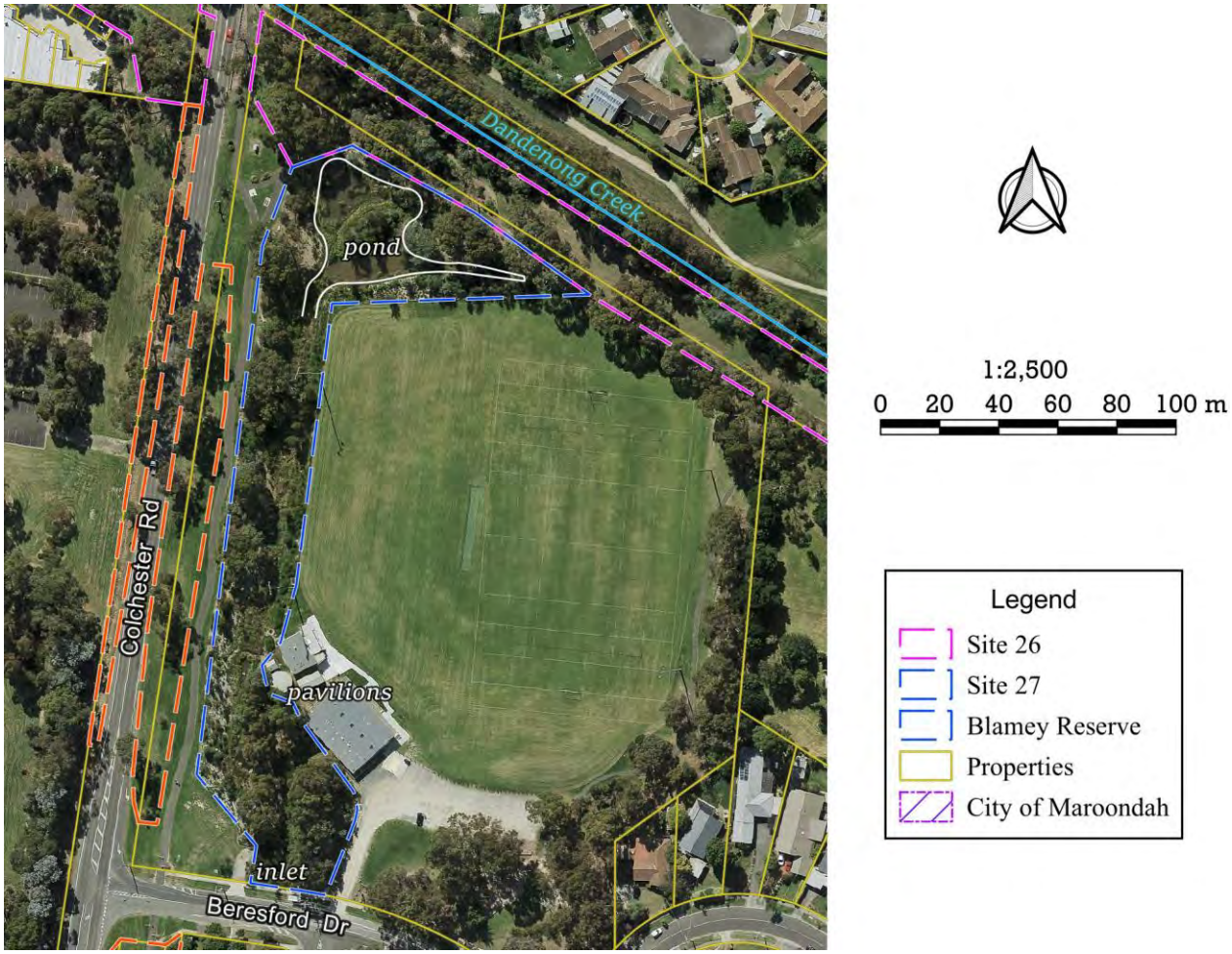
Site 27. Colchester Reserve, Boronia

A stormwater treatment wetland system abutting Dandenong Ck.

Summary of significant features:

- Locally significant: a patch of vegetation with a mix of wild and planted indigenous species and descendants of the planted plants;
- Locally significant: viable wild populations of plant species threatened with dying out in Knox;
- Locally significant: the site represents a component of the riparian habitat corridor along Dandenong Creek.



