

WW

WOY WOY



Landscape—level to gently undulating non-tidal sand flats and beach ridges on marine sands. Local relief <3 m; slopes <5%. Watertable at a depth of <200 cm. Extensively cleared low eucalypt woodland.

Soils—deep (>200 cm) Siliceous Sands (Uc1.22, Uc5.11) and occasional Podzols (Uc2.3) on well-drained older beach ridges, Humus Podzols (Uc4.22, Uc4.24, Uc2.21) in poorly drained areas.

Limitations—permanently high watertables, localised flooding, periodic waterlogging in depressions, very low to low soil fertility, localised areas of high soil erosion hazard.

Vegetation

Extensively cleared open-woodland with occasional scrub. Dominant native species include red bloodwood (*Eucalyptus gummifera*), blackbutt (*E. pilularis*), coastal banksia (*Banksia integrifolia*), old man banksia (*Banksia serrata*), wallum banksia (*Banksia aemula*), swamp mahogany (*E. robusta*), smooth-barked apple (*Angophora costata*). Broad-leaf paperbark (*Melaleuca quinquenervia*) and swamp oak (*Casuarina glauca*) occur in poorly drained areas. Common understorey species include bracken (*Pteridium esculentum*), blady grass (*Imperata cylindrica*) and burrawang (*Macrozamia communis*).

Land Use

Many areas have been developed for residential use including Woy Woy, Belmont and Swansea. Other areas are used for golf courses, caravan parks and airstrips, whilst some bushland remains (e.g., Rileys and Pelican Islands).

Existing Erosion

Little erosion occurs.

Included Soil Landscapes

Tuggerah (**tg**) soil landscape may be occasionally included within Woy Woy soil landscape. Belmont Swamp (**bs**) soil landscape occurs in swamps in the Woy Woy soil landscape.

SOILS

Dominant Soil Materials

ww1—Dark brown loose loamy sand. Dark brown coarse sand to sandy loam with loose apedal single-grained structure and sandy fabric. It occurs as topsoil (A_1 horizon).

Texture can increase to loam when organic matter is very high. Colour is brownish black (10YR 2/1) or dark brown (10YR 3/3), due to the presence of organic matter but can range to a dull yellowish brown (10YR 5/3). Surface condition is loose.

LOCATION

Non-tidal sand flats around Brisbane Water at Woy Woy, Empire Bay, Davistown, Saratoga and Pelican and Rileys Islands. Also occurs along the coast at Avoca and Copacabana, around the shores of Tuggerah Lake at North Entrance, Budgewoi and north-east of Toukley as well as at Swansea and Belmont in the north.

LANDSCAPE

Geology

Holocene sediments of predominantly coarse to fine quartz sand with shell fragments and occasionally silt.

Topography

Level to gently undulating non-tidal coastal sand flats. Local relief is <3 m. Elevation is <3 m, with slope gradients <5%. The watertable generally occurs within 200 cm of the surface. On the lakeward or seaward side of this soil landscape, the groundwater may be brackish and fluctuate with the tide. In some areas drainage canals have been excavated to improve drainage.

The pH ranges between moderately acid (pH 5.0) and neutral (pH 7.0) near saline or brackish water bodies. Occasionally shells and shell fragments are present. Roots are common, charcoal fragments are rare and stones are absent.

ww2—Grey loose sand. Grey bleached coarse sand with loose apedal single-grained structure and sandy fabric. It commonly occurs as shallow subsoil (A₂ horizon).

Colour ranges from brownish grey (10YR 4/1, 10YR 5/1) and dull yellowish brown (10YR 4/3) to dull yellow orange (10YR 7/4). Dry colours are often bleached. Pale brown or grey mottles are usually present. The pH ranges between moderately acid (pH 5.0) and slightly alkaline (pH 8.0). Roots and charcoal are rare and stones are absent, but there are occasional shell fragments.

ww3—Brown waterlogged loose sand. Brown coarse sand with apedal single-grained structure and sandy fabric. It usually occurs as deep subsoil (B horizon).

Common colours include dark brown (10YR 3/3), brown (7.5YR 4/4, 10YR 4/6, 10YR 5/6) and greyish yellow brown (10YR 4/2). Grey mottles are often present in this material where it is frequently waterlogged. The pH ranges between strongly acid (pH 4.0) and slightly acid (pH 6.0). Shell fragments are occasionally present, but roots, stones and charcoal fragments are absent.

Associated Soil Materials

Organic-rich sandy loam. An organic-rich sandy loam or peaty loam topsoil occurs as a topsoil in swampy areas.

tg3—Soft sandy pan. Black soft organic-stained sand to loamy sand with apedal massive structure and sandy fabric. It occasionally occurs as a subsoil (B horizon) on old beach ridges.

