

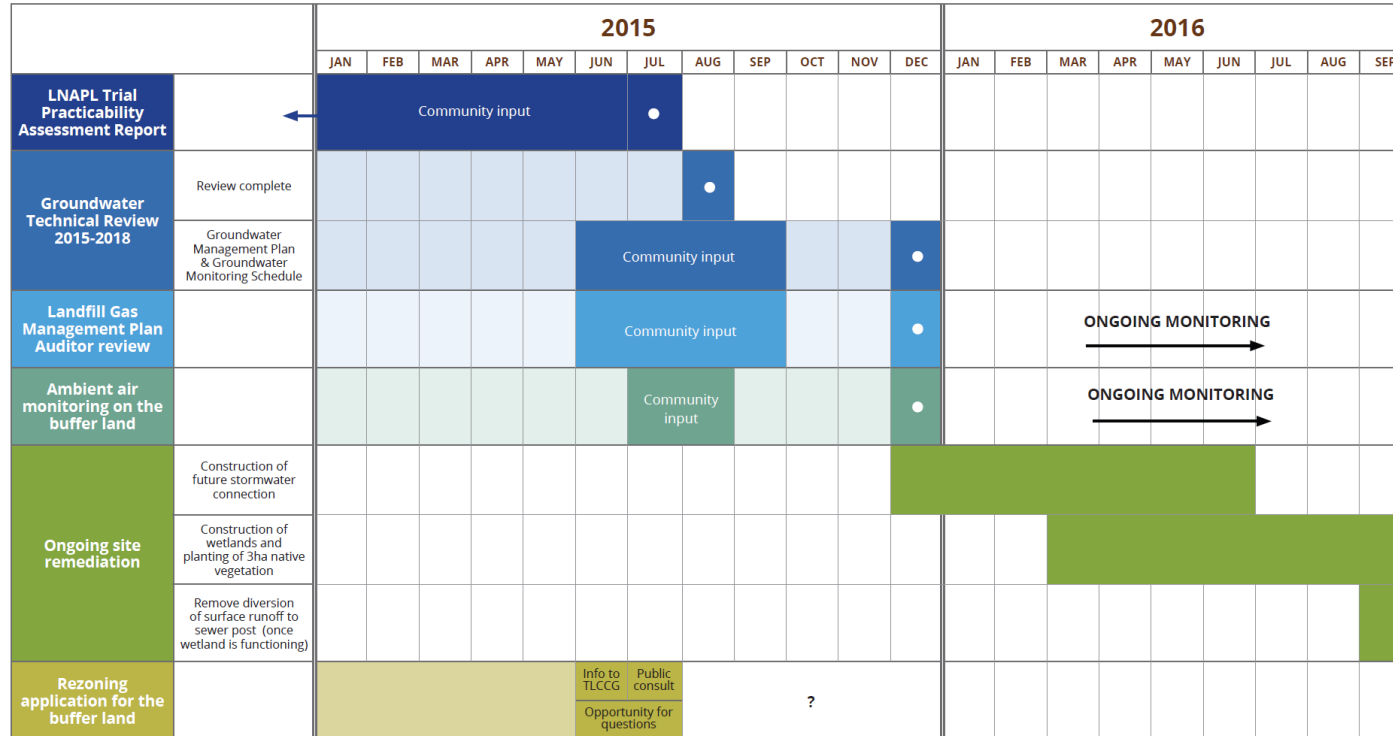


Tullamarine Rehabilitated Landfill

CLEANAWAY
A Transpacific Company

> 19 August 2015

TULLAMARINE LANDFILL SITE REHABILITATION ROADMAP



○ : complete

The above schedule is based on information and plans as at 3 June 2015. Dates are indicative and are subject to change.

