Appendix A: Suitability of soil-landscape mapping units for annual horticulture, perennial horticulture and viticulture

Table 1 provides advice from the Department of Primary Industries and Regional Development (DPIRD) on the potential suitability of mapped soil-landscape units in the (Insert local government name) for in-ground horticulture (Column 5). Mapping of soil-landscape units is available from (insert appropriate source for mapping).

The advice is based on two major assessments:

1. The phosphorus export hazard associated with the soil-landscape unit (Column 3); and
2. The land capability class rating of the soil-landscape unit for annual horticulture (A), perennial horticulture (P) and vines (V) (Column 4).

DPIRD defines land capability as the ability of the land to sustain a specific land use without undesirable onsite or off-site effects. The essence of land capability assessment is a comparison of the biophysical requirements for a particular land use with the biophysical attributes (or qualities) of the land (Wells and King 1989).

Land capability refers to the ability of land unit to support a type of land use without causing damage (Austin and Cocks, 1978).

The assessments follow the methodology described in van Gool, D, Tille, P J, and Moore, G A. (2005), Land evaluation standards for land resource mapping: assessing land qualities and determining land capability in south-western Australia. Department of Primary Industries and Regional Development, Western Australia, Perth. Report 298. Weblink https://library.dpird.wa.gov.au/rmtr/280/

Proportional land capability categories (Column 4) are denoted in Table 2 using the following symbols: A1 A2, B1, B2, C1 OR C2. These symbols represent the following:

A1 More than 70% of the unit has high capability land (class 1 and 2)

A2 50-69% of the unit has high capability land (class 1 and 2).

B1 More than 70% of the unit has moderate or high capability land (class 1, 2 or 3)

B2 50-69% of the unit has moderate or high capability land (class 1, 2 or 3)

C1 50-69% of the unit has low capability land (class 4 and 5)

C2 More than 70% of the unit has low capability land (class 4 and 5).

Note: Land capability ratings are designed for broad-scale map units in which the availability of water resources for irrigation and the proximity to waterways has not been considered. Any on-site assessment should consider this.

Table 1: Nutrient export risk and suitability for in-ground horticulture in different land units of the Peel-Harvey Coastal Catchment

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
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. Soils include duplex sandy gravels, pale deep sands and grey deep sandy duplexes. Native vegetation is jarrah-marri forest and woodland.							
213Fo__F1a	Forrestfield F1a phase	1-15% lower slopes with well drained shallow to moderately deep, very gravelly acidic yellow duplex soils and common laterite.	Yes	B2	B2	B2	Yes, APV
213Fo__F1b	Forrestfield F1b phase	1-15% lower slopes with well drained moderately deep to deep, gravelly acidic yellow duplex soils and rare laterite.	Yes	B1	B1	B1	Yes, APV
213Fo__F1c	Forrestfield F1c phase	1-15% lower slopes with well drained deep uniform yellowish brown sands which are generally free of laterite or gravel.	Yes	B1	A2	A2	Yes, APV
213Fo__F2a	Forrestfield F2a phase	Low slopes and foot slopes up to 5-10% with well drained shallow to moderately deep, very gravelly acidic yellow duplex soils and common laterite.	Yes	B1	B2	B2	Yes, APV
213Fo__F2b	Forrestfield F2b phase	Low slopes and foot slopes up to 5-10% with well drained moderately deep to deep, gravelly acidic yellow duplex soils and rare laterite.	Yes	B1	A2	A2	Yes, APV

