



BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

RECORD



Record 1986/23

Stow Region, Northern Territory; data record of
1:100 000 - scale mapping

P.G. Stuart-Smith, R.S. Needham, and L. Bagas*

*Northern Territory Geological Survey

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ABSTRACT

This record summarises the results of 1981 fieldwork by the Pine Creek Geological Party (BMR and NTGS) in the Stow and Snowdrop 1:100 000 - scale Sheet areas. Reductions to 1:100 000 - scale of the 1:25 000 - scale compilation sheets, thin section locality sheets, petrographic descriptions of selected samples, and a list of age determination sampling sites, are enclosed. The geology of the region is briefly described.

INTRODUCTION

This Record summarises results of the 1981 field work of the Pine Creek Geosyncline Geological Party of the Bureau of Mineral Resources (BMR) and the Northern Territory Geological Survey (NTGS) in the Stow and Snowdrop 1:100 000 Sheet areas. The work was a continuation of geological field work in the Pine Creek Geosyncline, as part of the Pine Creek Project, whose overall objective is to study the geology, geophysics, and mineralisation of the geosyncline; an important subsidiary objective is to produce 1:100 000 - scale geological maps of the region. A detailed account of the geology of the area (the 'Stow Region') is in preparation and will be published in the BMR Map Commentary Series.

This Record presents 1:100 000 - scale reductions (Figures 4b-15b) of the 1:25 000 - scale compilation sheets, and an outline of the stratigraphy. Age determination sample sites, drillhole data and petrographic descriptions are appended.

The location of the area is shown in Figure 1. Colour airphotos at 1:25 000 - scale were used, in conjunction with 1:89 000 - scale panchromatic airphotos. Figure 3 contains the geological reference and an index to the compilation sheets. Copies of the compilation sheets at 1:25 000 original photo-scale can be obtained from the Copy Service, Australian Government Printer (Production), G.P.O. Box 84, Canberra, ACT 2600 - price on application.

The field positions of specimens described petrographically are shown on topographic bases accompanying each compilation sheet as 8-digit BMR sample submission numbers.

GEOLOGY

Generalised geology is shown in Figure 2, and the stratigraphy is summarised in Table 1.

Early Proterozoic metasediments, volcanics and dolerite of the Pine Creek Geosyncline crop out in the northern part of the STOW REGION. They form a low-lying inlier which is surrounded by relatively undeformed later Early Proterozoic volcanic sequences and plateau-forming Middle Proterozoic sandstone and volcanics.

The Namoon Group is the oldest unit in the Sheet area, and contains the Masson Formation and Stag Creek Volcanics. Elsewhere in the Pine Creek Geosyncline correlatives of the Masson Formation overlie the basal Early Proterozoic Kakadu Group or the Archaean Rum Jungle and Nanambu Complexes (Needham & others, 1980). Clastic sediments of the Mount Partridge Group either unconformably or disconformably overlie the Namoon Group. The Mundogie Sandstone, a fluvial sequence of sandstone and minor conglomerate and pelitic rocks forms the base of the group and is the only member of the group present in STOW.

The South Alligator Group, a sequence of iron-rich carbonaceous and dolomitic pelitic sediments and volcanics, rests unconformably on older rocks throughout the Geosyncline. An incomplete sequence of the group is exposed in the northern part of STOW. Only the Koolpin Formation, Shovel Billabong Andesite, and Kapalga Formation are present. The other members of the Group found elsewhere in the geosyncline (the Gerowie Tuff and the Mount Bonnie Formation) are absent, probably owing to faulting and possibly facies changes. Owing to the absence of the Gerowie Tuff from the South Alligator Group sequence east of the Fisher Fault, the stratigraphic position within the group cannot be determined for rocks of this area. They are grouped in the Kapalga Formation, and may be laterally equivalent to both the Koolpin and Mount Bonnie Formations (Needham & Stuart-Smith, 1985b).

The Burrell Creek Formation is the only member of the Finnis River Group, and is the youngest and most extensive unit of the Early Proterozoic geosynclinal sequence to crop out in STOW. The formation, a turbiditic sequence of greywacke and metapelites, conformably overlies the South Alligator Group.

The geosynclinal sediments, which are tightly to isoclinally folded and regionally metamorphosed to greenschist facies, are intruded by pre-orogenic sills of Zamu Dolerite and a post-orogenic lopolith of Oenpelli Dolerite.

Two groups of Early Proterozoic felsic volcanic rocks and associated sediments, recently recognised beneath the Middle Proterozoic Kombolgie Formation (Needham & Stuart-Smith, 1985 a & b), overlie the Pine Creek Geosyncline metasediments with a highly angular unconformity. The units making up these groups were previously regarded as Middle Proterozoic (Carpenterian) in age (Walpole & others, 1968). The older El Sherana Group (1860 Ma) is separated by an unconformity from the younger Edith River Group (1850 Ma, Needham & others, 1985b). The Malone Creek

Granite and probably related porphyritic alkali syenite and alkali granite dykes intrude the El Sherana Group but are not seen to intrude the Edith River Group.

The Grace Creek Granite, a subvolcanic intrusive in the south, appears to be gradational with Plum Tree Creek Volcanics of the Edith River Group and is probably comagmatic with them.

The near flat-lying Kombolgie Formation forms the major sandstone tablelands surrounding the inlier of Early Proterozoic rocks. In the STOW REGION it comprises two sandstone subunits, separated by a discontinuous volcanic horizon which includes the Nungbalgarri, Birdie Creek and Mount Callanan Volcanic Members. The definition of the unit follows modifications to the stratigraphy of the lowest part of the Katherine River group by Needham & others, (1980) [the original definition was given by Walpole & others, (1968)].

Flat-lying veneers of Cretaceous, Tertiary and Quaternary sediments cover both the Early and Middle Proterozoic rocks. Small basins of Eocene sediments occur adjacent to major faults in the east.

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TABLE 1: SUMMARY OF STRATIGRAPHY OF THE STOW REGION

	Unit	Rock Types	Relationships	Thickness (m)
QUATERNARY	(Qa)	Silt, sand, gravel and clay		
	(Qa1)	Silt, clayey silt		
	(Qs)	Unconsolidated sand		
	(Qf)	Black and brown silt and clay		
TERTIARY TO QUATERNARY	(Cz)	Skeletal soils, gradational red soils and yellow earth soils		
	(Czt)	Rubble composed of sandstone, volcanic and metasedimentary rock fragments, sand		
	(Czs)	Unconsolidated sand, ferruginous and clayey sand		
	(Czl)	Nodular and concretionary ironstone		
TERTIARY	(Teb)	Massive brown ferruginous ill-sorted and poorly consolidated kaolinitic sand	Comprise a conformable sequence in isolated fault-bounded basins, unconformable over older units	<500
	(Tew)	Massive white ill-sorted and poorly consolidated kaolinitic sand		
UNCONFORMITY				
CRETACEOUS	(K)	Undivided quartz sandstone and conglomerate		
	(K ₃)	Reddish to brown, yellow ferruginous friable fine to coarse quartz sandstone	Flat-lying conformable sequence unconformable over older units	40
	(K ₂)	Massive, friable and kaolinitic, fine to coarse white quartz sandstone and minor siltstone		
	(K ₁)	Limonitic very coarse quartz sandstone, conglomerate and breccia		
UNCONFORMITY				
MIDDLE PROTEROZOIC KATHERINE RIVER GROUP	(Phk ₂)	Medium to coarse well-sorted buff clayey quartz sandstone, commonly cross-bedded and ripple marked		300
	Nungbalgarri Volcanic Member (Ehn)	Deeply weathered ferruginous amygdaloidal mafic volcanic		<1
	(Bhk _{2b})	Brown siltstone, basal intra-formatinal breccia	Comprise a conformable sequence, itself unconformable on older units; slight angular unconformity on Pep, major angular unconformity elsewhere	<2
	Birdie Creek Volcanic Member (Ehb)	Altered massive, and in places amygdaloidal basalt		150

MIDDLE PROTEROZOIC	KATHERINE RIVER GROUP	Kombolgie Formation	Mount Callanan volcanic Member (Bhc)	Massive amygdaloidal basalt, banded vitric tuff	100	
			(Bhk ₁)	Massive poorly-sorted fine to coarse and pebbly quartz sandstone, well-sorted fine to medium-grained quartz sandstone, basal polymictic boulder conglomerate. Tabular cross-bedding and ripple marks common. Minor siltstone.	<1000	
UNCONFORMITY						
EARLY PROTEROZOIC	EDITH RIVER GROUP	Oenpelli Dolerite (Pdo)	Porphyritic olivine dolerite, minor quartz dolerite and granophyre	Lopoliths and dykes intruding Pdz and older sediments unconformably overlain by Phk ₁	250	
		Malone (Pgm) Creek Granite (Pgma)	Undivided alkali feldspar granite	Concentrically zoned pluton. Intrudes Pfb, Pdz, Pbc, and Pbp		
		(Pgmb)	Fine porphyritic pink alkali feldspar granite			
		(Pgmb)	Fine to coarse even-grained to porphyritic alkali feldspar granite			
		(Pgmc)	Fine even grained chloritised pink to greenish pink alkali feldspar granite with abundant quartz and greisen veins			
		Grace (Pegb) Creek Granite (Pegc)	Slightly porphyritic grey-green medium-grained granite	Zoned subvolcanic intrusion gradational with Pep. Unconformably overlain by Phk ₁ and younger sediments		
		(Pegc)	Porphyritic pink-grey medium-grained granite			
		(Pegd)	Porphyritic grey-pink microgranite, layered in places			
		Plum Tree Creek Volcanics (Pep)	Massive pink to purple rhyodacitic ignimbrite, minor rhyolite and tuff	Conformably overlies Pek and unconformably overlies older units where Pek absent. Unconformably overlain by younger sediments. Transitional with Pegd	500	
		Kurrundie Sandstone (Pek)	Massive purple clayey medium to coarse lithic quartz sandstone, polymictic pebble and cobble conglomerate, massive to laminated white, pink and brown, fine to coarse quartz sandstone, minor brown micaceous sandy siltstone	Unconformably overlies older units. Conformably overlain by Pep	350	
UNCONFORMITY						

EARLY PROTEROZOIC

EL SHERANA GROUP

Big Sunday Formation (Pbb)	Fine to coarse and pebbly volcanolithic greywacke, green shale, devitrified vitric tuff and vitric crystal tuff, altered amygdaloidal basalt, rhyolite and ignimbrite. Minor micaceous siltstone, sandy siltstone, phyllite, slate, and fine quartzite	Conformably overlies or faulted against Pbp. Unconformably overlain by Pek and younger sediments	500
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Pul Pul Rhyolite (Pbp)	Altered purple to pink rhyolitic ignimbrite, minor agglomerate and glassy black rhyolite, rare siltstone and shale	Highly angular unconformity on older units, Conformable on Pbc. Intruded by Pgmc	1300
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Coronation sandstone (Pbc)	Clayey purple very coarse pebbly quartz sandstone, massive polymictic cobble conglomerate at base, interbedded shale, siltstone, greywacke, minor felsic and mafic volcanics	Highly angular unconformity on older units. Conformable over Pbs. Intruded by Pgmc	750
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Seinto Breccia (Pbs)	Pink siliceous phosphatic hematitic sandy chert breccia	Unconformably overlies silicified dolomite of Psk and Psp	
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UNCONFORMITY

Zamu Dolerite (PdZ)	Massive medium to coarse grey quartz dolerite and foliated amphibolite	Occurs as sills intruding Psp, Psb and Pfb	2000
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FINNISS RIVER GROUP

Burrell Creek Formation (Pfb)	Foliated fine to coarse meta-feldspathic greywacke, chlorite muscovite quartz schist, phyllite and phyllitic siltstone	Conformably overlies Psp and Psb. Unconformably overlain by Pbc and Phk ₂	2000
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SOUTH ALLIGATOR GROUP

Kapalga Formation (Psp)	Foliated fine to medium meta-feldspathic greywacke grey to brown phyllite, silty phyllite, siliceous phyllite, metasiltstone, biotite quartz schist. Minor BIF and hematitic siltstone with chert bands, lenses and nodules; minor argillite, chlorite schist, massive silicified dolomite, metadolomite, and para-amphibolite.	Faulted against Psk, conformably overlain by Pfb and Psb. Interfingers with Psb	1200
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Shovel Billabong Andesite (Psb)	Massive greenish-grey altered pitchstone, variolitic andesite and minor microdiorite.	Conformably overlies and interfingers with Psp. Conformably overlain by Pfb in places.	100 - 200
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Koolpin Formation (Psk)	Hematitic metasiltstone and phyllite commonly with chert bands, lenses and nodules. Dark grey graphitic phyllite and phyllitic siltstone, silicified dolomite. Lenses of stromatolitic dolomite, rare medium quartz greywacke.	Faulted against Ppm, Psp, Pfb and PdZ. Unconformably overlain or faulted against Pbc and Pbp	<1000
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EARLY PROTEROZOIC

MOUNT PARTRIDGE GROUP	Mundogie Sandstone (Ppm)	Very coarse sericitic foliated quartzite and minor pebble conglomerate, lenticular cross- bedding common. Minor carbon- aceous silty phyllite.	Unconformably? overlies Pnm and Pns. Uncon- formably overlain by younger sediments and volcanics.	100
	UNCONFORMITY			
NAMOONA GROUP	Stag Creek Volcanics (Pns)	Massive pale green altered intermediate to mafic flows and breccia. Minor green fine to coarse altered vitric tuff at base.	Overlies and intertongues with Pnm.	600
	Masson Formation (Pnm)	Coarse dolarenite, pyritic quartzite, brown silty phyllite	Oldest unit in region, intertongues with Pns.	400

APPENDIX 1: SAMPLES COLLECTED FOR AGE DETERMINATION

Sample No	Grid Ref.	Rock type	Stratigraphic Unit	technique
79125020	JE465953	granite	Malone Creek Granite	U-Pb zircon
79125021	JE492892	feldspar porphyry	Unnamed intrusive	no work done
83126001	KF315051	ignimbrite	Pul Pul Rhyolite	no zircon
83126035	KF360035	rhyolite	Coronation Sandstone	no zircon
83126040	JE383990	rhyolite	Coronation Sandstone	U-Pb zircon
83126041	KF323048	ignimbrite	Pul Pul Rhyolite	U-Pb zircon

APPENDIX 2: SUMMARY OF DRILLHOLE DATA

The first line of each entry records BMR drillhole number, AMG grid reference, 1:100 000 Sheet area and compilation sheet number.

STOW 1 JE 674766 Stow 9

Total depth: 29.9m

Core: 5.8-29.9m

Log: 0-5.8m orange-brown sandy clay
5.8-17.7m weathered fine to medium foliated feldspathic greywacke.
17.7-29.9m Crenulated phyllite and chlorite schist with silty laminae, and fine feldspathic greywacke. Crosscutting quartz veins

Petrographic description: see Appendix 3, 81120232 (21.3m)

STOW 2 JE 681772 Stow 9

Total depth: 31.7m

Core: 14.6-31.7m

Log: 0-2.1m orange-brown sandy clay
2.1-5.2m pale yellowish brown clayey sand
5.2-14.6m greenish brown sandy clay
14.6-31.1m weathered medium feldspathic greywacke with minor silty laminae
31.1-31.7m amphibolite with carbonate bands.

Petrographic descriptions: see Appendix 3, 81120233 (14.9m), 81120228 (31.4m)

STOW 3 JE 689779 Stow 9

Total depth: 11.3m

Core: 6.4-11.3m

Log: 0-2.1m reddish brown clayey sand
2.1-6.4m pinkish brown clayey sand
6.4-11.3m weathered pale grey foliated medium to coarse feldspathic greywacke

Petrographic description: see Appendix 3, 81120227

STOW 4 JE 695787 Stow 9
Total depth: 18.9m
Core: 6.4-8.5m, 17.7-18.9m

Log: 0-6.4m Micaceous sandy clay (weathered mica schist)
6.4-8.5m banded muscovite-chlorite schist, quartz vein
8.5-17.7m weathered mica schist
17.7-18.9m banded muscovite-chlorite schist with hematite
spotting

Petrographic description: see Appendix 3, 81120231 (18.3m)

STOW 5 JE 698795 Stow 6
Total depth: 26.2m
Core: 23.8-26.2m

Log: 0-2.1m reddish brown clayey sand
2.1-23.8m yellowish brown clayey sand
23.8-26.2m weathered medium foliated greywacke

Petrographic description: see Appendix 3, 81120229 (25.9m)

STOW 6 JE 701802 Stow 6
Total depth: 14.6m
Core: 8.8-14.6m

Log: 0-8.8m orange brown clayey sand
8.8-13.4m very weathered foliated medium feldspathic
greywacke
13.4-14.6m grey phyllitic siltstone

Petrographic descriptions: see Appendix 3, 81120235(14.3m),
81120236(13.1m)

STOW 7 JE 705811 Stow 6
Total depth: 14.3m
Core: 9.4-14.3m

Log: 0-2.1m yellow and red sandy clay
2.1-5.2m yellowish brown sandy clay
5.2-9.4m yellowish grey sandy clay
9.4-14.3m foliated feldspathic greywacke

Petrographic description: see Appendix 3, 81120234(13.7m)

STOW 8 JE 710820 Stow 6

Total depth: 14.0m

Core: 6.4-14.0m

Log: 0-6.4m orange brown sandy clay

6.4-14.0m weathered massive medium grey quartz dolerite

Petrographic description: see Appendix 3, 81120230(13.4m)

STOW 9 JE 715828 Stow 6

Total depth: 19.2m

Core: 6.4-19.2m

Log: 0-2.1m orange brown sandy clay

2.1-6.4m greenish brown sandy clay

6.4-19.2m fine to coarse foliated amphibolite

Petrographic description: see Appendix 3, 81120237 (16.2m)

APPENDIX 3. THIN SECTION DESCRIPTIONS

The first line of each entry records BMR sample number, AMG grid reference, 1:100,000 sheet area, and compilation sheet number. The second and third lines list the rock type and formation respectively.

81120001 JE640974 STOW 2
Olivine dolerite
Oenpelli Dolerite

Medium-grained, ophitic colourless clinopyroxene, andesine laths, minor rounded olivine crystals, interstitial biotite and magnetite. Alteration: plagioclase to sericite and prehnite, clinopyroxene to actinolite, and olivine to chlorite.

81120002 KF512058 STOW 2
Altered porphyritic dolerite
Oenpelli Dolerite

Euhedral crystals and aggregates of plagioclase (up to 1cm) entirely replaced by prehnite? in medium-grained groundmass of ophitic clinopyroxene which is mostly replaced by pale green actinolite and altered plagioclase. Minor skeletal magnetite and rare carbonate.

