DIATREME Resources

ASX ANNOUNCEMENT

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23 February 2022

Diatreme expands Northern Resource Project exploration

- **Drilling programs in Diatreme's Northern Resource Project (NRP) target specific dunes extending over 150 sq km, in proximity to Cape Flattery Port, Far North Queensland.**
- **2021 drilling campaign successfully tested further extents to the Si2 North dune towards the coast within EPM 17795, intersecting up to 44.5m of high purity silica sand.**
- **Resource upgrade studies underway at Si2 North and expected to be completed in March 2022, targeting significant increases in both known resource and with potential for new discoveries.**
- **Hand auger reconnaissance drilling underway and continuing throughout wet season, focused on areas located to the north of the Point Lookout Track. This will evaluate another extensive area of lower profile silica dunes, in proximity to the Cape Flattery Silica Mine leases.**
- **Further drilling prioritised at Si1 North through Q2 2022, with potential for additional multiple high purity silica resource discoveries following January's high-grade silica sand discovery.**

Emerging silica sands explorer and high purity silica producer, Diatreme Resources Limited (ASX: DRX) (the Company) continues to expand its silica sand resource base, with new exploration drilling underway throughout the Company's Northern Resource Project (NRP) area.

The drilling is selectively testing extensions to dunes with low impact exploration activities. This includes the involvement of a number of Aboriginal clan groups, assisting in field programs within their respective clan areas.

The move follows recent success in discovering a second, high-grade silica sand resource within the northern area of the Cape Bedford (EPM17795) tenement area, the Si2 North Project (refer ASX release 10 January 2022). Diatreme is now building an extensive knowledge base on the dune systems located within the NRP area, adding to the established silica sand resource at the Galalar Silica Sand Project (refer ASX release 20 September 2021).

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Diatreme's CEO Neil McIntyre said: *"Our immediate priority remains the delivery of the Galalar Silica Project in the southern part of our tenement area, which we are currently advancing through permitting and approvals towards mining.*

"However, our late 2021 and early 2022 northern exploration programs have allowed us to advance quickly on resource assessment and project development planning on our northern tenement area, with the potential for multiple mining operations of high purity silica.

"Working in partnership with the Traditional Owners, these new discoveries will only further enhance the potential of our projects to deliver long-term benefits to all stakeholders, including new jobs and regional investment, while positively contributing to the decarbonisation of the global economy."

Drilling to the southeast of Si2 North has continued to extend into the core of the Si2 dune. The Company's **Si2 North Project**, comprising 53.2 million tonnes @ 99.32% SiO_2, (refer ASX release dated 10 January 2022), is the base from which the drilling is extending. Initial drilling now extends over approximately 6km of the Si2 dune system.

Further to the north, silica dune thickness reduces, and exploration is focussed on a broad dune field extending north to the Cape Flattery Silica Mine leases. This area is transacted by the Point Lookout Track (PLT). Extensive field reconnaissance and planning in early 2022 has allowed access for Diatreme's exploration teams to initiate drilling, which will continue throughout the wet season.

Exploration activities at Si1 South were completed in 2021, with the sand quality remarkably consistent throughout the dune system. Assay results indicated the elevated heavy mineral sands (HMS) contain up to 0.07 % ZrO_2 and 0.58% TiO_2. Colouration in the sand is primarily due to clays.

Drilling to date in the Northern Resource Project (NRP) comprises:

Area	Air Core drilling (holes/m)	Hand Auguring (holes/m)
Si2 North	94/2004	NA
PLT	51/450	NA
Si1 North reconnaissance	46/382	NA
Si1 South	22/614	95/460

Diatreme has commenced assessing infrastructure options, environmental permitting and associated planning towards a development plan for the NRP. Meetings with government and the state-owned port authorities have commenced along with meetings with regional stakeholders to examine and advance areas for mutual co-operation.

Further progress towards the lodgement of mining lease applications (MLA's) and associated infrastructure leases is anticipated in Q2 2022 covering the northern sections of EPM17795.

Diatreme's minimised footprint mining and processing plant solutions, combined with progressive supported rehabilitation will also be applied in the NRP, aimed at delivering a low impact standalone operation.

Exploration - EPM 19995

In the latter half of 2021, Diatreme targeted the extensive dune systems located to the north of the McIvor River and west of Cape Flattery. The exploration area covers in excess of 150 km^2 and includes several major identified dunes including the Si1 and Si2 dune system. The NRP exploration is a separate program of work and compliments the advancing Galalar Silica Project, located to the south in proximity to Cape Bedford.

The NRP dune systems are accessed by established public roads and landholder access tracks. Marine access supporting exploration activities is also possible.

As previously reported, Diatreme has established an exploration base at Starke near the McIvor River to service the exploration. Logistical challenges are well managed, and the exploration has continued through the wet season with periodic delays.

Diatreme utilises specialised drilling equipment designed to have a low impact and delivers solutions on accessing undulating dune terrains. The equipment facilitates rapid movement between shallow drill holes, optimising field activities with minimised vegetation disturbance.

Exploration teams include indigenous personnel from clan areas, undergoing training on drilling and exploration, whilst also completing daily cultural heritage monitoring.

As of 1 February 2022, Diatreme had drilled 281 vacuum holes for a total of 4,455.7m and 141 hand auger holes, with some located in areas of thick vegetation or difficult terrain for a total of 538.4m. Geochemical results are reported to date, with delays in laboratories hindering delivering of the latter sampling. This will be reported in subsequent updates.

All holes drilled are logged, sampled and photographed on-site during field operations. A representative sub-sample is retained as a record of the drilling and for future reference.

Initial exploration holes are located using a handheld GPS, and Shuttle Radar Topography Mission (SRTM) topography was used as the topographic surface. Collar RL's draped against this surface verifies the accuracy of the hole locations. Aerial imagery was utilised as a base map.

