

STUDY AREA
scale 1:2000

figure 1
View looking up river to the weir.



The concrete weir and abutments are proposed to be removed and the river bed re-constructed to match the original cross-section.

Simultaneous restoration of the resulting exposed banks will seek to establish native vegetation before invasive exotic species are able to colonize.

Recreational access enjoyed by most residents living along this section of the Jock River will be preserved, or in some instances, enhanced as part of a restoration program.

figure 2
View of the southern bank in November (weir out).



The south bank of the river is very steep but well vegetated. While it appears from a distance that the bank is prone to erosion from scour and ice movement, closer investigation reveals that damage of this nature is minimal. A thick, healthy layer of leaf litter blankets the majority of the bank, however in the littoral zone, this organic layer simply floats away with the higher water levels, leaving an exposed band of bare soil.

The re-introduction of native vegetation to the littoral band on this bank is made challenging due to the steepness of the bank and difficult access. A combination of seeding and live stakes are recommended. Both of these methods are recommended to be undertaken, immediately after the weir has been removed and the soil moisture level is optimal for rooting and germination.

Live stakes will consist of native, locally harvested rhizomatous willow and dogwood cuttings. As a general rule, live stakes should measure at least 2cm in diameter by 50cm and be installed at least 80% of the length into the ground or deep enough to be in contact with moist soil during summer drought conditions. There are numerous other horticultural practices for harvesting, handling and installing live stakes that are required to ensure rooting. This technique is illustrated in figures 10 & 11. The spacing and layout of live stakes should be done in such a manner to mimic a natural colonization pattern.

A native seed mix applied to the exposed soil in the littoral zone will help to establish vegetative cover and protect against invasive species. Due to the steepness of the bank, a seed mix, along with with an organic bonded-fibre matrix, should be applied with a hydro-seeder wherever possible. Where restricted truck access prevents this, the seed will need to be carefully sown onto the bank by hand.

figure 3
View of the typical condition of the southern bank in September (weir in).



figure 4
View from just above the weir, looking up river along the north bank.



Areas with exposed fine sediments can be effectively seeded with a mix of native grasses, rushes and sedges. Eventually these newly exposed areas will be covered over with vegetation similar to what is shown in the upper right corner of the photo. Establishing native vegetation in these areas will prevent "opportunistic" invasive species, such as Purple Loosestrife from taking over. Soil moisture and temperature are critical factors for successful seed germination and should be a consideration for the proposed timing of the weir removal.

figure 5
View from just above the weir, looking up river along the north bank.



Some of the "flats" will be left as an exposed thin layer (75 to 150mm) of cobbles and gravel. With little to no exposed fine sediment, these areas are not appropriate candidates for broadcast seeding as there is no adequate seed bed. To introduce a native seed source into these zones are pre-empt the establishment of invasive species, potted grasses, rushes and sedges can be manually planted. The gravel and cobbles can be pulled back at each planting location, and a random species mix of 10cm potted stock, can be easily planted in the native soil beneath.

To provide shade at the new water line, clusters of potted or bare root, native, deciduous shrubs and whip stock trees can also be planted in similar fashion. The locations of these clusters should be carefully considered to frame, rather than obstruct residents' views to the river.

Time of year for planting is a consideration, as potted and bare root stock will require supplemental watering in drought conditions, during the establishment period. The stems of woody trees and shrubs should be adequately protected from beaver damage. In the long-term, maintenance and eventual removal of these protection measures should be factored into warranty specifications and long-term operational budgets.

figure 6
View looking down river along the north bank.



figure 10
Cross-section sketch of riparian restoration proposed for the south bank.