81120004 JE614999 STOW 2
Pyroxenite
Oenpelli Dolerite?

Medium-grained subprismatic colourless clinopyroxene, fractured (and chloritised in part) olivine (25%). Minor biotite, andesine (5%), and magnetite.

81120005 JE626997 STOW 2
Dolerite
Oenpelli Dolerite / Zamu Dolerite

Fine-grained porphyritic dolerite (Oenpelli Dolerite) with chlorite and epidote alteration. Intrudes medium-grained dolerite with prehnite, actinolite, and carbonate alteration (Zamu Dolerite).

81120007 JE687941 STOW 3
Medium quartz dolerite
Zamu Dolerite

Medium-grained subprismatic clinopyroxene (mostly altered to fibrous actinolite) and labradorite laths. Minor interstitial quartz and biotite.

81120008 KF512013 STOW 2
Medium quartz dolerite
Zamu Dolerite

Medium-grained ophitic colourless clinopyroxene showing marginal alteration (and along cleavage) to pale green amphibole. Moulds altered labradorite crystals (white mica alteration). Minor interstitial quartz, some graphically intergrown quartz and K-feldspar, and less than 1% biotite. Secondary epidote and carbonate.

81120009 JE703872 STOW 6
Meta-granophyric dolerite
Zamu Dolerite

Medium-grained subprismatic clinopyroxene (mostly altered to actinolite), sericitised ? plagioclase and 5% interstitial quartz and K-feldspar, mostly graphically intergrown. Trace apatite and secondary epidote.

81120010 JE792996 STOW 3
Amphibolite (meta-quartz dolerite)
Zamu Dolerite

Medium-grained subophitic grains composed of fibrous pale green actinolite (after clinopyroxene) with minor marginal patches of hornblende, plagioclase (altered to sericite?) sphene, interstitial quartz, chlorite, and skeletal magnetite.

81120011 KF713001 STOW 3
Amphibolite (Meta-quartz dolerite)
Zamu Dolerite

Medium-grained fibrous actinolite (relict ophitic texture), albite, sphene, clinozoisite and quartz. Veinlets of clinozoisite and quartz.

81120012 JE695892 STOW 6
Medium quartz dolerite
Zamu Dolerite

Medium-grained ophitic colourless clinopyroxene enclose fine euhedral labradorite laths (altered to prehnite?) Trace chlorite, quartz, sphene and biotite.

81120013 JE583937 STOW 2
Amphibolite
Zamu Dolerite

Medium-grained subprismatic crystals of fibrous pale green actinolite with hornblende rims in places sericitised? plagioclase laths, interstitial quartz (less than 1%) and minor skeletal magnetite.

81120014 KF402026 STOW 1

Altered pitchstone

Shovel Billabong Andesite

Scattered phenocrysts (less than 2mm) of altered plagioclase? (now quartz, white mica and epidote) in a brown amorphous altered glassy groundmass containing radiating microlites and secondary epidote.

81120015 JE813855 STOW 6

Sheared amphibolite

Zamu Dolerite

Rotated medium-grained colourless clinopyroxene? crystals with fibrous actinolite beards in a recrystallised foliated matrix of quartz stringers, clinozoisite, sphene, and actinolite.

81120016 JE714962 STOW 3

Amphibolite

Zamu Dolerite

Medium-grained fibrous aggregates of pale green actinolite (pseudomorphs after clinopyroxene) and altered plagioclase crystals. Minor prehnite?, sphene?, interstitial quartz, opaque minerals and rare biotite.

81120017 KF656054 STOW 3

Medium quartz dolerite

Zamu Dolerite

Medium-grained subophitic colourless clinopyroxene with altered margins of hornblende, chlorite, sphene and carbonate. Moulds recrystallised plagioclase crystals. Minor magnetite, biotite and quartz (graphically intergrown with K-feldspar in places).

81120018 JE562916 STOW 5

Medium porphyritic alkali feldspar granite

Malone Creek Granite (b)

Medium-grained anhedral K-feldspar (cloudy with Fe oxides) and quartz graphically intergrown in places. Quartz approximately 30%. Minor quartz and lesser K-feldspar phenocrysts up to 1cm. Minor chlorite aggregates after biotite (1%) and fine white mica aggregates after plagioclase? (1%).

81120019 JE562916 STOW 5

Fine alkali feldspar granite

Malone Creek Granite

Fine-grained equigranular and graphically intergrown cloudy (Fe oxide) K-feldspar and quartz (35%) with minor albite (5%), oligoclase (5%), and chloritized biotite (1%). Secondary epidote and carbonate veinlets. Trace accessory fluorite.

81120020 JE556908 STOW 5
Medium porphyritic alkali feldspar granite
Malone Creek Granite (b)

Scattered phenocrysts of quartz and K-feldspar (less than 1cm) in a medium-grained groundmass of anhedral K-feldspar, quartz (minor graphic intergrowths), approximately 1% altered biotite and trace fluorite and epidote.

81120021 JE519924 STOW 5
Fine porphyritic alkali feldspar granite
Malone Creek Granite (a)

See description for 81120125

81120022 JE544915 STOW 5
Fine porphyritic alkali feldspar granite
Malone Creek Granite (a)

Scattered phenocrysts (less than 1%) of quartz and K-feldspar in a fine-grained groundmass of anhedral cloudy K-feldspar, quartz (some graphically intergrown) and chloritized biotite (1%). Minor sericite aggregates (may be altered plagioclase).

81120023 KF807058 STOW 3
Altered amygdaloidal mafic volcanic
Nungbagarri Volcanic Member

Chalcedony (pseudomorphs after euhedral feldspar) and minor clinopyroxene ? phenocrysts in an altered glassy groundmass consisting almost entirely of limonite. Amygdales of chalcedony, pale green chlorite, and Fe-oxides.

81120024 JE728620 STOW 12
Altered amygdaloidal mafic volcanic
Birdie Creek Volcanic Member

Hematite-stained and partly silicified plagioclase laths with minor clinopyroxene in a limonitic altered glassy base containing rounded quartz-filled amygdales (about 1cm across).

81120025 JE747789 STOW 9
Altered mafic volcanic
Birdie Creek Volcanic Member

Fine-grained albitised plagioclase laths (also prehnite and carbonate alteration), stubby colourless clinopyroxene crystals, rounded chlorite patches (after olivine) and interstitial devitrified glass.

81120029 JE614673 STOW 8
Altered amygdaloidal mafic volcanic
Birdie Creek Volcanic Member

Interlocking tabular crystals of plagioclase (andesine) and lesser alkali feldspar with interstitial chlorite, brown opaque-rich altered glass containing microlites, secondary chlorite and epidote. Rare relict twinned euhedral clinopyroxene crystals. Common chlorite and epidote-filled amygdales.

81120030 JE423557 STOW 10
Porphyritic microgranite (similar to 81120035)
Plum Tree Creek Volcanics

Eroded phenocrysts of alkali feldspar, quartz and sericitised plagioclase and minor hornblende in a groundmass of brown devitrified glass with patches of micrographically intergrown alkali feldspar and quartz, minor sphene, apatite, hornblende (mostly altered to actinolite), chlorite and carbonate.

The rock is gradational between microgranite and rhyolite?

81120033 JE638559 STOW 11
Porphyritic microgranite
Grace Creek Granite

Homogeneous rock consisting of phenocrysts of eroded plagioclase, alkali feldspar and minor quartz and chlorite pseudomorphs (after a mafic mineral) in a finely crystalline groundmass of tabular and micrographically intergrown alkali feldspar and quartz. Minor relict biotite, secondary chlorite, opaques and apatite. Micrographic intergrowths commonly rim phenocrysts. Phenocrysts - alkali feldspar 80%, plagioclase 10%, quartz 5% and chlorite 5%.

81120034 JE660558 STOW 12
Porphyritic microgranite
Grace Creek Granite

Phenocrysts of eroded quartz, alkali feldspar, sericitised plagioclase and minor chlorite clots (after a mafic mineral) in a groundmass of graphically intergrown alkali feldspar and quartz, accessory apatite, sphene, zircon and opaques. Phenocrysts: alkali feldspar 30%, plagioclase 50%, quartz 10% and chlorite 10%.

81120035 JE490515 STOW 11
Porphyritic microgranite
Plum Tree Creek Volcanics

Eroded phenocrysts of alkali feldspar, quartz and sericitised plagioclase and minor hornblende in a groundmass of brown devitrified glass with patches of micrographically intergrown alkali feldspar and quartz, minor sphene, apatite, hornblende (mostly altered to actinolite), chlorite and carbonate.
The rock is gradational between microgranite and rhyolite.

81120037 JE526711 STOW 8
Altered rhyolite ?
Plum Tree Creek Volcanics

Eroded phenocrysts of feldspar (alkali feldspar greater than plagioclase) quartz and minor mafic mineral (now chlorite and carbonate) in a microcrystalline groundmass of feldspar, quartz and chlorite. Trace opaques and euhedral zircon with metamict haloes. Apatite occurs as inclusions in chlorite. Phenocrysts - quartz 50%, alkali feldspar 20%, plagioclase 20% and mafic minerals less than 10%.

81120038 JE809540 STOW 12
Altered rhyolite
Plum Tree Creek Volcanics

Eroded phenocrysts of sericitised plagioclase, alkali feldspar and minor quartz, chlorite (after a mafic mineral) and opaques in a brown glassy groundmass containing crystallites, apatite and sphene. Altered basalt (?) fragment similar to 81120045

81120039 JE526695 STOW 8
Altered rhyolite
Plum Tree Creek Volcanics

Partly eroded phenocrysts of bipyramidal quartz and alkali feldspar (microcline ?) and very minor pale green chlorite (after a mafic mineral) in a brown Fe-stained microcrystalline groundmass of quartz, feldspar and chlorite. Phenocrysts - quartz 50%, alkali feldspar 40%, and mafic minerals 10%

81120040 JE573680 STOW 8
Rhyolite
Big Sunday Formation

Minor eroded phenocrysts of quartz and rare alkali feldspar in a microcrystalline groundmass of quartz and alkali feldspar. Minor Fe-oxide (after biotite in places) and calcite.

81120041 JE576727 STOW 8
Rhyolite
Big Sunday Formation

Eroded quartz and minor sericitised alkali feldspar phenocrysts in a microcrystalline sericite (altered feldspar), quartz, Fe-oxide groundmass. Relict spherulitic and fluidal texture.

81120058 JE585690 STOW 8
Banded rhyolite
Big Sunday Formation

Scattered euhedral feldspar microphenocrysts up to 4mm across (completely sericitised) and smaller rounded or eroded quartz microphenocrysts in a cryptocrystalline siliceous groundmass, which shows incipient banding marked by opaque-free zones. Patchy extinction of groundmass indicates sericite and quartz-rich areas (probably an altered feldspar - quartz base).

81120062 JE3411991 STOW 1
Meta-dololomite
Kapalga Formation

Laminated medium-grained bands of carbonate, chlorite, prismatic tremolite / actinolite, opaques, minor quartz, epidote and sphene. These bands alternate with bands of quartz-chlorite, carbonate mosaic. Unusual devitrification? textures in medium-grained bands may indicate a tuffaceous component.

81120063 KF385030 STOW 1
Dolomite breccia
Kapalga Formation

Coarse crystalline cloudy dolomite clasts in a matrix of dolomite, quartz and pale green chlorite.

81120069 KF382048 STOW 1
Medium greywacke
Kapalga Formation

Poorly sorted subangular to subrounded quartz, minor chert, shale and sericite aggregates (altered feldspar) in a finer grained matrix of biotite, muscovite and sericite.

81120070 JE476817 STOW 5
Foliated quartzite
Mundogie Sandstone

Strongly foliated coarse poorly sorted quartz grains (strained and flattened) in a fine-grained, strongly foliated matrix of quartz mosaic with anastomosing muscovite folia.

81120074 JE484806 STOW 5
Carbonaceous siltstone
Mundogie Sandstone

Strongly foliated very fine-grained carbonaceous matrix with scattered silty laminae. Quartz grains are strongly elongated in the foliation plane.

81120075 JE445894 STOW 4

Very coarse quartz sandstone

Kurrundie Sandstone

Very coarse-grained, poorly sorted quartz, minor cloudy feldspar and clasts of Fe-oxide altered felsic volcanic, phyllite, foliated quartzite, kaolinised feldspar. Trace detrital tourmaline and zircon. Matrix consists of clay, Fe-oxides and minor secondary quartz.

81120078 JE450878 STOW 4

Coarse quartz sandstone

Kurrundie Sandstone

Coarse-grained, poorly sorted sub to well-rounded quartz, minor chert and feldspar cemented by clay, authigenic quartz overgrowths, and minor Fe-oxides.

81120079 JE443903 STOW 4

Coarse quartz sandstone

Kurrundie Sandstone

Very poorly sorted subangular coarse-grained quartz, minor chert, felsic volcanic clasts, feldspar and muscovite in a clay, Fe-oxide matrix. Detrital zircon.

81120080 JE634867 STOW 5

Recrystallised spherulitic rhyolite

Pul Pul Rhyolite

Eroded quartz and alkali feldspar phenocrysts in a spherulitic siliceous recrystallized matrix, rare biotite in coarser-grained granoblastic quartz patches.

81120081 JE572872 STOW 5

Altered ignimbrite

Pul Pul Rhyolite

Angular to rounded quartz (some of metamorphic origin) alkali feldspar, plagioclase, volcanic rock fragments and rare chloritised fragments probably after a mafic mineral, in a fluidal altered base of chlorite, sericite and patchy carbonate. Volcanic rock fragments are mostly chloritised and carbonated porphyritic mafic volcanics, pitchstone and rare phyllite.

81120082 JE522859 STOW 5

Altered ignimbrite

Big Sunday Volcanics

Angular to rounded crystal fragments of quartz completely sericitised feldspar and sericitised mafic and felsic volcanic rock fragments in a fluidal highly altered base consisting of sericite, quartz, chlorite and Fe-oxides.

81120083 JE640929 STOW 2
Altered ignimbrite
Pul Pul Rhyolite

Angular to rounded crystal fragments of quartz and minor sericitised feldspar, mafic rock and quartzite fragments in a fluidal altered sericitic base (Fe-oxides).

81120084 JE441940 STOW 1
Altered ignimbrite
Pul Pul Rhyolite

Angular and rarely euhedral crystal fragments of quartz, alkali feldspar, plagioclase, microcline, minor graphic intergrowths, volcanic rock fragments (chloritised mafic) and foliated feldspathic greywacke and rhyolite. Rare chlorite aggregates after mafic mineral fragments in a fluidal altered siliceous base with a relict eutaxitic fabric in places. Rare zircon and patchy carbonate. Many quartz crystal fragments of metamorphic origin.

81120085 JE521855 STOW 5
Altered ignimbrite
Pul Pul Rhyolite

Angular to rounded volcanic rock fragments (sericitised and chloritised mafic volcanics, rhyolite and highly altered chloritised devitrified spherulite glassy rock), quartz, minor microcline and minor chlorite after mafic crystal fragments in a brown devitrified glassy groundmass with a eutaxitic fabric and spherulitic patches.

81120086 JE499877 STOW 5
Ignimbrite
Pul Pul Rhyolite

Angular felsic volcanic rock fragments composed of radiating micrographic quartz-feldspar intergrowths, and quartz mineral fragments in a weakly fluidal recrystallised siliceous base containing biotite, prismatic tourmaline? and coarser patches of granoblastic quartz.

81120087 JE441940 STOW 1
Altered ignimbrite
Pul Pul Rhyolite

Highly altered angular fragments of porphyritic mafic and felsic volcanics and crystal fragments of quartz and alkali feldspar in a banded devitrified recrystallised matrix containing patchy chlorite, carbonate, epidote and rare zircon.

81120088 JE496852 STOW 5
Coarse feldspathic greywacke
Big Sunday Formation

Coarse-grained poorly sorted angular grains of quartz, alkali feldspar, plagioclase and minor muscovite, microcline, chloritised biotite, tourmaline and altered mafic volcanic rock fragments in a finer matrix of the same composition with patchy carbonate and chlorite

81120089 JE457900 STOW 4
Very coarse to pebbly volcanolithic quartz arenite
Big Sunday Formation

Poorly sorted subrounded to rounded quartz, chert and minor sericitised volcanic rock fragments, and microcline in a recrystallised sericitic and chloritic matrix.

81120090 JE432926 STOW 1
Altered rhyodacite
Big Sunday Formation

Tabular phenocrysts and aggregates of carbonated oligoclase, minor alkali feldspar and chlorite pseudomorphs after biotite and possibly hornblende, in a brown devitrified groundmass (mostly carbonate and chlorite). Minor apatite crystals enclosed within the chlorite pseudomorphs.

81120091 JE478870 STOW 5
Altered basalt?
Big Sunday Formation

Interlocking (andesine to labradorite) laths and pale brown subprismatic augite crystals with very minor interstitial granoblastic quartz and rare alkali feldspar, opaques and subophitic augite. Extensive patches of chlorite, carbonate and epidote alteration.

81120092 JE387973 STOW 1
Altered basalt?
Coronation Sandstone

Euhedral phenocrysts of colourless clinopyroxene and carbonate-quartz pseudomorphs after plagioclase? in a intergranular groundmass of interlocking plagioclase (labradorite) laths, clinopyroxene granules, opaques, apatite, secondary carbonate and chlorite.

81120093 JE527872 STOW 5
Altered intermediate volcanic
Coronation Sandstone

Porphyritic rock containing phenocrysts of single eroded quartz (commonly with corona texture), euhedral colourless clinopyroxene crystals or aggregates, and quartz-chlorite aggregates (pseudomorphs of other mafic minerals?). The groundmass is chloritised, intergranular to subtrachytic, with feldspar microlites, clinopyroxene, and opaque granules.

81120096 JE527873 STOW 5
Altered mafic volcanic
Coronation Sandstone

Slightly porphyritic rock containing tabular phenocrysts of alkali feldspar, plagioclase and subprismatic pale green amphibole (commonly altered to chlorite). The groundmass has an orthophyric and subtrachytic fabric with feldspar patches (which are extensively carbonated). Chlorite, granular opaques, and epidote are common secondary minerals. Granular quartz, epidote, sphene and carbonate fill subparallel drusy cavities.

81120097 JE461838 STOW 4
Altered amygdaloidal basalt?
Big Sunday Formation

Rounded amygdales filled with granular quartz, plagioclase, carbonate and chlorite in an Fe-oxide stained groundmass of interlocking plagioclase laths (andesine?), minor alkali feldspar, chlorite and sphene, and rare zircon. Xenolith of fine crystal tuff.

