



ENVIRONMENTAL MANAGEMENT PLAN



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Assessor Details:**Name of Assessor:** Kim Magnay**Date:** April 2022**Address:** 24 Highett St**Phone:** (03) 5779 1593**Email:** projects@up2us.org.au**Landholder & Property Details:****Name:** Matthew Leggett **Phone:** 0409 339 252**Trading Name:****Property Address:****Email:** mattleggett1960@gmail.com**Total Property Area:** 25 acres**Background**

Matthew Leggett's 25-acre property is situated on Paps Lane Mansfield. The property is positioned at the base of the Paps, slightly undulating predominantly south easterly facing, sloping towards Lake Eildon. Two marked water ways flow through the property both ephemerals.

One water way hosts series of eroded gullies. Over several years Matt would like to remediate the erosion areas to reduce the impact of continued water flow and soil degradation. With no intention to graze the property Matt wants to increase biodiversity and protect waterways through the introduction of indigenous species and erosion works.

Summary of natural features (soil types, water courses, remnant vegetation, topography, land classes, ground cover)**Soils**

Grey cracking clays, also known as grey vertosol soils, are present throughout this site. These soils contract and crack upon drying creating cracks in the soil that allow water to flow into dispersive sub soils. This can result in erosion as evident on this property. Erosion is the movement of soils particles and/ or rock by water or wind. This process is increased when soils are exposed through low ground cover.

Permanent groundcover for this soil type is an important management consideration as the top-soil will wash/blow away without 80-100% cover. Exposure of the sub-soil can cause erosion, most likely due to the physical structure of the soil with low carbon content. This is indicative of the soil particles separating when exposed to water, therefore, the importance of groundcover at 80-100% is vital. The current evidence is that groundcover less than 70% increases moisture evaporation, wind erosion and water erosion. Areas of highly

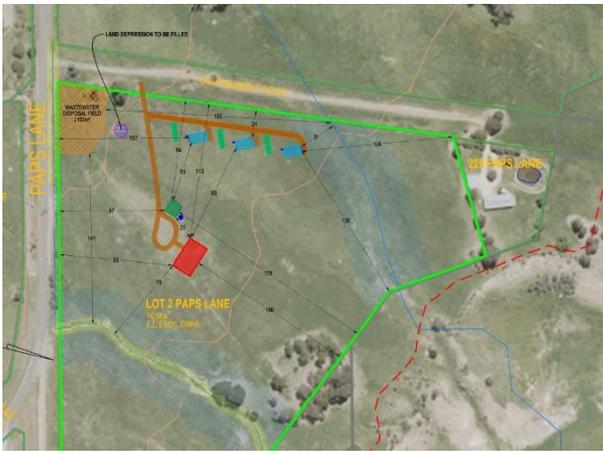
exposed soils are prone to erosion. This can be remediated through the use of a mulch, such as old hay over area help increase ground cover.

Groundcover

While ground cover is dominated by non-native species patches of native grass are present. Predominant native species present are Weeping Grass, *Ehrhata stipoides*, Kangaroo Grass, *Themada triandra*, Wallaby grass species, *Rytidosperma sp*, (all perennial summer active grasses). Non-native pasture species such as Phalaris, paspalum Bent grass, *Agrostis sp*, and Sweet vernal, *Anthoxanthum odoratum*, are present. Species present are able to tolerate low soil fertility and low pH. For other species present refer to Appendix 2. 80-100% of ground cover present across the site except for erosion zones.

For a list of species present please refer to Appendix 2

Water drainage



Two ephemeral water ways flow through the property. One water way has good ground cover consisting of a mix of native and non native grass, sedge and rush species. Juncus species and sedges are present in these areas indicating higher soil moisture and possible inundation in the wetter periods of the year.

The second is an erosion gully. This area is a result of run off from the road. Gullies are both historical and currently active. A more detail description of site in management below.

Remnant Vegetation

Minimal remnant vegetation is present of the property. Plantings of pines and eucalyptus species, many not indigenous to the area are present. Remnant vegetation present on the property consists of Yellow Box, Burgan and Silver wattle. Refer to Appendix 2 for full list.

The introduction of vegetation, including scattered paddock trees and shelter belts can play many roles on your property. Native vegetation can be used to slow wind speeds, reducing evaporation rates of moisture from pastures and dams. Scattered vegetation also has ecological roles, acting as steppingstones for birds, insects and wildlife across the landscape. This fauna can be beneficial to your farming system by controlling pest species. Nutrient cycling of litter also helps improve soil health.

