



Katrina Cooper
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8 Davidson Terrace
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Dear Katrina Cooper

Review of Wetland UFI-7176, UFI-13342 and UFI-15532

I refer to your e-mail of 29th June 2021 enquiring whether the Department of Biodiversity Conservation and Attractions (DBCA), Wetland Section, had received and reviewed Stratagen JBS&G evaluation of wetland UFI-13342 and UFI-7176 using Geomorphic Wetlands Swan Coastal Plain dataset (the dataset) within Piara Water TPS 4 within the vicinity of Warton an Armadale Roads.

Stratagen's report requested that the management category of wetland UFI-7176 be modified from Multiple Use to Resource Enhancement and that the management category of wetland UFI-13345 be modified from Resource Enhancement to Multiple Use. Further to this request, Resource Enhancement wetland UFI-15531, Multiple Use wetlands UFI-15532 and UFI-6931 are at least partially within West Piara Urban Precinct Piara Water Town Planning Scheme No. 4 Amendment No 118.

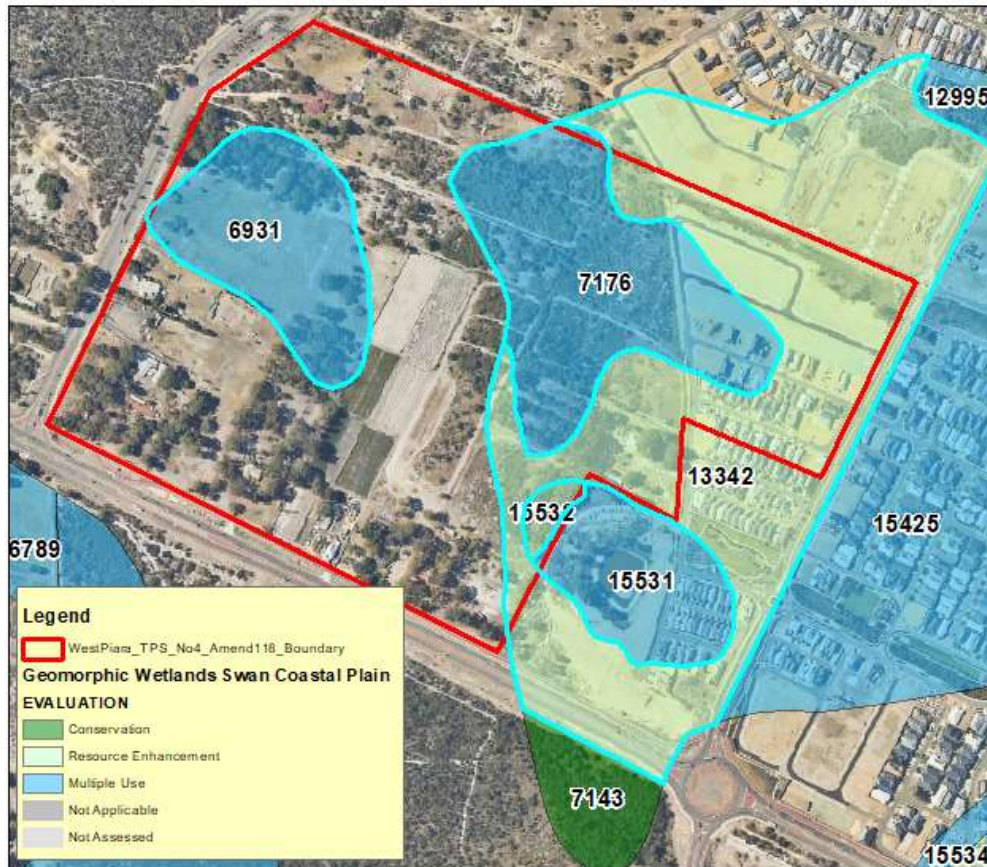
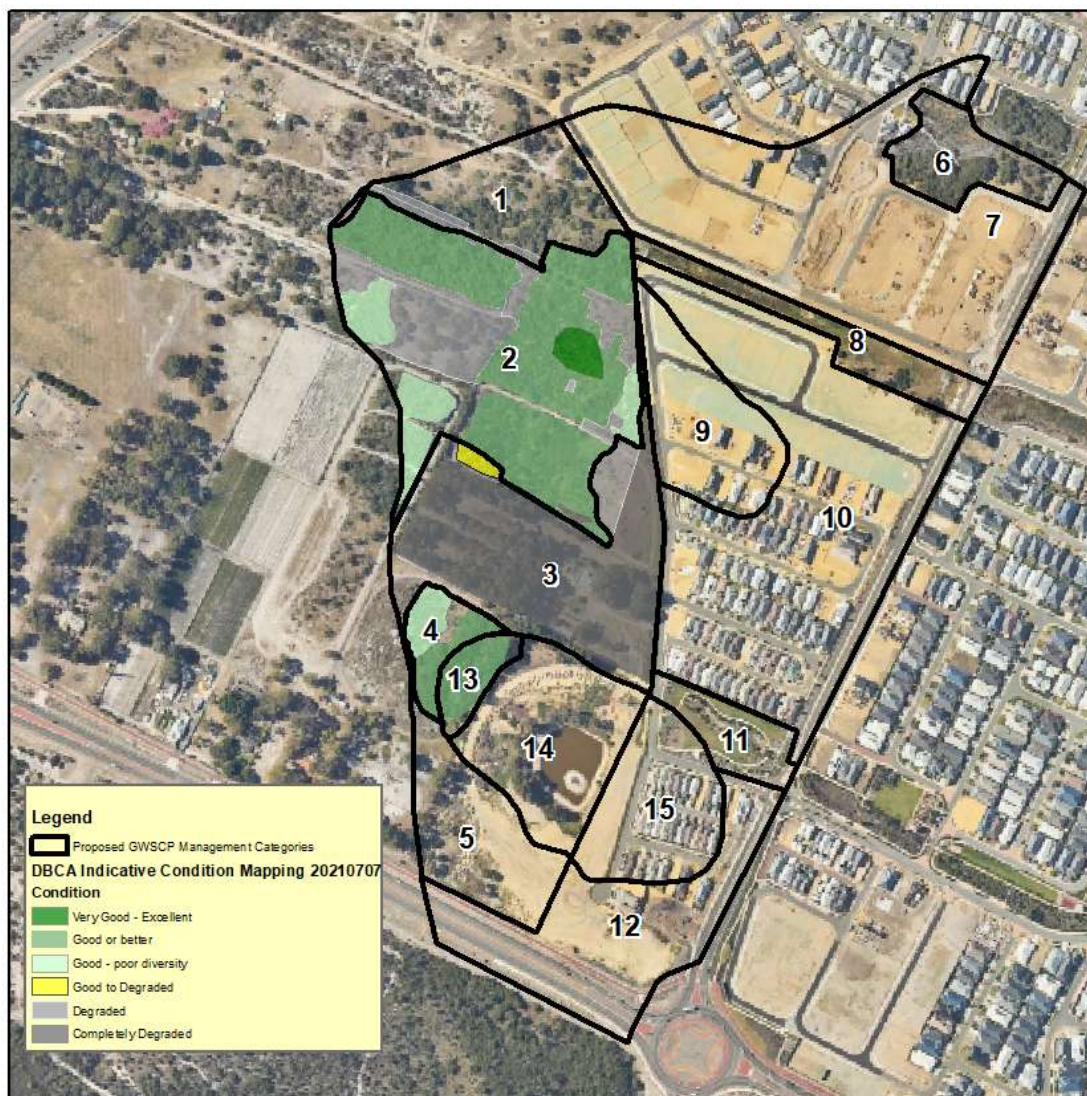


