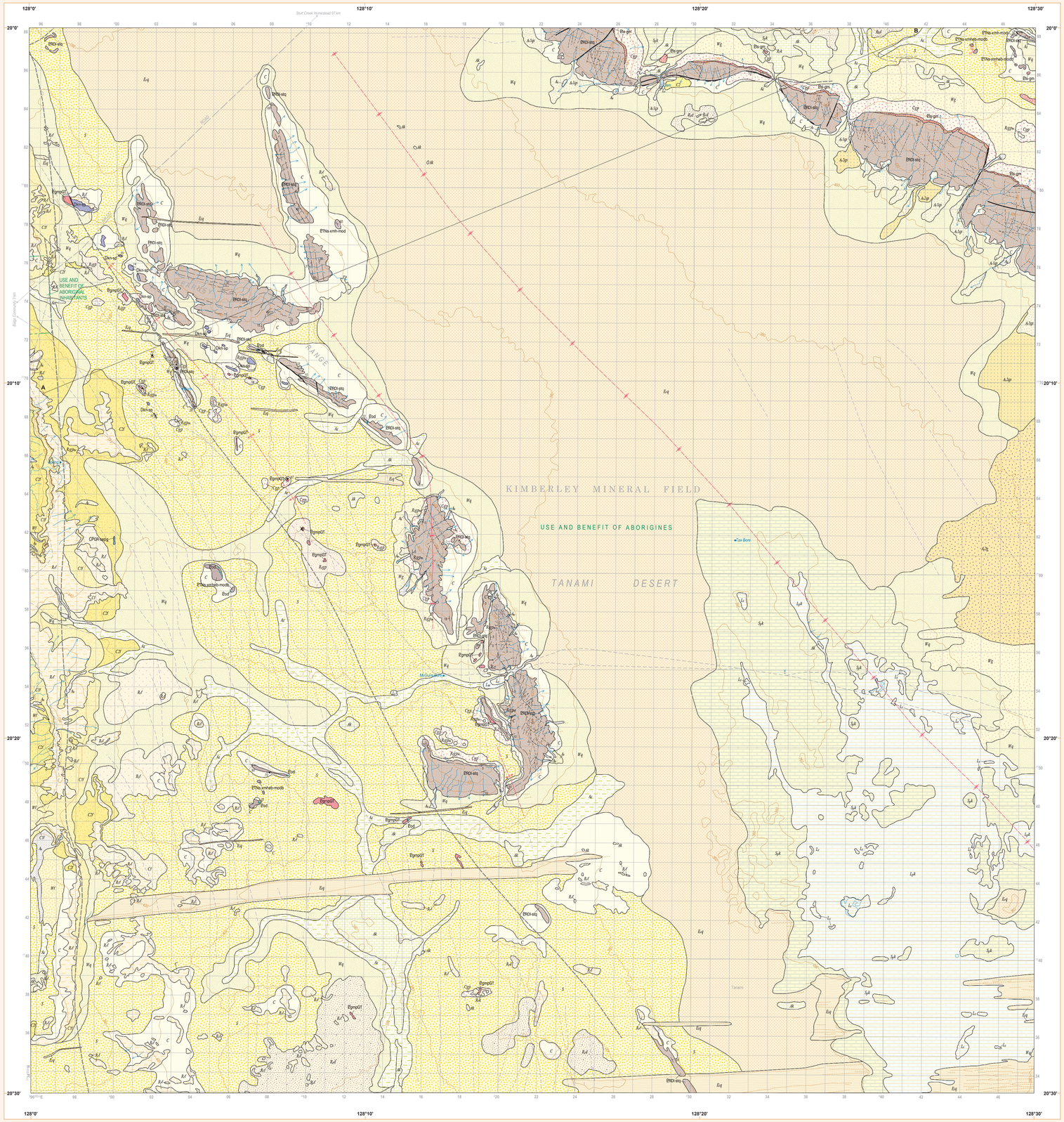
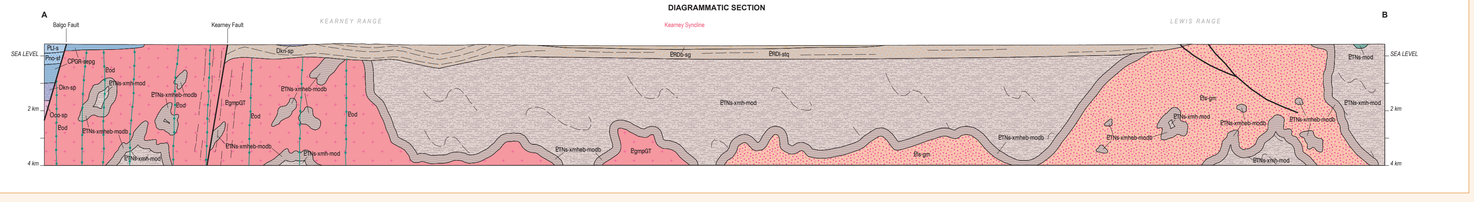
KEARNEY

