

Paradise Dam Improvement Project Fact Sheet: Geotechnical investigations

April 2024

Geotechnical investigations underway

Geotechnical work began in January 2024 - a crucial early activity required to build a new dam wall.

Geotechnical work involves a review of existing data, inspections as well as drilling to investigate the quality of bedrock and understand the underlying foundation rock properties.

Ten bore holes have now been drilled downstream of Paradise Dam as part of the geotechnical work. An estimated 55 bore holes will be drilled across the site over the course of this year, each ranging from 20 -100 metres deep.

Why are geotechnical investigations necessary?

Over many years, numerous geotechnical investigations have been undertaken at Paradise Dam. While these investigations provide information about the original dam site, more geotechnical work is needed to design the new structure on ground that has not been previously investigated.

The new Paradise Dam wall is being planned downstream of the existing structure and this additional data will give us insights on the quality and properties of the subsurface materials in this location for the dam foundation and for downstream scour protection.

Bore hole sites have been strategically selected to get as much information as possible so we can understand what's happening under the ground where the new structure is being planned.

Geotechnical investigations will provide us with a comprehensive understanding of the area and inform the new dam design.



Figure 1: Site works



Figure 2: Track rig on site

Collection of core samples

Truck and track-mounted drilling rigs equipped with a hollow cylindrical drill bit are being used to cut into the ground and collect samples of bedrock (core samples).

Nearly 3000 metres of core samples are being collected and will be stored on-site in a purpose-built storage facility with an inventory of all samples collected for Paradise Dam.

After collection, selected core samples are being sent to a laboratory to undergo testing to assess compressive, tensile and shear strength. This information enables interpretation of the subsurface conditions and properties where the new dam will be located.



Figure 3: Core samples

Additional testing and data collection to develop new dam wall design

Additional data is collected using a range of methods (for example, a Seismic Refraction Survey and Electrical Resistivity Imagery testing) to find out where poor quality (soft/fractured) material is, and where high quality (hard/competent) material is. Poor quality material will potentially require greater depths of excavation and/or foundation treatment such as replacing this material with concrete.

These findings inform the dam design and the quantity of material needed to build the dam which helps us determine cost as well as the approach to construction.

These investigations ensure we gain a comprehensive understanding of the site, increase confidence in the dam design, and ensure we are delivering the best design and value for money structure.

Stakeholder engagement

Paradise Dam is on the traditional lands of Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda (BGGGTB) and Wakka Wakka Peoples who have a continued sacred connection to Country and are the Traditional Custodians of the land, water and sky we rely on. Sunwater is working with the Wakka Wakka Native Title Aboriginal Corporation and the BGGGTB Peoples Aboriginal Corporation Registered Native Title Bodies Corporate during geotechnical investigations.

The Paradise Dam Reference Group is the key engagement forum for the Paradise Dam Improvement Project. Sunwater is committed to ongoing engagement with the community to ensure transparency as we plan for the new Paradise Dam wall. We will continue to share updates as planning progresses. Information is also regularly shared on Sunwater's Paradise Dam Facebook [page](#) and the project webpages on the Sunwater website.

Questions?

Please contact us on 3120 0270 or paradise.dam@sunwater.com.au with any questions.