Figure 1: Current GWSCP dataset wetlands which intersect the TPS boundary.

In July 2021, DBCA's wetlands section undertook a site assessment of some of the lots of Piara Waters TPS 4 Amendment 118. As is evident in aerial imagery, significant portions of wetlands UFI-13342, UFI-7176 and UFI-15531 have been filled and developed to the point that they are no longer functioning as a wetland and can now be classified as 'no longer a wetland' i.e. figure 2 polygons labelled Area 7, 9, 10 and 12.

The north-east corner of wetland UFI-13342 (area 6) is outside of TPS 4 and has not been developed. It has not been evaluated and will retain its current management category of Resource Enhancement. Areas 8 and 11 will also remain mapped as wetland as, despite their modified condition, they have not been filled and still retain some wetland values providing hydrological connection and flood protection. They will be mapped as Multiple Use wetland management category.

The remaining portions of wetlands UFI-7176 and UFI-13342, which are classified as damplands, each had portions with differing values, which are not reflected by the current management category boundaries. In-line with the 'A methodology for the evaluation of wetlands of the Swan Coastal Plain (2017)' (DBCA 2017, the methodology), section 5.3.2, category boundaries have been modified. When applying new management category boundaries all the dampland, west of the area classified 'No longer a wetland', were considered as a single polygon. The remaining polygon was then divided into areas of similar condition/values (see Figure 2, areas 1-5.)



**Figure 2 – Map of Proposed wetland boundaries and DBCA condition mapping**

Note \*\*Condition mapping is DBCA condition mapping with consideration of from Bennett Consulting, Focused Vision and Stratagen condition mapping especially for areas DBCA did not visit.

A summary of the proposed wetland boundaries and the changes to them has been provided in Table 1.

**Table 1: Summary of proposed wetland boundaries and changes**

Area	Classification	Current UFI	Current Management Category	Notes
1	Dampland	13342, 7176	Multiple Use & Resource Enhancement	No access, appears to retain native vegetation, albeit reported to be in degraded condition No Evaluation, Change Multiple Use portions of area 1 to Resource Enhancement
2	Dampland	13342, 7176	Multiple Use, Resource Enhancement & Not currently mapped as wetland	Evaluate in accordance with the Methodology In this area most of the vegetation is in good or better condition. The wetland boundary on western side was extended to include the extent of mapped wetland indicative vegetation (i.e., <i>Jacksonia gracillima</i> (P3) mapped by consultants and <i>Melaleuca prisianna</i> identified by DBCA).
3	Dampland	13342, 7176	Multiple Use & Resource Enhancement	No evaluation, Areas in degraded to completely degraded condition. Change area 3 to Multiple Use
4	Dampland	7176	Resource Enhancement	Evaluated in accordance with the Methodology. An area of vegetation mapped by DBCA and Stratagen 2021 mapping as being in good or better condition Adjacent to area 9 i.e., UFI - 15532
5	Dampland	13342	Resource Enhancement	No evaluation, Areas in degraded to completely degraded condition. Change Area 5 to Multiple Use
6	Dampland	13342	Resource Enhancement	No Evaluation or Change
7	Dampland	13342	Resource Enhancement	Significant fill and/or development Change to 'No Longer a Wetland'
8	Dampland	13342	Resource Enhancement	No evaluation, Areas in degraded condition. Change area 8 to Multiple Use
9	Dampland	7176	Multiple Use	Significant fill and/or development Change to 'No Longer a Wetland'
10	Dampland	13342	Resource Enhancement	Significant fill and development Change to 'No Longer a Wetland'
11	Dampland	13342	Resource Enhancement	No evaluation, Area is significantly modified. Change area 11 to Multiple Use
12	Dampland	13342	Resource Enhancement	Significant fill and/or development Change to 'No Longer a Wetland'
13	Sumpland	15532	Resource Enhancement	No Evaluation or Change
14	Sumpland	15531	Multiple Use	No Evaluation or Change
15	Sumpland	15531	Multiple Use	Significant fill and/or development Change to 'No Longer a Wetland'

Wetland UFI-6931 (see figure 1) was not addressed in Stratagen's wetland evaluation and has not undergone significant alteration likely to change it to 'No Longer a wetland'. As such, the wetland has not been evaluated in this assessment.

