

6.7 Murrumbidgee 1 South

6.7.1 Site 26



Catchment Manageme Authority Murrumbidgee

NSW

Facing upstream from Bobeyan Rd crossing

Facing downstream from Bobeyan Rd crossing

Condition Assessment:

A highly sinuous channel across broad low gradient valley with clay banks and fringing grasses. A potential source of sediment but would anticipate a low sediment delivery ratio. This site has been assessed as having medium connectivity for fine sediments due to long travel distance to Murrumbidgee water extraction point with opportunities for storage along channel margins and across floodplain storages.

Risk Assessment:			
Likelihood	Consequence	Trajectory	Risk
2	3	3-4	18-24

Risk Rating: Moderate

Management Option: Install rock beaching to mitigate river bank erosion. Fencing and revegetation to be implemented in consultation with the landholder.







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6.7.2 Site 27

Issue: Gully erosion	Location: E 0680264 N 5996764
Waterway: Murrumbidgee River tributary gullies	Management Unit: Murrumbidgee 1 South
Lower reach of a gully	Lower reach of a gully

Localised slip failure

Gully, facing down through the valley

Condition Assessment:

This site concerns steep gullies eroding shallow soils, mobilising significant amount of fine sediment downstream. It has been assessed as having medium connectivity for fine sediments due to long travel distance to Murrumbidgee water extraction point with opportunities for storage along the channel margins and across floodplain storages.

Risk Assessment:			
Likelihood	Consequence	Trajectory	Risk
2	3	5	30
isk Rating: Moderate		•	

Management Option: Investigate construction of contour banks and sediment traps to intercept sediment prior to reaching Murrumbidgee River. Consider opportunities for fencing and revegetation in consultation with the landholder.

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ACTIONS for CLEAN WATER PLAN

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6.7.3 Site 28



Catchment Manage Authority

Facing upstream

Organic debris deposited on bank



Downstream build-up of organic material



Debris deposited on floodplain

Condition Assessment:

Several sites of log jams upstream of the site identified between site 24 and the junction of Wambrook Creek and the Snowy Mountains Highway. Landholder has indicated that there are some areas of moderate bank erosion downstream of this site. A debris jam is located at this site along Wambrook Creek. A large amount of fine sediment and organic material has been deposited along the bank. Assessed as having medium connectivity for fine sediments due to long travel distance to Murrumbidgee water extraction point with opportunities for intermediate storage along channel margins and across floodplain storages.

Risk Assessment:			
Likelihood	Consequence	Trajectory	Risk
3	2	3	18
Risk Rating: Moderate	·	·	•

Management Option: Relocate debris blockage. Fencing and revegetation of site recommended in consultation with the landholder.

Inspect additional locations in the vicinity of this site to identify if other sites of turbidity generation are present.







6.7.4 Site 29

Issue: Channel Deepening	Location: E 675928 N 65989662
Waterway: Wambrook Creek (Upstream of Snowy Mtns	Management Unit: Murrumbidgee 1 South
Hwy)	



Bed deepening upstream of Snowy Mtns Hwy

Condition Assessment:

Wambrook Creek appears to have isolated head cuts over much of its length upstream and downstream of Snowy Mountains Highway. This has the potential to lead to deepening, widening and sediment generation. It would appear appropriate to identify all potential heads via a longitudinal survey. Where destabilising erosion is identified, rock chutes could be constructed to manage sediment generation. This site immediately upstream of the highway is a highly visible site, which could be managed to show the benefits of sediment stabilisation.

Risk Assessment:

Likelihood	Consequence	Trajectory	Risk
4	3	3	36

Risk Rating: High

Management Option: Construction of Rock chute to manage bed deepening in the Creek. Fencing and revegetation to be undertaken in consultation with the landholder.







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6.7.5 Site 30





Rock Bar 220m upstream of confluence with Wambrook Creek

Coarse sediment migrating downstream

Condition Assessment:

This site flows directly into Wambrook Creek at Wambrook Crossing. The gully is a relatively steep high energy gully with localised bank erosion and minor bed deepening over 20m of length upstream of Wambrook Creek. The bed load is coarse gravel which will continue to generate small loads into Wambrook Creek over time. A rock bar 220m upstream of the confluence limits the potential for ongoing deepening. The site would benefit from stock exclusion.