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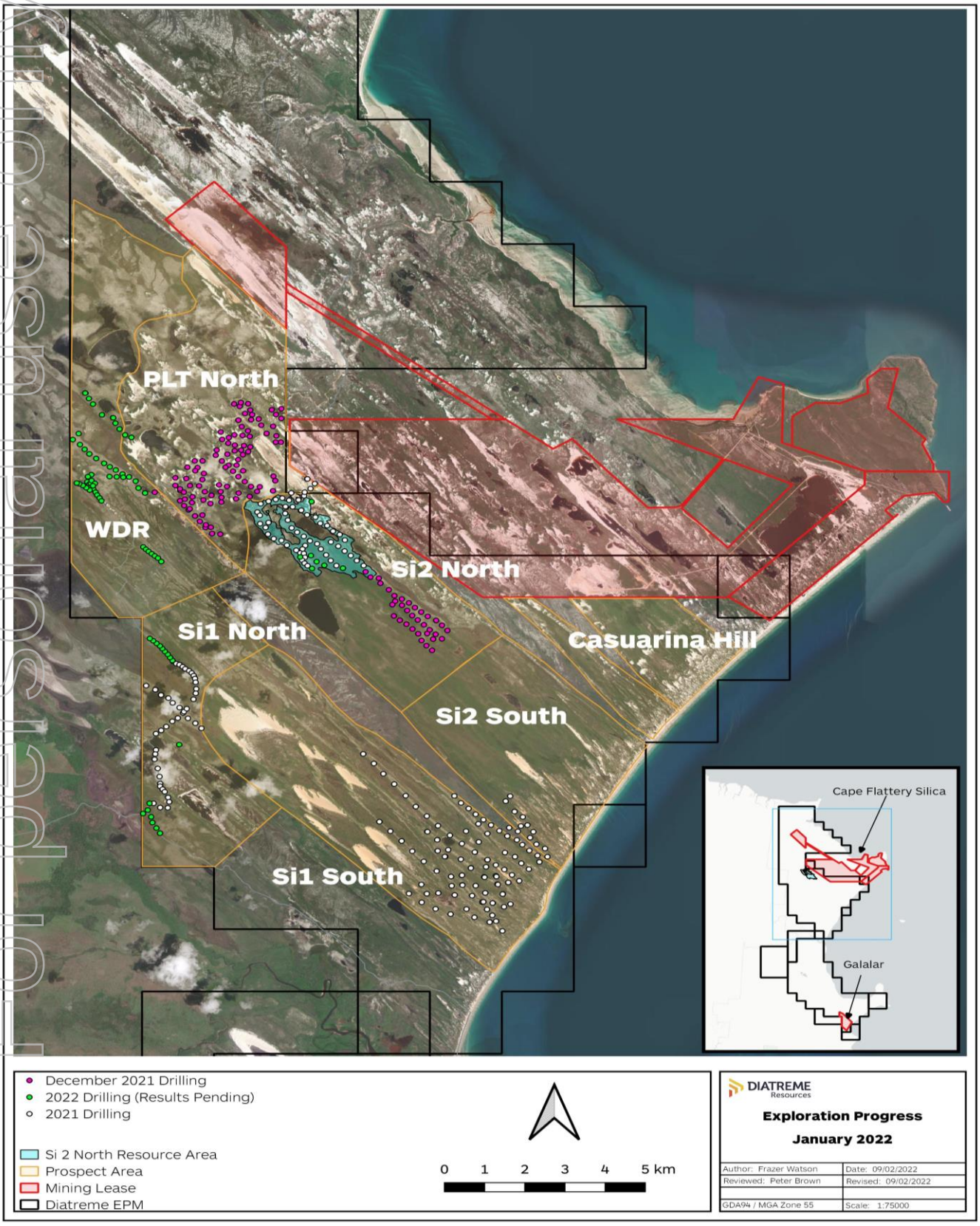
Figure 1: Northern Resource Project location plan, drilling and Si2 North resource



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Si2 North Resource Extension Drilling

The Si2 North deposit is located on the north-eastern half of the Si2 dune complex and is made up of a stratified elongate parabolic dune system. The dunes are the highest and potentially largest accumulation of aeolian sand within the entire Cape Bedford-Cape Flattery dune field. Vegetation coverage ranges from nil to low level heath, with pockets of denser vegetation. The latter is mapped and demarcated prior to the progression of exploration activities.

The Si2 dune complex extends 12km in strike and is up to 4km in width, ranging in elevation between 40m and 140m. Dune margins are defined by interdunal lowlands, often hosting isolated lakes and wetlands.

Drilling from Q4 2021 to early Q1 2022 followed vegetation and cultural heritage clearance surveys. Vacuum and hand auger drilling was prioritised southward along the dune system alignment, with the aim of extending the Si2 North resource footprint.

An additional 34 holes were completed for 921.3m. Drill holes were generally collared on the crest of a large elongate parabolic dune systems superimposed on older dunes. Sand quality is white to cream in colour and geological logging indicates a continuation of high purity silica sand extending from the Si2 North resource area. Assay results are pending.

Objective

Targeting a significant resource increase from 53m tonnes pending the receipt of assay testing results, expected by the end of Q1 2022.

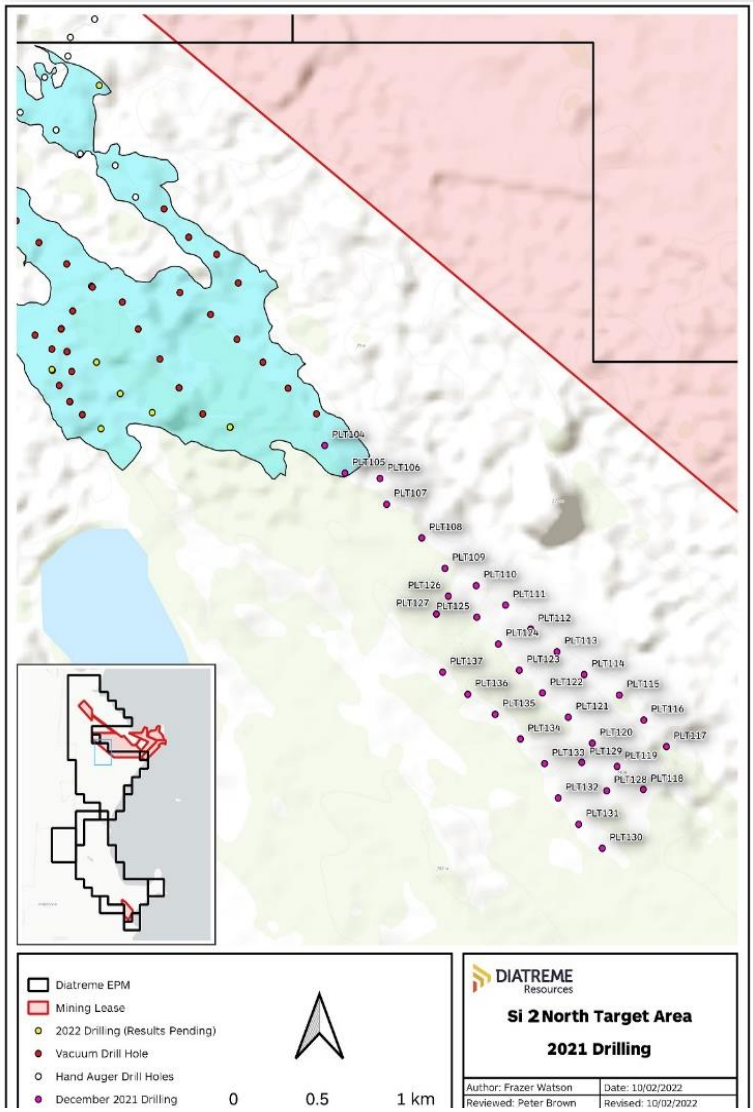

Figure 2: Si2 North extension drilling

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Table 1: Si2 North extension drilling and sand depths

	Hole ID	Easting	Northing	Hole Depth (m)
1	PLT104	308562	8340590	35
2	PLT105	308684	8340431	26
3	PLT106	308893	8340402	14
4	PLT107	308934	8340253	10.5
5	PLT108	309145	8340061	24
6	PLT109	309285	8339886	39
7	PLT110	309472	8339788	42
8	PLT111	309648	8339677	23.5
9	PLT112	309799	8339540	22
10	PLT113	309957	8339410	14.5
11	PLT114	310120	8339280	17.5
12	PLT115	310331	8339163	29
13	PLT116	310478	8339020	22
14	PLT117	310614	8338868	18.5
15	PLT118	310478	8338620	28
16	PLT119	310321	8338751	37
17	PLT120	310172	8338884	29.5
18	PLT121	310027	8339033	25
19	PLT122	309872	8339172	29
20	PLT123	309733	8339302	32
21	PLT124	309607	8339452	40
22	PLT125	309477	8339606	34
23	PLT126	309306	8339726	42
24	PLT127	309236	8339622	30
25	PLT128	310260	8338610	12
26	PLT129	310110	8338773	31
27	PLT130	310236	8338278	21
28	PLT131	310094	8338415	21
29	PLT132	309971	8338566	31
30	PLT133	309888	8338764	36.8
31	PLT134	309743	8338905	44.5
32	PLT135	309591	8339046	33
33	PLT136	309427	8339160	25
34	PLT137	309276	8339287	2
Total				**921.3**