Boundaries

The boundary of this 0.94-hectare site is outlined with blue dashes above. It is greatly enlarged compared with the previous (2010) edition of this report for the reasons discussed below. Approximately half the boundary follows shared paths. The rest follows either the playing field fence or the edge of revegetation.

Land use & tenure: Council reserve, this part used primarily for stormwater treatment.

Site description

Site 27 in the previous (2010) edition of this report circumscribed a small, semi-natural wetland south of the pavilions marked on the aerial photograph above. The biological significance was associated with the wetland's native vegetation (none of which had been planted) and the habitat provided to aquatic and amphibious fauna.

In 2017, that wetland and its vegetation were replaced by a stormwater treatment system involving a sedimentation basin at the inlet and an excavated swale leading north to a pond with an island. The pond replaces

a pre-existing, smaller pond with a headland that has become the island. The previous edition of this report treated the pond as part of Site 26.

The island was included in the construction project to provide fauna such as nesting ducks with a sanctuary from predators such as foxes. Nearly all the system and its margin have been densely planted, mostly with indigenous species. The pre-existing indigenous plants were nearly all destroyed except on and near the island. Some of the same species have re-colonised naturally via seeds borne on the wind or waterbirds. Unfortunately, they do not include the two rarest species: Cluster Rush (*Juncus vaginatus*) and the twig-rush, *Machaerina* ?*rubiginosa*. For a short period following the system's commissioning, two new species colonised it: about thirty plants of Waterwort (*Elatine gratioloides*) and two plants of the waterlily-like Swamp Lily (*Ottelia ovalifolia*). The former was soon out-competed by the planted plants and the latter may have succumbed to the often-turbid water.

Although the stormwater treatment system does not currently have any uncommon wild plant species, there is a good prospect of that happening in years to come. The system is steadily developing good habitat for aquatic organisms, from micro-organisms to frogs, snakes and waterbirds such as snipe and rails.

Relationship to other land

As can be seen on the aerial photograph above, Site 27 is like a side-branch to the Dandenong Creek corridor (Site 26). The vegetated corridor along the creek is narrow but waterbirds such as egrets and ibis nevertheless move along the broad Dandenong Creek valley. Some of those waterbirds are likely to stop off at Site 27.

Bioregion: Gippsland Plain

Habitat type

Wetland (artificial): approximately 0.3 ha, with good diversity of indigenous species (rating B).

Trees: Small patches of remnant Swamp Paperbark (*Melaleuca ericifolia*).

Shrubs, vines and ferns: None.

Aquatic and semi-aquatic flora: Dominated variously by Tall Sedge (*Carex appressa*), Tassel Sedge (*Carex fascicularis*), Fen Sedge (*Carex gaudichaudiana*), Slender Knotweed (*Persicaria decipiens*) and rushes (particularly *Juncus amabilis* and *J. sarophorus*) and Hairy Willow-herb (*Epilobium hirtigerum*). The willow-herb, some of the rushes and perhaps some of the knotweed and sedges are wild. There is a small amount of wild cumbungi, *Typha domingensis*. Planted *Eleocharis gracilis* is abundant but not dominant. There is a range of other species.

Fringing (non-wetland) revegetation: approximately 0.6 ha, with modest diversity (rating C).

Trees: Small patches of remnant Swamp Paperbark (*Melaleuca ericifolia*) remain. There are also planted eucalypts, wattles and Muttonwood (*Myrsine howittiana*).

Shrubs, vines and ferns: Manuka (*Leptospermum scoparium*) was present prior to construction of the stormwater treatment system. A solitary Rough Tree-fern (*Cyathea australis*) has germinated recently.

Creepers: Rainforest Crane's-bill (*Geranium homeanum*) has colonised abundantly around the perimeter of the northern two-thirds of the site. Planted Bidgee-widgee (*Acaena novae-zelandiae*) is also abundant.

Shrubby herbs: Wild plants of Cotton Fireweed (*Senecio quadridentatus*) are scattered. Hop Goodenia (*Goodenia ovata*) has been planted densely.

