South Australian
HERITAGE COUNCIL

BETTER HERITAGE INFORMATION
SUMMARY OF STATE HERITAGE PLACE
Mount Desire Dyke Geological Site

Mount Desire Dyke Geological Site SHP 14805, 2025.

Source: Google Earth 2025

ENTRY IN THE REGISTER

Description or notes with respect to a place entered in the South Australian Heritage Register in accordance with either the *South Australian Heritage Act 1978* or the *Heritage Places Act 1993.*

The South Australian Heritage Council may correct errors or inaccuracies in the Entry in the Register in accordance with s21 of the *Heritage Places Act 1993*.

NAME: Mount Desire Dyke **PLACE NO.:** 14805

Mount Desire Dyke Geological Site (Proposed)

ADDRESS: Lot 142, Parawilia Gorge Rd

Hawker 5434

CT 6200/607 H350200 S151,152,166,167

Hundred of Arkaba

CONFIRMED IN THE SOUTH AUSTRALIAN HERITAGE REGISTER:

30 March 1998

DESIGNATED AS A PLACE OF GEOLOGICAL SIGNIFICANCE

10 April 1997

S16 CRITERIA SATISFIED UNDER *HERITAGE PLACES ACT 1993*

(b) it has rare, uncommon or endangered qualities that are of cultural significance

(c) it may yield information that will contribute to an understanding of the State's history, including its natural history

COMMENTARY ON THE LISTING

Additional information provided as a part of the content of the South Australian Heritage Register in accordance with s14(6) of the *Heritage Places Act* 1993 'hold information in association with the Register'.

KNOWN AS: Mount Desire Dyke [Designated place of geological significance]

ADDRESS Adnyamathanha Country

STATEMENT OF HERITAGE SIGNIFICANCE

This site contains a number of features of considerable importance to research and debate concerning the nature and origin of the Mt Desire Dyke and other 'diapirs' of the Flinders Ranges, including: typical dolomitic breccia and a large limestone xenoclast of probable Willouran origin; sharp irregular and distinctive contacts with early Cambrian Parara and Wilkawillina Limestones, including a particularly important apophysis interpreted as an intrusive re-entrant; and significant brecciation in, and metamorphic incongruence between, the material of the dyke and the adjacent Cambrian limestones.

Validated 22 February 2000

STATEMENT OF HERITAGE SIGNIFICANCE (PROPOSED)

Mount Desire Dyke, in association with the larger Arkaba Breccia Intrusion, is a rare, excellent and accessible display of the breccia intrusive process that differs from our current (2026) understanding of diapir formation and is highly likely to contribute to ongoing understanding of the formation and development of diapirs within South Australia.

The ~850-880 Ma brecciated material associated with the Mount Desire Dyke includes a variety of xenoclasts, some Cambrian limestones and some of probable 'Willouran' origin. Breccia of the Mount Desire Dyke contacts sharply with host rocks and demonstrate unusual mobility at the time of formation through pulling apart of the host sequences. Several hypotheses currently exist for the formation of the breccia intrusion in such a manner and further research is likely to determine both its method of formation and that of other diapir structures in the State.

STATEMENT OF DESIGNATION

Designated Place of Geological Significance

Mount Desire Dyke Geological Site provides rare evidence in support of an alternative model about the formation of intrusive breccia exposures and diapirs in South Australia. The Mount Desire Dyke acts as an extension to the southern lobe of the Arkaba Breccia Intrusion and provides an accessible and excellent example of the relationship of folding and faulting in the cover sequences and geometry, timing, and evolution of the intrusive breccia into surrounding rock formations of the Mernmerna Formation, Woodendinna Dolomite and Wirrapowie Limestone. This unusual and rare morphology has a high potential of yielding information to better understand the formation of the diapirs of the Flinders Ranges. The sensitive Mount Desire Dyke exposure is a superb geological record of global significance.

Elements of Significance:

Elements of heritage significance include:

- Outcrops of the intrusive breccias comprising the Mount Desire Dyke, featuring limestone and basalt xenoclasts, diapiric breccia and minor mineralisation.
- Contact geometry between intrusive breccia and surrounding host rock,
- Brecciation and metamorphic incongruence between material of the dyke and adjacent sediment,
- Pull-apart geometry.

Elements not considered to contribute to significance of place include:

- Human-made objects, trails and roads, vegetation, fencing and signage.

