

APPENDIX A4.11: Geological characteristics of the project area

Distance (KP)	Geological formation (primary unit)	Period or era	Major lithology of primary (upper unit)
AB mainline			
AB0 to AB28	Mafic volcanic rock	Cainozoic	Volcanic rocks, predominantly mafic; basalt, trachyte, trachybasalt, trachyandesite, leucitite, basanite, nephelinite, limburgite, rhyolite, tuff and high level intrusives; rare volcanoclastic sediments.
	Rewan Group	Triassic	Lithic sandstone, pebbly lithic sandstone, green to reddish brown mudstone and minor volcanolithic pebble conglomerate (at base).
AB28 to AB74	Sutton Formation	Cainozoic	Quartz sandstone, clayey sandstone, mudstone and conglomerate; fluvial and lacustrine sediments; minor interbedded basalt.
	Colluviums	Quaternary	Colluvium and/or residual deposits, talus, scree, sheet wash; boulder, gravel, sand; may include minor alluvial owl sand plain deposits.
	Rewan Group	Triassic	Lithic sandstone, pebbly lithic sandstone, green to reddish brown mudstone and minor volcanolithic pebble conglomerate (at base).
	Alluvium	Quaternary	Channel and flood-plain alluvium; gravel, sand, silt, clay; may be incised by present day drainage.
	Ferruginous duricrust	Cainozoic	Ferruginous duricrust, laterite; may include massive to pisolitic ferruginous subsoil, mottled clays.
	Mafic volcanic rocks	Cainozoic	Volcanic rocks, predominantly mafic; basalt, trachyte, trachybasalt, trachyandesite, leucitite, basanite, nephelinite, limburgite, rhyolite, tuff and high level intrusives; rare volcanoclastic sediments.
AB74 to AB93	Blackwater Group	Late Permian	Sandstone, siltstone, shale, mudstone, coal, tuff, conglomerate. Section includes mafic volcanic rocks, Rewan Group, alluvium.
AB93 to AB142	Sand plain	Cainozoic	Sand plain, may include some residual alluvium; sand dominant, gravel, clay. Section includes alluvium, Rewan Group, Blackwater Group, colluviums.
AB142 to AB180	Duaranga Formation	Late Eocene	Mudstone, sandstone, conglomerate, siltstone, oil shale, lignite, basalt. Section includes sandplain, alluvium.

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AB180 to AB227	Back Creek Group	Late Permian	Quartzose to lithic sandstone, siltstone, carbonaceous shale, minor coal and sandy coquinite Section includes sandplain, Duaringa Formation, alluvium.
AB227 to AB261	Trachyte	Cainozoic	Igneous intermediate volcanic. Section includes Duaringa Formation, alluvium, sand plain, Back Creek Group.
AB261 to AB279	Lizzie Creek Volcanics	Permian	Basaltic to andesitic lava and volcanoclastic rocks (including breccia and arenite), rhyolitic to dacitic lava and volcanoclastic rocks (including ignimbrite); local siltstone, shale and polymictic conglomerate. Section includes alluvium, sand plain
AB279 to AB307	Carmila beds	Early Permian	Siltstone and mudstone, volcanolithic sandstone and conglomerate and minor altered basalt; local rhyolitic to dacitic ignimbrite and volcanoclastic rocks. Section includes Back Creek Group, alluvium.
AB307 to AB313	Sedimentary rocks	Cainozoic	Undifferentiated consolidated Cainozoic sedimentary rocks; sandstone, limestone, conglomerate, siltstone commonly ferruginised, silicified or poorly consolidated. Section includes colluviums.
AB313 to AB316	Rookwood Volcanics	Early Permian	Basalt and high-level mafic intrusives, minor rhyodacite lava, volcanoclastic breccia, lithic sandstone, siltstone and mudstone.
AB316 to AB234	Rockhampton Group	Early Carboniferous	Dark grey mudstone, siltstone, felsic volcanoclastic sandstone, polymictic conglomerate, ooid-bearing sandstone and conglomerate with mudstone rip-up clasts; oolitic and pisolitic limestone and minor skeletal limestone; rare rhyolitic ignimbrite. Section includes Rookwood Volcanics, alluvium.
AB324 to AB328	Craigilee beds	Early Devonian	Sandstone, siltstone, mudstone, andesitic to dacitic volcanics, volcanoclastic breccia, limestone, polymictic conglomerate, sparse peperite and andesite to dacite intrusive.
AB328 to AB348	Mount Alma Formation	Early Carboniferous	Thinly interbedded fine-grained sandstone and siltstone and thick beds of conglomerate with andesitic to dacitic clasts and siltstone rip-up-clasts. Section includes Craigilee beds, alluvium, Rockhampton Group.

