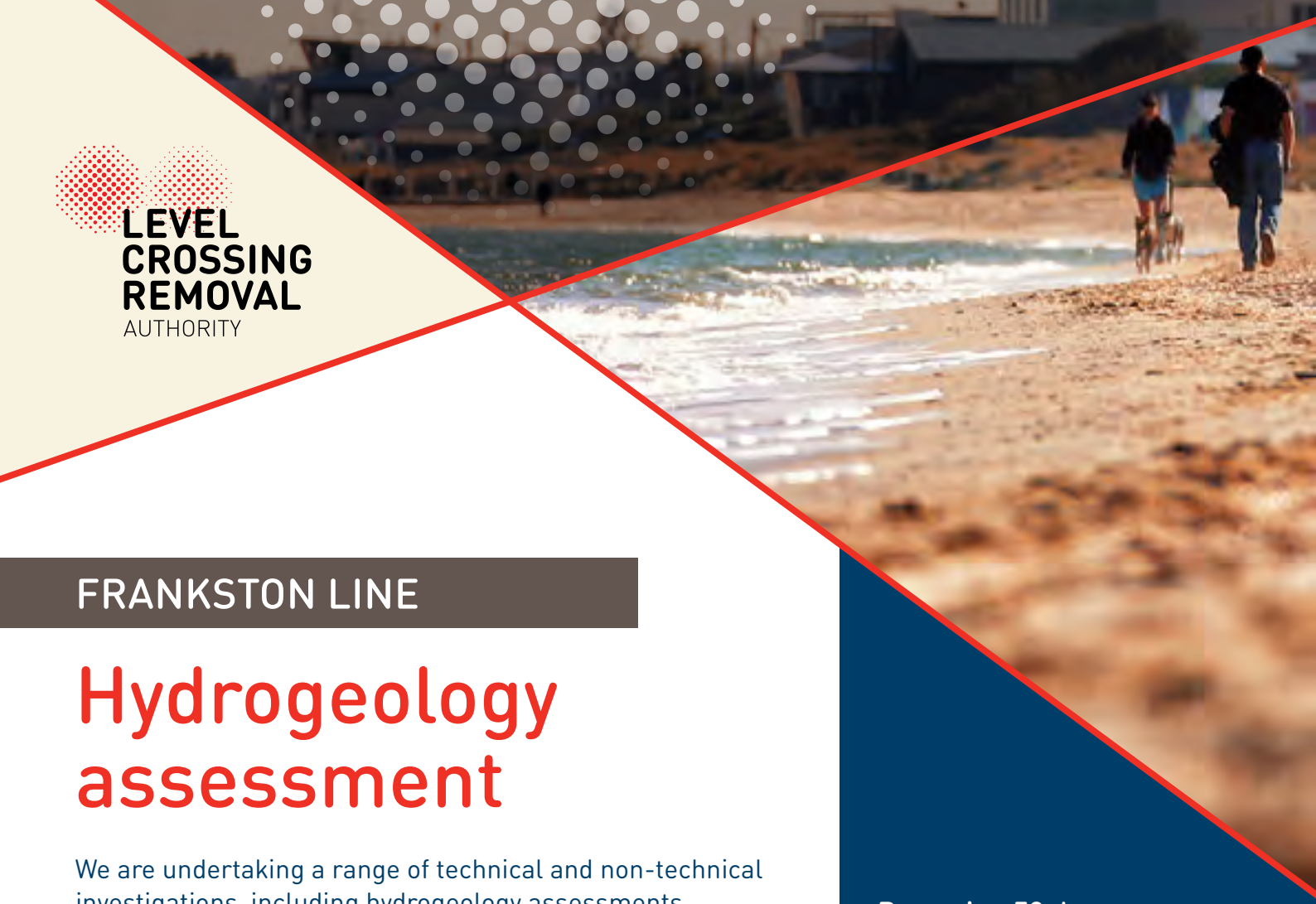
LEVEL CROSSING REMOVAL AUTHORITY



FRANKSTON LINE

Hydrogeology assessment

We are undertaking a range of technical and non-technical investigations, including hydrogeology assessments.

WHAT IS HYDROGEOLOGY?

Hydrogeology is the area of geology that deals with the distribution and movement of groundwater in the soil.

