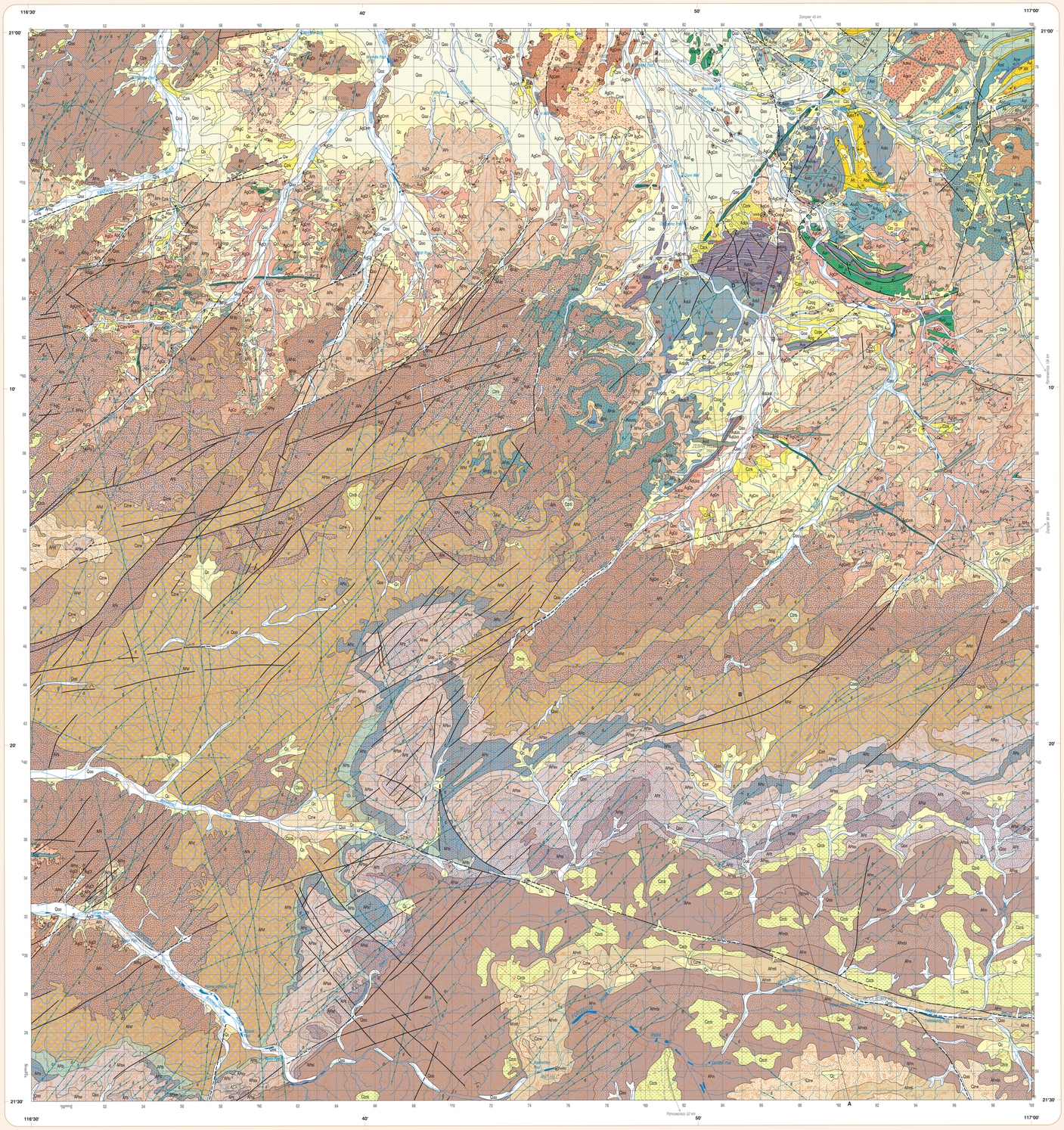
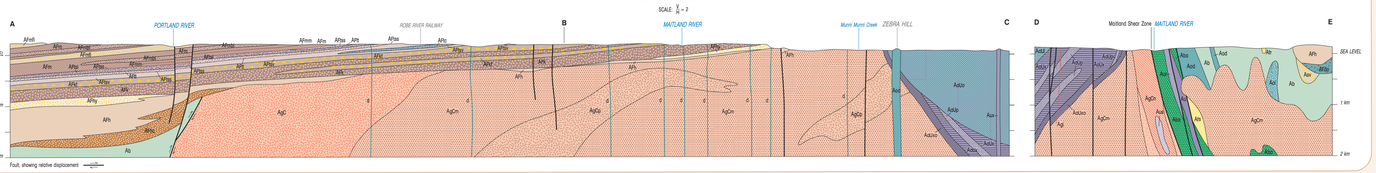
PINDERI HILLS