Recover Recycle Reuse

Tullamarine Landfill Gas Management

- > 2006/7 Mound 3 Capped with LFG Gas Collection System
- > 2008 Mound 3 Flare Installed
- > 2011 Mounds 1 & 2 Capped with LFG Gas Collection System
- > 2011 LFG Auditor Engaged
- > March 2012 Trial Candlestick Flare Installed
- > Sept 2012 LFG Management Plan Completed

Tullamarine LFG Management

- > 2012 Annual Walkover Surveys Commence (inc. underground services and buildings)
- > 2012/13 Perimeter LFG Boreholes Installed
- > Jan 2013 Cap Auditor Signed Off Mounds 2 & 3
- > Dec 2013 URS Completed Design Review and Dispersion Modelling
- > Feb 2014 Kleinfelder/Cardno Completed Environmental Audit Assessment of Buffer Land

Tullamarine LFG Management

Not required by
regulator

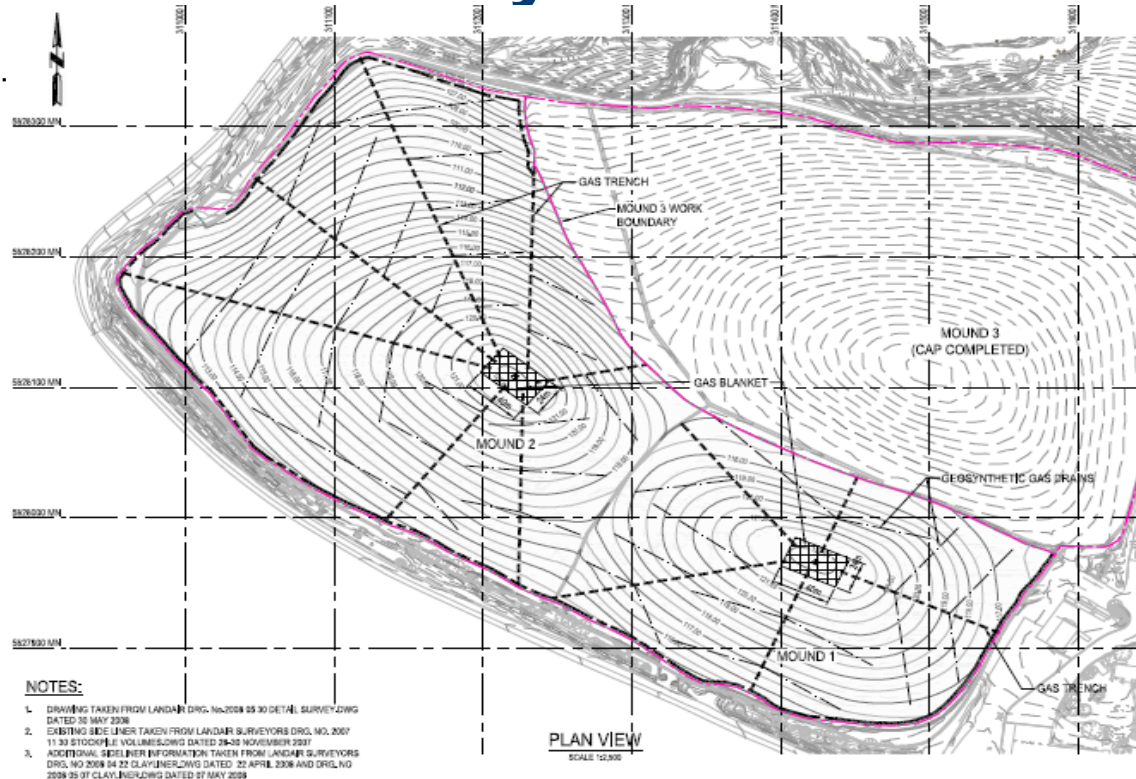
- > May 2014 Enclosed Flare Installed
- > Feb 2015 Enclosed Flare Emissions Tested
- > Ambient Air Sampling?
- > Another Round of Flare Sampling During September
- > Final Assessments of System Being Completed
- > Management Plan Being Updated

Tullamarine LFG Infrastructure

- > Undercap Gas Collection Blanket
- > Vacuum also Applied to Leachate Wells
- > Gas Runs Through Lines above the Membrane to Flare
- > Sample points in gas lines, flare intake and inside stack
- > Continuous Monitoring of Flare (Telemetered)
- > 48 Perimeter Boreholes
- > Walkover Surveys
- > Buffer Land Audit (LFG and Vapour Considered)