Secondary evaluation criteria scores tally – Area 2

Strategen’s scores have been provided for reference, but the boundaries have been modified.

**Table 2: Secondary evaluation criteria scores summary Area 2. Evaluation table in Appendix 1.**

Attributes/functions/ values	Stratagen UFI-7176 9.47ha			Area 3 scores portions of UFI 7173 (mostly) & UFI-13342 (small portions) 6.23ha		
	H	I	L	H	I	L
Geomorphology	2			2		
Wetland processes	1*	2*		2	1	
Linkages		1		1		
Habitats		2		1	2	
Flora	3	2		2	3	1
Fauna	1	3		1	2	
Cultural			1			
Scientific and educational						
<b>Total score</b>	<b>7</b>	<b>10</b>	<b>1</b>	<b>9</b>	<b>8</b>	<b>1</b>
Defining attribute/functions /values	<b>Fauna</b>			<b>Various</b>		
<b>Applicable management category</b>	<b>Resource Enhancement</b>			<b>Conservation</b>		

\* Corrections to Strategen’s table.

Secondary evaluation criteria scores tally – Area 4

Strategen’s scores for UFI-13342 are recorded in the appendix for reference. Due to the significant change in area, it is not relevant to include them here.

**Table 3: Secondary evaluation criteria scores summary Area 4 – Evaluation table in Appendix 2.**

Attributes/functions/values	Area 4 0.5ha		
	H	I	L
Geomorphology	2		
Wetland processes		2	
Linkages		1	
Habitats		1	
Flora	2	2	
Fauna	2	1	1
Cultural			
Scientific and educational			
Total score	6	7	1
Defining attribute/functions /values	<b>Fauna</b>		
<b>Applicable management category</b>	<b>Resource Enhancement</b>		

## Recommendations

Following a request from Stratagen to modify the dataset for damplands UFI-13342 and UFI-7176, the management categories and boundaries of these wetlands were reviewed by the Department. Management category boundaries of the dampland were modified and areas 2 and 4 (see figure 2 & 3) were evaluated in accordance with 'A methodology for the evaluation of wetlands on the Swan Coastal Plain, Western Australia' (Department of Biodiversity, Conservation and Attractions 2017). Area 2, which includes an area not previously mapped as wetland, is commensurate with Conservation category and area 4 is commensurate with Resource Enhancement.

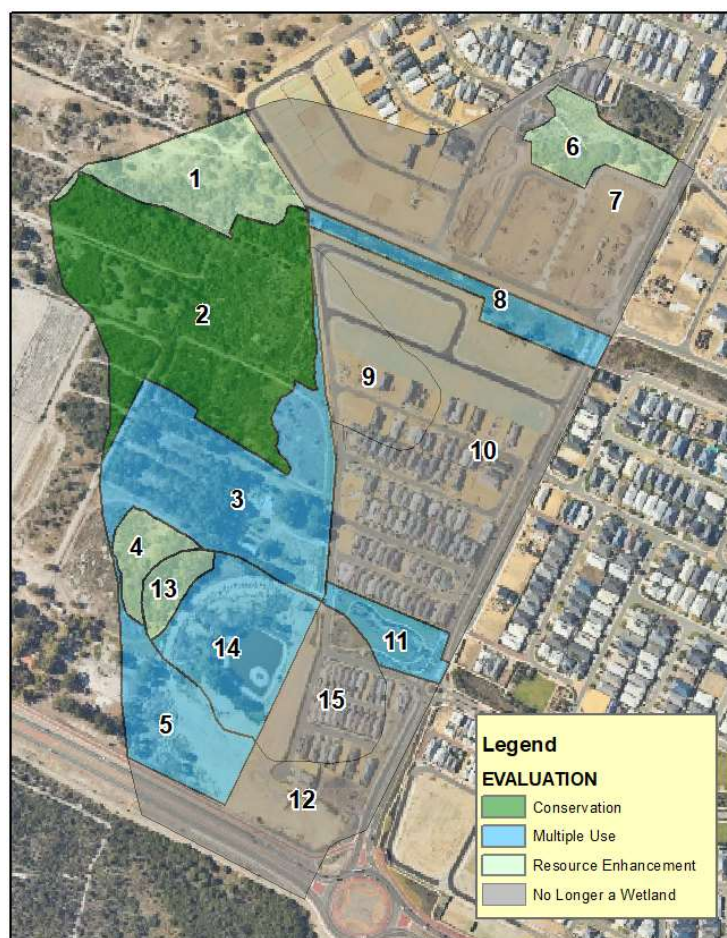
It is recommended that the boundaries and management categories be modified to reflect the variable condition of these wetlands shown in Figure 3 and summarised in Table 4 below.