CRITERIA (under section 16 of the Heritage Places Act 1993)

(b) it has rare, uncommon or endangered qualities that are of cultural significance

It has rare, uncommon or endangered qualities that are of cultural significance because this site contains a number of features of considerable importance to research and debate concerning the nature and origin of the Mount Desire Dyke and other 'diapirs' of the Flinders Ranges. (Criteria statement considered at provisional entry, not reconsidered at confirmation. If proposed criteria statement is approved by the SAHC this will be deleted from this document.)

***(b) it has rare, uncommon or endangered qualities that are of cultural significance* (Proposed replacement statement)**

The Mount Desire Dyke Geological Site contains several rare features that are likely to contribute to the scientific understanding of the development of diapirs.

Though intrusive breccia is common in diapirs and dyke-like formations, the geology of this specific arm of the Arkaba Breccia Intrusion is rare and is expressed in few localities within the State, the high-quality example is matched only by the Thompson Gap Breccia Intrusion to the West. As a result, the example of breccia intrusion at The Mount Desire Dyke Geological Site is rare in its morphology.

The Mount Desire Dyke was integral to the development of an alternative model for diapirs and breccia emplacement formulated in 1975. A majority of the diapirs in the Flinders Ranges have long been accepted as following the Gulf of Mexico (GoM) diapir model, which is defined as a vertical intrusion of ductile, low-density salt, that has forced its way upwards by buoyancy into pre-existing and often more brittle rocks. Geologist Dr Trevor Mount hypothesises an alternative in which highly mobile, fluidised intrusive breccia are emplaced through weaknesses and fractures in the surrounding geology. Mount Desire Dyke, in association with the Arkaba Breccia Intrusion Geological Site clearly demonstrate this newly developed model.

The Mount Desire Dyke Geological Site's rare features include minimal alteration of the surrounding host rock such that, without the breccia, the opposing host rock masses could be pushed back together, like jigsaw pieces. Few places within the Flinders Ranges clearly demonstrate this form of contact between diapirs and host rocks. The dyke also demonstrates "re-entrant" breccia flow and metamorphic incongruence, a type of poorly understood deformation of rock at the contact.

(c) it may yield information that will contribute to an understanding of the State's history, including its natural history

This geology may yield information that will contribute to an understanding of the State's natural history. (Criteria statement considered at provisional entry, not reconsidered at confirmation. If proposed criteria statement is approved by the SAHC this will be deleted from this document.)

***(c) it may yield information that will contribute to an understanding of the State's history, including its natural history* (Proposed replacement statement)**

The exposed complexity and mappable character of the Mount Desire Dyke Geological Site provides new information on diapir genesis. Notably, Mount Desire Dyke geological site displays evidence of breccia intrusions where mobility is the key to emplacement rather than low density evaporite movement of conventional 'diapirs' following the GoM diapir model.