Recover Recycle Reuse

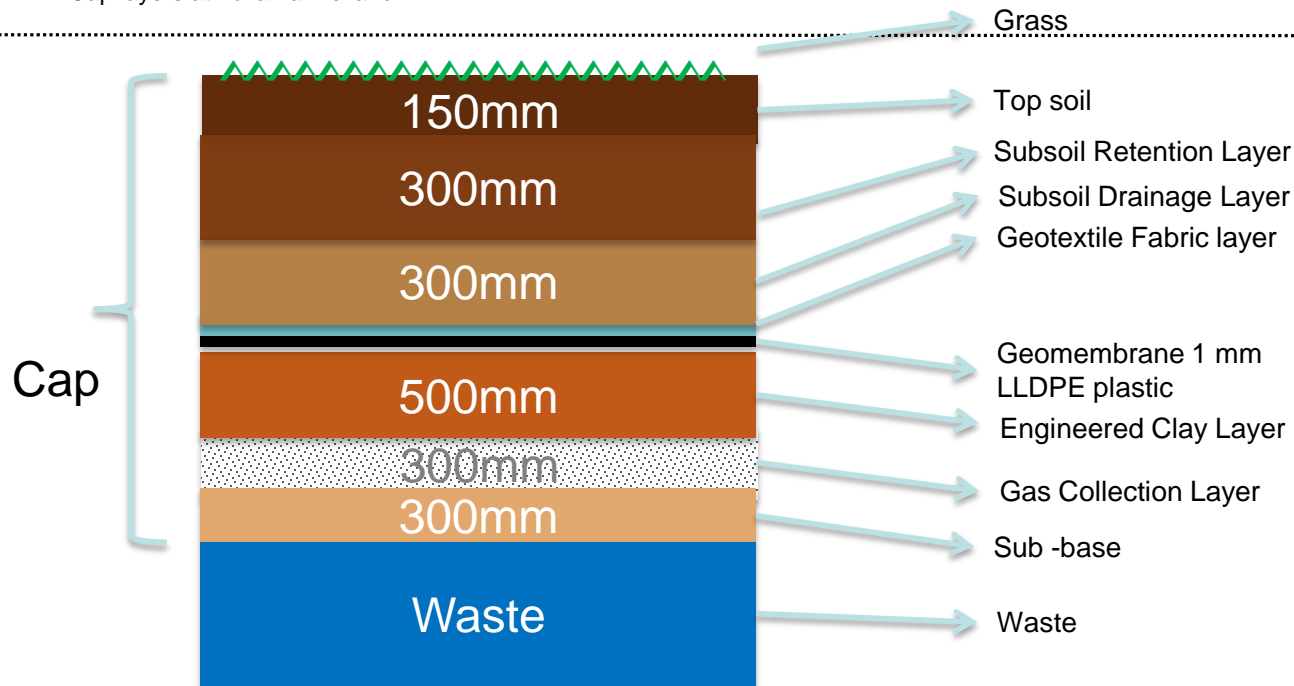
Gas Collection System



Recover Recycle Reuse

Cap - Layers

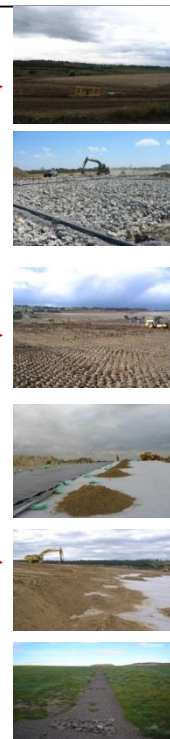
- Cap layers at Tullamarine landfill



Cap Construction

- > **Construction of Mounds 1 & 2 cap**
- > **Includes the following key components**

1. Sub-Grade Reshaping
2. Gas Collection System
3. Clay Layer
4. Geomembrane/Geotextile Cushion
5. Cover Soils
6. Stormwater Management & Grass Establishment



