



Project: HOMEBUSH BAY / NEWINGTON
Stage 2 Soil and Groundwater Contamination Investigation

Location: Sydney, NSW

Client: Property Services Group (NSW) & Department of Defence

Highlights

- Stage 2 Investigation of the area north of Haslams Creek
- Stage 2 Investigation of RANAD Newington Site
- Large areas of uncontrolled landfill
- Soil and groundwater sampling, hydraulic testing
- Sediment sampling of creeks and wetlands
- Groundwater modelling
- Risk assessment
- Development of remedial strategies.

Background

The contract for the second stages of investigation of Homebush and the RAN armaments depot at Newington was awarded to CH2M HILL Australia in association with ICF (later AXIS). The site had been identified as the venue for a range of sporting facilities and the main athletes' village for the 2000 Olympic Games.

CH2M HILL commissioned C. M. Jewell & Associates to carry out a range of tasks related to the hydrogeological aspects of the study, including reviews of existing data, field program planning, hydrochemical logging and sampling, and report writing and review.

Hydrogeological Environment

Predominantly Triassic shales (Wianamatta Group), overlying tightly cemented sandstones (Hawkesbury Group). The shale is deeply lateritised and locally eroded. Where exposed, the sandstone is highly to extremely weathered. The project area borders the tidal Parramatta River and is bounded to the south by Haslams Creek; it incorporates a number of ecologically significant wetland areas. Intergranular groundwater flow occurs in the extensive fill areas, but in the underlying shale is localised predominantly in fracture zones, as matrix permeability is very low. Intergranular flow may occur in highly and extremely weathered sandstones.

Contaminants

- Pesticides: organochlorine pesticides
- Hydrocarbons: tar residues including PAH & MAH
- Heavy metals: arsenic, cadmium, chromium, copper, lead, zinc
- Others: asbestos, phenols, ammonia

Objectives and Scope

Following a review of existing data including historical aerial photography and the results of previous investigations, two phases of targeted sampling of soils, sediments, groundwater and surface waters were completed. A series of groundwater models were formulated, a full risk assessment carried out, and remediation strategies developed.

C. M. Jewell & Associates prepared:

- a series of working papers dealing with site and regional hydrogeology, leachate seepage, and contaminant transport and fate;
- the health and safety plan for the fieldwork;
- the sampling and analysis plan for the first phase of sampling;
- the QA/QC plan for the first phase of sampling;

and also:

- supervised a high-resolution magnetic (TM4) survey of the fill areas and EO survey of sample points;
- provided an overview of both phases of drilling and sampling;
- carried out the Phase 2 groundwater sampling;
- carried out in-situ hydrochemical borehole logging;
- provided input to and reviewed the groundwater modelling and remediation strategies reports; and
- wrote the core of the final Site Assessment Report.