→ Rod Towner
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Key Considerations for Pragmatic Erosion and Sediment Control at Landfill Sites

Welcome

Rod Towner

- Senior Water Resources Engineer
- Water Balance
- Water Legislation
- → Erosion and Sediment Control
- Management of Approvals, licencing and management plans
- Focus on Waste Management Sites

Observation

Criteria/basis for sediment management at landfill sites sometimes not clearly understood or defined.

→ Therefore, opportunity missed to practically and cost-effectively meet appropriate erosion and sediment control requirements. Particularly important for smaller regional sites.

Limitations

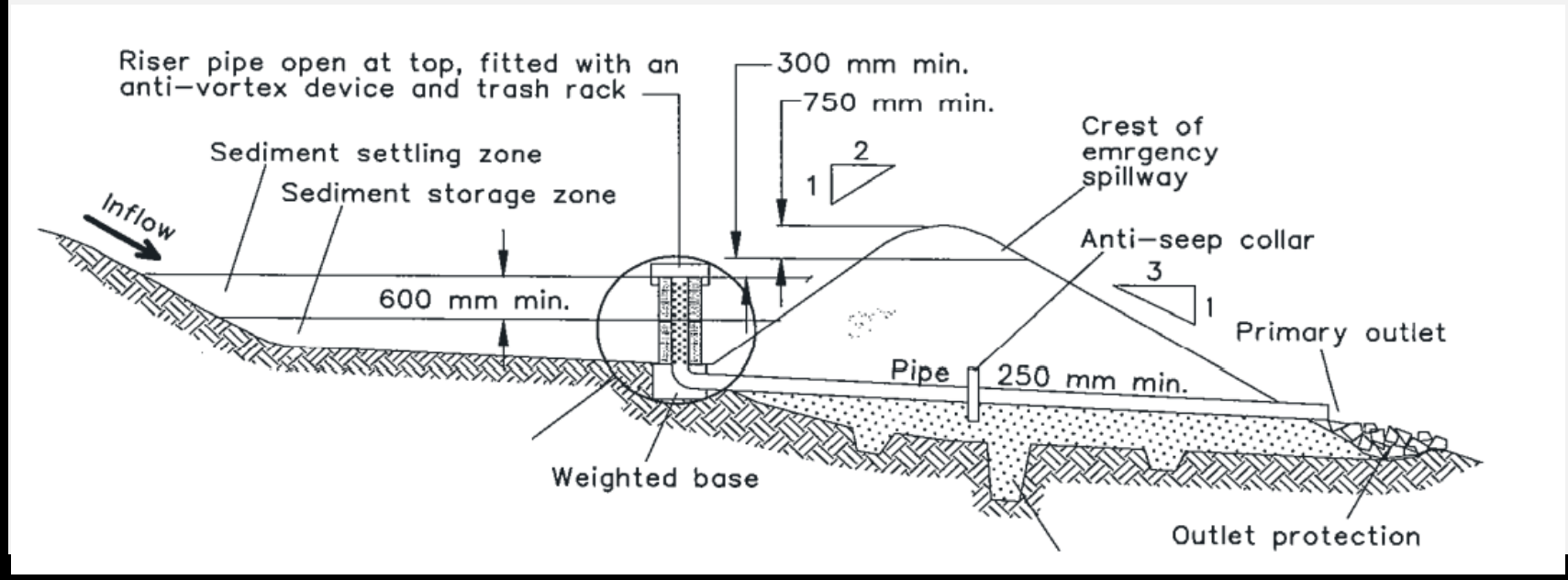
Not a comprehensive presentation of all relevant sediment management criteria

