



**Environmental Management Plan Update 2015
of
THE BONNIE DOON GOLF CLUB LIMITED**

ABN 74 000 005 265

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Part 1 Golf Course Re-Development 2010-2019

In 2010, the Club engaged Ogilvy Clayton (now Ogilvy Clayton Cocking Mead - OCCM) to undertake Stage 1 development of the course, comprising seven holes, driving range and short game facility. Following the successful completion of Stage 1 in May 2012, the Club engaged OCCM to develop Stage 2 of the course, comprising holes 8, 11, 16 and the spare hole. These holes were opened in late April 2014.

In 2015 Development Consent was granted to complete the course re-development on the southern paddock. The Club has now committed to complete the OCCM Masterplan.

The Club has invested heavily in approved landscape plans for the course driven by the aims, objectives and recommendations contained in our Environmental Management Plan 2005 (as amended).



This 2015 update to the EMP, for the most part, responds to the major works being carried out under the Development Approvals for Stage 1, 2 and 3 Works. The update also includes guidance provided by consent authorities during the consent process. In particular this guidance focused on suggestions to proposed landscape plans to ensure they meet LEP secondary objectives in Botany Bay Local Environmental Plan 1995.

This and all future EMP updates should be read in conjunction with the original 2005 Plan. Updates will be published in the form of a revision table. Clauses in the original, which are no longer relevant, will be declared as such, clauses requiring change will be re-published as complete clauses including the changes, and new clauses will be published and clearly marked as 'new'.

Clause Page Reference	Content	Status
Cl 3.7.6, p59	The Club has more recently carried out EPAR audits on chemical storage and handling. All non-conformances were rectified and closed out.	Additional content - new

Part 2 Sydney Water Plan of Management (POM)



Sydney Water recently published a draft Plan of Management (POM) for the Botany Wetlands.

The land occupied by Bonnie Doon Golf Club does not form part of the Botany Wetlands but Sydney Water have proposed that this land, since it is part of the greater Sydney Water land holding, should also fall under the auspices of the proposed POM.

The Club concedes that the POM is ambitious in that it expresses the aspirations of Sydney Water as a land owner and also attempts to integrate a variety of legislation which applies to the management of the area.

As part of the commissioning of the POM a survey was carried out of areas understood to be part of the endangered ecological community of Eastern Suburbs Banksia Scrub (ESBS). The mapping resulting from this survey was immediately recognised by the Club as being in conflict with both the Recovery Plan (2004), and the areas of ESBS which have been ground truthed by the Club over the last 10 years. Similar discrepancies were evident across the other two golf courses which reside within the Botany Wetlands.

The Club has entered a dialog with Sydney Water with a view to seeking correction of this mapping. At this time, the mapping contained in the POM remains unchanged and in serious error.

Support for the Club's assertion that the mapping is in error was provided by Botany Council during the development approval process for the Stage 3 Course Re-Development Works Application - DA 15/010. Botany Council declared the Sydney Water mapping to be without merit for the consent determination.

This Environmental Management Plan responds fully to all the appropriate legislation which applies and recognises a comprehensive mapping of ESBS contained within the property.

As a result, the Club will continue to regard this EMP as the primary reference for management of the property. Further, the Club remains resistant to any attempt to have the POM incorporated into the Club's Lease agreement.

Part 3 Lease Interpretation

The Environmental Management Plan (EMP) referred to under the Bonnie Lease with Sydney Water is dealt with specifically in Clause 12 of the Lease document.

The EMP and this update responds specifically to and seeks to clarify Clauses 12.2(a), 12.2(d)(11), 12.6 and 12.7.

Clause 12.2(a)

12.2 The EMP must set out a programme of measures to be undertaken by the Lessee for the protection and enhancement of the natural resources existing in or upon the Premises and for the minimisation of any adverse environmental impacts arising from the Lessee's Business. The EMP must be consistent with ESD principles and must include (but not be limited to):

(a) a detailed site description of the Premises including information on land use history, soils, groundwater, climate, water bodies, vegetation, wildlife, maintenance facilities and heritage items;

The original EMP dated 7 January 2005 continues to accurately reflect a detailed site description of the Premises. There is no need to update the EMP to respond to this clause.