Risk Assessment:			
Likelihood	Consequence	Trajectory	Risk
4	2	2	16
Risk Rating: Moderate			
Management Option: Und	dertake fencing and reveg	etation of the site in consul	tation with the landholder.



6.8 Murrumbidgee 2 North NSW Management Unit

NSW

6.8.1 Site 31

Issue: Bed and bank erosion	Location: E 0696995 N 6043408
Waterway: Ryries Creek	Management Unit: Murrumbidgee 2 North

Catchment Management Authority Murrumbidgee



Moderate vegetation present along Ryries Creek

Condition Assessment:

Disconnected gully in Michelago Valley. It has been assessed as low connectivity for fine sediment transfer.

ikelihood.	Consequence	Trajectory	Risk
2	3	2	12

Risk Rating: Low

Management Option: No structural works recommended. Fencing and revegetation of site recommended in consultation with the landholder.



6.9 Murrumbidgee 2 North ACT Management Unit

NSW

Catchment Manageme Authority Murrumbidgee

6.9.1 Site 32

Issue: Gully erosion	Location: E 0689492 N 6057975
Waterway: Reedy tributary	Management Unit: Murrumbidgee 2 North ACT
Bock lined spillway below farm dam	Fine sediment deposits



Coarse sediment transfer down gully



Existing headcut

Condition Assessment:

Fine sediments and coarse sandy material are actively being eroded from the gully network upstream of gully plug dam. Coarse sediment is settling out prior to the dam, however, a high proportion of fines are likely to be transported beyond the dam and deposited further downstream along the valley floor. These eroded areas are assessed as having a low connectivity for fine sediments as eroded sediments are stored along the valley of Reedy Creek.

Risk Assessment:			
Likelihood	Consequence	Trajectory	Risk
2	3	4	24
Risk Rating: Moderate			

Management Option: No structural works recommended. Fencing and revegetation of site recommended in consultation with the landholder.

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6.9.2 Site 33

Issue: Sediment transport	Location: E 0689700 N 6059437
Waterway: Reedy Creek	Management Unit: Murrumbidgee 2 North ACT



Crossing on Reedy Creek



Confined Reedy Creek channel



Looking across the valley



Phragmites present along banks

Condition Assessment:

This site along Reedy Creek appears to be stable with Phragmites established within bed. Reedy creek in this location is characterised by a broad valley which is presently functioning as a large sediment storage zone for fine and coarse sediments which have been eroded from areas further upstream. This site is assessed as having a low connectivity for fine sediments as eroded sediments are stored along valley of Reedy Creek which is functioning as a sediment sink.

Risk Assessment:			
Likelihood	Consequence	Trajectory	Risk
2	2	3	12

Risk Rating: Low

Management Option: Undertake fencing of the site to exclude stock to encourage the ongoing in-stream establishment of Phragmites.

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6.9.3 Site 34



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Looking past fence to Murrumbidgee River

Condition Assessment:

This site is known locally as the Lanyon Canyon. It consists of an erosion head approximately 5m high, which drops approximately 10m into the Murrumbidgee River. It would appear burrowing by Wombats has encouraged tunnel erosion which has set off a major gullying episode in close proximity to the Murrumbidgee River. To stabilise the site, check banks should be constructed to encourage flow to spill to the north into a more stable flowpath.

Risk	Assessment:
11131	A33C33111C11C

Likelihood	Consequence	Trajectory	Risk
4	5	4	80
Risk Rating: Extreme			

Management Option: Back fill existing scour hole with a clay bank. Face with rock beaching. Define northern spillway to improve overflow stability from the dam. Fencing and revegetation of site in consultation with landholder.



6.10 Murrumbidgee 2 South

6.10.1 Site 35

Issue: Gully erosion	Location: E 0694807 N 6023896
Waterway: Gungoandra Creek	Management Unit: Murrumbidgee 2 South
	21/03/2012 10:57
High vegetation pr	esence along creek bed

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Condition Assessment:

Stable and highly grassed gully with low connectivity for fine sediments.

	Risk Assessment:				
Consequence	Trajectory	Risk			
3	2	12			
	Consequence 3	ConsequenceTrajectory32			

Risk Rating: Low

Management Option: Consider structural work to stabilise gully. Fencing and revegetation recommended in consultation with the landholder. Inspect additional locations in the vicinity of this site to identify if other sites of turbidity generation are present.