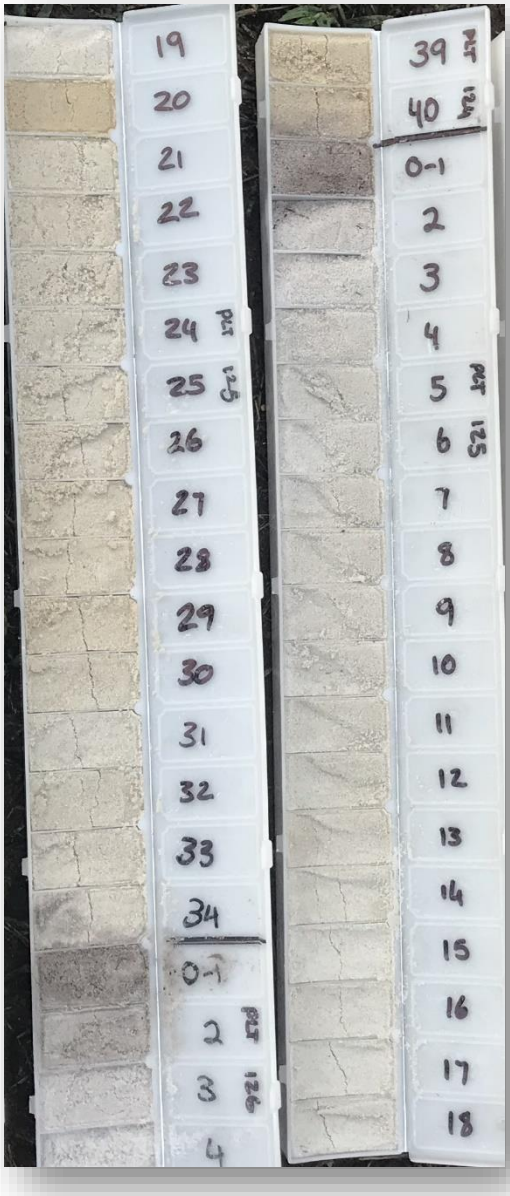

Figure 3: PLT125 Chip Tray Image (increasing depth right to left)

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PLT North Exploration Drilling

Disrupted sand dunes also extend further inland of the Si2 North resource area, with the sand dune morphology changing to a disrupted parabolic dune field. This is temporally referred to as Point Lookout Track (PLT) North.

The individual dunes are on average smaller and lower and this is reflected in the average drill hole depth. Visual assessment of sand quality within this dune system indicates very high purity. Assay results were pending at the time of reporting.

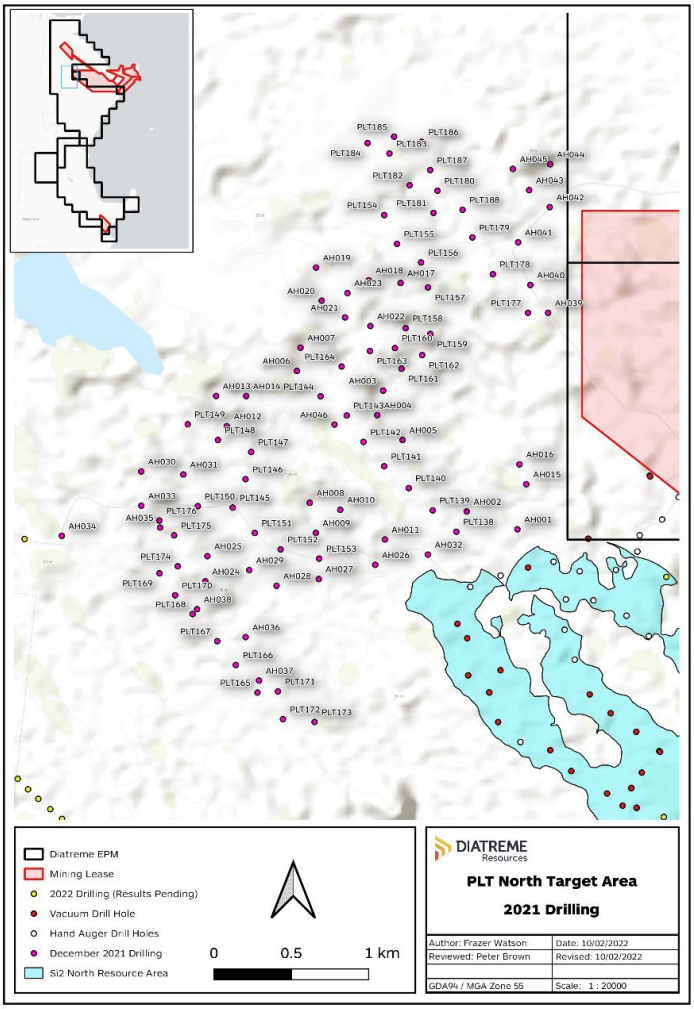

Figure 4: PLT drilling beyond the Si2 North deposit

Figure 5: PLT disrupted high purity silica dune

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Si1 North

The Si1 North Project areas host low profile older Pleistocene dunes which are overlain in places by younger steep profile Holocene dunes. The lower white dunes are covered in open low height vegetation, which has facilitated preferential exploration.

In 2021, Diatreme completed a first pass vacuum drilling program along the Point Lookout track and along two other smaller dunes. A total of 46 vacuum holes were completed for 383m.

The sand within these dunes appears white in colour and of high purity, with concentrations of black heavy mineral appearing on windblown exposures. Preliminary assay results indicate relatively high Fe_2O_3 and TiO_2 (heavy mineral sands) resulting in a reduction of SiO_2 percentage to below < 98.5% as compared to the other known deposits within the Cape Flattery area which are >99% SiO_2.

In 2021, Diatreme completed twin holes for PLT020 and PLT021, which were targeted due to the greatest thickness of dry sand accessible within the target area. These holes returned an average TiO_2 between 0.77% and 1.15% over the entire profile as well as elevated zircon.

These higher HMS metals indicate titanium minerals (Ilmenite & rutile) are present and may deliver a by-product if sufficient resources are defined in the area. Preliminary metallurgical analysis is underway.

Whilst the SiO_2 is diminished due to high HMS, the correspondingly low Al_2O_3 indicates the balance of the hole is high purity silica sand, and concentration is less intensive due to the low ratio of clay to sand.

