Woodend Golf Club Environmental Management Plan

2022-2032

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Environmental Golf Solutions

Environmental Golf Solutions

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Disclaimer

Although Environmental Golf Solutions Aust. have taken all the necessary steps to ensure that an accurate document has been prepared, the company accepts no liability for any damages or loss incurred because of reliance placed upon the report and its contents.

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We would like to recognise the traditional owners of these lands, the Dja Dja Wurrung people and pay our respects to elders, past, present and emerging.

1. Introduction

Woodend Golf Club engaged Environmental Golf Solutions (EGS) to prepare an Environmental Management Plan (EMP) to assist with managing native vegetation and fauna habitat throughout the site that occupies Woodend Golf Club, located at 11 Davey Street, Woodend, Victoria, 3442.

The EMP is a part of The Future-Proofing Woodend Golf Club project, which was made possible by receiving a Community Funding Scheme Grant from Macedon Ranges Shire Council through the Stream 3: Supporting local environmental priorities.

The Environmental Management Plan is an integral part of the project and sets up a scope of action towards 2030 for the club. The plan will inform future approaches to course management, decarbonisation, waste management, building natural capital and community engagement with the club. Essentially, the EMP and other actions with the project future-proof public golf in Woodend, ensuring the physical and mental health benefits of participating in sport. It also future-proofs a vital green space for community connection and safeguards local biodiversity.

This project will benefit Woodend Golf Club members, visitors, community & partners engaged in planning: Golf Australia, MRSC, Landcare Woodend, Western Water, Traditional Owners, Enviro Golf, Sports Environment Alliance, Regional Sports Assembly, Woodend Bee Society, Men's Shed, ACF & AEF It will support MRSC priorities:

- Promote health & wellbeing
- Providing opportunities for members, old & young, to connect through golf & club initiatives.
- Provide opportunities to learn from Traditional Owners to manage the course environment.
- Protect the natural environment
- Assess climate change risks & create a plan to mitigate & adapt to these risks
- Formalise plans to protect, rehabilitate & enhance the biodiversity of flora & fauna, including pollinator & wildlife corridors, the endangered black gum, grey box woodland & grasslands that could become seed banks
- Installation of nesting boxes & a bird spot program
- Contribute to Western Water & MRSC water catchment through course water management. It will contribute to the quality of the Campaspe River & Headwaters Water Way Biolink, and the pump renewal will avoid storage & discharge issues from the Western Water recycled water facility into Five Mile Creek.
- Be the first Green Sport Action, Cool Changes 3442, MRSC Woodend Region Climate Action Plan
- Consider & complement the MRSC Biodiversity Strategy & Climate Action plan
- Support MRSC facility renewal plans for WGC
- Contributes positively towards reducing carbon emissions & waste management water quality and consider MRSC waste management strategies.
- Utilise AEF/ACF report for clean energy opportunities
- Provide safe & accessible activities for all ages
- Cross community access increasing suitable use by other community groups
- Enhance social & economic environment
- Provide a case study for other clubs and golfing bodies

a. Aim

The purpose of this EMP is to:

- Identify the range of environmental issues relevant to the sustainable management of the study site's existing flora and fauna values within the context of golf course operations.
- Provide management practices for rough zones, keeping in mind the tightness of the course and ensuring playability is not slowed.
- Identify sites suitable for revegetation to:
    - enhance the aesthetics of the course without affecting play
    - rehabilitate the course with indigenous species (especially the endangered black gum and grey box woodland and grasslands)
    - providing more habitat for fauna (nest boxes, lizard logs and insectariums)
    - create pollinator plots, wildlife corridors
- Identify maintenance practices for the billabongs and internal waterways within site.
- Working in conjunction with the club's Tree contractors to co-ordinate a manageable approach to tree removal, retention, and re-planting, ensuring actions are consistent with course design and turf management principles
- Conserve and enhance the landscape and habitat values of the course without deviating away from the Woodend Golf Club character
- Assess climate change risks & create a plan to mitigate & adapt to these risks
- Identify partnership opportunities, including Woodend Landcare and the Woodend Bee-friendly Association.
- Contribute to clubhouse planning resilient to climate change trends, sustainable & contributes positively towards reduction in carbon emissions, waste management & water quality.
- The inclusion of Traditional Owners in the planning process will empower indigenous knowledge in planning nature-based solutions. It will also allow the club to gain some cultural understanding of the land on which the club sits. It is the first time that the club has sought to engage with Traditional Owners.
- Identify beneficial memberships, e.g. Joining Sports Environment Alliance Australia, the peak body for environmental leadership and advocacy of the sporting community, will allow the club to utilise world-leading experts in the sport and climate space, attend member events and seek support to promote the clubs' successes to a broader network.

The production of an Environment Master Plan will provide a platform for improving the sustainability performance of the Woodend Golf club as a community facility. The plan will assess the clubs' current practices, risks, opportunities, and actions to ensure that the club is climate aware, sustainable & contributes positively towards reduction in carbon emissions & waste management.

The most significant asset of a golf course is the course itself, and Woodend Golf Club is committed to becoming an ecologically sustainable golf course. Although notable work and planning have occurred in the past, the task and emphasis is now more significant and with weeds continually growing and trees becoming unsound, now is the best time to put plans into action. Recommendations within this plan will involve considerable expenditure and commitment by the club on an ongoing basis. This will maintain the beauty, functionality, and natural capital of the course well into the future.

b. Approach

To meet the above objectives, this plan:

- Provides clear, practical and affordable environmental design guidelines and prescriptions that can be readily integrated with current management systems
- Establishes appropriate vegetation management and revegetation strategies that positively responds to golf course design and management imperatives
- Enables ongoing review, auditing and updating as part of an overall integrated environmental management plan
- Takes into consideration the community stakeholders and their current environmental reports and outcomes

EGS prepared the EMP after several site visits to the course and neighbouring native reserves, meetings conducted with the Course Superintendent, course environment committee, local groups, reviewing previous reports, studying aerial course maps, and searching through related documents from a range of internet sources.

c. Site

The Woodend Golf Course is a charming, scenic rural layout located in the heart of the Macedon Ranges, some 75km north of Melbourne. The course is situated in a beautiful undulating parkland setting and boasts glorious 360-degree panoramic views of the Macedon Ranges & surrounding countryside.
Early members had the foresight to plant an extensive selection of flora which over many years has matured into a blend of large European exotics species such as Spruce, Cypress, and Oak along with many native Australian examples like Flowering & Scented Gums, Wattles and even the endangered Black Gum which is native to the Woodend area.

Bird life is also abundant with Kookaburras, Galahs, Cockatoos and even examples of the majestic Wedge Tail Eagle often seen above. These are joined by Kangaroos, Koalas, and you might even see the reclusive Black Wallaby around the back of the course if you're lucky.

The men's course is par 67 and measures 4770 meters, and the ladies a par 68 coming in at 4571 meters. Whilst not long by modern standards, the course is still quite a challenge, defined by its tight tree-lined fairways and slick devilishly sloping greens. (About Us - Woodend Golf Club)

Figure 1: Looking down the 15th fairway from tee.

d. Relevant Policy, planning and legislation

The study site is zoned as a Schedule 3 Special Use Zone under the Macedon Ranges planning scheme.

Planning overlays:

- Environmental Significance overlay – schedule 4 (ESO4)
- Land subject to inundation overlay (LSIO)
- Protected Settlement Boundary (PSB)
- Vegetation Protection Overlay – schedule 3 (VPO3)
- Significant landscape overlay – schedule 1 (SLO1)
- Areas of Aboriginal Cultural Heritage
- Designated Bushfire Prone Area

Native plants that are indigenous to the region and important for biodiversity might be present on this property. This could include trees, shrubs, herbs, grasses, or aquatic plants. There are a range of regulations that may apply including need to obtain a planning permit under Clause 52.17 of the local planning scheme.

2. Vegetation

The vegetation at Woodend GC is a mixture of exotic, Australian native, and local indigenous species. Trees are the dominant vegetation type, with select pockets of understory and evidence of indigenous grassland areas within the mown rough. The understory is mainly exotic grasses and weeds, but there are some great pockets of remnant vegetation showcasing the wildflowers and orchids found on site.

Throughout the course, there are several significant indigenous trees that, if appropriately managed, can be an asset to the club.

A feature of Woodend is the exotic trees, and that current aspect should not be lost as it adds character and individuality. However, trees being living organisms, do not live forever, and a qualified arborist should carry out regular maintenance to ensure health and safety.

Figure 2: Looking back at 2nd tee from green.

a. Ecological Vegetation Classes

A key aim of the EMP is to enhance and protect the remnant and regenerating vegetation found throughout the club's property whilst keeping in mind the design and play aspects. The study site falls within the Central Victorian Uplands Bioregion. There are three EVC's currently present on Woodend Golf Club, Plains Grassy Woodland (EVC no.55) - Endangered, Valley Grassy Forest (EVC no.47) – Vulnerable and Swampy Riparian Woodland (EVC no. 83) – Endangered.

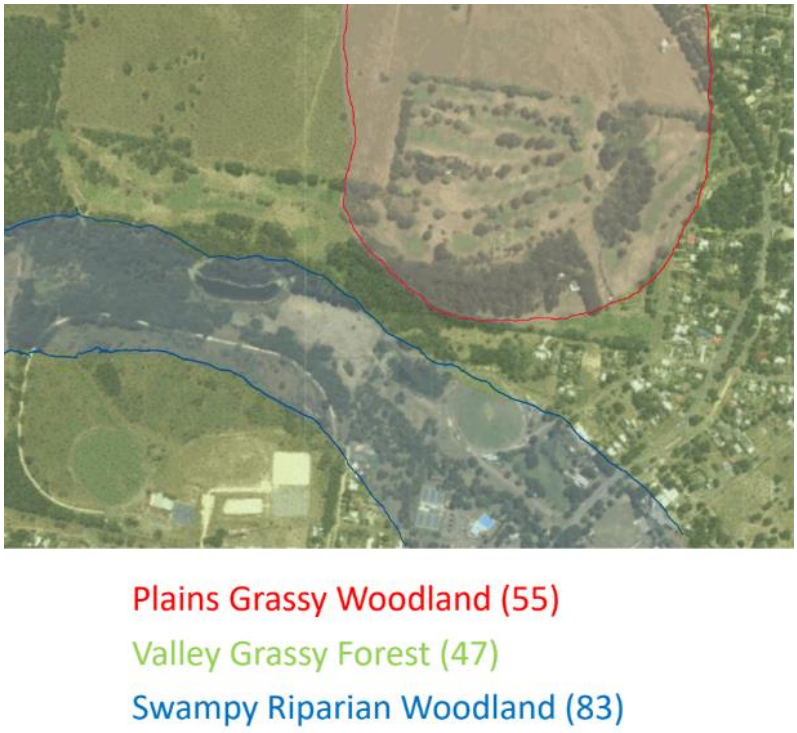


Figure 3: Ecological Vegetation Class Map

Plains Grassy Woodland 55 - An open, eucalypt woodland to 15m tall occurring on several geologies and soil types. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer.

