

Surficial materials
Gravel (lateritic)
Lateritic gravel has limited outcrop in the Damper Peninsula. The gravel is generally red or purple containing nodular and pebbles of lateritic sandstone in a matrix of fine to medium-grained, angular quartz sand. Gravel occurrences are sparse in the western portion of the map, but known from the Fraser River, near Cape and several smaller rivers, and also where coastal sandstone west of Cuyler Bay. In the west of the map area, gravel overlying sandstone is exposed in the headwaters of some of the creeks crossing the coast between Cuyler Bay and Cape Maitland. There are four active gravel pits within 15 km of Broome. Around Cuyler Bay and Cape Maitland, there are a number of inactive and active pits. Except near the coast and along the Great Northern Highway, the groundwater table is generally greater than 20 m below the ground surface. Gravel thickness generally averages 3 m or less. The mean grading for this material is 4% fines (<0.075 mm), 38% sand, and 62% gravel (>2.0 mm).

Particle size distribution
Gravel (lateritic)

Limesand
Limesand occurs as narrow, discontinuous strips of closely spaced, low-relief, coastal dunes. These range from 200 to 2000 m wide, are composed of pale pinkish grey sand and silt, and occur between Broome and the northern tip of the Damper Peninsula, and on the west side of King Sound. These nodular and pebbles are generally associated with limestones and fossiliferous sandstones susceptible to sea and wind erosion and large areas of boulders along much of the coast. The mean grading for this material is 30% fines (<0.075 mm), 70% sand. Around Cuyler Bay, CaCO₃ values range between 14% and 49%. For all deposits, the groundwater table is generally less than 10 m below the ground surface. There has been no recorded production of limesand from the Shire of Derby - west Kimberley and very minimal production from the Shire of Broome.

Particle size distribution
Limesand

Limestone
Shore parallel, rounded limestone ridges between Broome and Cape Maitland, and scattered occurrences further north to Cape Leveque, are the major limestone resources of the region. The limestone is pale yellowish brown, contains quartz and shell debris, and is usually thick. Known CaCO₃ values range between 51% and 72%. There are no active workings but this limestone has been worked in the past between Coorow and Wilkes Creek.

Sand and gravel
Four main categories of sand are defined: grey sand, red sand, reddish brown sand, and yellow sand. A summary of sand and gravel is described.

Grey sand
The landward margins of the supratidal flats of Wilkes Creek, Cable Beach, Damper Creek and Roebuck Point fringes a narrow band of grey to grey to grey, fine-grained, silty sand composed of subrounded to rounded quartz with fine-grained silt and occasional white shells. This grey sand is also found as discontinuous bands in some dry stream beds, the Damper Peninsula, including Pender, Goodwood, and Damper. Lateritic gravel is a significant component in some deposits. This has not been developed in this material. Thickness of the grey sand ranges from 0.3 to 1 m in water bays. The groundwater table is generally less than 10 m below the ground surface. The mean grading for this material is 27% fines (<0.075 mm), 67% sand, and 6% gravel (>2.0 mm).

Particle size distribution
Grey sand

Red sand
Parallel eolian dunes oriented east-west and up to 1 m apart, are found in the east to southeastern part of the map area. These sandfields consist of red, loose, silty, to medium-grained sands, with minor silt and clay up to 20% thick. No quarries are found in areas exposed to red sand.

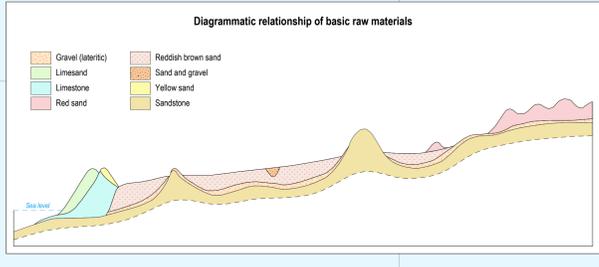
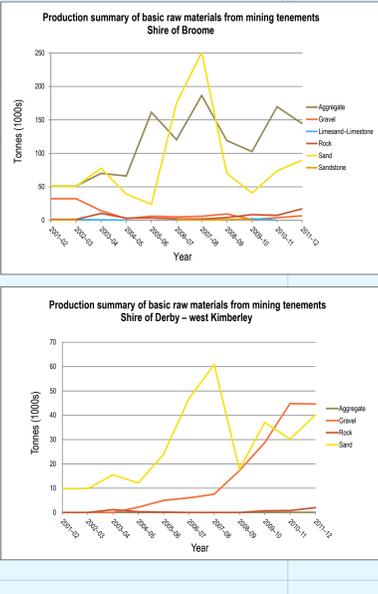
Reddish brown sand
The greater part of the region consists of extensive, gently undulating, low-relief sandplains with areas of rough-going drainage. The material is reddish brown, homogeneous, fine-grained, containing subrounded quartz grains in a variety of silt matrix. It is known locally as green. Many inactive and several active quarries have been developed in this sand, especially within a 20 km radius of Broome and along the Broome - Cape Leveque Road. Borehole evidence shows that thickness varies markedly, east on the local scale, but is generally in the order of 0.5 to 1.0 m. The groundwater table has been proved. The groundwater table is generally greater than 20 m below the ground surface except close to the coast and between Cuyler Bay and Maitland, where it is generally less than 10 m below the ground surface, but is often much thicker. The mean grading for this material is 19% fines (<0.075 mm), 69% sand, and 12% gravel (>2.0 mm).