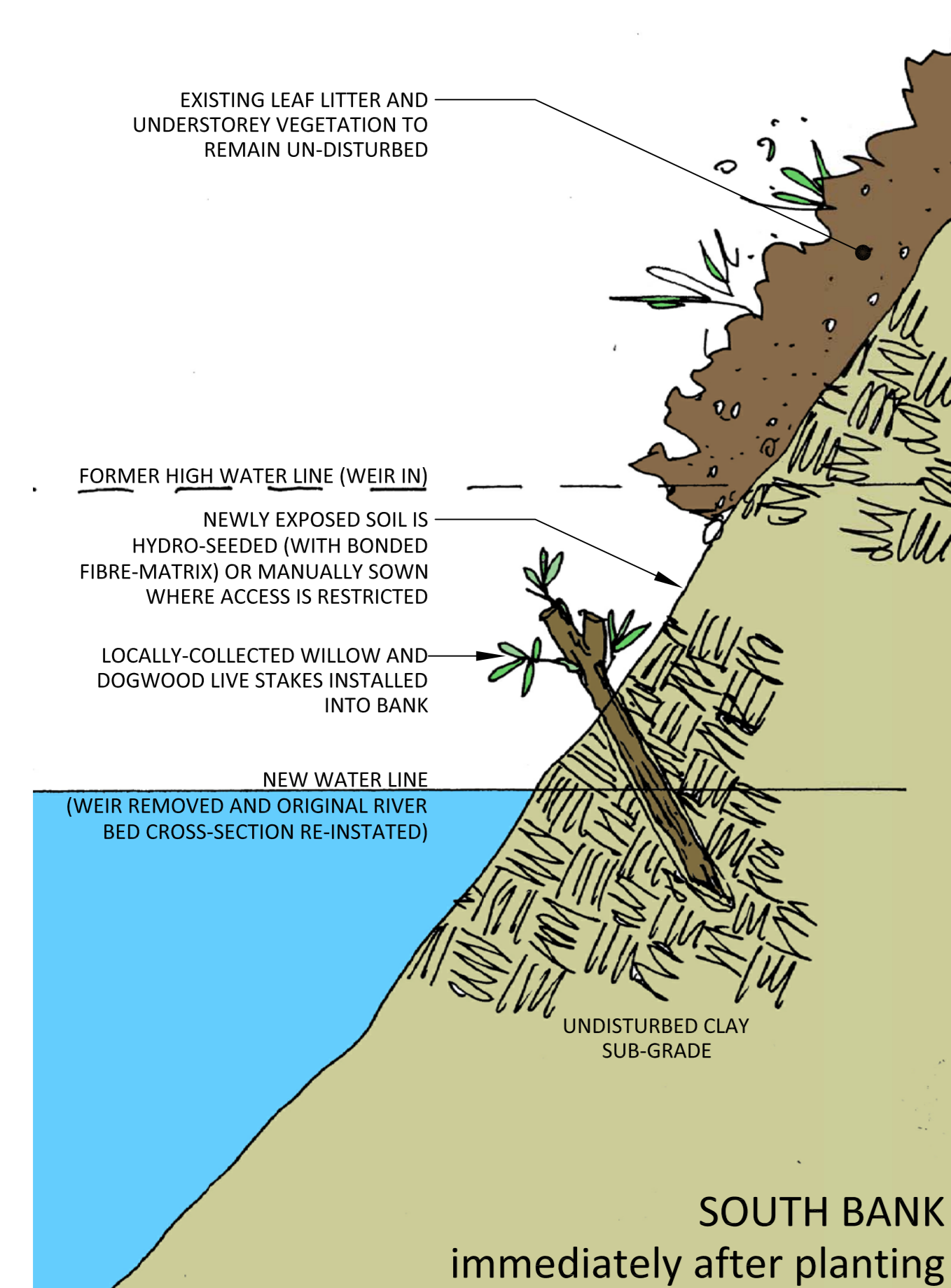


figure 11
Live stake establishment at end of first growing season.

