detailed as follows: .....	11
Table 5 - Tenement Details of EPM25110 after the 37 sub block partial relinquishment was approved .....	12
Table 6 - EPM25110 – Background Tenure summary .....	13
Table 7 – Typical Geological mapping sections identified at the Project Site .....	17

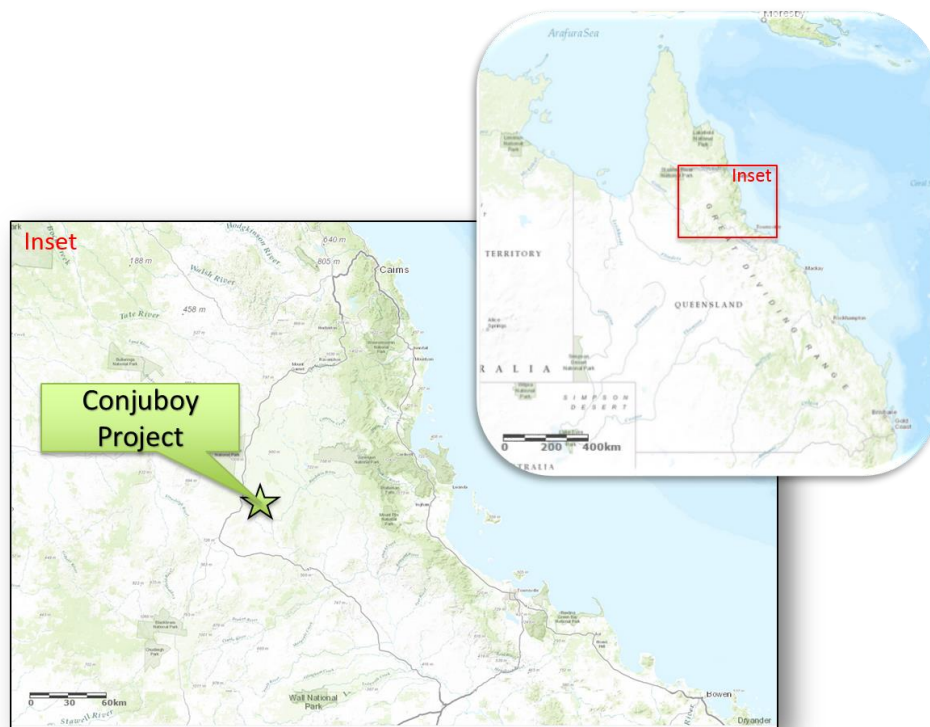
# 1. INTRODUCTION

The information contained within this report relates to exploration activities conducted over and on the 37 sub-blocks that were partially relinquished from EPM25110 up until the partial relinquishment approval date of 12 December 2017.

## 1.1. Location

The Conjuboy Project area located some 48km northwest of Greenvale, North Queensland (Figure 1), and is located equidistantly from both Cairns and Townsville.

Diatomaceous Earth Investments Pty Ltd. (“DEI”) and Greenvale Silicon Pty. Ltd. (“GVS”), under Joint Venture Agreement, “Greenvale Silicon Joint Venture (GVSJV)” hold two Mineral Development Licences (MDL’s 325 and 326), four Exploration Permits for Minerals (EPM’s 13236 EPM13995, EPM19573 and EPM25110); and one Mining Lease (ML 10279) over the Conjuboy Diatomaceous Earth Deposit.



**Figure 1 - Conjuboy Project Location**

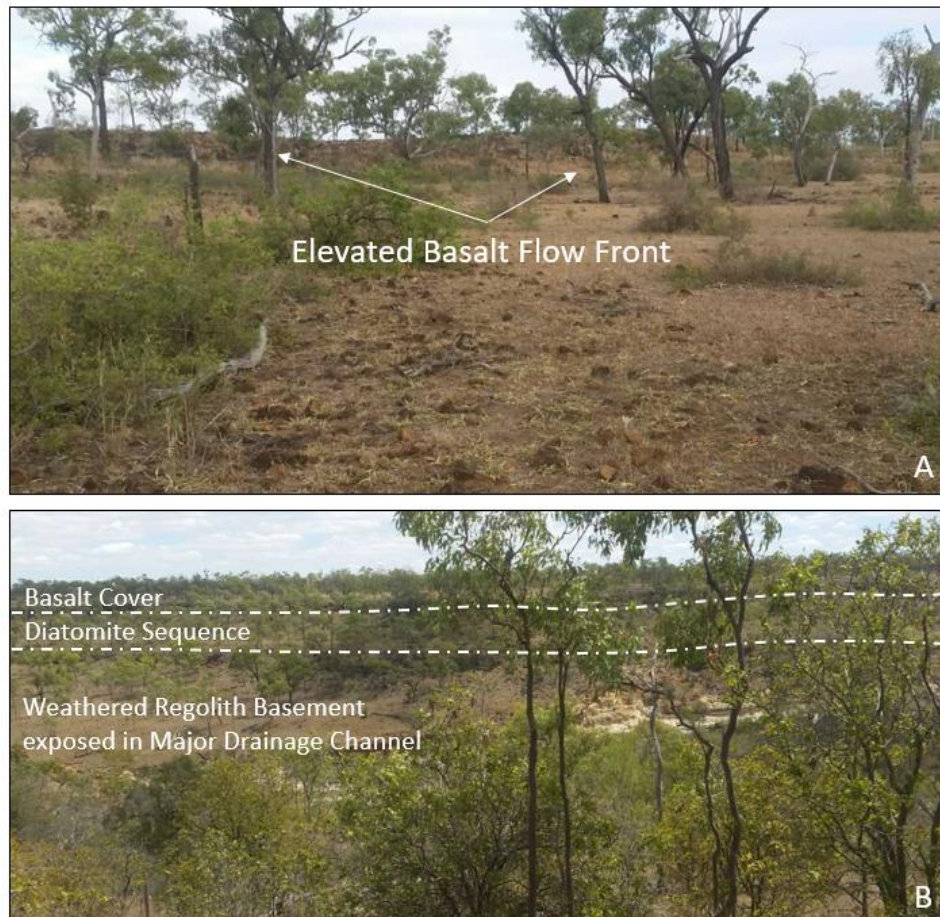
The project comprises a diatomite-bearing sedimentary sequence that is mined and transported to the Diatomaceous Earth Processing Facility located at Charters Towers, Queensland.



