

# Groundwater impact assessment criteria

This document lists the impact assessment criteria that are applied by DPE Water in undertaking impact assessment for permanent type groundwater dealing and approval applications.

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**Table A: Impact assessment criteria for the Lower Lachlan groundwater source**

Lower Lachlan Groundwater Source	
Impact on the water table (unconfined systems)	Impact on the semi-confined/confined systems
<ol style="list-style-type: none"> <li>1. Cumulative extraction over a ten-year period must not cause drawdown to exceed 0.1 metre at any:               <ol style="list-style-type: none"> <li>a) groundwater-dependent ecosystem identified in the water sharing plan e.g. springs and wetlands.</li> <li>b) high priority culturally significant site.</li> </ol> </li> <li>2. Cumulative extraction over a ten-year period must not cause drawdown to exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at:               <ol style="list-style-type: none"> <li>a) any 3rd or higher order connected surface water source.</li> <li>b) vegetation groundwater-dependent ecosystem identified in the water sharing plan.</li> </ol> </li> <li>3. Cumulative extraction over a ten-year period must not cause the recovered water level (metres below ground level) to drop below 25% (capped at 5 metres) of the <i>Relative Total Available Drawdown</i> at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work (e.g. at any basic landholder rights bores).</li> </ol> </li> <li>4. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any 3<sup>rd</sup> party water supply work.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cumulative extraction must not cause the pumping water level (as metres below ground level) to drop below 40% of the <i>Relative Total Available Drawdown</i> at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work including the applicant's bores (i.e. at any basic landholder rights bores).</li> </ol> </li> <li>1. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any 3<sup>rd</sup> party water supply works.</li> </ol>

**Table B: Impact assessment criteria for the Lower Murrumbidgee Deep and Lower Murray groundwater sources**

## Lower Murrumbidgee Deep and Lower Murray groundwater sources

### Impact on the semi-confined/confined systems

1. Cumulative extraction over a ten-year period must not cause the pumping water level (metres below ground level) to drop below 70% of the *Total Available Drawdown* above the top of the productive aquifer at:
  - a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).
  - b) any other water supply work including the applicant's bores (i.e. at any basic landholder rights bores).
2. Additional drawdown over a ten-year period cannot exceed 10% of the *Total Available Drawdown* to a maximum of 3 metres at any 3<sup>rd</sup>-party water supply work.

**Table C: Impact assessment criteria for the Lower Murray Shallow Groundwater Source**

## Lower Murray Shallow Groundwater Source

### Impact on the water table (unconfined systems)

1. Cumulative extraction over a ten-year period must not cause drawdown to exceed 0.1 metre at any:
  - a) groundwater dependent ecosystem identified in the water sharing plan e.g. springs and wetlands.
  - b) high priority culturally significant site.
2. Cumulative extraction over a ten-year period must not cause drawdown to exceed 10% of the Total Available Drawdown to a maximum of 2 metres at any:
  - a) 3<sup>rd</sup> or higher order connected surface water source.
  - b) vegetation groundwater dependent ecosystem identified in the water sharing plan.
3. Cumulative extraction over a ten-year period must not cause the recovered water level to decline by more than 5 metres at:
  - a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).
  - b) any other water supply work including the applicant's bores (i.e. at any basic landholder rights bores).
4. Additional drawdown over a ten-year period cannot exceed 2 metres at any 3<sup>rd</sup>-party water supply work.

**Table D: Impact assessment criteria for the NSW Borders Rivers Upstream Keetah Bride and NSW Borders Rivers Downstream Keetah Bride groundwater sources**

NSW Borders Rivers Upstream Keetah Bride and NSW Borders Rivers Downstream Keetah Bride Groundwater Sources	
Impact on the water table (unconfined systems)	Impact on the semi-confined/confined systems
<ol style="list-style-type: none"> <li>1. Cumulative extraction over a ten-year period must not cause drawdown to exceed 0.1 metre at any:               <ol style="list-style-type: none"> <li>a) Groundwater-dependent ecosystem identified in the water sharing plan e.g. springs and wetlands.</li> <li>b) high priority culturally significant site.</li> </ol> </li> <li>2. Cumulative extraction over a ten-year period must not cause drawdown to exceed 10% of the Total Available Drawdown to a maximum of 2 metres at:               <ol style="list-style-type: none"> <li>a) any 3rd or higher order connected surface water source.</li> <li>b) vegetation groundwater-dependent ecosystem identified in the water sharing plan.</li> </ol> </li> <li>3. Cumulative extraction over a ten-year period must not cause the recovered water level (metres below ground level) to drop below 25% (capped at 5 metres) of the <i>Relative Total Available Drawdown</i> at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work (e.g. at any basic landholder rights bores).</li> </ol> </li> <li>4. Additional drawdown over a ten-year period cannot exceed 10% of the Total Available Drawdown to a maximum of 2 metres at any 3rd party water supply work.</li> </ol>	<p>These criteria apply to bores in NSW only, production bores in Queensland are assessed against a separate set of rules as per the current agreement between NSW and Queensland.</p> <ol style="list-style-type: none"> <li>1. Cumulative extraction over a ten-year period must not cause the pumping water level (as metres below ground level) to drop below 40% of the <i>Relative Total Available Drawdown</i><sup>1</sup> at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work including the applicant's bores (i.e. at any basic landholder rights bores).</li> </ol> </li> <li>2. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 3 metres at any 3<sup>rd</sup>-party water supply works.</li> </ol> <p>Note: If this criterion fails at any bores on the Queensland side of the border then the Queensland impact assessment rules apply.</p>