81120101 JE462841 STOW 4
Fine vitric crystal tuff
Big Sunday Formation

Fine-grained, angular, poorly-sorted and curved crystal fragments of quartz, alkali feldspar and minor sericitised plagioclase in a devitrified glassy groundmass with a weak eutaxitic texture. Rare volcanic rock fragments.

81120103 JE574730 STOW 8
Rhyolite
Big Sunday Formation

Eroded phenocrysts of quartz, orthoclase, microcline and minor plagioclase in a banded devitrified glassy groundmass.

81120104 JE523863 STOW 5
Ignimbrite
Pul Pul Rhyolite

Curved angular and eroded crystal fragments of quartz, alkali feldspar and minor felsic volcanic rock fragments in a devitrified base containing fine granules of opaques and chlorite.

81120105 JE700897 STOW 6
Rhyolite
Pul Pul Rhyolite

Eroded phenocrysts of quartz and sericitised alkali feldspar in a devitrified glassy groundmass containing coarser recrystallised patches of quartz and minor biotite which define a weak flow banding.

81120106 JE495850 STOW 5
Devitrified vitric tuff
Big Sunday Volcanics

Fine-grained curved splinters of quartz and chloritised biotite in a brown devitrified glassy base with a well preserved eutaxitic structure.

81120107 JE616906 STOW 5
Shale
Big Sunday Volcanics

Microcrystalline sericite, chlorite, opaques and rare quartz.

81120109 JE574879 STOW 5
Very coarse feldspathic greywacke
Coronation Sandstone

Very coarse-grained, poorly-sorted, subangular to rounded grains of quartz, alkali feldspar (dominantly microcline), minor plagioclase, chert and ribbon quartz, and rare felsic volcanic rock fragments, in a finer matrix of the same composition. Minor secondary carbonate and sericite.

81120110 JE375978 STOW 1
Lithic pebble conglomerate
Coronation Sandstone

Well rounded pebbles of fine-grained recrystallised carbonate, calcarenite, angular phyllite fragments, foliated quartz greywacke, and well-rounded quartz grains in a recrystallised matrix of granoblastic quartz, carbonate, chlorite and Fe-oxides.

81120111 JE558872 STOW 5
Altered mafic volcanic
Coronation Sandstone

Slightly porphyritic. Tabular phenocrysts of oligoclase feldspar in a groundmass of cloudy brown altered feldspar laths, coarse colourless subophitic clinopyroxene (commonly altered to pale green fibrous amphibole) and patches of chlorite, epidote and granular opaques.

81120112 KF359035 STOW 1
Porphyritic rhyolite
Coronation Sandstone

Tabular phenocrysts of orthoclase? and minor chlorite after biotite in a groundmass consisting of radiating micrographic intergrowths of quartz and alkali feldspar, minor plagioclase, apatite needles and cavities filled by bipyramidal quartz, chlorite, epidote and sphene.

81120113 JE578881 STOW 5
Altered rhyolite?
Pul Pul Rhyolite

Minor rounded plagioclase and quartz phenocrysts in a recrystallised and silicified groundmass of radiating intergrowths of cloudy alkali feldspar? and minor quartz, coarser granoblastic quartz patches and brown weathered chlorite. Relict banding and corona structure formed by radiating feldspar? rims around phenocrysts.

81120114 JE529874 STOW 5
Altered rhyolite?
Coronation Sandstone

Corroded quartz phenocrysts and very minor carbonated oligoclase in a highly altered devitrified groundmass of carbonate, chlorite, and sphene. Numerous crusty cavities of quartz, carbonate, chlorite and epidote.

81120115 JE408965 STOW 1
Chert breccia
Scinto Breccia

Angular clasts of chert, poorly sorted coarse quartz sandstone, rhyolite, muscovite quartzite, rare carbonaceous schist, and well rounded quartz grit in a very fine-grained hematite-quartz matrix.

81120116 KF314051 STOW 1
Altered ignimbrite?
Pul Pul Rhyolite

Scattered angular quartz fragments (most with undulose extinction) in a shattered recrystallised base of chlorite and Fe-oxide with a relict fragmental and weak fluidal texture.

81120117 KF321043 STOW 1
Recrystallised flow banded rhyolite?
Pul Pul Rhyolite

Banded microcrystalline quartz, sericite and Fe-oxides with coarser grained granoblastic patches and rare rounded quartz phenocrysts.

81120118 JE383990 STOW 1
Altered ignimbrite
Pul Pul Rhyolite

Embayed and eroded quartz phenocrysts, sericitised feldspar and quartz-sericite rock fragments in a weakly fluidal recrystallised siliceous and sericitic base containing wavy patches of coarse-grained granoblastic quartz parallel to flow banding.

81120119 JE841952 STOW 3
Very coarse quartz sandstone
Coronation Sandstone

Very coarse-grained, poorly sorted, rounded grains of quartz, and chert, commonly with optically continuous overgrowths, in a recrystallised matrix of granoblastic quartz, sericite, detrital muscovite and zircon, and secondary Fe-oxides. Grain boundaries marked by fine opaque granules. Most grains show undulose extinction.

81120120 JE755904 STOW 6
Fine quartz greywacke
Burrell Creek Formation

Poorly sorted fine-grained recrystallised sutured quartz grains in a finer grained granoblastic matrix of quartz, chlorite and sericite.

81120121 JE843951 STOW 3
Quartzite
Coronation Sandstone

Fine-grained moderately sorted, well-rounded quartz and detrital tourmaline and zircon, cemented by optically continuous quartz. Relict grain boundaries distinct and marked by brown oxide coatings. Laminated.

81120122 JE755904 STOW 6
Volcanolithic pebble conglomerate
Coronation Sandstone

Well-rounded pebbles of sericitised felsic volcanic, shale, phyllite, siltstone, calcareous foliated quartz greywacke, biotite, and quartz in a very coarse-grained, poorly sorted sandy matrix of secondary Fe-oxides, carbonate, chlorite (after a mafic mineral) and angular quartz.

81120123 JE702858 STOW 6
Ferruginous quartz sandstone
Coronation Sandstone

Poorly-sorted, coarse-grained to very coarse-grained, closely packed subangular grains of quartz, chert and minor phyllite, in a Fe-oxide and sericitic matrix. Most grains show undulose extinction (i.e. metamorphic origin).

81120124 JE463951 STOW 1
Fine equigranular alkali feldspar granite
MALONE Creek Granite (c)

Fine-grained anhedral and graphically intergrown K-feldspar and quartz (25%), minor albite/oligoclase (2%), chloritised biotite (1%), fluorite (1%) and trace epidote.

81120125 JE530946 STOW 2
Fine porphyritic alkali feldspar granite
Malone Creek Granite (a)

Fine-grained anhedral and minor graphically intergrown cloudy K-feldspar and quartz (30%) with anhedral quartz and K-feldspar phenocrysts up to 1cm across. Minor biotite, mostly altered to white mica and chlorite. Fe oxides and quartz veinlets.

81120126 JE530883 STOW 5
Fine equigranular alkali feldspar granite.
Malone Creek Granite (c)

Fine-grained equigranular graphically intergrown cloudy K-feldspar and quartz (30%) chloritised biotite (1%) trace fluorite and plagioclase. Minor secondary carbonate.

81120127 JE511966 STOW 2
Fine equigranular alkali feldspar granite.
Malone Creek Granite (c)

Fine-grained anhedral altered K-feldspar (white mica, yellow Fe-oxides) and quartz. Minor biotite (1%) altered mostly to white mica and Fe-oxides-stained chlorite. Trace zircon.

81120128 JE509959 STOW 2
Coarse equigranular alkali feldspar granite.
Malone Creek Granite (b)

Slightly porphyritic, with quartz grains up to 1cm across in a coarse groundmass of quartz (30%) anhedral microperthite, chloritised biotite (1%), fine-grained white mica aggregates (2%) (after plagioclase ?).

81120129 KF342038 STOW 1
Medium quartz greywacke.
Koolpin Formation

Subangular poorly-sorted grains of quartz, chert, minor sericitised feldspar? and muscovite flakes. Minor detrital zircon and tourmaline. Secondary Fe-oxides.

81120130 JE689798 STOW 6
Limonitic chert
Kapalga Formation

Fine-grained mosaic of polygonal quartz and limonite with isoclinally folded bands of fine-grained polygonal quartz.

81120133 KF342019 STOW 1
Altered mafic volcanic breccia.
Stag Creek Volcanics

Rounded to angular clasts of altered mafic volcanic, now mostly fine-grained tremolite aggregates, in a matrix of clinozoisite, carbonate and minor leucoxene? and quartz.

81120134 KF306046 STOW 1
Fine to coarse altered vitric tuff.
Stag Creek Volcanics

Fine to coarse-grained mosaic of chlorite and minor quartz, skeletal oxides and leucoxene. Relict eutaxitic fabric. Minor scattered quartz crystals and chlorite pseudomorphs after a mafic mineral. Wavy metamorphic foliation at an acute angle to bedding.

81120135 JE810539 STOW 12
Dolerite
Unnamed Dyke

Fine-grained labradorite laths, colourless clinopyroxene (chlorite, hornblende, carbonate alteration), very minor biotite, rare interstitial graphic intergrowths of quartz and feldspar. Skeletal magnetite and rare sphene.

81120136 JE636704 STOW 8
Basalt
Birdie Creek Volcanic Member

Fine-grained stubby clinopyroxene crystals and altered plagioclase laths (prehnite ? alteration) with scattered clinopyroxene and plagioclase phenocrysts (less than 2mm across) and interstitial plagioclase, altered brown glass, and opaques. Secondary chlorite, epidote and chalcedony.

81120137 JE544915 STOW 5
Dolerite
Unnamed Dyke

Fine-grained andesine laths and anhedral clinopyroxene. Minor biotite, quartz and magnetite. Patchy secondary carbonate and chlorite.

81120139 JE492852 STOW 5
Porphyritic alkali feldspar syenite
Unnamed Dyke

Scattered euhedral phenocrysts (less than 1cm across), glomeroporphyritic aggregates of cloudy K-feldspar and oligoclase and minor quartz in a fine-grained groundmass of cloudy (dusty hematite) K-feldspar laths, minor quartz, chlorite, plagioclase, carbonate and epidote. Quartz content approximately 5% and plagioclase comprises less than 10% of feldspar.

81120146 JE589959 STOW 2
Porphyritic alkali feldspar granite
Unnamed Dyke

Scattered phenocrysts and glomeroporphyritic aggregates of cloudy K-feldspar, sericitised plagioclase and chlorite (minor apatite inclusions) in a fine groundmass of K-feldspar mosaic with minor quartz (less than 5%), chlorite, plagioclase and secondary epidote.

81120148 KF596028 STOW 2
Meta greywacke
Burrell Creek Formation

Very fine-grained to fine-grained poorly-sorted, angular, scattered quartz and sericite aggregates after feldspar in a foliated matrix of quartz, muscovite and chlorite.

81120151 JE447970 STOW 1
Meta feldspathic greywacke
Burrell Creek Formation

Coarse-grained poorly-sorted, flattened clasts of quartz, chert, K-feldspar and plagioclase (mostly altered to white mica) in a strongly foliated finer grained matrix containing biotite, muscovite and minor tourmaline.

81120152 JE714958 STOW 3

Meta greywacke.

Burrell Creek Formation

Fine to medium-grained poorly-sorted flattened quartz and feldspar (all now altered to fine white mica aggregates) in a foliated matrix of muscovite, chlorite, biotite, minor tourmaline and rare epidote. Patches of chlorite may be after cordierite.

81120153 JE447987 STOW 1

Phyllite

Burrell Creek Formation

Disrupted highly strained recrystallised quartz rich bands (probably quartz vein material) in foliated muscovite and minor biotite.

81120154 JE793998 STOW 3

Meta quartz greywacke

Burrell Creek Formation

Fine-grained poorly-sorted, flattened and recrystallised quartz and chert in a strongly foliated and crenulated matrix of quartz, biotite and muscovite.

81102155 JE539998 STOW 2

Meta mudstone

Burrell Creek Formation

Very fine-grained mosaic of pale green chlorite and minor quartz.

81120156 JE881810 STOW 6

Phyllite

Burrell Creek Formation

Microcrystalline quartz and foliated biotite and minor muscovite which is at an acute angle to bedding laminae. Quartz veins parallel to the metamorphic foliation.

81120157 JE679973 STOW 3

Phyllite

Burrell Creek Formation

Microcrystalline quartz, foliated muscovite and biotite. Both the main metamorphic foliation and compositional banding (bedding?) which are parallel are foliated by a crenulation cleavage.

81120159 JE431574 STOW 10
Volcanolithic pebble conglomerate
Tollis Formation

Subangular clasts of phyllite, foliated greywacke, and porphyritic felsic volcanics in a poorly-sorted unstrained greywacke matrix of quartz, chert and white mica aggregates (after feldspar). One phyllite pebble has andalusite pseudomorphs (i.e. hornfelsed).

81120162 JE498980 STOW 2
Feldspathic greywacke
Burrell Creek Formation

Coarse-grained poorly-sorted flattened, unstrained (recrystallised) clasts of quartz, chert, K-feldspar and minor albite/oligoclase in a strongly foliated finer grained matrix containing biotite, very minor muscovite, rare carbonate and detrital zircon.

81120169 JE640972 STOW 2
Siltstone hornfels
Burrell Creek Formation

Angular silty quartz grains in patchy fine-grained white mica and chlorite. Chlorite forms circular patches less than 0.5 cm across probably after cordierite. N.B. No evidence of early regional metamorphic foliation.

81120174 JE519722 STOW 8
Coarse quartz sandstone
Kombolgie Formation (Phk₁)

Poorly-sorted, coarse-grained, strained quartz and chert grains cemented by a clayey quartz matrix.

81120175 JE611742 STOW 8
Coarse quartz sandstone
Kombolgie Formation (Phk₁)

Very poorly-sorted, coarse to very coarse-grained quartz and minor subangular felsic volcanic rock fragments in a matrix of Fe-oxides, clay, quartz, and rare detrital tourmaline and zircon.

81120177 JE512719 STOW 8
Welded tuff
Plum Tree Creek Volcanics ?

Scattered very well-rounded, strained quartz and minor kaolinised feldspar grains (up to 3mm across) in a chert base.

81120180 JE614651 STOW 8
Silicified coarse quartz sandstone
Kombolgie Formation (Phk₁)

Clean moderately sorted coarse quartz grains with interlocking quartz overgrowths - minor relict well-rounded grain boundaries preserved.

81120181 JE827020 STOW 3
Medium quartz sandstone
Kombolgie Formation (Phk₂)

Moderately sorted medium sub-to well-rounded quartz with grain boundaries outlined by Fe-oxide dust, optically continuous quartz overgrowths.

81120182 JE297974 STOW 1
Medium quartz sandstone
Kombolgie Formation (Phk₂)

Medium - grained, moderately sorted sub- to well-rounded quartz grains cemented by Fe-oxide and minor quartz overgrowths. Minor porous sericite aggregates are probably after feldspar. Detrital well-rounded tourmaline.

81120183 JE427804 STOW 4
Fine quartz sandstone
Tertiary (Tew)

Subangular to rounded fine-grained quartz and rare detrital tourmaline.

81120184 JE452630 STOW 10
Coarse quartz sandstone
Cretaceous (K₂)

Well-rounded moderately sorted quartz grains with optically continuous quartz overgrowths.

81120187 JE427804 STOW 4
Kaolinitic quartz sandstone
Tertiary (Tew)

Poorly-sorted subangular to subrounded fine to coarse-grained quartz in a kaolinitic matrix (XRD determination), minor illite.

81120202 KF629058 STOW 2
Chert
Kapalga Formation

Microcrystalline quartz mosaic with granular hematite and magnetite - rich laminae. Fe-oxides also form radiating, fine-grained 'bow-tie' aggregates (after chlorite?) within quartz-rich bands.

81120203 JE793997 STOW 3
Meta Fe-rich pelite
Kapalga Formation ?

Coarse-grained, fibrous and "bowtie" structured chlorite in a matrix of chlorite, minor quartz and Fe-oxides. X.R.D. -quartz, illite, chlorite

81120204 KF667052 STOW 3
Banded ironstone
Kapalga Formation

Alternating laminae of microcrystalline Fe-oxides (magnetite and hematite) with quartz mosaic. Minor cubic casts in quartz partly filled by Fe-oxide suggests that it may have been pyritic.

81120205 KF657004 STOW 3
Para-amphibolite
Kapalga Formation

Banded foliated actinolitic hornblende, K-feldspar ? and minor quartz. Coarse-grained quartz in amphibole-poor bands may be detrital grains. Probably a meta banded dololomite with silty and sandy laminae.

81120206 KF409009 STOW 1
Altered variolitic andesite
Shovel Billabong Andesite

Fine-grained mosaic of epidote, prehnite, chlorite, sphene and Fe-oxide. Variolitic texture preserved- slender highly altered plagioclase phenocrysts and rarely preserved clinopyroxene crystals (mostly replaced by chlorite and actinolite).

81120207 JE781981 STOW 3
Ferruginous chlorite schist
Kapalga Formation

Very fine-grained mica aggregates with radiating fibrous clusters and needles of hematite. Possibly oxidised version of 81120203.

81120208 KF731028 STOW 3
Foliated meta-pitchstone
Shovel Billabong Andesite

Strained scattered phenocrysts (less than 1mm across) now altered to aggregates of biotite and quartz in a foliated groundmass of brown altered glass, fine-grained sphene ?, and foliated quartz, epidote and biotite (unstrained).

81120209 KF721035 STOW 3
Sheared meta variolitic andesite
Shovel Billabong Andesite

Strained and altered phenocrysts (up to 2mm across) of actinolite/chlorite after clinopyroxene, albite/epidote after plagioclase in a foliated groundmass of granular microcrystalline epidote, chlorite, actinolite and quartz.

81120210 JE800988 STOW 3
Microdiorite
Shovel Billabong Andesite

Deformed slender euhedral plagioclase phenocrysts (up to 4mm) in a fine-grained groundmass of plagioclase, acicular actinolite, minor K-feldspar, quartz and sphene. Veined by epidote and actinolite. Actinolite forms slender clusters probably after primary clinopyroxene or hornblende.

81120225 JE391983 STOW 1
Dolomite
Koolpin Formation

Fine to medium-grained dolomite mosaic with veinlets of coarsely crystalline dolomite.

81120226 JE441792 STOW 4
Carbonaceous dolomitic phyllite
Koolpin Formation

Strained lenses and pods of medium-grained quartz, pyrite and dolomite in a foliated matrix of sericite and minor carbonaceous matter and chlorite.

81120227 JE685780 STOW 9
Foliated meta feldspathic greywacke
Burrell Creek Formation

Recrystallised coarse-grained elongate quartz and minor feldspar (now altered to white mica aggregates) grains in a strongly foliated matrix of muscovite, quartz and minor biotite.

