Attachment 6: TABLES 1 – 2

Table 1: Likelihood assessment for EPBC listed threatened species.

Species	Common name	EPBC Status[1]	Likelihood	Comments
Plants				
Frankenia plicata		En	Unlikely	PMST output suggests likely to occur. No BDBSA records within 20 km. *Frankenia plicata* has rarely been recorded with less than 50 historical records from South Australia. Not recorded during targeted survey and considered unlikely to occur at the site.
Codonocarpus pyramidalis	Slender Bell-fruit	Vu	Unlikely	PMST output suggests likely to occur. Species grows as shrub / small tree and occurs as small stands or isolated individuals. Species is rapid growing, but short-lived. It prefers crests and slopes of low ridges, hills and along creeks in loamy sand or sandy clay loam. Has not been observed at the site previously, and preferred habitats were not considered to be present at the site. Three historical BDBSA[2] records within 20 km, three recent ALA records within 20 km. Preferred rocky slopes and creek lines not present within the PEL 650.
Birds				
Amytornis modestus	Thick-billed Grasswren	Vu	Known	PMST output suggests known to occur. Project site occurs within known area of occupancy, 7 recent BDBSA records within proximity to the site, 17 historical records, suitable habitat on site. Suitable 'preferred' habitat and species confirmed during the Jacobs survey. Several ALA / bird records from 2017 / 2018 on the road to the Retention Dam.
Calidris ferruginea	Curlew Sandpiper	CE, MW	Possible	PMST output suggests known to occur. Migratory wader, shorebird. Breeds in Siberian high arctic coastal tundra migrates to Africa, Asia and regular spring/summer migrant to Australia. Preferred habitat includes exposed intertidal mudflats and less frequently inland freshwater wetlands, saltworks and mudflats. No BDBSA records within 20 km. Whilst species has been recorded at the Retention Dam, the site is not core habitat. Preferred habitat is coastal, may occasionally stop over at dam area on route to inland lakes (e.g. Lake Torrens west of the site).
Pedionomus torquatus	Plains-wanderer	CE	Unlikely	PMST output suggests likely to occur. Occurs at scattered sites in Queensland, New South Wales, Victoria and South Australia with highest concentrations of records being the Riverina region of south-western New South Wales and north-central region of Victoria. Preferred habitat is open native grasslands. No BDBSA records within 20 km. No suitable habitat on site.
Pezoporus occidentalis	Night parrot	Ex	Unlikely	PMST output suggests extinct within the area. Nocturnal / elusive ground-dwelling bird, listed as extinct in SA, No BDBSA records within 20 km.
Rostratula australis	Australian Painted Snipe	E	Unlikely	PMST output suggests may occur. Medium shorebird. Endemic to Australia, widespread, but rarely observed. Prefers freshwater inland swamps and temporary water regimes, marshes with moderate cover. Unlikely to occur at the retention dam, given exposed muddy fringes surrounding the dam. No BDBSA records within 20 km.
Mammals				
Notomys fuscus	Dusky Hopping mouse, Wilkiniti	Vu	Unlikely	PMST output suggests may occur. Preferred habitat is sand dunes with cane grass. No BDBSA or ALA records within 20 km. No suitable habitat on site.
Petrogale xanthopus xanthopus	Yellow-footed Rock-wallaby	Vu	Unlikely	PMST output suggests known to occur. Prefers rocky outcrops of the Flinders Ranges. Ten recent BDBSA records within 20 years (2010-2016). All records are from Aroona Dam Sanctuary, south of the site. No ALA recent records within 20 km of the site. Although rocky outcrops are present, they provide limited sufficient shelter. No evidence of occurrence at the site to date.
Pseudomys australis	Plains Rat, Palyoora	Vu	Unlikely	PMST output suggests may occur. Prefers gilgai habitats / deep cracking clays. Alluvial plain with cracking clay soils in the north west of the PEL may provide burrowing habitat for this species. However most records for this species are from gilgai tableland country which was not recorded during the survey of the PEL 650.

[1] EPBC status codes; CE = Critically Endangered, E = Endemic; En = Endangered; Ex = Extinct, MM = Migratory Marine; MW = Migratory Wetland; Vu = Vulnerable.

[2] Biological Databases of South Australia

Table 2: Measured and Inferred Hydraulic Properties for the Telford Basin

Parameter	Above Upper Series	Below Upper Series
PCD Wells Hydraulic conductivity (m/d) Background Wells Hydraulic conductivity (m/d)	NA	Analytical analysis utilising Aquifer Test Pro application of measured recovery for monitoring wells MW01, MW02 and MW03 (memo - Water Tech, 2021) and Playford 1 Wells (AWE, 2018) MW01 2.25×10^{-6} MW02 2.47×10^{-6} MW03 5.02×10^{-6} Main Series Overburden (P1M1) $(6.0\text{-}7.2) \times 10^{-7}$ Main Series Coal (P1M2) $(4.1\text{-}2.6) \times 10^{-6}$ Lower Series Overburden (P1M3) $(4.3–3.2) \times 10^{-6}$
Hydraulic conductivity (m/d)	Roof/Floor/Coal (Upper & Main Series) reproduced from (MWH, 2016) $<1.4 \times 10^{-4}$ m/d	Playford 5 (P1M1) Drill stem tests undertaken during drilling (SIGRA, 2017) Main Series Overburden $(2.2\text{-}2.6) \times 10^{-3}$ Main Series Coal $(4.2–7.2) \times 10^{-3}$ Lower Series Overburden 1.5×10^{-2}
Permeability (m/d) (Converted from m/s to m/day)	NA	Rising head permeability at time of drilling 3964 & 3967 (Golder, 1985). Roof $8.6\text{x}10^{-5}$ & $3.5\text{x}10^{-4}$ Coal $1.7\text{x}10^{-4}$ & $8.6\text{x}10^{-3}$ Floor $8.6\text{x}10^{-5}$ & $1.7\text{x}10^{-4}$
Porosity (m^3/m^3)	Not measured. Freeze and Cherry (1979) ascribes a range of 5 to 30% for sandstones and 0 to 10% for shale.	Not measured. Freeze and Cherry (1979) ascribe a range of 0 to 10% for shale and a value of 1% for coal.
Specific Yield (m^3/m^3)	0.2-0.27 from Dames and Moore (1984) dewatering test analysis. However, values of 0.08 and 0.1 used for calculating the recoverable storage (Coffey, 2008).	Not measured. Walton (1970) ascribes a range of 0.5 to 5% to shales, which is the closest equivalent to the Leigh Creek interburden materials. Considering the fine grained nature of the interburden material, its uniformity of grain size and its ductile nature, it is judged likely that the Leigh Creek materials will be at the lower end of the indicative range of Walton.
Storage Coefficient (m^3/m^3)	Storage Coefficient of 2×10^{-4} (Dames and Moore (1984) piezometer drawdown)	Water level recovery modelling sensitivity analysis (AWE, 2017) 10^{-2} to 10^{-5}
Specific Storage (1/m)	Assuming a thickness of 100m for the formation, the Storage Coefficient values above provide a range of 10^{-6} to 10^{-7}.	Recovery matching modelling (AWE, 2018) ~10^{-6} Not measured. Eaton et al (2000) measured values of 10^{-8} to 10^{-6} (m-1) in lab tests on the Maquoketa Formation dolomitic shale.