Gas Collection System



Recover Recycle Reuse

Clay Layer



Recover Recycle Reuse

Geomembrane & Cushion Geotextile



Recover Recycle Reuse

Cover Soils



Recover Recycle Reuse

Above Membrane Gas System



Recover Recycle Reuse

Perimeter Gas Boreholes



Recover Recycle Reuse

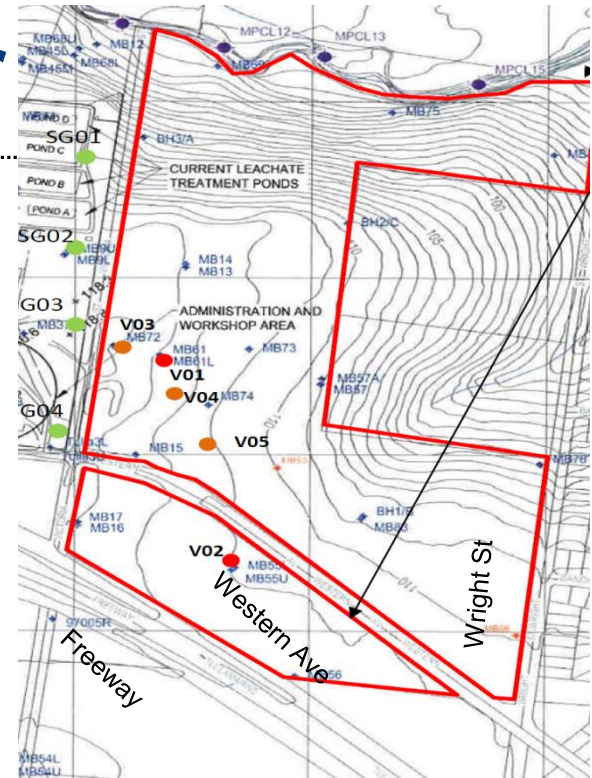
Walk-over Survey



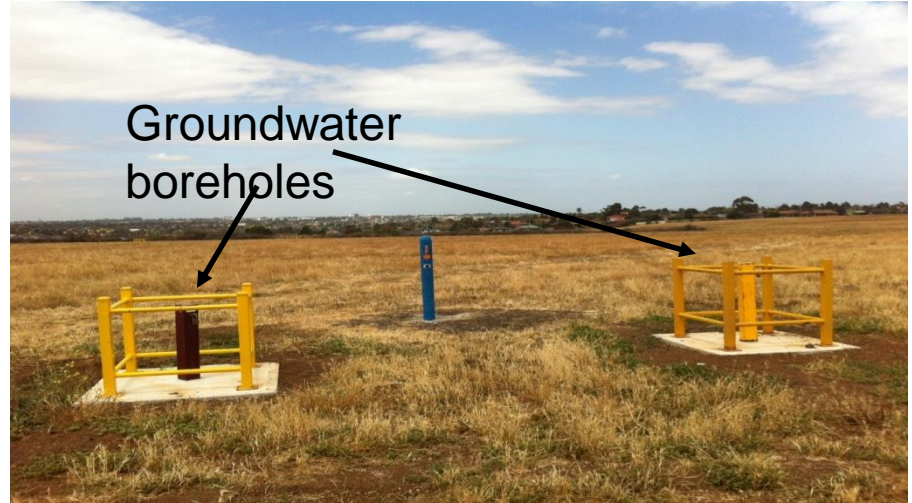
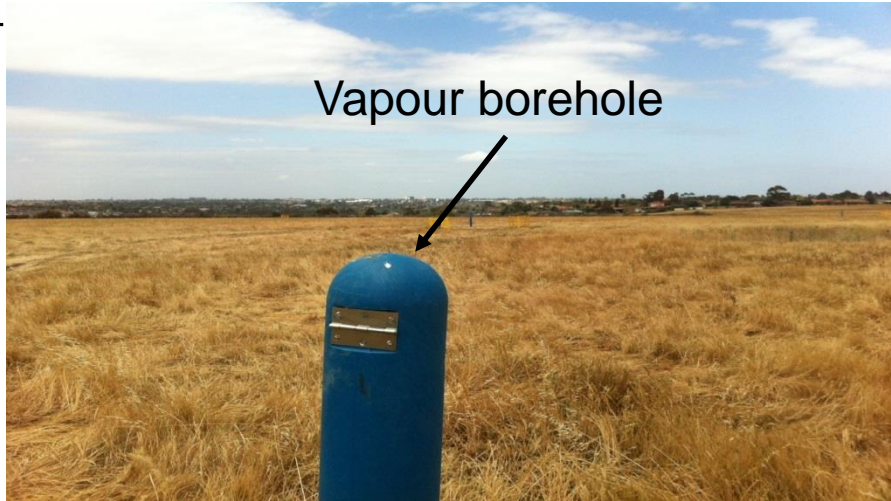
Recover Recycle Reuse