AUSTRALIA 1 : 100 000 GEOLOGICAL SERIES | **GEOLOGICAL SURVEY OF WESTERN AUSTRALIA** | **SHEET 4557**



DIAGRAMMATIC SECTION



PHANEROZOIC

CENOZOIC

Colluvial units, age undivided or unassigned
- *C* — Colluvium derived from different rock types; includes gravel, sand, silt and clay
- *Cf* — Ferruginous clay, silt, and sand in colluvial deposits
- *Cgp* — Quartzofeldspathic clay, silt, and sand in colluvial deposits; derived from plutonic rocks

Sheetwash units, age undivided or unassigned
- *Wf* — Clay, silt, and sand with abundant ferruginous grit
- *Wg* — Clay, silt, and sand sheetwash deposits, commonly derived from granitic rocks
- *Wq* — Quartz-rich silt and sand, with minor clay

Alluvial units, age undivided or unassigned
- *Af* — Clay, silt, and sand in drainage depressions
- *Ac* — Clay, silt, and sand in superficial channels
- *Al* — Clay, silt, and sand in alluvial fan deposits
- *Asp* — Unconsolidated quartz-rich silt and sand with minor clay in alluvial fan deposits; derived from sedimentary rocks
- *Asg* — Semiconsolidated quartzofeldspathic sand, silt, and clay in alluvial fan deposits
- *Ask* — Semiconsolidated quartz-rich silt and sand with minor clay in alluvial fan deposits; derived from sedimentary rocks
- *Ak* — Carbonate-cemented alluvium and fluvial deposits, and valley calcrete; locally silicified

Lacustrine units, age undivided or unassigned
- *Lm* — Clay, silt, and sand in dune and playa deposits
- *Lgk* — Clay, silt, and sand in carbonate-rich playa deposits
- *Ls* — Saline lake, rimmed by evaporitic gypsum and carbonate deposits

Eolian units, age undivided or unassigned
- *Eg* — Quartz-rich sand in longitudinal dunefield
- *Es* — Quartz-rich sand in eolian sandsplain

Sandplain units, age undivided or unassigned
- *S* — Sandplain
- *Sk* — Clay, silt, and sand in carbonate-rich sandplain and playa deposits

Colluvial unit, unconsolidated
- *Cf* — Unconsolidated ferruginous clay, silt, and sand in colluvial deposits

Colluvial units, weakly consolidated
- *C2* — Semiconsolidated clay, silt, and sand in colluvial deposits
- *Cf2* — Semiconsolidated ferruginous clay, silt, and sand in colluvial deposits

Residual or relict units
- *Rggrs* — Quartzofeldspathic sand, silt, and clay derived from weathered monzonite
- *Rsd* — Undivided duricrust
- *Rf* — Ferruginous duricrust and iron-cemented products
- *Rk* — Carbonate-rich duricrust
- *Rz* — Siliceous duricrust
- *Rsd* — Residual sand, with minor clay and silt
- *Rf* — Residual ferruginous sand, with minor clay and silt
- *Rgp* — Residual quartzofeldspathic sand, silt, and clay derived from plutonic rocks

PALAEOZOIC — CARBONIFEROUS–PERMIAN — Livingstone Group

- *Pli-s* — Sandstone and siltstone, minor conglomerate, and coal (section only)
- *Pno-sf* — **NOONKANBAH FORMATION:** siltstone, shale, and sandstone; minor carbonate (section only)

