Model Local Planning Policy

Horticultural development in Local Governments of the Peel-Harvey Coastal Plain Catchment

A model local planning policy to assist local governments:

- in the determination of proposals for new horticultural development
- support water quality improvement standards in new horticultural developments in the Peel-Harvey Coastal Plain Catchment and
- encourage sustainable, nutrient-wise horticultural development.

This is a model local planning policy designed for local governments of the Peel-Harvey Coastal Catchment Western Australia. The model local planning policy is not operative until it has been prepared and gazetted in accordance with the relevant local government's local planning scheme. It is envisaged that while each Local Government may customise this model policy to suit local conditions, its overall intent and purpose will remain the same.

Accordingly, the sections of this model policy that are highlighted in yellow are essential components and should be used 'as is' unless changes are required to ensure the policy is compatible with the local government's local planning scheme.

Version 3.0

10 February 2016

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Acronyms

DAFWA	Department of Agriculture and Food Western Australia
EPA	Environmental Protection Authority
EPP	Environmental Protection Policy
N	Nitrogen
NIMP	Nutrient and Irrigation Management Plan
P	Phosphorus
PDC	Peel Development Commission
SPP	State Planning Policy
WAPC	Western Australian Planning Commission
WQIP	Water Quality Improvement Plan (as for Peel-Harvey)

1. Introduction

The expansion of in-ground horticulture in Peel-Harvey Coastal Catchment Area (Coastal Catchment Area) provides special environmental and planning challenges for the Catchment and Peel-Harvey Estuary. Some types of horticulture can significantly increase the loads of nutrients, mainly phosphorus and nitrogen, entering groundwater, watercourses, wetlands, and the Peel-Harvey Estuary. Once in the environment, nutrients reduce water quality, cause algal blooms, change conditions for aquatic fauna and can lead to fish kills.

The Peel-Harvey Estuary is in a perilous state, and current levels of phosphorus entering the catchment's watercourses are double that which is estimated to return the estuarine system and lower rivers to a healthy state (EPA, 2008; Kelsey *et al*, 2011).

Future horticultural development of the Coastal Catchment Area needs to be aligned more closely to the capability of each area's landforms and soils. As shown in Table 1, development of many of the Coastal Catchment' soil-landscape systems for some types of horticulture poses a very high risk of nutrient export and water quality in Catchment rivers and the Peel Harvey Estuary.

Table 1, Table 2 (Appendix B) and regional-scale soil-landscape unit mapping prepared by DAFWA provide important information on the potential suitability of a proposal with respect to its nutrient export risk and risk to catchment water quality. They are key information resources supporting the implementation of this Policy.

Of all types of production, in-ground horticultural production systems (e.g. vegetable gardens, turf farms) pose the greatest risk to catchment water quality. This is due to the high amount of nutrients that horticultural crops require, the poor nutrient holding characteristics of many of the catchment's soils, high groundwater tables and the intensive drainage system on the Coastal Catchment Area.

A significant challenge is therefore to shift future production from in-ground systems to closed hydroponic systems, particularly for vegetable growing. Other solutions and technical advances to reduce nutrient export may also play a part for other production systems, but as yet have not been demonstrated to reduce nutrient export levels to those required to meet catchment water quality improvement targets.

This policy provides guidance for best practice land management for horticulture to ensure further degradation of the (insert local government name) waterways is minimised.

2. Statutory and policy basis

This local planning policy has been prepared and adopted in accordance with clause xxx of the City/Shire of xxx Local Planning Scheme.

This policy is consistent with and supported by the following environmental and planning instruments:

- Environmental Protection Authority's Environmental Protection (Peel Inlet-Harvey Estuary) Policy 1992
- State Planning Policy 2 Environment and Natural Resources
- State Planning Policy 2.1 Peel-Harvey Coastal Plain Catchment (under review)
- State Planning Policy 2.5 Land Use Planning in Rural Areas
- Peel Region Scheme Strategic Agricultural Resource Policy (under review)

- Greater Bunbury Region Scheme Strategic Agricultural Resource Policy

This policy should be read in conjunction with the abovementioned policies.

The policy is technically underpinned by:

- Water Quality Improvement Plan for the Rivers and Estuary of the Peel-Harvey System – Phosphorus Management (EPA, 2008)
- Hydrological and nutrient modelling of the Peel-Harvey catchment (Kelsey *et al,* 2011)
- Landscape-soil unit mapping and land capability assessment prepared by the Department of Agriculture and Food WA (e.g. Van Gool, 1990).

