

On-site Wastewater Management Training Course


Site Assessment; Desktop Study

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Land Capability Assessment Site and Soil Assessment


Aim:

- To identify landscape and soil characteristics that are significant in the selection and location of an on-site wastewater management system

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Site and soil characteristics

- The site must have sufficient space for:
 - The treatment system
 - The land application system, and
 - Appropriate buffers
- The soil must be appropriate and of sufficient depth to accept and further treat the quantity and quality of effluent to be discharged

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Land capability

- Defines biogeophysical capacity of land to support a given land use
- Land suitability introduces an economic consideration
- Designs should aim to be both:
 - Sustainable
 - Affordable

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Land capability classification

- Groups soils into units according to their suitability for particular usage
- Often developed by State agencies for agriculture but commonly not available for on-site wastewater management suitability
- Can be developed for individual regions, catchments etc. using GIS

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Land capability assessment

- AS/NZS1547:2012 provides a simple guide to landscape and soil characteristics that should be considered in on-site wastewater investigations

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Stages of data collection

- Desktop study
- Site and soil check
- Soil description and profile assessment
- Calculations
- Collection of additional data
- Identify site and soil opportunities and constraints
- Selection of appropriate system

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Desktop study

- Collects preliminary data from readily available sources
- Provides an overview of opportunities and constraints
- Determines what information is relevant
- Identifies information gaps and what additional information is required

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Desktop study

Information sources:

- Satellite imagery www.earth.google.com
- Free to download and activate
- Image quality varies
- Provides information on location (latitude/longitude), elevation and has capacity for measurement of distance
- Images can be rotated for different views (Street View)

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Google Earth



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Topographic maps

Show:

- Landscape
- Contours
- Anthropogenic (human) features
- Cadastral boundaries
- Grid references
- 1:25,000 maps have 10 m contours

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Topographic maps

Can determine:

- Shape of land
- Drainage direction
- Water bodies and drainage lines
- Slope
- Relief (difference in elevation)
- Aspect (facing direction)

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Topographic maps



1:25,000 topographic map, Armidale, NSW (CMA)

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Maps and spatial information

- NSW www.nratlas.nsw.gov.au
- NSW www.six.maps.nsw.gov.au
- TAS www.mrt.tas.gov.au
- VIC www.dpi.vic.gov.au
- VIC www.land.vic.gov.au
- WA www2.landgate.wa.gov.au

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Geological maps

- Scanned 1:250,000 geological maps of much of Australia available from Geoscience Australia www.geoscience.gov.au

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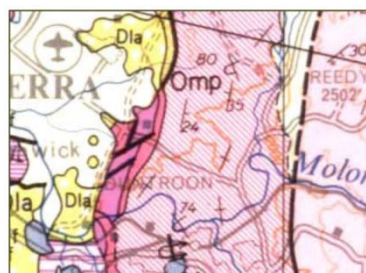
Geological maps

- Select location
- Choose resolution
- Relate landforms
- Solid geology
- Superficial deposits
 - Alluvium
 - Beach deposits
 - Colluvium



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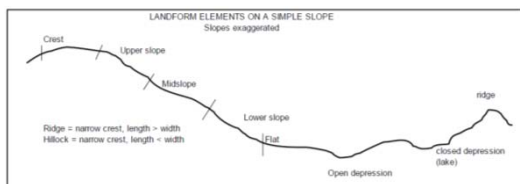
Geological map



Geology east of Canberra (Geoscience Australia)

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Landform elements



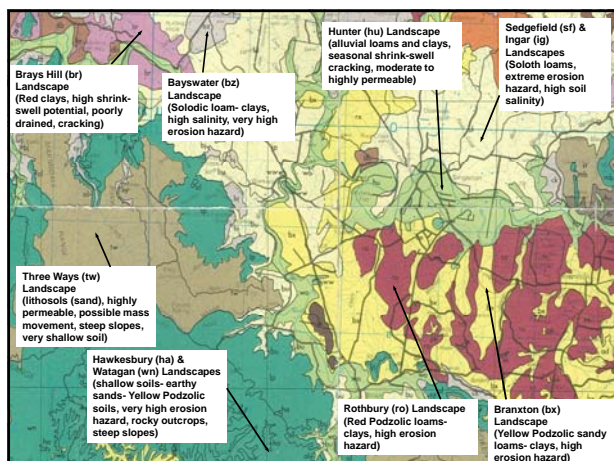
Landform elements on a simple slope

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Soil landscape maps

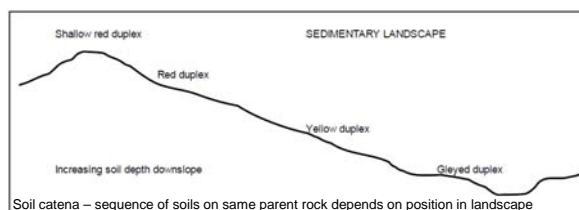
- Soil landscape maps of WA available from Dept Agriculture & Food www.agric.wa.gov.au/land-use-planning/maps-and-data

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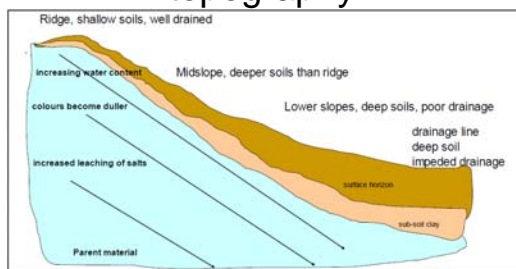
Soil landscape

- The soil landscape describes the pattern of soils in the landscape



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Soil properties and topography



Position in landscape significant in soil profile characteristics

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Climate data

- Bureau of Meteorology www.bom.gov.au
- Rainfall
- Evaporation
- SILO or Data Drill data available if no suitable or local station

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