**Table 4: Summary of proposed management categories by area.**

Area	Notes	Area	Notes
1	Resources Enhancement	9	'No Longer a Wetland'
<b>2</b>	<b>Conservation (methodology)</b>	10	'No Longer a Wetland'
3	Multiple Use	11	Multiple Use
<b>4</b>	<b>Resource Enhancement (methodology)</b>	12	'No Longer a Wetland'
5	Multiple Use	13	* Resources Enhancement
6	* Resource Enhancement	14	* Multiple Use
7	'No Longer a Wetland'	15	'No Longer a Wetland'
8	Multiple Use		

**Bold = Evaluated in accordance with 'A methodology for the evaluation of wetlands on the Swan Coastal Plain, Western Australia' (Department of Biodiversity, Conservation and Attractions 2017)**

\* - No change to management category



**Figure 3: Proposed mapping for the GWSCP dataset.**

Aerial Imagery and sites visit showed that the portions of sumpland UFI-15531 area 15 had also received significant modification and is commensurate with 'No Longer a Wetland'.

Please contact Fiona Felton ([Fiona.felton@dbca.wa.gov.au](mailto:Fiona.felton@dbca.wa.gov.au)) if you would like to discuss the evaluation further.

Yours sincerely



Michael Coote  
Wetlands Coordinator  
Species and Communities Program  
Department of Biodiversity Conservation and Attractions

11 August 2021

CC: Alex VanderPlas, Senior Strategic Planning Officer, City of Armadale  
Hannah Sullivan, Senior Project Scientist/GIS Consultant, Strategen-JBS&G

#### **References**

Department of Parks and Wildlife, 2017, *A methodology for the evaluation of wetlands on the Swan Coastal Plain, Western Australia*, draft prepared by the Department of Biodiversity, Conservation and Attractions and the Department of Water and Environmental Regulation.


Stratagen JBS&G, 2021, *Environmental Assessment Report: Piara Waters*. Unpublished report prepared for Stockland Developments Pty Ltd, June 2021. Western Australian Planning Commission. (2020)

## Appendix 1: Secondary evaluation criteria. – Piara Waters TPS 4 - Area 2

### NOTE:

- western central boundary was extended to include Priority species which are wetland indicative but does not include area of banksia woodland. Extent of these two values were mapped in Strategen JBS&G, 2021 . The boundary was also slightly extended just north of the priority flora to include the extent of *Melaleuca pressiana*.
- for criteria 1-3 Strategen JBS&G recalculated figures using the GWSCP dataset rather than using the provided tables.

Attributes/ functions/ values	General criteria	Criteria	Strate gen	DBCA
<b>Geomorphology</b>				
1	Represent- ativeness	≤ 20% of wetlands of the same type are assigned Conservation on the Swan Coastal Plain by area. <a href="#">Dampland 29.3% Consultant Calc 25.86%</a>	H	H
2		≤ 20% of wetlands in the same consanguineous suite are assigned Conservation by area. <a href="#">Jandakot 21.7% Consultant Calc 23.03%</a>	H	H
3		≤ 20% of wetlands of the same type in the same consanguineous suite are assigned Conservation by area. <a href="#">Dampland Jandakot – 38.2% in table Consultant Cal 17.06% with updated figures. Accepted consultant's calculations</a>	H	H
4		The wetland is outstanding in some geomorphic aspect, for example size, origin, height relative to sea level, depth, age.	H	H
5	Naturalness	Alteration to the wetland's geomorphology by % area: < 25% altered 25-75% altered > 75% altered.  Note: Alteration of geomorphology refers to a modification of the landform, for example by filling, excavation, drains. Clearing of vegetation in itself does not constitute a change in geomorphology.	H ↓ L	H ↓ L
6	Scarcity	The wetland exhibits unusual geomorphology or unusual internal geomorphic features compared to other wetlands of the same type in the consanguineous suite.	H	H
7		The wetland is the best example of its type in its consanguineous suite.	H	H
<b>Wetland processes</b>				
8	Represent- ativeness	The wetland is an important component of the natural hydrological cycle providing natural functions (e.g. flood protection, recharge/discharge, hydrological storage, support for groundwater dependent ecosystems).  The wetland's vegetation, geomorphology, hydrology or sediments are modified; however, the wetland is still a component of the hydrological cycle providing natural and artificial functions (e.g. flood remediation, recharge/discharge, hydrological storage, support for groundwater dependent ecosystems).  <a href="#">Scored as 'I' due to surrounding urban land use but hydrological function is close to natural and therefore is a high 'I' tending to 'H'.</a>  The wetland's vegetation, geomorphology, hydrology or sediments are modified to the extent that the wetlands hydrological functions are artificial such as storage, or the wetland has been disconnected from the natural	H  I  L	H  I  L

Attributes/ functions/ values	General criteria	Criteria	Strate gen	DBCA
		hydrological cycle and no longer provides natural attributes and functions.		
9		The wetland supports a representative process (e.g. wetland process typical of the wetland's hydrological setting, sediment accretionary process typical of the wetland's geomorphic setting or hydrochemical process typical of the wetland's geological setting).	H	H
10	Naturalness	<p>The wetland is not subject to altered wetland processes or, is subject to altered wetland processes and the wetland's natural attributes and functions are maintained.</p> <p>The wetland is subject to altered wetland processes and the wetland's natural attributes and functions have been changed; however, they have the potential to be rehabilitated.</p> <p>The wetland is subject to altered wetland processes to the extent that the wetland no longer supports natural attributes and functions.</p> <p>Note: processes to consider include hydrological, hydrogeological, sedimentological, chemical, biological.</p>	<p>H</p> <p>I</p> <p>L</p>	<p>H</p> <p>I</p> <p>L</p>
11	Scarcity	The wetland exhibits unusual processes compared to other wetlands of the same type in the consanguineous suite.	H	H
<b>Linkages</b>				
12	Represent- ativeness	The wetland is a hydrological link in a larger or more complex and intact system.	H	H
13	Naturalness	<p>The wetland is part of a continuous ecological linkage or wildlife corridor, or a regionally significant ecological linkage or wildlife corridor connecting bushland or wetland areas.</p> <p>The wetland is part of a fragmented ecological linkage or wildlife corridor.</p> <p>The wetland is disturbed and isolated, surrounded by either a built or highly disturbed environment with no nearby native vegetation or waterways to support an intact or fragmented ecological linkage or wildlife corridor.</p> <p><a href="#">The wetland is 350m from PMR ecological linkage No. 47 and connected to the REL via undeveloped vegetated land albeit partially in poor condition and with introduced overstorey.</a></p> 	<p>H</p> <p>I</p> <p>L</p>	<p>H</p> <p>I</p> <p>L</p>