AUSTRALIA 1:100 000 GEOLOGICAL SERIES — **GEOLOGICAL SURVEY OF WESTERN AUSTRALIA** — **SHEET 2255**



DIAGRAMMATIC SECTIONS

SCALE 1 : 2



PHANEROZOIC — CAINOZOIC — QUATERNARY

Qoo Qdc Qoo Qdb — Qw Qwb — Qc Qcb — Qrg Qs

- Qoo Alluvial sand and gravel in rivers and creeks; clay, silt, and sand in channels on floodplains
- Qdc Claypan deposits on floodplains
- Qoo Alluvial sand, silt, and clay in floodplains
- Qdb Alluvial sand, silt, and clay in floodplains, with gilgai surface in areas of expansive clay
- Qw Sheetwash — sand, silt, and clay in distal outwash fans
- Qwb Sheetwash sand, silt, and clay in distal outwash fans, with gilgai surface in areas of expansive clay
- Qc Colluvium — sand, silt, and gravel in outwash fans and scree
- Qcb Colluvium derived from mafic rock, with gilgai surface in areas of expansive clay
- Qcd Scree material composed of dolerite fragments
- Qrg Eluvial sand over granitoid rocks
- Qs Eolian sand — red-yellow wind-blown sand; local sand ridges

Czog Czpk — Czc Czcb Czck — Czrb Czrf Czrk Czrw

- Czog Alluvial gravel deposits; dissected by recent drainage
- Czpk Alluvial calcrete; massive, nodular, and cavernous limestone; variably silicified
- Czc Colluvium — dissected by recent drainage
- Czcb Colluvium; dissected by recent drainage, with gilgai surface in areas of expansive clay
- Czck Calcrete; developed on cemented colluvium derived from ultramafic rocks
- Czrb Residual clay containing rock fragments; dissected by present drainage, with gilgai surface in areas of expansive clay
- Czrf Residual ferricrete and ferruginous duricrust, and pisolitic ironstone on lateritic surface
- Czrk Residual calcrete; massive, nodular, and cavernous limestone; variably silicified
- Czrw Bauxite related to weathering of a previous land surface; dissected by recent drainage

d dx q g

- d Dolerite dyke
- dx Pyroxenite or pyroxene-rich dolerite dyke
- q Quartz vein
- g Granite vein

ARCHEAN — Mount Bruce Supergroup — Fortescue Group — Hamersley Basin — Pilbara Craton

2717 Ma

- AFrrh Rhyolite and dacite
- AFrrd Andesite and dacite
- AFrm **MADDINA FORMATION:** massive, vesicular, and amygdaloidal basalt and basaltic andesite, with minor andesite, dacite, and rhyolite
- AFrmb Basaltic andesite with minor basalt and andesite
- AFrmm High-Mg basalt
- AFtp Siltstone and tuff
- AFt Tuff and tuffaceous siltstone, commonly with accretionary lapilli; local coarse intermediate pyroclastic rocks; correlated with **Wilingh Member**
- AFt **TUMBIANA FORMATION:** (interpreted bedrock geology only)
- AFtss Dark grey sandstone and siltstone; local basalt
- AFtc Dark grey siliceous stromatolitic dolomite and limestone, carbonate-rich tuff, mudstone, and siltstone; correlated with **Weenthenna Member**
- AFtsv Volcaniclastic sandstone with minor tuff and carbonate rocks
- AFtb Basalt
- AFkf Andesite, dacite, and minor basalt, rhyolite, and dolerite
- AFk **KYLENA FORMATION:** massive or amygdaloidal basalt, basaltic andesite, and dacite; local high-Mg basalt and rhyolite
- AFhh Hornfelsed felsic volcanic and sedimentary rock
- AFhy **Lyre Creek Member:** felsic tuff and agglomerate, and felsic to intermediate volcaniclastic sandstone and conglomerate; local abundant accretionary lapilli
- AFhj **Coolijocka Member:** fine-grained ultramafic lava; abundant quartz xenocrysts
- AFh **HARDEY FORMATION:** sandstone, conglomerate, siltstone, shale, and tuff
- AFhs Medium- to coarse-grained, poorly sorted sandstone, siltstone, and minor shale and conglomerate; local felsic tuff
- AFhs Tuff and tuffaceous sandstone; minor conglomerate
- AFhc Polymictic conglomerate

c. 2760 Ma

- AFdr **COOYA POOYA DOLERITE:** fine- to medium-grained dolerite; local xenoliths of quartzite