## 1.2. Topography

The Conjuboy Project is located at an elevation of about 520m and lies on the southern margins of a basalt dome of about 5000km<sup>2</sup> that forms the McBride Plateau. The centre of the dome reaches an elevation of 1,028 metres. The dome comprises numerous basalt lavas that flowed radially outward from 164 volcanic centres. The volcanic centres range from low hills formed by eroded plugs to well preserved cones with craters.

Around the margins, where the basalt is locally 5m thick, surface drainage features are separated by, and run parallel to the basalt flows (Figure 2 B). Basalt flow fronts present low, but distinctive ‘jump ups’ in the generally subdued topography (Figure 2 A).



**Figure 2 – Typical Local topographic variations seen at the Project Site**

The mining project is immediately adjacent to a low basalt wall that represents the southernmost extension of the lava flows. It is located largely on a topographic feature known as Greasy Plain – an area of heavy dark clay. Greasy Plain is located on the fringe of the southern extent of the basalt lava flow and has been developed by intensive in situ chemical weathering of the underlying clayey Tertiary to Quaternary rocks (Figure 2 B), some of which are diatomaceous. It is around 5 metres lower in elevation than the basalt flow.

## 2. General Tenure Information

### 2.1. *Percentage Holding*

The Conjuboy Project and all related tenement holdings over the Conjuboy Diatomaceous Earth Project were subject to a Joint Venture between Greenvale Silicon Pty Ltd and Diatomaceous Earth Investments Pty Ltd.

This Joint Venture is known as the Greenvale Silicon Joint Venture (“GVSJV”). Greenvale Silicon Pty Ltd. has 80% interest in the project and Diatomaceous Earth Investments Pty. Ltd. has a 20% interest holding.

**Table 1 - Percentage Holdings of Diatomaceous Earth Joint Venture Partners**

HOLDER	PERCENTAGE (%)
Diatomaceous Earth Investments Pty. Ltd.	20.0
Greenvale Silicon Pty. Ltd.	80.0
<b>TOTAL</b>	<b>100.0</b>

Greenvale Silicon Pty. Ltd. is the nominated principal holder of all Conjuboy Project tenements.

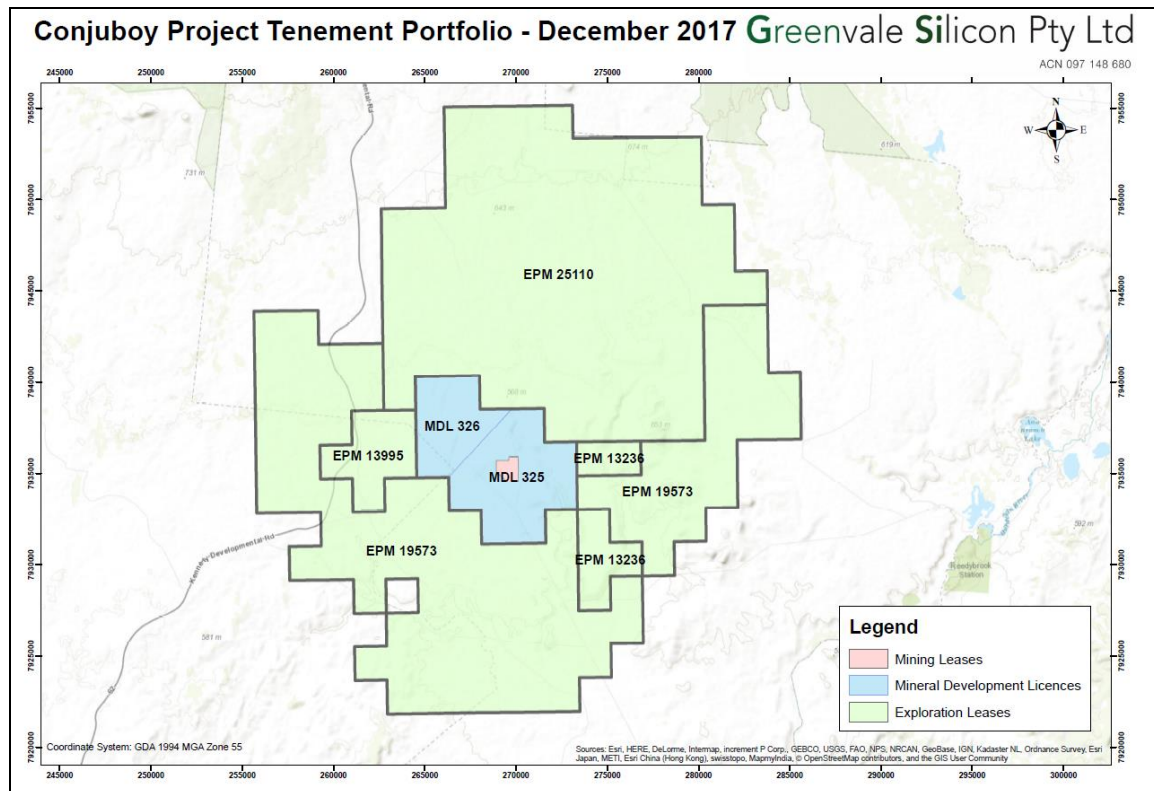
### 2.2. *Grant and Expiry Dates for the Project Tenements*

Prior to the Partial Relinquishment of the 37 sub-blocks from EPM25110; Exploration Permit for Minerals (EPM) 13236 and EPM13995, EPM19573, EPM25110, Mineral Development Licences (MDLs) 325 & 326; Mining Lease (ML) 10279 grant dates & expiry dates were as follows:

**Table 2 - Conjuboy DE Project Tenement Assignments**

<b>Conjuboy Diatomaceous Earth Project</b>			
TENEMENT	GRANT DATE	EXPIRY DATE	Tenement Size
EPM 13236	9 March 2001	8 March 2018 (Renewal Lodged)	6 Sub-blocks
EPM 13995	6 June 2003	6 June 2017 (Renewal Lodged)	6 Sub-blocks
EPM 19573	17 Sept 2013	17 Sept 2019	86 Sub-blocks
EPM 25110	9 Sept 2014	9 Sept 2019	87 Sub-blocks
MDL 325	20 April 2001	1 May 2021	3,429 Ha
MDL 326	20 April 2001	1 May 2021	1,943 Ha
ML 10279	28 Oct 2004	31 October 2054	133 Ha





**Figure 3 - Conjuby Diatomaceous Earth Project Tenements**

The abovementioned tenements form the 'Conjuby Diatomaceous Earth Project'.