Grassy species: Dominated by planted Spiny-headed Mat-rush (*Lomandra longifolia*) and Sword Tussock-grass (*Poa ensiformis*). Wild plants of Common Blown-grass (*Lachnagrostis filiformis*) are seasonally fairly abundant.

Other: There are many wild Hairy Willow-herb (*Epilobium hirtigerum*) and substantial numbers of wild Common Cudweed (*Euchiton involucratus*).

Plant species

The following plant species have been recorded in the site. Indigenous species not found by the author in June 2024 are indicated by their names being followed by the year of the most recent record. Introduced species were only recorded in the author's 2002 ecological survey. Asterisks indicate species that appear to have been planted but now include either their offspring or wild recruits. The column headed 'Risk' indicates the indigenous species' risk of dying out in Knox as follows: 'C'=Critically Endangered; 'E'=Endangered; and 'V'=Vulnerable. In addition, *Juncus vaginatus* is rare throughout the Melbourne region.

Risk	Wild indigenous species
	Acacia dealbata, Silver Wattle
V	*Acacia melanoxylon*, Blackwood
	Carex appressa, Tall Sedge*
V	*Crassula helmsii*, Swamp Crassula*
C	*Cyathea australis*, Rough Tree-fern
V	*Elatine gratioloides*, Waterwort (2018)
	Epilobium hirtigerum, Hairy Willow-herb
E	*Euchiton involucratus*, Common Cudweed
	Geranium homeanum, Rainforest Crane's-bill
	Juncus amabilis, Hollow Rush
	Juncus gregiflorus, Green Rush (2002)
C	*Juncus holoschoenus*, Joint-leaf Rush (2002)
	Juncus pallidus, Pale Rush
E	*Juncus planifolius*, Broad-leaf Rush (2002)
E	*Juncus procerus*, Tall Rush (2002)
	Juncus sarophorus, Broom Rush
C	*Juncus vaginatus*, Clustered Rush (2003)
	Lachnagrostis filiformis, Common Blown-grass
	Leptospermum scoparium, Manuka (2002)
	Lythrum hyssopifolia, Lesser Loosestrife
C	*Machaerina* ?*rubiginosa*, Soft Twig-rush (2002)
E	*Melaleuca ericifolia*, Swamp Paperbark
C	*Ottelia ovalifolia*, Swamp Lily (2018)
	Persicaria decipiens, Slender Knotweed*
	Senecio quadridentatus, Cotton Fireweed

Risk	Wild indigenous species
	Typha ?*orientalis*, Cumbungi
	Typha domingensis, Cumbungi

Risk	Planted species
	Acaena novae-zelandiae, Bidgee-widgee
	Carex appressa, Tall Sedge
E	*Carex fascicularis*, Tassel Sedge
E	*Carex gaudichaudiana*, Fen Sedge
E	*Eleocharis gracilis*, Slender Spike-rush
	Eleocharis sphacelata, Tall Spike-rush
C	*Goodenia elongata*, Lanky Goodenia
	Goodenia ovata, Hop Goodenia
V	*Hemarthria uncinata*, Mat Grass
	Lomandra longifolia subsp. *longifolia*, Spiny-headed Mat-rush*
	Poa ensiformis, Sword Tussock-grass

Introduced species
Cenchrus clandestinus, Kikuyu
Cynodon dactylon, Couch
Cyperus eragrostis, Drain Flat-sedge
Holcus lanatus, Yorkshire Fog
Lotus corniculatus, Bird's-foot Trefoil
Paspalum dilatatum, Paspalum
Paspalum distichum, Water Couch
Plantago lanceolata, Ribwort
Ranunculus repens, Creeping Buttercup

Notes concerning some of the locally-threatened plant species

Juncus holoschoenus (Joint-leaf Rush) – seven individuals were detected in 2002; none in 2024.

Juncus vaginatus (Clustered Rush) – at least two plants were detected in 2002; none in 2024.

Machaerina ?*rubiginosa* (Soft Twig-rush) – three young plants were recorded close to Beresford Drive in 2002, not reproductively mature. None remain.

Fauna habitat features

- The island in the pond provides a sanctuary from foxes and cats, e.g. for low-nesting waterbirds;
- The water and wetland plants provide good habitat for a range of pond life;
- The dense sedges and rushes are likely to attract snipe or rails.