Clause 12.2(d)(11)

(d) measures for the upkeep and management of the Premises in accordance with environmentally sound management practices including:

(11) regular monitoring programmes of the management practices adopted and the environmental state of the Premises.

The Board has resolved that monthly Greens Reports and Committee meetings satisfies Lease Clause 12.2(d)(11). Regular monitoring No further action is required.

Clause 12.6

12.6 The Lessee shall review and update the EMP and submit it to the Lessor for approval on each anniversary of the Commencement Date together with the results of the monitoring programmes carried out during the previous year. The Lessee shall not vary or alter the EMP without the Lessor's written approval.

The original EMP dated 7 January 2005 has been under continuous review since it's writing.

Regular monitoring (Clause 12.2(d)(11)) during the period since the publication of the EMP has served as updates to the EMP. These updates have been forwarded to Sydney Water for approval and have been received with no comment.

In keeping with Ecologically Sustainable Development (ESD) principles, it is resolved that further updates will continue in this form. An annual summary of Greens Committee reports (referring to 43.5Ha of the total 46Ha of the site - 95%) will be compiled and augmented with an annual report for the Volunteer Bushcare Group referring to the remnant ESBS areas of the site (2.5Ha of the total 46Ha- 5%). This combined summary will respond to the above clause.

Clause 12.7

12.7 Every two years from the Commencement Date, the Lessee shall at the Lessee's Cost deliver to the Lessor an environmental audit report prepared by a suitably qualified expert approved by the Lessor reporting upon the implementation of the EMP by the Lessee and reviewing the results of the monitoring programmes. The Lessee shall forthwith at the Lessee's Cost rectify any default by the Lessee identified in the report and shall adopt any recommendations made by such expert and approved by the Lessor.

The Board has resolved, that for the purpose of this clause, the Club's Course Manager shall be the 'suitably qualified expert'.

Further, the Club's Course Manager shall satisfy the requirements of this Clause by reviewing the monitoring programme reports for the previous two years (as described above) and make recommendations to the Board any rectification works identified in such reports. Any such recommendations will be forwarded to the Lessor where appropriate.

Part 4 Development Works Summary

The land on which Bonnie Doon Golf Club is situated is currently zoned as Special Activities SP1 under Botany Bay Local Environmental Plan 2013 (1st July, 2013). As such, environmental protection works are permitted without consent. Notices of Determination for Development Works are listed below.

At the time of this update, the status of development works is summarised as follows:

Development Application	Start Date	Construction Certificate	Progress	Status	Certificate
DA 02/458 Stage 1 Works Notice of Determination: 30 November, 2009 (As amended in Section 96(1A))	02.06.2011	248/10 23 June 2011	Good	Work is on-going	86/12 Interim Occupation 31 May 2012
DA 12/241 Stage 2 Works Notice of Determination: 23rd May 2013	03.09.2013	91/13 19th June 2013	To be completed in 2 stages. The second half of Stage 2 Works is due to be commenced in 2018. Good	Work is on-going	n/a
DA 15/010 Stage 3 Works Determination: 13th October, 2015	26.04.2016		Due to commence	Preparation	n/a

Reference: [Botany Bay Local Environmental Plan 2013](#)

The consent process

process of testing development plans, via approvals through the consent authority, for the site almost continuously since 2010 demonstrates that the intended development works and landscape plans abide by

Part 5 As-Built Drawings and ESBS Register

At the completion of major earthworks, irrigation and shaping activities for each stage, as-built drawings will be updated to reflect how the works of the re-development are positioned, relative to remnant areas of ESBS.

The drawings will also show clearly, areas of manufactured landscaping which are not remnant areas of ESBS. The drawings will be in the form of Google Earth .kml overlays which provide operators with the ability to scale accurate distances between shapes.