3. Purpose of Policy

This policy aims to encourage innovative and sustainable horticultural production in the (insert local government name) and prevent development in inappropriate locations so as to protect the water quality of the Peel-Harvey Estuary and its Catchment Area. It fulfils this purpose by providing:

3.1 Information on nutrient export risk, land suitability and Catchment Water Quality Improvement Standards to inform the assessment of planning proposals;

3.2 Guidance on the investigations and information required to support strategic and statutory planning proposals; and

3.3 Guidance to ensure strategic and statutory planning decisions do not compromise existing and potential future horticultural use of high capability rural lands.

4. Application of the Policy

The policy applies to:

- all proposals for new horticulture within the (insert local government name). This includes proposals in areas within the Peel-Harvey Coastal Plain Catchment as gazetted in State Planning Policy 2.1 and as shown in Figure 1.

- proposed changes/upgrades to horticultural operations where the proposed change/upgrade constitutes development under the Scheme or will likely result in increased nutrient export above which the development was originally approved and

- all proposals that may compromise existing or potential future horticultural areas where relatively high capability soils are located.

The policy does not apply to upgrades to an existing horticultural operation in relation to the irrigation, fertilisation or production system which would result in a reduction in nutrient application and/or export (and no other development is proposed as part of the upgrade).

5. Policy objectives

The objectives of this policy are:

5.1 To ensure new horticultural enterprises pose a low risk to catchment water quality and are able to meet or improve catchment standards for water quality improvement.

5.2 To encourage new types of horticultural enterprises to the Policy Area which are compatible with Catchment Water Quality Improvement Standards.

5.3 To encourage high-standards in horticultural management practices in all parts of the local government area.

5.4 To ensure strategic and statutory proposals do not compromise existing well-managed horticultural developments, or compromise potential future horticultural development of relatively high capability areas.

6. Interpretations

Bushland	Land on which there is vegetation which is either a remainder of the natural vegetation of the land, or, if altered, is still representative of the structure and floristics of the natural vegetation, and provides the necessary habitat for native fauna (EPA, 2008b).
Catchment	Is the area around the wetland or waterway that contributes surface run-off or groundwater to the wetland or waterway.
Catchment Water Quality	The quality of water in ground and surface waters of the Peel-Harvey Coastal Catchment (Figure 1) including drains, creeks, wetlands, rivers and estuarine areas. Water quality parameters include levels of phosphorus, nitrogen, organics, salinity, acidity and total suspended solids.
Catchment Water Quality Improvement Standards	The threshold levels of nutrients applied to land, or exported from land, as set in Appendix A of this policy.
Closed system (as in closed system hydroponics)	Hydroponics system in which the nutrient solution is recirculated and the nutrient concentrations are monitored and adjusted accordingly. There is zero or minimal discharge of the solution or water to the environment.
Coastal Catchment Area	Same meaning as for **Peel-Harvey Coastal Catchment**
Horticulture or 'agriculture – intensive'	Has the same meaning as 'agriculture – intensive' in the Model Scheme Text, that being premises used for trade or commercial purposes, including outbuildings and earthworks, associated with the following — a.) the production of grapes, vegetables, flowers, exotic or native plants, or fruit or nuts; b.) the establishment and operation of plant or fruit nurseries; c.) the development of land for irrigated fodder production; d.) irrigated pasture (including turf farms); or e.) aquaculture.
Hydroponics	The process of growing plants using mineral nutrient solutions, without soil. Although hydroponic systems do not involve soil, they may involve a wide variety of growing media, such as perlite, gravel, peat, sand, rockwool and other.
In-ground horticulture	Horticulture where the crop is grown directly into in-situ soils and landforms, whether the soils have been amended or not.
Land capability	Land capability refers to the ability of land to support a type of land use without causing damage.
Land suitability	Takes **land capability** information and other information (such as rainfall, environmental sensitivity) and looks at the overall suitability of a piece of land to accommodate a particular kind of development. It is useful for site selection and can also underpin the manner in which a particular type of development is carried out, so that the environmental limitations or constraints are fully recognised (EPA 2008b).
Nutrient Export	An assessment of the nutrient export risk posed by a proposal on a specific site and