Significance ratings

The following is an assessment of the site's biological significance against the Department of Energy, Environment & Climate Action's standard criteria (Amos 2004).

Ecological Integrity and Viability

Criterion 1.1.1 attributes **Local** significance to 'All parts of riparian systems with riparian vegetation present'. Site 27 is effectively part of the riparian system of Dandenong Creek.

Criterion 1.2.6 attributes **Local** significance to any corridor or ecological stepping-stone that meets the description 'local scale link between individual remnant habitat blocks or within subcatchment.'. That is an appropriate description of Site 27's role as part of the Dandenong Creek habitat corridor.

Vegetation type and condition

Site 27 meets the definition of a 'remnant patch' adopted by the standard criteria, i.e. 'a continuous area of native vegetation that is at least 0.25 hectares in extent and indigenous native understorey cover is 10% or

greater'. The criteria are silent about when revegetation should be treated the same as naturally-occurring native vegetation, and also about how to treat vegetation that has a mixture of planted plants, their descendants and wild recruits. Site 27 is here treated as a 'remnant patch' of a 'Least concern' EVC with a habitat score below 0.6. Criterion 3.2.3 of Amos (2004) treats such vegetation as being of **Local** significance.

Threatened Plants

Some of the locally-threatened plant species listed above have viable populations, thereby meeting criterion 3.1.5 for **Local** significance.

Threats

- Human-induced climate change, which is predicted to cause more severe droughts, heatwaves and storms, as well as substantially lower rainfall (particularly in winter);
- Loss or decline of plant species whose populations are so small that they are vulnerable to decline or loss through inbreeding, poor reproductive success, desilting works or chance events.

Strategic planning

- The very different version of Site 27 in the previous (2010) edition of this report site is covered by Schedule 2 of the Environmental Significance Overlay (ESO2). The new version of Site 27 is similarly worthy of ESO2, taking into account its biologically significant attributes described above. It is recommended that the ESO2 boundary be amended to match the new site;
- The whole reserve and its surroundings are covered by Schedule 3 of the Significant Landscape Overlay (SLO3) and Schedule 2 of the Design and Development Overlay (DDO2);
- The reserve is larger than 0.4 ha and therefore does not qualify for the size-based exemption from the state-wide baseline planning controls over removal of native vegetation (clause 52.17);
- The whole reserve is zoned Public Park and Recreation (PPRZ).

Information sources used in this assessment

- An ecological survey of the site by Dr Lorimer on 12/4/97 for the report *'Vegetation Survey of Linear Reserves – A Management Strategy for Flood Plain and Riparian Vegetation'* by Reid, Moss and Lorimer (for Knox City Council in 1997). This included mapping the vegetation and listing all vascular plant species, as well as listing fauna observed passively;
- An ecological survey of thirty minutes duration undertaken by Dr Lorimer on 19/6/02 for the first edition of this report. This included a description of the vegetation composition, compilation of lists of indigenous and introduced plant species, incidental fauna observations, and checks for fauna habitat, ecological threats and management issues;
- A re-inspection of the site by Dr Lorimer for approximately thirty minutes on 13/12/03, which successfully found the *Juncus vaginatus* that had been discovered in the 1997 inspection but not seen in the 2002 inspection;
- A re-inspection of the site by Dr Lorimer for approximately ten minutes on 16/7/04, mainly to check for frogs and fertile *Machaerina* material for identification;
- A brief check of the state of the wetland by Dr Lorimer in March 2008 for the second edition of this report;
- An inspection of the site by Dr Lorimer with Council staff in c. 2016 to help design the stormwater treatment system;
- An inspection of the new system by Dr Lorimer with Council staff on 10th February 2018, having been alerted that *Ottelia ovalifolia* had been found there;
- A botanical survey of the site by Dr Lorimer on 28/6/24 for this report;
- Records of flora and fauna observations stored in the Atlas of Living Australia, noting that most of the plant records are of planted plants but not flagged as such;
- The Victorian Government's 'NatureKit' website;
- Aerial and satellite imagery from between 1946 and 2024;
- Maps of geology, topography and strategic planning information produced by agencies of the Victorian Government.