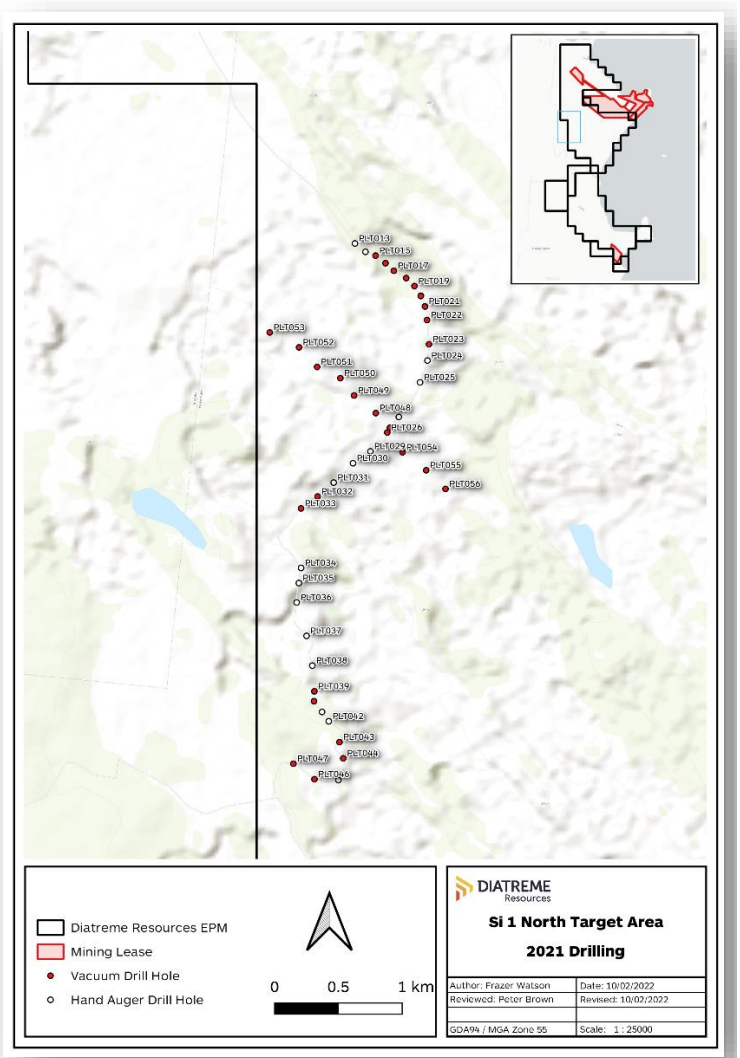

Figure 6: Si1 North drilling

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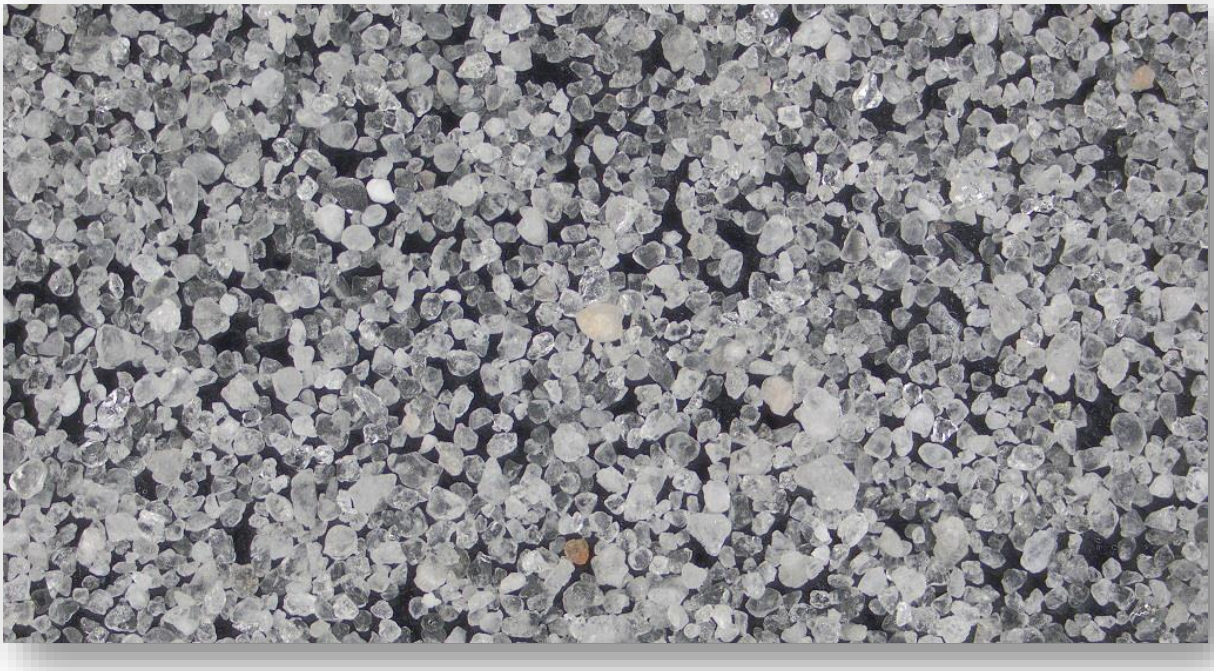

Figure 7: Si2 North metallurgical sampling (Hole PLT 020)

Initial metallurgical results have been returned for select composites, indicating titanium minerals (ilmenite and rutile) as the major contaminants. The resultant heavy mineral sand assemblage is highly anomalous in its own right and may contain some value as a standalone product. Further detailed metallurgical analysis is underway.

It is expected the ilmenite will be removable via conventional spirals and the resultant silica sand will be high purity. However, DRX has not analysed for HMS, and the actual HMS percentage is generally higher than the TiO_2 determined by XRF analysis.

Table 2: Si1 North vacuum drilling

	Hole ID	Easting	Northing	RL	Hole Depth (m)	Al_2O_3	Fe_2O_3	SiO_2	TiO_2	ZrO_2	Total	LOI
1	PLT013	303786	8337898	32.2	2	0.09	0.11	98.83	0.27	0.03	99.75	0.40
2	PLT014	303869	8337831	33.6	3	0.09	0.16	98.72	0.36	0.05	99.51	0.10
3	PLT015	303948	8337801	38.4	6	0.10	0.37	98.24	0.66	0.08	99.57	0.06
4	PLT016	304027	8337741	42.4	8.5	0.10	0.44	98.26	0.75	0.11	99.80	0.06
5	PLT017	304093	8337680	43.3	11	0.11	0.50	98.22	0.65	0.09	99.79	0.14

