

Site Handout

Flood protection in Busselton

Community Bus Tour, 3 September 2021

Site 1: Detention Basin 3, Sabina River

Three compensating basins were constructed by Water Corporation in the 2000s as part of the state government's Flood Mitigation Project in response to flooding in Busselton in 1997. The three basins are capable of holding nearly 5 million cubic metres of water during a major storm, gradually releasing it back into the system over the following days.



Site 2: Vasse Diversion Drain culvert upgrade

Two new culverts were installed to regulate and potentially increase flows from the Vasse Diversion Drain to the Lower Vasse River. Modelling undertaken by DWER showed that the volume of flow into the river from the drain could be increased by 80% by installing a second culvert without increasing flood risk to Busselton.



Construction of the culverts

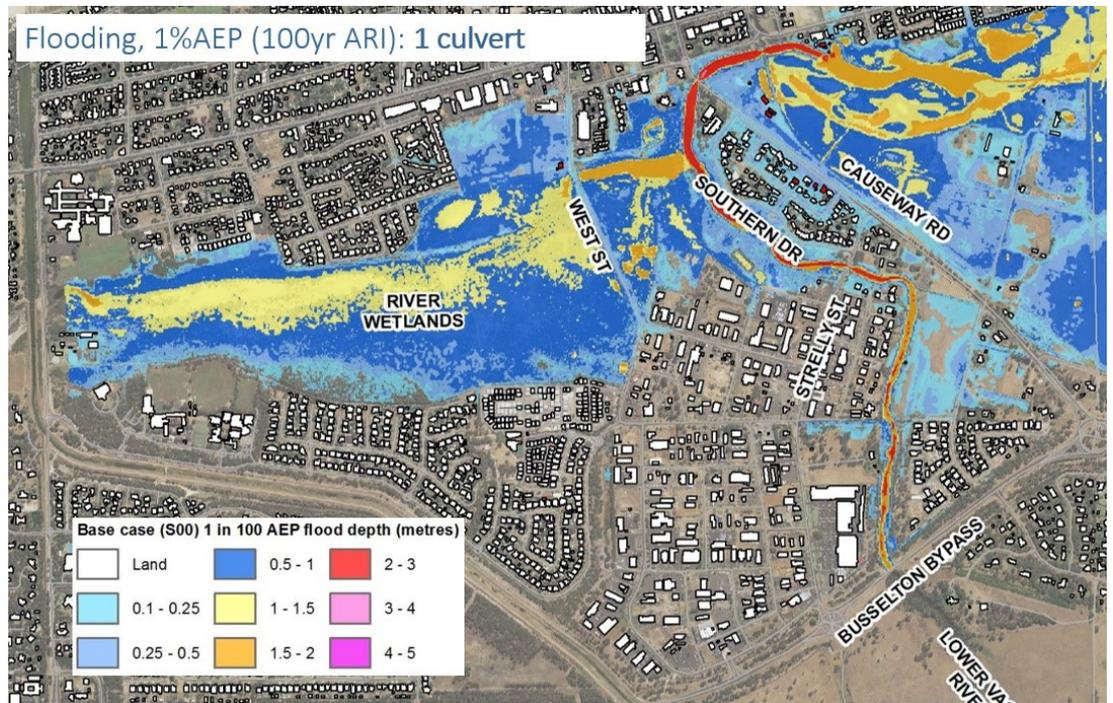


The diversion drain and upgraded culverts