- MDLs 325 and 326 are located approximately 48km north west of the town of Greenvale.
- EPM 13236 is located approximately 30km north of the town of Greenvale.
- EPM 13995 is located approximately 30km north of the town of Greenvale.
- EPM 19573 is located approximately 22km north of the town of Greenvale.
- EPM 25110 is located approximately 30km north of the town of Greenvale.

### **2.3. Blocks and sub-block Information EPM25110**

Exploration Permit for Minerals (EPM) 25110 (called "Gilldale Extended") covers an area of approximately 244km<sup>2</sup> and consists a contiguous portion of the Conjuby Diatomaceous Earth Deposit.

Prior to the Partial Relinquishment of the 37 sub-blocks from EPM25110; The blocks and sub-blocks or areas which comprise EPM25110, are tabulated below:

**Table 3 - Tenement Details for the EPM25110 prior to the partial relinquishment being approved**

<b>EPM25110 Tenement details</b>					
<b>Description</b>	<b>TENEMENT</b>	<b>Number of sub-cells</b>	<b>**BIM</b>	<b>*BLOCK No.</b>	<b>SUB-BLOCK No.</b>
<b>Exploration Permits for Minerals (EPM's)</b>	<b>EPM 25110</b>	<b>87</b>	TOWN	2098	x, y, z
			TOWN	2099	v
			TOWN	2170	c, d, e, f, h, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
			TOWN	2171	a, b, c, d, e, f, g, h, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z
			TOWN	2172	l, q, v, w
			TOWN	2242	a, b, c, d, e, f, g, h, j, k, l, o, p
			TOWN	2243	a, b, c, d, e, f, g, h, j, k, l, m, n, o, p, q, r, s, t, u

\*BIM = Block Identification Map

\*\*TOWN is an abbreviation of Townsville

## **2.4. Partial Relinquishments**

Greenvale Silicon maintain a partial relinquishment strategy to remain in good standing the Department of Natural Resources and Mines (DNRM) and endeavour to relinquish the required amount of sub-blocks within the relinquishment year unless nil-relinquishment is granted for the Tenement Assignment by the Minister or authorised delegate of the Minister upon request under special circumstances by Greenvale Silicon.

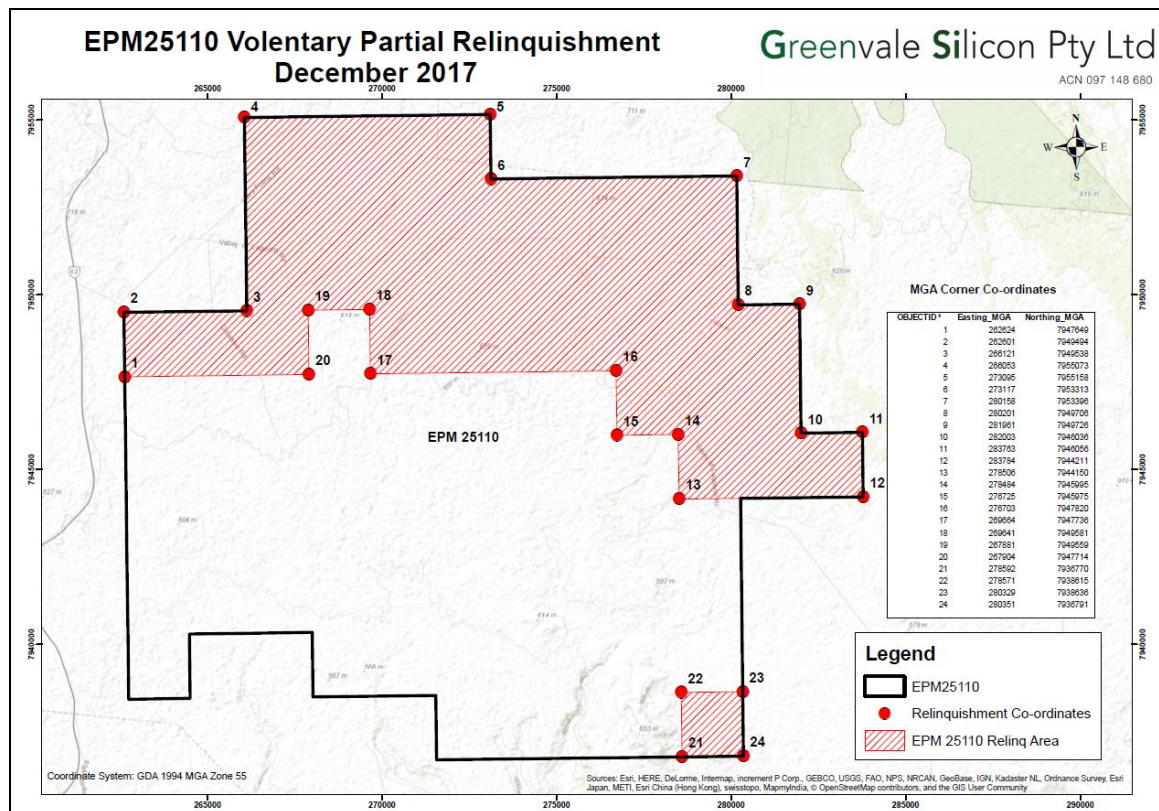
The partial relinquishment report of 37 sub-blocks relinquished from EPM25110 was submitted to the Department of Natural Resources and Mines on 8 December 2017 and was approved as same by an authorised delegate for the Minister on 11 December 2017.

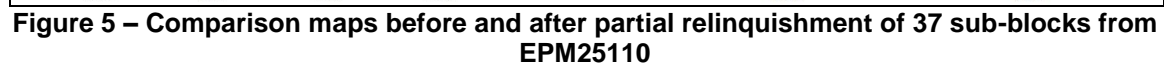
Greenvale Silicon Pty Ltd on behalf of the GVSJV as per the agreed relinquishment schedule within the accepted tenement assignment documentation conditions of grant for EPM25110 and pursuant to s139, s140 and s141 of the Mineral Resources Act 1989 (MRA); submitted the following 37 sub-blocks (listed below) for voluntary partial relinquishment from EPM25110.