Attributes/ functions/ values	General criteria	Criteria	Strate gen	DBCA
14	Scarcity	The wetland has unusual hydrological, hydrogeological, hydrochemical or ecological linkages with adjacent wetlands or bushland.	H	H
<b>Habitats</b>				
15	Represent- ativeness	The wetland is isolated from other undisturbed wetlands or bushland and as a result, maintains important ecological or genetic fauna or flora diversity within its consanguineous suite domain.	H	H
16		The wetland contains evidence of surface water or groundwater expression that is vital for maintaining regionally significant populations of native aquatic or terrestrial flora or fauna.  The wetland contains evidence of surface water or groundwater expression that is important for maintaining populations of native aquatic or terrestrial flora or fauna.	H  I	H  I
17		The wetland provides a nursery for native fauna populations, or maintains fauna populations at a vulnerable <b>stage of their life cycle</b> .  <b>Presence of frogs population at least 3 species heard.</b>	H	H
18	Naturalness	The wetland supports habitats that are unaltered or the wetland has been altered and its natural habitats are maintained.  The wetland supports habitats that are altered; however, the habitats are still identifiable and have the potential to naturally regenerate or be rehabilitated after weed control, if required.  The wetland is altered and as a result is no longer supporting natural habitats which can be rehabilitated.  Despite some areas in Very Good- Excellent condition it averages out to 'I'.	H  I  L	H  I  L
19	Scarcity	The wetland supports habitats that are unusual compared to other wetlands of the same type on the Swan Coastal Plain.	H	H
<b>Flora</b>				
20	Represent- ativeness	The wetland's current diversity of native flora is similar to what would be expected in an unaltered state.  The wetland supports a reduced diversity of native flora due to human induced disturbances.  The wetland supports a significantly reduced diversity of native flora species due to human induced disturbances.  Despite some areas in Very Good- Excellent condition it averages out to 'I'. High I tending to H	H  I  L	H  I  L
21		The wetland is identified in a vegetation complex (Hedde et al. 1980) which is represented by:  ≤ 30% of the pre-European extent 30-50% of the pre-European extent.  Southern River Complex 18.43%  Note: statistics can be obtained from Local Biodiversity Program (2013) – to allow for vegetation type and extent mapping error due to the mapping scale used, the extent of remnant vegetation is considered an overestimate. The 30% and 10% thresholds are assessed at actual 40% and 15% levels.	H  I	H  I

Attributes/ functions/ values	General criteria	Criteria	Strate gen	DBCA
22	Naturalness	Using the vegetation condition scale outlined in Appendix B, the wetland's vegetation condition by area is:  ≥ 75% Good, Very Good, Excellent or Pristine 25-75% Good, Very Good, Excellent or Pristine < 25% Good, Very Good, Excellent or Pristine.  <i>Good but low diversity = 0.9165, Good or Better = 3.4763ha</i> <b>Total 4.45ha, wetland polygon 6.24ha i.e. = 72% in good or better.</b>	H  I  L	H  I  L
23		The wetland or ≥ 50% of the wetland boundary is surrounded by land dominated by remnant native vegetation.  The wetland or 10-50% of the wetland boundary is surrounded by land dominated by remnant native vegetation.  The wetland or < 10% of the wetland boundary is surrounded by land dominated by remnant native vegetation.	H  I  L	H  I  L
24	Scarcity	The wetland supports an occurrence of declared rare, priority 1, priority 2, priority 3 or priority 4 flora, or an occurrence of three or more significant flora taxa.  <i>Jacksonia gracillima (P3), Jacksonia sericea (P4),</i> <i>Consultant listed potential Caladenia huegelii</i> <i>Flora report noted unlikely but suitable habitat present.</i>	H	H
25		The wetland is likely to support declared rare, priority 1, priority 2, priority 3 or priority 4 flora; however, the occurrence cannot be located, or its habitat has been altered and is no longer in a natural state.	I	I
26		The wetland supports an occurrence of a threatened ecological community, priority 1 or priority 2 ecological community.  <i>Most of the site was recorded as Banksia Woodlands. Banksias were not observed within the wetland's boundary, TEC analysis undertaken suggests banksia woodlands only occurs outside of the wetland.</i>	H	H
27		The wetland supports an occurrence of a priority 3 or priority 4 ecological community.	I	I
<b>Fauna</b>				
28	Represent- ativeness	The wetland is an ecological refuge for regionally significant fauna species or fauna assemblages.  The wetland has the potential to be an ecological refuge but is disturbed and its attributes and functions require rehabilitation.	H  I	H  I
29		The wetland supports a permanent or seasonal feeding, breeding, roosting or watering site for regionally significant native fauna.  The wetland supports a permanent or seasonal feeding, breeding, roosting or watering site for regional or local fauna but only in association with other surrounding natural areas.  <i>Neither description really suits this site therefore not scored</i>	H  I	H  I
30	Naturalness	The wetland's current diversity of native fauna is similar to what would be expected in an unaltered state, or the wetland supports diverse fauna compared to other wetlands of the same type.	H	H