ARCHEAN — Mount Bruce Supergroup — Fortescue Group — Hamersley Basin — Pilbara Craton

c. 2770 Ma

- AFm Andesite and dacite
- AFbrs Basaltic breccia
- AFr **MOUNT ROE BASALT:** massive, vesicular, and glomeroporphyritic basalt
- AFrs Laminated shale, siltstone, and poorly sorted tuffaceous sandstone
- AFmc Polymictic conglomerate and sandstone

ARCHEAN — Pilbara Supergroup — Pilbara Craton

c. 2825 Ma

- Ao Gabbro and dolerite; metamorphosed
- Aod Metadolerite
- Aog Unassigned gabbro; metamorphosed *medium-* to coarse-grained gabbro; foliated to massive
- Aou Leucogabbro; metamorphosed
- Aoz Silicified gabbro
- Aus Serpentinite; after peridotite
- Aux Pyroxenite; metamorphosed

c. 2825 Ma

- Ag Granitoid dyke, monzogranite to quartz diorite; intrusive into **Munni Munni Intrusion**
- Agm Monzogranite and granodiorite; locally foliated
- Agyd **YANNERY GRANITE:** fine- to medium-grained, normfoliated monzogranite; amphibole replaced by chlorite; anomalously magnetic

c. 2825 Ma

Maitland Intrusion

- Admd Metadolerite
- Adll Leucogabbro; metamorphosed
- Adlo Gabbro, and minor dolerite and leucogabbro; metamorphosed
- Adlx Pyroxenite; metamorphosed
- Adlus Serpentinite; after peridotite

Munni Munni Intrusion

- Adlubq Quartz diorite and amphibole syenogranite; metamorphosed
- Adlll Leucogabbro; metamorphosed
- Adlo Gabbro, and minor dolerite and leucogabbro; metamorphosed
- Adlpg Peridotite; serpentinised
- Adlpx Pyroxenite, including websterite; metamorphosed
- Adlpxo Pyroxenite and pyroxene-rich gabbro; locally sulfidic; metamorphosed

North Whundo Intrusion

- Adlmd Metadolerite
- Adlmo Gabbro, and minor dolerite and microgabbro; local norite and anorthosite; metamorphosed

Rocky Hill Intrusion

- Adlfo Gabbro, and minor dolerite and microgabbro; local norite and anorthosite; metamorphosed

2964 Ma — 3068–3368 Ma — 3114 Ma — 3130 Ma — 3236 Ma

- AgC **CHERRATTA GRANITOID COMPLEX:** syenogranite to tonalite; locally porphyritic and generally foliated; gneissic granitoid contains mafic xenoliths
- AgCp Porphyritic syenogranite and monzogranite; metamorphosed
- AgCm Syenogranite and monzogranite; locally biotite-rich, foliated
- AgCmh Hornblende- and biotite-rich monzogranite, foliated
- AgCx Mixed granitoid rock and greenstone; magmatic injection and tectonic interleaving
- AgCt Tonalite; metamorphosed
- AgCn Banded grey monzogranite-granodiorite gneiss with xenoliths of mafic gneiss and sheets of leucocratic gneiss
- AgCm Hornblende- and biotite-rich granitoid gneiss
- AgCt Hornblende-biotite tonalite to granite; foliated

ARCHEAN — Pilbara Supergroup (no stratigraphic subdivision) — Pilbara Craton

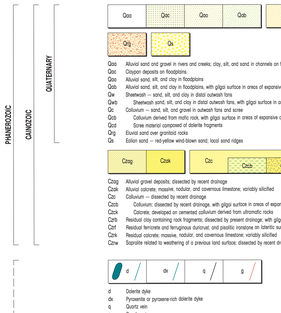
- Ac Chert, massive, minor chlorite, and opaque minerals
- Acw Grey and white banded chert
- Axv Quartz±feldspathic schist; derived from volcanogenic sedimentary rock
- Axss Scapolite-bearing calc-silicate schist
- Axf Quartz–feldspar rock

- Af Felsic volcanic rock, undivided; metamorphosed
- Afd Dacite to andesite; local pyroclastic units; metamorphosed
- Afr Rhyolite; commonly schistose
- Afs Rhyolite to andesite schist; includes sheared felsic volcanic and clastic sedimentary rocks
- Aft Felsic tuff; rhyolite to andesite composition; metamorphosed