Valley Grassy Forest 47 - Valley Grassy Forest occurs under moderate rainfall regimes of 700-800 mm per annum on fertile well-drained colluvial or alluvial soils on gently undulating lower slopes and valley floors. Open forest to 25 m tall may carry a variety of eucalypts, usually species that prefer more moist or more fertile conditions over a sparse shrub cover. In season, a rich array of herbs, lilies, grasses, and sedges dominate the ground layer but at the drier end of the spectrum the ground layer may be sparse and slightly less diverse, but with the moisture-loving species still remaining.

Swampy Riparian Woodland 83 - Woodland to 15 m tall generally occupying low energy streams of the foothills and plains. The lower strata are variously locally dominated by a range of large and medium shrub species on the stream levees in combination with large tussock grasses and sedges in the ground layer.

b. Tree Management

Trees are a significant component of most golf courses in Australia. Correct species selection and proper planting location are paramount; if this is done well, trees can be spectacular and functional golf course features for decades.

On the other hand, inappropriate species selection and incorrect tree plantings can be a nightmare for the golf course and those who manage it. Gaining expert knowledge that considers the course architecture, shade issues, air movement and damage from roots is needed and can even be a challenging task for professionals.

That is why many golf courses these days are having management issues with trees, there was good intention to plant trees back in the day, but little consideration was given to the effect it would have in the future. It is important to remember that trees are living organisms and do not live forever. Correct maintenance can extend the life of a tree; however, one day, it will have to be removed. Therefore, detailed plans are needed to assess trees and their management in the future, not only for their health but also for the golf game.

Indigenous trees endemic to the region are best planted vs native trees from other regions. Repeatedly Western Australian species in the east and eastern species in the west have caused hydrology changes that can take years of remediation to reverse the effects vs local plantings that, with forethought, would have worked to achieve better outcomes. Succession plantings for exotic species in the front half of the course should be considered to maintain the autumnal and shade character.

c. Rough Management

Roughs are often a controversial area on the golf course. Roughs that are poorly maintained or have grass which is too long, result in slow play, lost balls and frustrated golfers. You must evaluate the qualities of a rough from several perspectives. The golf professional may look at it from the viewpoint of trying to maximize and speed up play. Golfers and course architects may suggest that the course should penalize poor shots, but not too much. Finally, the rough must fit the requirements of the golf course superintendent, who must work with limited resources to maintain this peripheral but significant portion of the golf course.

It is therefore important for a policy on roughs is established and for each hole, ‘no-mow’ areas are identified. On golf holes that have large areas of grassed, open space that is out of play, considerations should be given to re-vegetating with native plants that do not require mowing. In some instances, native grasses have been identified once the rough has been allowed to grow.

Mapping this on boards in the club house, website and workspace means that volunteers, visitors and golfers alike can help manage and maintain these spaces within the resources of the club, for the environment, to challenge the player and to look spectacular.

It is important for Woodend to strategically manage their roughs and note that throughout the process areas may have to be altered. Woodend is a tight course with many golfer abilities being played all throughout the year, therefore it is imperative that any decisions in the rough do not have a detrimental effect on the golfer's game.

Suggested no mow areas should be managed differently to in play rough. These areas can be mown at a higher height, less often and at particular times of the year. This will reduce labour costs, machinery wear and provide valuable habitat.

After several site visits there was evidence that *Microlaena stipoides* (Weeping Grass), *Rytidosperma sp.* (Wallaby grass species) and *Themeda Triandra* (Kangaroo Grass) were in mown areas. It is important that if indigenous grasses are found that the areas are not mown between **October – April** as this will allow any seed to drop. Once the seed had dropped, if mowing is necessary then it should be done towards the end of May at a high height.

The superintendent may also choose to learn about slow burns to manage these areas over time which will all but eliminate the need to mow these areas.

The seed bank provided in these areas will be an asset to the superintendent and their team. The seed can be collected, and plants propagated for the next year's enhancement or regeneration plantings.

Other opportunities include

- linking with the states seed bank and offering collection times
- working with Woodend and Newham Landcare or Upper Campaspe Landcare Network to collect and grow for the community plantings
- sell seed to or partner with Grow Local or other local indigenous nurseries to provide seed to be propogated in return for plants each year
- set up a propagation area at the club for interested members and community
- volunteer to grow for tree project

3. Revegetation

There are many benefits to be gained from revegetating golf courses with indigenous species. Whether providing a natural setting for golfers, creating habitat for native wildlife, improving our water quality, improving our quality of life and natural heritage, protecting and re-establishing native vegetation is an important part of the process for achieving sustainable land management.

Research has been done to show just how valuable golf courses are in urban spaces, they provide to the local community not only environmental benefits but also wellbeing benefits.

A series of articles on nature, mental health, climate change and health can be found here and this information may be valuable for future grant applications

https://www.aia.com.au/en/individual/onelife/think-well/why-caring-for-the-planet-is-good-for-your-mental-health.html

But there is more to it than digging a hole and planting a plant. Successful revegetation relies on proper planning, preparation and patience to produce the best results.

The selection of species should aim to maximise opportunities to provide environmental, economic and social benefits. Indigenous native species are generally the preferred choice for revegetation. They provide the greatest range of long-term benefits such as:

- they are best suited to the local conditions
- maximise biodiversity in the local area (especially urban areas)
- provide the best habitat for local wildlife
- will maintain the natural character of the local landscape

a. Implementation

Revegetating Woodend Golf Club is going to be a long and rewarding process, it is important not to take on too much at a time. Selecting areas to revegetate should be done in conjunction with the course manager, areas should be selected at least 12 months in advance to begin planning. The revegetation program should be recognised as a flexible program and changes will be made from time to time.

Some options to increase recourses:

- Utilising volunteers to increase resources for planning, planting and follow up
- Organising local schools to participate in planting days
- Local Tafe students maybe be interested in helping for their studies
- Organising working bees with local groups (Landcare etc)
- Junior's golf and planting day
- Corporate golf and environment days

b. Species selection

Species selection is very important when re-vegetating on a golf course. Although the species list covers all the course, planning needs to be put into what species are suited to each area. For example, when planting a carry, species will be low growing so no visual aspect of the hole is lost, open growing habit to ensure balls are found and the species tolerance to golfer traffic.

It is also very important to know the full growth potential of that species, in particular tree species. Careful consideration should be taken when choosing and planting tree species, this is to ensure that there are no future issues for the surrounding playing surfaces. E.g. minimum shading around greens and tees, ensure suitable airflow.

c. Site preparation

Site preparation is one of the most important components when revegetating an area, especially when starting from scratch. Many the revegetation sites around Woodend will be starting from scratch, hence why good preparation is a must. Ideally sites would require 12-24 months of weed control before planting takes place. Site preparation will vary from site to site, some sites will require scrapping off, rotary hoeing or introducing more material to enable planting.

There are several different methods and determining the right method for that area will depend on location and resources. A detailed plan of each individual revegetation area should provide the best possible method and a step-by-step guide for that area.

Site preparation throughout Woodend GC will be dependent on the location. As there are many areas that already contain large amounts of indigenous vegetation the preparation in those sites will differ to those that are invasive weed species.

For example, area 2a will be weed management for at least 12-24 months to ensure a clean site for planting, if required some stripping may occur. Whereas 13c is already predominately indigenous vegetation, this site prep for this area will be selective weed management and no mowing to allow the indigenous vegetation to regenerate.

d. Planting

In previous experiences the “instant look” has been expected. However, the key to revegetation is **patience.** From preparing the site, ordering or growing the plants to waiting for plants to establish, being patient will provide you with the best outcome.

Pot sizes: Hikos, tubes are the most common pots you will purchase plants in. Sometimes buying the biggest plant isn’t necessarily the better option.

Where to source from: Often there will be a local native nursery that will grow species suited to your course. Other nurseries can be used but ensure that the species are grown from seeds and cutting collected within the Central Victorian Uplands bioregion (preferably from the golf course or as close to the golf course is best).

When to order: Orders will often need to be placed 12 months before planting is scheduled, this gives the nursery time to source seeds/cuttings and grow the plants.

When to plant: Ideally the best time to plant is April – September, this will vary depending on the season and amount of rainfall. Planting throughout these months will ensure the plants get the amount of water they need through rainfall; temporary irrigation can be used but not ideal as this will also contribute to weed issues. Often rainfall and selectively watering with a tank will be enough to establish plants.

How to plant: There are several planting tools available that will assist in the correct planting and save time. It is important when planting that it is done correctly to ensure the survival of the plant but also reduce the risk of the plant being pulled out by birds, sinking into a hole to deep and dying, or drying out due to lack of soil in the hole.

It is also important that select plants have guards put up around them to ensure their survival. There are many different guards that can be utilised.

After care: It is important that after planting the areas should ideally be protected ensuring the plants are given every chance to establish. Roping the area off and keeping it GUR until plants are established enough (usually 12-18 months) is ideal however strategic placing of tree guards can be used if roping areas is not an option or placing fallen timber in select areas to minimise disturbance.

After the planting has taken place weeds will appear and maintenance will need to be undertaken to ensure the site does not become infested with weeds. Methods of weed control include hand weeding, herbicide applications, burning and mulching. Ideally as the plants mature less weed maintenance is required.