→ Rather, observational with relation to key criteria

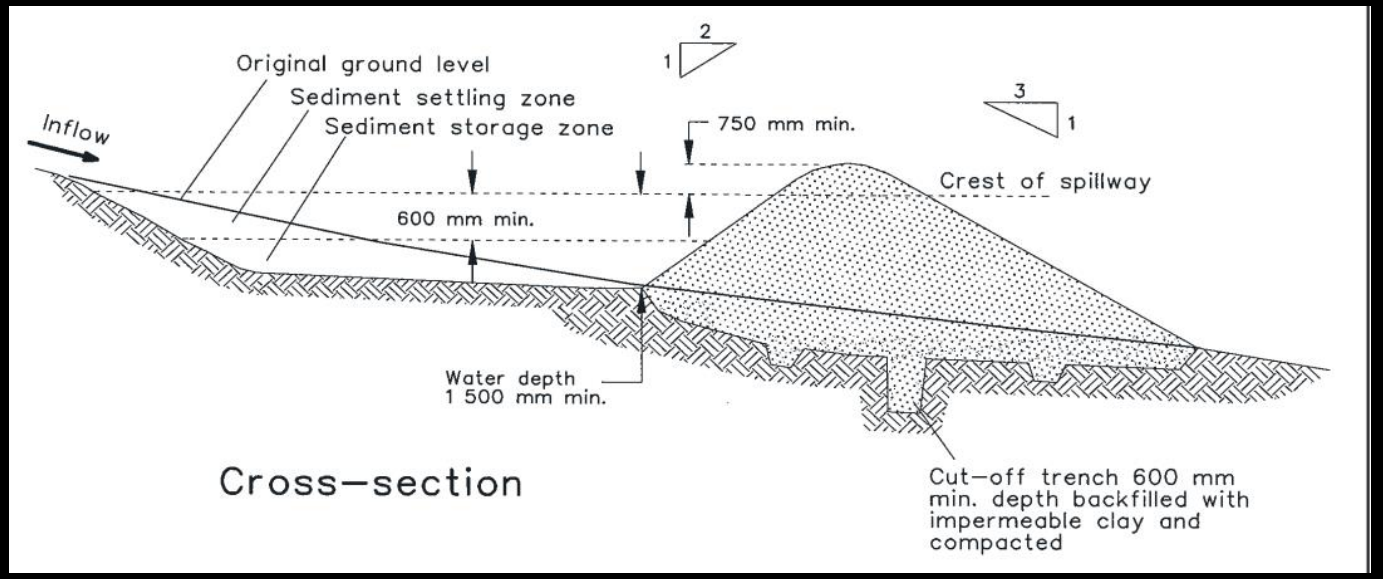
NSW focussed, implications for other regions

Background
→

Dry Basin



Wet Basin



Guidelines

Managing Urban Stormwater – Soils and Construction "The Blue Book"

Volume 1 – Focus on construction sites

Volume 2b – Specific for waste landfills

→ *Both referred to specifically in the NSW EPA Landfill Guidelines, many approval and consent conditions and reflected in numerous landfill EPLs*