81120228 JE681772 STOW 9
Amphibolite
Zamu Dolerite

Weakly foliated fine-grained acicular actinolite, sphene, chlorite and minor quartz. Carbonate veinlets.

81120229 JE698795 STOW 6
Meta feldspathic greywacke
Burrell Creek Formation

Medium-grained, recrystallised, poorly-sorted quartz, K-feldspar, plagioclase, minor biotite, granular epidote and opaques.

81120230 JE710820 STOW 6
Amphibolite (meta quartz dolerite)
Zamu Dolerite

Medium-grained ophitic colourless to pale green actinolite/tremolite mould clinozoisite-sphene-white mica pseudomorphs after plagioclase laths. Minor interstitial quartz and quartz-K-feldspar graphic intergrowths.

81120231 JE695787 STOW 9
Magnetite-muscovite-biotite-quartz schist
Kapalga Formation

Kinked compositionally banded micaceous folia with intervening polygonal quartz bands. Magnetite forms late syntectonic porphyroblasts in micaceous bands.

81120232 JE674766 STOW 9
Chlorite-muscovite-quartz schist (Meta siltstone).
Burrell Creek Formation ?

Foliated chlorite, muscovite, polygonal quartz. Trace tourmaline.

81120233 JE681772 STOW 9
Foliated meta feldspathic greywacke
Burrell Creek Formation

Rotated and recrystallised coarse grains of quartz, and minor K-feldspar in a fine-grained foliated groundmass of muscovite, chlorite and lenses of polygonal quartz mosaic, minor K-feldspar and plagioclase (oligoclase).

81120234 JE705811 STOW 6
Foliated meta felspathic greywacke
Burrell Creek Formation

Rotated and recrystallised coarse grains of quartz, and minor K-feldspar in a fine-grained foliated groundmass of muscovite, chlorite and lenses of polygonal quartz mosaic, minor K-feldspar and plagioclase (oligoclase).

81120235 JE701802 STOW 6
Biotite-quartz schist (meta siltstone)
Kapalga Formation ?

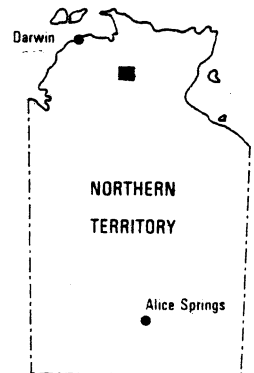
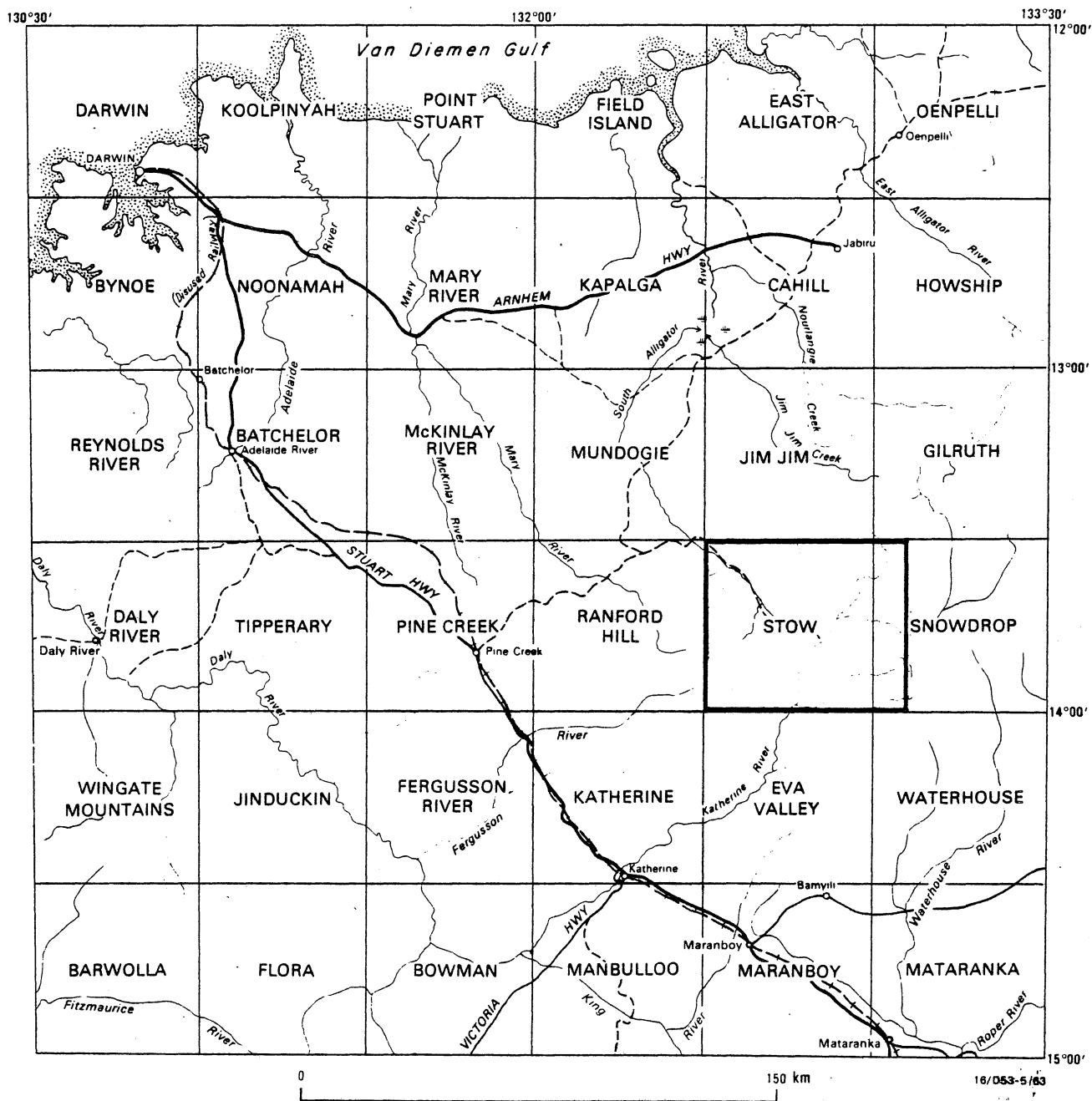
Foliated fine-grained biotite, quartz, minor feldspar.

81120236 JE701802 STOW 6
Foliated meta feldspathic greywacke
Koolpin Formation

Unstrained recrystallised rounded coarse-grained quartz, minor K-feldspar and oligoclase grains in a fine foliated matrix of biotite, quartz and minor feldspar.

81120237 JE715828 STOW 6
Amphibolite
Zamu Dolerite

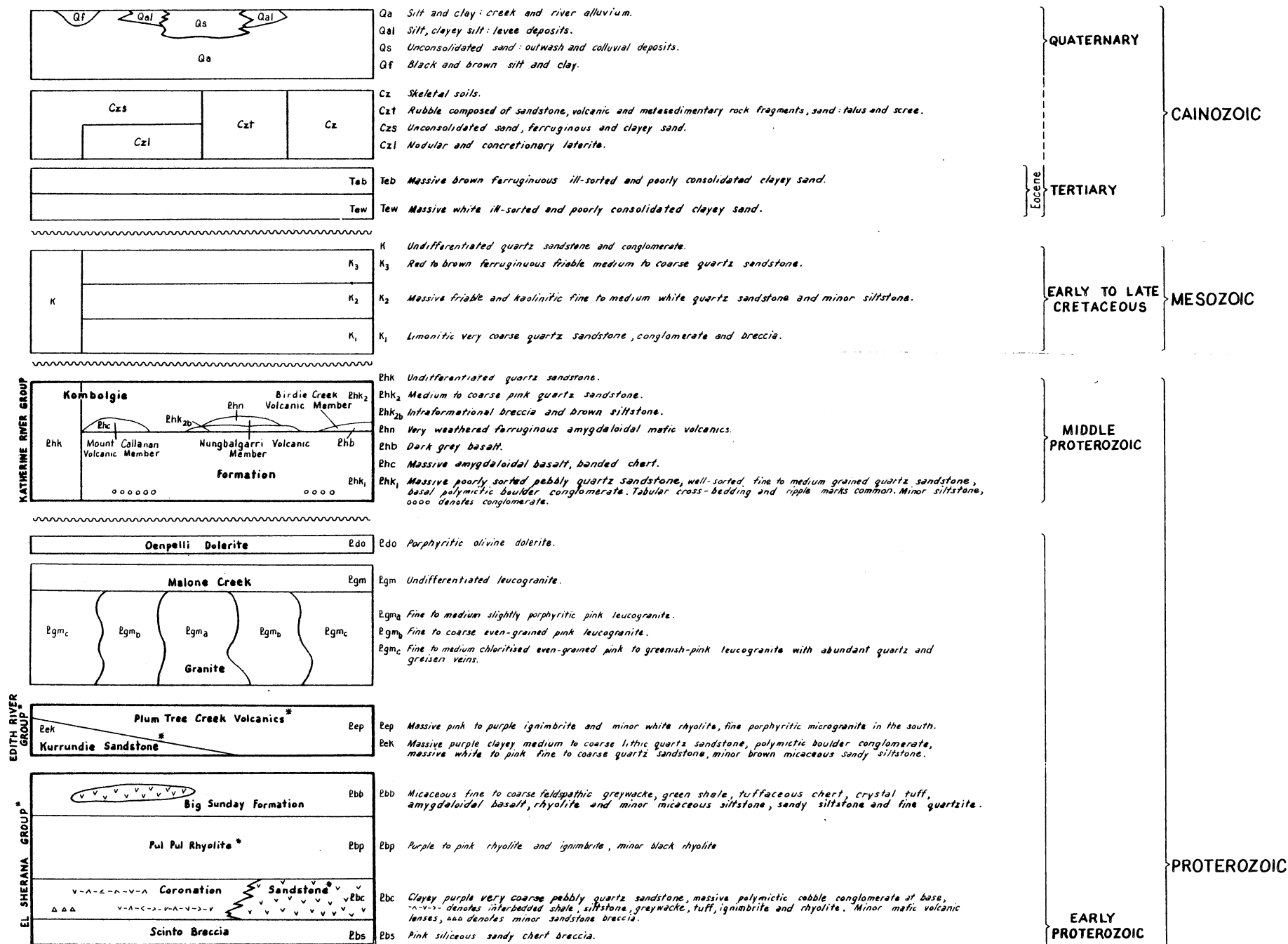
Medium-grained colourless actinolite/tremolite with relict ophitic texture, foliated recrystallised fibrous amphibole, polygonal quartz, granular clinozoisite and fine white mica aggregates (after plagioclase).

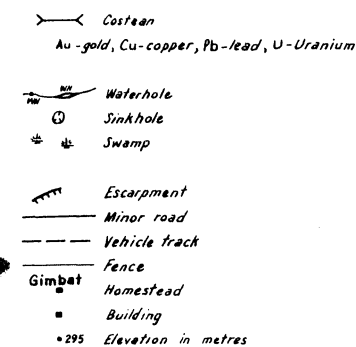
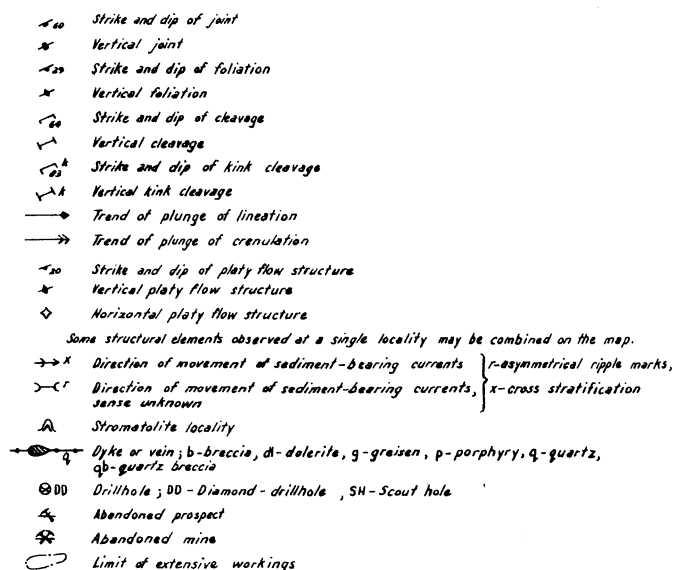
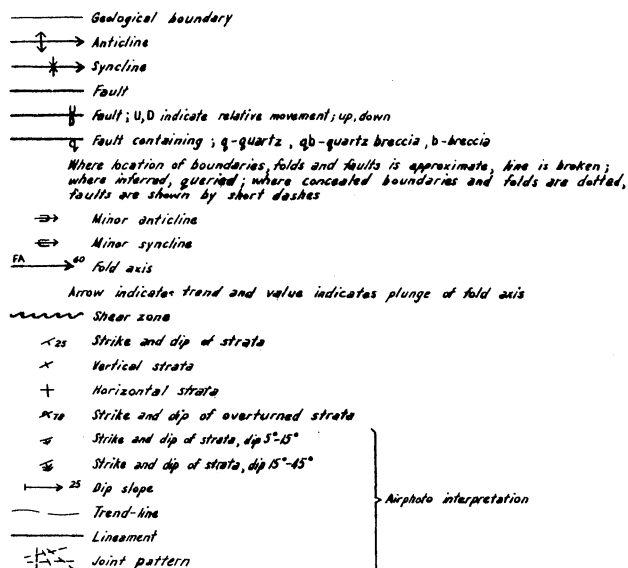
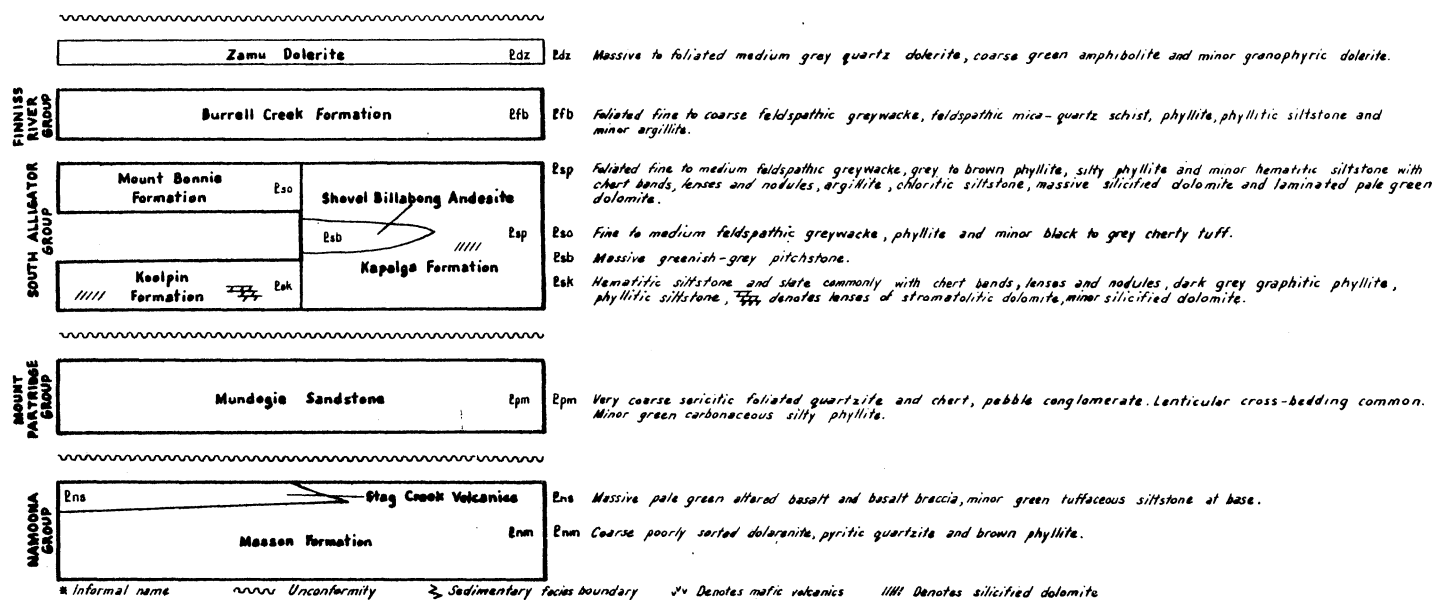