**Table 4 - The 37 sub-blocks to be relinquished from the tenure are detailed as follows:**

EPM25110 – 37 Partial Relinquishment nomination			
BIM	BLOCK	Sub-Blocks	Number of sub-blocks
TOWN	2098	X, Y, Z	3
TOWN	2099	V	1
TOWN	2170	C, D, E, H, J, K, L, M, N, P	10
TOWN	2171	A, B, C, D, E, F, G, H, J, K, L, M, N, O, P, T, U, Z	18
TOWN	2172	L, Q, V, W	4
TOWN	2243	U	1
Total			37

The 37 Sub-block voluntary relinquishment from the tenure was approved by the Department of Environment and Heritage Protection and the Department of Natural Resources and Mines on 11 December 2017, with the relinquishment taking effect on 12 December 2017.

**Figure 4 – Partial Relinquishment area of EPM25110**



## Conjuboy Diatomaceous Earth Project Tenement listings

\*BIM = Block Identification Map  
\*\*TOWN is an abbreviation of Townsville



### 3. LAND USE AND NATIVE TITLE

#### 3.1. *Native Title*

An Indigenous Land Use Agreement ("ILUA") covering all of the Conjuboy Project tenements was registered on 25 August 2004.

#### 3.2. *Land Use and Background Tenure*

Perpetual Leases ("GHPL"), Grazing Homestead Freehold Leases ("GHFL") and Pastoral Holdings ("PH") as follows:

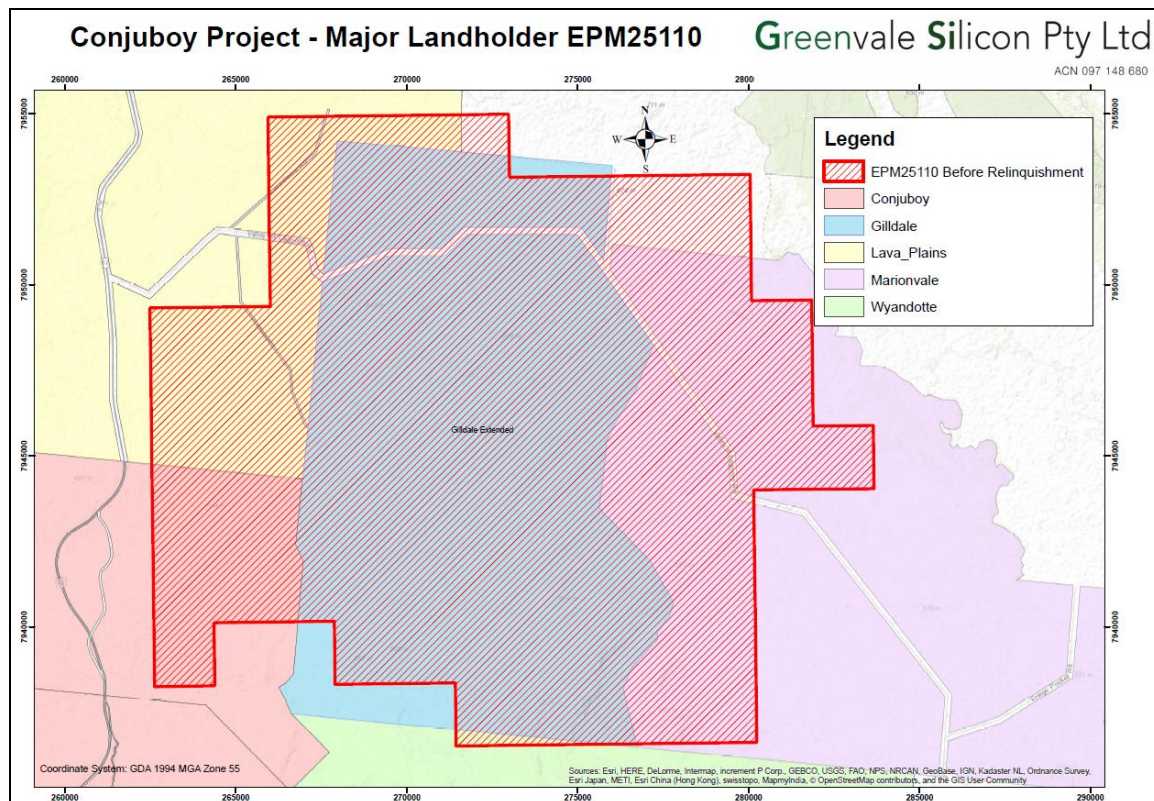


Figure 6 – Background Tenure behind EPM25110

Table 6 - EPM25110 – Background Tenure summary

Mining Tenure	Background Tenure	Tenure Type	Landholder details
EPM 25110	Lot 3 on GU25	GHPL	Gilldale Station
	Lot 4 on GU26	GHPL	Marionvale Station
	Lot 1 CP894587	GHPL	Lava Plains Station



The effect that the partial relinquishment of the 37 sub-blocks will have on the background tenure of the project is consisted very minor.