**Table E: Impact assessment criteria for all other alluvial groundwater sources not already covered**

**All alluvial groundwater sources excluding:**

**Lower Lachlan, Lower Murrumbidgee Deep, Lower Murray, Lower Murray Shallow, NSW Border Rivers Upstream Keetah Bridge and NSW Border Rivers Downstream Keetah Bridge groundwater source**

Impact on the water table (unconfined systems)	Impact on the semi-confined/confined systems
<ol style="list-style-type: none"> <li>1. Cumulative extraction over a ten-year period must not cause drawdown to exceed 0.1 metre at any:                             <ol style="list-style-type: none"> <li>a) groundwater-dependent ecosystem identified in the water sharing plan e.g. springs and wetlands</li> <li>b) high priority culturally significant site.</li> </ol> </li> <li>2. Cumulative extraction over a ten-year period must not cause drawdown to exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at:                             <ol style="list-style-type: none"> <li>a) any 3rd or higher order connected surface water source</li> <li>b) vegetation groundwater-dependent ecosystem identified in the water sharing plan.</li> </ol> </li> <li>3. Cumulative extraction over a ten-year period must not cause the recovered water level (metres below ground level) to drop below 25% (capped at 5 metres) of the <i>Relative Total Available Drawdown</i> at:                             <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence)</li> <li>b) any other water supply work (e.g. at any basic landholder rights bores).</li> </ol> </li> <li>3. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any 3<sup>rd</sup> party water supply work.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cumulative extraction must not cause the pumping water level (as metres below ground level) to drop below 40% of the <i>Relative Total Available Drawdown</i> at:                             <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence)</li> <li>b) any other water supply work including the applicant's bores (i.e. at any basic landholder rights bores).</li> </ol> </li> <li>2. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 3 metres at any 3<sup>rd</sup> party water supply works.</li> </ol>

**Table F: Impact assessment criteria for all coastal sand groundwater sources**

<b>Coastal sand groundwater sources</b>	
<b>Impact on the water table (unconfined systems)</b>	<b>Impact on the semi-confined/confined systems</b>
<ol style="list-style-type: none"> <li>1. Cumulative extraction over a ten-year period must not cause drawdown to exceed 0.1 metres at any:               <ol style="list-style-type: none"> <li>a) groundwater dependent ecosystem identified in the water sharing plan e.g. National Parks, wetlands, State Emergency Planning Policy areas.</li> <li>b) high priority culturally significant site.</li> </ol> </li> <li>2. Cumulative extraction over a ten-year period must not cause drawdown to exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any:               <ol style="list-style-type: none"> <li>a) 3rd or higher order connected<sup>1</sup> surface water source.</li> <li>b) vegetation groundwater dependent ecosystem identified in the water sharing plan.</li> </ol> </li> <li>3. Cumulative extraction over a ten-year period must not result in the predicted impact exceeding 0.5 metres at any seawater body/saline water body*.</li> </ol> <p><small>*including but not limited to beaches, estuaries, wetlands, drains rivers or creeks.</small></p> <ol style="list-style-type: none"> <li>4. Cumulative extraction over a ten-year period must not cause the recovered water level (metres below ground level) to drop below 25% (capped at 5 metres) of the <i>Relative Total Available Drawdown</i> at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work (e.g. at any basic landholder rights bores).</li> </ol> </li> <li>5. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any 3<sup>rd</sup>-party water supply work.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cumulative extraction must not cause the pumping water level (as metres below ground level) to drop below 40% of the <i>Relative Total Available Drawdown</i> at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work including the applicant's bores (i.e. at any basic landholder rights bores).</li> </ol> </li> <li>2. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any 3<sup>rd</sup> party water supply works.</li> </ol>