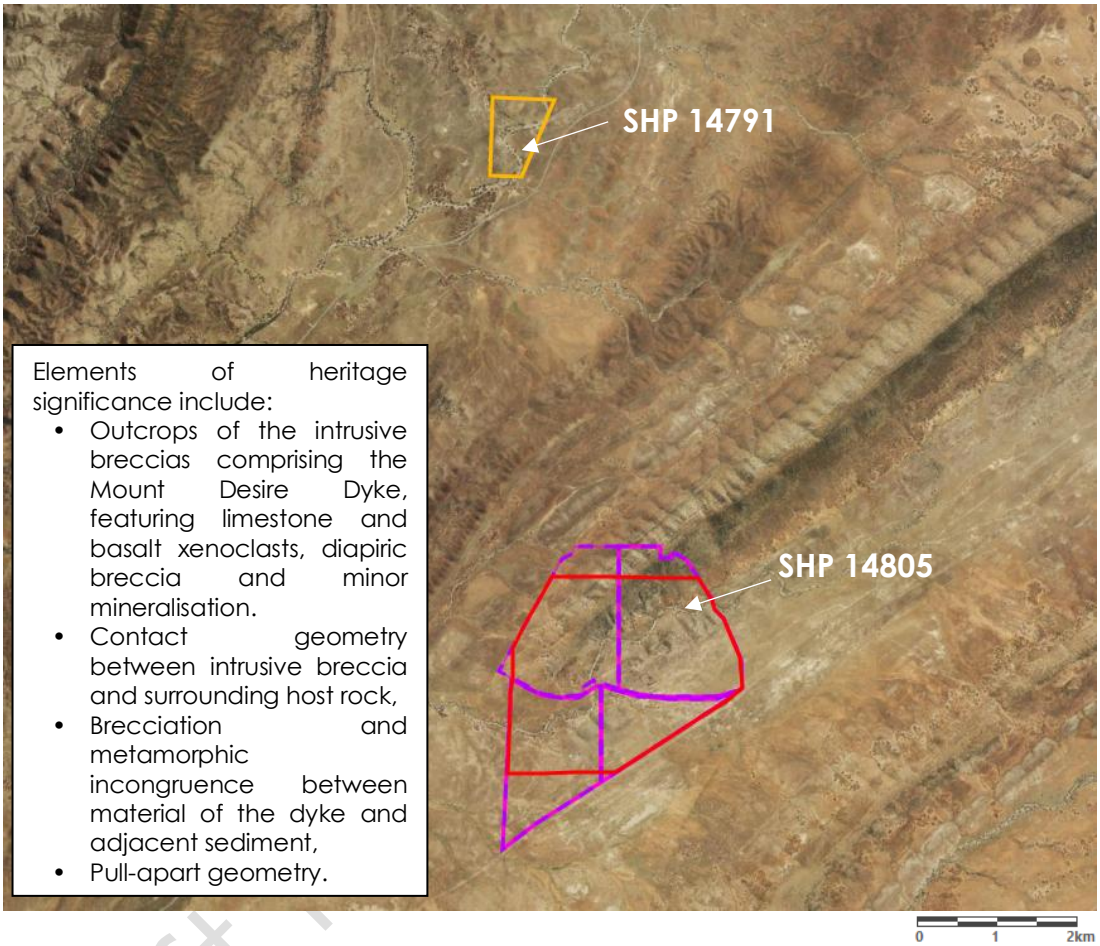
The sharp contact between the Mount Desire Dyke surrounding host rocks suggests a gradual invasion through a pre-existing point of weakness rather than through forceful emplacement. Described as an 'intrusive re-entrant', Mount Desire Dyke contradicts the GoM model and provides a rare insight into the likely formation of the associated Arkaba Breccia Intrusion.

Many of the features of the Mount Desire Dyke Geological Site are important to the ongoing debate of diapir formation in the Flinders Ranges. As a part of the larger, nearby Arkaba Breccia Intrusion, this site is highly significant for determining how other Flinders Ranges structures currently (2026) referred to as diapirs may have formed and could potentially be used as a global reference.

SITE PLAN

Mount Desire Dyke Geological Site **PLACE NO.: 14805**

Hawker SA



Mount Desire Dyke Geological Site Lot 142, Parawilia Gorge Rd, Hawker 5434, Hundred of Arkaba CT 6200/607 H350200 S151,152,166,167

Includes: Arkaba Creek Diapir, Arkaba Station (SHP 14791)