Mulching: Initially in select areas mulch should be used to help in the revegetation process, the main considerations when using mulch is the thickness and proximity to the plants stem. Care should be taken to ensure that the mulch layer is not too thick, thick mulch can retain too much moisture possibly causing root rot, limit opportunities for natural regeneration and inhibit water penetration. Depending on the situation mulching is generally recommended when least amount of interference to golf.

Correct application of mulch can help improve soil structure, conserve soil moisture, suppress weed growth and modify soil temperatures. Depending on the mulch used the layer thickness should be no greater than 100mm thick. When apply mulch or planting into mulch it is important that all mulch must be kept clear of the plants stem.

4. Waterway Management

It is vital that management of the waterways at Woodend Golf Club become a regular routine, not only will the golf course benefit but the wider community and environment. Ensure a water source for Woodend GC is critical for its survival in the future.

Contribute to Woodend Landcare, Western Water & MRSC water catchment quality through course water management that contributes to the quality of the Campaspe River & Headwaters Water Way Bio link and the Five Mile Creek. Avoid potential storage & discharge issues from the Western Water recycled water facility into Five Mile Creek.

Renewal of the pump system (partial funding) secures the irrigation system and allows the club to continue to provide a place for community members to engage in active recreation. The pump mitigates potential storage and discharge issues from the Western Water recycled water facility into Five Mile Creek. This is a critical part of the plan and Western Water has been approached to support the large costs of this pump renewal.
Researching the use of floating wetlands for the irrigation lake to assist water filtration ensuring the water being applied to the playing surfaces is as clean as possible. This is common practice in many water ways as it assists filtration but also provide habitat for local fauna.

Figure 4: Example of Fytogreen floating wetland system. Floating Gardens / Floating Wetlands - Fytogreen Australia

To ensure minimal water waste an irrigation audit would be recommended, this will ensure the playing areas are being watered accordingly and areas that do not require water are not. This will lower weed growth, mowing and unnecessary labour.

Working closely alongside the course superintendent, creating natural water flows across holes where water is usually an issue will help drainage problems. Ensure water drains away quickly will reduce labour, chemical use, and damage from golfers foot and cart traffic. The clearly designed no mow and established cart tracks and well marked way points for walkers will also support this.

a. Sustainable irrigation recommendations:

- Irrigate only playing surfaces (fairways, greens, tees) The region and the remnant grasslands, enhancement and revegetation will mean that the no mow zones and rough will not require watering.
- Irrigation audit (potential savings of 20-30% instantly) often older irrigation systems wastewater through in accurate watering. Sprinkler locations and head types are important in sustainable water practices these days.
- Converting select playing surfaces to more appropriate grass species to save watering. For example clubs have converted their cool season grassed (fescue, poa annua) tees to war season grasses (santa anna couch) to reduce water and chemical usage. There could be possibilities to obtain couch sprigs from clubs when they conduct yearly renovations and apply them to tee tops.
- Investigate options to increase tee tops, add tees and converting to couch to save water/wear.
- Minimizing irrigated turf areas to naturalised areas: Managing golfers' expectations around what a course will look like over the next decade or so is an important thing to consider. Golfers need to be educated. They see the news and understand what climate change is, but they need to understand what it means directly for their particular situation and their golf course. Because for a lot of them, they might think, well, it's happening somewhere else. It's not. It's happening on every golf course. Everywhere in the world, these are challenges that are being addressed.

Figure 5: An irrigation audit will allow staff to readjust sprinkler heads as overtime they do move and spray off target.

5. Further Management Considerations

a. Pathways

Paths through re-vegetation sites can be hidden or soften with strategic planting and mounding, however the main issue with a path is where it begins from the tee end to where it enters the fairway. These areas are going to get the most traffic therefore will have high wear issues on the turf, allowing large entry and exit points will assist with the management of traffic.

Given the golf course is used by golfers and local community a long-term plan should be implemented to ensure an appropriate path for all. In certain sections mulch could be an option however, materials like Goflex could provide a better long-term solution. As Golflex is a sustainable product made from recycled tyres there may be funding available to put to the paths.

Other options for path materials include mulch, crushed rock, asphalt. Keeping in mind these may require more frequent maintenance that a more permanent material.

Figure 6: Golflex brochure (www.envirogolf.com.au/golflex)

b. Grass Clippings

It is important that the correct disposal of grass clippings be implemented. Often grass clippings are just emptied into the deep rough and spread around the vicinity. This routine has a negative effect in many ways and should not be undertaken. Grass clipping bay/s should be set up either in a designated area or smaller bays located around the course to make it easier for staff to empty. The build-up of grass clippings can then either be removed off site or clubs now are using the clippings as part of a compost and is then used back out on the course.

c. Education and Community engagement

Education and Communication play a pivotal role in the success of a club. And why wouldn't you want to inform members, guests, and the wider community about the commitment that the club is showing towards the environment and sustainability. Woodend have shown this already and they have been rewarded with great feedback about the club's commitment to the environment.

Communicate with the local community and golfers:

- Environmental page on the club's website; showcasing flora, fauna, and great environmental initiatives (nesting boxes, pollinator plots)
- Flora and fauna course educational walks and working bees
- Regular sustainability section in newsletters
- Interpretive signage, laminated signage for volunteers on course
- Junior planting and golf days including building lizard logs and insectariums
- Green Golfer Day; to raise funds for sustainable projects
- Becoming certified through an accredited environmental organisation (Golf Environment Foundation certification, Audubon Cooperative Sanctuary Program for Golf etc)
- QR codes – a great way for people to learn about projects that are being done on course

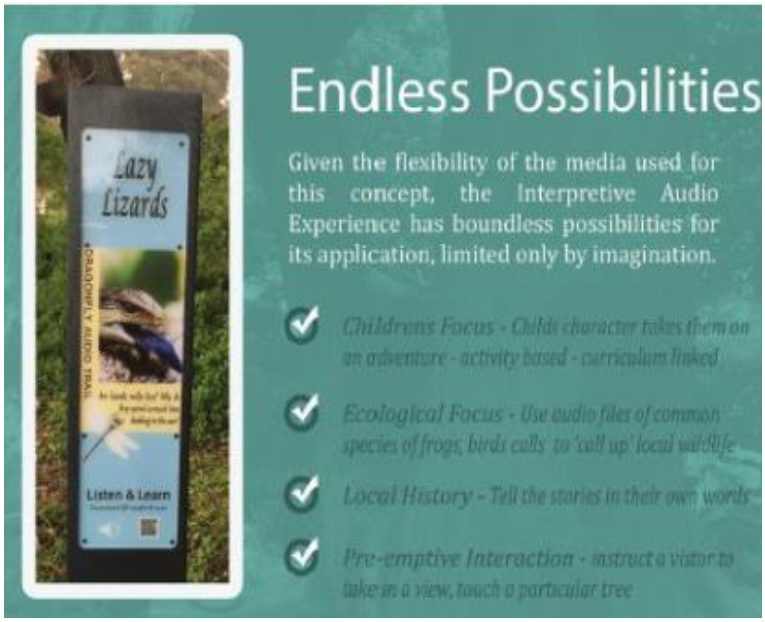


Figure 7: An example of an interpretative sign that can be helpful in educating visitors.

Suggested areas for signage:

- Par 3 holes are great to erect signage as they are often the holes where golfers are held up.
- Placing signage in the revegetation areas will educate golfers, volunteers, and walkers.
- Installing signage at the club house is another great place for golfers and the community to be educated on the works through the course.
- Another suggestion for community involvement could be to have a local artist paint a mural on the tank rear 10th green or create wood sculptures from tree trunks.

d. Habitat logs, insect hotels, nesting boxes

Ways in which you can help native species from bees, birds to bats. Many trees have hollows some large others you may not notice, however these are extremely important as they house many different species. When trees are removed consider placing any hollow logs in out of play areas, also just piling some branches can create habitat and contribute to the local food web. Leaving some bare earth can ensure habitat for native burrowing bees to find a home.

Other ways in which you can contribute is to erect nesting boxes or create insect hotels and insectrtiums. Some of these species that call your golf course home are vital in many ways. Creating these homes can be a great way to involve members and even school children in a great environmental initiative.

Figure 8: The bat and bird boxes council has assisted with installing and monitoring at Woodend GC.

The Bird Spot initiative involves using the Macedon Ranges Bird Guide as a tool. Members and visitors can take a guide out onto the course and record sightings; they can add to the Bird Spot notice board their observations. Junior club members and their families will be encouraged to participate. The Nesting Box installation and monitoring project will partner with the Woodend Men's Shed, Landcare and MRSC biodiversity monitoring program.

Both the Bird Spot and Nesting Box projects aim to spark interest in the biodiversity at the club, foster environmental stewardship and create opportunities for social connection between senior and junior members and their families and form partnerships with other community organisations.

e. Pollinator Plots and Corridors

Since the start of this project in 2020, Woodend GC has created a great relationship with the local Woodend Bee-Friendly Society. This has allowed the club to select suitable sites to install hives and produce their own honey. As well as being guided to best pollinator species to plant.

Joining local Landcare groups (Woodend and Newham) and signing up to the MRSC environment newsletter can help the club keep abreast of opportunities to become involved in local initiatives as well as to attend education and training to support staff in the long-term nature of rewilding.

Pollinator Corridors are connecting patches of vegetation of various scale designed to help indigenous pollinators move through the landscape. They are not intended for the most easily recognised pollinator, European honeybees, which are an introduced species that primarily pollinate agricultural crops. Instead, they are designed for native species—bees, insects, butterflies, moths, birds, and bats among others—that keep local ecosystems running.

Pollinator Corridors are akin to biodiversity corridors designed for larger species, but Pollinator Corridors do not necessarily restore or protect habitat; instead, they can be designed and built in the middle of landscapes dominated by humans.

Pollinator Corridors essentially link pollinator habitat. Isolated gardens of pollinator-friendly plants are not as useful to pollinators as are continuous Corridors between larger habitats. Our smaller indigenous pollinators can only fly about 50 metres at a time. Pollinator Corridors help smaller pollinators disperse more efficiently and contribute to a more diverse and healthy community of species.