The introduction of new paddock trees, 20-50 meters apart, can help improve the health of these existing paddock trees, creating steppingstones for fauna across the landscape. Maintaining logs and fallen timber around existing paddock trees can assist in creating habitat for beneficial birds and insects. Two-meter weld mesh stock proof guards with four-star pickets can be used to protect young trees until established.

The introduction of native shrubs within 1km of existing paddock trees will increase insectivorous bird movement around paddock trees and create refuge for beneficial insects, assisting the improvement of overall tree health.

When determining where to position shelter belts note where the prevailing winds are coming from. It is important to establish both overstorey and understorey species, and always install a gate and access for maintenance. Planting a minimum of three to four rows of vegetation will increase the benefits of the shelterbelts. Once plants are established, use stock to manage these areas by allowing them to crash graze pasture grass species.

To increase the biodiversity of the property, plants endemic to the area are listed in Appendix 3.

Grazing pressures

There is an abundance of native animals in the area. Kangaroos, deer and wombats may also impact any revegetation work that the landholder is engaging in, this will need to be monitored on an as needs basis. If there is a need for control permits for management of these animals is required – please see <https://www.vic.gov.au/wildlife-management-and-control-authorisations>

Summary of land management (, pest plants and animals, erosion, ,)

Weed Management

Very few weeds were identified during the initial visit to the property. Weeds that the landholders may need to monitor for and manage into the future may include; Sweet Briar (Rosehip), Blackberry and Prunus. Please note – Chemical free methods of weed control involve chipping out unwanted species. Through maintaining 80-100% ground cover, weed species will have less room to establish. Cutting back flowers and smothering with hay is also another option in controlling weed species. If issues arise, please feel free to contact Landcare to discuss management options.

Annual Broadleaf

Cape weed forms in response to baring out of pasture grass, high nutrient loads and compaction. It can compete with annual grasses as it starts to grow in Autumn when the majority of annual grasses are dying. Growing perennial summer active grasses can help outcompete these weeds.

Broad-leaf weeds (Cape Weed, Patterson's curse & Erodium) – Broad leaf specific herbicide when the rosettes are small (May-July), once the rosettes become larger than 100mm wide, they will react more efficiently with a woody weed spray (see notes above). Spray grazing is an option in the control of these weed species. Spray grazing involves spraying the broad leaf weeds while in the rosette form with a low rate of hormone herbicide that make the plants more palatable to stock. The area is then grazed with animals favouring the broadleaves. It is important to remove stock from area before desired grasses are too heavily grazed.

<https://www.agric.wa.gov.au/feeding-nutrition/spray-grazing-broadleaf-weed-control-pastures>

- Spray out the area in late May – June before flowering and then sow with a winter active perennial or annual seed mix, cover with mulch so that the plants establish effectively. Alternatively cover in a high-quality pasture

hay allowing the seed from the mix to translate to the soil and the fibrous part of the hay to assist in breaking down into a higher quality soil.

- Allow the area to repair naturally– this may take several years and you will run the risk of having viable seeds in the soil for several years, lengthening the process of control.

- The use of rotational grazing is reported to be beneficial in controlling cape weed, but your paddock sizes must reflect the number of stock contained in order for efficient rotations. This can be achieved through grazing small areas at a high intensity for short periods of time. Lay old hay over affected areas and allow stock to trample into the soil. Hand broadcasting of desired paster seed, and allowing stock to trample into the soil, in these areas will increase success and help out complete broadleaf weeds into the future.

Woody Weed species identified during the initial visit to the property include Sweet Briar (Rosehip) and Blackberry and Prunis. These will require management and control into the future.

Woody weeds (Sweet Briar, Blackberry, Prunis) - Woody weed specific herbicide with registered wetting agent; always follow manufactures instructions.

- Always wear appropriate PPE, including breathing apparatus, long pants, long sleeves, hat, gloves, eye protection and boots.
- Avoid use of Glyphosate in the woody weed mix as this will kill all ground cover opening the area to other weed infestations or baring soil making it more prone to erosion.
- Flowering species, for example thistle and Paterson’s curse, when in rosette form can be controlled using a broadleaf specific herbicide. Once the plant reaches maturity/flowering woody weed specific herbicide should be used to control.
- Control when plant is actively growing from November to March. Avoid spraying if temperatures are over 35 degrees as plant shuts down in these hot conditions and will not take up herbicide. This is also the case after a frost. The performance of the herbicide will be reduced if applied to soon following a frost or to frost damaged leaves. Wait until plant is actively growing before herbicide application.

Should you require further assistance, please contact Up2Us office or call a Weed Spraying Contractor directly. For all of the specific chemical solutions, please ask at agricultural suppliers (ie. Nutrien Ag Solutions or Corcoran and Parker).