N ↑

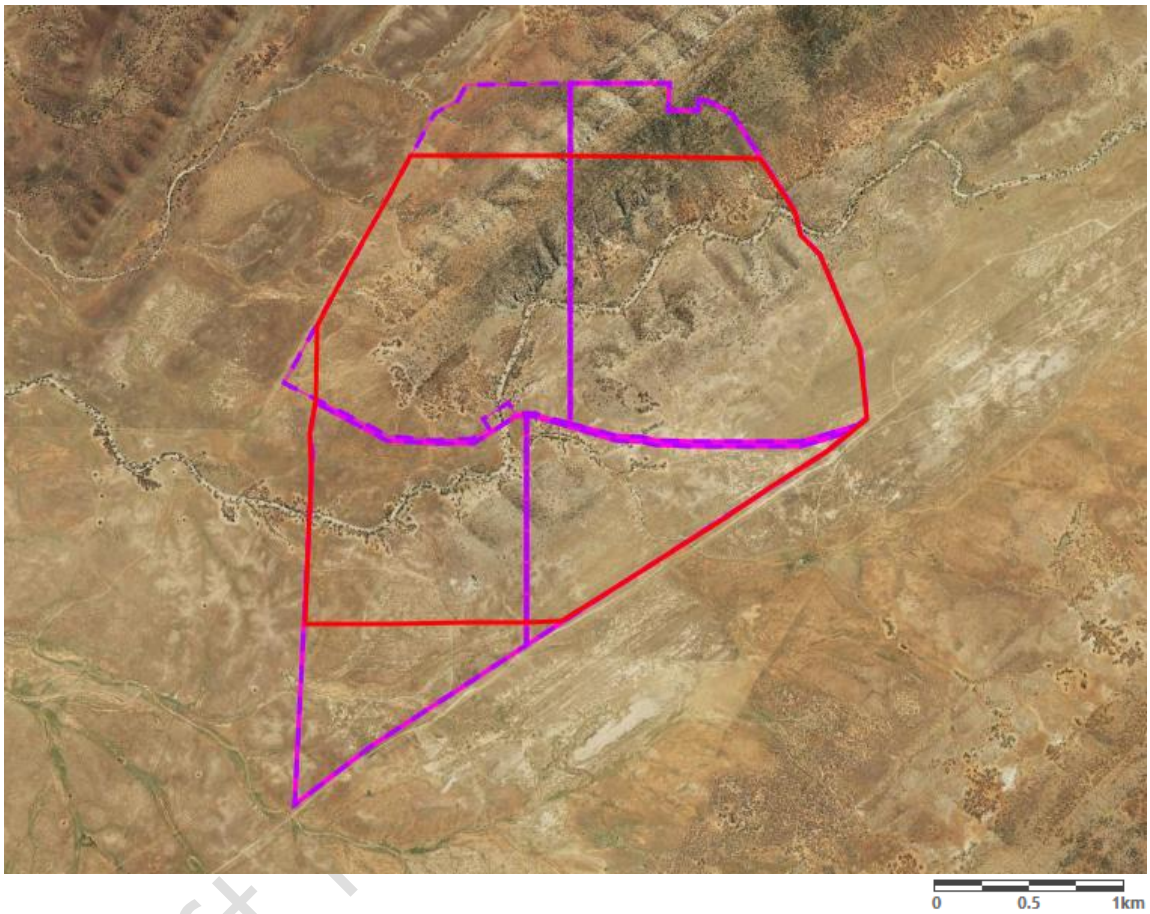
LEGEND

- Parcel boundaries (Indicates extent of Listing)
- Existing State Heritage Place(s)
- Outline of Elements of Significance for State Heritage Place

SITE PLAN - DETAIL

Mount Desire Dyke Geological Site **PLACE NO.: 14805**

Hawker SA



Mount Desire Dyke Geological Site Lot 142, Parawilia Gorge Rd, Hawker 5434, Hundred of Arkaba CT 6200/607 H350200 S151,152,166,167

N ↑

LEGEND

Parcel boundaries (Indicates extent of Listing)

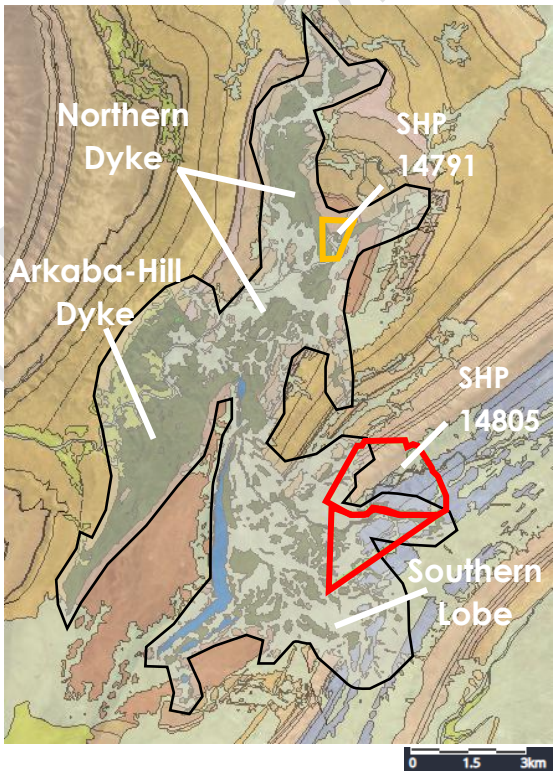
Outline of Elements of Significance for State Heritage Place

PHYSICAL DESCRIPTION

Mount Desire Dyke Geological Site contains the plug-like emplacement of the Mount Desire Dyke which cleanly bisects associated host rocks. The geological site encompasses a portion of the Southern Lobe of the Arkaba Breccia Intrusion, a large, highly complex and far-spanning 'diapir' with several branching dyke structures.

The Arkaba Breccia Intrusion has been referred to as a 'breccia intrusion' rather than a diapir by Dr Trevor Mount, the leading geologist on the structure, since 1975, to differentiate it from structures with features similar to the Gulf of Mexico (GoM) diapir model.