Risk Assessment	production area. It should be carried out by a suitably qualified expert and able to be independently verified. See Section 9.2 of this local planning policy.
Peel-Harvey Coastal Catchment	The catchment area defined in State Planning Policy 2.1 Peel-Harvey Coastal Plain Catchment
Production area	The area under crop production (excluding non-production areas on the Lot or Site)
Site	The lot or lots on which the production area is located.
Site Management Plan	The plan prepared by the proponent to document how the production area and site will be managed over the lifespan of the operation to reduce nutrient export and manage all aspects of the operation in relation to the natural environment, pollution risk, visual landscape and maintenance of the amenity to neighbouring properties. A checklist to guide preparation of a Site Management Plan is included in Appendix E.
Soil-landscape systems of the Peel-Harvey Coastal Catchment	Forrestfield System, Pinjarra System, Bassendean System, Vasse System, Spearwood System and Quindalup System
Viticulture or vines	The growing of grapes for wine; or growing of low yield olives.
Watercourse	A river, stream, creek or manmade drainage features in which water flows in a channel, whether permanently or intermittently (EPA, 2008b).
Wetland	Areas of seasonally, intermittently or permanently waterlogged soils or inundated land, whether natural or artificial, fresh or saline (EPA, 2008b)

7. Policy provisions

Horticultural proposals

In determining or providing advice on strategic or statutory horticultural planning proposals, the following provisions shall apply:

7.1 Proposals for horticulture should pose a low risk to Catchment Water Quality, the environment and land resources and aim to achieve the Catchment Water Quality Improvement Standards as set out in Appendix A.

7.2 All proposals for horticulture should be accompanied by a Site Management Plan. Guidance on preparation of a Site Management Plan is included in Section 9 and Appendix E.

7.3 Proponents should be encouraged, at any opportunity, to move towards closed production systems, such as closed hydroponics, where such systems are available for particular crops.

7.4 All proposals for nurseries (potted plants)[1] and closed systems (e.g. closed system hydroponics) should be accompanied by a Site Management Plan sufficiently detailed to ensure that the proposal will pose a low risk to catchment water quality and other environmental values and be well managed. Section 9 and Appendix E provide a guide for preparation of Site Management Plans.

7.5 All proposals for annual and perennial horticulture and viticulture in the Coastal Catchment Area which are located on Soil-landscape mapping units which are not potentially suitable for the proposed type of horticulture (Appendix B) should be accompanied by a Site Management Plan which reduces nutrient export risks to achieve Catchment Water Quality Improvement Standards, and includes:

a. Site-specific soil testing
b. Site-specific land capability assessment
c. Nutrient Export Risk Assessment.
d. All other details listed in Appendix E, including measures to reduce risk of nutrient export.

7.6 Outside of the Coastal Catchment Area, where a risk is posed to Catchment Water Quality or other environmental values, the local government may on the advice of the Department of Agriculture and Food WA or other relevant state agencies, require proponents to provide site specific soil testing and land capacity assessment and a Nutrient Export Risk Assessment as part of the Site Management Plan.

7.7 Unless otherwise demonstrated through site specific studies as described in Provision 7.7, the (insert local government name) shall consider a proposal likely to pose a significant risk to catchment water quality and likely to be substantially at variance with the objectives and provisions of SPP2.1 and the Peel-Harvey EPP where the site's soil-landscape unit(s) is not potentially suitable for the proposed annual or perennial horticulture or viticulture as denoted in Table 2, Column 5.

7.8 Where on-site soil-landscape conditions vary from the mapped land units shown in Regional-scale soil-landscape unit mapping prepared by DAFWA, then this may be demonstrated

[1] Not including seedling nurseries or retail nurseries.

through site-specific soil testing and site-specific land capability assessment for the proposed type of horticultural land use. This site-specific testing and assessment shall be included in the Site Management Plan, carried out by an appropriately qualified expert and supported by Department of Agriculture and Food WA. The standards of soil testing and land capability assessment should be generally in accordance with Appendix C, or as otherwise advised by DAFWA.

7.9 Based on all available evidence, proposals which pose a significant risk to catchment water quality and are very likely to be substantially at variance with the objectives and provisions of SPP2.1 and the Peel-Harvey EPP should be refused, even in a modified form, with reasons given. Available evidence includes Table 2, Site Management Plan including site specific soil testing and land capability assessment and the advice of DAFWA and other relevant agencies.

7.10 The local government shall give due regard to the 'Other Considerations' listed in Appendix D and any other relevant matters, when assessing all proposals for horticulture.