Prunis

Only a few trees were identified within the property on initial site visit. There are a few options for eradication of prunis depending on equipment and resources available. Methods are similar to other woody weed species control.

- For trees under one meter the cut and paste method can be used- cut below the lowest branch and immediately apply glyphosate onto open cut.
- Trees taller than one meter an arborist can be contacted to remove the trees, alternatively the **drill and fill** method can be used. Using a 15-25mm drill bit drill 4 to 6 holes into the trunk of the tree at a slight downward angle to retain herbicide. Do not drill right through the tree as you want the herbicide to stay in contact with the outer layer of the tree. Inject water: glyphosate mix into holes, follow manufactures instructions for dilution rates.
- Non-chemical control methods include hand pulling seedlings, making sure the main root is removed, ring barking below the lowest branch.

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Please refer to Appendix 4 for yearly weed management control

Up2Us in cooperation with Agriculture Victoria and Landcare groups host workshops, field days and courses to promote this learning for small and large landholders. For further information please contact 03 5779 1593.

Erosion Management



Image 1

Red Polygon



Historically road drainage enter the property at this point. This gully is approximately five meters in depth. While this historical damage and a majority of the water has been diverted, yet water still flows through this gully.

The landholder will remediate this issue with the following advice;

- Lay 400mm HDPE pipe in the bottom of trench. Run pipe the length of the trench with outflow meeting rock of neighbouring

rock structure in active head. Fill in with gravel around the head of the pipe.

- Create skirts around pipe every 6-8 meters. Skirts can be fabric, concrete, or plastic. These will slow any water flow outside the pipe allowing the deposit of any fines that move around pipe.
- Backfill over pipe. Fill can be used to cover back up to ground level or the area can be battered back by pushing existing soil in to pit and compressing.



- Cover with grass seed and straw or hay to encourage grass growth. Area can be revegetated with fibrous rooted species. Avoid Eucalypts directly on areas that have been affected by erosion.
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Above fence line – to direct flows down pipe one of two structures can be installed.

1. Rock chute down to 1-1.5 meters in depth into a pit to capture flows. 400mm pipe to flow out of pit. Rock around head of pipe and pit.
2. 900x 2.4 pipe standing horizontally, rock around, run off from road to funnel into top, 400mm pipe at bottom of gully attached at the bottom of horizontal pipe.

Orange polygon



Issue - Subsurface flows are moving through sub soil washing out particles and causing topsoil to slump. Larger flows are then washing this soil downstream. Tunnel erosion present above head. Remediation work will require the area to be cleared with an earth moving machine, battered to a 45-degree angle then use of a combination of geofabric and rocks set in place at the head to stabilise further erosion.

Slowing tunnel erosion above active head (Orange line on aerial) - approximately 6-7 meters above active erosion head cut a trench to a depth of .5-1m. hang geofabric vertically in trench and back fill. This will catch fines that are moving through the soil profile, that are having a tunnelling effect.

Active head

- Shape head by battering out edges to a 45-degree angle to create a chute that the water will flow through.
- Battering the edges of this area to a 45-degree angle will allow plants to grow on the bank with their roots supporting it further. When battering the soil, the soil needs to be removed from the gully rather than pushed into the gully.
- Cover chute with GeoFabric and then rock. The fabric holds the fine soil particles that are being moved by the sub surface flows. Fabric must come to the top of the structure to cover all points of flow.
- Use 300-450mm beaching rock. This rock is angular and will not degrade over time.
- Historical damage below zone one can be battered for aesthetics.
- Strategically positioning of two eucalyptus trees, white circles in diagram above, will raise the ground slightly keeping flows running into zone two.

Blue Polygon



- To batter edges to 45 degree angle by taking material from the centre of the gully and use to fill right and left edges. These edges are historical damage and there is currently no sign of sub surface water flow through the edges.

- Shape active edge to create a chute.
- Cover with geo textile fabric across the bottom of the structure and up edges. In this situation it is important that seepage points identified on site visit are covered with fabric and rock to secure. Geo fabric will hold the fine sediments in place.

- Take batter down to the third step in the bottom of the gully, approximately 5-7 meters. This will create a level run from the bottom of the rock structure approximately 20 to 30 meter downstream near the pines. At this install a rock chute to 1 meter in height line, cover with Geo fabric. This structure will catch silts and fines that flow down stream banking

- Use 300-450mm beaching rock. This rock is angular and will not degrade over time. Approximately 5 truck and trailer loads of rock required. **If** batter is steeper then 45 degrees larger rock 500-600mm will be required.

- Plant Blackwood's, *Acacia melanoxylon*, in the floor of the structure between rock chute and wall to assist with stabilisation over time.

