

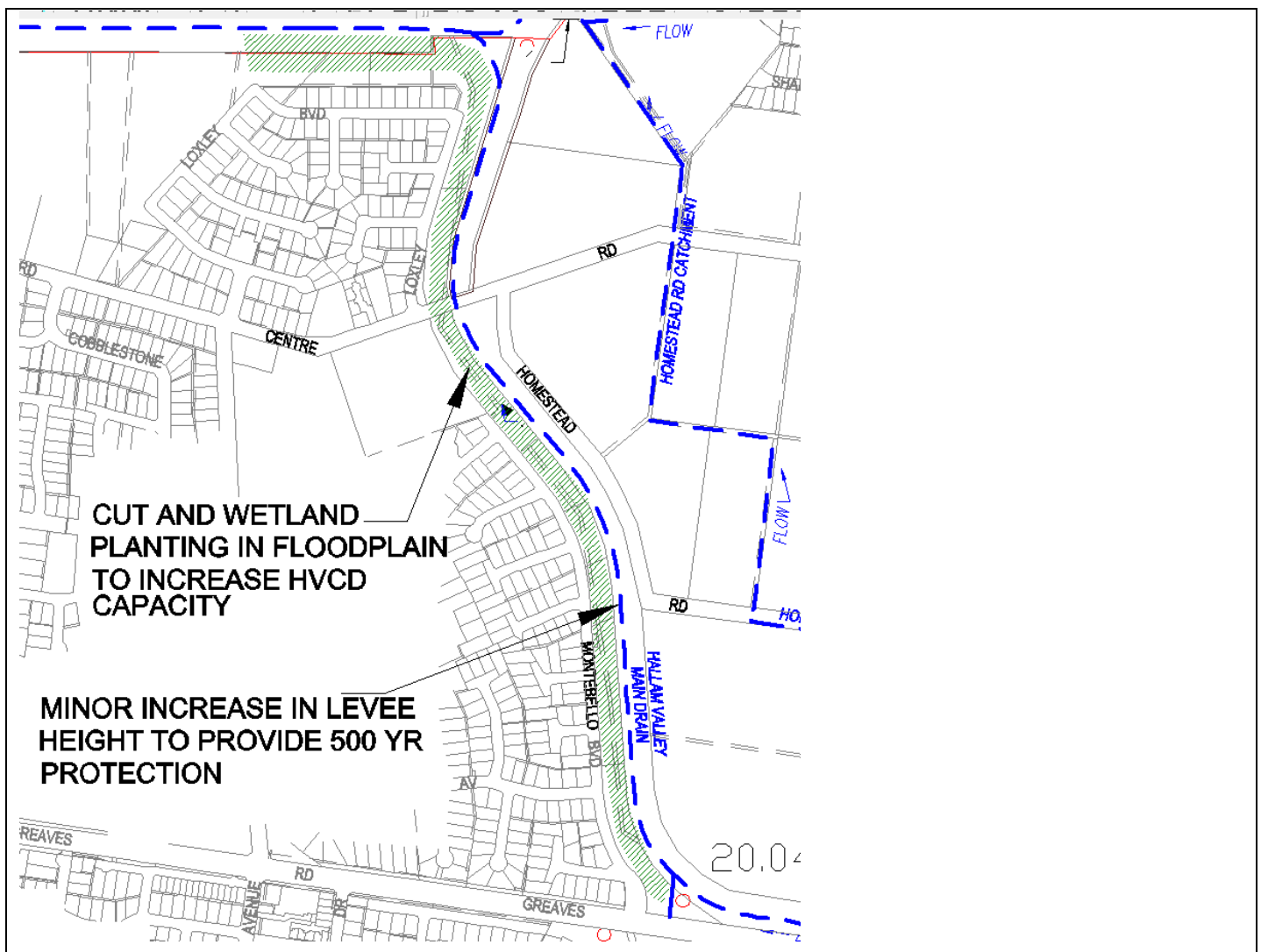
Hallam Valley Contour Drain Flood Investigation

