Nelson Bay Road Upgrade.
Australia.

Nelson Bay Road is located in a heavily vegetated, coastal sand dune area. Over 90,000 metres\(^2\) of native vegetation required clearing from the site, exposing the in-situ sandy foundation.

Client specifications required grubbing to a depth of 500mm using excavators with root rake attachments. Topsoil was then to be removed and the underlying subgrade ripped and re-compacted before being overlaid with imported fill.

A significant amount of native vegetation (trees, shrubs and other ground cover – 90,490 m\(^2\)) was cleared as part of the project, exposing the in situ sandy material. The project team devised an innovative alternative solution using a shaker bucket attached to an excavator.

Grubbing operations were completed to a depth of 500 mm below the natural surface level by the use of root rake attachments to excavators. In accordance with RMS specification R44 topsoil was then to be removed, underlying subgrade ripped and recompacted, and overlaid with imported fill. During the first lot we observed that numerous fine roots were still remaining after grubbing, removal of 100 – 300 mm of topsoil and ripping. Instead of excavating and removing further material we trailed an alternate foundation treatment technique to retain the in situ material.

The alternate technique consisted of removing the top 100 mm of organic material (topsoil), sieving the remaining in situ material to a depth of 600 mm, using a shaker bucket attached to an excavator that allowed material was recompacted, tested and proof rolled.

This new approach resulted in 18,000 metres\(^3\) of material bypassing landfill, greatly reducing the Project’s carbon emissions and delivering significant savings for the client. This innovation is suitable for consideration in sandy soils where it is necessary to remove deleterious material.

For this Project, on the 19th August 2014, Ferrovial Agroman Australia received the Roads and Maritime Service’s prestigious 2014 Construction Quality Award in the ‘Environmental performance and innovation’ category.