Attributes/ functions/ values	General criteria	Criteria	Strate gen	DBCA
		The wetland supports a reduced diversity of fauna compared to other wetlands of the same type.  The wetland supports limited attributes and functions for fauna populations due to human induced disturbances.	I  L	I  L
31	Scarcity	The wetland is likely to support a breeding, roosting, refuge or feeding site for populations of fauna listed by the Australian Government (e.g. EPBC Act 1999, JAMBA, CAMBA, RoKAMBA Agreements) or the State (e.g. threatened or specially protected fauna listed under the Wildlife Conservation Act 1950).  <i>Records of Calyptorhynchus latirostris (Camaby's) within 1km and foraging evidence of Calyptorhynchus banksii naso within the larger site. But within the wetlands boundary there are few species that would be utilised by the Calyptorhynchus latirostris or Calyptorhynchus banksii naso. Therefore, not scored.</i>	H	H
32		The wetland supports a breeding, roosting, refuge or feeding site for priority 1, priority 2, priority 3 or priority 4 fauna. <i>Corporate Records within 1km of the wetland Quenda (P4) 2013 / 2012 and Perth Slider / lined skink (P3) 2016 Both noted in Strategen 2021</i>  <i>Likely quenda diggings were photographed by DBCA during site visit. Report noted suitable habitat for Skink. Strategen scored 'H'</i>	H	H
33		The wetland supports an occurrence of a threatened ecological community, priority 1 or priority 2 ecological community.	H	H
34		The wetland supports an occurrence of a priority 3 or priority 4 ecological community or a breeding, roosting, refuge or feeding site for significant fauna.	I	I
<b>Cultural</b>				
35	Represent- ativeness	The wetland or its immediate surrounds is identified for its natural values on a national or State heritage list or the wetland supports other known regional heritage values.	H	H
36		The wetland or its immediate surrounds is identified for its natural values on a municipal heritage list or the wetland supports other known local heritage values.	I	I
37		The wetland or its immediate surrounds is identified on a national, State or local list or register for its Aboriginal cultural value. As indicated by PGV	H	H
38		The wetland is important to the local community for its natural values.	H	H
39		The wetland is or has the potential to be a site for public or private based recreation.	I	I
40		The wetland is the subject of a recognised ecological restoration / rehabilitation project by a community group, landowner or land manager that aims to improve the wetland's natural, heritage, cultural or social values.  The wetland is likely to support heritage, cultural or social values; however, the values cannot be confirmed, or the values have been disturbed and are no longer as important or significant.	H  I	H  I

Attributes/ functions/ values	General criteria	Criteria	Strate gen	DBCA
		The wetland did support heritage, cultural or social values; however, these have been significantly disturbed and are no longer important or the values have been removed.	L	L
<b>Scientific and educational</b>				
41	Representati veness	The wetland supports known important teaching or research characteristics and for this reason is an existing or potential education or research site.  Note: the wetland must still support the relevant teaching or research characteristics.  The wetland has the potential to be used as a study or research site.	H  I	H  I
42		The wetland supports known scientific, geoheritage or geoconservation values.	H	H

#### Secondary evaluation criteria scores tally

Attributes/functions/values	Strategen UFI-7176			Area 3 Scores Portions of UFI 7173 (mostly) & UFI-13342 (small portions) 6.23ha		
	9.47ha					
	H	I	L	H	I	L
Geomorphology	2			2		
Wetland processes	*1	*2		2	1	
Linkages		1		1		
Habitats		2		1	2	
Flora	3	2		2	3	1
Fauna	1	3		1	2	
Cultural			1			
Scientific and educational						
<b>Total score</b>	<b>7</b>	<b>10</b>	<b>1</b>	<b>9</b>	<b>8</b>	<b>1</b>
Defining attribute/functions /values	<b>Fauna</b>			<b>Various</b>		
<b>Applicable management category</b>	<b>Resource Enhancement</b>			<b>Conservation</b>		

\* = corrected scores from Strategen's evaluation

## Appendix 2: Secondary evaluation criteria. – Piara Waters TPS 4 – Area 4

### NOTE:

- Area 4 (0.5ha) is only a small portion of UFI-13342 (26.7ha). Strategen's assessment have been added to ensure vales aren't missed rather than as a direct comparison.
- for criteria 1-3 Strategen JBS&G recalculated figures using the GWSCP dataset rather than using the provided tables.

Attributes/ functions/ values	General criteria	Criteria	Strate gen  All of UFI- 13342	DBCA  Area 4 only
<b>Geomorphology</b>				
1	Represent- ativeness	≤ 20% of wetlands of the same type are assigned Conservation on the Swan Coastal Plain by area. <a href="#">Dampland 29.3%</a> <a href="#">Consultant Calc 25.86%</a>	H	H
2		≤ 20% of wetlands in the same consanguineous suite are assigned Conservation by area. <a href="#">Jandakot 21.7%</a> <a href="#">Consultant Calc 23.03%</a>	H	H
3		≤ 20% of wetlands of the same type in the same consanguineous suite are assigned Conservation by area. <a href="#">Dampland Jandakot – 38.2% in table Consultant Cal 17.06% with updated figures. Accepted consultant's calculations</a>	H	H
4		The wetland is outstanding in some geomorphic aspect, for example size, origin, height relative to sea level, depth, age.	H	H
5	Naturalness	Alteration to the wetland's geomorphology by % area: < 25% altered 25-75% altered > 75% altered.  Note: Alteration of geomorphology refers to a modification of the landform, for example by filling, excavation, drains. Clearing of vegetation in itself does not constitute a change in geomorphology.  <a href="#">We assessed a small portion of the polygon Strategen assessed</a>	H ↓ L	H ↓ L
6	Scarcity	The wetland exhibits unusual geomorphology or unusual internal geomorphic features compared to other wetlands of the same type in the consanguineous suite.	H	H
7		The wetland is the best example of its type in its consanguineous suite.	H	H
<b>Wetland processes</b>				
8	Represent- ativeness	The wetland is an important component of the natural hydrological cycle providing natural functions (e.g. flood protection, recharge/discharge, hydrological storage, support for groundwater dependent ecosystems).  The wetland's vegetation, geomorphology, hydrology or sediments are modified; however, the wetland is still a component of the hydrological cycle providing natural and artificial functions (e.g. flood remediation, recharge/discharge, hydrological storage, support for groundwater dependent ecosystems).  The wetland's vegetation, geomorphology, hydrology or sediments are modified to the extent that the wetlands hydrological functions are artificial such as storage, or the wetland has been disconnected from the natural	H  ↓  L	H  ↓  L