Summary – 7 November 2011

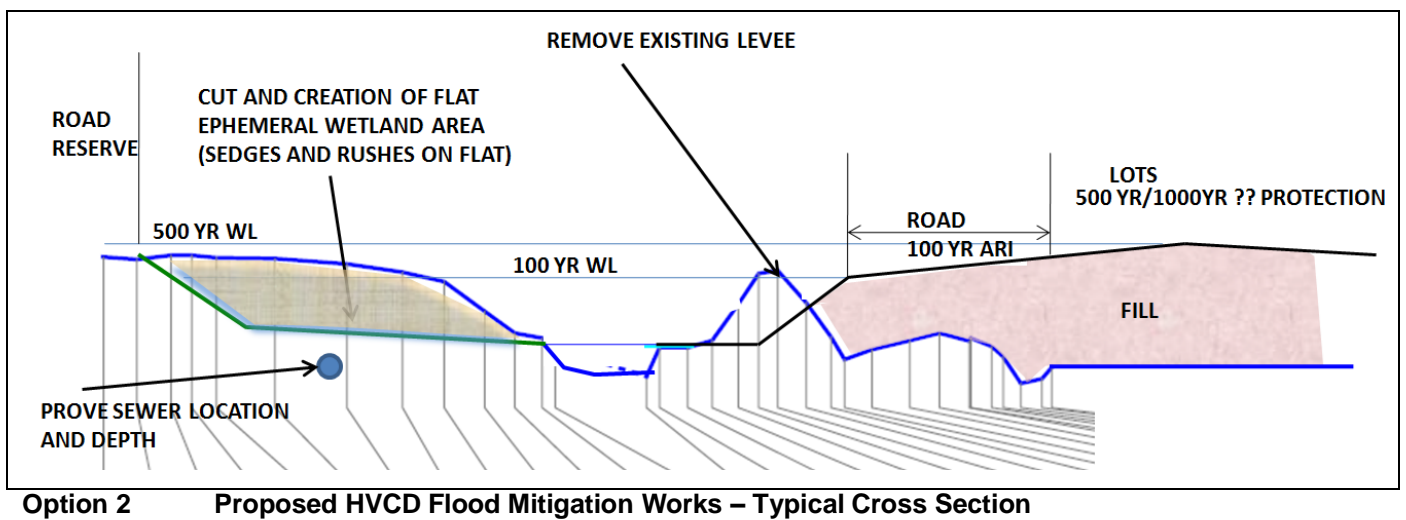
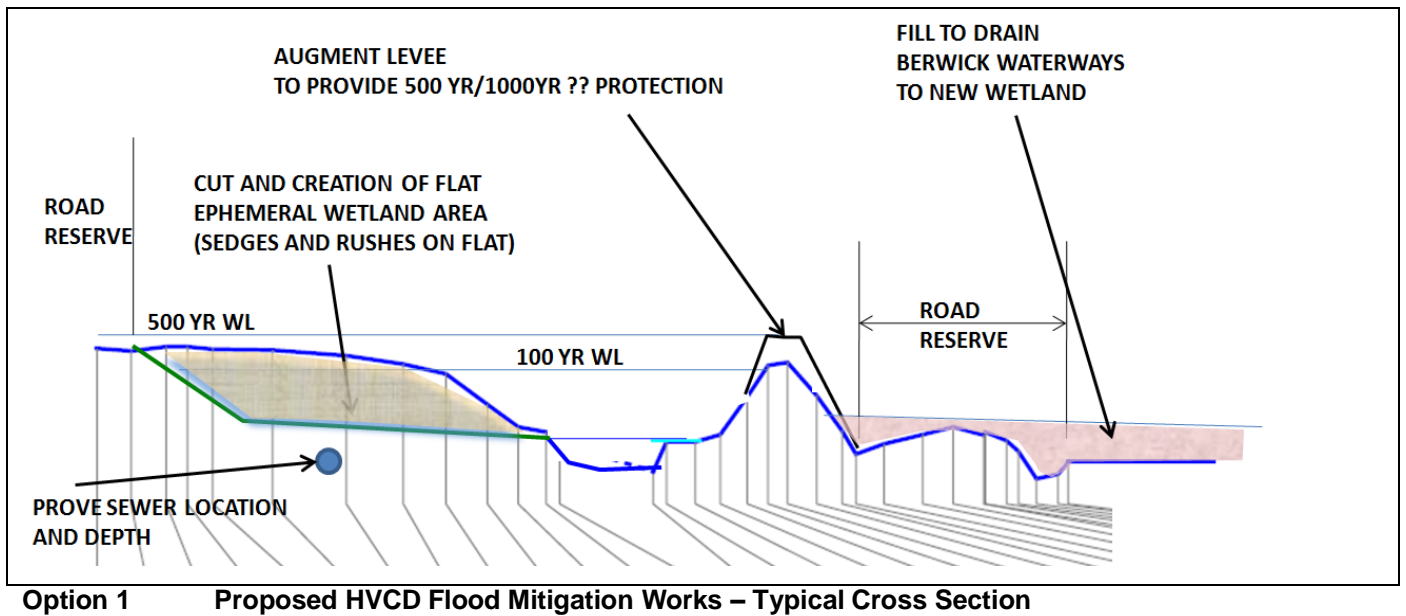
Analysis summary

Average Recurrence Interval	Flow in Conveyed in Hallam Valley Contour Drain	Flow over Ward Road/Greaves Road Levee	Flow over levee between Greaves Road RB outfall and Homestead Road
100 Year ARI	23 m ³ /s	10 m ³ /s	14 m ³ /s
200 Year ARI	30 m ³ /s	12 m ³ /s	17 m ³ /s
500 Year ARI	35 m ³ /s	15 m ³ /s	35 m ³ /s

- Feb 2011 event – Total Flow = 55 m³/s – VM believes a conservative estimate, but flow between a 100 – 200 year event.
- Mitigation option – levee augmentation - could increase flood levels by up to 750 mm. A strategy to raise the levee is not recommended.