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6	PLT018	304190	8337622	51.6	7.5	0.12	0.39	98.43	0.65	0.08	99.85	0.12
7	PLT019	304255	8337558	52.4	12	0.12	0.64	97.79	**1.04**	0.14	99.93	0.11
8	PLT020	304306	8337481	55.5	14	0.14	0.52	98.20	0.78	0.09	99.95	0.14
9	PLT020M	304305	8337478	55.4	14							
10	PLT021	304339	8337395	55	13	0.14	0.72	97.42	**1.15**	0.16	99.83	0.13
11	PLT021M	304339	8337393	55	13							
12	PLT022	304356	8337284	45	9	0.14	0.47	98.16	**0.77**	0.09	99.81	0.12
13	PLT023	304373	8337089	44.4	8	0.14	0.62	97.65	**1.04**	0.13	99.79	0.12
14	PLT024	304362	8336957	36.5	4	0.11	0.28	98.62	0.49	0.06	99.93	0.32
15	PLT025	304306	8336780	30.5	1	0.09	0.06	98.73	0.35	0.03	99.50	0.18
16	PLT026	304051	8336373	36.6	5.5	0.10	0.28	98.78	0.47	0.06	99.85	0.12
17	PLT027	304072	8336411	37.5	7.7	0.12	0.27	98.74	0.43	0.05	99.78	0.13
18	PLT028	304141	8336499	31.4	1.7	0.12	0.31	97.41	0.62	0.09	99.88	1.25
19	PLT029	303921	8336219	30.9	2	0.16	0.21	98.76	0.42	0.06	99.87	0.22
20	PLT030	303785	8336122	33.4	1.8	0.13	0.20	99.01	0.41	0.06	99.99	0.14
21	PLT031	303635	8335965	36.8	4.5	0.08	0.21	98.67	0.43	0.06	99.65	0.17
22	PLT032	303510	8335851	39.6	6	0.08	0.19	98.93	0.32	0.03	99.76	0.16
23	PLT033	303380	8335754	37	7	0.07	0.14	99.06	0.27	0.02	99.75	0.16
24	PLT034	303385	8335273	36.1	2.6	0.06	0.12	99.12	0.23	0.03	99.78	0.19
25	PLT035	303369	8335150	35	2	0.04	0.03	99.23	0.05	0.01	99.55	0.18
26	PLT036	303353	8334994	32.2	1	0.06	0.04	99.23	0.08	0.01	99.86	0.43
27	PLT037	303432	8334724	34.6	2	0.08	0.12	99.09	0.24	0.02	99.82	0.25
28	PLT038	303480	8334485	33	2	0.05	0.06	99.16	0.10	0.01	99.66	0.28
29	PLT039	303497	8334277	43.9	8	0.06	0.08	99.39	0.14	0.01	99.92	0.21
30	PLT040	303495	8334197	41.5	13	0.08	0.15	99.35	0.22	0.02	99.98	0.12
31	PLT041	303559	8334111	38.9	4.5	0.08	0.15	98.89	0.28	0.03	99.74	0.28
32	PLT042	303612	8334035	42.1	3.5	0.08	0.16	98.74	0.30	0.04	99.94	0.60
33	PLT043	303698	8333868	45.8	12.5	0.07	0.22	98.69	0.42	0.07	99.67	0.14
34	PLT044	303729	8333738	40	8	0.04	0.09	99.28	0.19	0.02	99.82	0.19
35	PLT045	303692	8333561	34	3	0.07	0.13	98.90	0.25	0.03	99.86	0.46
36	PLT046	303504	8333567	39.8	6.5	0.07	0.11	99.22	0.22	0.03	99.88	0.19
37	PLT047	303338	8333691	37.8	10	0.07	0.10	99.19	0.19	0.02	99.81	0.23
38	PLT048	303961	8336529	40.5	11	0.11	0.27	98.82	0.42	0.05	99.85	0.14
39	PLT049	303789	8336670	39.9	12.5	0.09	0.20	99.01	0.32	0.04	99.83	0.14
40	PLT050	303680	8336809	46.8	19	0.11	0.35	98.44	0.47	0.07	99.63	0.14
41	PLT051	303497	8336898	44.1	17	0.09	0.25	98.66	0.38	0.05	99.70	0.22
42	PLT052	303354	8337055	47	20.5	0.09	0.16	99.20	0.19	0.02	99.84	0.13

43	PLT053	303123	8337173	45.5	22	0.08	0.14	99.34	0.19	0.02	100.02	0.21
44	PLT054	304173	8336214	38.1	13	0.11	0.15	99.32	0.22	0.02	99.98	0.12
45	PLT055	304360	8336070	46.7	18	0.09	0.20	99.19	0.32	0.04	99.98	0.08
46	PLT056	304512	8335921	37.1	9	0.10	0.28	98.92	0.45	0.06	100.07	0.21
	Total m				**382.8**							

SI1 South – Hand Auger Drilling

First pass exploration commenced within the southern area of the Si1 dune in 2021. The larger blown out elongate parabolic sand dunes are currently only accessible from the beach located to the southeast. Previous exploration has been limited to wide spaced and random helicopter supported sampling on exposed dunes. Reconnaissance activities in 2021 identified access corridors through the chaotic coastal dunes and low heath vegetation, allowing access to the longitudinal dune crests and interdunes.

Cultural Heritage and environmental surveys facilitated minimal disturbance activities, serviced from a base camp located in the coastal dunes. Preliminary exploration activity was restricted to low impact hand auger drilling to a nominal 5m depth on a 400 x 400m grid spacing.

A total of 95 holes were completed for approximately 460m. All holes were sampled on 1m intervals and holes were only abandoned before 5m if they intersected clay rich sand. Exploration was completed with the Traditional Owners who attended all activities as cultural heritage monitors and provided additional labour as required.

Planned hand auger sampling locations were adjusted to allow for access issues such as topography and vegetation thickness.

The colour of the sand was relatively similar across the target area and was cream to light brown in colour, reflecting a contaminant clay coating. Initial geological observations identified the presence of heavy mineral sands which indicate an anomalous occurrence of titanium minerals (ilmenite and rutile), the major contaminant by mass.

Previous metallurgical studies had indicated that the heavy minerals are separate to and easily removed from the bulk of the high purity silica sand via spirals.

Preliminary metallurgical testing indicates the silica sand quality could be improved significantly, but not to the same quality as areas as Si 2 North.

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Figure 8: Si1 dune system viewed towards the coast. Parabolic dune blow outs occur in the upper younger dunes. Dark areas of predominantly ilmenite are present on dune slopes.

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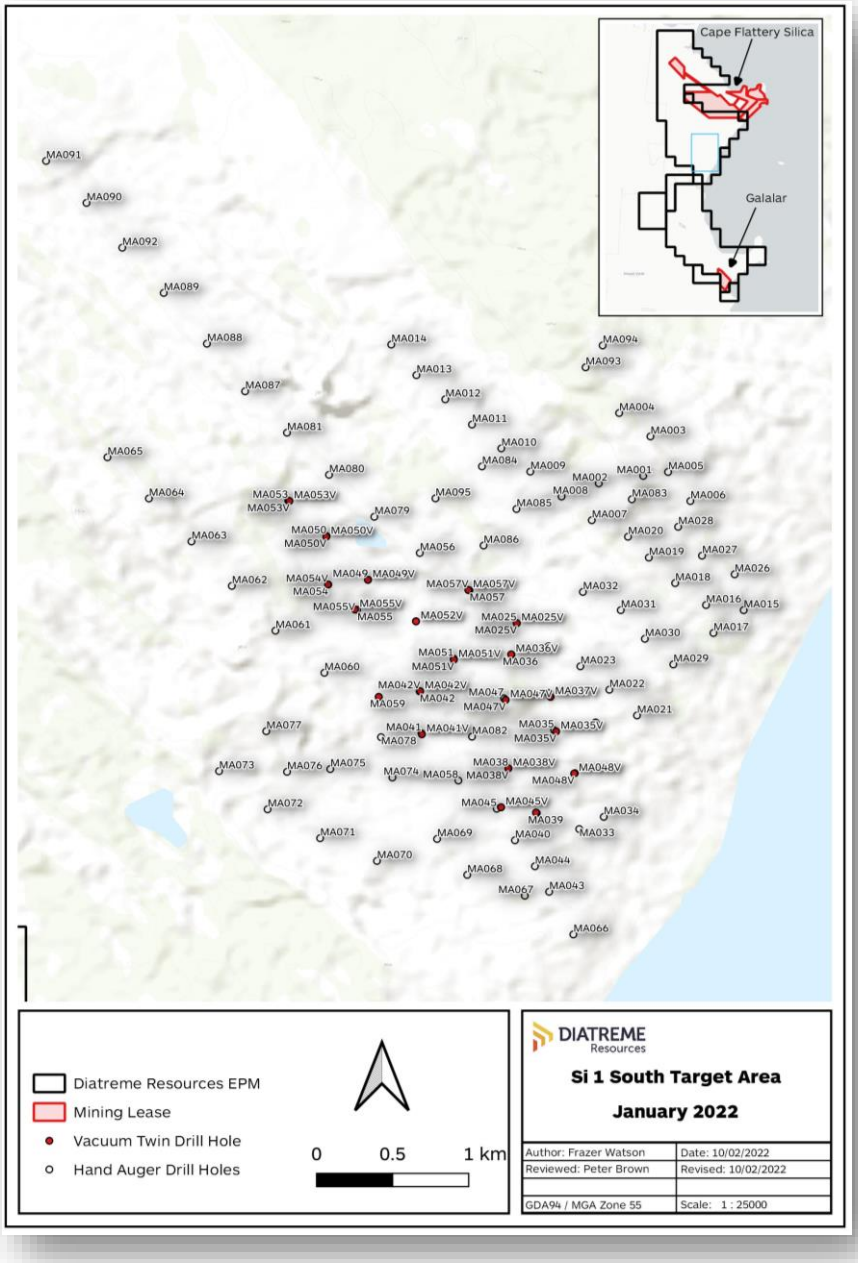