Occurrence and Relationships

Well-drained beach ridges and sandy rises. Generally 10–30 cm of dark brown loose loamy sand (**ww1**) overlies >150 cm of brown waterlogged loose sand (**ww3**). The total soil depth is >300 cm, and the boundary between the soil materials is clear to gradual [Siliceous Sands (Uc1.21, Uc5.11)]. On some of the larger and older beach ridges near Woy Woy, 10–30 cm of **ww1** overlies up to 200 cm of grey loose sand (**ww2**). **ww2** overlies soft sandy pan (**tg3**). **tg3** is underlain by **ww3** [Podzols (Uc2.3)].

Poorly drained swales and depressions. Generally 10–30 cm of **ww1** overlies <30 cm of **ww2** and >200 cm of **ww3**. Total soil depth is >300 cm. Boundaries between soil materials are clear [Humus Podzols (Uc4.22, Uc4.24, Uc2.21)]. The depth of the watertable is usually 50–150 cm. In swampy areas 30 cm of a dark brown black, organic-rich sandy loam or peaty loam topsoil overlies >100 cm of **ww3** [Acid Peats (O) and Humus Podzols (Uc4.22)].

LIMITATIONS TO DEVELOPMENT

Landscape Limitations

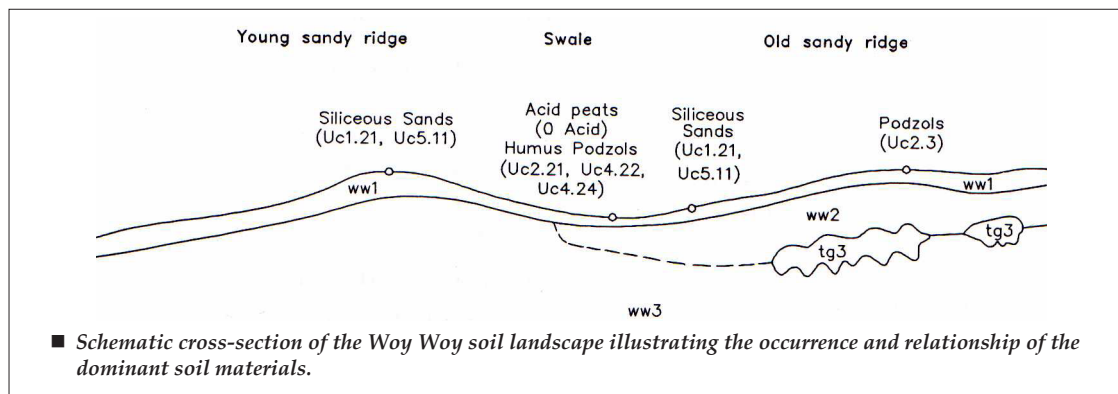
Flood hazard (localised)
Wind erosion hazard (localised)
Permanently high watertables
Waterlogging (localised)
Seasonal waterlogging
Non-cohesive soil
Foundation hazard (localised)
Mine subsidence district (localised)

Soil Limitations

ww1 Low available water-holding capacity
Very low fertility
High permeability
Low wet bearing strength
High erodibility
Sodicity

ww2 Low available water-holding capacity
Very low fertility
High permeability
Low wet bearing strength
Very high erodibility
Strong sodicity

ww3 Low available water-holding capacity
Low wet bearing strength
Very low fertility
High permeability
Strongly alkaline (localised)
Salinity (localised)
High erodibility
Strong sodicity



Fertility

Fertility of soil materials is very low. The soils of this soil landscape are moderately acid and highly permeable, sodic and have very low available water-holding capacities. They have very low nutrient status, with low phosphorus and very low CEC. High watertables are often present, and low lying areas are subject to waterlogging. Foreshore areas are often saline. General soil fertility is very low.

Erodibility

	K factor	Non-concentrated flows	Concentrated flows	Wind
ww1	0.005	very low	high	low
ww2	0.002	very low	very high	high
ww3	0.006	very low	high	high

Erosion Hazard

	Non-concentrated flows	Concentrated flows	Wind
grazing	slight	moderate	high
cultivation	slight	moderate	high
urban	slight	moderate	high

Foundation Hazard

The foundation hazard is low to moderate. The poorly sorted unconsolidated sands may require compaction, and shoring of foundations may be required. Limitations include fluctuating high watertables, soils with low wet bearing strength and localised organic soils. Localised swampy areas have high foundation hazard.

Urban Capability

Generally moderate limitations for urban development. Localised areas subject to flooding and poorly drained areas have high to severe limitations for urban development.

Rural Capability

High to severe limitations for cultivation and grazing.