Special procedural considerations (Provisions 7.10 to 7.12 may be included in the Policy provisions, or in a separate procedures document).

7.11 Consideration shall be given to the advice of the relevant government departments, including the Department of Agriculture and Food and Department of Water, when making determinations or providing advice or recommendations on horticultural proposals. For example, such advice may include the:

a. Adequacy of soil testing regimes;
b. Review of results and analysis of soil testing and other site testing;
c. Likely implications of the proposal on Catchment Water Quality;
d. The level of risk posed by the proposal to Catchment Water Quality; and
e. Assessment of groundwater availability to the site.

7.12 When determining proposals, the local government may give consideration to imposing conditions, among others, so as to minimise the ongoing risk that the development may pose to catchment water quality, such as:

a. Placing a finite time limit on the Development Approval;
b. Conditioning the ongoing operation of the development on the results of surface and groundwater monitoring.
c. Conditioning the ongoing operation of the development on the implementation of contingency measures, as triggered by the results of surface and groundwater monitoring.

7.13 Where an approval or conditional approval is issued, Council should advise the proponent that a further separate approval is required for any proposed changes to the operation of the horticultural development that would increase the risk of nutrient export (from that which was approved).

All proposals

7.14 All strategic and statutory proposals should give due regard to the impact on existing horticultural enterprises, and should aim to protect potential future horticultural areas with relatively high capability soils.

7.15 Following a review of any relevant technical information or advice provided by a State government agency, where a proposal is likely to compromise the buffer requirements of an established horticultural operation then there should be a presumption against approval of the proposal unless the proponent can satisfactorily demonstrate that the proposal is compatible with the horticultural operation.

7.16 Due regard shall be given to accepted buffer requirements set by government, including:

i. Guidelines for Separation of Agricultural and Residential Land Uses (Department of Health, 2012);

ii. Protection of buffer areas as set out in the Peel Region Scheme Strategic Agricultural Resource Policy and Greater Bunbury Region Scheme Strategic Agricultural Resource Policy.

7.17 In accordance with State Planning Policy 2.5 Land Use Planning in Rural Areas (as amended), where a proposal is likely to compromise the future potential development of rural zoned lands having soils of a relatively high capability for horticultural use, then the local government should aim to protect the potential future use of the land for horticulture or other productive agriculture.

8. Indicative risk of horticultural proposals to catchment water quality and soil resources

Table 1 presents the indicative potential suitability of various general types of horticulture on the major soil-landscape systems of the Peel-Harvey Coastal Catchment. More specific advice, applicable to individual land units, is provided in Table 2 (Appendix B). The tables have been prepared with advice from the Department of Agriculture and Food. The codes used in the tables for each System and land unit (e.g. 213Fo for the Forrestfield System) are unique identifiers used in DAFWA land capability maps and databases.

Table 1: Indicative potential suitability of soil-landscape systems for horticulture, based on nutrient export risk and capability assessment

Soil-landscape systems	**Overall nutrient export risk**	**Suitability for horticulture**			
		Annual e.g. vegetable gardens, turf farms, flowers, seedling nurseries	**Perennial** .e.g. citrus, orchards, table grapes, other fruits and high yielding olives, retail nurseries	**Viticulture** - e.g. wine grapes ,low yield olives;	**Closed system horticulture** and nurseries (potted plants)[2]
The **Forrestfield System (213Fo**) consists of undulating foot slopes of the Darling Scarp on colluvium over granitic and sedimentary rocks in the eastern margin of the Swan Coastal Plain.	Moderate Very high along streams and poorly drained areas	Potentially suitable			
The **Pinjarra System (213Pj)** is a poorly-drained coastal plain on alluvium over sedimentary rocks.	Moderate on better drained sandy duplex soils; and deep loams and clays on river terraces.	Potentially suitable away from low lying areas and deep bleached sands. (Note: Many elevated areas within the Pinjarra System			Potentially suitable

[2] Where closed system hydroponics/glasshouse may be suitable, the management of discharge waters is important to ensure that the risk to groundwater and waterways remains low