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
213Fo__F2c	Forrestfield F2c phase	Low slopes and foot slopes up to 5-10% slopes with well drained deep uniform yellowish brown sands which are generally free of laterite or gravel.	Yes	B1	B1	B1	Yes, APV
213Fo__F3	Forrestfield F3 phase	1-3% foot slopes with deep, imperfectly drained yellow and, less commonly, acidic gley duplex soils.	Yes	B1	B2	B1	Yes, APV
213Fo__F4	Forrestfield F4 phase	Incised stream channels within gentle slopes with deep acidic yellow duplex soils and sandy alluvial gradational brown earths.	No	C1	C2	C2	No
213Fo__F5	Forrestfield F5 phase	Poorly defined stream channels on lowest slopes with deep acidic yellow duplex soils and sandy alluvial gradational brown earths.	No	C2	C2	C2	No
213Fo__Ff1	Forrestfield (D Range) F1 phase	Foot and low slopes < 10% with deep rapidly drained siliceous yellow brown sands, and pale or bleached sands with yellow-brown subsoil. Shrubland of unidentified species.	Yes	B1	A2	A1	Yes, APV
213Fo__Ff10	Forrestfield (D Range) F10 phase	Alluvial fans on lower slopes <5-10% with variable poorly drained soils.	No	C1	C1	C1	No
213Fo__Ff2	Forrestfield (D Range) F2 phase	Foot and low slopes < 10%.Well drained gravelly yellow or brown duplex soils with sandy topsoil. Woodland of Jarrah, Marri and some Bull Banksia.	Yes	B1	B1	B1	Yes, APV

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
213Fo__Ff3	Forrestfield (D Range) F3 phase	Foot and low slopes <10%. Well drained gravelly yellow or red duplex soils with sandy loam to loam topsoil. Woodland of Wandoo and Jarrah.	Yes	B1	A2	A2	Yes, APV
213Fo__Ff7	Forrestfield (D Range) F7 phase	Alluvial fans on slopes <5-10%.Variable, imperfectly drained soils comprising layers of sand, sandy loam, clay, grit and weathered granitic detritus. Low woodland of Marri, Candlestick and Bull Banksia and some Casuarina spp.	No	C1	C2	C1	No
213Fo__Ff9	Forrestfield (D Range) F9 phase	Seepage areas and non-incised drainage channels on foot slopes <3% with poorly drained bleached grey sands over an iron-organic hardpan.	No	B2	C2	B2	No
213FoW_SWAMP	Forrestfield wet, swamp phase	Swamp.	No	C2	C2	C2	No
213FoX_MINE	Forrestfield disturbed land, mine phase	Mine. Disturbed land.	No	C2	C2	C2	No
213FoX_URBAN	Forrestfield disturbed land, urban phase	Urban.	No	C2	C2	C2	No

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
The **Pinjarra System (213Pj)** consists of poorly drained coastal plains on alluvium over sedimentary rocks. Soils include semi-wet soils, grey deep sandy duplexes, brown loamy earths, pale sands and clays. Native vegetation is mainly jarrah-marri-wandoo-paperbark forest and woodland.							
213Pj__B1	Pinjarra, B1 phase	Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 m; banksia dominant.	No	B1	B1	B1	No
213Pj__B1a	Pinjarra, B1a phase	Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands with an intensely coloured yellow B horizon occurring within 1 m of the surface; marri and jarrah dominant.	Yes	B1	A2	A2	Yes, APV
213Pj__B2	Pinjarra, B2 phase	Flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2 metres.	No	B1	B1	B1	No
213Pj__B2a	Pinjarra, B2a phase	Flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with an intensely coloured yellow B horizon usually well within 1 m of the surface.	Yes	B1	A1	A1	Yes, APV

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
213Pj__B3	Pinjarra, B3 phase	Closed depressions and poorly defined stream channels with moderately deep, poorly to very poorly drained bleached sands with an iron-organic pan, or clay subsoil. Surfaces are dark grey sand or sandy loam.	No	C2	C2	C2	No
213Pj__B4	Pinjarra, B4 phase	Broad poorly drained sandplain with deep grey siliceous sands or bleached sands, underlain at depths generally greater than 1.5 m by clay or less frequently a strong iron-organic hardpan.	No	C2	C2	C2	No
213Pj__B6	Pinjarra, B6 phase	Sandplain and broad extremely low rises with imperfectly drained deep or very deep grey siliceous sands.	No	C2	C2	C2	No
213Pj__P1a	Pinjarra P1a phase	Flat to very gently undulating plain with deep acidic mottled yellow duplex (or effective duplex) soils. Shallow pale sand to sandy loam over clay; imperfect to poorly drained and generally not susceptible to salinity.	Yes	B2	C2	C1	Yes A
213Pj__P1b	Pinjarra P1b phase	Flat to very gently undulating plain with deep acidic mottled yellow duplex (or effective duplex) soils. Moderately deep pale sand to loamy sand over clay: imperfectly drained and moderately susceptible to salinity in limited areas.	Yes	B2	C2	B2	Yes A V

