connectionsproject

Fact sheet

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Deciding on solutions for channels

The GMW Connections Project prioritises channels for modernisation based on a range of factors, including:

- How much water is lost, e.g. through leakage, seepage and evaporation
- How much water - and flow rate - is used by all properties supplied on the channel
- The condition of the channel, e.g. soil type
- How many landowners are on the channel and the type of agricultural production
- The complexity, cost and practicality of connection.

When we talk about channel solutions, we are referring to the actions we intend to take to upgrade, retain or decommission a channel.

Solutions range from leaving a channel as is, to remediating channel with lining (clay or plastic) to replacing channel with GMW pipeline, to replacing channel with private infrastructure, such as a channel or pipeline.

Generally, decommissioning channels is the most complex and costly solution because we need to find alternative ways to connect landowners to their water supply in a different location. However, decommissioning is often the best way to achieve water savings for the project.

Solutions are explained in more detail below, from the most complex to the least.

1. Decommission channel with alternate private connection

The channel will be decommissioned and removed from the GMW system, and customers connected by privately-owned infrastructure (generally channel or pipeline). On-farm works will be carried out by the project to reconnect customers to the primary channel (previously referred to as the 'backbone').

Landowners with multiple meter outlets may choose to rationalise (remove) some outlets to reduce service fee costs.

This solution generally applies to channels where:

- There is one or a small number of landowners with connections on the channel and they use very little water
- The channel is in fair to poor condition and loses a lot of water to leakage, seepage and evaporation
- There is another channel nearby that may provide an alternative connection point.

Example:

Channel A has five connected landowners, each using a small amount of water in an average year.

The channel is in poor condition and loses a lot of water to leakage.

Decommissioning the channel and reconnecting landowners to another nearby channel via private works may make sense in this case.

The project saves water that would otherwise be lost, and the landowners benefit from a modernised connection.

At the same time, the landowners may have the option to reduce the number of meters they have to save money on service point fees.

2. Retain channel with remediation or pipeline

The channel will be retained and upgraded to full automation (meter upgrades and regulators), and remodelled or remediated with plastic or clay lining. Some meters may not be upgraded if they have little to no historic use.

In some cases, channels may be replaced with a GMW-owned pipeline (where there are high water losses and low to medium flow rates).

Opportunities for landowners to reduce outlets are encouraged.

This solution generally applies to channels where:

- There are a large number of landowners connected
- Landowners use a lot of water (i.e., commercial irrigators), and
- The channel loses a lot of water through leakage, seepage and evaporation.

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Example:

Channel B has fifty connected landowners who are mostly large-scale, commercial irrigators.

A large section of the channel runs through lighter, sandy soils and it loses a lot of water to leakage and seepage in this area.

Due to the large number of landowners, the cost of decommissioning the channel would be very high. Instead, it makes sense to retain the channel and reduce water loss by plastic or clay lining.

If the entire length of the channel loses a lot of water and the flow rates are not too high, we may consider replacing the open channel with a GMW-owned pipeline.

3. Retain channel with modernisation

The channel will be retained with part or full infrastructure modernisation (from meter upgrades only to regulators and meter upgrades). Some meters may not be upgraded if they have little to no historic use.

Opportunities for landowners to reduce outlets are encouraged.

This solution generally applies to channels:

- Where there is medium to high water use on the channel
- Where the channel is rated as a low to medium water loss channel
- Where the water losses do not justify decommissioning, remediation or piping of the channel.

Example:

Channel C has 20 connected landowners, many of who are dairy farmers using large amounts of water.

The channel is in a reasonable condition and only loses a small amount of water through leakage, seepage and evaporation. The largest water users are located at the end of the channel.

In this case, the best option may be to retain and fully automate the channel so that the large water users can benefit from the convenience of automation.

4. Retain channel with no modernisation

The channel will be retained with no infrastructure modernisation. Existing infrastructure, such as dethridge wheels, open outlets and stock and domestic connections will remain in place.

There may still be an opportunity for landowners to reduce outlets if the proposal meets value for money criteria.

This solution applies to channels where:

- the channel is rated as low water loss through seepage, leakage and evaporation
- there is low water use by landowners with connections to the channel
- the cost to modernise the channel would far exceed the benefits gained.

Example:

Channel D is about 450m in length in good clay with three connected customers using collectively less than 50ML/year.

In this example, the project team would need to assess whether the costs of modernisation (such as meter upgrades or installation of regulators) would provide enough water savings to justify those costs.

Factors influencing how we assess a channel

Water loss

There are many ways that a channel can lose water, including seepage, leakage and outfalls.

Soil type and the condition of the channel may also influence water loss (for example, soils with a high proportion of clay tend to hold water better than sandy soils).

We calculate the channel loss rate as an average for the channel (generally between regulators).

Water use

We look at the average annual water use of all customers on the channel for the irrigation seasons 2011/2012 to 2013/2014. These seasons were 100% allocation years.

Soil type

Soil type is a critical factor in assessing solutions for a channel. Heavy clay soils tend to retain water very well, with little leakage and seepage. In contrast, light, sandy soils allow water to seep through.

Other geographical factors, such as topography and vegetation, may also influence our assessment.

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