Soil-landscape systems	Overall nutrient export risk	Suitability for horticulture			
		Annual e.g. vegetable gardens, turf farms, flowers, seedling nurseries	**Perennial** .e.g. citrus, orchards, table grapes, other fruits and high yielding olives, retail nurseries	**Viticulture** - e.g. wine grapes ,low yield olives;	**Closed system horticulture** and nurseries (potted plants)[2]
	Very high on deep bleached sands, and poorly drained soils	are associated with deep bleached Bassendean sands. These areas are generally not suitable due to very high nutrient export risk).			
The **Bassendean System (212Bs)** is sand dunes and sand plains with flats and swamps on sandy alluvium over sedimentary rocks.	Very high on deep bleached sands, very small areas of yellow sands with moderate risk.	Not suitable due to nutrient export risk			Potentially suitable
The **Vasse System (211Va)** is poorly drained estuarine flats and swampy depressions of the Swan Coastal Plain.	Very high	Not suitable due to risk of flooding (tidal), waterlogging and nutrient export risk			Not suitable due to risk of flooding (tidal)
The **Spearwood System (211Sp)** is sand dunes and plains on windblown sand and limestone over sedimentary rocks in the western edge of the Swan Coastal Plain.	Moderate on yellow/brown sands and duplex soils, Very high on deep bleached sands	Potentially suitable			Potentially suitable

Soil-landscape systems	Overall nutrient export risk	Suitability for horticulture			
		Annual e.g. vegetable gardens, turf farms, flowers, seedling nurseries	**Perennial** .e.g. citrus, orchards, table grapes, other fruits and high yielding olives, retail nurseries	**Viticulture** - e.g. wine grapes ,low yield olives;	**Closed system horticulture** and nurseries (potted plants)[2]
The **Quindalup System (2111Qu)** is coastal dunes with sand flats on wind-blown sand over sedimentary rocks on the western margin of the Swan Coastal Plain.	Moderate	Generally not suitable. May have native vegetation remnants. Risk of wind erosion also needs to be considered.			Not suitable due to wind exposure.

9. Information requirements

Proponents of horticultural proposals should consult the local government's planning department at the earliest possible stage to clarify information requirements and the assessment process for their specific proposal. This may include a pre-lodgement meeting with the local government to ensure all necessary information is provided.

Planning applications submitted to the local government on a Form 1 should generally be accompanied by a Site Management Plan and Nutrient Export Risk Assessment (where not already required on the Form 1). All proposals which exceed the phosphorus and/or nitrogen application rates in Appendix A must be accompanied by a Site Management Plan and Nutrient Export Risk Assessment.

9.1 Site Management Plan

The purpose of the Site Management Plan is to document how the production area and site will be established and managed over the lifespan of the operation to reduce nutrient export and manage all aspects of the operation in relation to the natural environment, pollution risk, visual landscape and neighbourhood amenity.

In doing so, the Site Management Plan should demonstrate ongoing compliance with:

- Catchment Water Quality Improvement Standards (Appendix A), and
- Other Considerations (Appendix D).

The Management Plan should be written so as to make clear the site operating procedures and policies. Compliance with the Site Management Plan, or components of the plan may be made a condition of Planning Approval.

The format and level of detail of the Management Plan should be commensurate with the level of nutrient export risk posed by the proposal, and the risk the proposal poses to natural resources, visual amenity or maintenance of neighbourhood amenity (e.g. noise, odours, chemical storage etc.).

Where appropriate, the Site Management Plan can be provided in the format of a Nutrient and Irrigation Management Plan, as potentially required by other decision-making authorities such as the Department of Water.

A checklist of matters that should be addressed in the Site Management Plan for a horticultural development is included in Appendix E.

9.2 Nutrient Export Risk Assessment

The purpose of the Nutrient Export Risk Assessment is to provide evidence to the local government (and experts advising the local government) that given the specific site conditions, production system and management practices, the proposal will likely pose a low risk to catchment water quality and other environmental values.

The level of detail to be provided in the risk assessment should be commensurate with the inherent risk posed by the type of production system and predominant landscape-soil units on the site. Where proposals are likely to pose a high risk to catchment water quality or other environmental value, quantitative nutrient budgets for phosphorus and nitrogen may be required in the Assessment.

The Assessment should draw upon details specific to the site and proposal (or refer to other sections of the Site Management Plan where information can be found):

a) Site conditions:
    a. Soil types and mapping of soil types
    b. Location of vegetation, watercourses and wetlands
    c. Depth to groundwater in winter
b) Site-specific land capability assessment for the proposed land use
c) Crop and cultivation details
d) Fertiliser regimes, nutrient content and distribution methods
e) An analysis of nutrient pathways on the site and areas of greatest risk.
f) Soil and water nutrient monitoring regimes
g) Contingency actions to be undertaken by proponent if monitoring reveals site is exporting unacceptable nutrient loads. (i.e. What management actions will the proponent undertake to ensure nutrient export is reduced to an acceptable amount).
h) Links to the strategies in the Site Management Plan that will reduce nutrient inputs, increase nutrient harvesting or reduce nutrient exports from the production area or the site.