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
213Pj__P1c	Pinjarra P1c phase	Flat to very gently undulating plain with deep acidic mottled yellow duplex (or effective duplex) soils. Deep pale brown to yellowish sand to sandy loam over clay; imperfectly drained and moderately susceptible to salinity in limited areas.	Yes	B1	C2	B1	Yes A V
213Pj__P1d	Pinjarra P1d phase	Flat to very gently undulating plain with deep acidic mottled yellow duplex (or effective duplex) soils. Shallow pale sand to sandy loam over clay; imperfect to poorly drained and moderately susceptible to salinity.	Yes	C2	C2	C2	No Unless land capability constraints can be managed
213Pj__P1e	Pinjarra P1e phase	Flat to very gently undulating plain with deep acidic mottled yellow duplex (or effective duplex) soils. Shallow pale sand to sandy loam over very gravelly clay; moderately well drained.	Yes	B1	B2	B1	Yes APV
213Pj__P2	Pinjarra P2 phase	Flat to very gently undulating plain with deep alkaline mottled yellow duplex soils which generally consist of shallow pale sand to sandy loam over clay.	Yes	C2	C2	C2	No Unless land capability constraints can be managed
213Pj__P2a	Pinjarra P2a phase	Flat to very gently undulating plain with deep alkaline mottled yellow duplex soils which generally consist of shallow pale sand to sandy loam with a silcrete hardpan at 50-100 cm depth generally on top of an olive-grey clay.	No	C2	C2	C2	No

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
213Pj__P3	Pinjarra P3 phase	Flat to very gently undulating plain with deep, imperfect to poorly drained acidic gradational yellow or grey-brown earths and mottled yellow duplex soils, with loam to clay loam surface horizons.	Yes	C2	C2	C2	No Unless land capability constraints can be managed
213Pj__P4	Pinjarra P4 phase	Poorly drained flats, sometimes with gilgai microrelief and with moderately deep to deep black, olive grey and some yellowish brown cracking clays and less commonly non-cracking friable clays with generally acidic subsoils.	Yes	C2	C2	C2	No Unless land capability constraints can be managed
213Pj__P4a	Pinjarra P4a phase	Poorly drained flats. Cracking clays similar to P4 with a thin veneer of grey sand.	Yes	C2	C2	C2	No Unless land capability constraints can be managed
213Pj__P5	Pinjarra P5 phase	Poorly drained flats, commonly with gilgai microrelief and with deep black grey to olive-brown cracking clays with subsoils becoming alkaline.	Yes	C2	C2	C2	No Unless land capability constraints can be managed
213Pj__P5a	Pinjarra P5a phase	Poorly drained flats. Cracking clays similar to P5 with a thin veneer of grey sand.	Yes	C2	C2	C2	No Unless land capability constraints can be managed

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
213PjSWP6a	Pinjarra P6a phase	Very gently undulating alluvial terraces and low rises contiguous with the plain, with deep moderately well to well drained soils associated with major current river systems and larger streams. Acidic red and yellow duplex soils, less common.	Yes	A1	B1	A1	Yes APV
213PjSWP6b	Pinjarra P6b phase	Very gently undulating alluvial terraces and low rises contiguous with the plain, with deep moderately well to well drained soils associated with prior stream deposits. Soils are uniform brownish sands.	Yes	B1	A2	A1	Yes APV
213PjSWP6c	Pinjarra P6c phase	Very gently undulating alluvial terraces and fans. Moderate to moderately well drained uniform friable brown loams, or well-structured gradational brown earths.	Yes	A1	B1	A1	Yes APV
213Pj__P7	Pinjarra P7 phase	Seasonally inundated swamps and depressions with very poorly drained variable acidic mottled yellow and gley sandy duplex and effective duplex soils.	No	C2	C2	C2	No
213Pj__P7a	Pinjarra P7a phase	Seasonally inundated swamps and depressions with very poorly drained variable acidic mottled yellow and gley duplex soils becoming alkaline with depth.	No	C2	C2	C2	No