- Cover battered edges exposed soil with straw and seed.



White Polygon

While on Goulburn Murry Waters land this gully is moving back at a rate of approximately 1-1.2 meters per year. If landholder decides to take on this area of erosion the same principals as followed in the orange zone will be required. Batter, Geofabric and rock.

Revegetation Project/s

Increasing the biodiversity of the plants on the property is important to the landholder. This will be achieved by planting along water ways and erosion remediation works, integrating some singular paddock trees and planting a shrub layer along selected property border. The introduction of a diverse range of plant species will also assist in close to all year-round flowering as a food source for beneficial insects and birds.

Areas for revegetation



Image 2

Orange polygon- approximately 1 hectare. Approx. 250-350 stems. Being a shelter belt, this area will require a higher planting density.

A shelter belts will be planted along the road will act as a buffer, connect to roadside vegetation, and slow winds from the north and west in the summer months. Existing recruitment along the waterline will slow winds coming off the lake from the south in the winter.

Blue Circles - Individual paddock trees will be introduced to create steppingstones for wildlife across the landscape and increase biodiversity of the property. Planting shrubs around existing over story species create extra habitat for beneficial birds and insects.

Blue Polygon – approximately .7 hectare.

Once erosion restoration works are complete this area will be revegetated with fibrous rooted shrub and tree species will assist in stabilising the area further.

Green polygon – Approximately .5 hectare. The marked ephemeral waterway.

This area is wetter and will be managed differently to the rest of the block. A 30-meter vegetation buffer will be achieved through the planting of indigenous species to protect this area and allow it to form a biodiversity

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hotspot. Follow the instructions below for site preparation. Low planting densities are required as species such as *Carex appressa* are already starting to establish in this area.

Plants suitable for Revegetation and planting numbers See Appendix 3

Below is a summary table to help guide any revegetation activities you undertake. This information should inform you as to the activity required should you and when you decide to undertake revegetation activities. A full list of nurseries that supply plants and revegetation equipment such as guards and stakes is included in Appendix 1.

Season/ Timing	What to do	Notes
March - June	<p>Site Preparation/Weed Control: Spot spray area to be planted. Do not blanket spray the area, this will encourage the establishment of unwanted broad leaf weed species. Preferably try to spray two times prior to planting, killing any regrowth, reducing competition for seedlings. Multiple sprays are often required when planting into Phalaris pasture, scraping off the topsoil when planting can also be successful.</p>	<p>Note: <i>If planting into native pasture, they are not as competitive as introduced pastures, so alternatively, scalping the area with a shovel at time of planting should be sufficient.</i></p>
June-August	<p>Planting: Plant tube stock at approximately 5-7 metre intervals. Plant over-storey species approximately 20m away from each other interplanting with understory species. Please see species list and note in Schedule 1. When planting loosen soil with shovel or crowbar creating a hole slightly deeper than the depth of the seedling pot and at least the width of the shovel. Remove seedling from pot with minimal disturbance to root system. Place in hole, backfill soil around the roots ensuring the potting mix at the base of the stem of the plant is covered. Create a slight depression around the base of the plant as this will help water collect and soak into the root zone. Water in each plant to ensure there are no air pockets around the roots of the plants which can inhibit growth.</p> <p>Guarding: If grazing by Kangaroos and Deer are a concern - guard with 900mm black mesh guards with one star picket and one wooden stake. Zip tie guard to stakes. If grazing through the top of the guard is an issue zip tie top of guard closed until plant becomes more established. Shorter 450mm guards can also be used in areas with no grazing pressure but rabbits or hare are present. Up2Us have had great success with the black mesh guards in our hot environment. Other options are core flute or plastic sleeve guards. Core flute can create a hot drying environment in</p>	<p>Note: Eucalypts planted closely together consume large amounts of moisture from the soil reducing the ground layer to flourish underneath. This compromises the integrity of the soil, as ground cover is essential in protecting this.</p> <p>Note: Weed matting can be used, it can help retain some moisture around the plant and suppress weeds if planting into thick pasture. Using a mixture of spraying and scalping soil as mentioned above can be also very effective.</p>

	paddock plantings, basking the plant, though are good in extremely windy environments with two stakes to prevent guard from blowing around breaking plant. Plastic sleeves can blow off easily and require three stakes. They are a cheaper alternative in areas that are monitored regularly.	
Ongoing monitoring and actions	Monitor seedlings and water as required through the warmer and drier months for one to two years. This will help your plants establish. Monitor and control pest animal species as required. (Seek permits through DWELP where required e.g. Kangaroos) Monitor and control weed species as required. Methods of control; chemical, manual removal. Notes of common weeds in schedule 2. Maintain fence lines in a stock proof condition.	
Season/ Timing	What to do	Notes
	If in-fill planting is required prepare site for planting following previous years direction. Once plants are established, usually 5-7 years, crash grazing of site can be a good way to control grassy weeds.	Contact Up2Us Landcare Alliance for support to reorder by November of the year before the next planting; Or contact your local nursery – see list in Appendix 1

A full table of indigenous vegetation that we were able to record on your property (Appendix 2) along with a full plant list for revegetation of the bottom paddock and around the dams is included in Appendix 3.