Individual contributions to Pollinator Corridors can be as small as a potted plant or as large as a field! The scope is only limited by your space, time, and capability. (Creating Pollinator Corridors in the Upper Campaspe | Upper Campaspe Landcare)

Figure 9: Examples of habitat hotels. The bottom to images ar from a local Newham Property and have been called insectariums and the bare mound is specific habitat for Australian ground dwelling and nesting bees

6. Climate Change

Among developed countries, Australia is the most vulnerable to the impacts of climate change. These are already felt cross many aspects of Australian society, and their severity will increase. Sport, as a key part of Australian life, and a major contributor to economic activity, will need to adapt to this reality. Without urgent climate action there will be limits to the adaption.

Local communities do not have the resources of elite facilities to respond to drought and damage from extreme weather, this will challenge the lifeblood of many sports. Climate adaptation should be considered in any new works to WGC facilities including the club rooms, maintenance sheds and course. Expected impacts for the Loddon Campaspe Region and for Woodend GC.

a. Heat

There will be an increase in average temperatures and longer heat waves. This includes longer periods where overnight temperatures remain high. People with a disability, individuals, and age groups more susceptible to heat will have reduced access to sport and physical activity and the health benefits it provides. WGC may experience

- damage to playing surfaces due to extreme temperatures
- increased injuries to players, officials, and spectators from heat exhaustion
- high temperatures create potential health risks and detract from the enjoyment of the event for spectators; and
- heat waves forcing changes to timing of sport events.
- reduction in playable days due to more stringent heat policy for safe participation. Personal injury insurance when participating at elevated temperatures may be voided.
- scheduling to night games or earlier starts and earlier finishes will reduce accessibility for certain groups due to age or profession.
- planned shade, cool indoor spaces, and access to water on course
- uniform rules to be changed to support play in hotter conditions

b. Drought

Closely tied with heat is drought and decreases in annual rainfall. Droughts will become more frequent and severe. Rainfall in cool climate areas, in particular around the Macedon Ranges, is set to decrease between 20-50mm. The millennium drought impacts will be felt more often and to a greater extent. This includes:

- Changes to surface management – hardness, grass cover, water quality and scarcity will be increasing considerations for costs of maintenance, and hours of playable time.
- Shortened playing season
- Increased irrigation costs
- Water scarcity
- damage to playing surfaces

c. Flooding and Rain Events

When we have rain, it will increasingly be an extreme weather event.

We have already seen this in recent years. The 1 in 100-year rain and flooding events around Australia and Victoria have been multiple times across years and in the case of the Lismore Floods, in weeks.

Some infrastructure will not be able to cope with this. WGC could consider

- cart tracks and bunkers
- well vegetated and quick flow drainage
- consider renovations to buildings to manage rain dumps and storms

The club's playable days may be impacted by rain events and flooding.

d. Bushfire Threats

Increase in fire probability and season length is one of the biggest shifts in climate that will be experienced in the Macedon Ranges Shire Council.

Bushfires impact playability due to loss of infrastructure, air quality and insurability.

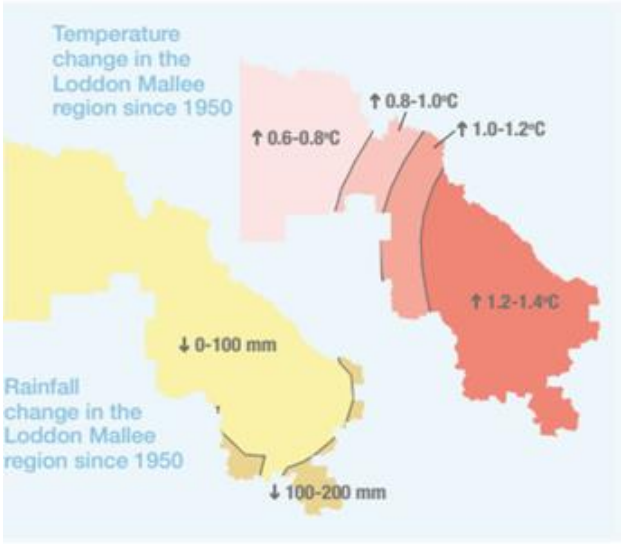


Figure 10: Our climate varies – it always has and always will. This climate variability means that some periods are cooler and wetter than average (as was the case in the 1970s), while others are hotter and drier (such as during the Millennium Drought). However, due to climate change, the long-term average is changing. Future climate will be different from that in the past.

https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0023/60746/Loddon-Mallee.pdf

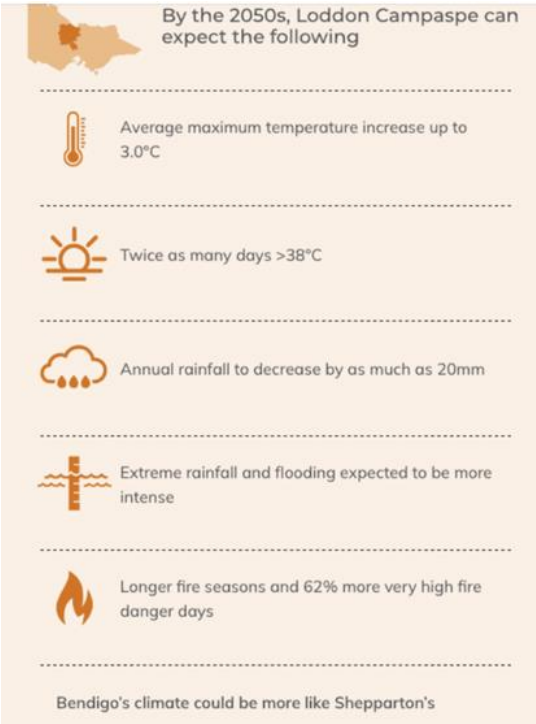


Figure 11: The Victorian Government has partnered with CSIRO to help communities prepare for climate change by producing local-scale climate projections data. This information helps us explore what climate change means locally.

https://www.adaptloddonmallee.com.au/about/climate-ready-victoria/

7. Sustainability

Golf's existence depends on a healthy biosphere and healthy participants. No sport relies on the environment quite like golf, but no other sport can address ecology, community and economy with golf's breadth and magnitude.

Environmental Golf Solutions is working towards a future where all Australian golf clubs are engaged in environmentally positive practices, leading the way in sports sustainability. We strive to educate and implement economical, efficient, and sustainable practices that create a symbiotic relationship between a healthy environment and your golf club.

In the short term – positive marketing, attracting, and retaining talent and innovation as it requires to review and improve your processes and work in a more effective and sustainable way.

In the long term – businesses that are not thinking about how to create sustainable business practices will no longer exist so thinking of this now will future proof your business and ensure it can keep running in a changing world.

Among all sport and business, golf has a unique opportunity to make a powerful difference. Every golf club and new development can be a responsible, resource-efficient business in an ecologically rich landscape.

Every golf event can be a showcase for sustainability. Every golfer can play a part, from beginners to top athletes.

Suggestions for sustainability solutions:

- Install food/green waste dehydrator e.g Eco Guardians Soil Food System. The soil food can then be re applied back onto the golf course for repairing divots and garden fertilizer eliminating food waste and green waste from leaving the site. - Look for opportunities to apply for grants to do this or partner with a local food systems group.
- Investigate and trial recycling system for bottle/cans. Installing appropriate bins out on course for golfers to use and appropriate bins located at the maintenance facility for staff to correctly dispose of the waste. - Talk to your waste collection provider about opportunities to recycle more efficiently.
- Encourage participation in recycling programs by creating awareness around the course on internal and external communications, such as on posters, bulletin boards, council newsletters, and in emails. Set recycling goals and communicate your goals to staff and vendors.
- Using recycled course furniture e.g., felled tree trunks for seats
- Reduce plastic bottles: Propose a yearly target to reduce plastic bottle usage, introducing more water stations and educational material for golfers will help reach the target. The Victorian bottle recycling scheme is said to begin in 2023, this will allow clubs and communities to collect 10c per bottle.
- Glass bottles are always largely used through a golf facility, research into a glass crusher to ensure no glass bottles end in landfill. There are studies and trials being conducted now into using crushed glass in turf construction, path materials and divot sands.
- Converting machinery to hybrid or full electric will be where the industry heads. There are already several hybrid machines and battery-operated equipment that golf clubs are converting to.
- Known changes to climate for the region in planning facility upgrades and development
- Review beverage service and see if there are brands that are local and or sustainable that can be offered
- Ensure no plastic straws and no plastic serving containers.
- In facility upgrades go fossil fuel free and look to have only electric appliances in the kitchen and main club rooms including hot water and cooking.
- Continue to work towards solar on site
- Switch your bank to a green bank https://www.marketforces.org.au/info/compare-bank-table/
- Switch your energy provider to 100% renewables

- Host collection days to feed into product stewardship schemes and recycling of golf uniforms, golf shoes, golf equipment including balls and investigate participating in golf gear exchange days or ownershift arrangements
    - ASGA Treadlightly https://treadlightly.asga.com.au/
    - Game on Recycling https://gameonrecycling.com.au/

FACT - "Golf clubs in other states are already participating in the scheme and have collected over 20,000 containers in 12 months from course recycling bins. The funds are donated to junior programmes or charities".

8. Monitoring and Progress Reports

Monitoring new revegetation areas is important to ensure objectives are being met. All information collected will be helpful in determining the success of revegetation plantings, and whether planting techniques and post-planting management need to be modified.

Information to collect may include:

- List of plants planted and amounts
- Plant survival
- Health of plantings
- Weed coverage
- Site photographs

Records should be taken for tree removals and maintenance, replacement planting details and nursery orders.

Progress photos can be used for future promotions and grant applications to show before and after. Now days taking regular drone footage can be a great monitoring tool for clubs.

Environmental Golf Solutions can offer a yearly audit and provide progress reports for club records.