Attributes/ functions/ values	General criteria	Criteria	Strate gen All of UFI- 13342	DBCA Area 4 only
		hydrological cycle and no longer provides natural attributes and functions. <b>We assessed a small portion of the polygon Strategen assessed</b>		
9		The wetland supports a representative process (e.g. wetland process typical of the wetland's hydrological setting, sediment accretionary process typical of the wetland's geomorphic setting or hydrochemical process typical of the wetland's geological setting).	H	H
10	Naturalness	<p>The wetland is not subject to altered wetland processes or, is subject to altered wetland processes and the wetland's natural attributes and functions are maintained.</p> <p>The wetland is subject to altered wetland processes and the wetland's natural attributes and functions have been changed; however, they have the potential to be rehabilitated.</p> <p>The wetland is subject to altered wetland processes to the extent that the wetland no longer supports natural attributes and functions.</p> <p>Note: processes to consider include hydrological, hydrogeological, sedimentological, chemical, biological.</p>	H  I  L	H  I  L
11	Scarcity	The wetland exhibits unusual processes compared to other wetlands of the same type in the consanguineous suite.	H	H
<b>Linkages</b>				
12	Represent- ativeness	The wetland is a hydrological link in a larger or more complex and intact system.	H	H
13	Naturalness	<p>The wetland is part of a continuous ecological linkage or wildlife corridor, or a regionally significant ecological linkage or wildlife corridor connecting bushland or wetland areas.</p> <p>The wetland is part of a fragmented ecological linkage or wildlife corridor.</p> <p>The wetland is disturbed and isolated, surrounded by either a built or highly disturbed environment with no nearby native vegetation or waterways to support an intact or fragmented ecological linkage or wildlife corridor.</p> <p><b>More fragmented connection than area 2 which was a low 'H'</b></p>	H  L  L	H  I  L
14	Scarcity	The wetland has unusual hydrological, hydrogeological, hydrochemical or ecological linkages with adjacent wetlands or bushland.	H	H
<b>Habitats</b>				
15	Represent- ativeness	The wetland is isolated from other undisturbed wetlands or bushland and as a result, maintains important ecological or genetic fauna or flora diversity within its consanguineous suite domain.	H	H
16		<p>The wetland contains evidence of surface water or groundwater expression that is vital for maintaining regionally significant populations of native aquatic or terrestrial flora or fauna.</p> <p>The wetland contains evidence of surface water or groundwater expression that is important for maintaining populations of native aquatic or terrestrial flora or fauna.</p>	H  L	H  L

Attributes/ functions/ values	General criteria	Criteria	Strate gen All of UFI- 13342	DBCA Area 4 only
17		The wetland provides a nursery for native fauna populations, or maintains fauna populations at a vulnerable stage of their life cycle.	H	H
18	Naturalness	<p>The wetland supports habitats that are unaltered or the wetland has been altered and its natural habitats are maintained.</p> <p>The wetland supports habitats that are altered; however, the habitats are still identifiable and have the potential to naturally regenerate or be rehabilitated after weed control, if required.</p> <p>The wetland is altered and as a result is no longer supporting natural habitats which can be rehabilitated.</p> <p><b>We assessed a small portion of the polygon Strategen assessed</b></p>	<p>H</p> <p>+</p> <p>L</p>	<p>H</p> <p>I</p> <p>L</p>
19	Scarcity	The wetland supports habitats that are unusual compared to other wetlands of the same type on the Swan Coastal Plain.	H	H
<b>Flora</b>				
20	Represent- ativeness	<p>The wetland's current diversity of native flora is similar to what would be expected in an unaltered state.</p> <p>The wetland supports a reduced diversity of native flora due to human induced disturbances.</p> <p>The wetland supports a significantly reduced diversity of native flora species due to human induced disturbances.</p>	<p>H</p> <p>+</p> <p>L</p>	<p>H</p> <p>I</p> <p>L</p>
21		<p>The wetland is identified in a vegetation complex (Hedde et al. 1980) which is represented by: <b>Southern River Complex – 18.43%</b></p> <p>≤ 30% of the pre-European extent</p> <p>30-50% of the pre-European extent.</p> <p>Note: statistics can be obtained from Local Biodiversity Program (2013) – to allow for vegetation type and extent mapping error due to the mapping scale used, the extent of remnant vegetation is considered an overestimate. The 30% and 10% thresholds are assessed at actual 40% and 15% levels.</p>	<p>H</p> <p>+</p>	<p>H</p> <p>+</p>
22	Naturalness	<p>Using the vegetation condition scale outlined in Appendix B, the wetland's vegetation condition by area is:</p> <p>≥ 75% Good, Very Good, Excellent or Pristine</p> <p>25-75% Good, Very Good, Excellent or Pristine</p> <p>&lt; 25% Good, Very Good, Excellent or Pristine.</p> <p><b>0.5ha of the 0.56ha polygon is in good or better condition = 89% in good or better condition</b></p>	<p>H</p> <p>+</p> <p>L</p>	<p>H</p> <p>+</p> <p>L</p>
23		<p>The wetland or ≥ 50% of the wetland boundary is surrounded by land dominated by remnant native vegetation.</p> <p>The wetland or 10-50% of the wetland boundary is surrounded by land dominated by remnant native vegetation.</p> <p>The wetland or &lt; 10% of the wetland boundary is surrounded by land dominated by remnant native vegetation.</p> <p><b>Of the 377m perimeter 131m of the wetland boundary is surrounded by land dominated by remnant native vegetation</b></p>	<p>H</p> <p>I</p> <p>L</p>	<p>H</p> <p>I</p> <p>L</p>