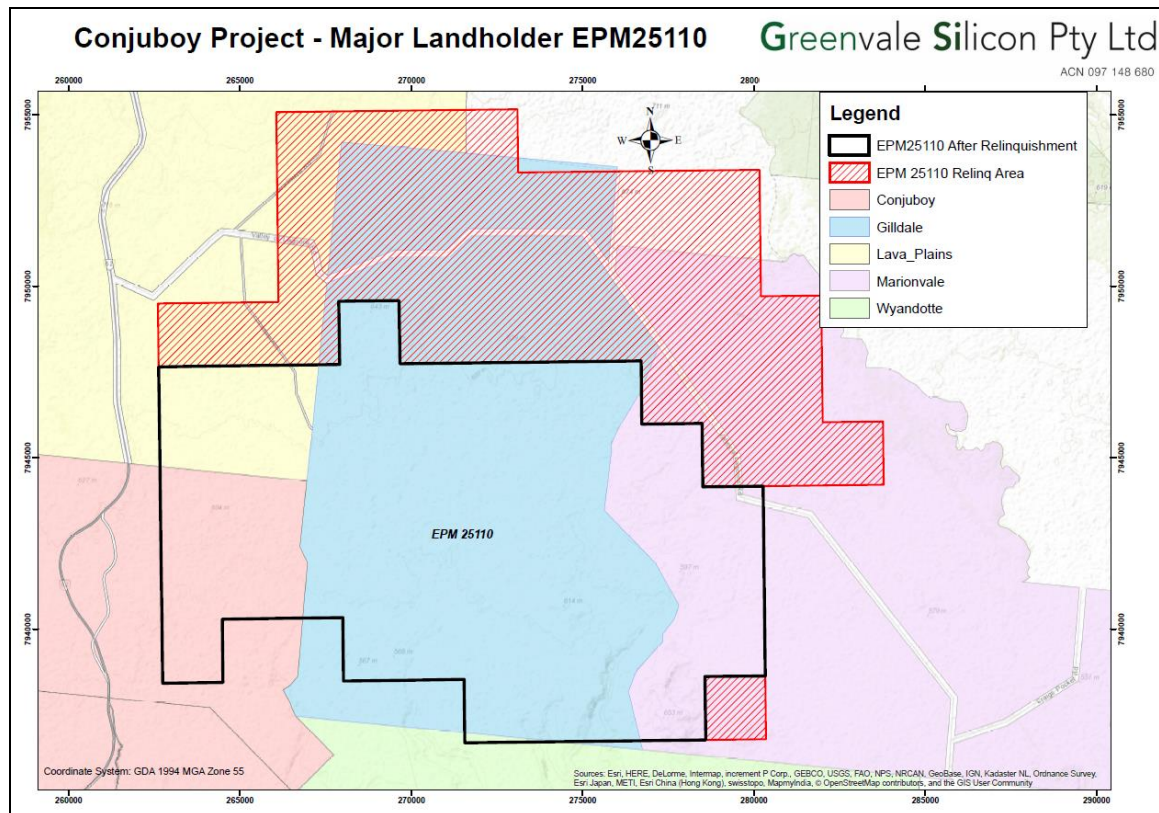
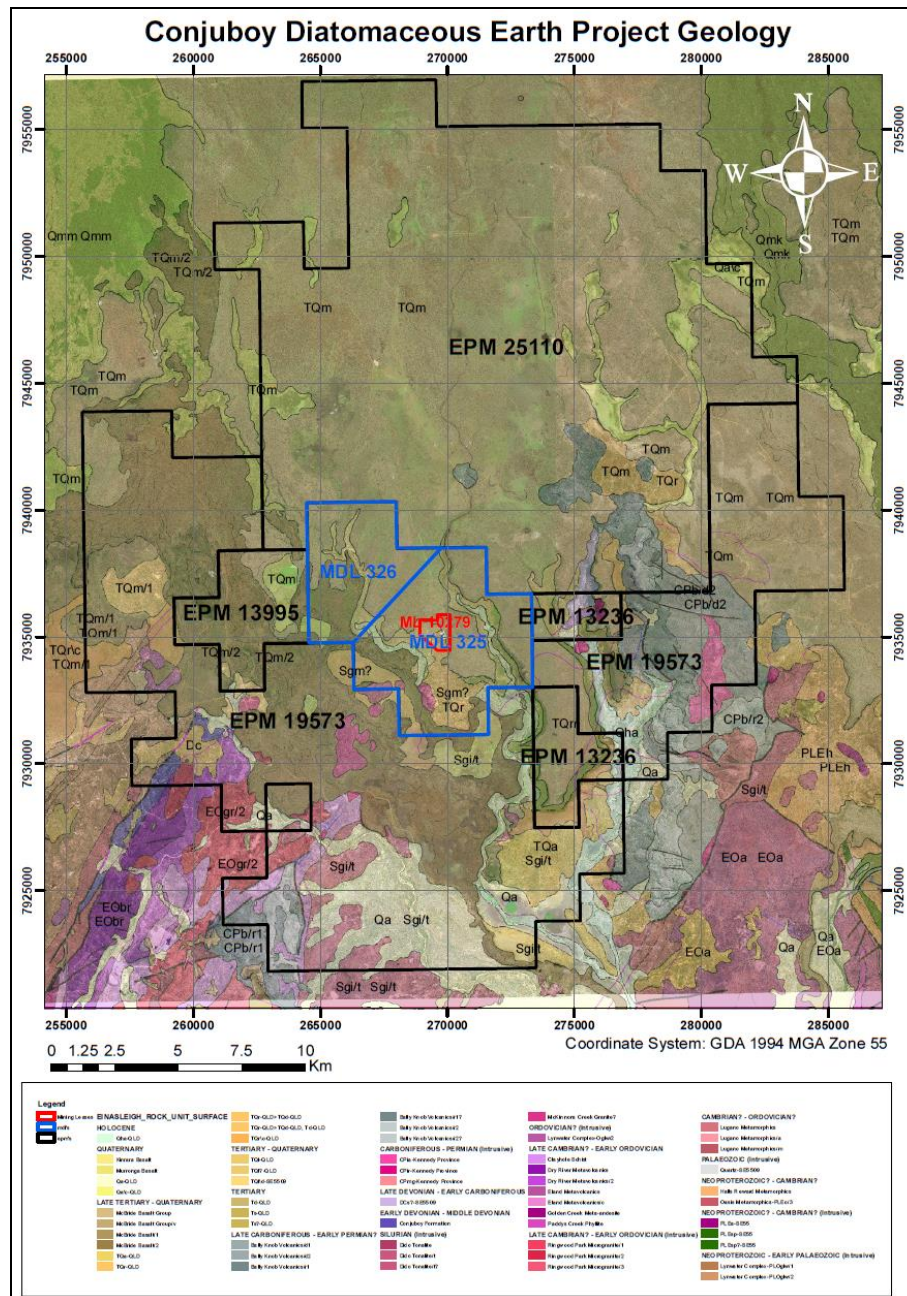


Figure 7 – Background Tenure behind EPM25110 and the relationship of Landholders with the relinquished sub-blocks

## 4. GEOLOGICAL DATA

### 4.1. Regional Geology

The regional scale geology of the Conjuboy project is made up of Tertiary-Quaternary basalt, underlain by lacustrine diatomaceous earth and weathered regolith profile of a Cambrian metamorphic sequence (Figure 8). Other basement sequences in the region include meta-sedimentary rocks of the Upper Cambrian Balcooma Meta-volcanics and igneous rocks of the Upper Cambrian Ringwood Park Microgranite and Silurian Dido Granodiorite.