9. Recommendations

Short term (next 6 months)

- Continue planting into 2022 sites
- Organise volunteer days to tackle broom management
- Inspect nesting boxes and collect data
- Host a spring wildflower walk (inviting members, community, local friends/Landcare groups, local schools, Golf Aust)
- Create a no mow map ready for spring

Long term (12 months +)

- Create a Tree Management Plan
- Revegetation audits twice yearly (monitor and report on previous revegetation sites, select new sites, species selection, plant ordering)
- Create a seedbank plan and map
- Build a hothouse and plant nursery

10. References

Australian Golf Union (1998). *Environmental Strategy for Australian Golf Courses*. http://www.golf.org.au/site/_content/document/00006333-source.pdf

Greening Australia (2003). *Revegetation Techniques.*

Seeds Environmental Interpretations & Bushland Restoration
SEEDS - About Us (seedsbushland.com.au)

Climate Ready Victoria – Adapt Loddon Mallee
https://www.adaptloddonmallee.com.au/about/climate-ready-victoria/

https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0023/60746/Loddon-Mallee.pdf

Appendix 1 - Relevant Policy, planning and legislation documents

PLANNING PROPERTY REPORT

VICTORIA State Government | Environment, Land, Water and Planning

From www.planning.vic.gov.au at 20 October 2021 04:24 PM

PROPERTY DETAILS

Address:	**11 DAVY STREET WOODEND 3442**
Crown Description:	**Allot. 4 Sec. 47 TOWNSHIP OF WOODEND**
Standard Parcel Identifier (SPI):	**4~47\PP5874**
Local Government Area (Council):	**MACEDON RANGES** www.mrsc.vic.gov.au
Council Property Number:	**1185985**
Planning Scheme:	**Macedon Ranges** Planning Scheme - Macedon Ranges
Directory Reference:	**Vicroads 633 Q4**

UTILITIES

Rural Water Corporation:	**Goulburn-Murray Water**
Urban Water Corporation:	**Western Water**
Melbourne Water:	**Outside drainage boundary**
Power Distributor:	**POWERCOR**

View location in VicPlan

STATE ELECTORATES

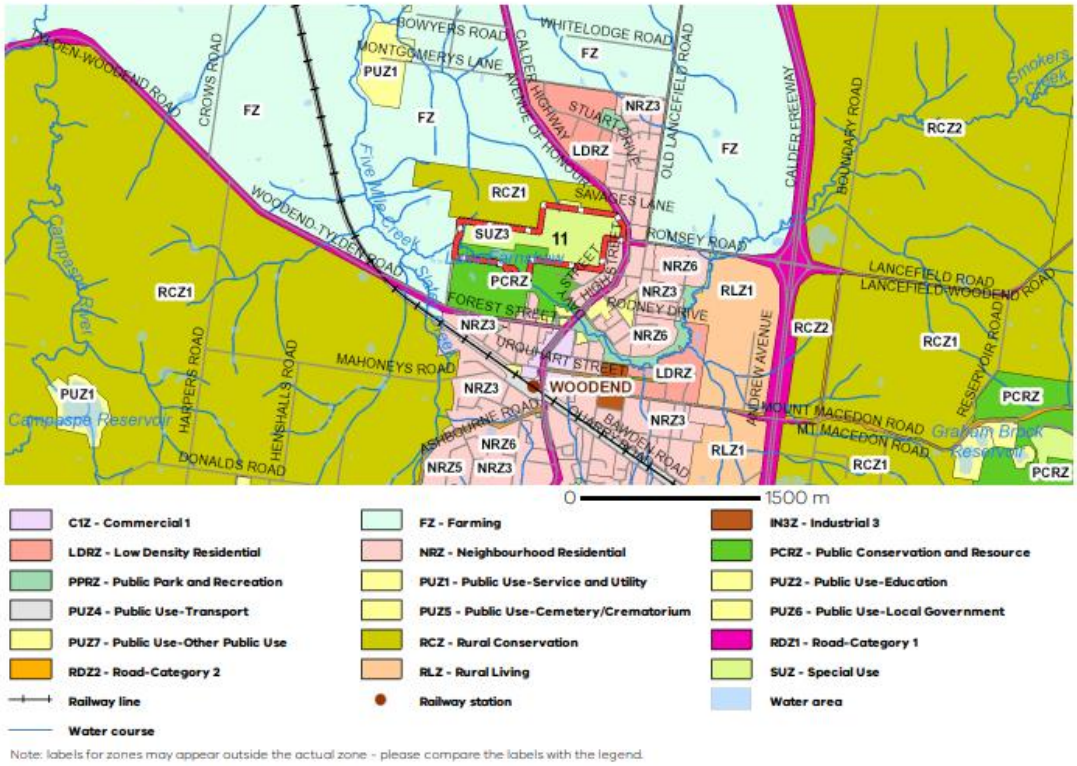
Legislative Council:	**NORTHERN VICTORIA**
Legislative Assembly:	**MACEDON**

OTHER

Registered Aboriginal Party:	**Dja Dja Wurrung Clans Aboriginal Corporation**

Planning Zones

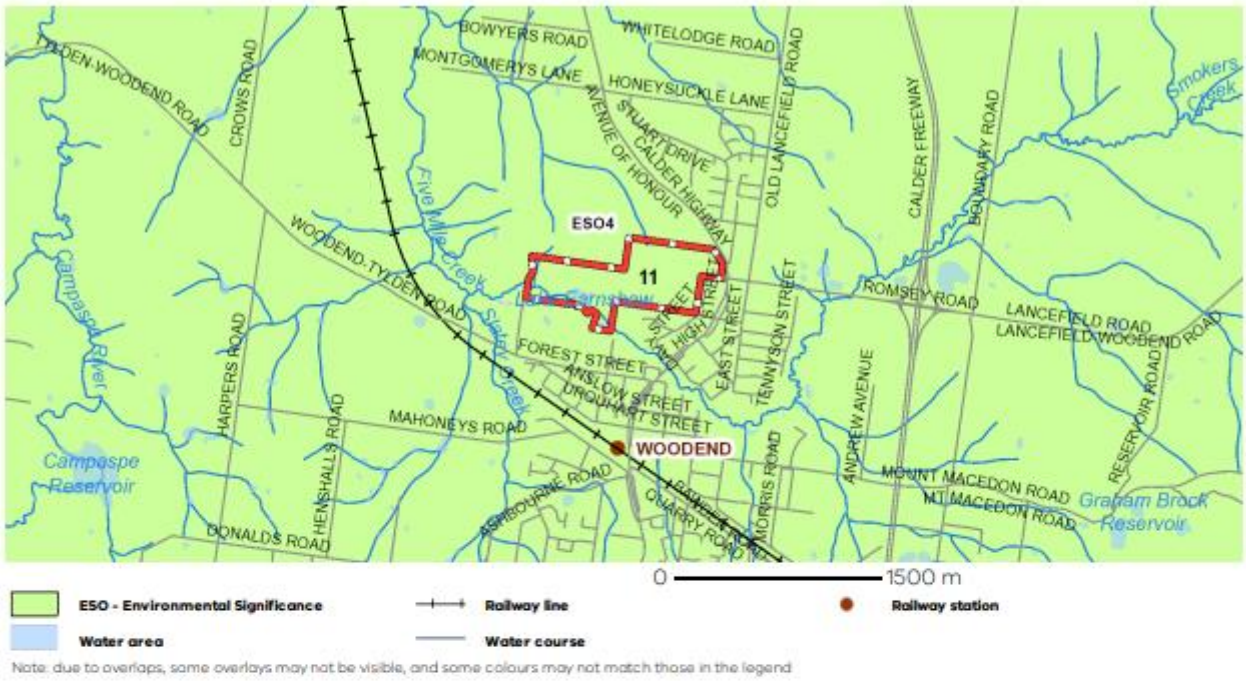
PUBLIC CONSERVATION AND RESOURCE ZONE (PCRZ)
SCHEDULE TO THE PUBLIC CONSERVATION AND RESOURCE ZONE (PCRZ)
SPECIAL USE ZONE (SUZ)
SPECIAL USE ZONE - SCHEDULE 3 (SUZ3)



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)

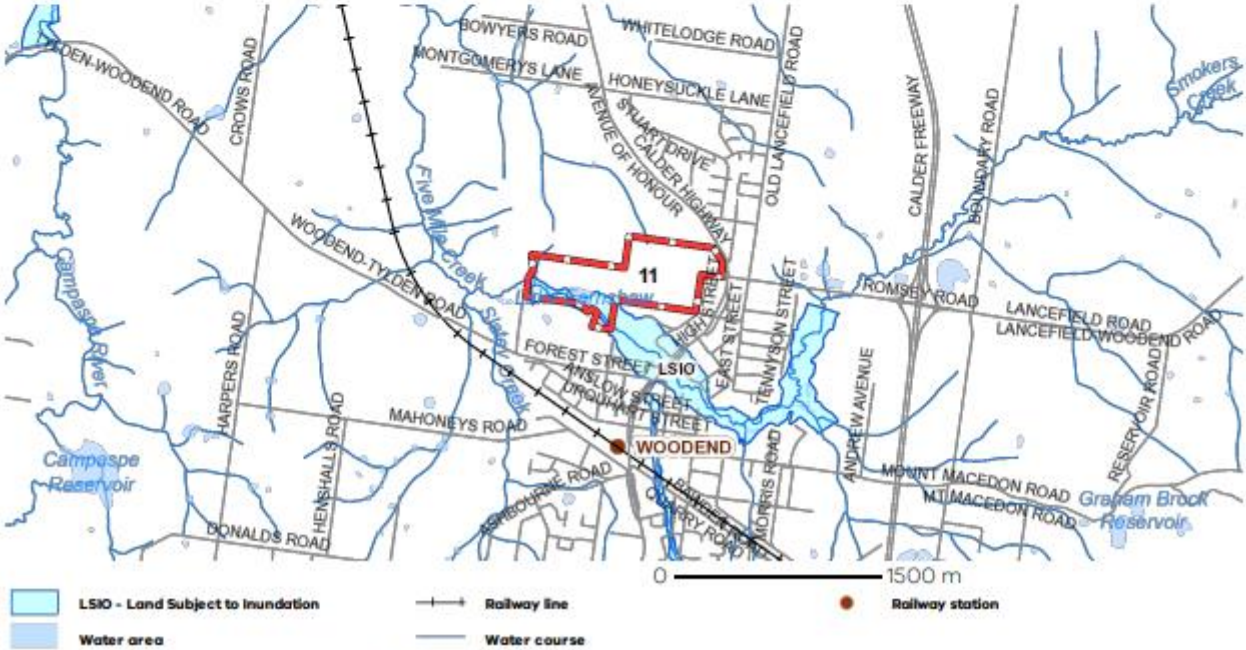
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 4 (ESO4)



Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

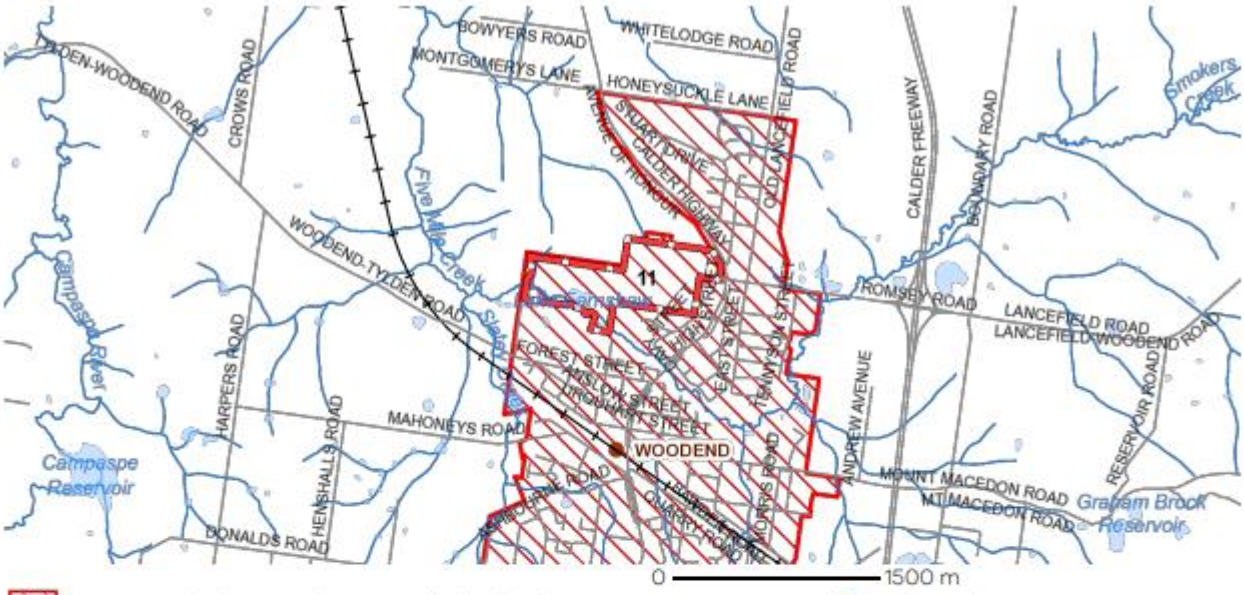
LAND SUBJECT TO INUNDATION OVERLAY (LSIO)

LAND SUBJECT TO INUNDATION OVERLAY SCHEDULE (LSIO)



Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

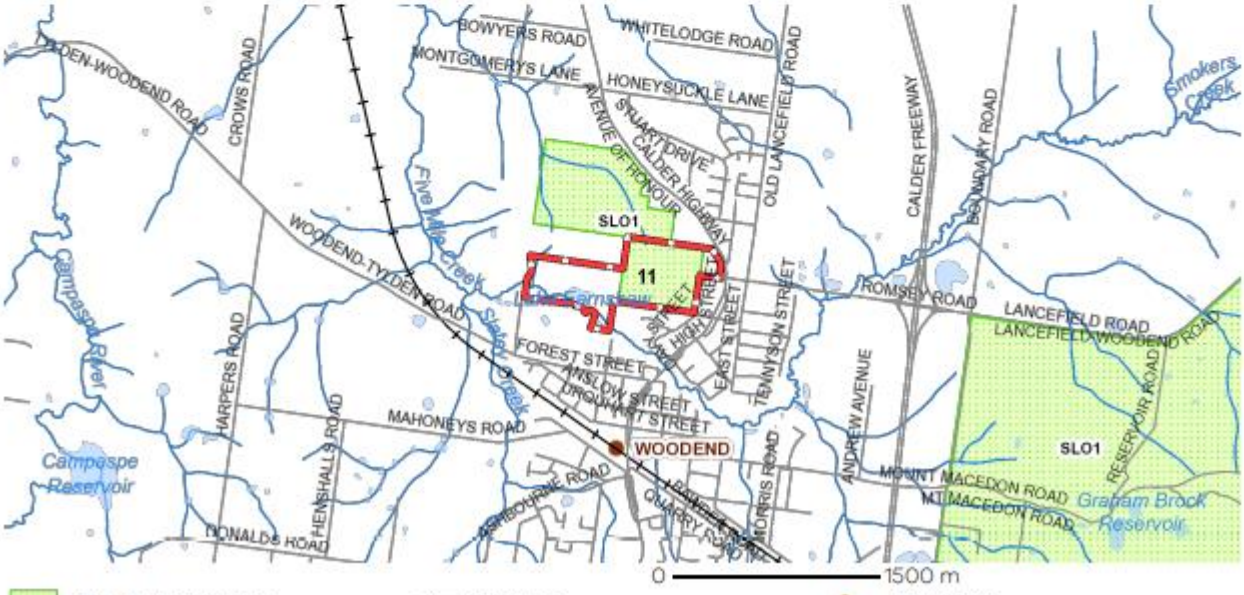
PROTECTED SETTLEMENT BOUNDARY (PSB)



Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

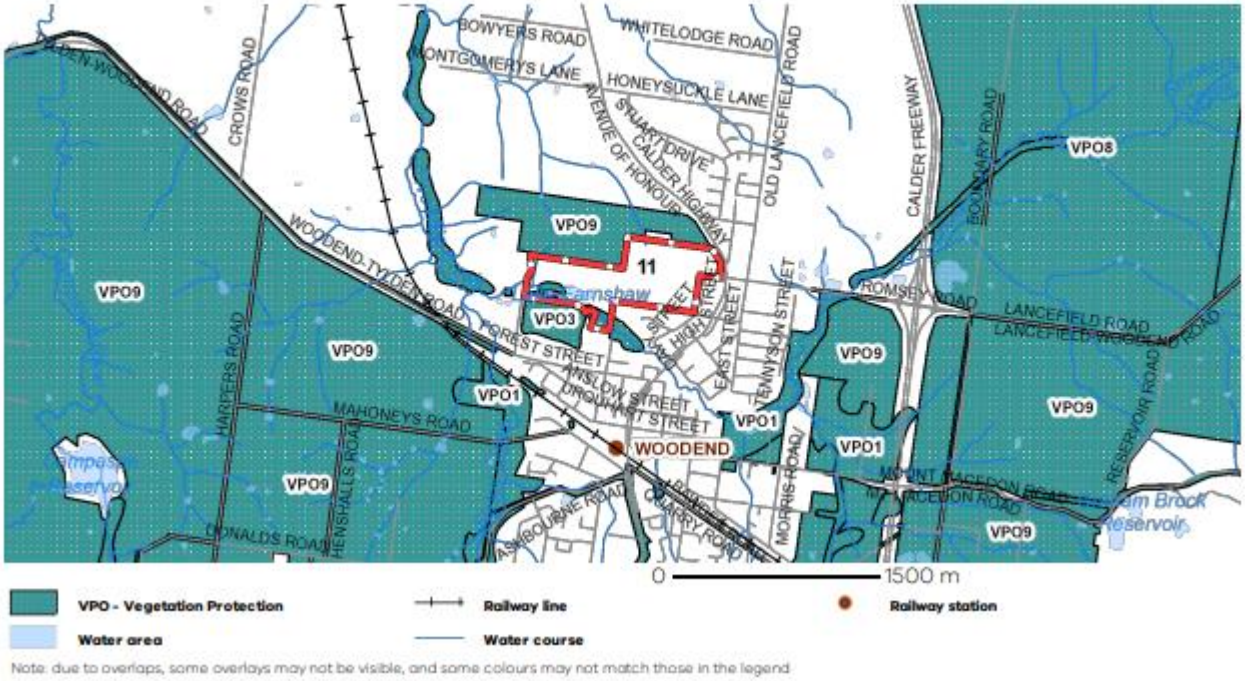
SIGNIFICANT LANDSCAPE OVERLAY (SLO)

SIGNIFICANT LANDSCAPE OVERLAY - SCHEDULE 1 (SLO1)



Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

VEGETATION PROTECTION OVERLAY (VPO)
VEGETATION PROTECTION OVERLAY - SCHEDULE 1 (VPO1)
VEGETATION PROTECTION OVERLAY - SCHEDULE 3 (VPO3)
VEGETATION PROTECTION OVERLAY - SCHEDULE 5 (VPO5)



Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

Areas of Aboriginal Cultural Heritage Sensitivity

All or part of this property is an 'area of cultural heritage sensitivity'.

'Areas of cultural heritage sensitivity' are defined under the Aboriginal Heritage Regulations 2018, and include registered Aboriginal cultural heritage places and land form types that are generally regarded as more likely to contain Aboriginal cultural heritage.