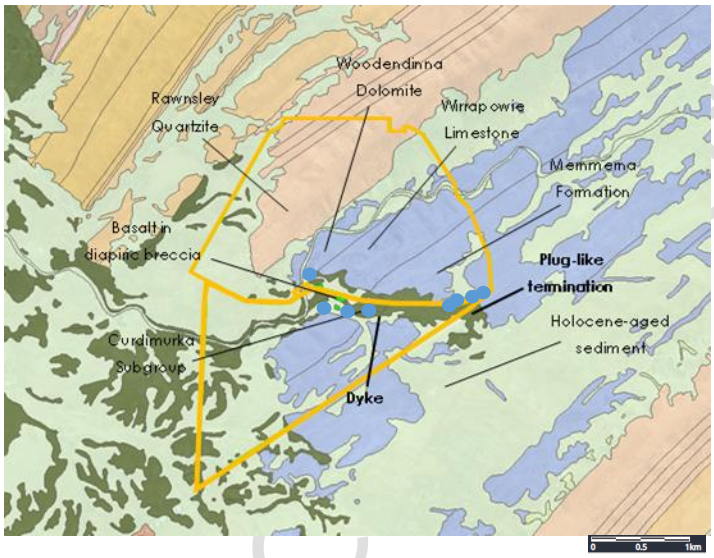
Mount's model for the Arkaba Breccia Intrusion, and by association, for the Mount Desire Dyke is differentiated from a conventional diapir in that, rather than piercing directly through the overlying rocks by movement of buoyant evaporites, the diapiric breccias appear to have slowly intruded through the layers of rock during regional folding events. Weaknesses in the overlying stratigraphy, such as faults, permitted the creation of a network of dykes of variable size, age and form. In this way, the invading breccia mass eventually bisects and sculpts masses of host rock in response to regional folding rather than the usual morphing, doming and upturning of the



Basic outline of the Arkaba breccia intrusion in black. Including Mount Desire Dyke Geological Site (SHP 14805) and Arkaba Breccia Intrusion Geological Site (SHP 14791)

surrounding host rock typical of GoM-type salt diapirs. Such geology is clearly evident and described from the Mount Desire Dyke Geological Site.

The dyke bisects folded and fractured strata of Cambrian-aged (538-485.4 Ma) Woodendinna Dolomite, Wirrapowie Limestone and the Mernmerna Formation of the Hawker Group.[1] At the time of confirmation on the State Heritage Register, these formations were recognised as the Wilkawillina Limestone (Now Woodendinna Dolomite and Wirrapowie Limestone) and the Parara Limestone (Now Mernmerna Formation) and are now revised.



Geology of the Mount Desire Dyke interpreted from SARIG (N.D.) Pockets of mineralisation denoted in blue. Mount T (2022).

The Curdimurka subgroup of the Callanna Group makes up a majority of the Arkaba Breccia Intrusion and the main body of the Mount Desire Dyke. Diapiric breccias often contain blocks of xenoclasts of dolomite or calcite as remnants of the other host rock that they intruded into.[2] Stromatolites are also present in the diapir as xenoclasts.[3] Along with these, the Mount Desire Dyke Geological Site also contains evidence of mineralisation processes including copper, crocidolite asbestos and talc.[4] The place has a possibility to include other secondary minerals like adularia, magnesioreibekite, stilpnomelane, and malachite which are known from the larger Arkaba Breccia Intrusion. To produce these, a temperature of up to ~300˚ C would be required.[5]

Fine-grained unaltered mineral components of the breccia matrix are usually weathered or under a soil cover in the State Heritage Place.[6] However, host rock along the sharp contact with the breccias generally show little or no alteration that is attributable to the intrusion. The contact between the Mount Desire Dyke and the Mernmerna Formation is particularly sharp,[7] but for some minor dolomitisation of the host limestones along part of the southern margin.[8] Presumably, the dolomitisation was caused by the invading liquidised breccia intrusion.

While only partially within the State Hertiage Place, the Mount Desire Dyke terminates to the east as an upright cylindrical plug reminiscent of a bored diatreme pipe[9] rather than a salt plug expected of GoM diapirs. This form of termination requires research and the termination at Mount Desire Dyke is perhaps one of the best examples in the State.[10] The other best known example being of the Thompson Gap breccia intrusion.