All remnant areas of ESBS are denoted 'B' areas - refer Figure 7 and Figure 8 on pages 13 and 14 respectively of the original EMP 2005. These areas will provide an additional overlay to the as-built drawing reference. An example image is show below.





To be read in conjunction with ESBS South.kml abd ESBS North.kml files

Total ESBS **16,842** **1.7 ha**

South Course		North Course											
	m2		B01		B02		B03		B04		B06		
B07a	3	B01	1,433	B01a	30	B02a	2,876	B03aA	345	B04a	383	B06a	50
B07b	362	B02	3,343	B01b	55	B02b	467	B03aB	572	B04b	652	B06b	39
B07c	61	B03	4,421	B01c	55		3,343	B03b	24		1,035		89
B07d	318	B04	1,035	B01d	820			B03c	18				
B08a	137	B05	155	B01e	116			B03d	1,638				
B08b	86	B06	89	B01f	103			B03e	472				
B08c	393	B18	601	B01g	254			B03f	1,058				
B08dA	705	B19	115		1,433			B03g	38				
B08dB	800		11,192					B03h	49				
B09	52							B03i	119				
B10	-							B03j	50				
B11a	77							B03k	38				
B11b	1,198								4,421				
B11c	695												
B12a	86												
B12b	36												
B13	65												
B14a	561												
B14b	15												
	5,650												

Part 6 Landscape Areas Planted to ESBS - A Areas

All manufactured landscape areas are denoted 'AN' areas on the north and 'AS' areas on the south. 'A' areas are typified by their clearly marked perimeter, surface mulching and the inclusion of the following signature plant species:

- *Angophora costata*
- *Corymbia gummifera*
- *Monotoca elliptica*
- *Banksia aemula*
- *Xanthorrhoea johnstonii*

Note: Clause 12.2(d)(3) requires "a revegetation programme to provide vegetated corridors using indigenous flora species including systemic replacement of existing exotic species".

Xanthorrhoea johnstonii is an indigenous species compatible with the ESBS pallet. It is not, however, a local variety. The inclusion of *Xanthorrhoea johnstonii* in A Areas of landscaping abides by this clause of the lease whilst also providing a means of clearly distinguishing remnant areas of ESBS from manufactured areas of landscape.

Signage

'A' Areas may contain interpretive signage to assist in identifying the plant specimens they contain. A typical sign is shown here:

The adjacent area marked on its perimeter by green stakes is a structured landscape established by the Club in 2016. It contains the following primary specimens at the time of establishment:

- *Angophora costata* (1 off)
- *Monotoca elliptica* (2 off)
- *Banksia aemula* (4 off)
- *Xanthorrhoea johnstonii* (3 off)

*Whilst the specimens above are considered part of the signature plant pallet of local ESBS plantings, the area also contains miscellaneous species from the greater approved pallet. In this instance, *Xanthorrhoea johnstonii* is a replacement for *Xanthorrhoea resinosa* on the natural pallet.*

Area: AN02: 2016

Miscellaneous Specimens

The following additional species may be included in the 'A' Areas of landscaping in varying numbers suitable to the size of each area.



Acacia ulicifolia



Actinotus helianthii



Bossiaea heterophylla



Darwinia fascicularis



Dichelachne crinita



Lambertia formosa



Wahlenbergia gracilis

Part 7 Planned A Areas - 2016

The areas planned for manufactured landscape areas are as follows:

A Area Schedule - refer to drawings for positions

	Area (m2)	Angohora costata	Corymbia gummifera	Banksia aemula	Xanthorrhoea johnsonii	Monotoca elliptica	Darwinia fasicularis as example
North							
AN01	610	0	1	4	6	4	
AN02	134			4		2	
AN03	130	1	1	4	3	4	2
AN04	60				2	2	1
AN05	150	1	1	5	5	3	2
AN06	345	1		6	3	2	
AN07	200		1		3	2	1
AN08	1,000			8	3	6	
AN09	100	1		4	3	2	
AN10	750	1	1	6	4	3	
AN11	250	1	2	6	3	4	
AN12	200		2	4	4	3	
AN13	150		1		3	3	
AN14	300	2	2	5	3	4	
	4,379	8	12	56	45	44	6
South							
AS01	150	1	1	4	3	3	1
AS02	150	1	2	6	4	4	
AS03	100		1	4	3	3	
AS04	130	1	1	6	4	4	
AS05	75		1	5	3	2	1
AS06	256	1	1	6	4	4	
	861	4	7	31	21	20	2
	4,940	10	17	82	63	60	8
					54		