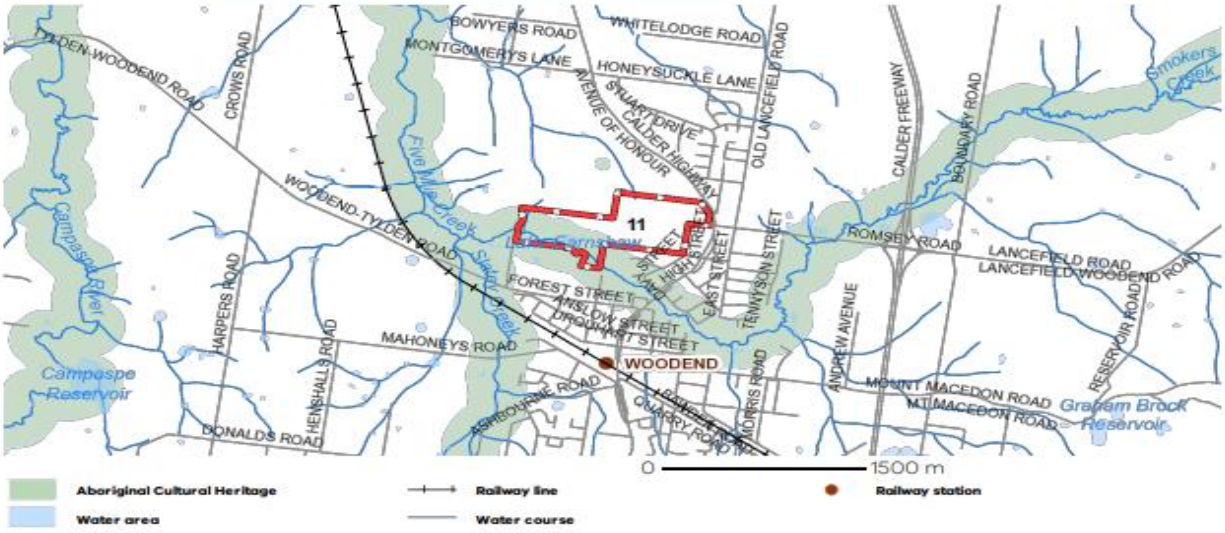
Under the Aboriginal Heritage Regulations 2018, 'areas of cultural heritage sensitivity' are one part of a two part trigger which require a 'cultural heritage management plan' be prepared where a listed 'high impact activity' is proposed.

If a significant land use change is proposed (for example, a subdivision into 3 or more lots), a cultural heritage management plan may be triggered. One or two dwellings, works ancillary to a dwelling, services to a dwelling, alteration of buildings and minor works are examples of works exempt from this requirement.

Under the Aboriginal Heritage Act 2006, where a cultural heritage management plan is required, planning permits, licences and work authorities cannot be issued unless the cultural heritage management plan has been approved for the activity.

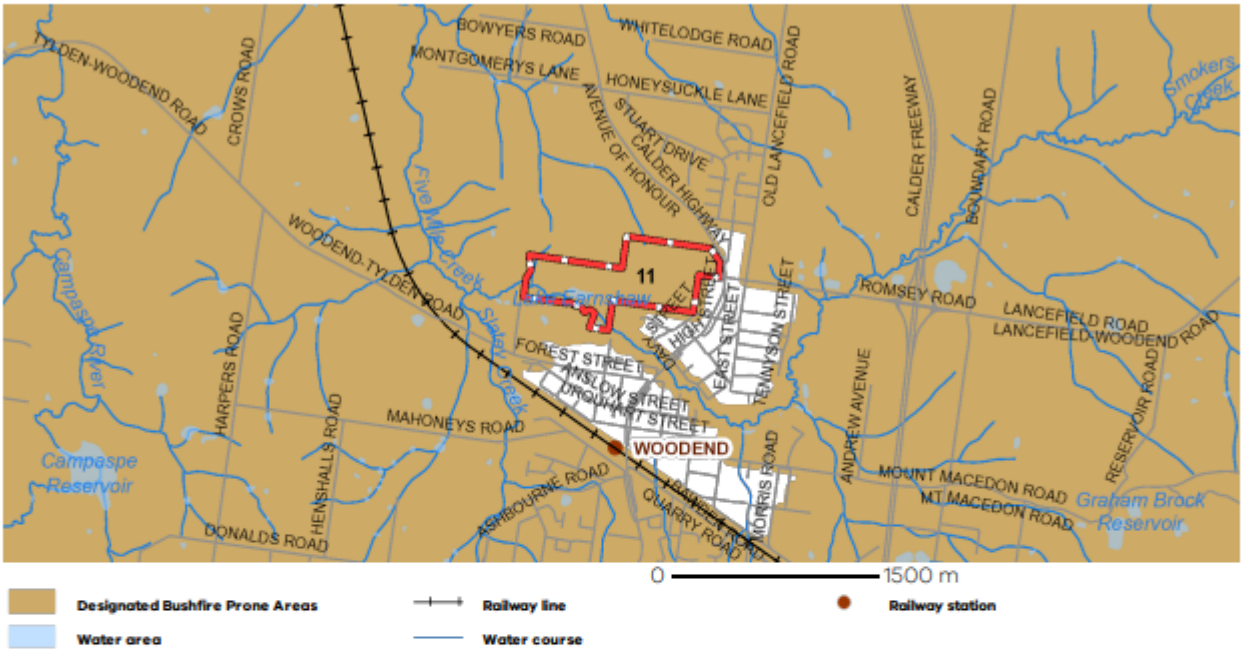
For further information about whether a Cultural Heritage Management Plan is required go to
http://www.aav.nrms.net.au/aavQuestion1.aspx

More information, including links to both the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2018, can also be found here - https://www.aboriginalvictoria.vic.gov.au/aboriginal-heritage-legislation



Designated Bushfire Prone Areas

This property is in a designated bushfire prone area.
Special bushfire construction requirements apply. Planning provisions may apply.



Designated bushfire prone areas as determined by the Minister for Planning are in effect from 8 September 2011 and amended from time to time.

The Building Regulations 2018 through application of the Building Code of Australia, apply bushfire protection standards for building works in designated bushfire prone areas.

Designated bushfire prone areas maps can be viewed on VicPlan at https://mapshare.maps.vic.gov.au/vicplan or at the relevant local council.

Note: prior to 8 September 2011, the whole of Victoria was designated as bushfire prone area for the purposes of the building control system.

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website https://www.vba.vic.gov.au

Copies of the Building Act and Building Regulations are available from http://www.legislation.vic.gov.au

For Planning Scheme Provisions in bushfire areas visit https://www.planning.vic.gov.au

Native Vegetation

Native plants that are indigenous to the region and important for biodiversity might be present on this property. This could include trees, shrubs, herbs, grasses or aquatic plants. There are a range of regulations that may apply including need to obtain a planning permit under Clause 52.17 of the local planning scheme. For more information see Native Vegetation (Clause 52.17) with local variations in Native Vegetation (Clause 52.17) Schedule

Appendix 2. Revegetation plant lists (Typical species that are found with the EVCs)

Valley Grassy Forest - No.47

Scientific name	Common Name
Trees	
Acacia melanoxylon	Blackwood
Acacia pycnantha	Golden Wattle
Eucalyptus melliodora	Yellow Box
Eucalyptus obliqua	Messmate Stringybark
Eucalyptus radiata	Narrow-leaf Peppermint
Eucalyptus rubida	Candlebark
Shrub	
Acacia paradoxa	Hedge Wattle
Bursaria spinosa	Sweet Bursaria
Cassinia aculeata	Common Cassinia
Daviesia leptophylla	Narrow-leaf Bitter-pea
Daviesia ulicifolia	Gorse Bitter-pea
Dillwynia cinerascens	Grey Parrot-pea
Epacris impressa	Common Heath
Veronica gracilis	Slender Speedwell
Lily	
Arthropodium strictum	Chocolate Lily
Burchardia umbellata	Milkmaids
Caesia calliantha	Blue Grass-lily
Dianella revoluta (admixta)	Black-anther Flax-lily
Tricoryne elatior	Yellow Rush-lily
Herb	
Chrysocephalum apiculatum	Common Everlasting
Craspedia variabilis	Variable Billy-buttons
Drosera pelata	Pale Sundew
Leptorhynchos squamatus	Scaly Buttons
Pimelea humilis	Common Rice-flower
Goodenia lanata	Trailing Goodenia
Ground Cover/Climber	
Acacia aculeatissima	Thin-leaf Wattle
Acrotriche serrulata	Honey Pots
Bossiaea prostrata	Creeping Bossiaea
Convolvulus erubescens	Pink Bindweed
Gonocarpus tetragynus	Common Raspwort
Hardenbergia violacea (climber)	Purple Coral-pea
Lomandra filiformis	Wattle Mat-rush
Grass	
Austrostipa mollis	Supple Spear-grass
Austrostipa rudis	Veined Spear-grass
Microlaena stipoides	Weeping Grass
Poa sieberiana	Grey Tussock-grass
Themeda triandra	Kangaroo Grass

Plains Grassy Woodland - No.55

Scientific name	Common Name
Trees	
Acacia dealbata	Silver Wattle
Acacia mearnsii	Black Wattle
Acacia pycnantha	Golden Wattle
Allocasuarina verticillata	Drooping Sheoak
Eucalyptus melliodora	Yellow Box
Eucalyptus obliqua	Messmate Stringybark
Eucalyptus radiata	Narrow-leaf Peppermint
Eucalyptus rubida	Candlebark
Eucalyptus viminalis	Manna Gum
Exocarpos cupressiformis	Cherry Ballart
Shrub	
Acacia paradoxa	Hedge Wattle
Bursaria spinosa	Sweet Bursaria
Cassinia arcuata	Drooping Cassinia
Cassinia longifolia	Shiny Cassinia
Dodonaea viscosa	Wedge-leaf Hop-bush
Dillwynia cinerascens	Grey Parrot-pea
Hibbertia stricta (riparia)	Erect Guinea-flower
Melicytus dentatus	Tree Violet
Ozothamnus ferrugineus	Tree Everlasting
Tetratheca ciliata	Pink-bells
Lily	
Arthropodium strictum	Chocolate Lily
Bulbine bulbosa	Bulbine Lily
Burchardia umbellata	Milkmaids
Caesia calliantha	Blue Grass-lily
Dianella revoluta (admixta)	Black-anther Flax-lily
Stylidium graminifolium	Grass Triggerplant
Tricoryne elatior	Yellow Rush-lily
Herb	
Calocephalus citreus	Lemon Beauty-heads
Calocephalus lacteus	Milky Beauty-heads
Chrysocephalum apiculatum	Common Everlasting
Chrysocephalum semipapposum	Clustered Everlasting
Eryngium ovinum	Blue Devil
Helichrysum scorpioides	Button Everlasting
Hypericum graminieum	Small St.John's Wart
Leptorhynchos squamatus	Scaly Buttons
Pimelea humilis	Common Rice-flower
Stackhousia monogyna	Creamy Stackhousia
Wahlenbergia stricta	Tall Bluebell
Ground Cover	

Acaena novae-zelandiae	Bidgee-widgee
Astroloma humifusum	Cranberry Heath
Bossiaea prostrata	Creeping Bossiaea
Convolvulus erubescens	Pink Bindweed
Dichondra repens	Kidney-weed
Gonocarpus tetragynus	Common Raspwort
Kennedia prostrata	Running Postman
Lepidosperma longitudinale	Pithy Sword-sedge
Lomandra filiformis	Wattle Mat-rush
Pelargonium austral	Austral Stork's-bill
Grass	
Austrostipa mollis	Supple Spear-grass
Austrostipa rudis	Veined Spear-grass
Microlaena stipoides	Weeping Grass
Poa labillardierei	Common Tussock-grass
Poa sieberiana	Grey Tussock-grass
Rytidosperma geniculatum	Kneed Wallaby-grass
Rytidosperma racemosum	Clustered Wallaby-grass
Rytidosperma setaceum	Bristly Wallaby-grass
Themeda triandra	Kangaroo Grass

Acacia melanoxylon ***Bulbine bulbosa*** ***Dianella admixta***

Figure 12: Photo examples of species appropriate from Woodend GC.