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AB348 to AB354	Ridgелands Granodiorite	Early Triassic	Grey medium-grained biotite-hornblende to hornblende-biotite granodiorite, grey to cream medium-grained biotite-hornblende tonalite to quartz diorite, locally xenolith-bearing. Section includes alluvium.
AB354 to AB358	Mount Alma Formation	Early Carboniferous	Thinly interbedded fine-grained sandstone and siltstone and thick beds of conglomerate with andesitic to dacitic clasts and siltstone rip-up-clasts. Section includes Ridgелands Granodiorite, alluvium.
AB358 to AB360	Alton Downs Basalt	Late Cretaceous	Olivine- and feldspar-phyric basalt.
AB360 to AB392	Mount Salmon Volcanics	Cretaceous	Rhyolitic and trachytic flows, breccia, ignimbrite and tuff; basalt. Section includes Rockhampton Group, Mount Alma Formation, alluvium, Alton Downs Basalt.
AB392 to AB396	Kabra Quartz Monzodiorite	Triassic	Altered grey medium-grained hornblende quartz monzodiorite, dark grey hornblende-augite quartz gabbro, hornblende-hypersthene-augite-biotite quartz gabbro Section includes alluvium
AB396 to AB411	Bundaleer Tonalite	Early Triassic	Pale grey medium-grained leucocratic hornblende-biotite tonalite, minor pale pink medium-grained biotite granite. Section includes sand plain, alluvium, Rockhampton Group, mafic intrusive.
AB411 to AB472	Mafic intrusives	Cretaceous	Dolerite, gabbro, diorite. Section includes Rockhampton Group, alluvium, Mount Alma Formation.
AB472 to AB477	Berserker Group	Permian	Siltstone, lithofeldspathic sandstone, intermediate to felsic intrusive and extrusive domes, volcanic breccia, minor conglomerates. Section includes alluvium, Rockhampton Group.
Elphinstone Lateral			
EL0 to EL11.4	Rewan group	Triassic	Lithic sandstone, pebbly lithic sandstone, green to reddish brown mudstone and minor volcanilithic pebble conglomerate (at base). Potential presence of alluvium.
EL11.4 to EL12.8	Alluvium	Quaternary	Channel and flood plain alluvium; gravel, sand, silt, clay.

Distance (KP)	Geological formation (primary unit)	Period or era	Major lithology of primary (upper unit)
EL12.8 to EL23.8	Sedimentary rocks	Cainozoic	Undifferentiated consolidated Cainozoic sedimentary rocks; sandstone, limestone, conglomerate, siltstone; commonly ferruginised, silicified or poorly consolidated. Section includes Rewan group, alluvium.
EL23.8 to EL52	Sand plain	Cainozoic	Sand plain may include some residual alluvium; sand dominant, gravel, clay. Section includes colluviums, Rewan group, alluvium, sedimentary rocks.
Saraji Lateral			
SL0 to SL26	Sand plain	Cainozoic	Sand plain, may include some residual alluvium; sand dominant, gravel, clay.
	Alluvium	Quaternary	Channel and flood plain alluvium; gravel, sand, silt, clay.
Dysart Lateral			
DL0 to DL19.7	Duinga formation	Middle Eocene	Mudstone, sandstone, conglomerate, siltstone, oil shale, lignite, basalt.
	Sand plain	Quaternary	Sand, silt, gravel and clay.
DL19.7 to DL21.1	Blackwater group	Late Permian	Sandstone, siltstone, shale, mudstone, coal, tuff, conglomerate.
DL21.1 to DL26	Sand plain	Cainozoic	Sand plain, may include some residual alluvium; sand dominant, gravel, clay.