Particle size distribution
Reddish brown sand

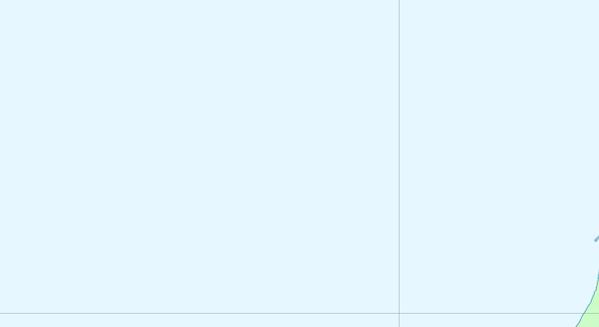
Sand and gravel
Green channels with bedloads of sand and some gravel are found in several areas across the Damper Peninsula. The bedload that occurs between Cuyler Bay and Cape Maitland is generally less than 400 m wide and contains grey and brown sands and silty sands. Sand and gravel is found in drainage areas draining into Maitland and Cuyler Bays. The river channels flowing into the west side of King Sound drainage basins that enter Roebuck Plains contain brown silty sands resting on lateritic gravel, and bedload areas of graveliferous calcareous. Thickness of this material is generally less than 1 m. All streams are prone to flash flooding.

Yellow sand
Residual sand derived from the weathering of the coastal limestone is found as a cover to the limestone between Broome and Coorow. The material is pale yellowish brown, occasionally pink because of residual iron-bearing iron ore, to medium-grained, moderately sorted quartz sand. This has not been developed in this material. The groundwater table is generally less than 10 m below the ground surface. The mean grading for this material is 11% fines (<0.075 mm), 65% sand, and 24% gravel (>2.0 mm).

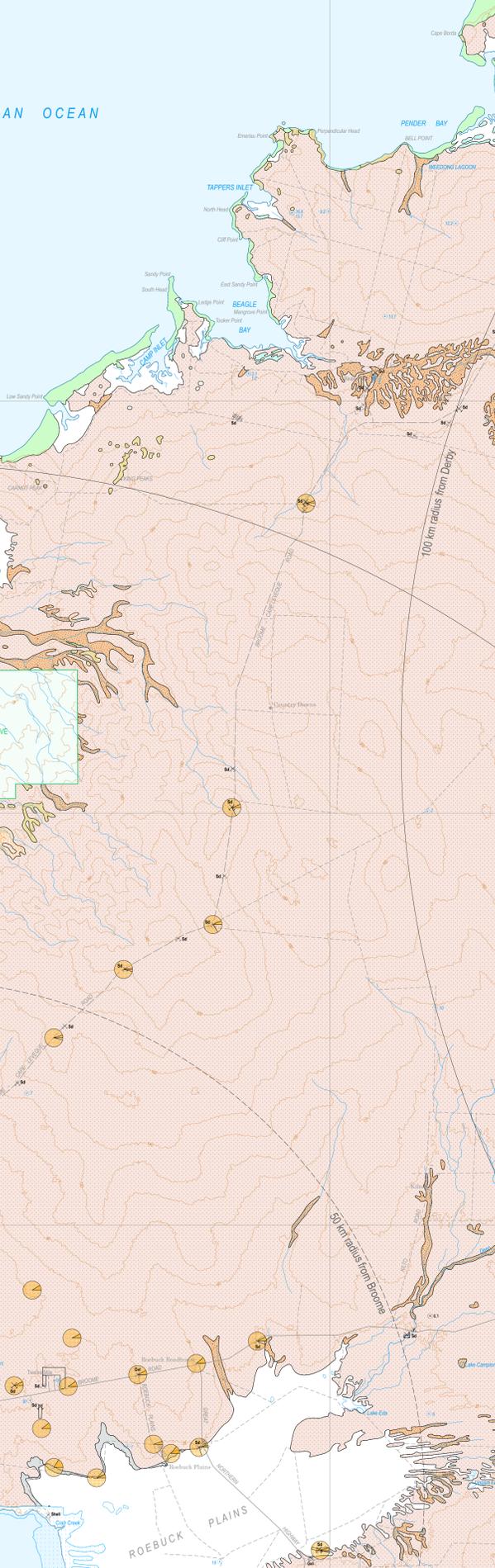
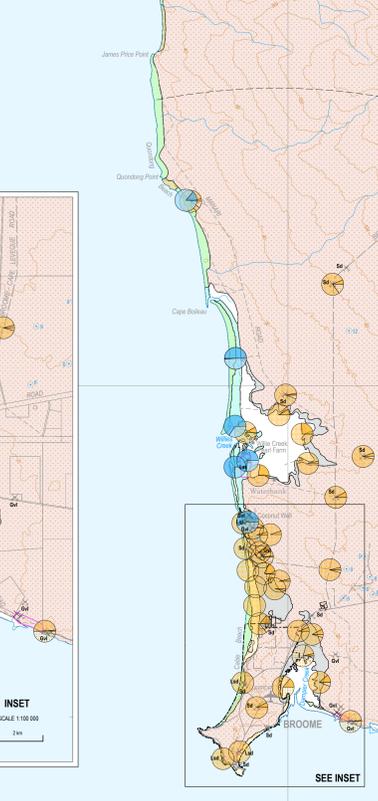
Particle size distribution
Yellow sand