- Ab Basaltic rock, undivided; metamorphosed
- Abs Strongly foliated amphibolite; metamorphosed basalt
- Abp Plagioclase-phyric metabasalt
- Abgg Foliated and sheared metabasalt with sheared veins and sheets of microgranite and pegmatite

- Au Ultramafic rock, undivided; metamorphosed
- Aur Tremolite–chlorite schist
- Auz Silicified ultramafic rock

INTERPRETED BEDROCK GEOLOGY



SCALE 1:500 000
0 5 10 15 20 Kilometres

- Dolerite dyke
- Maddina Formation
- Tumbiana Formation
- Kylena Formation
- Hardey Formation
- Mount Roe Basalt
- Pyroxenite and gabbro dykes, metamorphosed
- Munni Munni Intrusion
- Maitland Intrusion
- North Whundo Intrusion
- Rocky Hill Intrusion
- Basalt and calcalkaline volcanic rock
- Undivided mafic rocks; chiefly metamorphosed volcanics
- Amphibolite
- Amphibolite, metamorphosed mixed mafic, ultramafic, and granitoid rocks
- Metamorphosed gabbro and dolerite
- Cooya Pooya Dolerite
- Yannery Granite
- Cherratta Granitoid Complex

2717 Ma — c. 2760 Ma — c. 2770 Ma — c. 2825 Ma — 3236–3130 Ma — 3068–2964 Ma

Fortescue Group — Hamersley Basin — Mount Bruce Supergroup — Pilbara Supergroup — Unassigned — Pilbara Craton

*Stratigraphic correlation with Roebourne 1:100 000 Geological Series map

Geological boundary — exposed — concealed — concealed, interpreted from aeromagnetic data
Fold, showing axial trace and generalized plunge direction — anticline; exposed, concealed — syncline; exposed, concealed
Bedding, showing strike and dip — inclined — horizontal — strike and dip estimated from aerial photography — 0–15°
Igneous layering (banding), showing strike and dip — inclined
Way-up indicator — cross-bedding
Metamorphic foliation, showing strike and dip — inclined — vertical
Structural lineation, showing trend and plunge — inclined
Isotopic age determination site with identification number
Formed road
Track
Railway
Fence, generally with track
Powerline

Homestead — Cherratta
Locality — Thirdwendy
Building
Microwave repeater station
Horizontal control; minor
Contour line, 20 metre interval
Watercourse with ephemeral pool, waterfall
Pipeline — Pipeline
Bore, Well — Bore, Well
Windpump
Tank — Tank
Abandoned — (abd)
Position doubtful — (PD)
Mine — Yannery Hill
Opencut — Whundo
Quarry or pit
Mineral exploration drillhole showing subsurface data — Au
Geochemical anomaly from gossan assay (>1000 ppm; except for Ag >100 ppm; As >500 ppb)
Mineral occurrence — Asbc
Asbestos, chrysotile — Bs
Building stone — Cu
Copper — Au
Gold — Pb
Lead — Ni
Nickel — PGE
Platinum group elements — Rm
Road material — Ag
Silver — Tlc
Talc — Zn
Zinc

SHEET INDEX

1:100000 mpgs shown in black
1:25000 mpgs shown in brown

TN — ON — MN
GRID / MAGNETIC ANGLE 1°
GRID CONVERGENCE 0.1°

True north, grid north and magnetic north are shown diagrammatically for the centre of the map. Magnetic north is correct for 2000 and moves easterly by about 0.1° in 2 years.

Geology by C. J. Kojan and A. H. Hickman 1997

Edited by N. Tetlow and C. Brien

Cartography by S. Cockcuft and B. Williams

Topography from the Department of Land Administration Sheet SF 50-6, 2256, with modifications from geological field survey

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This map is also available in digital form

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DEPARTMENT OF MINERALS AND ENERGY
I.C. RAWLINSON, DIRECTOR GENERAL

GOVERNMENT OF WESTERN AUSTRALIA
HON. NORMAN MOORE, M.L.C.
MINISTER FOR MINES

NGMA
PRODUCT OF THE NATIONAL GEOSCIENCE MAPPING ACCORD

GEOLOGICAL SURVEY OF WESTERN AUSTRALIA
DAVID BLIGHT, 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 50

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

Reference points to slight mops based on the previous datum, AGD84, have been placed near the mop corners

PINDERI HILLS

SHEET 2255 — **FIRST EDITION 2000**

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