

Sediment Clean-up Closeout Report

Unnamed tributary to Hopping Dicks Ck, TYALGUM

Lot 127/DP755724,

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BACKGROUND

The NSW Soil Conservation Service (SCS) was requested by Hewittville Pty Ltd (the client) to generate a works plan for remediation of an unnamed tributary as per a Direction to take clean-up action, issued by Tweed Shire Council (TSC). The works plan was formulated to satisfy TSC requirements in the direction notice. Upon implementing the plan, the client requested additional input from SCS and NSW Office of Water (OoW) regarding the actual perceived benefits of undertaking the works with respect to the potential drawbacks. The primary concern of the proposed desilting works related to likely disturbance of natural bed and bank materials and the concentration of flows into incised channels. A proposal to leave the sediment in situ and attempt to stabilise through establishment of lomandra was put to TSC as a feasible alternative, supported by NSW OoW

WORKS UNDERTAKEN

Prior to the change in approach, the lower portion of channel from the downstream neighbour's culvert to the boundary fence was desilted. Under flows, this section was reported by the client to be generating more turbidity from water flowing over the exposed clay materials than that travelling over the deposited sand.

260 lomandra cuttings were planted throughout the depositional areas, with all remaining deposited sediments left undisturbed.

CHANNEL INSPECTION APRIL 2015



	Pic 2 – Channel is naturally re-incising. Lomandra colonising in remaining sediments
	Pic 3 – Channel re-incising to an equilibrium
	Pic 4 – Sediment has been scoured back to natural bed materials in higher energy areas



Pic 5 – Channel incising, remaining depositional sediments incorporated into surrounding areas.



Pic 6 – Channel naturally adjusting – scour on outside bends, depositional bars on inside.



Pic 7 – Upstream section, channel scoured back to natural levels.

	Pic 8 – Lomandra colonising in sediments
	Pic 9 – Lomandra colonising in sediments
	Pic 10 – Channel re incised to natural formation.

GENERAL ASSESSMENT AND RECOMMENDATIONS

Since the original depositional event, several significant flow events have occurred through the system. These flow events have seen a natural reworking of the deposited sediments, with general scour through the high energy sections and localised depositions within the narrow channel. Lomandra plantings, while still too juvenile to be providing any real hydraulic roughness and stability to the channel will overtime colonise to provide additional habitat complexity and stabilising groundcovers in a naturally dynamic environment. Some of the 260 original cuttings planted have been removed with the reworking of sediments, while others have taken root well. A rough estimation by the client was 75% remaining. Whilst this number has not been quantified by this report, it can be concluded that through inspection, it would appear that introduction of lomandra to the system has been successful, with an acceptable number of cuttings surviving.

At time of inspection, there was a low flow through the system. It was apparent that the channel had adjusted effectively to accommodate the additional deposited sediments. Areas outside the active channel appeared to be assimilated into the adjacent riparian environment without deleterious effects. As alluded to in the initial report, this reach with low gradient at the bottom of a very steep catchment is expected to support a habitat that is relatively well adjusted to depositional events. It is likely the active channel and surrounding sediments and bank materials will move and change overtime, which is considered a natural stream process at this point in the catchment.

Whilst it is evident that depositional sediments remain in the channel from the initial event, it is the conclusion of this report that they are not of the magnitude to require additional invasive sediment removal or rehabilitation works. Future flow events will see minor reworking of sediments, with deposition most likely at the bottom end due to the influence of the culvert. Flows travelling over remaining deposited materials remain clean as the majority of material is sand. During dry periods, overland flows will cease earlier through remaining areas of deposited sediments, however the frequency of localised scour and force pools around natural obstacles and areas of higher energy indicate that this will not be a significant issue for aquatic habitat in an otherwise ephemeral stream environment.

No Further remediation efforts are proposed as a result of this inspection.