Future maintenance of your revegetation site

To control grassy weed species within the revegetation area, crash grazing the site can be successful. Please ensure your trees are established (approx. 5 years).

Crash grazing - short periods of stock in revegetation area with monitoring in Spring and Autumn when growth of grass is at its peak. This type of grazing needs to be monitored so that plants are not compromised and damaged.

Timeline of works to be completed

Year one 2022/2023

November 2022 – Order 295 stems for June planting 2023. This can be done through Up2Us Landcare Alliance. Plants to come from Euroa Arboretum Indigenous Nursery.

November 2022/ March 2023 – Landholder to monitor and control woody weeds where required. Manual and chemical removal.

December 2022/April 2023 - Landholder to complete remediation works of erosion site marked as blue polygon, Image 1, erosion management.

Year two 2023/2024

June/ August 2023 – Receive plants in June. Landholder to start revegetation along waterways, green polygons. Plant trees in erosion management above white polygon, refer to Image 1 erosion management. Introduce paddock trees. Guard as required.

November 2023/ March 2024 – Landholder to monitor and control woody weeds where required. Manual and chemical removal.

November 2023 – Order 295 stems for June planting 2024. This can be done through Up2Us Landcare Alliance. Plants to come from Euroa Arboretum Indigenous Nursery.

December 2023/April 2024 – Landholder to complete remediation works of erosion site marked as orange and red polygons, Image 1 erosion management.

November 2023 / March 2024 – Monitor and water seedlings if required.

Year three 2024/2025

June/ August 2024 – Receive plants and infill plant along waterways, green polygons. Revegetate along corridor and through erosion site. Guard as required

November 2024 – Order 295 stems for June Planting 2025. This can be done through Up2Us Landcare Alliance. Plants to come from Euroa Arboretum Indigenous Nursery.

November 2024/ March 2025 – Landholder to monitor and control woody weeds where required. Manual and chemical removal. Monitor and water seedlings if required.

Year four 2025/2026

June/ August 2025 – Landholder to complete infill planting across all sites. Guard as required.

November 2026 – Order stems for June Planting 2027 if required. This can be done through Up2Us Landcare Alliance. Plants to come from Euroa Arboretum Indigenous Nursery.

November 2025/ March 2026 – Landholder to monitor and control woody weeds where required. Manual and chemical removal. Monitor and water seedlings if required.

Ongoing maintenance

- Landholder to monitor and control weed species where required. Manual and chemical removal.
- Ongoing monitoring of erosion, maintenance where required.
- Remove guards once plants are established.
- Infill planting where and when required

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Appendix 1

Nurseries and Supplies

[Euroa Arboretum](#)

Address: Euroa Main Road, 76 Hume Fwy, Euroa VIC 3666

Phone: 0429 127 399

Email: nursery@euroaarboretum.com.au

[Park Lane Nursey](#)

Address: 95 Park Ln, Wangaratta VIC 3677

Phone: (03) 5721 6955

Email: enquiries@parklanenursery.com.au

Speciality Trees

[Sure Gro Treemax](#)

Address: 56-60 Woodlands Dr, Braeside, Victoria **(Deliver to Mansfield)**

Phone: 1800 643 384

Email: info@suregro.com

NOTE: Should you require assistance with planting orders, Up2Us creates an order in November/December for the following May/June/July planting period. Please feel free to contact us about this.