These areas will be clearly marked on as-built drawings. Final areas and position will be mapped by GPS co-ordinates.



AN Areas - north most - 01, 02, 03, 04, 05, 06 and 09



AN Areas central - 07, 12 and 13



AN Areas south most of north paddock - 08, 10, 11 and 12



AS Areas - 01, 02 and 03



AS Areas - 04, 05 and 06

Part 8 Revision Tables for EMP 2005

The following table lists the amended clauses to the original EMP dated 7 December 2005.

Revisions have been aligned with the main section headings of the 2005 Plan.

8.1 Introduction

Clause Page Reference	Content	Status
Cl 1, p19, 3rd para	The Club now occupies 45Ha including the additional 6.5Ha. This area has been converted into a formal practice facility and 2 holes as shown on the as-built drawings	Correction
Cl 1, p19, 7th para	Updates to this EMP are now carried out under the operation of the Club's Greens Committee	Correction
Table 1.1, p20	Area: 45 Ha; Key Features: Buildings: club house, service compound (fertiliser storage shed and maintenance shed)	Correction

8.2 Assessment

Clause Page Reference	Content	Status
Cl 2.2, 1st para, p21	The golf course occupies an area of approximately 45ha.	Correction
Cl 2.7, 6th para, p24	The north western portion of the land is currently is now a formal practice area. The remainder of the land has been remediated and has 2 gold holes constructed on it under DA 02/458.	Replacement
Cl 2.8.2, 3rd para, p25	An established grove of Coast Myall Acacia binervia is located between the south ends of the 8th and 17th fairways.	Replacement

8.3 Management Issues

Clause Page Reference	Content	Status
Cl 3.5.1.10	The Club has a very active Volunteer Bushcare Group. This group of members contribute their time and expertise to the task of regeneration of ESBS areas. This update will serve as an educational resource for members.	Replacement
Cl 3.5.2, 3rd para, p50		Delete
Cl 3.7.6, p59	The Club has more recently carried out EPAR audits on chemical storage and handling. All non-conformances were rectified and closed out.	Additional content - new
Cl 3.7.9, p60	The Club's EPAR audit resulted in an improved chemical storage area and controls over disposition and disposal of chemicals.	Additional content - new
Cl 3.7.10, p61	Training	
Cl 3.10, p61	General waste and recycling bins are now located at the eastern end of the carpark	

8.4 Management Plan

No change

Refer to updates tables for updates on General and Site Specific Recommendations

8.5 General Recommendations

Updated Tables 5.1 - 5.14

Table 5.1 - Lease Arrangements				
Issues	Priority	Timing	Actions	Update
5.1.1 Implementation	High	Ongoing	Implement the EMP throughout the term of the lease.	Implemented
5.1.2 EMP Review and Update	High	2005 & ongoing	- Review and update the EMP and submit it to the Lessor (SW) on each anniversary of the Commencement Date. - Updates to the EMP approved by SW (written approval received).	This update serves as the latest outcome of this recommendation
5.1.3 Report on monitoring programmes	High	2005 & ongoing	Submit a report on monitoring programmes carried out during the previous year, to the Lessor (SW) on each anniversary of the Commencement Date.	Refer to Section on Lease Interpretations for update
5.1.4 Environmental Audit Report - required every second year	High	2006, 2008, 2010...	- Engage a suitably qualified consultant, as approved by SW, who is familiar with the EMP to carry out an audit of the Clubs implementation of the EMP and to review the results of monitoring programmes. - Submit the audit report to SW every two years from the EMP commencement date.	Refer to Section on Lease Interpretations for update