Buffer Land LFG & Soil Vapour

- > Five soil vapour bores (V01-V05)
- > Landfill Gas Risk Assessment completed



Buffer Land



Recover Recycle Reuse

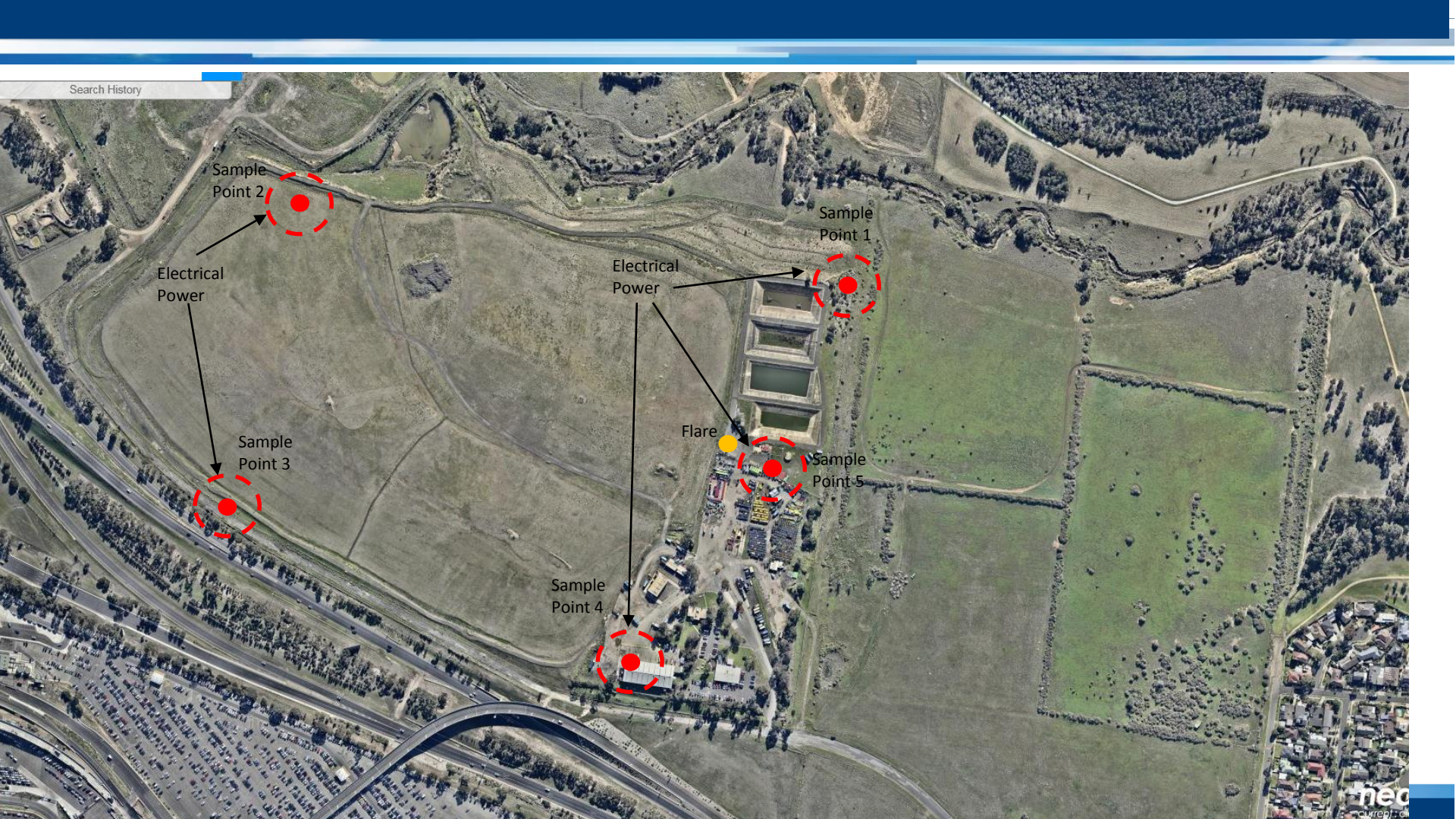
Flare



Recover Recycle Reuse

What now?

- > Kleinfelder to outline assessment work to date
- > Ektimo to describe the stack testing and ambient air testing limitations
- > Workshop the ambient air sampling tonight
- > Audit completion on track for end of year



Ambient Air Test Parameters?

- > Poly Aromatic Hydrocarbons (PAHs)
- > Dioxins / Furans
- > Landfill Gases CH₄, CO₂, H₂S, NO_x, CO
- > Metals
- > Volatile Organic Compounds (eg. Benzene)
- > Aldehydes and sulfur gases
- > Hydrogen chloride and chlorine

Thank you
for your time