The intrusive breccia, is composed of weathered limonite, and dolostones with inclusions of quartz, feldspar and some talc and is exposed under thin layers of soil on the surface in the State Heritage Place.[11]

Elements of Significance:

Elements of heritage significance include:

- Outcrops of the intrusive breccias comprising the Mount Desire Dyke, featuring limestone and basalt xenoclasts, diapiric breccia and minor mineralisation.
- Contact geometry between intrusive breccia and surrounding host rock,
- Brecciation and metamorphic incongruence between material of the dyke and adjacent sediment,
- Pull-apart geometry.

Elements not considered to contribute to significance of place include:

- Human-made objects, trails and roads, vegetation, fencing and signage.

HISTORY OF THE PLACE

Diapirs are intrusions of ductile, pressurised material that are forced or enter upwards into pre-existing and often more brittle rocks. The material that comprises a diapir is normally less dense than the surrounding material, causing vertical intrusion through buoyancy. Common forms of diapirs are the result of shales, or low-density evaporites, such as salt, that rise and penetrate layers of host rock along faults or other weaknesses.[12] When large enough, this movement causes an uplift of rocks in the surrounding areas, creating a dome-shaped protrusion in the natural terrain. Although rare, the diapir material can, in some locations, eventually become exposed at the surface through erosion.

Dykes are sheet-like intrusions into surrounding rocks. Often, as extensions to a larger 'parent core' such as a volcano, diapir or breccia intrusion. In this case, the Mount Desire Dyke is recognised as a dyke-like structure that is associated with the nearby Arkaba Breccia Intrusion.[13]

The majority of diapirs formed in the Flinders Ranges are considered to follow the above process, known as the GoM diapir model. However, research and geological mapping of the Arkaba Breccia Intrusion and the Thompson Gap diapir conducted by Dr Trevor Mount led to his suggestion that some 'diapirs' in the Flinders Ranges were

not formed in accordance with the GoM model nor do they have the necessary physical features to qualify as typical diapirs. In these instances, the use of the term 'breccia intrusion' as opposed to 'diapir' was proposed by Mount as being more appropriate.[14] While local geological studies continue to test and compare the models, both terms are acceptable. The Mount Desire Dyke Geolgoical Site demonstrates features that refute the GoM diapir model for at least some of the Flinders intrusions.

The intrusive breccia of the Mount Desire Dyke is largely made up of the Curdimurka Subgroup, part of the Callanna Group of 'Willouran' age (~827-802Ma). It was most likely deposited in a lake or coastal mud or sandflats known as sabkhas.[15] Over time, several other formations were deposited above the Curdimurka Subgroup where it remained buried until it was brecciated and became a major component of the fluidised and mobile rock that migrated upwards into the overlying cover rock.

The Hawker group is in direct contact with elements of the highly brecciated Curdimurka Subgroup/Callanna Group of the Mount Desire Dyke and is split *in situ* by the dyke. Within the State Heritage Place, the main stratigraphic layers present and bisected by the diapir are the Woodendinna Dolomite, Wirrapowie Limestone and Mernmerna Formation. These are younger, Cambrian-aged (538-485.4 Ma) sediments that likely finished forming prior to 509Ma.[16]

Developing a conclusive model for the diapiric breccia of the Mount Desire Dyke and its relationship with the surrounding host rock is thought to be vital to understand the origin of the 'diapirs' of the Flinders Ranges.[17] The 'Willouran' intrusive material at Mount Desire Dyke and by extension the Arkaba breccia intrusion, cleanly bisected surrounding Cambrian-aged host rock in a pull-apart motion, rather than the usual morphing, doming and twisting of typical 'diapiric' emplacement. The relationships with the surrounding rock show that as the dyke developed, the invading material cleanly moved up as permitted into zones of evolving or potential weakness or low resistance, [18] such as pre-existing fractures with very little crushing or chemical alteration of the host. It was proposed by Dr Trevor Mount that the dyke utilised fractures perpendicular to folding axes and into further overlapping faults which eventually caused it to form where it is relative to the syncline associated with the Chace and Druid Ranges (Chace-Druid Syncline). This geometry supports the previous view that regional folding and breccia intrusions occurred concurrently, likely linked to the Delamerian Orogeny.[19] The Delamerian Orogeny[20] (~500 Ma)[21] was a mountain-building event that caused regional compression to the north west, and to the heavy vertical loading presented by a thick sedimentary cover above a décollement (a specific type of fault structure) horizon.

The breccia here is the fill to a structural apophysis or 're-entrant', an offshoot from the larger intrusion. Curved, coloured bands in the breccias are evidence for flow of the material during emplacement of the dyke, providing insight into the intrusive process.