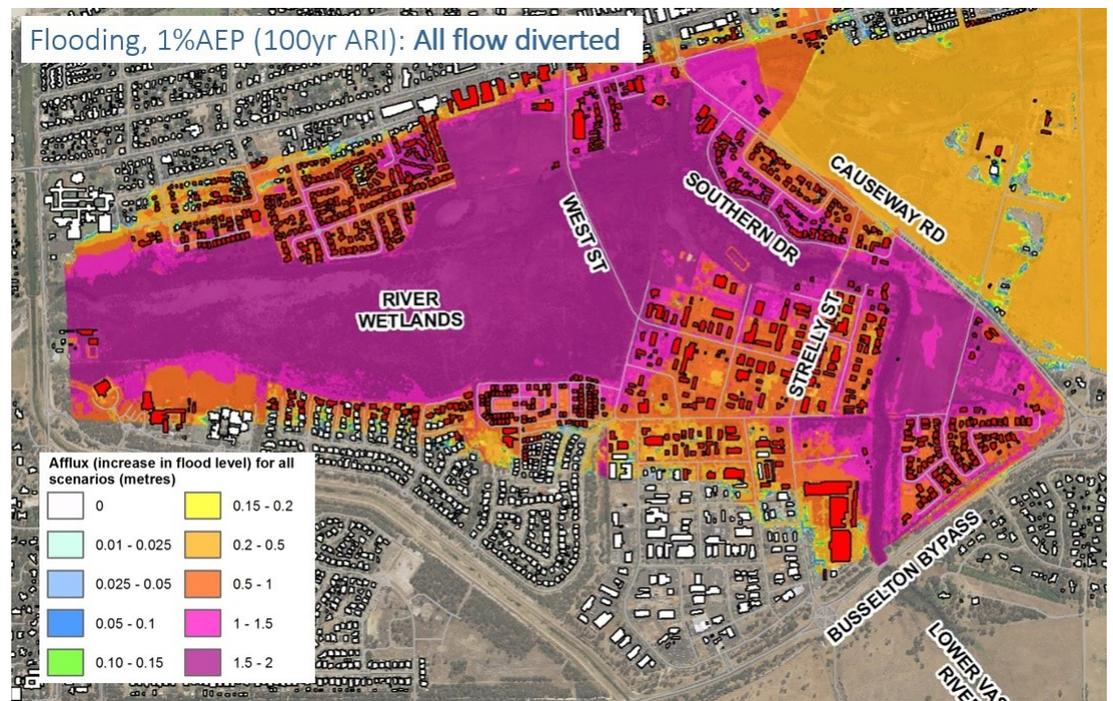


Downstream of the penstock

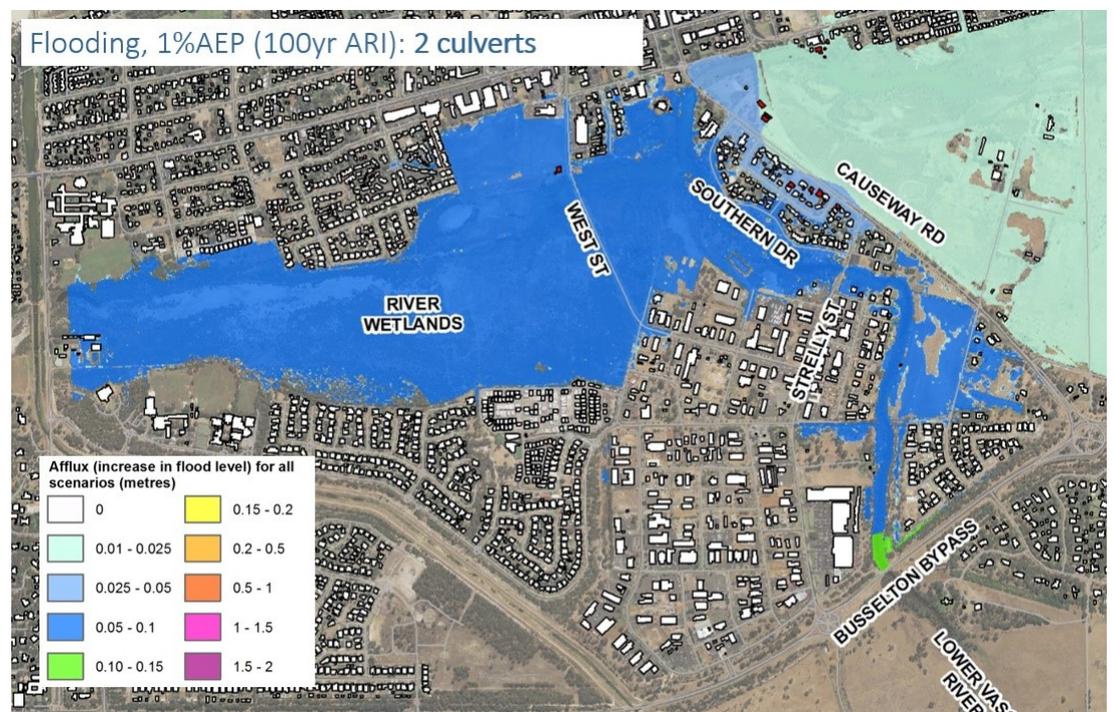
The flood extent and depth that will occur with 1 culvert open to the Lower Vasse River. The red coloured properties are those that will have their finished-floor-levels inundated by water in the flood event.



The flood extent and rise in flood level (compared to the current situation) and depth that will occur if we divert all water from the Vasse Diversion Drain down the Lower Vasse River. Hundreds of properties will be inundated with flood in a 100 year event. Flood levels will increase by 0.5-2m for much of the region.



The flood extent and rise in flood level (compared to the current situation) and depth that will occur in a 100 year ARI event with 2 culverts fully opened to the Lower Vasse River. This will result in an increase in flood level of between 1 and 10cm for much of the floodplain, and minimal extra risk to finished-floor-levels of houses.