Appendix 2

Native Vegetation – species recorded on initial site visit

Type	Botanical & Common Name	Description of location
Large Trees 10m+	<i>Eucalyptus camaldulensis</i> – Red Gum	
	<i>Eucalyptus melliodora</i> – Yellow Box	
	<i>Eucalyptus gonicalyx</i> - Long Leaf Box	
	<i>Eucalypt</i> sp	
	<i>Acacia dealbata</i> – Silver Wattle	
	<i>Acacia melanoxylon</i> - Blackwood	
Grasses/ Rushes/ Sedges	Rush spp.	Observed in paddock
	<i>Rytidosprema</i> sp – Wallaby Grass species	Observed in paddock throughout the property
	<i>Carex appressa</i> - Tall Sedge	Present in drainage lines and ephemeral creeks
	<i>Themada triandra</i> - Kagaroo Grass	Patches observed in paddock across property
	<i>Ehrharta stipoides</i> – Weeping grass	Patches observed in paddock across property
Herbs/ Lilies	<i>Acaena novae-zelandia</i> , Bidgee- Widgee	Observed in paddock across property
	<i>Vittadinia gracilis</i> –Woolly New Holland Daisy	Observed in paddock
	<i>Lomnandra filiformis</i> – Wattle Mat Rush	Observed in paddock
Fern species	<i>Adiantum aethiopicum</i> - Common Maiden hair fern	Observed in soak
	<i>Blechnum nudum</i> – Fishbone water fern	Observed in soak

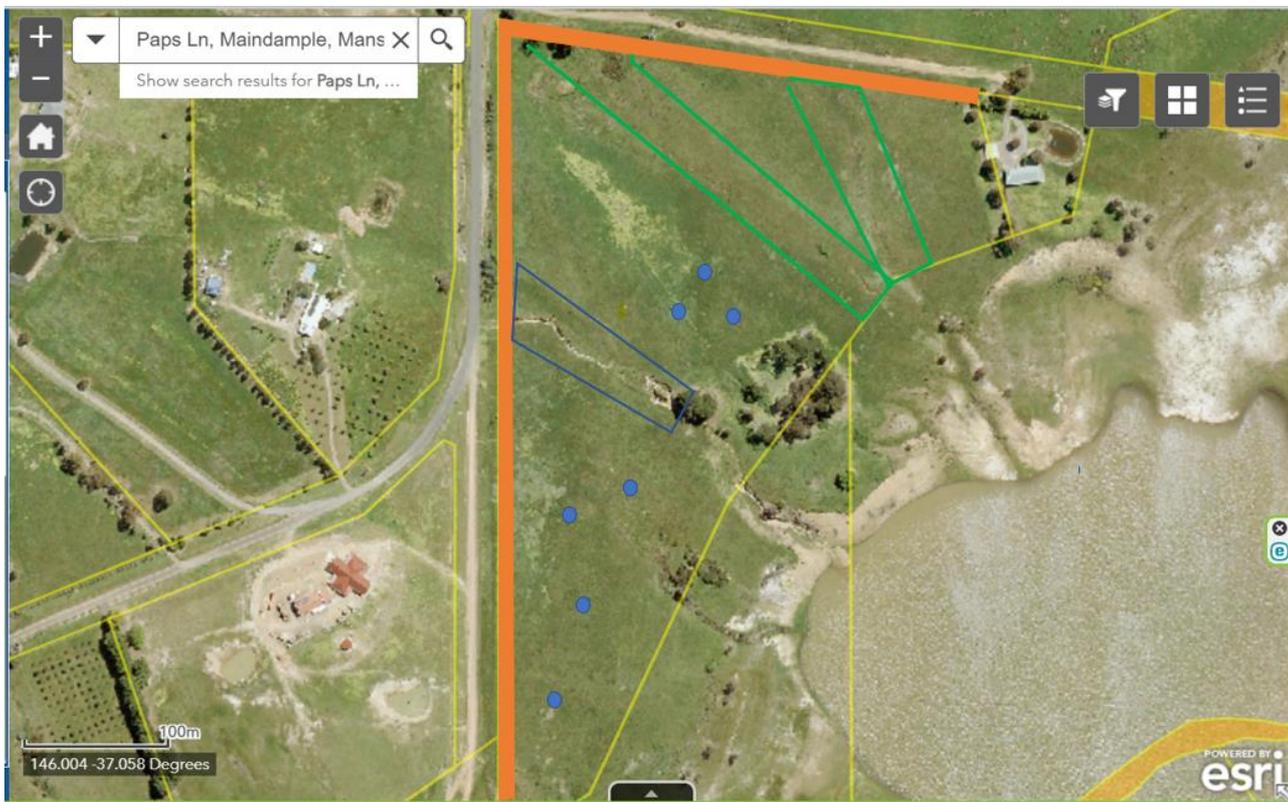
Non Native – species recorded on initial site visit

Type	Botanical & Common Name	Description of location
Woody Weeds	<i>Rosa rubiginosa</i> , Sweet briar	Few individual plants
	<i>Rubus freuitcosus</i> , Blackberry	Few individual plants
	<i>Prunis</i>	Few individual plants
	<i>Pinus</i> sp	Few Trees present across site
Ground Flora Sp	<i>Hypochaeris</i> sp, Flat weed	Present across site
	<i>Rumex</i> sp, Sorrel	Present cross site