Swampy Riparian Woodland - No.83

Scientific name	Common Name
Trees	
Acacia dealbata	Silver Wattle
Acacia mearnsii	Black Wattle
Acacia melanoxylon	Blackwood
Eucalyptus globulus subsp. bicostata	Southern Blue Gum (Eurabbie)
Eucalyptus obliqua	Messmate Stringybark
Eucalyptus ovata	Swamp Gum
Eucalyptus radiata	Narrow-leaf Peppermint
Eucalyptus viminalis	Manna Gum
Shrub	
Acacia pravissima	Ovens Wattle
Acacia verticilata	Prickly Moses
Bursaria spinosa	Sweet Bursaria
Dodonaea viscosa	Wedge-leaf Hop-bush
Goodenia Ovata	Hop Goodenia
Leptospermum continentale	Prickly Tea-tree
Leptospermum lanigerum	Wooly Tea-tree
Rush	
Carex apressa	Tall Sedge
Isolepis habra	Wispy Club-sedge
Juncus pauciflorus	Loose Flower-rush
Juncus sarophorus	Broom Rush
Herb	
Hypericum graminieum	Small St.John's Wart
Persicaria hydropiper	Water Pepper
Wahlenbergia gracilis	Sprawling Bluebell
Ground Cover	
Acaena novae-zelandiae	Bidgee-widgee
Dichondra repens	Kidney-weed
Lomandra filiformis	Wattle Mat-rush
Grass	
Microlaena stipoides	Weeping Grass
Poa labillardierei	Common Tussock-grass
Themeda triandra	Kangaroo Grass
Aquatic	
Crasula helmsii	Swamp crasula
Ranunculus inundatus	River Buttercup

Appendix 3 – Woodend EMP Map

Status	Colour
Management to be determined	
Proposed Pollinator Plots	
Golf Course Boundary	
2022 Planting sites	
Future revegetation sites	
Proposed community multi-use site	
Proposed community walking trail	
Educational sign locations	
Viewpoints	

Appendix 4 - Year 1 Revegetation Recommendations

Hole 1

Figure 13: Overview of revegetation areas on the 1st hole.

Area 1A – These newly created mounds will protect the driveway and create a more aesthetic backdrop from the tee. Planning for this area to be planted in Autumn 2022; in the meantime, regular site preparation will ensure a clean site for planting.
This area can have a combination of seeding, tube stock and transplanted larger specimens from select areas around the course to help provide an established look. (Photos 1 & 2)

Site preparation - As mentioned in the report, this step is crucial and should not be overlooked. Proper preparation will assist with long term maintenance. These mounds should have regular weed management leading up to planting. Ideally, 12-24 months, however, given the mounds were created in January 2022? From a relatively clean fill, the required weed management could be less. If the mounds still contain large numbers of weeds at the time of planting, then extra time should be given to ensure sufficient weed control.

Area 1B – The visual quality of this area can be enhanced by planting new sections, which will all connect around the 1st tees. This area would protect golfers walking to the 1st tee; the vegetation will also hide the path.
Other recommendations:

- Planting in select areas around the tee will help connect with existing vegetation along with reducing mowing time in out of play areas.
- Replacement trees should be considered along the boundary fence to continue to provide screening and protection from the houses and road.

Figure 14: Newly created mounds in area 1a.

Figure 15: Examples of colour, contrast, and sparseness.

Hole 13

Figure 16: Overview of revegetation areas on the 13th hole.

Area 13A – This area was selected as the site was already 80% indigenous vegetation that had been continuously rough mown. Now that this area has been identified the area has not been mown and left to regenerate. Selective weed management will need to take place to remove introduced grasses and broadleaf weeds.

When first identified species recorded in the area include *Arthropodium strictum* (Chocolate Lily), *Themeda triandra* (Kangaroo Grass), *Microlaena stipoides* (Weeping Grass), *Pimelea humilis* (Common Rice-flower) and *Rytidosperma sp.* (Wallaby Grass).

Site preparation - This preparation will be different as the majority is already indigenous species, we will be able to encourage the existing vegetation to regenerate whilst selectively controlling the weeds. It is also important to keep in mind that this area will receive play and we do not want to slow or cause lost balls. Slashing this area at certain times of the year and selective weed management programmes will assist in keeping this area natural but also in play.

Area 13B – This area is in a valley and is quite a wet area. I would suggest revegetating small pockets to connect to the other areas. The recommendation of small pockets is also due to the proximity to the tee and hitting zone.

Area 13C – This area is a great connecting area to 13a, it has similar indigenous vegetation already existing. There are some great habitat logs in this area and has already has some nesting boxes erected by council.

Figure 17: Area 13a

Figure 18: Area 13c

Hole 15

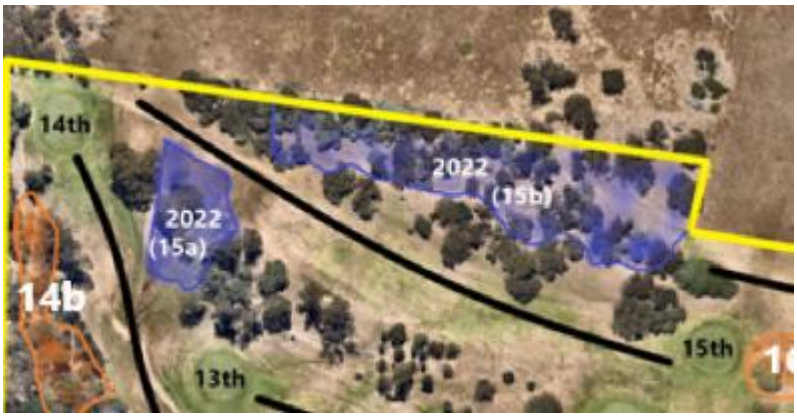


Figure 19: Overview of revegetation areas on the 15th hole.

Area 15A – The superintendent had already identified this area as a potential revegetation zone, therefore had stopped mowing to let it grow and consequently there have been several orchids, wildflowers, indigenous grasses, and shrubs appear. This area will be managed differently, and an ecological burn is suggested this Autumn followed up with weed management.

Area 15B – This is a large area, and the main focuses will be to eradicate the *Cytisus scoparius* (English Broom), no mow of select areas within the site that have indigenous vegetation. For example, there is a small patch of *Microlaena stipoides* (Weeping Grass) and *Wurmbea dioica* (Early Nancy). It is also an area that has been suggested for nesting boxes, lizard logs and bee hotels.

Selective spraying of broadleaf weeds and introduced grasses will be on going and volunteer days have been suggested to assist with the control of Broom.

Figure 20: Area 15a (left photo) and area 15b.

Hole 17

Figure 21: Overview of revegetation areas on the 17th hole.

Area 17A – This area was selected for a few reasons, it is a par three and was a big area that had to was being rough mown, safety reasons as golfers were walking from the 10th green across the 17th green to the 11th tee and the need to screen the tanks. There is a large gum that we will highlight with indigenous grasses, wildflowers, and lower shrubs, by adding the vegetation we will also be framing the hole and forcing golfers to walk along the new path from the 10th green to 11th tee to avoid safety issues.

Site preparation: This area has already had herbicide applications to being the process to eradicate as much weed seedbank as possible before planting in Winter 2022. A combination of indigenous species will be planted into the area with the help of volunteers. A light layer of mulch is also planned for this area to assist with delaying weed growth whilst the plants establish.

Area 17B – When revegetating it is important to connect areas and create habitat corridors. 17b will begin the connection process to the other revegetation areas as well as connecting to existing natural areas. The same site preparation will be required for this area and should begin 12-24 months prior to planting.

This area has also been selected as a potential pollinator plot.

Figure 22: 17a planting area

Appendix 5 - Suggested revegetation timeline

Below is a suggested timeline for the revegetation works. As mentioned in the implementation section of the report, the timeline is flexible, and changes may occur. It should be noted that the timeline is for planting and that preparation should commence earlier in accordance with those areas works plan.

2022	2023	2024	2025	2026	Beyond 2027

Area	Planting Date
1A	2022
1B	2024
2A	2025
2B	2025
2C	2026
3A	Beyond 2027
3B	Beyond 2027
4A	Beyond 2027
4B	Beyond 2027
5A	2024
5B	2024
6A	Beyond 2027
6B	Beyond 2027
7A	2026
8A	Beyond 2027
8B	Beyond 2027
9A	Beyond 2027
9B	Beyond 2027
9C	Beyond 2027

Area	Planting Date
10A	2026
10B	Beyond 2027
11A	2025
11B	2026
11C	Beyond 2027
12A	Beyond 2027
12B	Beyond 2027
13A	2022
13B	2024
13C	2023
14A	Beyond 2027
14B	Beyond 2027
15A	2022
15B	2022/23
16A	2026
17A	2022
17B	2023
17C	2024
18A	Beyond 2027