PALAEOZOIC — DEVONIAN — Grant Group

- *CPGR-segp* — Sandstone, siltstone, diamictite, conglomerate, and shale; largely glacigene
- *Dkn-sp* — **KNOBBY SANDSTONE:** sandstone, siltstone, and conglomerate

PALAEOZOIC — ORDOVICIAN

- *Oco-sp* — **CARRANYA FORMATION:** sandstone and polymictic conglomerate; fossiliferous (section only)

CANNING BASIN

NEOPROTEROZOIC — Redcliff Pound Group

- *BNDi-sg* — **MURRABA FORMATION:** chert-clast granule and pebble conglomerate, sandstone, siltstone, and mudstone; minor limestone; thin bedded (section only)
- *BNDi-stq* — **LEWIS RANGE SANDSTONE:** cross-bedded quartz sandstone with ripple marks; minor sandstone, conglomerate, and siltstone

MURRAMA BASIN / CENTRALIAN SUPERBASIN

- *Bod* — Dolerite dykes, sills, or plugs; fine- to medium-grained dolerite

Stafford Event (1810–1790 Ma†)

- *EgmgGT* — Porphyritic, medium- to coarse-grained biotite monzogranite
- *Bsi-gm* — **LEWIS GRANITE:** muscovite and biotite monzogranite; locally porphyritic; minor biotite granodiorite

PROTEROZOIC

c. 1796 Ma†

Tanami Event (1850–1830 Ma†)

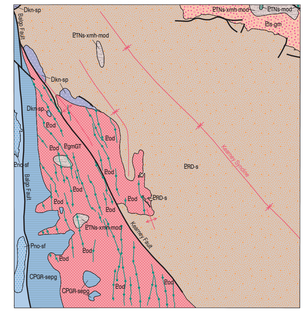
Tanami Group

- *EThs-xmheb-modb* — Contact-metamorphosed psammite and pelite, and metadolerite; biotite zone
- *EThs-mod* — Metamorphosed dolerite sill; minor interlayered, metamorphosed feldspathic wacke, sandstone, siltstone, and mudstone (section only)
- *EThs-xmh-mod* — **STUBBINS FORMATION:** metamorphosed feldspathic wacke, sandstone, siltstone, mudstone, and dolerite and gabbro sills; minor quartzite, metamorphosed banded chert, and metabasalt

c. 1864 Ma†

GRANITES–TANAMI OROGEN

INTERPRETED BEDROCK GEOLOGY



- *Pli-s* — Liveringa Group
- *Pno-sf* — Noonkanbah Formation
- *CPGR-segp* — Grant Group
- *Dkn-sp* — Knobby Sandstone
- *BNDi-s* — Redcliff Pound Group: siliciclastic sedimentary rocks
- *Bod* — Dolerite dykes, sills, or plugs
- *EgmgGT* — Granites–Tanami Orogen granitic unit
- *Bsi-gm* — Lewis Granite
- *EThs-mod* — Metadolerite sill
- *EThs-xmh-mod* — Stubbins Formation

Tanami Group

Canning Basin; Murraba Basin; Centralian Superbasin

Granites–Tanami Orogen

For further details refer to main legend

Geological boundary

exposed
Fault or shear zone
exposed
concealed
Fold, showing axial trace
anticline, exposed
syncline, exposed
anticline, concealed
syncline, concealed
Small-scale fold axis, showing trend and plunge
antiform
Bedding, showing strike and dip
inclined
Trend of bedding
Trend of layering or foliation, unspecified
Metamorphic foliation, showing strike and dip
inclined
vertical
Joint or fracture, showing strike and dip
vertical
Fracture pattern
Trend line
interpreted from aeromagnetic data

Purple point structure symbols signify measurements of bedrock features preserved in residual regolith units (R,F)

Road: unsealed
Track
Fence
Locality — Tanami
Yard — Yard
Reserve
Breakaway
Sand dune crest
Contour line, 20 metre interval — 700
Watercourse
Lake
Spring — Spring
Bore — Bore
Windpump
Dam — Dam