	<i>Echium plantagineum</i> , Patterson's Curse	Few plants present across site
	Thistle species	Few plants present across site
	<i>Arctotheca calendula</i> , Cape Weed	Minimal plants present across site
Grasses	<i>Ehrharta sp.</i> , Veldt Grass	Present under Eucalypts
	<i>Plantane sp.</i> , Plantane	
	<i>Paspalum dilatatum</i> , Paspalum	Present in low-lying moist areas
	<i>Holcus lanatus</i> , Yorkshire Fog	Present in low-lying moist areas
	<i>Agrostis</i> , Bent grass	Present across much of the site
	<i>Phalaris aquatica</i> , Canary grass	Present across site

Appendix 3

Indigenous Vegetation types – Enhancement/ Revegetation



Green Polygon 1 hectare - Species list and planting notes for ephemeral creeks and low laying wet areas – numbers provided once decision about whether to proceed with revegetation activity. Approximately 250-350 stems per hectare.

Trees	Number of Plants	Planting/Site Description
<i>Acacia dealbata</i> , Silver Wattle	25	Plant along water courses and in lowlands. Tolerates drier and shallow soils. Dislikes permanently wet soils.
<i>Eucalyptus camaldulensis</i> , Red Gum	5	Light to heavy well drained soils. Can tolerate inundation. Plant on flats or lower slopes. Distribution generally coincides with much of the cool temperate pastoral and cropping of south eastern Australia.
<i>Acacia melanoxylon</i> , Blackwood	25	Tolerates a range of sites from well drained fertile soils to dries soils in exposed situations. Plant on lower land. Good for erosion, long lived.
<i>Eucalyptus melliodora</i> , Yellow Box	5	Light to heavy well drained soils. Plant on flats or lower slopes. Distribution generally coincides with much of the cool temperate pastoral and cropping of south eastern Australia.
Shrubs		Planting/Site Description
<i>Acacia verniciflua</i> Varnish Wattle	35	Prefers well drained shallow soils but will grow in clay. Preferably plant on lower slopes to flat. Tolerates frost and extended dry periods.
<i>Melaleuca praviataminea</i> Rough Barked Honey-myrtle	35	Mostly found on poorly drained shallow soils along water courses and lakes. Great for bees
<i>Leptospermum continentale</i> , Prickly Tea-tree	35	Diverse plants. Prefers well drained soils yet can tolerate heavy and poorly drained soils, extended wet or dry periods. Plant along water courses, around dams or springs, or lower slopes. Great for bees
<i>Kunzea ericoides</i> , Burgan	35	Diverse plants. Prefers well drained soils yet can tolerate heavy and poorly drained soils, extended wet or dry periods. Plant along water courses, around dams or springs, or on slopes.
<i>Callistemon sieberi</i> , River Bottlebrush	35	Plant along waterways or around dams, springs or bogs. Likes wet to moist growing conditions, Clay soils, Frost tolerant, full sun or shade. Tolerates dry conditions once established.
Ground Covers		Planting/Site Description
<i>Poa labillarderi</i> , Poa spp	30	Plant along banks and on drier sites will tolerate some inundation.
Tall Sedge <i>Carex appressa</i>	30	Plant around water line of dam in through inflow area. Can tolerate inundation and dry.

Area/Zone – Orange and Blue Polygons Shelter bet surrounding property and remediation zones

Species list and planting notes to help support woodland birds and their food source.

Orange Polygon Approximately 350 stems per hectare

Blue Polygon Approximately 150-200 stems per hectare.