**Figure 8 – Regional Geology of the Conjugboy Project Tenement Portfolio**

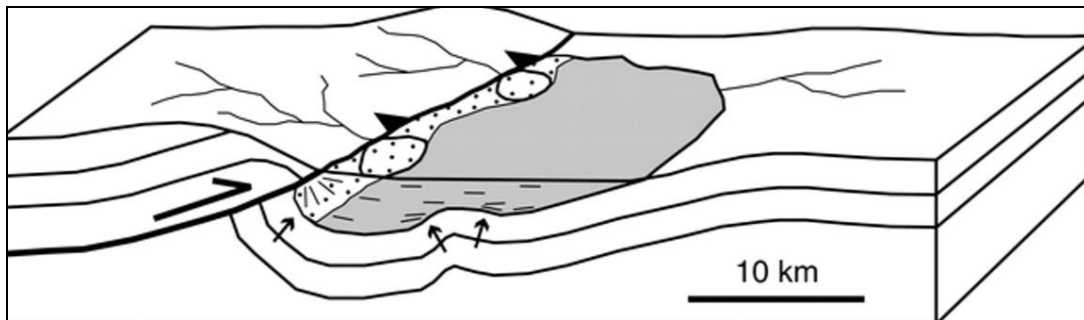
The surface geology of the project is dominated by Tertiary-Quaternary basalt cover that is dissected by the drainage channels of the Wyandotte and Forester Creeks, exposing the Tertiary-Quaternary lacustrine sedimentary sequence. A thick layer of diatomaceous earth (up to 30m thick) dominates the sequence, which is the unit of economic interest.

Regionally, the diatomaceous earth unit is typically poorly cemented, containing a few clay lenses and minor sandstone intercalations. Where exposed in creek cuttings, the diatomite horizon is around 10-15 metres in thickness, and is covered by 0-5 metres of sandy clay, diatomite rubble, basalt rubble and soil. Locally, the diatomite horizon

reaches thicknesses of up to 20m. Minor, narrow, (10cm), sub-vertical dolerite dykes cut the sequence sporadically.

#### **4.2. Basin Architecture and Local Geology**

Geological interpretation from mapping exercises around the Conjuboy Diatomaceous Earth Project suggests that the lacustrine sediments (Diatomite deposits) were deposited in a fairly shallow basin that was “cut-off” by localized tectonic movements from the south-east. This tectonic movement elevated and formed ridges to the south of the Conjuboy area and thus blocked off and dammed the freshwater sources to form an inland lake within which the diatomite deposits formed.

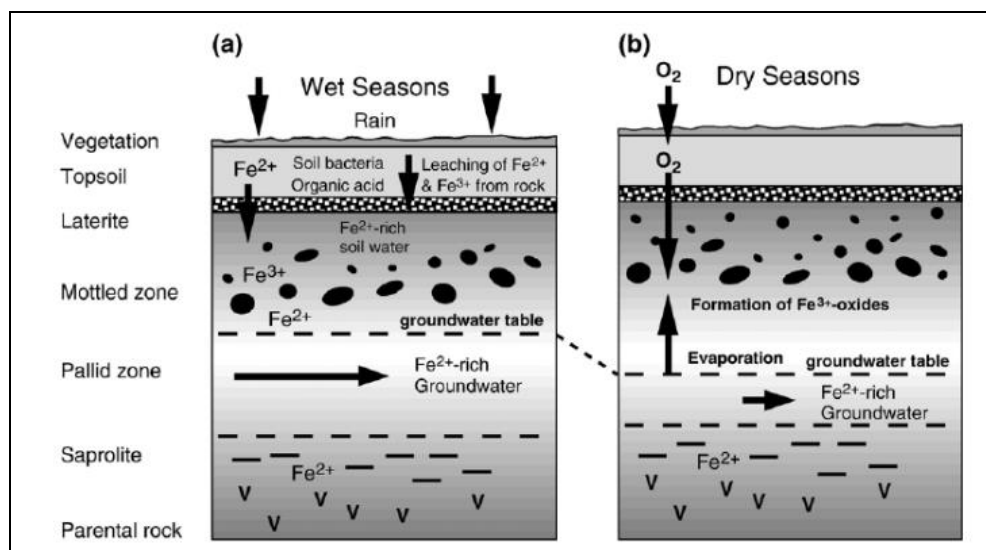


**Figure 9 – Basin Architecture where tectonic movement from the south stopped river flow and formed an inland lake**

Underneath the diatomite deposit, a basal weathered regolith unit (up to 30m in thickness) is identified throughout the area of the basin. This weathered horizon lies above the fresh basement sequences (sapolite) in the project area and was formed over millions of years through the chemical weathering of the basement volcanic rocks.

A laterite profile normally develops above the regolith horizon and this can be identified at numerous sites throughout the project area. Where laterite is mapped on surface, it is a common tell-tale sign that no diatomite will be found underneath it.

Tertiary basalt cover overlies the diatomite-bearing sequence at the Conjuboy deposit and has an apparent gentle slope to the west. This slope is accentuated in the southern portion of the area where elevation differences at the base of the basalt straddling Wyandotte Creek infers either some late stage faulting or alternatively, two separate flow events.



**Figure 10 – Chemical weathering processes that form a regolith profile**

Typically the geological profile of the Conjugoboy Diatomaceous Earth Deposit can be summarised by Figure 11 and corresponding Table 7.