Figure 9: Si1 South drilling

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Table 3: Si1 South hand auger drilling

Hole ID	Easting	Northing	RL	Hole Depth (m)	SiO_2	Fe_2O_3	Al_2O_3	TiO_2	ZrO_2	Total	LOI
MA001	312490	8333093	98	5	97.71	0.44	0.67	0.37	0.04	99.77	0.46
MA002	312198	8333040	83	1.5	91.98	0.61	4.35	0.35	0.02	99.82	2.42
MA003	312535	8333361	110	5	97.23	0.60	0.36	0.69	0.08	99.52	0.43
MA004	312328	8333518	121	5	97.60	0.45	0.45	0.38	0.04	99.66	0.66
MA005	312653	8333121	101	5	97.52	0.50	0.56	0.47	0.05	99.66	0.44
MA006	312801	8332925	93	5	97.74	0.38	0.71	0.27	0.03	99.61	0.41
MA007	312154	8332790	89	5	98.21	0.32	0.40	0.20	0.02	99.58	0.36
MA008	311954	8332949	83	4	97.98	0.45	0.22	0.51	0.06	99.66	0.33
MA009	311747	8333116	75	5	98.47	0.27	0.30	0.27	0.03	99.72	0.31
MA010	311555	8333272	71	5	97.71	0.46	0.34	0.55	0.07	99.79	0.54
MA011	311361	8333432	64	5	98.70	0.20	0.36	0.18	0.02	99.82	0.29
MA012	311184	8333602	61	5	98.52	0.20	0.35	0.11	0.01	99.53	0.28
MA013	310993	8333764	61	5	98.30	0.17	0.43	0.17	0.01	99.62	0.48
MA014	310826	8333970	60	5	98.03	0.23	0.65	0.27	0.02	99.79	0.51
MA015	313157	8332188	49	5	98.47	0.26	0.41	0.30	0.03	99.85	0.30
MA016	312909	8332221	88	5	98.19	0.42	0.26	0.48	0.05	99.80	0.30
MA017	312960	8332032	78	4.3	96.23	0.24	1.94	0.30	0.03	99.88	0.99
MA018	312705	8332368	99	5	98.60	0.32	0.26	0.31	0.03	99.85	0.26
MA019	312531	8332540	102	5	98.30	0.48	0.27	0.51	0.06	99.99	0.24
MA020	312393	8332680	97	5	98.24	0.42	0.31	0.50	0.07	99.86	0.22
MA021	312462	8331469	90	5	98.04	0.34	0.59	0.31	0.02	99.72	0.33
MA022	312279	8331642	95	5	98.35	0.28	0.51	0.23	0.02	99.82	0.35
MA023	312087	8331799	103	5	97.49	0.44	0.71	0.42	0.06	100.01	0.78
MA024	311876	8331934	97	5	98.37	0.37	0.57	0.38	0.04	100.08	0.26
MA025	311666	8332089	96	5	97.99	0.37	0.53	0.36	0.05	99.87	0.50
MA026	313096	8332431	45	5	96.27	1.04	1.45	0.33	0.04	100.13	0.88
MA027	312880	8332555	52	5	98.08	0.37	0.64	0.31	0.03	99.89	0.37
MA028	312722	8332750	61	5	97.57	0.32	1.03	0.09	0.01	99.81	0.72
MA029	312698	8331817	70	5	98.20	0.35	0.69	0.20	0.01	99.99	0.46
MA030	312509	8331989	83	5	94.01	0.76	3.16	0.32	0.02	100.10	1.71
MA031	312349	8332182	77	5	98.49	0.20	0.49	0.13	0.02	99.74	0.35
MA032	312099	8332304	78	5	98.57	0.29	0.41	0.28	0.03	99.96	0.30
MA033	312088	8330697	74	3	91.77	1.15	4.46	0.25	0.02	100.12	2.38
MA034	312249	8330780	73	4.7	96.60	0.81	1.24	0.38	0.05	99.96	0.80

MA035	311917	8331366	94	5	98.37	0.28	0.20	0.39	0.04	99.58	0.23
MA036	311634	8331875	83	5	98.28	0.28	0.59	0.16	0.02	99.79	0.43
MA037	311877	8331617	92	5	98.13	0.29	0.58	0.17	0.01	99.66	0.41
MA038	311619	8331104	83	5	97.67	0.54	0.52	0.61	0.09	99.90	0.35
MA039	311808	8330803	82	5	98.49	0.23	0.41	0.20	0.02	99.83	0.38
MA040	311666	8330617	58	4	97.28	0.67	0.79	0.58	0.05	100.06	0.58
MA041	311046	8331338	55	5	97.90	0.56	0.48	0.68	0.09	100.18	0.36
MA042	311031	8331621	75	5	98.00	0.38	0.43	0.44	0.04	99.78	0.37
MA043	311894	8330270	58	5	98.37	0.27	0.45	0.28	0.03	99.84	0.37
MA044	311799	8330442	59	5	98.58	0.19	0.42	0.21	0.02	99.84	0.32
MA045	311545	8330830	65	5	98.07	0.38	0.50	0.43	0.04	99.84	0.34
MA046	312188	8331418	98	5	97.55	0.47	0.85	0.29	0.03	99.88	0.58
MA047	311586	8331578	85	5	98.60	0.25	0.38	0.18	0.02	99.86	0.36
MA048	312056	8331075	75	5	98.22	0.35	0.59	0.28	0.03	99.93	0.37
MA049	310687	8332375	71	5	98.09	0.40	0.50	0.40	0.04	99.93	0.41
MA050	310411	8332669	72	5	97.39	0.58	0.44	0.72	0.10	99.85	0.47
MA051	311254	8331846	82	4	98.25	0.35	0.43	0.37	0.04	100.05	0.52
MA052	311003	8332097	75	5	98.20	0.38	0.49	0.39	0.04	99.98	0.38
MA053	310157	8332908	67	5	98.50	0.36	0.33	0.37	0.04	100.04	0.32
MA054	310425	8332340	70	5	97.92	0.50	0.41	0.61	0.06	99.95	0.34
MA055	310617	8332171	70	5	97.95	0.43	0.56	0.44	0.05	99.93	0.41
MA056	311025	8332559	78	5	97.83	0.50	0.35	0.63	0.10	99.82	0.29
MA057	311354	8332309	84	5	97.82	0.50	0.43	0.60	0.08	99.90	0.35
MA058	311291	8331019	57	5	97.84	0.48	0.53	0.56	0.07	99.97	0.38
MA059	310763	8331582	49	5	97.86	0.47	0.43	0.67	0.05	100.05	0.40
MA060	310404	8331742	46	5	97.13	0.23	1.02	0.44	0.04	100.04	1.03
MA061	310080	8332025	70	5	98.03	0.44	0.33	0.66	0.02	100.11	0.43
MA062	309791	8332326	57	5	98.03	0.53	0.34	0.77	0.01	100.28	0.38
MA063	309523	8332625	59	5	97.62	0.58	0.33	0.84	0.08	99.92	0.32
MA064	309241	8332914	61	5	97.44	0.66	0.34	0.96	0.03	100.00	0.35
MA065	308966	8333191	64	5	97.41	0.78	0.34	1.16	0.04	100.35	0.32
MA066	312055	8329982	53	5	98.74	0.26	0.40	0.33	0.10	100.15	0.27
MA067	311734	8330242	52	5	96.26	0.30	1.73	0.48	0.04	100.24	1.27
MA068	311354	8330380	49	5	98.22	0.44	0.27	0.73	0.04	100.19	0.30
MA069	311154	8330622	55	5	97.57	0.61	0.40	0.90	0.02	100.10	0.31
MA070	310760	8330470	53	5	98.24	0.45	0.39	0.41	0.03	100.08	0.40
MA071	310385	8330621	55	5	98.32	0.30	0.25	0.37	0.04	99.62	0.21
MA072	310038	8330814	51	4.5	97.53	0.67	0.71	0.32	0.02	99.88	0.50
MA073	309717	8331070	49	5	98.16	0.34	0.35	0.34	0.03	99.63	0.27