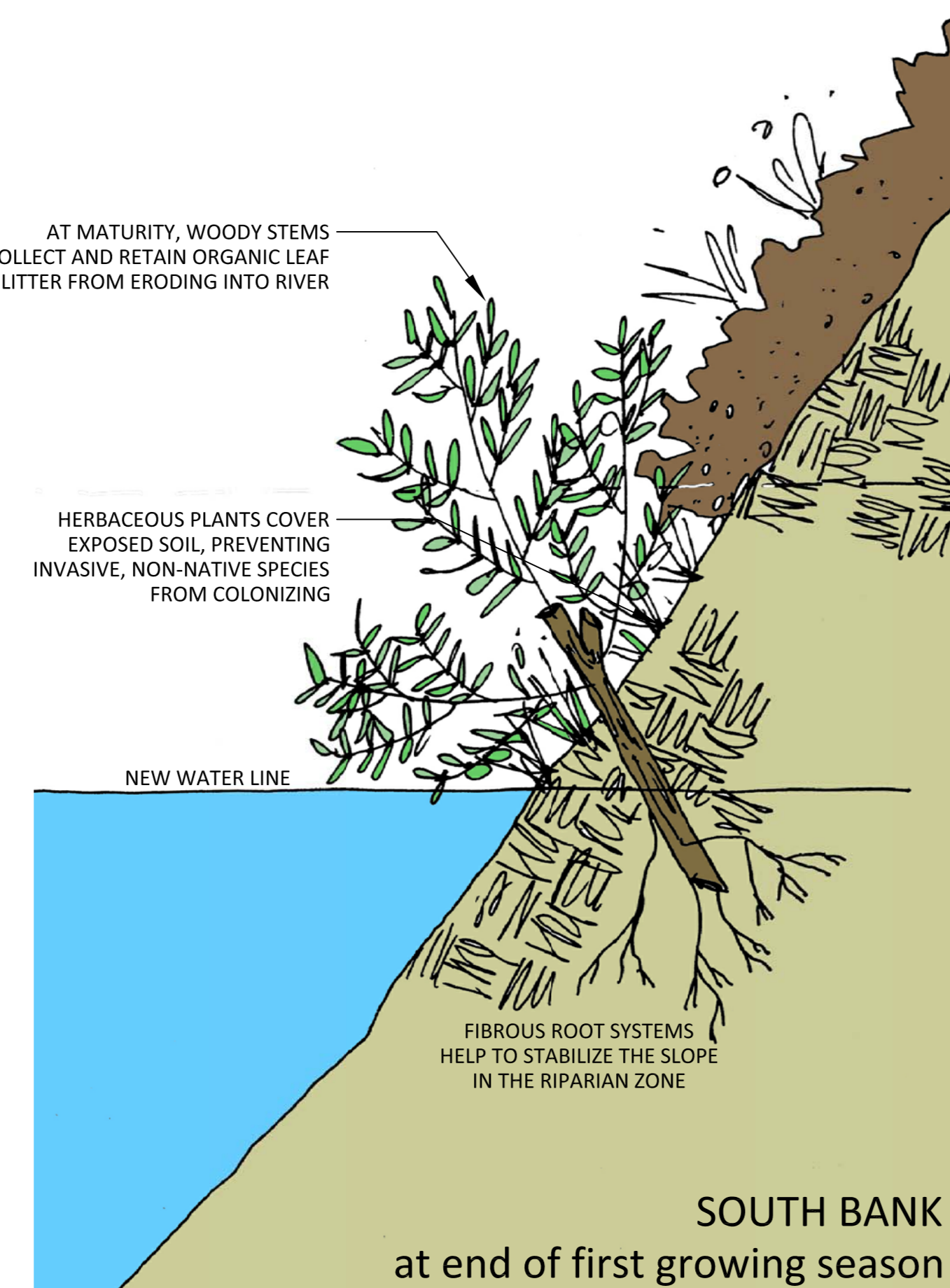


figure 7
View of a homeowner's access on the north bank in April (weir out).



Many of the residents along this stretch of the Jock are concerned about having recreational access to the water eliminated. Flat armour stones, as shown in figure 9, can be placed with little disturbance to the bank, to accommodate access to the adjusted waterline. A similar access point could be created along Goodwood Drive to provide the same opportunity for those not backing directly on the river. Heavy equipment access, for delivery and placement of the stones, is limited. Access to the bank should be considered in planning and during construction staging.

figure 8
View of a homeowner's access on the north bank in April (weir out).



figure 9
An example of low-impact access to a river's edge.



Large armour stones could be placed at each property to permit launching of canoes, kayaks and paddle boats. The dry-laid stones should measure no more than 1.5m wide.