**Table 7 – Typical Geological mapping sections identified at the Project Site**

Diatomite commonly present where this geological profile is observed		No Diatomite occurs where these geological profiles are observed				
Geological Section 1	Geological Section 2	Geological Section 3	Geological Section 4	Geological Section 5	Geological Section 6	Geological Section 7
Soil Cover	Soil Cover	Soil Cover	Soil Cover	-	Soil Cover	Soil Cover
Tertiary Basalt	-	Tertiary Basalt	-	-	Tertiary Basalt	Tertiary Basalt
Thin soil profile	-	Thin ancient soil and laterite profile	-	-	-	-
<b>Diatomite bearing sequence</b>	<b>Diatomite bearing sequence</b>	-	-	-	-	Thin ancient laterite profile
Thin weathered laterite	Thin weathered laterite	Thin ancient soil and laterite profile	Thin ancient soil and laterite profile	-	-	Older Basalt Flow
Weathered Regolith	Weathered Regolith	Weathered Regolith	Weathered Regolith	Weathered Regolith	Weathered Regolith	Weathered Regolith
Basement Volcanic Rocks	Basement Volcanic Rocks	Basement Volcanic Rocks	Basement Volcanic Rocks	Basement Volcanic Rocks	Basement Volcanic Rocks	Basement Volcanic Rocks



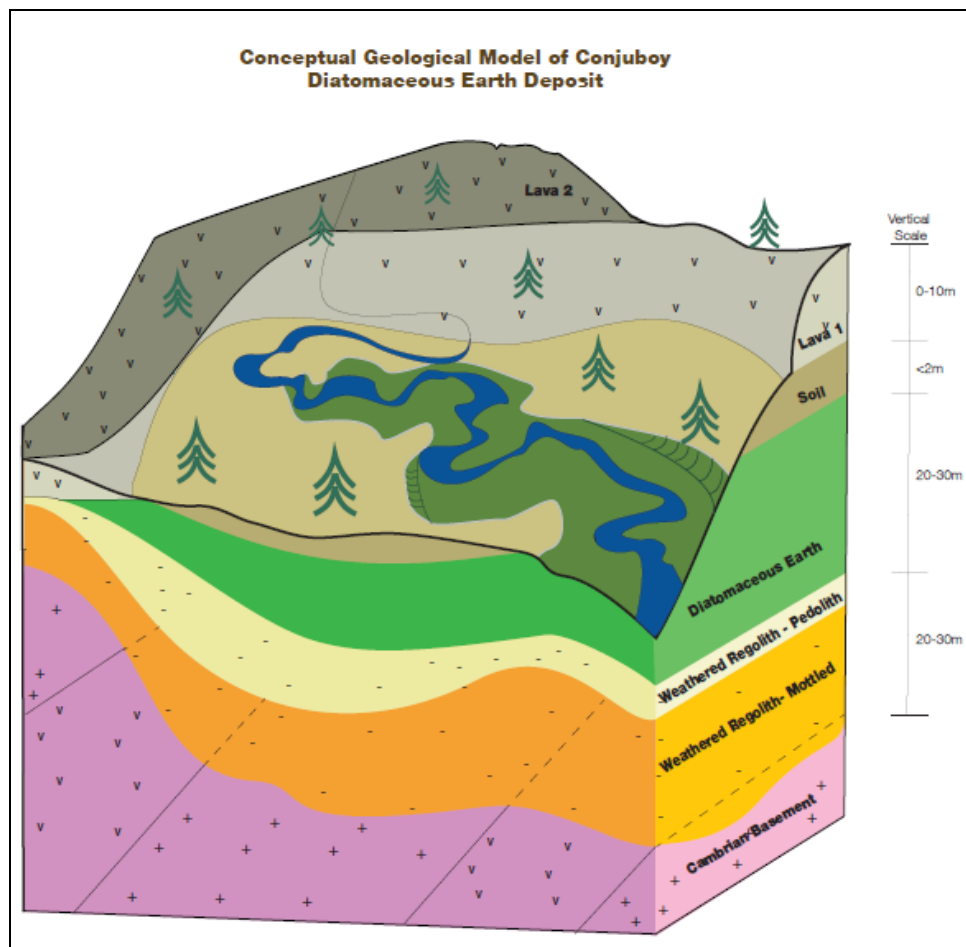


Figure 11 – Schematic Basin Architecture

### 4.3. *Local Geology of the Relinquished area of EPM25110*

Assessing the typical geological sections from Table 7 above, diatomite bearing sequences have only assessed to have been identified in areas that resemble cross sections 1 and 2 of the logs.

Through geological field mapping exercises, where geological sections 3 through 7 have been identified to exist in an area, this area has no chance of containing any diatomite bearing sequences of any significant interest.

Understanding sections 3 through 7, a laterite profile normally develops above the regolith horizon (that significantly predates the deposition of the diatomite bearing sequence in the area), it is a common tell-tale sight that no diatomite will be found underneath it.

Geological mapping exercises have been conducted by the GVSJV geology team over the entire areas of the Conjuboy Project and also on the areas that have been partially relinquished from EPM25110.



The local geology of the area is typically covered by either

1. A older lateritic profile (Figure 13), or
2. a deep weathered basalt plain that directly overlies the Cambrian Basement sequences
3. the surface expressions of the deep weathered Cambrian Basement sequence that sits stratigraphically below the Miocene diatomite bearing sequences

All three of these areas from field mapping alone confirm that no diatomite bearing sequences of significant interest will occur within these relinquished areas and no geochemical testing or samples were taken from the area that has been relinquished.