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
213Pj__P7b	Pinjarra P7b phase	Seasonally inundated swamps and depressions or seepage areas near the base of the foothills with very poorly drained deep bleached siliceous sands.	No	C2	C2	C2	No
213Pj__P8	Pinjarra P8 phase	Broad poorly drained flats and poorly defined stream channels with moderately deep to deep sands over mottled clays; acidic or less commonly alkaline gley and yellow duplex soils to uniform bleached or pale brown sands over clay.	Yes	C2	C2	C2	No Unless land capability constraints can be managed
213Pj__P9	Pinjarra P9 phase	Shallowly incised stream channels of minor creeks and rivers with deep acidic mottled yellow duplex soils.	No	C2	C2	C2	No
213Pj__P9a	Pinjarra P9a phase	Generally shallow incised stream channels of minor creeks and rivers with poorly drained deep mottled yellow duplex soils, becoming alkaline with depth.	No	C2	C2	C2	No
213PjSW2	Sw2 - Swan, brown alluvial loams	Low level, occasionally flooded, alluvial terraces with imperfectly drained variable alluvial soils with loamy surfaces.	No	C2	C2	C2	No
213PjSWP10	Pinjarra P10 phase	Gently undulating to flat terraces adjacent to major rivers, but below the general level of the plain, with deep well drained uniform brownish sands or loams subject to periodic flooding.	Yes	B2	A2	A2	Yes APV

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
213PjSWP10a	Pinjarra P10a phase	Flat terraces adjacent to major rivers with deep black cracking clays with alkaline subsoils; soils similar to P5.	No	C2	C2	C2	No
213Pj__P11	Pinjarra P11 phase	Shallow brown loamy soils or less commonly, very shallow sands over ironstone pavement which is a clear barrier to drainage.	Yes	C2	C2	C2	No Unless land capability constraints can be managed
213Pj__P11a	Pinjarra P11a phase	Shallow sand to sandy loam over lateritic material; imperfect to moderately well drained.	Yes	C1	C2	C1	No Unless land capability constraints can be managed
213PjW_CLAYPAN	CP - Claypans (Pinjarra)	Claypan.	No	C2	C2	C2	No
213PjW_LAKE	Pinjarra wet, lake phase	Lake.	No	C2	C2	C2	No
213PjW_RIVER	Pinjarra wet, river phase	River.	No	C2	C2	C2	No
213PjW_SWAMP	Sw - Swamp (Pinjarra)	Swamp.	No	C2	C2	C2	No

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
213PjX_MINE	Pinjarra disturbed land, mine phase	Mine. Disturbed land.	No	C2	C2	C2	No
The **Bassendean System (212Bs)** consists of sand dunes and sand plains with flats and swamps on sandy alluvium over sedimentary rocks. Soils include pale deep sand, semi-wet soil and wet soil. These soils have low fertility and are susceptible to leaching. In the Peel, these soils may become waterlogged because of high groundwater levels and may become flooded in some areas. Native vegetation is mainly banksia-paperbark woodlands and mixed heaths.							
212Bs__B1	Bassendean B1 phase	Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 m; banksia dominant.	No	B1	B1	B1	No
212Bs__B1a	Bassendean B1a phase	Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands with an intensely coloured yellow B horizon occurring within 1 m of the surface; marri and jarrah dominant.	Yes	B1	B1	B1	Yes, APV
212Bs__B2	Bassendean B2 phase	Flat to very gently undulating sandplain with well to moderately well drained deep bleached grey	No	B1	B1	B1	No

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
		sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2 metres.					
212Bs__B2a	Bassendean B2a phase	Flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with an intensely coloured yellow B horizon usually well within 1 m of the surface.	No	B1	A1	A1	No
212Bs__B3	Bassendean B3 phase	Closed depressions and poorly defined stream channels with moderately deep, poorly to very poorly drained bleached sands with an iron-organic pan, or clay subsoil. Surfaces are dark grey sand or sandy loam.	No	C2	C2	C2	No
212Bs__B4	Bassendean B4 phase	Broad poorly drained sandplain with deep grey siliceous sands or bleached sands, underlain at depths generally greater than 1.5 m by clay or less frequently a strong iron-organic hardpan.	No	C2	C2	C2	No
212Bs__B5	Bassendean B5 phase	Shallowly incised stream channels of minor creeks and rivers with deep grey siliceous sands or bleached sands, underlain at depths generally greater than 1.5 m by clay or less frequently a strong iron-organic hardpan.	No	C2	C2	C2	No