Hard rocks
Sandstone is the bedrock to the region. The dominant rock types are sub-horizontal or gently dipping, fine to coarse-grained, locally thin bedded laminated sandstone, silty sandstone, and silted quartz sandstone. These rocks are the only examples of high relief rock for combined aggregates and dimension stone in the region. Outcrops are found in four general areas. A few small, isolated outcrops occur within and surrounding the Damper Peninsula where the sandstone is only exposed in river channels eroded through the grey prairie sandplain. A prominent north-south trending ridge of this between the Great Northern Highway and Maitland, 50 km east of Broome along the Great Northern Highway, has been periodically worked for dimension stone. Also between Broome and Derby, but to the south of the Great Northern Highway, is another series of sandstone outcrops which trend north-south and have been worked periodically for aggregate and dimension stone. A single operating quarry 13 km southeast of Maitland supplies concrete and road aggregate. In the northeast there is widespread outcrop of sandstone around Cuyler Bay and on the antipodals to the east of One Arm Point.



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RESOURCE POTENTIAL FOR LAND USE PLANNING
Basic Raw Material Resources
DAMPIER PENINSULA

Government of Western Australia
Department of Mines and Petroleum
Geological Survey of Western Australia

Compiled by L. Normore 2012-13
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The recommended reference for this map is:
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Geological Survey of Western Australia, Resource Potential for Land Use Planning.

Basic raw materials

Surficial materials

- Gravel (lateritic): Red and purple nodular and pebbles of lateritic sandstone, in an angular silty quartz sand matrix, residual, coastal sections and lateritic interfluves.
- Limesand: Pale pinkish grey quartz sand and shell debris, eolian, coastal dunes, spits, and beach ridges.
- Limestone: Pale yellowish brown sandy limestone, variety of silted, eolian, shore parallel low ridges.

Sand and gravel

- Grey sand: Pale-grey, silty, fine-grained sand with shell debris and some lateritic gravel, marginal to supratidal flats.
- Red sand: Deep, red, loose siliceous sand, with silty sands and sandy silts, eolian, sandplains and dunefields.
- Reddish brown sand: Reddish brown, silty, medium-grained sand, eolian and alluvial, low-relief sandplains with some areas of through-going drainage.
- Sand and gravel: Grey, brown, and yellow sands and silty sands, some overlying lateritic gravels.
- Yellow sand: Pale yellowish brown, medium-grained quartz sand, residual, derived from and overlies limestone.

Hard rock

- Sandstone: Variegated, fine to medium-grained, strongly cross-bedded sandstone with subordinate siltstone, bedrock rises and hills.

Analyses

Limestone

Sand and gravel

Quarries and pits

- Active: X
- Inactive: circle with dot
- Dimension stone: square
- Gravel: diamond
- Limesand: triangle
- Crushed rock: circle with cross
- Sand: circle with plus
- Shell pit: circle with asterisk

Boreholes (showing thickness of surficial material, in metres)

- Water bore: circle with horizontal line
- Petroleum well from WAPMS database (DMP): circle with vertical line

Tenement for basic raw materials

- Mining lease, free (Mining Act 1978): circle with diagonal line
- Aboriginal community: circle with horizontal line
- Homestead: circle with vertical line
- Locality: circle with diagonal line
- Major road: solid line
- Minor road: dashed line
- Track: dotted line
- Local government authority: solid line with dots
- Drainage network: solid line with cross-ticks
- Contour, elevation in metres: solid line with numbers
- Township (Land Administration Act 1987): dashed line with numbers
- Class A Nature Reserve: solid line with diagonal line
- Roebuck Bay, Starling Island wetland: solid line with diagonal line
- Cadastral: solid line with diagonal line

Crown reserve for basic raw materials

- Class A Nature Reserve: solid line with diagonal line
- Roebuck Bay, Starling Island wetland: solid line with diagonal line
- Cadastral: solid line with diagonal line

Basic raw materials on this map have been compiled from existing Geological Survey of Western Australia and Geoscience Australia (formerly Australian Geological Survey Organisation or Bureau of Mineral Resources) maps. Uncontoured areas indicate uncoloured bedrock and surficial deposits not considered basic raw material resources.

Mining tenements, sourced from Department of Mines and Petroleum.
Topography and cadastral, sourced from Landgate.
Parish (lot) labels, sourced from Department of Environment, Water, Heritage and the Arts.

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- Local government authority: solid line with dots
- Drainage network: solid line with cross-ticks
- Contour, elevation in metres: solid line with numbers
- Township (Land Administration Act 1987): dashed line with numbers
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- Cadastral: solid line with diagonal line

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