Such little alteration occurred to the surrounding Cambrian rocks that, if the breccia were removed, much of the geology could be pieced back together, like pieces of a jigsaw puzzle. The surviving geometry shows that the intrusion was slow and synchronised with regional compressive tectonics.[22]

As a result of the geological movement, some of the older Callanna Group material migrated upward to be juxtaposed in places with Cambrian host rock and was exposed at the surface by deep erosion, where it is today. This mechanism is clearly evident in the geological record of the State Heritage Place.

An alternative theory is that super-heated breccia was quickly injected through the surrounding host rock in a volcanic-like or diatreme-like event (A volcanic event associated with gas explosions), supported by the club-like termination of the dyke. This explanation is less widely accepted, but remains for close investigation; at least at the eastern end of the Mount Desire Dyke.

Human History

Mount Desire Dyke Geological Site currently (2026) has no native title claims or determinations over the land. However, extensions of the intrusion intersect with Adnyamathanha Native Title Determinations. The Arkaba Breccia Intrusion Geological Site's location in the Flinders Ranges would suggest significance of the land to the Adnyamathanha People.

Adnyamathanha People lived on the land and possessed a great understanding of the natural landscape and terrain. They had close contact with neighbouring Aboriginal Peoples including for mining and trading ochre. In the 1840s and 1850s, when colonisation of the Far North commenced, many violent encounters occurred between the colonists and Adnyamathanha People. The Adnyamathanha People were noted as being particularly skilled in their use of the landscape to hide and ambush colonial settlers. While there were deaths on both sides, many more Adnyamathanha People were killed.[23]

By 1853, rations were being distributed to the Adnyamathanha People, who due to the control and degradation of the land caused by European practices found it difficult to find sufficient food. During the Victorian gold rush, some Adnyamathanha People were employed by pastoralists, however, droughts in the 1890s resulted in many pastoralists leaving the land. In the 1930s, a mission was constructed at Nepabunna and many Adnyamathanha People were relocated to live there.[24]

The Adnyamathanha People's determination and cohesion was evident into the 1930s when AP Elkin visited the community. He noted that traditional ceremonies, language and culture remained despite the devastating and lasting effects of colonisation.[25]

Mount Desire Dyke gets its name from its proximity to Mount Desire. During the early 1850's, Mount Desire was named 'Crown Hill' by surveyor[26] Frederick Sinnett.[27] In 1859, Mount Desire was renamed by surveyor Samuel Parry, apparently reflecting his desire to return home,[28] likely from the surveying expedition.

Detailed mapping of the Arkaba Breccia Intrusion, and by extension the Mount Desire Dyke, by Dr Trevor Mount included what was then called the possible 'diatreme' in his 1975 thesis. Though Mount notes that additional research is required.[29]

In 1981, a report by the South Australian Division of the Geological Society of Australia recognised the 'Mount Desire "Dyke" Area' as a Geological Monument, noting its significance intersecting the Wilkawillina Limestone and Parara Limestone. Since the report was written, these formations have been revised and re-identified as the Woodendinna Dolomite, Wirrapowie Limestone and Mernmerna Formation. The significance of the place was linked to the contact between the geological formations and subsequent geological relationships and was not based on the specificity of the identity of the formations present.

In 1995, the Flinders Ranges Heritage Survey identified the 'Mount Desire Dyke' as a place of State Heritage Significance. The site was provisionally entered into the State Heritage Register on 10 April 1997 and was designated as a place of geological significance on the same day. On 30 March 1998, the place was confirmed in the State Heritage Register.

Aboriginal Cultural Considerations

The *Heritage Places Act 1993* makes provision for the identification, recording and conservation of places and objects of non-Aboriginal heritage significance. The protection and preservation of Aboriginal heritage is provided for under the *Aboriginal Heritage Act 1988*. Contact the Aboriginal Heritage Unit for listings.