STOW 1:100 000 Sheet area
 □ Area covered in Figure 2

Figure 1. Locality map of the Stow Region

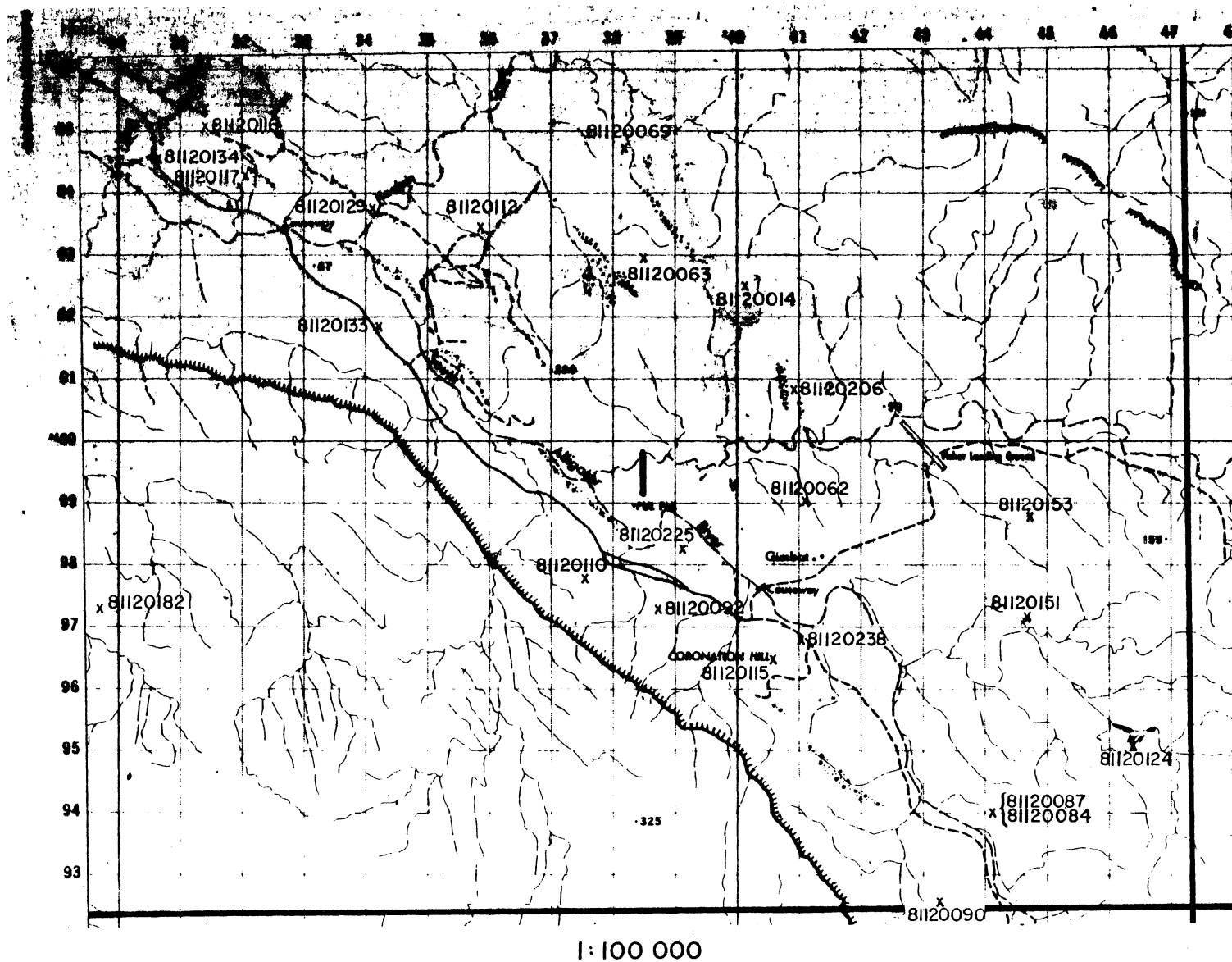
RECORD 1986/23



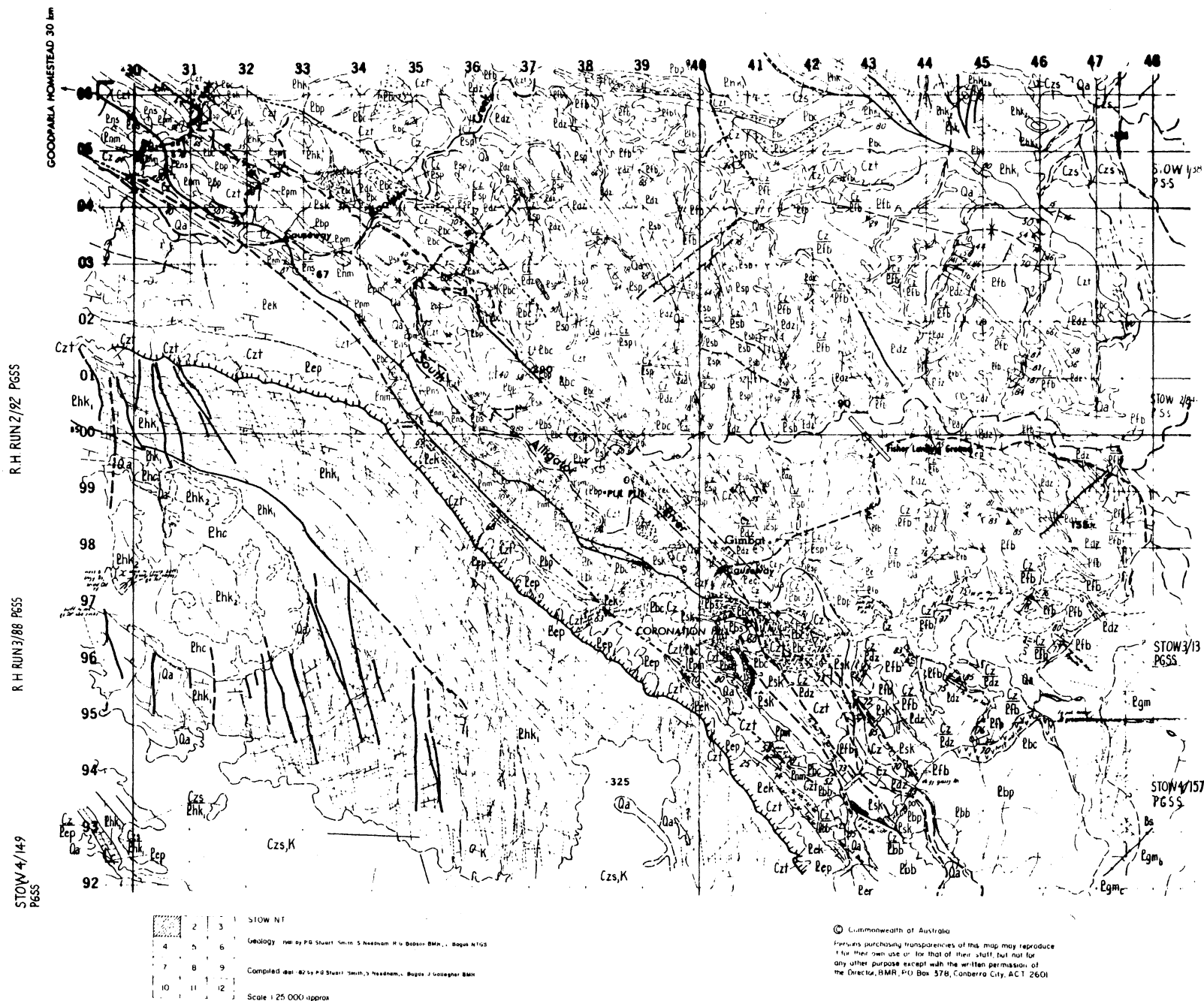


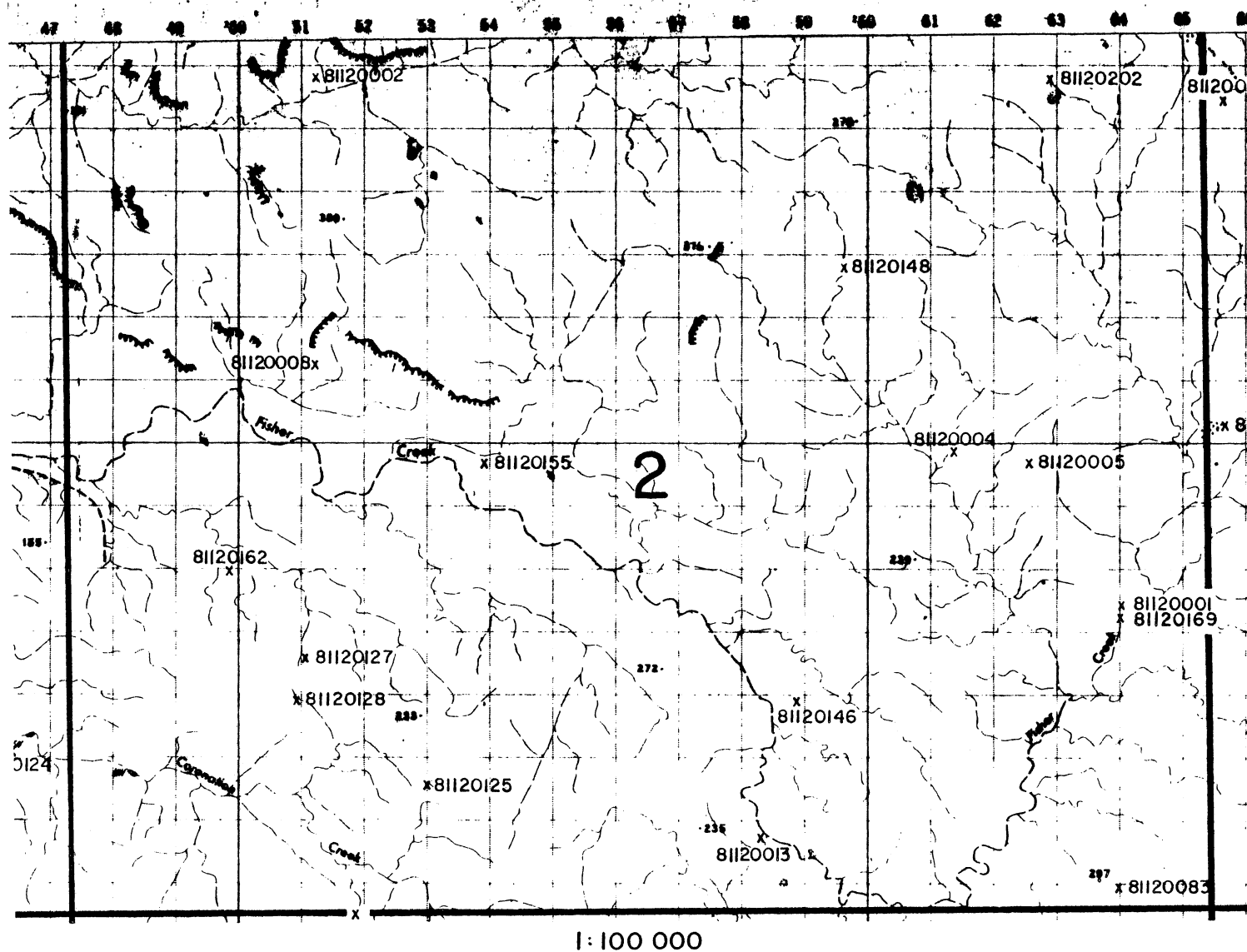
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x 81120182 Thin section locality with BMR registered number





x 81120182 Thin section locality with BMR registered number

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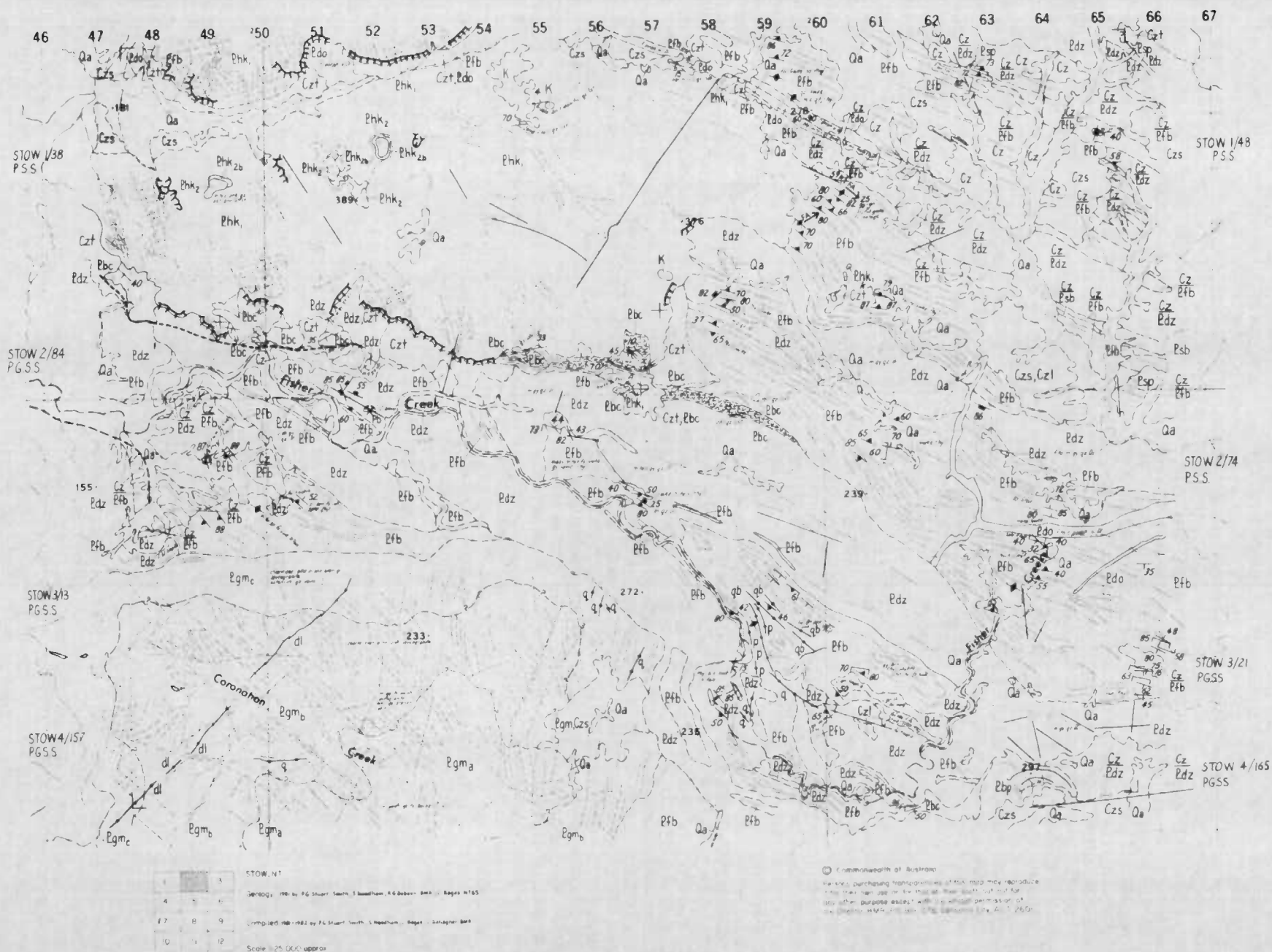
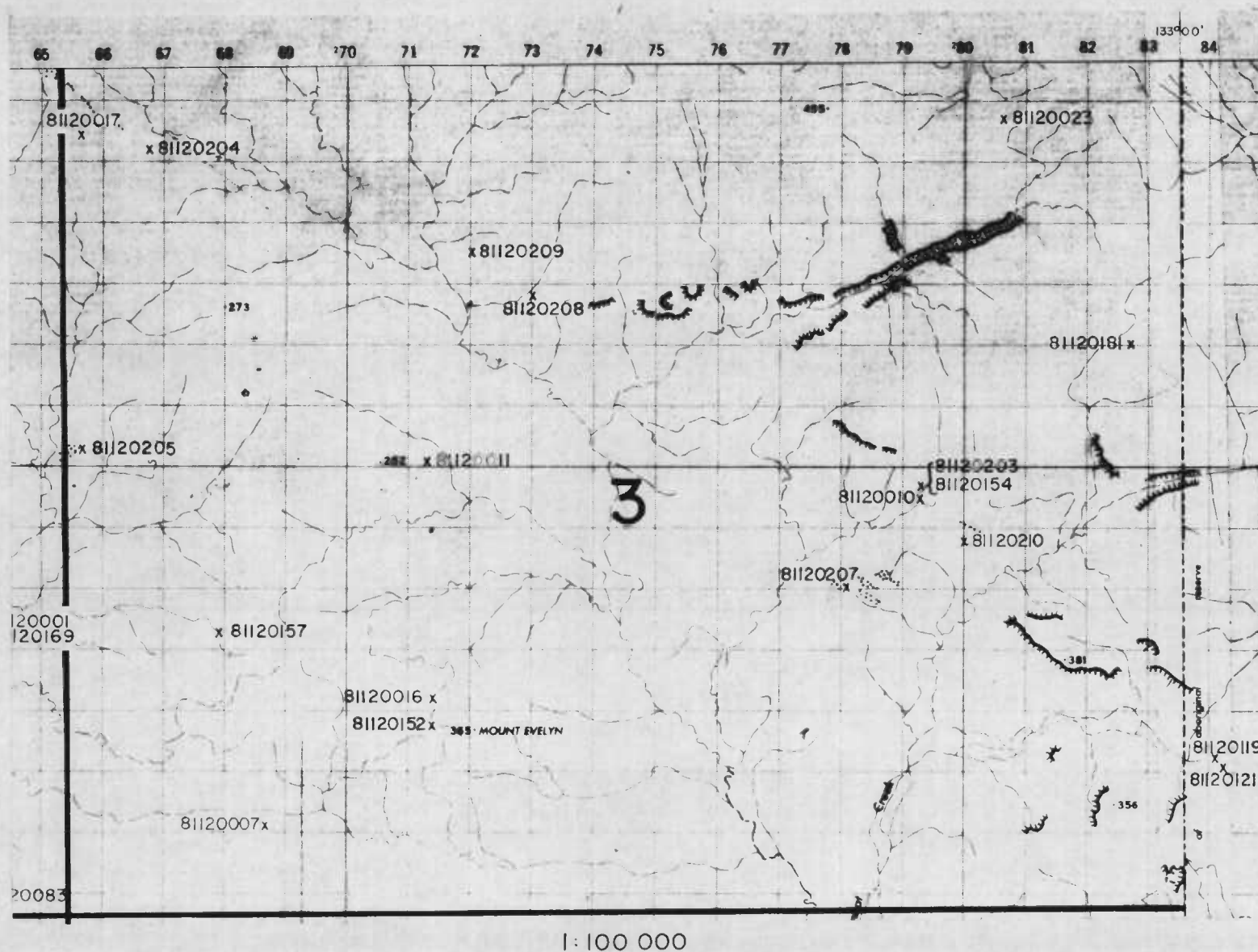


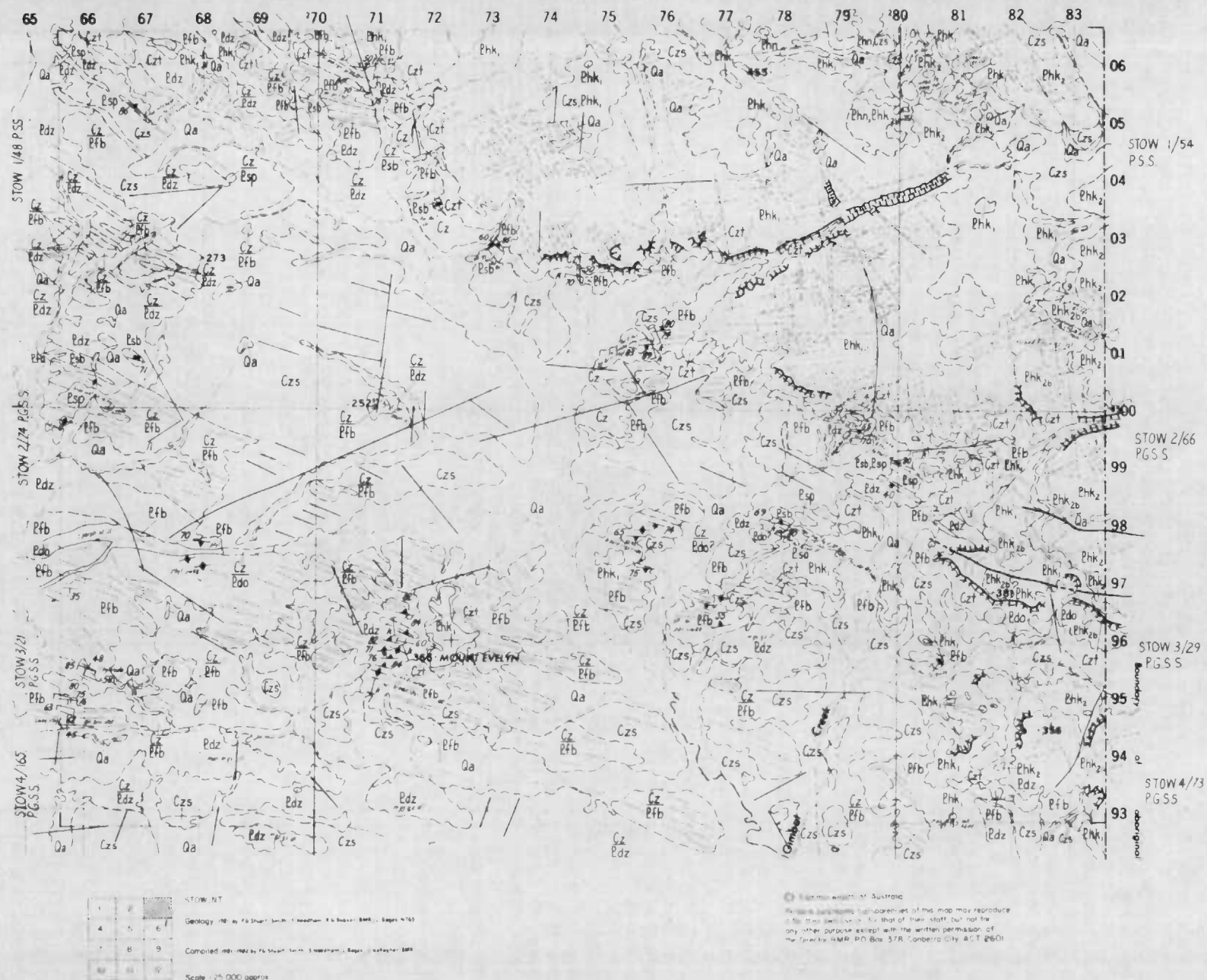
Figure 5 (b). Stow Region 1:100 000 reduction of 1:25 000 compilation sheet