Trees	Number of Plants	Planting/Site Description
<i>Acacia melanoxylon</i> , Blackwood	50	Tolerates a range of sites from well drained fertile soils to dries soils in exposed situations. Plant on lower land. Good for erosion, long lived.
<i>Acacia mearnsii</i> , Black Wattle	50	Grows in dry shallow soils, plant at low to mid slope on eastern and southern slope. Tolerates extended dry periods. Long lived.
<i>Acacia implexa</i> , Lightwood	50	Well drained soils found on shallow, rocky dry soils & fertile plains. Can be planted on hill sides and on flat. Very long lived.
<i>Acacia dealbata</i> , Silver Wattle	30	Plant along water courses and in lowlands. Tolerates drier and shallow soils. Dislikes permanently wet soils.
<i>Eucalyptus melliodora</i> , Yellow Box	10	Light to heavy well drained soils. Plant on flats or lower slopes. Distribution generally coincides with much of the cool temperate pastoral and cropping of south eastern Australia.
<i>Eucalyptus microcarpa</i> , Grey Box		Plant on lower slopes and flat land. Tolerates heavy soils, infrequent flooding and extended dry periods
<i>Eucalyptus gonicalyx</i> , Long-leaf Box		Prefers dry shallow soils on sloping sites. Plant on low hill and slopes.
Shrubs		Planting/Site Description
<i>Acacia verniciflua</i> Varnish Wattle	30	Prefers well drained shallow soils but will grow in clay. Preferably plant on lower slopes to flat. Tolerates frost and extended dry periods.
<i>Acacia rubida</i> , Red-stem Wattle	30	Plant on hills on drier soils. Tolerate dry soils, frost & drought. Very Hardy. Not very tolerant of water logging.
<i>Bursaria spinosa</i> , Sweet Bursaria	30	Requires well drained soils, plant on hill side or flats, good for erosion sites. Slow growing, long lived. Prefers drier areas
<i>Acacia acinacea</i> , Gold-dust Wattle	30	Hardy shrub. Prefers well drained, sandy or gravelly soils. Resents poor drainage. Plant on hills or lower slopes. Tolerates frost and drought. Fast growing, life span may be several decades.
<i>Acacia paradoxa</i> , Hedge Wattle	30	Found in both dry shallow soils and heavier soils. Good for planting on rocky hill sides. Can withstand extended dry periods.
<i>Daviesia leptophylla</i> , Narrow-leaf Bitter-pea	20	Plant on well drained soils in dry open sites. Plant on flats on hill sides under over story species.
<i>Banksia marginata</i> Silver Banksia	20	Diverse plant. Prefers well drained soils but can tolerate short periods of inundation. Plant along creek lines. Prefers minimal competition from grass species, reacts well to mulching.
<i>Narrow-leaf Hop-bush</i> <i>Dodonaea viscosa subsp. angustissima</i>	30	Tolerates frost and drought. Plant in well drained soils. Grows in rocky outcrops and sandy soil. Good screening shrub.
<i>Miebelia oxylobioides</i> Mountain Mirbelia	30	Well drained soil in semi shade, Tolerates drought and frost. Grows to 1.5m,

<i>Correa reflexa</i> , Common <i>Correa</i>	30	Plant in higher drier areas. Does not like waterlogged soils, likes well drained soils. Tolerates full sun and frost.
<i>Indigofera australis</i> , Austral Indigo	20	Tolerates poor, shallow soils in semi or dappled shade. Tolerates moderately heavy frosts and extended dry periods.
Cats Claw Grevillia <i>Grevillia alpina</i>	20	Found in variety of well drained sites. Plant on higher ground and avoid inundation.
Ground Covers		Planting/Site Description
<i>Poa labillarderi</i> , <i>Poa</i> spp	50	Plant on drier sites will tolerate some inundation.

Paddock Tree Suggestions

Trees	Number of Plants	Planting/Site Description
<i>Eucalyptus melliodora</i> , Yellow Box	3	Light to heavy well drained soils. Plant on flats or lower slopes. Distribution generally coincides with much of the cool temperate pastoral and cropping of south eastern Australia.
<i>Eucalyptus camaldulensis</i> Red Gum	3	Light to heavy well drained soils. Plant on flats or lower slopes. Distribution generally coincides with much of the cool temperate pastoral and cropping of south eastern Australia.
<i>Eucalyptus polyanthemos</i> , Red Box	3	Plant on lower slopes, stony ground, ridges and/ or dry slopes. Prefers well drained soils.
<i>Eucalyptus microcarpa</i> , Grey Box	3	Plant on lower slopes and flat land. Tolerates heavy soils, infrequent flooding and extended dry periods
<i>Eucalyptus goniacalyx</i> , Long-leaf Box	3	Prefers dry shallow soils on sloping sites. Plant on low hill and slopes.

Appendix 4

Timeline of works

Summer 2022/2023 complete erosion works

Summary of works/ yearly management plan

Activity	Action/ Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Weed control	Sweet Briar/ Broome/Thistles/Blackberry	S. Briar B. Berry Prunis	S. Briar B. Berry Prunis	S. Briar B. Berry Prunis	S. Briar B. Berry Prunis	Broadleaf weeds	Broadleaf weeds	Broadleaf weeds	Thistle	Thistle	Thistle S. Briar B. Berry Prunis	S. Briar B. Berry Prunis	S. Briar B. Berry Prunis
Site Preparation for revegetation	Spray plots in preparation for planting 8 & 2wks prior to planting												
Revegetation	Planting												

'To lead in the preservation and enhancement of our ecosystems by empowering community to act'

Resources:

Economic benefits of shelter belts - [The economic benefits of native shelter belts.](#)