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
212Bs__B6	Bassendean B6 phase	Sandplain and broad extremely low rises with imperfectly drained deep or very deep grey siliceous sands.	No	C2	C2	C1	No
212BsW_LAKE	Bassendean wet, lake phase	Lake.	No	C2	C2	C2	No
212BsW_SWAMP	Sw - Swamp (Bassendean)	Swamp.	No	C2	C2	C2	No
The **Spearwood System (211Sp)** consist of sand dunes and plains on windblown sand and limestone over sedimentary rocks in the western edge of the Swan Coastal Plain. Soils include yellow deep sands, pale deep sands and yellow/brown shallow sands. Native vegetation includes tuart-marri forest and woodland in south changing to heath and open woodland in north.							
211Sp__S1a	Spearwood S1a phase	Dune ridges with shallow to moderately deep siliceous yellow-brown sands, very common limestone outcrop and slopes up to 15%.	No	C2	C2	C2	No
211Sp__S1b	Spearwood S1b phase	Dune ridges with deep siliceous yellow brown sands or pale sands with yellow-brown subsoil and slopes up to 15%.	Yes	B1	B1	A2	Yes, APV
211Sp__S1c	Spearwood S1c phase	Dune ridges with deep bleached grey sands with yellow-brown subsoils, and slopes up to 15%.	No	B1	B1	B1	No

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
211Sp__S1d	Spearwood S1d phase	Dune ridges with moderately deep to very deep siliceous yellow-brown sands, rare limestone outcrop and slopes 3-20% occurring on the eastern slipface.	No	C2	C2	C2	No
211Sp__S2a	Spearwood S2a phase	Lower slopes (1-5%) of dune ridge with moderately deep to deep siliceous yellow-brown sands or pale sands with yellow-brown subsoils and minor limestone outcrop.	Yes	B1	A1	A1	Yes, APV
211Sp__S2b	Spearwood S2b phase	Lower slopes (1-5%) of dune ridge with shallow to deep siliceous yellow-brown sands and common limestone outcrop.	Yes	B1	B1	A1	Yes, APV
211Sp__S2c	Spearwood S2c phase	Lower slopes (1-5%) of dune ridge with bleached or pale sands with a yellow-brown or pale brown subsoil (like S1c). Usually occurs on the eastern edge of the Spearwood Dunes.	Yes	B1	A1	A1	Yes, APV
211Sp__S3	Spearwood S3 phase	Inter-dunal swales and depressions with gently inclined side slopes and deep rapidly drained siliceous yellow-brown sands.	No	B1	A1	A1	No
211Sp__S4a	Spearwood S4a phase	Flat to gently undulating sandplain with deep, pale and sometimes bleached, sands with yellow-brown subsoils.	Yes	B1	A2	A1	Yes, APV

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
211Sp__S4b	Spearwood S4b phase	Flat to gently undulating sandplain with shallow to moderately deep siliceous yellow-brown and grey-brown sands with minor limestone outcrop.	Yes	B1	B1	A1	Yes, APV
211Sp__S4c	Spearwood S4c phase	Flat to gently undulating sandplain with deep, yellow-brown or dark brown siliceous sands that are seasonally inundated.	No	C2	C2	C2	No
211Sp__S6	Spearwood S6 phase	Flat stony plain with poorly drained shallow siliceous sands and large areas of bare limestone pavement.	Yes	C2	C2	C2	No
211SpW_LAKE	Spearwood wet, lake phase	Lake.	No	C2	C2	C2	No
211SpW_SWAMP	Spearwood wet, swamp phase	Swamp.	No	C2	C2	C2	No
211SpX_MINE	Spearwood disturbed land, mine phase	Mine. Disturbed land.	No	C2	C2	C2	No
The **Vasse System (211Va)** consists of poorly drained estuarine flats and swampy depressions of the Swan Coastal Plain. Soils include tidal flat soil, saline wet soil and pale deep sand. Native vegetation includes samphire, sedges and paperbark woodland.							