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Table 5.2 - Environmental legislation				
Issues	Priority	Timing	Actions	Update
5.2.1 Compliance Goal: to comply with all relevant environmental legislation	High	Immediate and ongoing	• Maintain compliance with the Acts listed in Section 3.2 of this EMP. • Maintain records of any incidents that result in non-compliance.	No incidents of non-compliance have occurred
5.2.2 General Knowledge Goals: to remain up to date with any changes in environmental legislation relevant to the Club; and to assess the Clubs responsibilities under the various Act's; and change management practices accordingly.	High	Immediate and ongoing	• Maintain membership of industry associations (eg Australian Golf Course Superintendents Association). • Maintain subscriptions to main industry magazines. • Subscribe to main government authority web pages, including the DEC (formerly EPA and the NPWS), DIPNR, Environmental Defenders Office, WorkCover NSW. • Golf Course Manager to provide staff briefings on legislation and responsibilities as required.	Membership of industry associations are up to date
5.2.3 Pesticides Act 1999	High	Immediate and ongoing	• Course superintendent to have a copy of the Act (either as hard copy or electronically) that can be easily accessed, as required. • Course	EPAR Audit revealed minor non-conformances which were addressed and closed out.

			superintendent to maintain a Resource folder containing Government produced Fact Sheets on this legislation in order to quickly clarify any issues that may arise with staff. • Maintain compliance with this Act by carrying out the specific actions set out in Table 5.11.	
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5.2.4 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	High	Immediate and ongoing	Course management to: • remain informed of the Clubs responsibilities under this Act; • keep all board and greens committee members informed of their responsibilities under this Act.	Greens Committee meetings are held monthly. Full reports from the Course Manager are provided at these meetings which contain full particulars of chemical usage and activity compliance.
5.2.5 Threatened Species Conservation Act 1995 The Club has a responsibility to protect ESBS under this Act	High	Immediate and ongoing	• Course superintendent to keep all staff, board and greens committee members informed of their responsibilities under this Act (Appendix 5 describes some of the legal implications). • Compliance with this Act is also to be maintained by adhering to the general management recommendations provided in Table 5.11 and the site-specific recommendations detailed in Tables 6.1 - 6.3.	Volunteer bushcare group involved continuously in maintaining and enhancing remnant areas of ESBS on the property.
5.2.6 Noxious Weeds Act 1983	High	Immediate and	• Control all Noxious weeds as declared in	

		ongoing	the City of Botany Bay. A copy of this list is included in Appendix 18. • Maintain records of any Noxious weeds found, their location and method of treatment. • Liaise with Botany Council whenever Noxious weeds are detected on lands adjacent to the golf course (to help protect the Course from further invasions).	
5.2.7 Environmental Planning and Assessment Act 1979 Any development on the Bonnie Doon Golf Course is controlled under this Act.	High	As required	• Determine whether or not consent is required prior to carrying out any development activities on the site. The consent authority for the Club is the City of Botany Bay Council.	All development carried out by the Club has been carried out after appropriate consent has been granted. Refer to Development Works Summary
5.2.8 Protection of the Environment Operations Act 1997	High	As required	• Obtain licences in advance for all activities with the potential to cause pollution (as defined under the Act).	No activities to report
Note: This list is not comprehensive; it only describes the major acts that currently affect the Club. Environmental Legislation is constantly being revised and updated and it is the Club's responsibility to remain up to date with any changes				

Table 5.3 - Water Use and Conservation

AIM: To ensure adequate water supplies not only for irrigation, but also for the healthy ecological functioning of nearby water bodies, such as the Botany Wetlands and the Botany Sands Aquifer