6.10.2 Site 36



Relatively stable tributary gully

Condition Assessment:

This gully appears to form a minor tributary of the Murrumbidgee River. Presently, the bed of the gully is well stabilised with a high amount of grassy vegetation present. Initial incision was attributed to stock gathering in drainage line, approximately adjacent to the shearing shed. This site has been assessed as having high connectivity for fine sediments; direct transfer of fine sediments from gully into Murrumbidgee.

Risk Assessment:

Likelihood	Consequence	Trajectory	Risk
4	3	3	36

Risk Rating: High

Management Option: Construct a rock chute in gully to manage bed deepening. Fencing and revegetation to be undertaken in consultation with the landholder.







6.10.3 Site 37



Widespread bank erosion along Murrumbidgee River

Bumbalong Rd crossing, facing downstream

Condition Assessment:

Right bank of river over an extended length (700-800m) consists of vertical banks with grassed stable toe. Higher section of bank may be eroded during high flows, but overall condition of banks is considered to be in a stable state. Assessed as having a high connectivity for fine sediments, as fine sediments eroded from these banks are directly input into flow of Murrumbidgee River.

Risk Assessment:				
Likelihood	Consequence	Trajectory	Risk	
4	4	2	32	

Risk Rating: High

Management Option: Stabilise toe and face of bank with rock beaching, complete fencing and revegetation of site in consultation with the landholder.







6.10.4 Site 38

Issue: Bank erosion	Location: E 0692699 N 6011292
Waterway: Murrumbidgee River Billilingra	Management Unit: Murrumbidgee River 2 South
20/02/2012 13-29	20/00/2018 19:99
Murrumbidgee River, downstream of Billilingra Ro	Bank erosion downstream of crossing

Condition Assessment:

crossing

At this crossing along the Murrumbidgee river, eroded banks are contributing fine sediments into channel. There are also two significant bank erosion sites upstream of this location which require remediation works. This site has been assessed as having high connectivity for fine sediments, as it directly transfers fine sediments from channel banks into the Murrumbidgee River.

Risk Assessment:

Likelihood	Consequence	Trajectory	Risk
4	4	3	48

Risk Rating: Very High

Management Option: Install rock beaching to stabilise eroding banks of the Murrumbidgee River. Fencing and revegetation to be undertaken in consultation with the landholder.

Inspect additional locations in the vicinity of this site to identify if other sites of turbidity generation are present.



6.10.5 Site 39

Condition Assessment:

Issue: Gully erosion	Location: E 0689526 N 5994422 Management Unit: Murrumbidgee 2 South	
Waterway: Un-named Murrumbidgee tributary gully		
	White	

Catchment Management Authority Murrumbidgee

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Grassed stable gully in periurban area on outskirts of Cooma. It has been assessed as having a low connectivity for fine sediments.

Risk Assessment:				
Likelihood	Consequence	Trajectory	Risk	
2	2	1	4	
Risk Rating: Low				

Relatively stable gully with high amount of grassy vegetation present

Management Option: No structural works recommended. Fencing and revegetation of site recommended in consultation with the landholder.









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6.10.6 Site 40



Murrumbucca Creek, facing upstream



Murrumbucca Creek, facing downstream



Localised bank erosion along creek



Bank erosion present along lower reaches

Condition Assessment:

Upstream of crossing, the silty/sand banks are eroding with minimal grassy vegetation present. Downstream of the crossing, bedrock control in channel is limiting further incision. This catchment appears to be a significant source of fine grained sediments to the Murrumbidgee. More significant incision, bank erosion and channel widening appears to be occurring in the lower reaches of this valley. This creek has been assessed as having high connectivity for fine sediments due to very fine grained sediments eroded from bed and banks of incising creek transferred efficiently to Murrumbidgee through gorge setting. This valley would once have been a swampy meadow, not an incised channel contributing large amount of sediments as it is today.

Risk Assessment: Likelihood Trajectory Risk Consequence 4 4-5 64-80 4

Risk Rating: Extreme

Management Option: Install rock beaching to manage bank erosion. Fencing and vegetation of site to be undertaken in consultation with the landholder.