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
211Va__V1	Vasse V1 phase	Saline tidal flats composed of grey, black and brown foetid muds and humic sandy clays with locally common shell and limestone fragments.	No	C2	C2	C2	No
211Va__V2	Vasse V2 phase	Samphire covered sand and mud flats marginally higher than V1 and frequently inundated; with deep alkaline alluvial sands and clayey sands.	No	C2	C2	C2	No
211Va__V3	Vasse V3 phase	Sand flats marginally higher than V2. Frequently inundated; with deep alkaline alluvial sands and clayey sands, commonly supporting stands of Melaleuca spp.	No	C2	C2	C2	No
211Va__V4	Vasse V4 phase	Low level storm beach ridges and terraces with shallow to moderately deep uniform alkaline black sandy loams to loams overlying unconsolidated shell beds or clayey marl.	Yes	C1	C2	C2	No
211Va__V5	Vasse V5 phase	Upper level sandy terrace and gently undulating beach ridges with shallow to moderately deep grey siliceous sands overlying soft shelly limestone or shell beds.	Yes	B2	A2	A2	Yes, APV
211Va__V6	Vasse V6 phase	Upper level sandy terrace and gently undulating beach ridges with deep grey or bleached pale brown siliceous sands overlying soft shelly limestone.	No	C2	C2	C2	No

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
211Va__V6a	Vasse V6a phase	Gently undulating beach ridges similar to V6 but formed from reworked Pleistocene Bassendean sands. Deep bleached grey acidic siliceous sands with iron-organic hardpan.	No	C1	C2	C2	No
211Va__V7	Vasse V7 phase	Very broad shallow depression with deep, poorly drained, fine textured alkaline estuarine alluvium.	No	C2	C2	C2	No
211Va__V8	Vasse V8 phase	Flat poorly drained plains forming the margins of the estuarine deposits which border and partially overlie the Pinjarra Plain with variable, moderately deep to deep saline soils. Commonly, these are mottled yellow duplex soils.	No	C2	C2	C2	No
211Va__V9	Vasse V9 phase	Areas of former swamps which have been artificially drained, with uniform loamy or peaty sands.	No	C2	C2	C2	No
211VaW_LAKE	Vasse wet, lake phase	Lake.	No	C2	C2	C2	No
211VaW_SWAMP	Vasse wet, swamp phase	Swamp.	No	C2	C2	C2	No
The **Quindalup System (211Qu)** consists of coastal dunes with sand flats on wind-blown sand over sedimentary rocks on the western margin of the Swan Coastal Plain. Soils are mainly calcareous sands with native vegetation of mixed coastal scrub.							

Soil-landscape mapping unit			Less than 50% of the map unit classed as High, Very High or Extreme Phosphorus Export Hazard?	Proportional Land Capability Category for In-ground Horticulture			Is the map unit potentially suitable for in-ground horticulture? A=Annual P = Perennial V= Vines
Map Unit Symbol	**Map Unit Name**	**Map unit description**		Annual (A)	Perennial (P)	Vines (V)	
211Qu__Qf2	Quindalup South Qf2 phase	Relict foredunes and gently undulating beach ridge plain with deep uniform calcareous sands.	Yes	B1	B1	B1	Yes, APV
211Qu__Qp1	Quindalup South Qp1 phase	Complex of nested low relief parabolic dunes with moderate to steep slopes and uniform calcareous sands showing variable depths of surface darkening.	No	C1	C1	C1	No
The **Murray Valleys System** (255Mv) consists of deeply incised valleys of the western Darling Range. Soils are mainly red loamy earths, shallow duplexes and rock outcrop. Native vegetation includes jarrah-marri-wandoo forest and woodland with mixed shrublands.							
255MvDR1	Murray Valleys DR1 phase	Gentle to moderate slopes of scarp face (5-25%) with red and yellow gradational earths and duplex soils with variable depth and common rock outcrop.	No	C2	C2	C2	No
255MvDR2	Murray Valleys DR2 phase	Gentle to moderately inclined slopes (3-20%) with red and yellow gradational earths and duplex soils with variable depth and common rock outcrop.	No	C1	C1	C1	No
255MvDR3	Murray Valleys DR3 phase	Deeply incised tributary valleys with slopes (<30%). Red and yellow gradational earths and duplex soils with variable depth and common rock outcrop.	No	C2	C1	C1	No