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MA074	310857	8331036	40	5	97.93	0.34	0.40	0.49	0.03	99.67	0.33
MA075	310448	8331090	38	5	98.53	0.18	0.26	0.30	0.06	99.63	0.22
MA076	310164	8331069	43	5	97.93	0.38	0.29	0.50	0.09	99.57	0.27
MA077	310025	8331343	44	5	98.24	0.25	0.29	0.34	0.04	99.57	0.30
MA078	310780	8331309	45	5	97.39	0.56	0.42	0.74	0.05	99.76	0.40
MA079	310724	8332802	65	5	97.46	0.57	0.35	0.77	0.04	99.75	0.34
MA080	310424	8333084	65	5	97.06	0.74	0.34	1.07	0.06	99.92	0.36
MA081	310145	8333367	65	5	97.77	0.47	0.35	0.63	0.09	99.68	0.24
MA082	311378	8331317	75	5	93.81	0.90	3.11	0.17	0.08	99.81	1.68
MA083	312416	8332934	90	4.4	95.99	0.24	2.09	0.17	0.08	99.78	1.15
MA084	311429	8333149	72	5	98.25	0.29	0.40	0.32	0.02	99.65	0.23
MA085	311658	8332862	69	5	97.89	0.49	0.40	0.61	0.07	99.93	0.30
MA086	311444	8332613	53	4	93.27	0.65	3.64	0.38	0.03	100.15	2.04
MA087	309868	8333646	71	5	97.83	0.55	0.37	0.76	0.10	100.12	0.33
MA088	309614	8333966	72	5	97.74	0.53	0.36	0.73	0.11	99.84	0.22
MA089	309327	8334308	71	5	97.97	0.47	0.37	0.63	0.08	99.91	0.24
MA090	308814	8334914	69	5	97.93	0.47	0.32	0.64	0.08	99.87	0.28
MA091	308546	8335196	69	3	97.75	0.54	0.32	0.73	0.13	99.88	0.30
MA092	309052	8334612	69	5	97.84	0.51	0.34	0.68	0.11	99.87	0.26
MA093	312105	8333826	TBA	2	98.33	0.13	0.12	0.17	0.01	99.84	0.99
MA094	312216	8333975	TBA	4	97.84	0.48	0.64	0.40	0.04	100.02	0.54
MA095	311125	8332930	TBA	5	92.50	0.68	4.26	0.31	0.02	100.29	2.43
Total m				**457.9**							

Results returned in 2021 exhibited a consistent sand quality within the lower clay horizons and a high Fe_2O_3 from ilmenite minerals within the HMS fraction. Significant ZrO_2 results form part of the HMS suite of minerals.

Preliminary metallurgical testing has been completed on four composite samples from across the dune field to determine if Si1 South sand can be readily upgraded to high purity silica sand using gravity separation to remove heavy minerals, attritioning to remove contaminants from the surface of silica grains, classification to remove fine particles, and magnetic separation to remove any remaining particles with high iron content.

This silica characterisation procedure was conducted using three kilogram splits from each composite sample which were processed through laboratory bench scale equipment to simulate the best possible silica product that could be produced by the proposed Galalar processing plant.

The four silica product samples produced by the characterisation procedure did not achieve the chemical composition of high purity silica. All product samples were too high in Fe_2O_3 and Al_2O_3 to make high purity silica classification. However, the four samples were low in other potential contaminants. For all samples BaO, Cr_2O_3, K_2O, MgO, MnO,

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Na_2O, P_2O_5 and SrO were below the detection limit for the assay method and ZrO_2 was not applicable for this assay method.

Table 4: Si1 South product sample chemical assays

Sample ID	SiO_2	Fe_2O_3	Al_2O_3	TiO_2	CaO	Total	LOI	SiO_2 % of Total
Si1-C1	98.48	0.07	0.14	0.02	0.01	98.96	0.1	99.51
Si1-C2	99.10	0.08	0.24	0.03	0.01	99.67	0.18	99.43
Si1-C3	98.77	0.07	0.21	0.02	0.01	99.29	0.19	99.48
Si1-C4	98.35	0.07	0.18	0.02	<0.01	98.90	0.15	99.44

All Si1 South product samples had a tan discolouration due to the iron content indicating the zone of the sand dune that is represented by these samples is lower priority for exploration and development. The SiO_2 assays are satisfactory at approximately 99.5% when the assayed value is presented as a percent of total analytes.

Si1 South Vacuum Drilling

Follow up vacuum drilling on a 400m grid was completed in late 2021 to twin a percentage of hand auger holes, resulting in 22 holes for a total of 613.3m. The vacuum holes targeted the entire dune profile and were drilled to the water table, with some holes abandoned in clay.

The sand quality was consistent through most of this area of the dune complex and the sand colour was a light brown-cream colour from iron oxide and clay staining. Inspection under hand lens indicated the sand was predominantly white in colour, with a percentage of sand being contaminated with a coating of clay.

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Figure 10: Si1 South vacuum drilling in progress

In proximity to the coast, sand quality at the surface is higher in alumino-silicate clays and iron oxides from paleo B1 horizons which form a remnant topographic high. It is considered the exposed B1 clays observed along the coast 'dust' the high purity silica sands with a contaminated sand grains as the mobile aeolian sand migrates over this topographic high. This is readily observable in the upper elongate parabolic dunes within the Si1 dunes.

SiO_2 as compared to the rest of the dune is lower and is contaminated with predominantly aluminium and HMS.

The table below is an average of all analysis using an upper 0.83% Al_2O_3 cut off which removes the underlying B1 clayey sands from the dataset.