SHEET INDEX

BULKA 4159	YURABI 4259	BANNERMAN 4359	WOLFE CREEK 4459	STURT CREEK 4559	SLATEY CREEK 4659	
MOUNT BANNERMAN				BILLILUNA		LARGEST SCALE MAPPING
SE 52-13				SE 52-14		
LANAGAN 4158	MILDERNOON 4258	OVERFLOW 4358	MUELLER 4458	BALMINA 4558	WATTS 4658	
CORNWALL						
SF 52-1				SF 52-2		
CORNISH 4157	GODFREY 4257	GREGORY LAKE 4357	BALGO 4457	KUMPAN 4557	LEWIS 4657	
KUDARRA 4156	POYNINGHAM 4256	EDITH 4356	STRETCH 4456	THOMAS 4556	LUCAS 4656	

1 : 100 000 maps shown in black
1 : 250 000 maps shown in brown

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TN / GN / MN — GRID / MAGNETIC ANGLE 2.9°

GRID CONVERGENCE 0.3°

True north, grid north, and magnetic north are shown diagrammatically for the centre of the map. Magnetic north is correct for 2015 and moves westerly by approx. 4'44" annually

DATA SOURCES

Theme	Data Currency	Organization†
Geology *	2015	Geological Survey of Western Australia, Department of Mines and Petroleum
Structural data	Mar 2015	Geological Survey of Western Australia, Department of Mines and Petroleum
Topographic nomenclature	2015	Landgate
Topography	2015	Landgate
Contours	2006	Geological Survey of Western Australia, Department of Mines and Petroleum

* DMP data can be viewed interactively via GeoVIEW.WA <www.dmp.wa.gov.au/geoview>, and related datasets can be downloaded from the GSWA Data and Software Centre <www.dmp.wa.gov.au/datacentre>

† WA State Government unless otherwise indicated

Compiled by GR Eacott and N de Souza Kovacs 2012, 2014–15

Geology by L Bagas (GSWA) 2005–07; RWA Crowe and PC Muhling (GSWA) 1972; DH Blake, VL Passmore and AN Yeates (BMR) 1972

Revised by GR Eacott 2014–15

Regolith by N de Souza Kovacs 2012

Geochronology from GSWA data (published and in preparation) and interpreted from external sources (listed below). Some GSWA geochronology may come from samples obtained on adjoining map sheets. GSWA geochronology data are available online at <www.dmp.wa.gov.au/geochron>

External geochronology by:
(1) Crispe et al. 2007, Mineralium Deposita, v. 42, p. 3–26.
(2) Bagas et al. 2010, Precambrian Research, v. 177, p. 212–226.
(3) Bagas et al. 2008, Precambrian Research, v. 166, no. 1–4, p. 168–184.

Cartography by PJ Backhouse

Edited by MA Ferland and K Greenberg

Published by Geological Survey of Western Australia

This map is published in digital format (PDF) and is available online at <www.dmp.wa.gov.au/GSWApublications>. Copies are available from:
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The recommended reference for this map is:
Eacott, GR and de Souza Kovacs, N 2015, Kearney, WA Sheet 4557: Geological Survey of Western Australia, 1:100 000 Geological Series.

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EXPLORATION INCENTIVE SCHEME

Government of **Western Australia**
Department of **Mines and Petroleum**

HON. BILL MARMION MLA
MINISTER FOR MINES AND PETROLEUM

Geological Survey of Western Australia

RICK ROGERSON
EXECUTIVE DIRECTOR

SCALE 1 : 100 000

1000 0 1 2 3 4 5 6 7 8 9 10
Metres Kilometres

UNIVERSAL TRANSVERSE MERCATOR PROJECTION
HORIZONTAL DATUM: GEOCENTRIC DATUM OF AUSTRALIA 1994
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM

Grid lines indicate 1000 metre interval of the Map Grid Australia Zone 52

GDA — The Map Grid Australia (MGA) is based on the Geocentric Datum of Australia 1994 (GDA94) GDA94 positions are compatible within one metre of the datum WGS84 positions

KEARNEY

SHEET 4557 **FIRST EDITION 2015**

Version 1 — June 2015

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