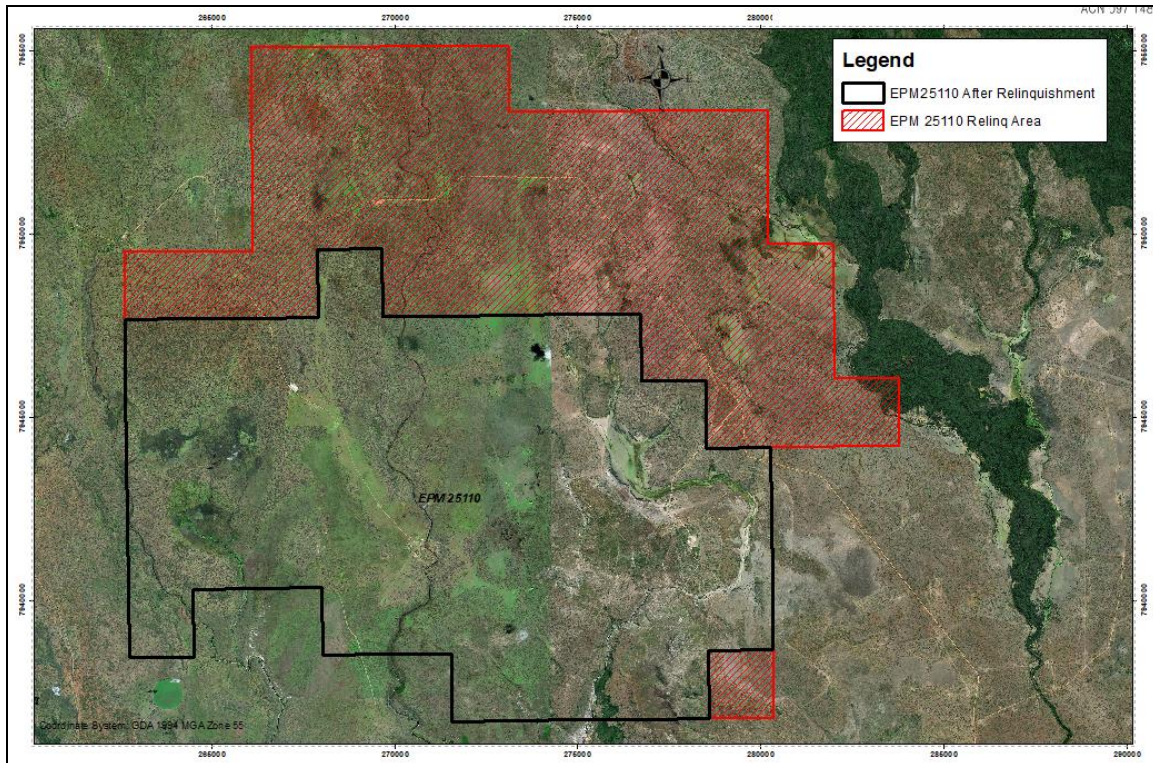


Figure 12 – Satellite image of the relinquished parts of EPM25110





**Figure 13 – Typical Pisolitic laterite profile sitting atop of older weathered Cambrian Basement sequences within the project area**



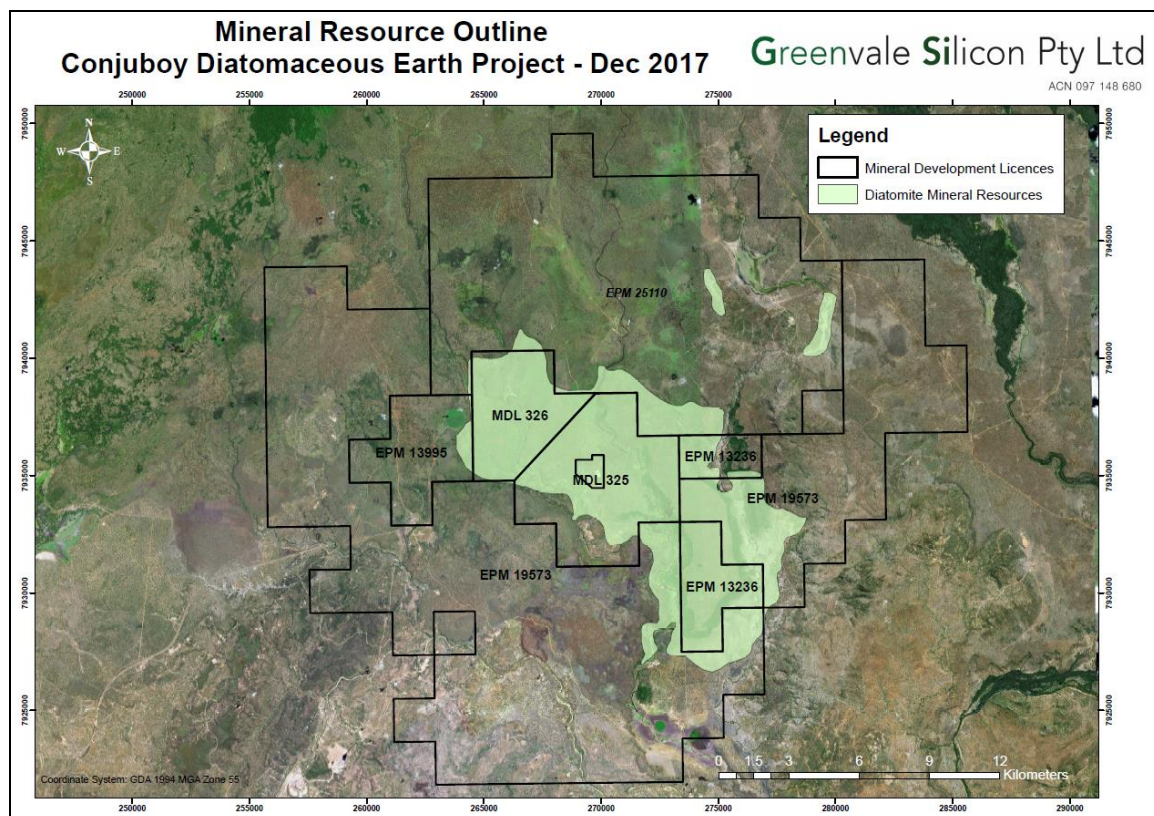
**Figure 14 – Typical illustration of the weathered basement Cambrian Volcanics that underlie the Diatomite resources at the Conjuboy Diatomite Deposit.**



## 5. EXPLORATION RATIONALE

The Conjuboy Diatomaceous Earth Deposit is unique in its architecture. The diatomite bearing sequences are close to surface and has been preferentially preserved to a high degree due to the capping basalts that have ensured only small portions of the deposit have eroded.

Typical exploration techniques such as geological field mapping, aerial photograph interpretation, geochemical sampling, architectural element analysis and drilling and consisted sufficient to define the outcrop extents and provide further information for JORC 2012 Resource categorisation.



**Figure 15 - Diatomaceous Earth Resources within the Tenement Portfolio – Dec 2017**

Over the areas covered by the GVSJV tenement package, and because the package is quite large, there remains a high degree of confidence that further diatomite bearing sequences will be located in the near proximity to the existing mineral resources that have already been defined in the project package.

The GVSJV team has been systematically and constantly assessing potential for further diatomite bearing sequence within the tenement package and have identified areas within the tenement package where no diatomite bearing sequences of economic benefit exist. These areas will be partially relinquished in due course.

## **6. REASON THE HOLDER HAS PARTIALLY RELINQUISHED THE AREA**

The 37 sub-blocks relinquished from EPM25110 lie outside of the geological, geophysical and geochemical region of interest in terms of the GVSJV exploration model.

The area has also been fully assessed by the GVSJV geology team by ongoing field mapping and it is understood that the area does not contain diatomite bearing sequences of economic interest to the group.