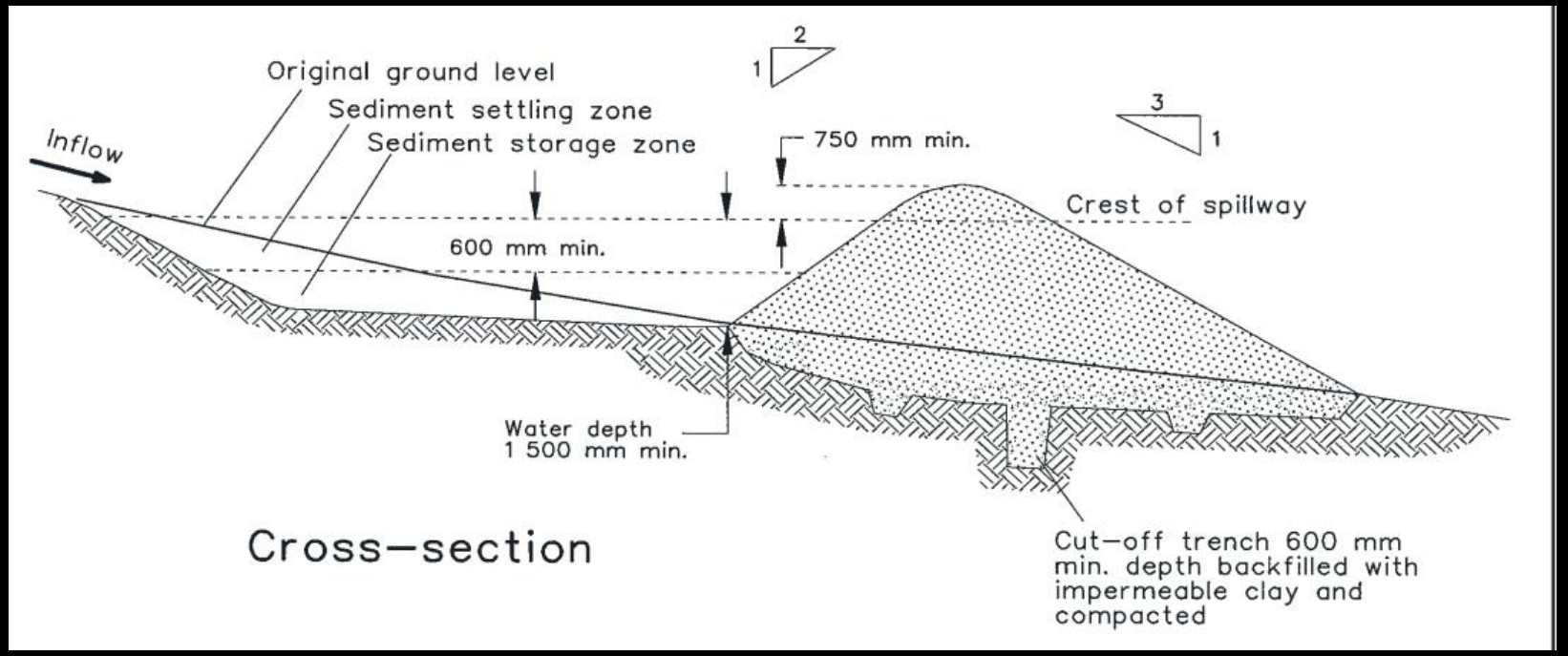
Vol 2b Part 6.1

Should the landfill site import soil material for waste cover and capping, or where there is an absence of site-specific data, it is prudent to design erosion and sediment control facilities using the following default soil characteristics (as described in **vol. 1**):

- classification as type D (i.e. dispersive) soil based on texture and dispersibility characteristics

Background
→

Wet Basin



Landfill Guidelines

All sediment basins should have a marker indicating the position of the upper level of the sediment storage zone. The water level should be drawn down to a level just above the sediment storage zone within 5 days of the end of any significant rainfall to restore the basin's capacity to contain runoff from the next rainfall event.

Key Principle 1

Under best practice sediment management, in accordance with “The Blue Book” discharge of water from basins can occur:

* Treated discharge at an acceptable level of treatment where a design storm event is not exceeded

* Untreated discharge at potential elevated concentrations when a design storm event is exceeded

Key Principle 2

There is basis for this storm event to be the 5-day 90th percentile rainfall depth occurring over any duration of continuous rainfall.

→ **Landfill Guidelines**

All sediment basins should have a marker indicating the position of the upper level of the sediment storage zone. The water level should be drawn down to a level just above the sediment storage zone within 5 days of the end of any significant rainfall to restore the basin's capacity to contain runoff from the next rainfall event.

Blue Book Volume 1

Assuming the pond is designed to the 5-day, y-percentile depth (Section 6.3.4(c)), adequate settling is required in about four days from the conclusion of each storm event.

Key Principle 3

Full containment of design storms is an approach suitable to leachate (or leachate contaminated waters) but is typically not feasible for management of stormwater

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E.g. 25-year 24-hour event of 200 mm assuming 70 % runoff:

200 mm x 0.7 x 1 ha = 1.4 ML per hectare of site

Interaction with regulation

120 Prohibition of pollution of waters

(1) A person who pollutes any waters is guilty of an offence.

Note : An offence against subsection (1) committed by a corporation is an offence attracting special executive liability for a director or other person involved in the management of the corporation--see section 169.

(2) In this section--

"pollute" waters includes cause or permit any waters to be polluted.

"water pollution" or **"pollution of waters"** means—¶

(a) placing in or on, or otherwise introducing into or onto, waters (whether through an act or omission) any matter, whether solid, liquid or gaseous, so that the physical, chemical or biological condition of the waters is changed, or¶

Conclusion and Questions

90+ years in operation
135+ countries served
200+ offices worldwide
2.3Ⓑ AUD revenue 2020
5 global markets
10Ⓚ people
50+ service lines

↳ Providing engineering, environmental, advisory, architecture, digital and construction services