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Table 5: Si1 South vacuum drilling

Hole ID	Easting	Northing	RL	TD	From	To	Al_2O_3	Fe_2O_3	SiO_2	TiO_2	ZrO_2	Total	LOI
MA038V	311619	8331104	83	35	0	19	0.54	0.48	98.11	0.49	0.07	100.21	0.43
MA039V	311803	8330806	82	34	0	21	0.42	0.25	98.55	0.20	0.02	99.77	0.27
MA035V	311931	8331357	94	26	0	11	0.36	0.33	98.48	0.33	0.03	99.89	0.27
MA047V	311597	8331568	85	10.2	0	10	0.36	0.21	98.96	0.15	0.02	100.07	0.32
MA051V	311255	8331838	82	18.5	0	18.5	0.37	0.27	98.61	0.26	0.03	99.87	0.27
MA052V	311004	8332096	75	33	0	20	0.40	0.29	98.38	0.24	0.03	99.61	0.22
MA049V	310685	8332374	71	35.5	0	28	0.43	0.35	98.39	0.33	0.04	99.86	0.25
MA050V	310409	8332665	72	28	0	28	0.36	0.28	98.67	0.27	0.04	99.95	0.26
MA053V	310165	8332905	67	20.5	0	20.5	0.33	0.21	98.76	0.17	0.02	99.77	0.22
MA054V	310423	8332341	70	28	0	27	0.39	0.35	98.18	0.37	0.04	99.69	0.28
MA042V	311035	8331623	75	24	0	14	0.45	0.30	98.40	0.29	0.03	99.91	0.36
MA055V	310603	8332172	70	24	0	21	0.53	0.34	98.36	0.31	0.03	99.99	0.34
MA037V	311892	8331591	92	14	0	6	0.62	0.34	98.43	0.23	0.02	100.14	0.42
MA036V	311631	8331877	83	16	0	8	0.64	0.28	98.43	0.19	0.03	100.06	0.44
MA057V	311346	8332311	84	45.5	0	45.5	0.32	0.29	98.84	0.27	0.03	100.03	0.20
MA025V	311666	8332088	96	36	0	27	0.34	0.31	98.79	0.27	0.03	100.05	0.24
MA046V	312190	8331420	98	20	0	8	0.82	0.42	97.62	0.23	0.03	99.82	0.63
MA048V	312052	8331073	75	20	0	9	0.60	0.33	98.15	0.24	0.02	99.81	0.37
MA041V	311048	8331331	55	19	0	14	0.48	0.37	98.17	0.38	0.04	99.82	0.30
MA059V	310763	8331582	55	33.5	0	26	0.45	0.43	97.99	0.58	0.06	99.90	0.30
MA058V	311573	8330840	57	43	0	37	0.51	0.38	98.25	0.33	0.03	99.85	0.28
MA045V	311573	8330840	65	50	0	16	0.52	0.26	98.00	0.24	0.02	99.52	0.40
					42	50	0.14	0.10	99.09	0.11	0.01	99.61	0.11

NB A cut-off of >0.8% Al2O3 was arbitrarily used

This announcement was authorised for release by the Board of Directors of the Company.

Neil McIntyre
Chief Executive Officer

Wayne Swan
Chairman

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About Diatreme Resources

Diatreme Resources (ASX:DRX) is an emerging Australian producer of mineral and silica sands based in Brisbane. Our key projects comprise the Galalar Silica Sand Project in Far North Queensland, located next to the world's biggest silica sand mine, together with the Cyclone Zircon Project in Western Australia's Eucla Basin, considered one of a handful of major zircon-rich discoveries of the past decade.

For more information, please visit www.diatreme.com.au

ASX releases referenced in this release

- Quarterly Activities Report - 31 January 2022
- Diatreme Discovers 2nd Major Regional High-Grade Silica Deposit – 10 January 2022
- Galalar Maiden Ore Reserve, PFS delivers substantial boost to new silica sand mine – 9 November 2021
- Quarterly Activities Report – 29 October 2021
- High priority northern exploration targets – progress update – 28 September 2021
- Galalar silica resource expands by 22% to 75.5 Mt – 20 September 2021

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Table 6 – Existing Resource Estimate, Galalar Silica Project

JORC Resource Category	Silica sand (Mt)	Silica sand (Mm^3)	Cut-off SiO_2 (%)	SiO_2 %	Fe_2O_3 %	TiO_2 %	LOI %	Al_2O_3 %	Density (t/m^3)
Measured	43.12	26.95	98.5	99.21	0.09	0.11	0.16	0.13	1.60
Indicated	23.12	14.45	98.5	99.16	0.09	0.13	0.24	0.10	1.60
Inferred	9.22	5.76	98.5	99.10	0.11	0.16	0.27	0.11	1.60
Total**	**75.46**	**47.16**	**98.5**	**99.18**	**0.09**	**0.12**	**0.20**	**0.12**	**1.60**

- *Resource estimate current as of 13 September 2021, with no material change.*

  *** Total inferred, indicated and measured*

Table 7 – Probable Ore Reserve, Galalar Silica Project

JORC Category	Silica Sand (Mt)	Silica Sand (Mm3)	Cut-off SiO_2 (%)	Waste (Mt)	SiO_2 %	Fe_2O_3 %	TiO_2 %	LOI %	Al_2O_3 %	Density (t/m^3)
Probable Ore Reserves	32.53	20.33	98.5	0.04	99.20	0.08	0.11	0.16	0.13	1.60

- *Resource estimate current as at 9th November 2021 – with no material change.*

Table 8 Inferred Resource, Si North Project

JORC Resource Category	Silica Sand (Mt)	Silica Sand (Mm^3)	Cut-off SiO_2 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	Al_2O_3 (%)	LOI (%)	Density (t/m^3)
Inferred	53	33	98.5	99.32	0.12	0.16	0.08	0.15	1.60

- *Resource estimate current as at 10th January 2022 – with no material change.*

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COMPETENT PERSON STATEMENT

The information in this report that relates to Mineral Resources at the Galalar and Si2 North Prospect is based on information, geostatistical analysis and modelling carried out by Mr Chris Ainslie, Project Engineer – Mining & Quarrying and Mt Brice Mutton, Geologist.

Mr Ainslie is an employee of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy and a Member of the Australian Institute of Geoscientists. Mr Ainslie worked under the supervision of Mr Carl Morandy, Mining Engineer who is Managing Director of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy and Mr Brice Mutton, Senior Geologist who is an Associate of Ausrocks Pty Ltd and is a Fellow of the Australasian Institute of Mining & Metallurgy and a Fellow of the Australian Institute of Geoscientists.

Ausrocks Pty Ltd have been engaged by Diatreme Resources Limited to prepare this independent report and there is no conflict of interest between the parties.

Mr Mutton has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity for 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 (The JORC Code).

Mr Mutton consents to the inclusion in the report on the matters based on their information in the form and context in which it appears.

The information in this report that relates to Exploration Results and Exploration targets from the Si2 North Prospect is based on information reviewed and compiled by Mr. Neil Mackenzie-Forbes, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr. Mackenzie-Forbes is a director of Sebrof Projects Pty Ltd (a consultant geologist to Diatreme Resources Limited). Sebrof Projects Pty Ltd have been engaged by Diatreme Resources Limited to prepare this independent report and there is no conflict of interest between the parties.

Mr. Mackenzie-Forbes has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity for 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 (The JORC Code).

Mr. Mackenzie-Forbes consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

FORWARD LOOKING STATEMENTS

This document may contain forward looking statements. Forward looking statements are often, but not always, identified by the use of words such as “seek”, “indicate”, “target”, “anticipate”, “forecast”, “believe”, “plan”, “estimate”, “expect” and “intend” and statements that an event or result “may”, “will”, “should”, “could” or “might” occur or be achieved and other similar expressions. Indications of, and interpretations on, future expected exploration results or technical outcomes, production, earnings, financial position, and performance are also forward-looking statements.

The forward-looking statements in this presentation are based on current interpretations, expectations, estimates, assumptions, forecasts and projections about Diatreme, Diatreme’s projects and assets and the industry in which it operates as well as other factors that management believes to be relevant and reasonable in the circumstances at the date that such statements are made.

The forward-looking statements are subject to technical, business, economic, competitive, political and social uncertainties and contingencies and may involve known and unknown risks and uncertainties. The forward-looking statements may prove to be incorrect.

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