Site 3: Vasse Diversion Drain (drive-by)

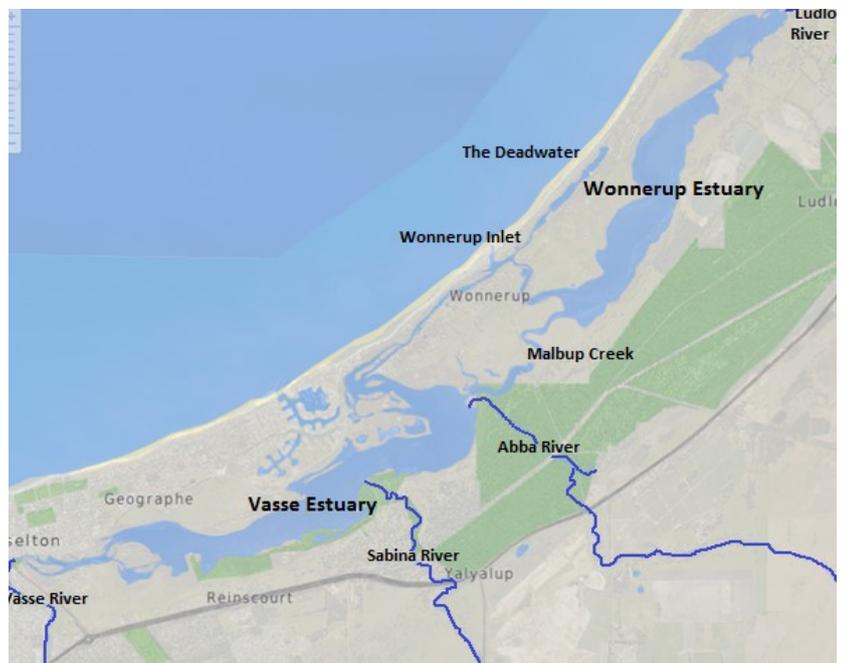
The Vasse Diversion Drain capacity has been increased by 33% by Water Corporation to improve flood protection. As part of the upgrade, an extensive 10-year revegetation plan is underway with 220,000 seedlings to be planted across 15 hectares of the surrounding area over the next two to three years. 88 fauna shelters and 15 rope bridges for western ringtail possums have also been installed. 37,000 protected Carter's freshwater mussels found in the drain were relocated upstream.



Site 4: Vasse Wonnerup wetlands (drive-by)

Three rivers flow into the Vasse Estuary—the Lower Vasse, Lower Sabina and Abba. (The Upper Sabina flows to the Vasse Diversion Drain). Only one river flows into the Wonnerup Estuary—the Ludlow. Both estuaries have a surge barrier at their downstream end, then join together at the Wonnerup Inlet where they flow out to sea.

The Vasse Wonnerup wetlands are recognised internationally for their importance as waterbird habitat and are highly valued by the local community. Since 2017, scientists have been studying the ecology of the wetlands and comparing it across seasons including: waterbirds, fish, aquatic plants, macroinvertebrates and water quality.



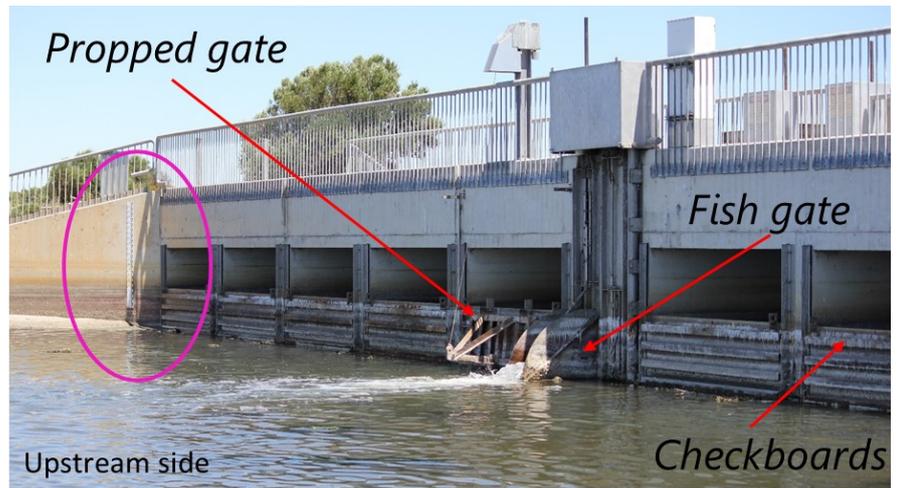
Site 5: Vasse surge barrier

The Vasse and Wonnerup surge barriers were installed in 1908 to protect surrounding agricultural land and the Busselton townsite from flooding.

When water flows from the catchment, the surge barriers automatically open to allow flow to Geographe Bay. If storm surges are high, the surge barriers are pushed shut by the high tide.

In spring, check boards are installed on the upstream side to maintain water level in the estuaries at 0.4 AHD.

Small fish gates can be operated to allow fish passage over summer months, or let seawater in to maintain levels.



Site 6: Wonnerup sand bar

In winter the Wonnerup sand bar is artificially opened to drop water levels in the inlet. This allows the floodgates to open to reduce the risk of flooding. In summer the bar is opened to improve water quality in the Wonnerup Inlet.