Proposed HVCD Flood Mitigation Works



Homestead Road Area

Estimated Flood levels are:

- 100 Year ARI – 19.1 m AHD
- 200 Year ARI – 19.4 m AHD
- 500 Year ARI – 19.8 m AHD

The recorded flood level in the February 2011 event was in the order of 19.15 – 19.43 m AHD. This suggests the ARI of the February 2011 event was between a 100 – 200 Year ARI event.

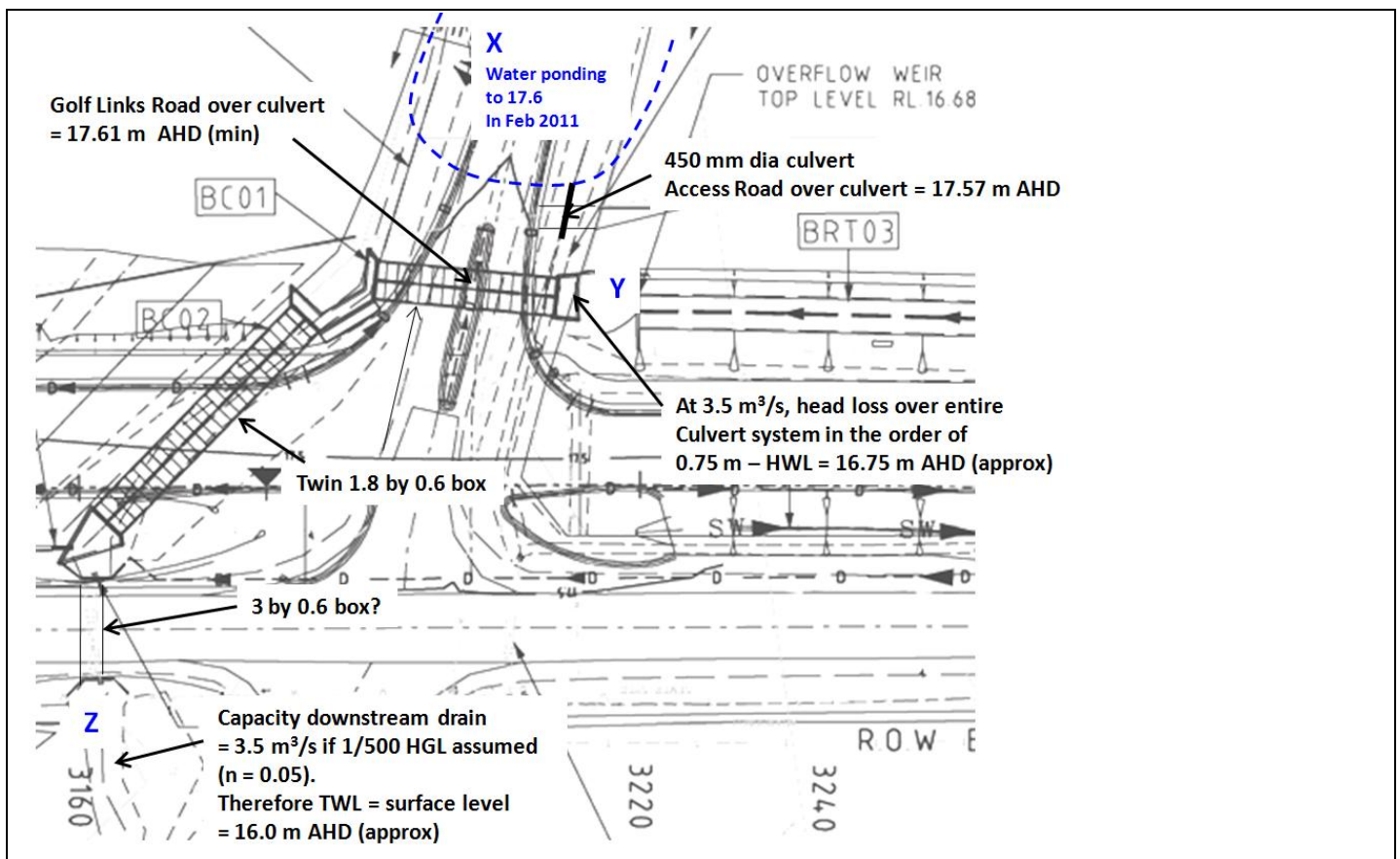
Berwick Town Drain

- Levee overtopping probably did not occur along the BTB in the February 2011 event, and
- That the current levee provides about the 500 Year ARI flood protection to the Homestead Road area from flows within the BTB.