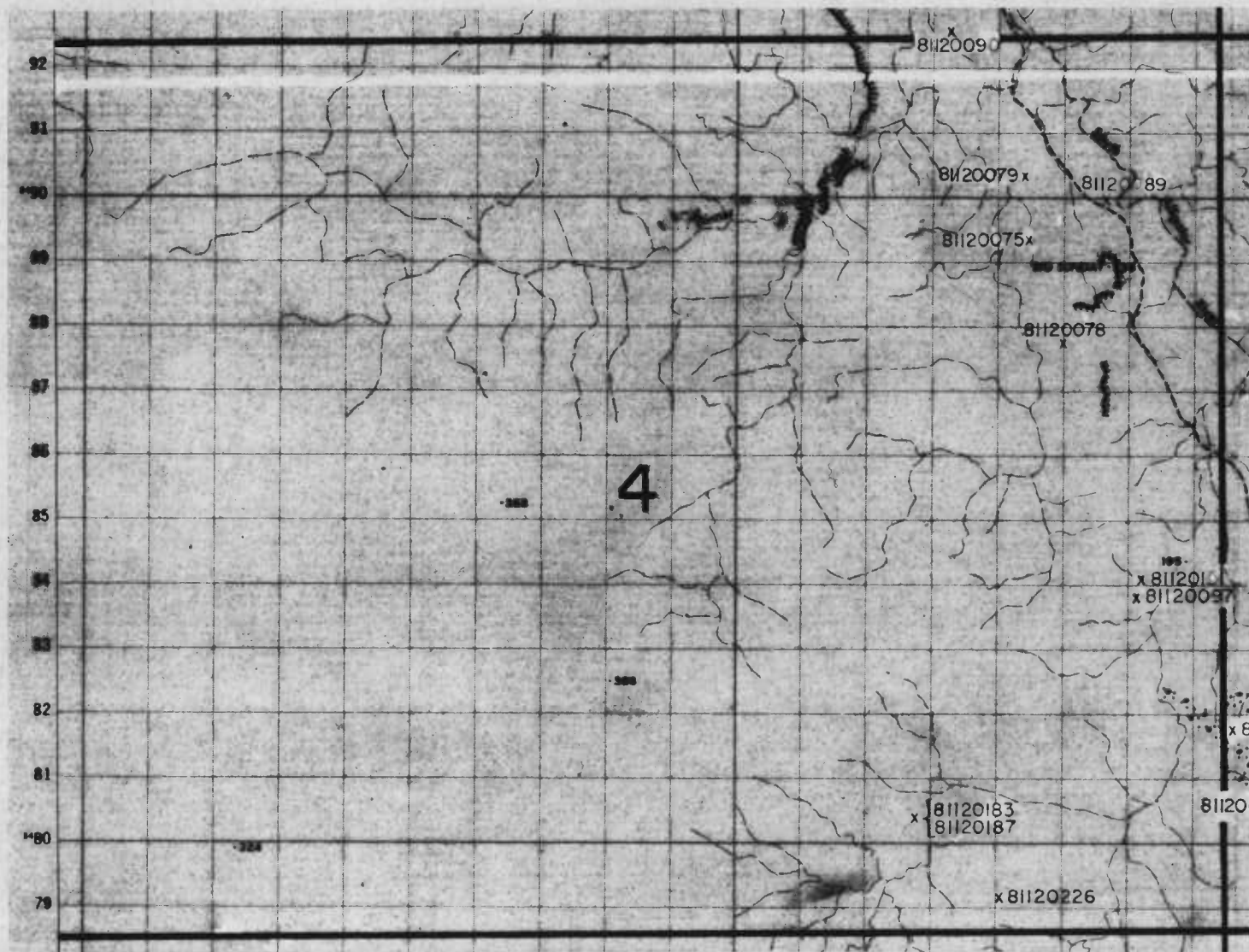
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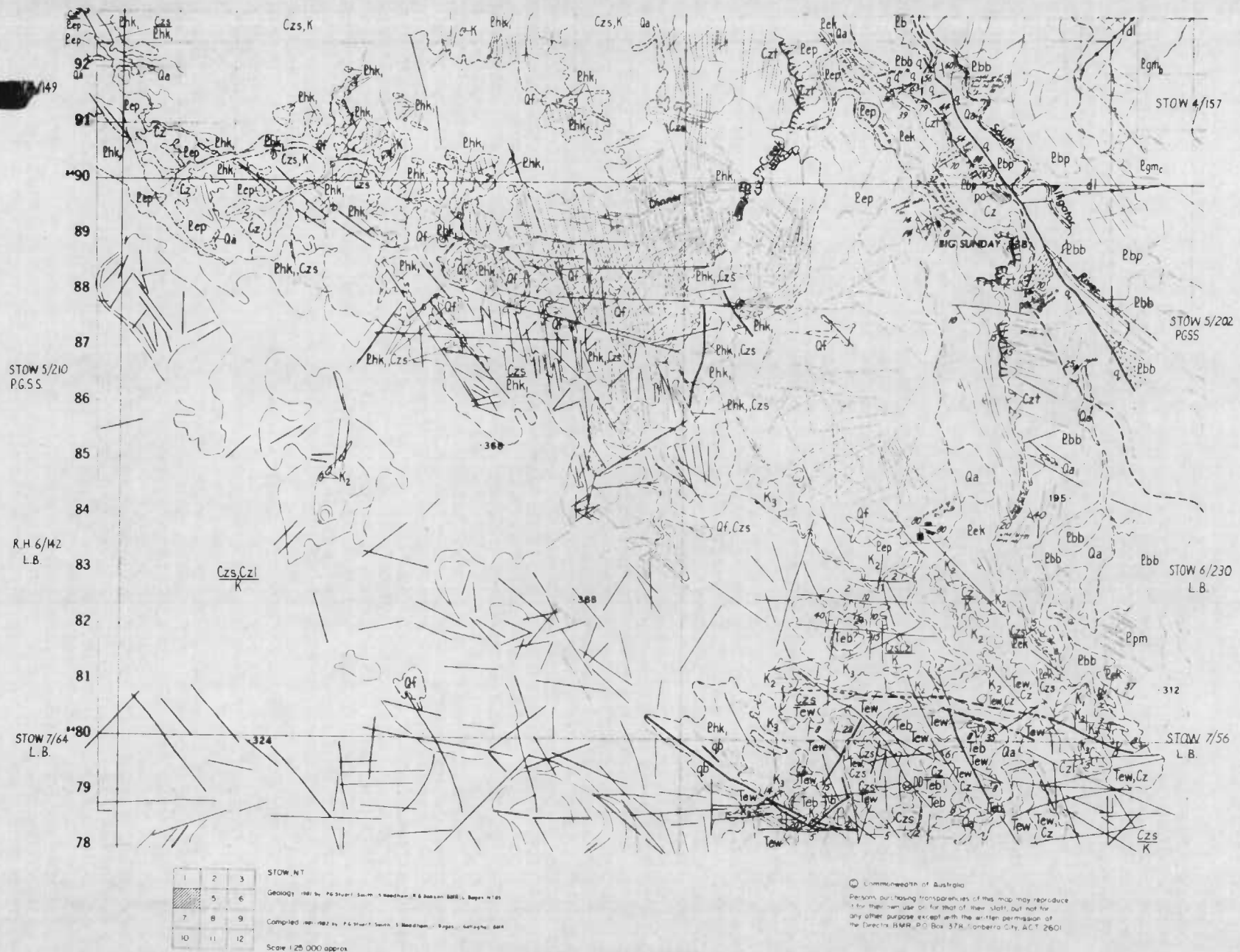
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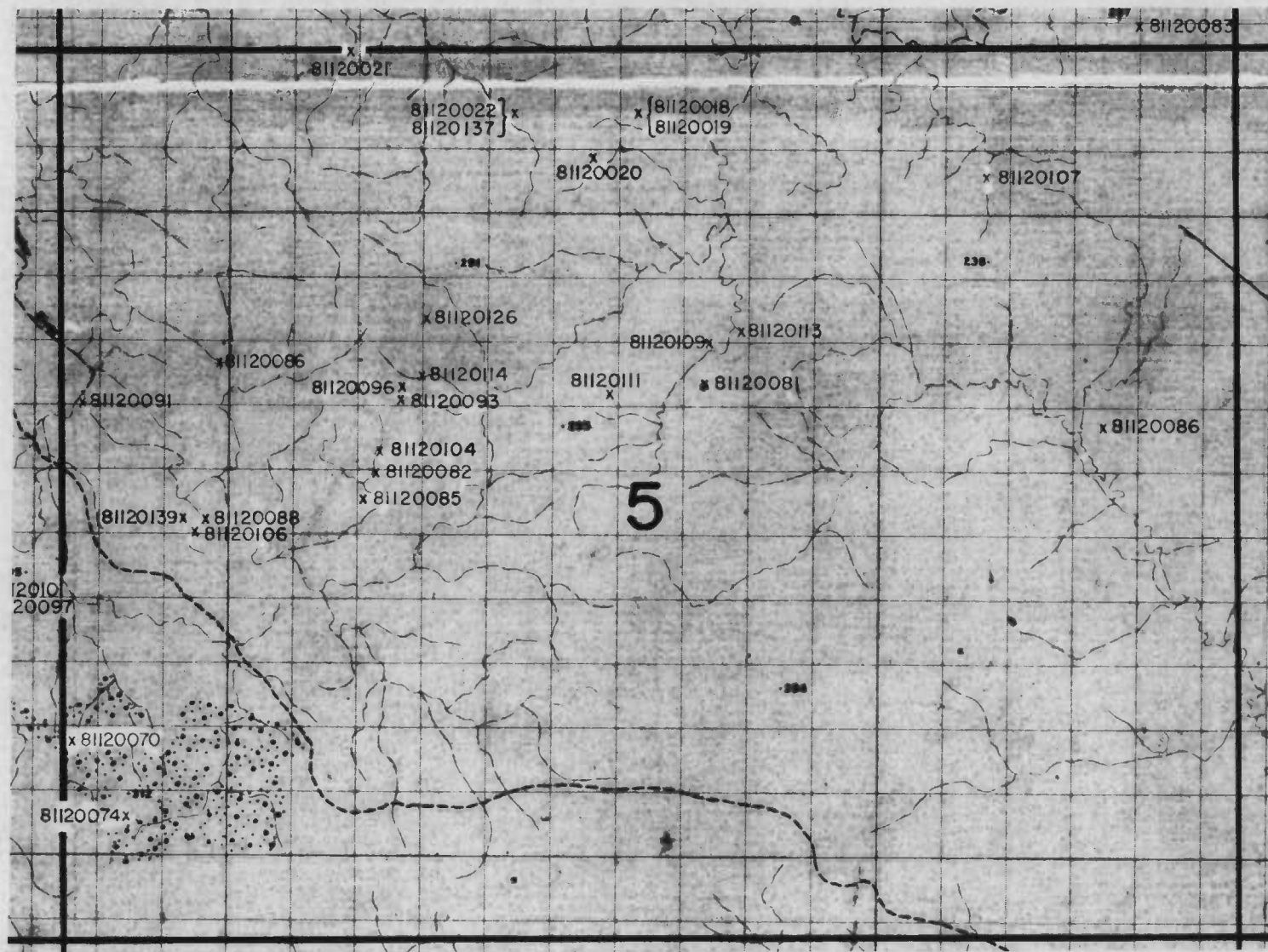


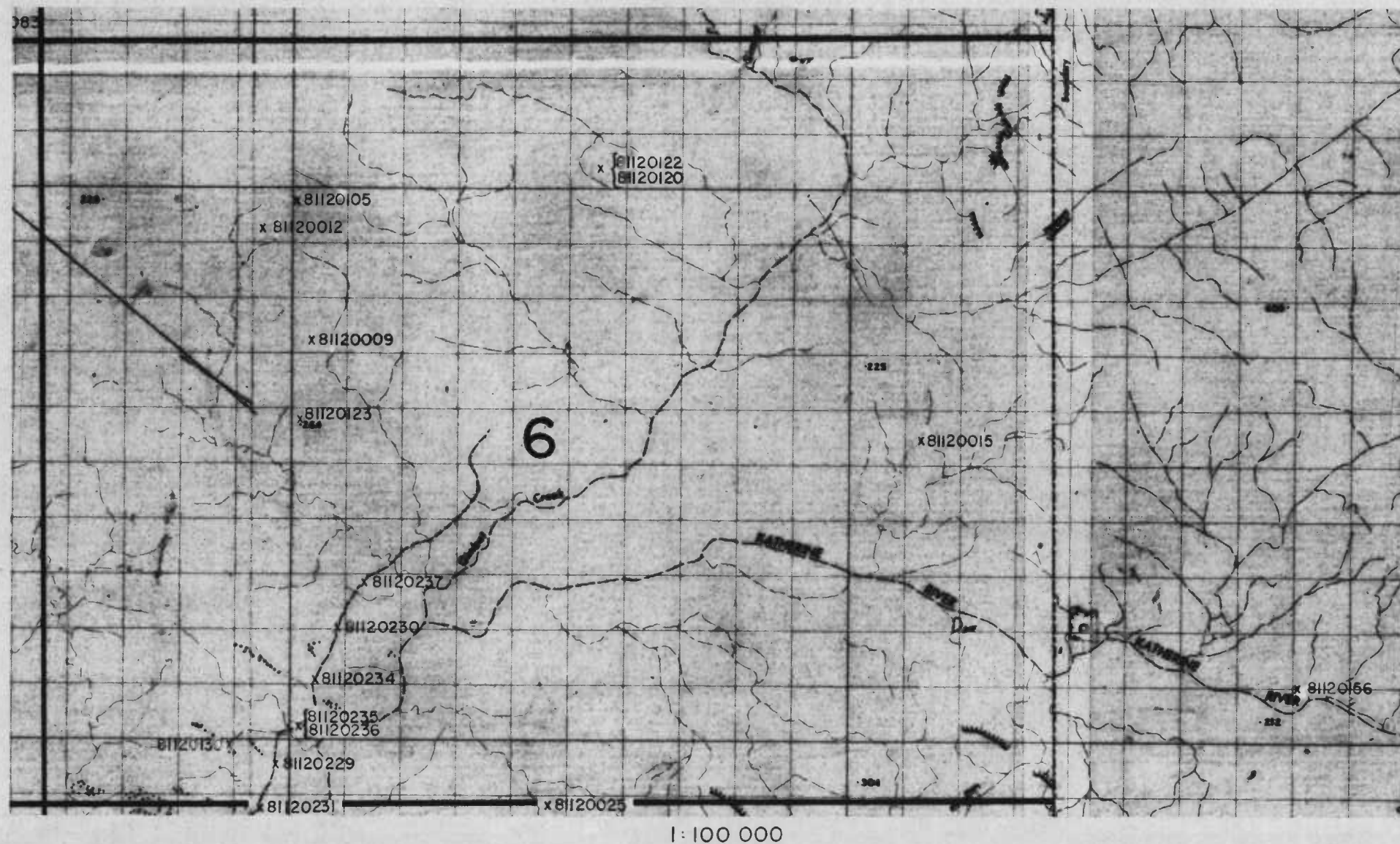


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Thin section locality with BMR registered number



