



Landscape— level plain to hummocky terrain, extensively disturbed by human activity, including complete disturbance, removal or burial of soil. Local relief <10 m, slopes <30%. Landfill includes soil, rock, building and waste materials. Original vegetation completely cleared, replaced with turf or grassland.

Soil— turfed fill areas commonly capped with up to 40 cm of sandy loam or up to 60 cm of compacted clay over fill or waste materials.

Limitations— dependent on nature of fill material. Mass movement hazard, unconsolidated low wet strength materials, impermeable soil, poor drainage, localised very low fertility and toxic materials.

LOCATION

Previous swamps, estuaries and wetlands. Previously estuarine shores of Port Jackson, along the lower reaches of the harbour foreshores (Parramatta and Georges Rivers). Large areas also occur on previously swampy areas at Circular Quay, Darling Harbour, Camellia, Silverwater, and Bunnerong power station. Fresh water swamps at Brookvale, Mona Vale, and North Narrabeen have also been filled.

Cut and fill areas. Examples of cut-and-fill for site levelling include Enfield railway marshalling yards and Randwick racecourse. Disused quarries occur in locations such as Ashfield, Homebush and Terrey Hills. Rubbish disposal dumps are located at Frenchs Forest, North Turrumurra and Tempe. Areas levelled for heavy industry occur at Silverwater, Canterbury and Botany.

Numerous areas of disturbed terrain too small to represent at a scale of 1:100 000 are located throughout the Sydney Region.

LANDSCAPE

Geology

Artificial fill. Dredged estuarine sand and mud, demolition rubble, industrial and household waste. Also includes rocks and local soil materials.

Topography

Terrain disturbed by human activity. Local relief is usually <2 m, but occasionally up to 10 m. Most areas of disturbed ground have been levelled to slopes of <3%. In terraced cut and fill areas short rises may be steeper than 30%. Microtopography may be hummocky due to truck dumping of fill material.

Disturbed areas are often landscaped and artificially drained. Landform elements include berms, cut faces, embankments, mounds, pits and trenches.

Vegetation

This unit has been completely cleared. Disturbed terrain may be bare or covered with opportunist weeds such as cobbler's peg *Bidens pilosa*, purple top *Verbena bonariensis* and ribwort *Plantago lanceolata*. Most areas are eventually turned to grassland or lawn. Species typically include kikuyu *Pennisetum clandestinum*, couch *Cynodon dactylon* and paspalum *Paspalum dilatatum*.

Land use

Land use is varied and includes commercial and industrial complexes, sporting and recreational areas, quarries, and waste disposal sites. Commercial and business complexes are located at Circular Quay and Darling Harbour. Pyrmont, Glebe Island, Mortlake, Homebush, Silverwater, Camellia, Tempe, Regents Park and Artarmon have been developed for industry on this soil landscape. Many recreation areas are underlain by compacted waste in both wetland and disused quarry sites.

Former estuaries, swamps and lagoons at Bayview, Cammeray, Manly Vale, Rose Bay, Double Bay, The Spit and Hurstville Grove have been drained and filled for use as recreational areas.

Old quarries are located at Artarmon, Homebush, North Ryde, Tempe and Allawah.

Existing Erosion

Erosion varies markedly according to site characteristics including slope, aspect and exposure. In general, severe sheet and rill erosion often occur at quarries, gravel pits and places where unconsolidated or disturbed material remains without a protective cover of vegetation, asphalt or concrete.

SOILS

Dominant Soil Materials

xx1— Loose black sandy loam. This is black loamy sand to loam-fine-sandy with loose apedal single-grained structure and sandy fabric. It is used for topsoiling turf and often corresponds to the lowland Nepean River alluvium or Elderslie soil series of Walker (1960). Local sands have also been used for topdressing. This material occurs as topsoil (A1 horizon).

The material is brittle when dry and crumbly when moist. The colour ranges from a dark brown to black (10YR 3/3-10YR 2/1) or brown (10YR 4/6). It is often water repellent and a surface crust may be present. The pH ranges from moderately acid (pH 5.0) to neutral (pH 7.5). Roots are common to abundant when turfed and ironstone nodules are occasionally present.

xx2— Compacted mottled clay. This is a mottled, compacted sandy clay loam to medium clay with an apedal massive to moderately pedal structure. It generally has been compacted to form an impermeable isolating cap over potentially hazardous buried materials.

Peds when present are often platy and smooth-faced. Colour is highly variable and mottles are common. The pH is also variable, ranging from extremely acid (pH 3.5) to slightly alkaline (pH 8.0). Platy or concretionary ironstones are occasionally present and roots are absent.

xx3— Variable transported fill. This material is commonly referred to as fill and may consist of any type of soil or regolith material. It often includes demolition rubble and industrial and household wastes. Colour, texture, structure, fabric, degree of compaction, porosity and pH vary markedly.

xx4— Dark dredged muds and sands. This material consists of dark dredged sands, sandy loams to silty clay loams and sandy clays with apedal single-grained to massive structure and sandy fabric. This material occurs as subsoil.

Colour varies from black (10YR 2/1) to a yellowish-brown (2.5Y 5/2). Charcoal, shells or shell fragments are commonly present. This material swells, is highly saline and neutral (pH 7.0) to moderately alkaline (pH 9.0) when first dredged, but with drainage and oxidation the salinity levels drop and acidity may increase dramatically.

Occurrence and Relationships.