Attributes/ functions/ values	General criteria	Criteria	Strate gen All of UFI- 13342	DBCA Area 4 only
24	Scarcity	The wetland supports an occurrence of declared rare, priority 1, priority 2, priority 3 or priority 4 flora, or an occurrence of three or more significant flora taxa.	H	H
25		The wetland is likely to support declared rare, priority 1, priority 2, priority 3 or priority 4 flora; however, the occurrence cannot be located, or its habitat has been altered and is no longer in a natural state.	†	†
26		The wetland supports an occurrence of a threatened ecological community, priority 1 or priority 2 ecological community.	H	H
27		The wetland supports an occurrence of a priority 3 or priority 4 ecological community.	†	†
<b>Fauna</b>				
28	Represent- ativeness	The wetland is an ecological refuge for regionally significant fauna species or fauna assemblages.  The wetland has the potential to be an ecological refuge but is disturbed and its attributes and functions require rehabilitation.	H  I	H  I
29		The wetland supports a permanent or seasonal feeding, breeding, roosting or watering site for regionally significant native fauna.  The wetland supports a permanent or seasonal feeding, breeding, roosting or watering site for regional or local fauna but only in association with other surrounding natural areas.	H  I	H  †
30	Naturalness	The wetland's current diversity of native fauna is similar to what would be expected in an unaltered state, or the wetland supports diverse fauna compared to other wetlands of the same type.  The wetland supports a reduced diversity of fauna compared to other wetlands of the same type.  The wetland supports limited attributes and functions for fauna populations due to human induced disturbances.  <b>Small size and poor diversity, Good or better condition therefore 'L' tending to 'I'</b>	H  †  L	H  †  L
31	Scarcity	The wetland is likely to support a breeding, roosting, refuge or feeding site for populations of fauna listed by the Australian Government (e.g. EPBC Act 1999, JAMBA, CAMBA, RoKAMBA Agreements) or the State (e.g. threatened or specially protected fauna listed under the Wildlife Conservation Act 1950).  Carnabys	H	H
32		The wetland supports a breeding, roosting, refuge or feeding site for priority 1, priority 2, priority 3 or priority 4 fauna.  <b>Mapped as potential quenda habitat, probable signs of quenda in area 2 enough connection to expect that they would move between areas.</b>	H	H
33		The wetland supports an occurrence of a threatened ecological community, priority 1 or priority 2 ecological community.	H	H



Attributes/ functions/ values	General criteria	Criteria	Strate gen All of UFI- 13342	DBCA Area 4 only
34		The wetland supports an occurrence of a priority 3 or priority 4 ecological community or a breeding, roosting, refuge or feeding site for significant fauna.	†	†
<b>Cultural</b>				
35	Represent- ativeness	The wetland or its immediate surrounds is identified for its natural values on a national or State heritage list or the wetland supports other known regional heritage values.	H	H
36		The wetland or its immediate surrounds is identified for its natural values on a municipal heritage list or the wetland supports other known local heritage values.	†	†
37		The wetland or its immediate surrounds is identified on a national, State or local list or register for its Aboriginal cultural value. As indicated by PGV	H	H
38		The wetland is important to the local community for its natural values.	H	H
39		The wetland is or has the potential to be a site for public or private based recreation.	†	†
40		The wetland is the subject of a recognised ecological restoration / rehabilitation project by a community group, landowner or land manager that aims to improve the wetland's natural, heritage, cultural or social values.	H	H
		The wetland is likely to support heritage, cultural or social values; however, the values cannot be confirmed, or the values have been disturbed and are no longer as important or significant.	†	†
		The wetland did support heritage, cultural or social values; however, these have been significantly disturbed and are no longer important or the values have been removed. <b>No evidence therefore not scored</b>	L	†
<b>Scientific and educational</b>				
41	Representati veness	The wetland supports known important teaching or research characteristics and for this reason is an existing or potential education or research site.  Note: the wetland must still support the relevant teaching or research characteristics.  The wetland has the potential to be used as a study or research site.	H  †	H  †
42		The wetland supports known scientific, geoheritage or geoconservation values.	H	H

**Secondary evaluation criteria scores tally**

Attributes/functions/values	Strategen UFI – 13342 26.7ha			Area 4 0.5ha		
	H	I	L	H	I	L
Geomorphology				2		
Wetland processes					2	
Linkages					1	
Habitats					1	
Flora				2	2	
Fauna				2	1	1
Cultural						
Scientific and educational						
<b>Total score</b>				<b>6</b>	<b>7</b>	<b>1</b>
Defining attribute/functions /values	n/a			Fauna		
<b>Applicable management category</b>	<b>significantly different area</b>			<b>Resource Enhancement</b>		