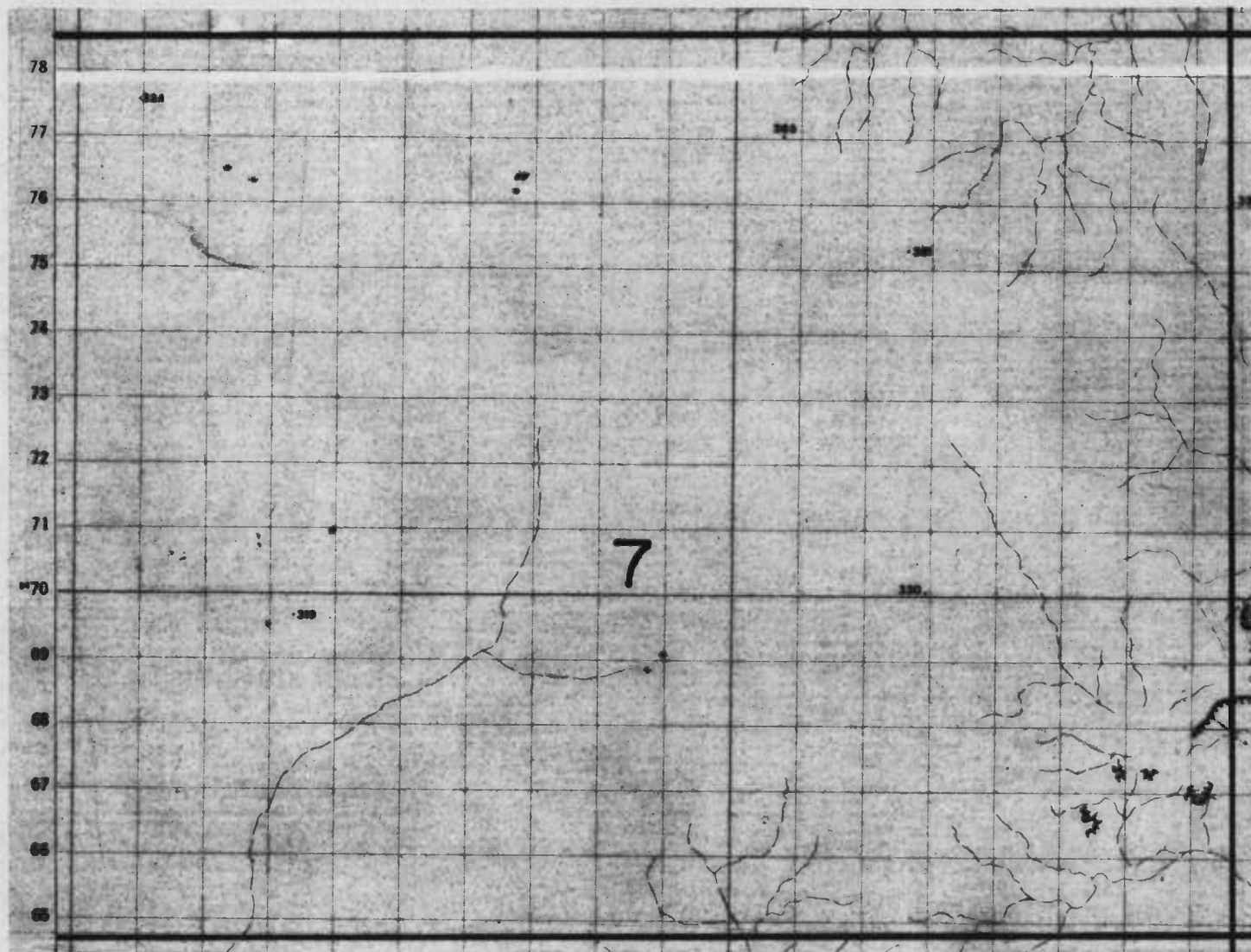




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Thin section locality with BMR registered number

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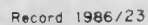


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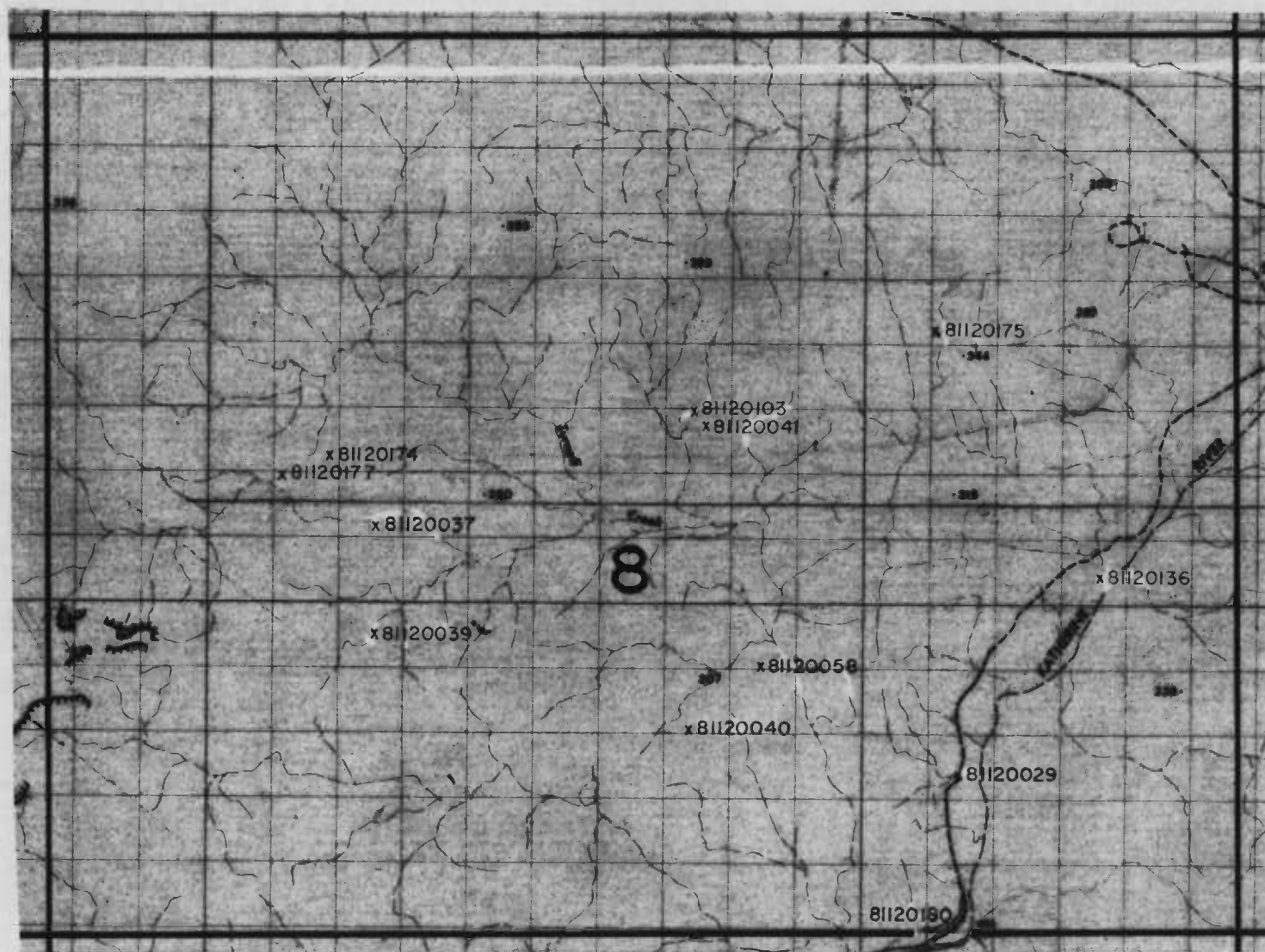
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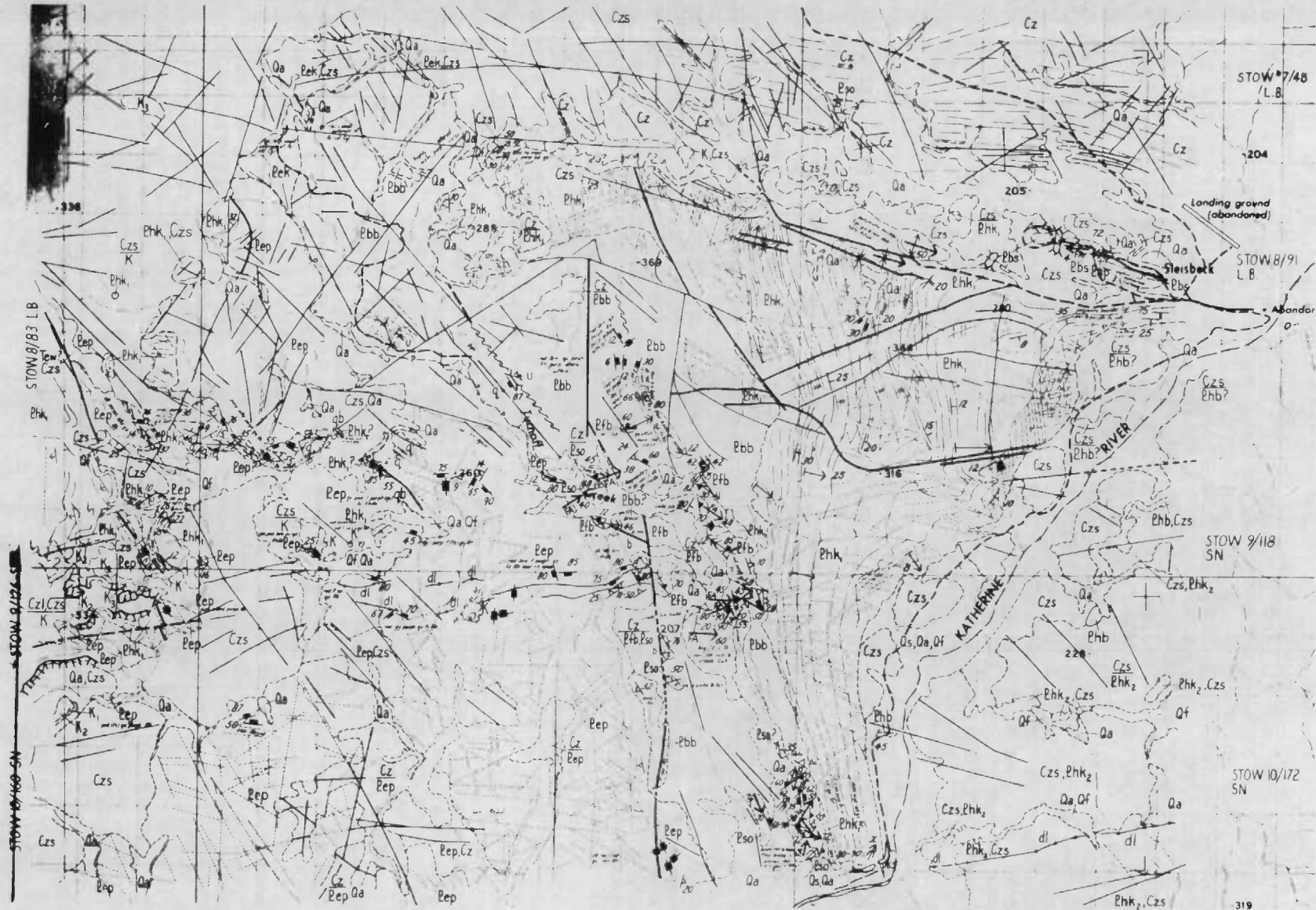
16/D53-5/26



1:100 000

x 81120182 *Thin section locality with BMR registered number*

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10	11	12

STOW NT

Geology: Rep by P.G. Stuart-Smith, K. Beedham, P.A. Bousson-Bessey, R. Beyer, R. C. C.

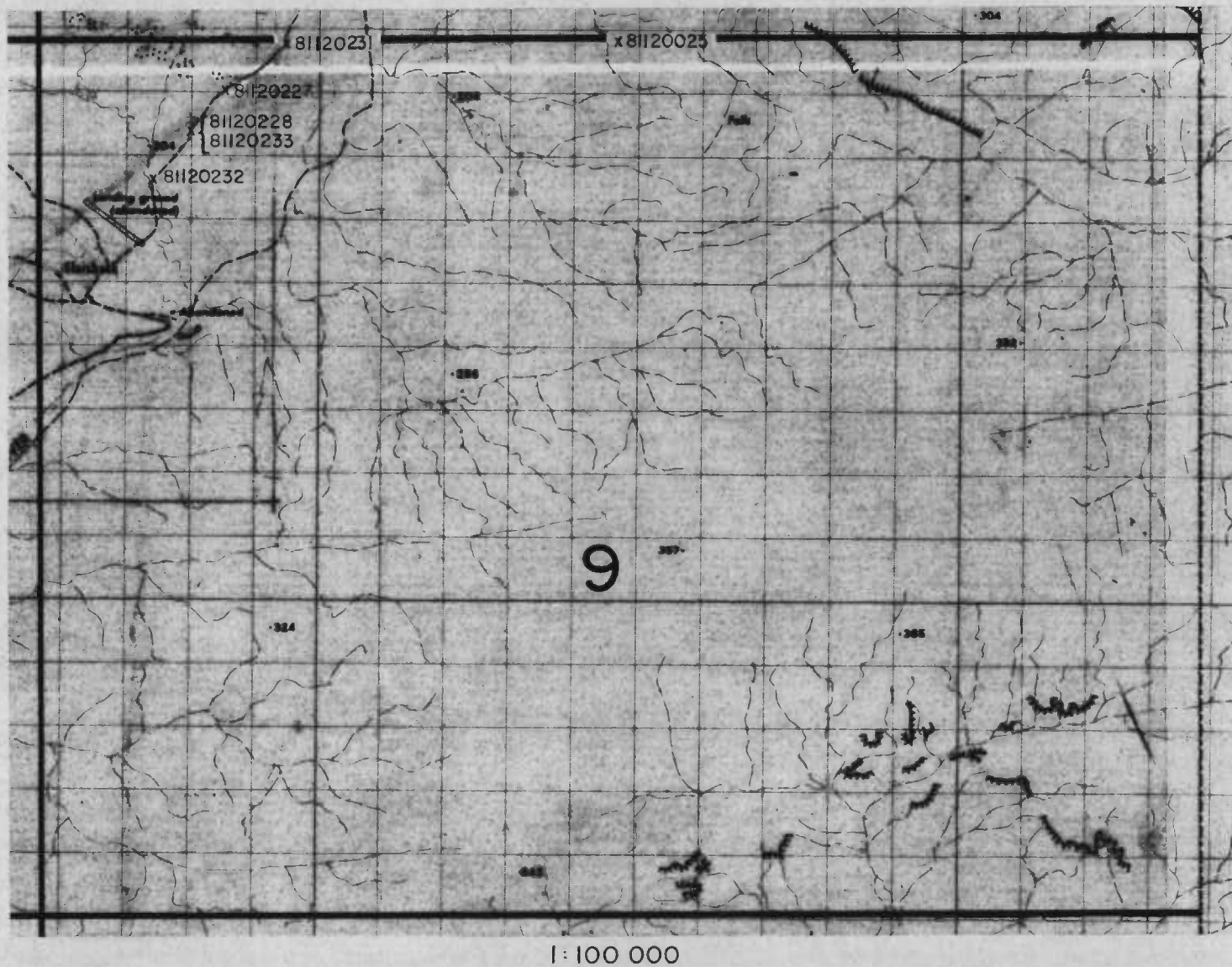
Compiled: 1986/87 by P.G. Stuart-Smith, K. Beedham, P.A. Bousson-Bessey, R. Beyer, R. C. C.

Scale: 1:25,000 approx.