**Table G: Impact assessment criteria for the Eastern Recharge and Southern Recharge groundwater sources of the GAB**

Eastern Recharge and Southern Recharge groundwater sources of the Great Artesian Basin	
Impact on the water table (unconfined systems)	Impact on the semi-confined/confined systems
<ol style="list-style-type: none"> <li>1. Cumulative extraction over a ten-year period must not cause drawdown to exceed 0.1 metres at any:               <ol style="list-style-type: none"> <li>a) groundwater dependent ecosystem identified in the water sharing plan e.g. springs.</li> <li>b) high priority culturally significant site.</li> </ol> </li> <li>2. Cumulative extraction over a ten-year period must not cause drawdown to exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any:               <ol style="list-style-type: none"> <li>a) 3rd or higher order connected surface water source.</li> <li>b) vegetation groundwater dependent ecosystem identified in the water sharing plan.</li> </ol> </li> <li>3. Cumulative extraction over a ten-year period must not cause the recovered water level to decline more than 25% of the <i>Relative Total Available Drawdown</i> (capped at 5 metres) at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work including the applicant's bores (i.e. at any basic landholder rights bores).</li> </ol> </li> <li>4. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any 3<sup>rd</sup>-party water supply works.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cumulative extraction over a ten-year period must not cause drawdown to exceed 0.2 metres, at any:               <ol style="list-style-type: none"> <li>a) groundwater dependent ecosystem identified in the water sharing plan e.g. springs.</li> <li>b) high priority culturally significant site.</li> </ol> </li> <li>2. Additional drawdown at the state border* over a ten-year period must not cause the potentiometric surface to:               <ol style="list-style-type: none"> <li>a) decline by more than 1 metre.</li> <li>b) fall below ground level.</li> </ol> </li> <li>3. Cumulative extraction over a ten-year period must not cause the pumping water level (as metres below ground level) to drop below 40% of the <i>Relative Total Available Drawdown</i> at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work including the applicant's bores (i.e. at any basic landholder rights bores).</li> </ol> </li> <li>4. Additional drawdown at a flowing bore over a ten-year period cannot:               <ol style="list-style-type: none"> <li>a) cause the bore to cease flowing.</li> <li>b) drop by more than 1 metre.</li> </ol> </li> <li>5. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 3 metres at any non-flowing 3<sup>rd</sup>-party water supply works.</li> </ol>

**Table H: Impact assessment criteria for the GAB Central, Surat and Warrego groundwater sources**

## GAB Central, Surat and Warrego groundwater sources

### Impact on the semi-confined/confined systems

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1. Cumulative extraction over a ten-year period must not cause drawdown to exceed 0.2 metres, from the current recovered water level, at any:
    - a) groundwater dependent ecosystem identified in the water sharing plan e.g. springs.
    - b) high priority culturally significant site.
  2. Additional drawdown at the state border over a ten-year period must not cause the potentiometric surface to:
    - a) decline by more than 1 metre.
    - b) fall below ground level.
  3. Cumulative extraction over a ten-year period must not cause the potentiometric surface to decline more than 30 metres from the 2018 potentiometric surface at:
    - a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).
    - b) any other water supply work (i.e. at any basic landholder rights bores).
  4. Additional drawdown at a flowing bore over a ten-year period cannot:
    - a) cause the bore to cease flowing.
    - b) drop by more than 1 metre.
  5. Additional drawdown over a ten-year period cannot exceed 3 metres at any non-flowing 3rd-party water supply works.
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**Table I: Impact assessment criteria for porous and fractured rock groundwater sources**

**Porous and fractured rock groundwater sources excluding:  
All GAB groundwater sources**

Impact on the water table (unconfined systems)	Impact on the semi-confined/confined systems
<ol style="list-style-type: none"> <li>1. Cumulative drawdown over a ten-year period must not cause drawdown to exceed 0.1 metres from the current recovered water level, at any:               <ol style="list-style-type: none"> <li>a) groundwater dependent ecosystem identified in the water sharing plan e.g. hanging swamps, springs, wetlands.</li> <li>b) high priority culturally significant site.</li> </ol> </li> <li>2. Cumulative extraction over a ten-year period must not cause drawdown to exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any:               <ol style="list-style-type: none"> <li>a) 3rd or higher order connected surface water source.</li> <li>b) vegetation groundwater dependent ecosystem identified in the water sharing plan.</li> </ol> </li> <li>3. Cumulative extraction over a ten-year period must not cause the recovered water level (metres below ground level) to drop below 25% of the <i>Relative Total Available Drawdown</i> at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work including the applicant's bores (i.e. at any basic landholder rights bores).</li> </ol> </li> <li>4. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 2 metres at any 3<sup>rd</sup>-party water supply works.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cumulative extraction over a ten-year period must not cause the recovered water level (metres below ground level) to drop below 25% of the <i>Relative Total Available Drawdown</i> at:               <ol style="list-style-type: none"> <li>a) a distance of 200 metres from any production water supply works including the applicant's bores (e.g. bores on an approval linked to an access licence).</li> <li>b) any other water supply work (i.e. at any basic landholder rights bores).</li> </ol> </li> <li>2. Additional drawdown over a ten-year period cannot exceed 10% of the <i>Total Available Drawdown</i> to a maximum of 3 metres at any 3<sup>rd</sup>-party water supply works.</li> </ol>