Generally speaking, groundwater flows towards the sea, and it gets closer to the surface as it gets closer to the sea. The level crossing removals along the Frankston line are in relatively close proximity to Port Phillip Bay, and for any options which require a trench to be excavated, it is likely that the groundwater will be impacted. It is therefore important to understand how groundwater flows can be managed both during and after construction.

The waterproofed sides and base of the excavation will be a barrier to the existing groundwater flow and will cause the flow to be diverted around the sides of the excavation.

Diverting the groundwater flow around the excavation will potentially result in the groundwater level on the east side of the excavation being raised and the level on the sea side being lowered.

These changes to groundwater level may cause noticeable impacts, for example, a rise in groundwater level on the upstream side may have an impact on nearby groundwater dependent ecosystems or wetlands (Ramsar* listed wetlands are located on the upstream side of Edithvale and Seaford sites). A fall in groundwater level may result in acid sulphate soil being exposed to air, or ground settlement. Also, any local groundwater users may be impacted by changes to the groundwater level.

*Ramsar Convention on Wetlands Treaty, 1971

Removing 50 dangerous and congested level crossings will transform the way people live, work and travel across metropolitan Melbourne and improve safety for drivers and pedestrians.

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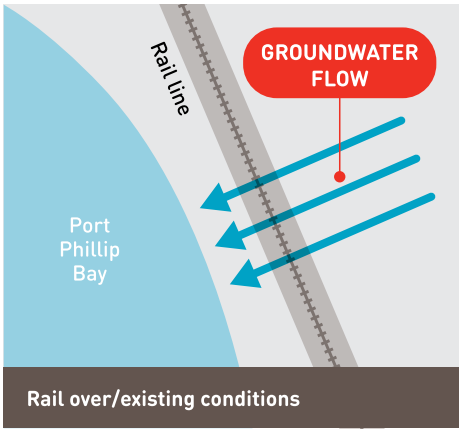

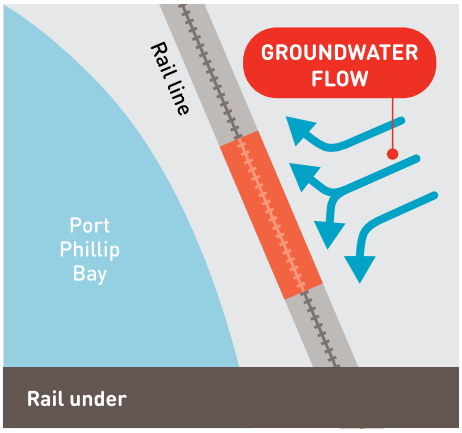

Diagrams left:
Impacts on groundwater flow.

HOW IS A HYDROGEOLOGY ASSESSMENT DONE?

A hydrogeology assessment is undertaken to understand the impacts of any design option which requires a trench to be excavated where the existing groundwater levels are cut off. To do this assessment, a computer based groundwater model is prepared to simulate the existing conditions as well as the proposed changes.

Geotechnical data from site investigations is fed into the model to ensure it will accurately represent the possible changes at each site. This includes results from geotechnical drilling and coring, testing of subsurface material (e.g. soil and rock) at each site, including compressibility testing of compactable materials, results from groundwater monitoring bores, and assessment of the groundwater permeability (ability of rock and soil to allow fluids to pass through) at each site. Once all this data has been gathered, the model can be simulated to represent the changes expected to groundwater levels and flows due to the design, and the immediate and long term impacts of these changes.

In addition to the impact of single level crossing removals, consideration should be given to the possible removal of adjacent level crossings, now or in the future. As these may be relatively close together, the impact of producing longer, combined barriers needs to be assessed.

"A hydrogeology assessment is undertaken to understand the impacts of any design option which requires a trench to be excavated where the existing ground water levels are cut off."

FINDINGS AND NEXT STEPS

At this stage, we have preliminary geotechnical and groundwater information at three sites including Charman Road, Cheltenham, Station Street, Carrum and Skye/Overton Road, Frankston, with detailed geotechnical investigations to commence at each site in late 2016. At the same time, a groundwater model is being prepared to represent the existing conditions at each site. Once results from the investigations are known, they will be fed into the model and the impacts of rail under solutions at both a local and regional level can be better understood.

For more information on the project, please contact the Frankston Project Team on 1800 762 667 or email contact@levelcrossings.vic.gov.au

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