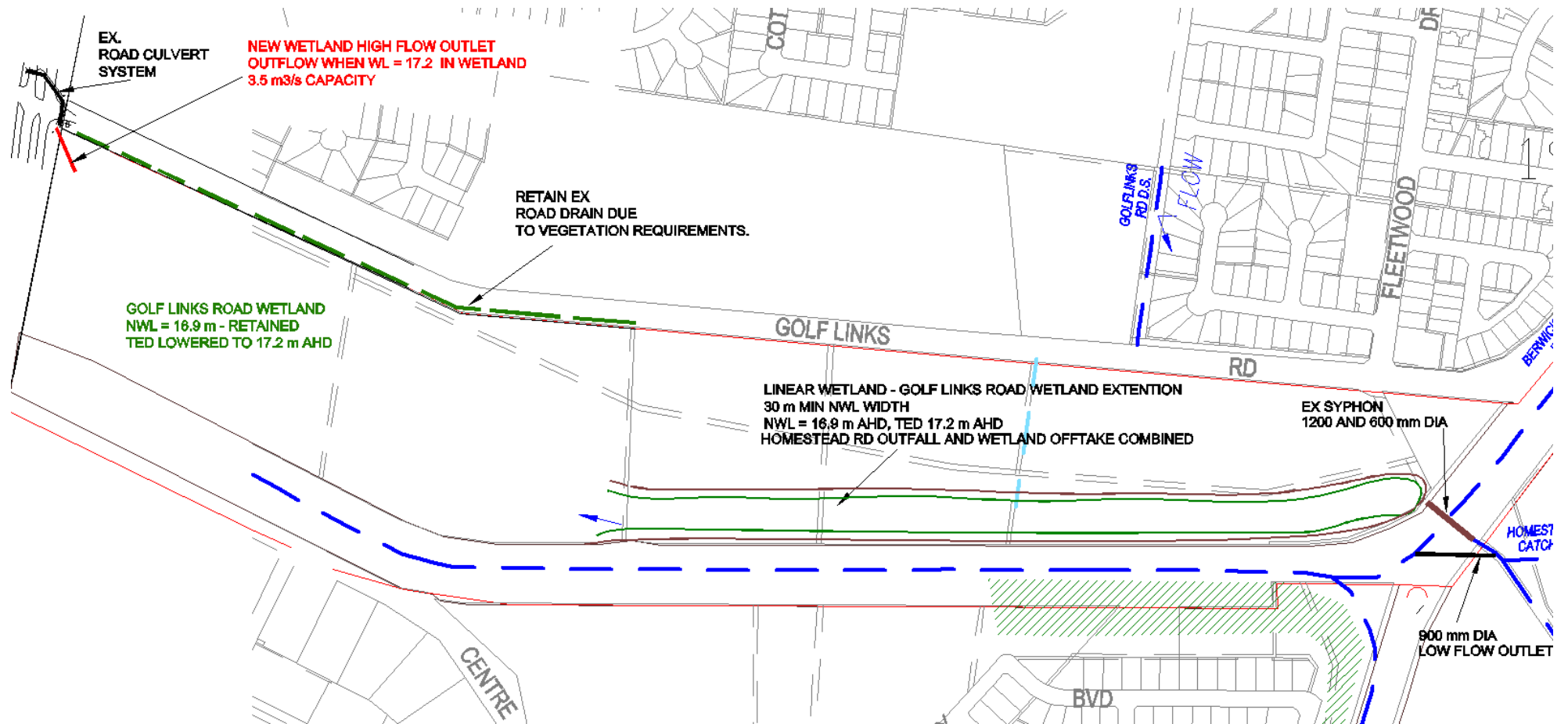
Syphon Outlet Flow Path

- Possible Syphon Blockage - No
- Possible Reverse Syphon Flow – No
- Backwater effects restricting outflow – possibly
 - Expected Syphon Outflows - at a head water level of 18.2 in Berwick Waterways, and existing outfall (tail water level = 18.15), capacity if syphon is about 1 m³/s
 - Need to reduce tail water level to about 17.4 m AHD to get required “Berwick Waterways” outflow of 3.5 m³/s (i.e. reduce outlet invert level and increase outfall drain capacity).

Golf Links Road Flooding



Drainage System at Narre Warren Cranbourne Road



Possible Mitigation Option to address Golf Links Road Flooding and Flow Restrictions in the Homestead Road Outlet Channel