Soils have been disturbed to a depth of at least 100 cm. Most of the original soil has either been removed, buried or greatly disturbed. In quarries, bedrock is often exposed. In landfill areas combinations of transported earth, weathered rock, dredged estuarine sediments as well as industrial, building and household wastes occur. Most disturbed areas are eventually artificially topsoiled and revegetated or covered by buildings, concrete or bitumen.

The occurrence and relationship of soil materials is highly variable. Some observed examples are given below.

Landscaped Terrace. Where the dark sandy loam (**xx1**) occurs it is as a 10-15 cm deep topsoil overlying either 30-80 cm of compacted mottled clay (**xx2**) or several metres of variable transported fill (**xx3**) or dark dredged muds and sands (**xx4**). Multi-layered lenses of compacted **xx2** and **xx3** can occur. Total soil depth is several metres. Plant roots are often restricted to prepared topsoils.

Truck dumped hummocks. Several metres of unconsolidated hummocks of **xx3** overlie many metres of compacted multi-layered lenses of **xx3** and **xx4**. Near estuaries **xx3** and **xx4** are occasionally mixed together. Total soil depth is several metres.

Excavated areas. In excavated areas soil materials are usually absent.

LIMITATIONS TO DEVELOPMENT

Urban Capability

Capable of urban development with special restrictive conditions.

Rural Capability

Once grassed and stabilised this unit may be capable of being grazed, but is not capable of cultivation.

Landscape Limitations

Mass movement hazard (steep locations)

Seasonal waterlogging (localised)

Erosion hazard (localised)

Steep slopes (localised)

Non-cohesive soil (localised)

Rock outcrop (localised)

Soil Limitations

- xx1 Highly permeable
Low available water capacity
Hardsetting surface (localised)
Low fertility
- xx2 Low wet strength
Low fertility
Low available water capacity
Stoniness
- xx3 Unconsolidated materials
Low fertility
Highly toxic (localised)
High organic matter (localised)
Strongly acid or alkaline (localised)
- xx4 Unconsolidated materials (localised)
Saline
Sodic
Low available water capacity
Low fertility
Erodibility (localised)
Moderately alkaline
Acid sulfate potential

Fertility

The fertility of xx1 is inherently low, but this material is often fertilised. Other soil materials have very low fertility.

Erodibility

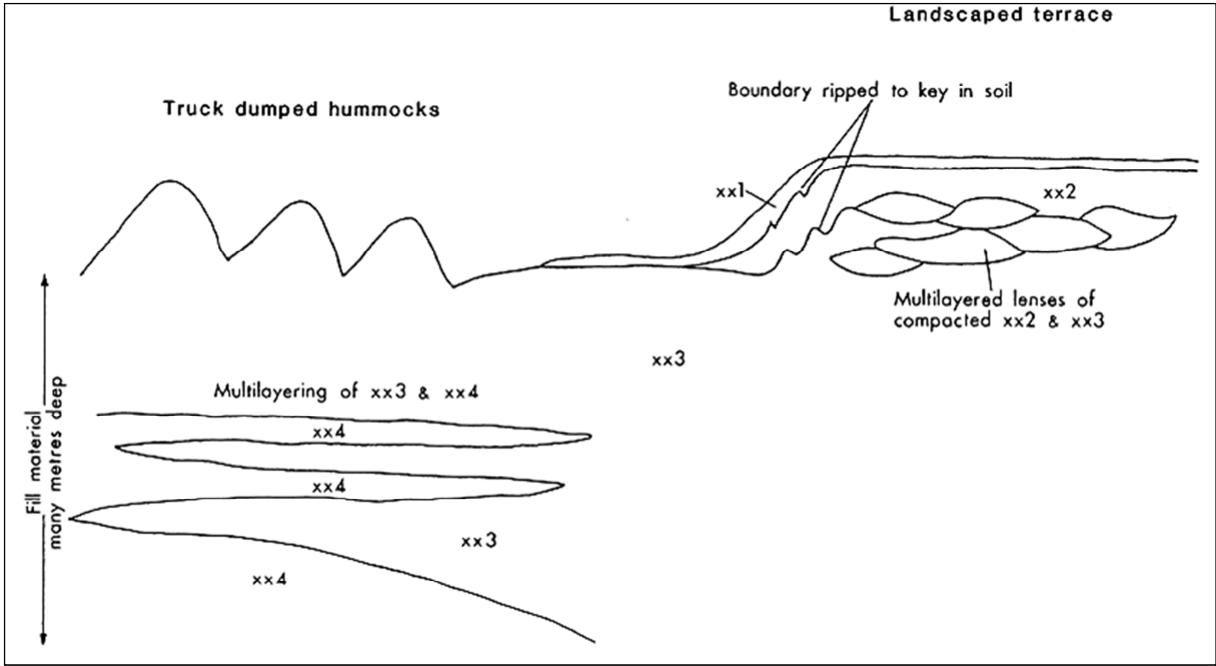
The erodibility of xx1 is low as it consists dominantly of well drained coarse sand grains. The erodibility of the other soil materials is highly variable. Unconsolidated materials are often extremely erodible.

Erosion hazard

Non-concentrated flows produce highly variable erosion hazard, ranging from low to extreme. Calculated soil loss for the first twelve months of urban development ranges up to 30 t/ha for topsoil. Subsoil losses have not been calculated as they are highly variable. Soil erosion from concentrated flows ranges from low to high.

Surface Movement Potential

Highly variable, depending on materials and degree of compaction.



Schematic cross-section of Disturbed Terrain soil landscape illustrating the occurrence and relationship of the dominant soil materials.