



Project: PROPOSED DAIRY/FEEDLOT, GOOLOONGONG
Assessment of Groundwater Impacts

Location: 'The Angle', Gooloogong, NSW
Client: Moxey Farms

Highlights

- Integrated groundwater resource assessment and aquifer protection evaluation
- Conjunctive use of geophysical survey, test-pit investigation, soil and groundwater drilling, and hydraulic testing.

Background

A proposal to develop a 2000-head dairy/feedlot operation included irrigation of treated dairy effluent onto pasture. This activity required preparation of an Environmental Impact Statement under the Environmental Planning and Assessment Act.

Moxey Farms engaged C. M. Jewell & Associates to undertake a comprehensive investigation of groundwater resources and groundwater vulnerability.

Hydrogeological Environment

Alluvial sediments overlie Paleozoic granite and sedimentary basement. The alluvial sediments are deposited in a former channel of the Lachlan River incised into palaeozoic bedrock. Parts of the 70-metre-thick alluvial sequence comprising sand and sandy gravel layers are highly productive for bore development.

Objectives and Scope

The objectives of the assessment were:

- to assess the potential of obtaining an industrial/standby irrigation water supply from a high yielding aquifer,
- to assess the potential for groundwater quality deterioration resulting from effluent irrigation, and
- to provide supporting information for design of engineering and management controls.

Implementation of investigation to meet these objectives included:

- desktop evaluation from existing information (stage 1),
- electromagnetic survey across most of the alluvial portion of the property,
- DC resistivity soundings,
- test pits, soil permeability testing and bulk sampling of sub-soil,
- installation of 8 logged shallow boreholes, plus permeability testing,
- a deep test bore for evaluating the groundwater resource, and
- an integrated analysis of all of the data generated in field investigations.