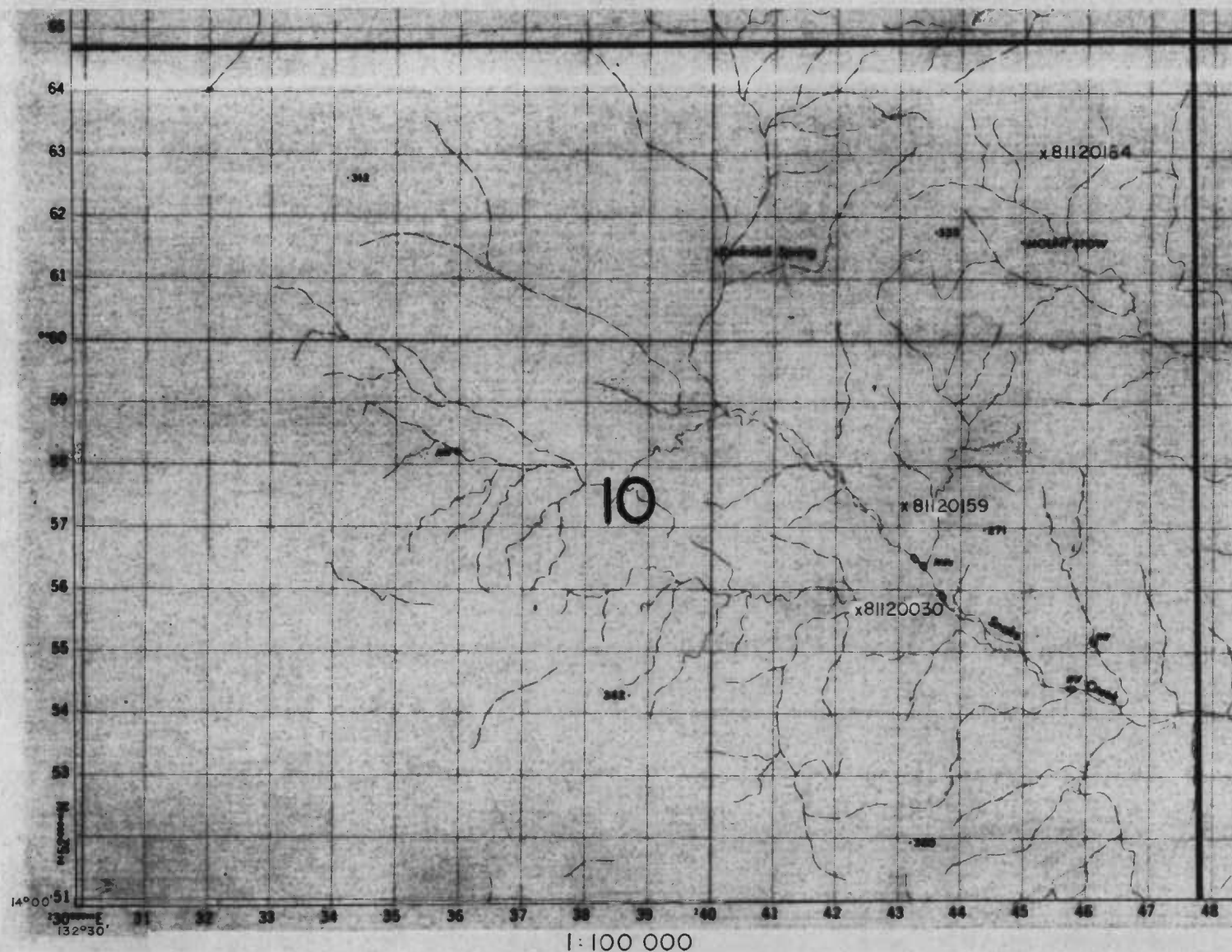
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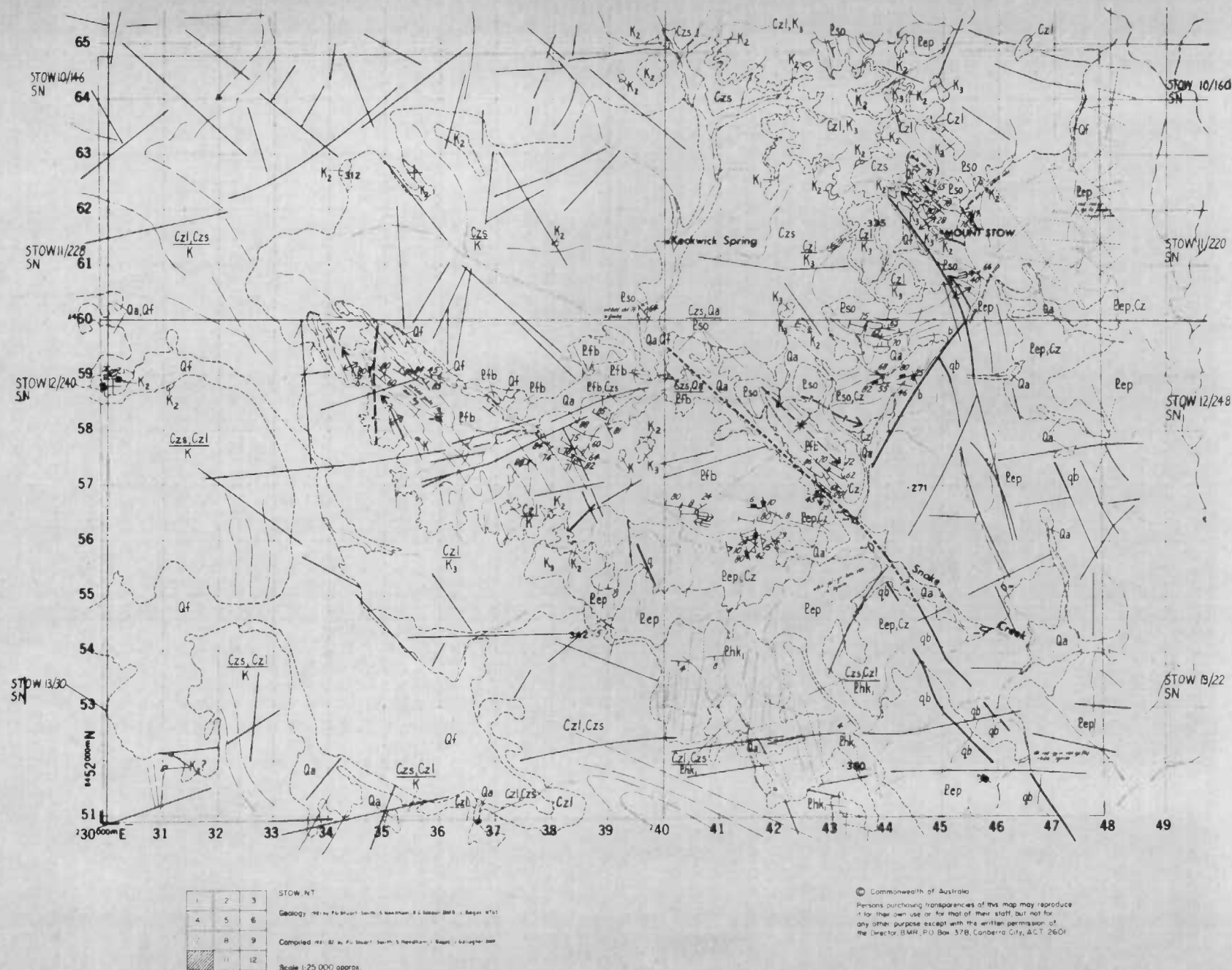
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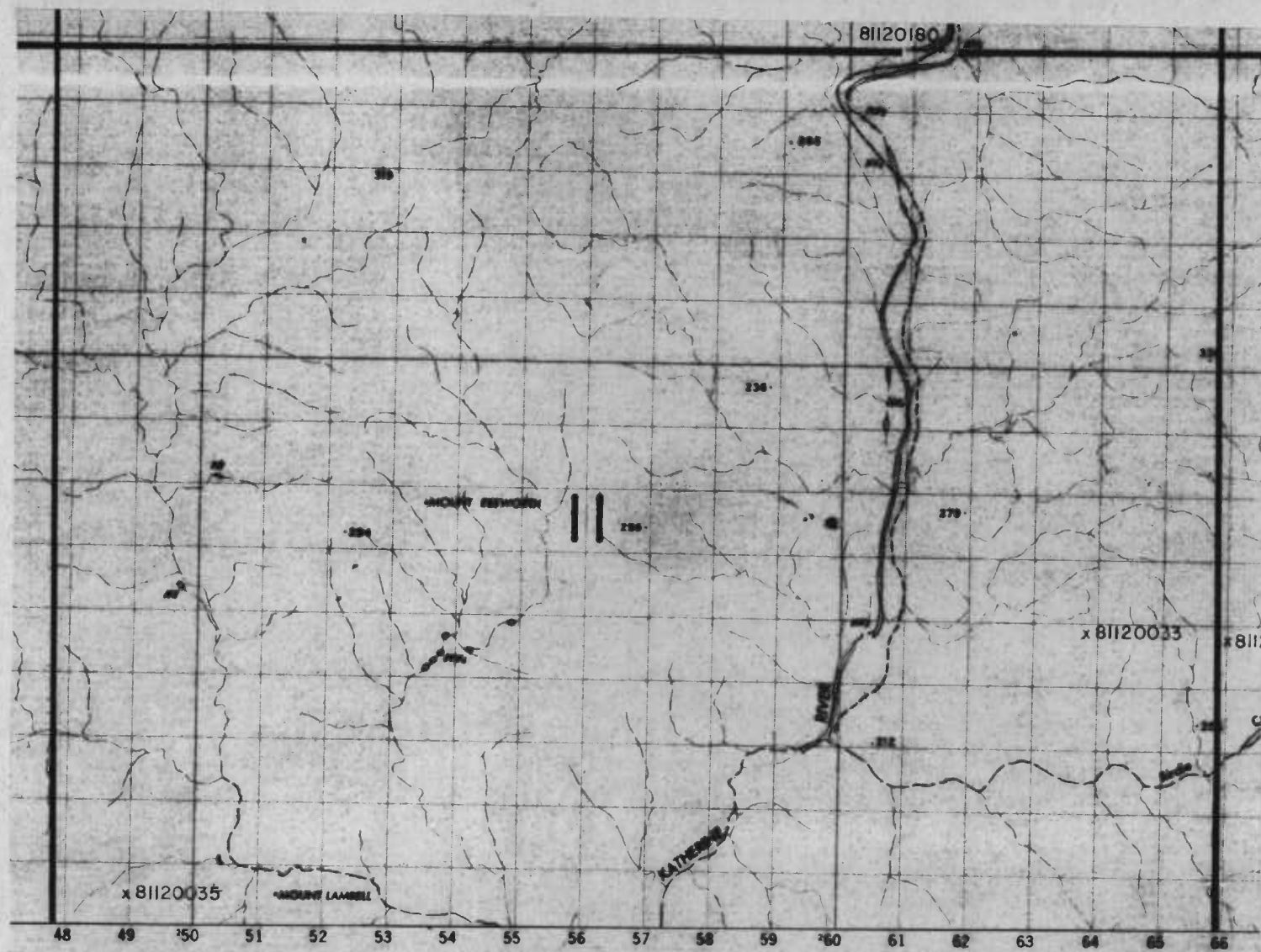


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x 81120182 Thin section locality with BMR registered number





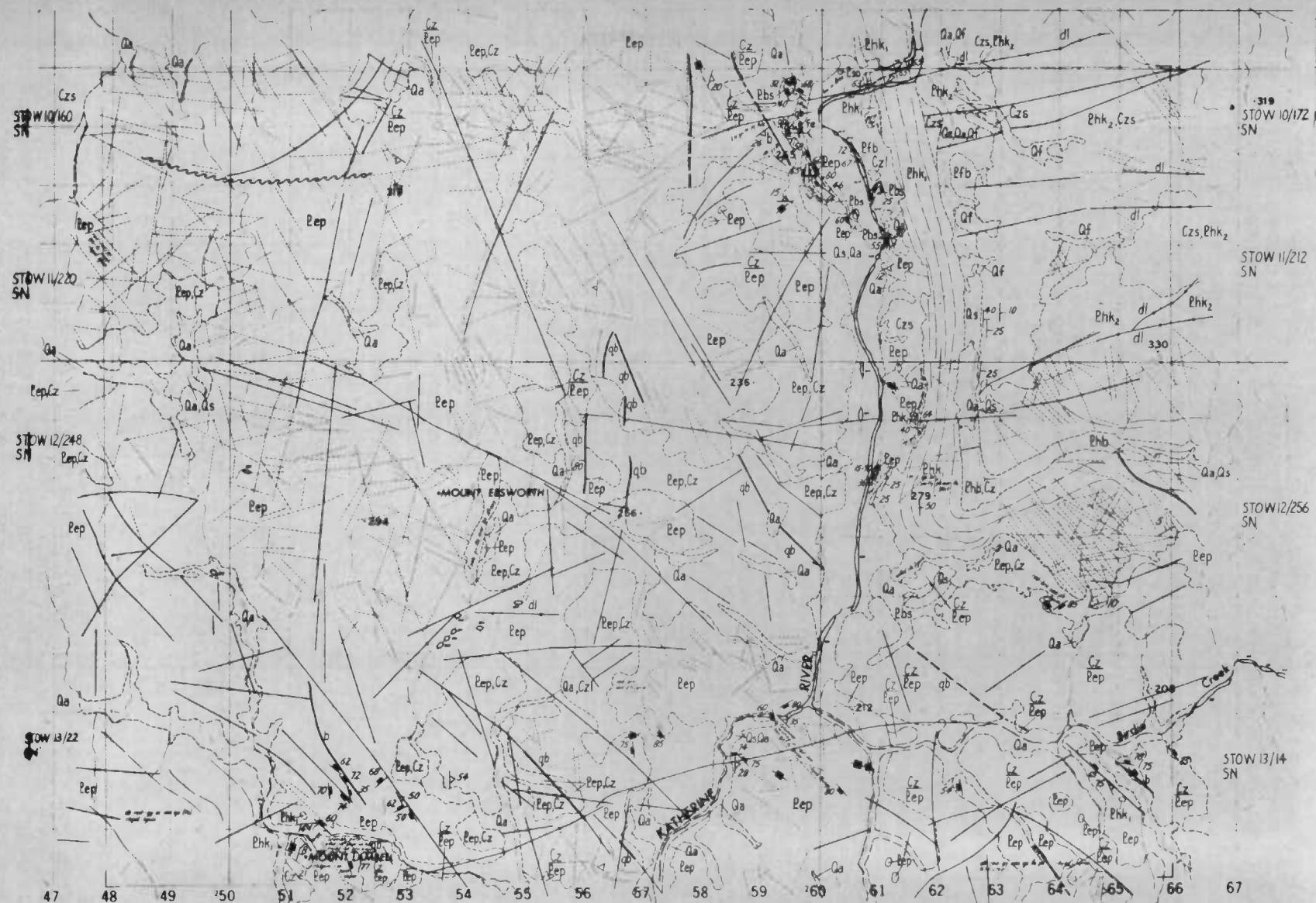
x 81120182 Thin section locality with BMR registered number

Record 1986/23

Figure 14 (a) Stow Region thin section localities

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STOW, NT

Geology 1981 by P. G. Schuchert, Susan M. S. Macdonald, & G. J. Johnson. 2001, 2002, 2003

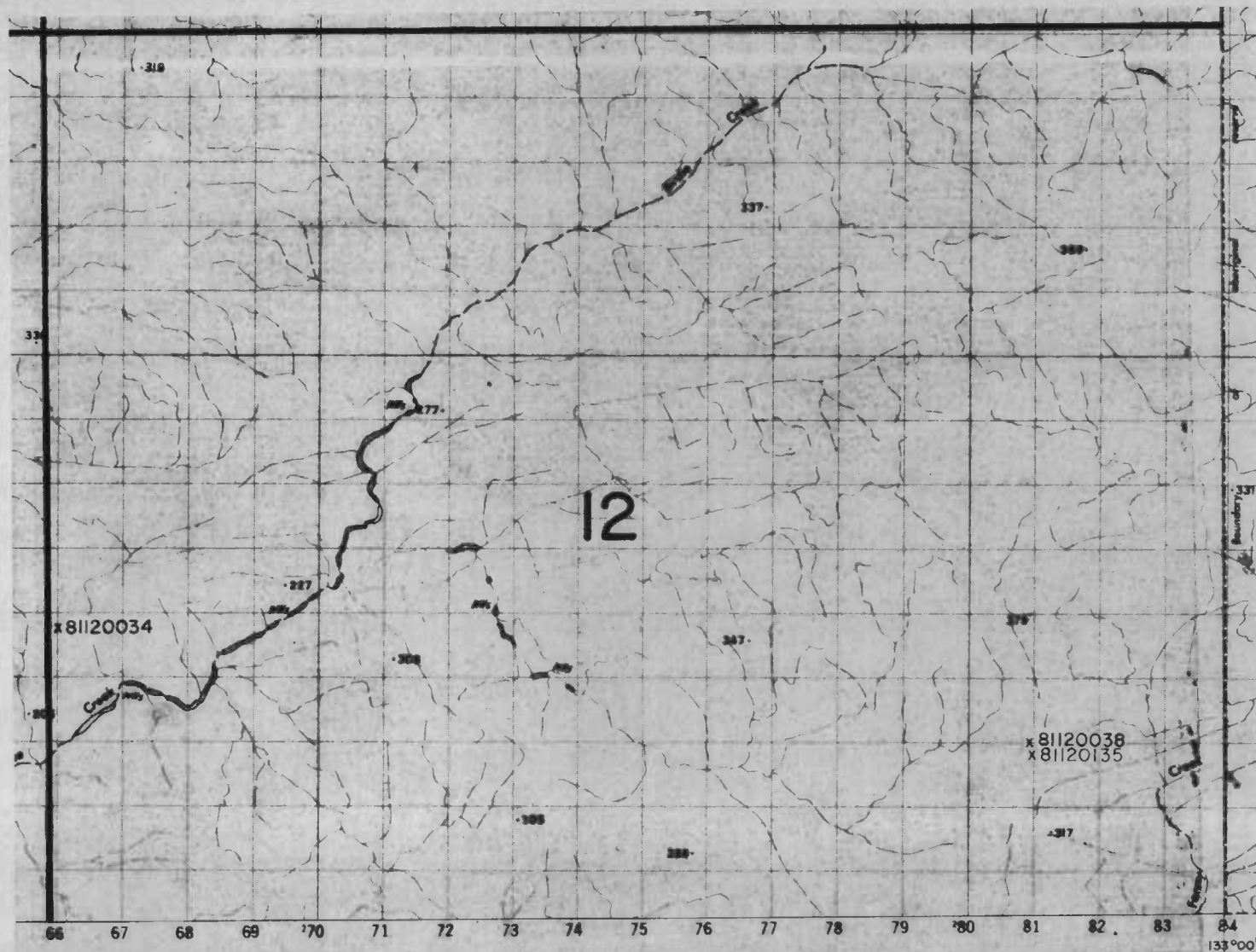
Compiled 10/1/87 by P.E. Stewart, Senior, S. Woodham, Dept. of Geology, SWS

Scale = 25 000 approx.

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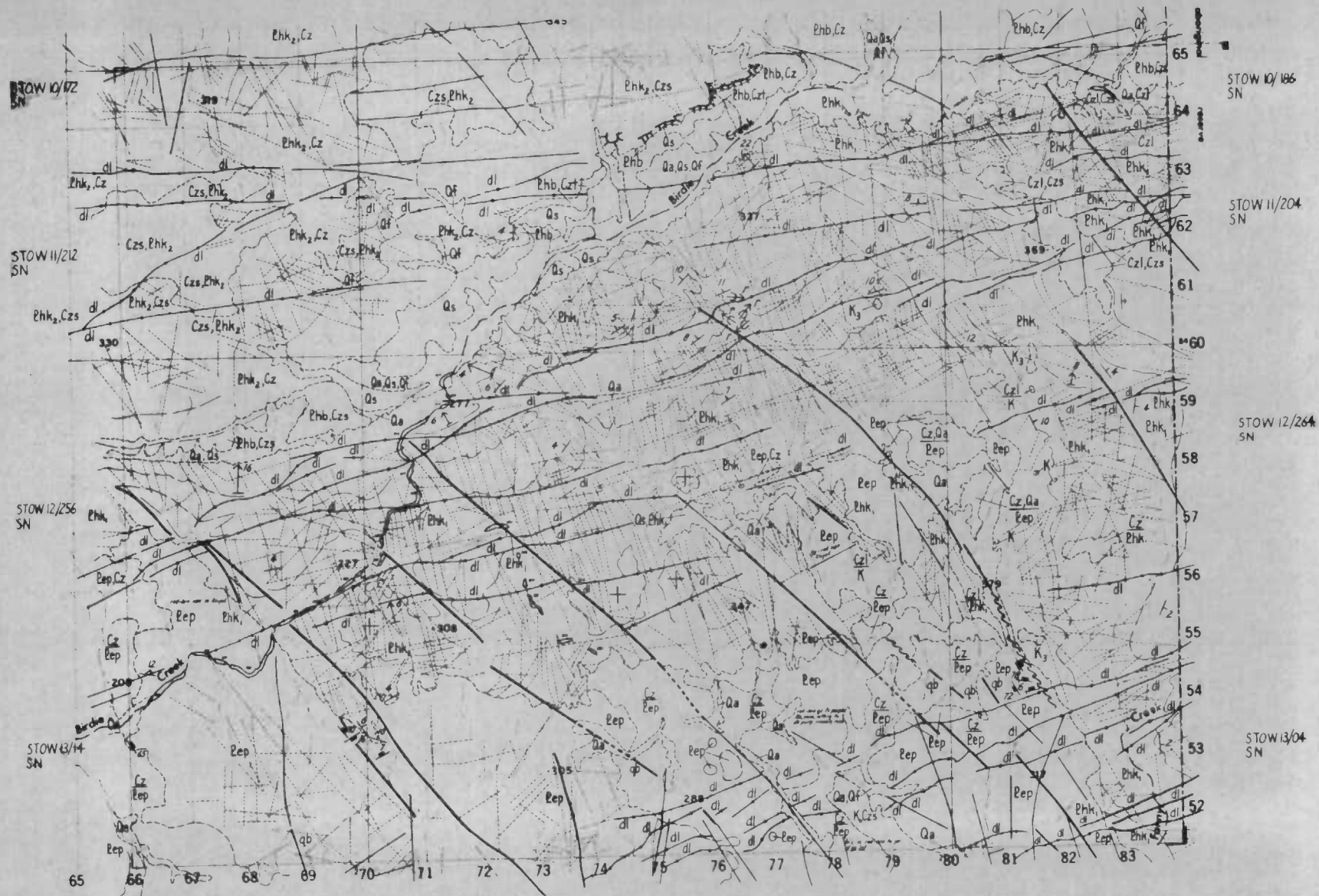
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1:100 000

x 81120182 *Thin section locality with BMR registered number*

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7	8	9
10	11	

STOW NT

Geology - 1961 by P. S. Stuart-Smith, S. B. Bannister, J. S. Bannister, 1961

Compiled 1986-87 by P. S. Stuart-Smith, S. B. Bannister, J. S. Bannister, 1987

Scale 1:25 000 approx

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Figure 15 (b). Stow Region 1:100 000 reduction of 1:25 000 compilation sheet