CHRONOLOGY

Year	Event
1Ga	Neoproterozoic begins.
850-800 Ma	**Deposition of the Callanna Group/ Curdimurka Subgroup during 'Willouran' time.**

~720-	Cryogenian Period begins. Period of glaciations. Sturt glaciation (700-665 Ma). Elatina ('Marinoan') glaciation which, while the start is poorly understood, is believed to have ended ~635Ma.
635-538 Ma	Cryogenian Period ends, along with the Elatina Glaciation. 635-538 Ma encompasses the Ediacaran Period. Deposition of the sequence overlying the Oraparinna and Enorama diapirs continues.
538 Ma	Neoproterozoic (Including the Ediacaran) ends. The Cambrian Period starts. Deposition of the sequence overlying the Oraparinna and Enorama diapirs continues into Lower or Middle Cambrian and was deformed by the Delamerian mountain building phase. Age of the Hawker Group formations present: Woodendinna Dolomite, Wirrapowie Limestone and Mernmerna Formations.
500Ma	Delamerian Orogeny. Folding of sedimentary rocks of the Flinders Ranges.[30] Likely formation of the Arkaba Breccia Intrusion and the Mount Desire Dyke.
1981	Recognised as a Geological Monument by the SA Division of the Geological Society of Australia.
1995	Identified in the Flinders Ranges Heritage Survey.
1997	10 April, provisionally entered into the State Heritage Register and designated as a place of geological significance.
1998	30 March confirmed in the State Heritage Register.

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McBriar EM, Giles, CW and Mooney, MD (1981), 'Geological Monuments in South Australia Part 4', On behalf of the *Geological Monuments Subcommittee of the SA Division of the Geological Society of Australia Incorporated*, pp. 90-92.

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Encyclopaedia Britannica, Inc. Source: International Commission on Stratigraphy (ICS) (2023), 'Cambrian Period in geologic time', Image. From: <https://www.britannica.com/science/Cambrian-Period/Paleoclimate#/media/1/90625/133054>.

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Other

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SITE DETAILS

Mount Desire Dyke Geological Site **PLACE NO.: 14805**

Hawker SA 5434

DESCRIPTION OF PLACE:	Extension of the Arkaba Breccia Intrusion.	
HISTORIC THEME/S	1 Natural Environment 1.1 Tracing climatic and topographical change	
AGE OF FORMATION:	Cambrian ~500Ma	
REGISTER STATUS:	Provisionally Entered 10 April 1997 Designated 10 April 1997 Confirmed 30 March 1998	
CURRENT USE:	Geological Site	
LOCAL GOVERNMENT AREA:	Flinders Ranges Council	
LOCATION:	**Street No.:**	Lot 142
	Street Name:	Parawilia Gorge Road
	Town/Suburb:	Hawker
	Post Code:	5434
LAND DESCRIPTION:	**Title Reference:**	CT 6200/607 H350200 S151,152,166,167
	Hundred:	Hundred of Arkaba

REVISIONS

Date	Changes
13 February 2026	SAHC modified template to include an image at the beginning of the document.

[1] Department for Energy and Mining, South Australian Resources Information Gateway (SARIG) Map (N.D.), *Government of South Australia*. From: <https://map.sarig.sa.gov.au/>.
[2] Leach, DL, Song, Y-C & Hou, Z (2017), 'The world-class Jinding Zn–Pb deposit: ore formation in an evaporite dome, Lanping Basin, Yunnan, China', *Mineralium Deposita*, Vol.52(3), pp. 281-296.
[3] Mount, TJ (2021), 'Diapirs and diapirism in the Adelaide 'Geosyncline' South Australia'.
[4] Mount, TJ (2022), 'Arkaba breccia intrusion – Structural analysis', Unpublished material.
[5] Mount, TJ (2024), Personal Communication.
[6] McBriar EM, Giles, CW and Mooney, MD (1981), 'Geological Monuments in South Australia Part 4', On behalf of the *Geological Monuments Subcommittee of the SA Division of the Geological Society of Australia Incorporated*, pp. 90-92; and Mount, TJ (2024), Personal Communication.
[7] McBriar EM, Giles, CW and Mooney, MD (1981), 'Geological Monuments in South Australia Part 4'.
[8] Mount, TJ (2021), 'Diapirs and diapirism in the Adelaide 'Geosyncline' South Australia', *Report Book 2021/00006*. Department for Energy and Mining, South Australia, Adelaide; and Mount, TJ (2024), Personal Communication.
[9] Mount, TJ (2024), Personal Communication.
[10] Mount, TJ (2021), 'Diapirs and diapirism in the Adelaide 'Geosyncline' South Australia'.
[11] Mount, TJ (2021), 'Diapirs and diapirism in the Adelaide 'Geosyncline' South Australia'; and Department of Environment and Natural Resources (1995), 'Flinders Ranges Heritage Survey, Volume 9, Geological Places', *Government of South Australia*.
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