



# Soil Surveying

## WHY DO YOU REQUIRE A SOIL SURVEY?

Soil is the forgotten fundamental building block of agriculture. Our soils govern the entire growth process from seedbed preparation, germination, root growth, nutrient utilization, plant growth, yield and quality.

Any development in agriculture should have an inventory of soil and land resources to provide data for:

- Assessing crop suitability.
- Assessing soil limitations, suitability and amelioration.
- Assessing salinity and sodicity.
- Designing the best irrigation system.
- Improving water use efficiency.

### Price Merrett Consulting P/L Offers:

- **Professional Service**  
PMC staff are professionally qualified and trained surveyors, engineers and irrigation designers.
- **Experience**  
PMC has provided quality service to the water and irrigation industry throughout South Eastern Australia for over 23 years.
- **Accreditation**  
PMC staff hold appropriate certification and accreditation.
- **Independence**  
PMC is not aligned with any contractors, suppliers or product line.
- **Technical Innovation**  
PMC continually invests in latest technology, hardware and software.

There is much general soil information available. However, most of this information is on a regional scale which means there is insufficient data for farm scale planning and management.

### Types of Soil Surveying

**General Purpose Surveys** – Land suitability and capability.

- Combinations of open pits, undisturbed cores and Electro Magnetic surveys are all useful techniques for rapid broad acre surveys.

**Special Purpose Surveys** – Provide very detailed soil descriptions including:

- Soil Types and Characteristics
- Limitations
- Suitability
- Amelioration
- Irrigation Management units
- Drainage requirements

**Engineering Investigations** – Special purposes

- Slaking and dispersion
- Plasticity index
- Shrinkage
- Permeability
- Unified soil classification

**Rice Soil Assessments** – Accredited for assessing soil suitability for rice growing. Reg. No: SA009028

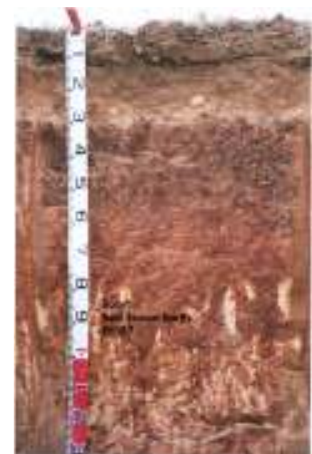
**Storage Assessments** – Special purposes

- Re-use systems
- Effluent ponds
- Storage dams

The Price Merrett Consulting Field Testing Rig can provide test bores to 6 metres, undisturbed cores to 1.5 metres, and soil moisture infiltration rate analysis, for cost effective surveying and sampling.



Solonetz



Red Brown Earth

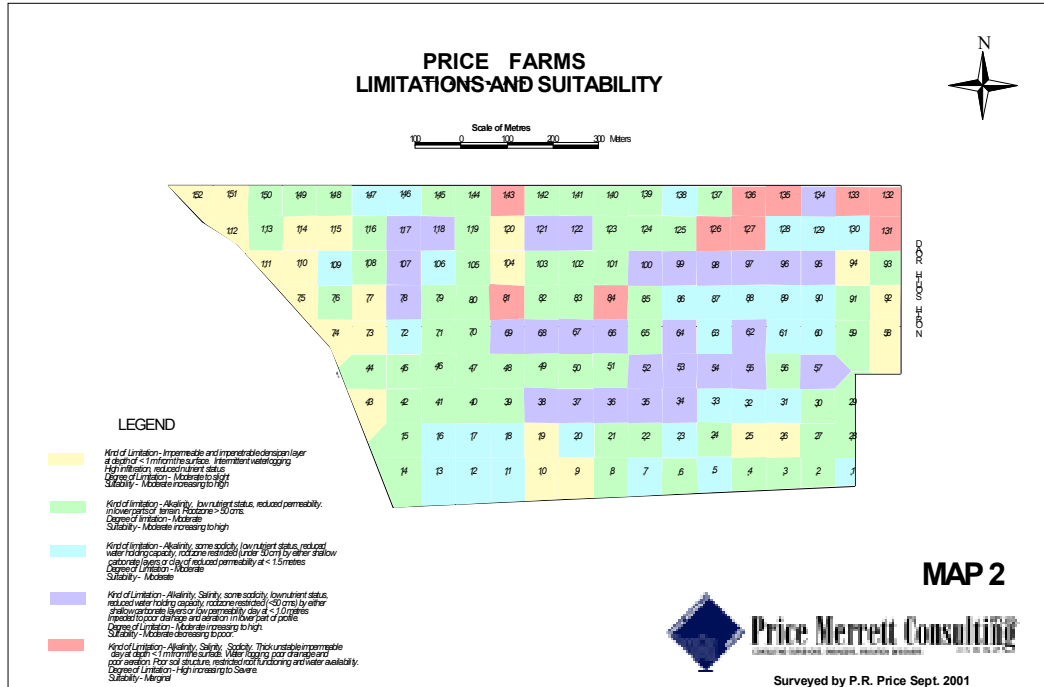


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# SOIL SURVEYING

## SOIL LIMITATION AND SUITABILITY PLAN



### WHY SOIL PITS

Price Merrett Consulting Pty. Ltd. requires that any land suitability soil survey must be based on an analysis of open soil pits. This is sometimes questioned by our clients who believe auger holes or undisturbed cores would be cheaper, however compare the following.

#### **Auger Holes :**

- Soil Type cannot be accurately determined
- Structure is destroyed
- No definition of layer depths
- No horizon descriptions – what sort of pan, is it cemented?
- Hand augering is too slow
- Mechanical augering still requires an experienced soil surveyor and equipment.
- Only good for chemical analysis of samples at various depths.

#### **Undisturbed Cores:**

- Soil type cannot be accurately determined
- Structure difficult to observe – you only see the micro structure
- Variability in Horizon depths not observed – could be 100% out in topsoil depth
- Continuity of pans cannot be observed
- Depth may be limited depending on soil type and moisture content.
- Requires relatively expensive equipment and still requires an experienced soil surveyor.

#### **Soil Pits:**

- Immediate soil type description
- True structure apparent
- Wavy horizons visible
- Type and continuity of hard pans visible
- Visual assessment of salinity and groundwater
- Pits can be excavated before the soil surveyor is on site (ideal in fact)



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