Where on-site soil-landscape conditions vary from the mapped land units shown in Regional-scale soil-landscape unit mapping prepared by DAFWA, then this must be demonstrated through site-specific soil testing and site-specific land capability assessment for the proposed type of horticultural land use. The standards of soil testing and land capability assessment should be generally in accordance with Appendix C, or as otherwise advised by the Department of Agriculture and Food WA.

Where appropriate, the Nutrient Export Risk Assessment may be provided in the format of a Nutrient and Irrigation Management Plan (NIMP), such as in cases where a NIMP is required by other agencies such as the Department of Water.

All information and claims presented in the Assessment should be able to be independently verified by an expert in an appropriate field such as agronomy, agricultural science, environmental science, natural resource management or related area.

10. Figures

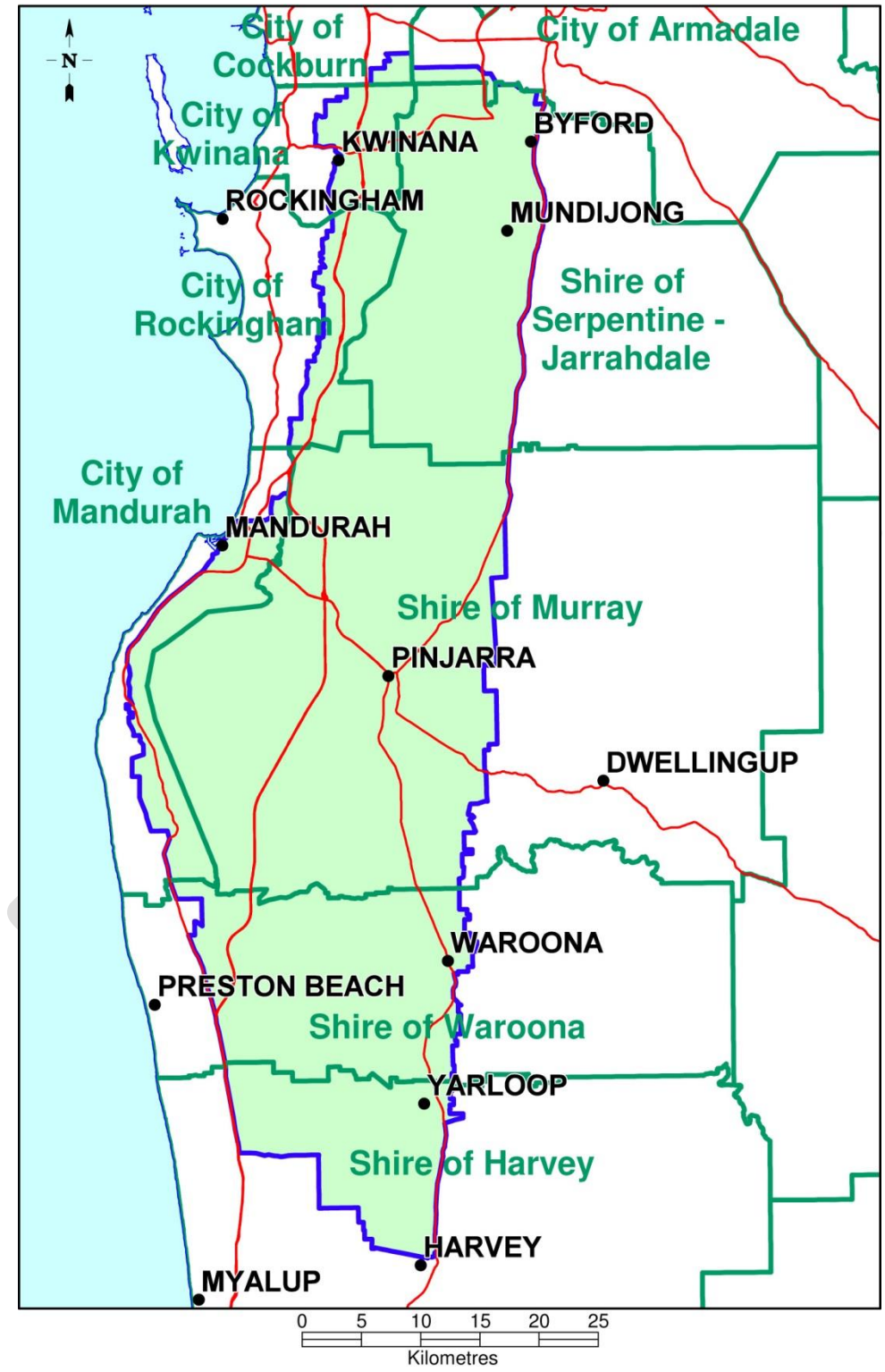

Figure 1: Peel-Harvey Coastal Catchment Area

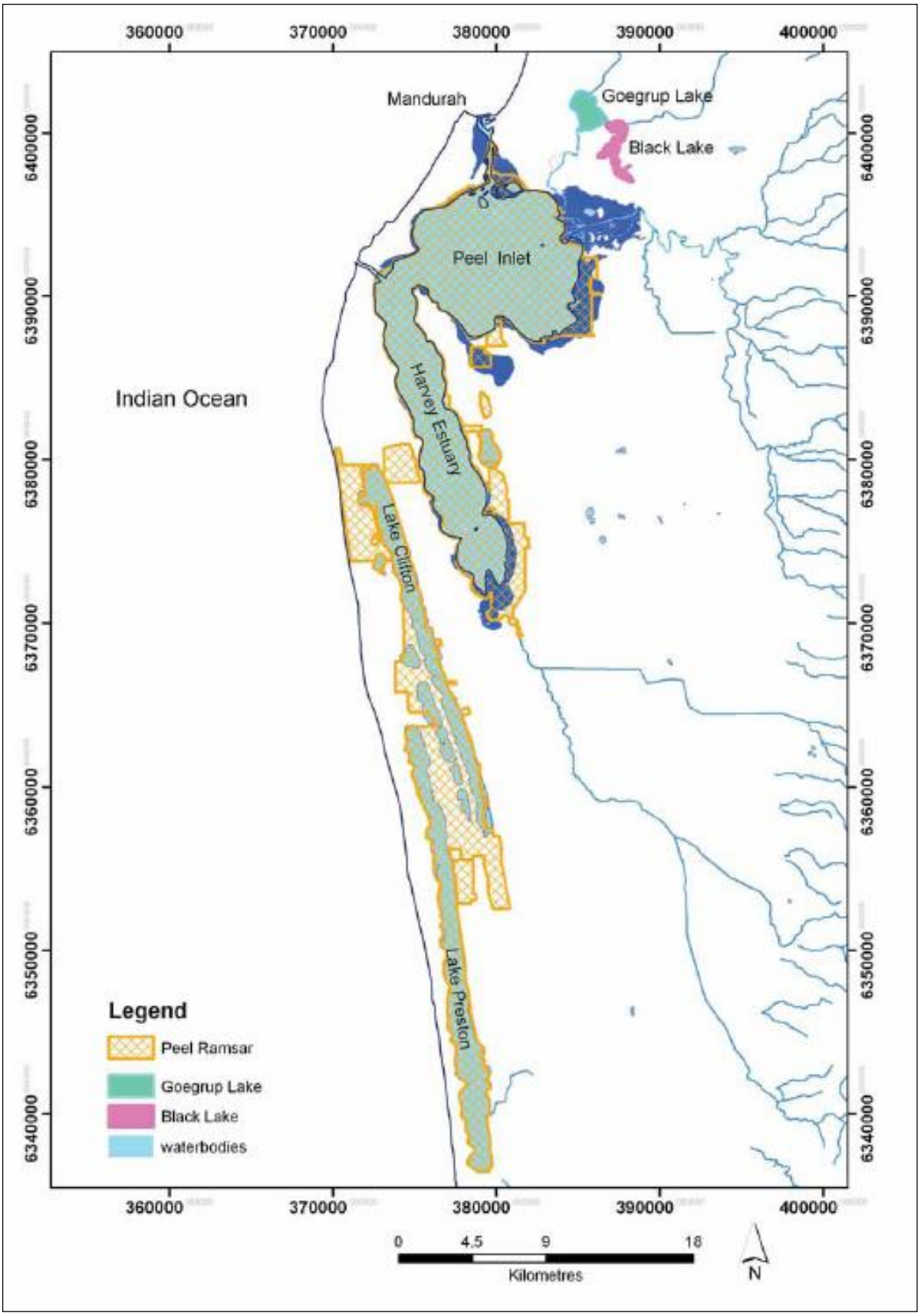

Figure 2: Peel-Yalgorup Ramsar System

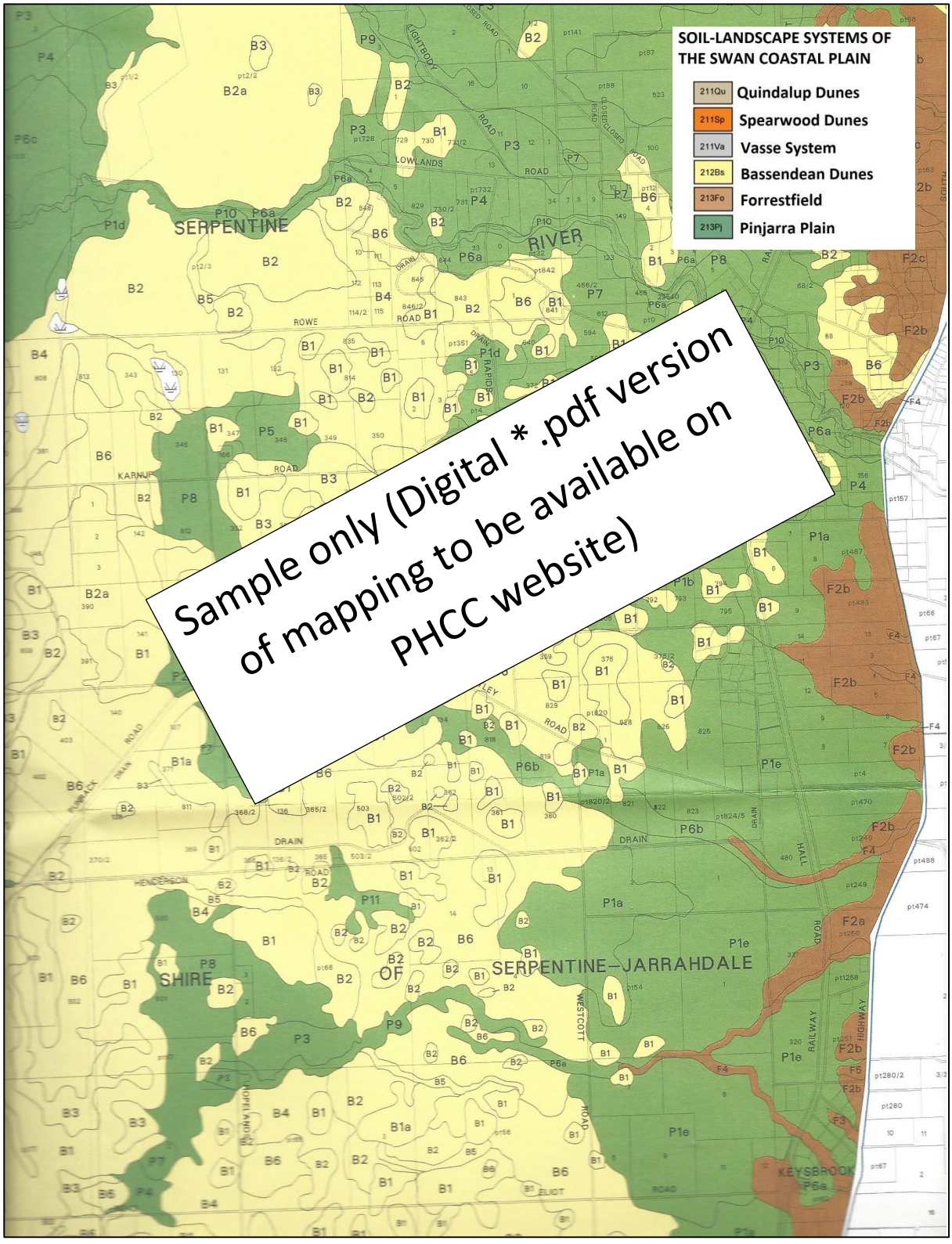

Figure 3: Land units of the (insert local government name) mapped by the Department of Agriculture and Food WA

A pdf version of Figure 3 is available from http://www.peel-harvey.org.au/

11. References

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