Issues	Priority	Timing	Actions	Update
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Goal 1: General Knowledge 5.3.1 To identify water sources of the golf course and make a commitment to judicious water use	High	Immediate and ongoing	Instruct all employees to conserve water and make water conservation a priority.	Information sessions have been provided to ground staff regarding safe use of groundwater
	High	Immediate and ongoing	Train all key maintenance staff to be able to identify the water source used for irrigation (the Botany Sands Aquifer).	
	High	Immediate and ongoing	Golf course superintendent to ensure that irrigation technicians can demonstrate how to correctly operate and manage the irrigation system.	Recent Development Works outlined here have included a progressive replacement of the irrigation system which is more efficient than the previous system. Full training in the operation of the system was provided during Stage 1. Updates in the training are provided upon completion of each new stage in the development.
Goal 2: Water Conservation 5.3.2 Irrigation Equipment and Plumbing Fixtures	High	2005 and ongoing	- Review the design and installation of the irrigation system. Document outcomes. - Test performance of the irrigation system. Document outcomes. - Investigate re-design potential if watering from the irrigation system is found to be inefficient. - Undertake regular checks of the irrigation system to assess performance and delivery efficiency. - Eliminate all non-target watering (e.g. paths, remnants)	
				As above

			• Check irrigation equipment daily. • Maintain the irrigation system on a regular basis. • Repair all leaks as soon as they are detected. • Assess pump station performance and efficiency on a regular basis. • Upgrade the irrigation system or components of the system (e.g. valves, nozzles, computer software) to reduce inefficiency and malfunction and reduce water use.	
5.3.3 Irrigation practise	High	Immediate and ongoing	• Irrigate only under calm atmospheric conditions (use climatic data to schedule irrigation). • Calculate watering times to prevent surface run off.	Irrigation system is fully computerised and programmed operation cycles are run in response to ground moisture readings carried out regularly during normal ground maintenance.
	High	Immediate and ongoing	• Split watering run times to maximise water infiltration. • Manage grass thatch to maximise water infiltration (See Table 5.5 for further detail on thatch management).	Regular greens and fairway renovations are carried out throughout the year to remove thatch
	High	Immediate and ongoing	• Water deeply and infrequently, rather than shallowly to encourage deep root development, thereby reducing water needs and increasing drought tolerance (if properly watered turf is also more resistant	

	High	As required	to insects and diseases). • Hand water greens as necessary, to minimise dry patches. • Use wetting agents as required.	
5.3.4 Record keeping <i>Note:</i> water use is likely to change in approximately a ten year cycle, as part of El Nino- La Nina rainfall patterns. Records for water use MUST be compared against records of rainfall to have any meaning.	High	Immediate and ongoing	• Quantify and keep record of daily, monthly and annual water use. • Maintain an accurate record of rainfall. • Compare annual records of water use and rainfall to identify any trends or significant changes in water use. • After recording water use for 3 years, calculate average annual water use and set this as a benchmark for assessing future water use. Aim to have no net increase in water use above this figure.	

Table 5.4 - Water Quality

Issues	Priority	Timing	Actions	Update
5.4.1 Botany Wetlands and Botany Sands Aquifer	High	Immediate and ongoing	• Keep precise records of all activities that have the potential to cause water pollution, so that Clubs activities are clearly identifiable and transparent.	
5.4.2 Potential gross	High	Immediate	• Continue to collect	

pollutants to nearby waterbodies		e and ongoing	rubbish across the golf course as part of weekly maintenance routine.	
5.4.3 Nutrient load from fertilisers	High	Immediate and ongoing	• Maintain minimal fertiliser application • Check records annually to monitor changes.	
5.4.4 Potential contamination from pesticides	High	Immediate and ongoing	• Use IPM and follow safety procedures as given in Table 5.5 to minimise the potential for surface or ground water pollution in the event of a spill.	
5.4.5 Soil erosion	High	Immediate and ongoing	• Maintain a healthy vegetation cover.	Refer to Landscape plans included in this update
	High	As required	• Install temporary erosion control measures such as hay bales or silt fencing when carrying out any construction work.	These requirements are also contained as part of the Construction Management Plan approved by Botany Council.
5.4.6 Potential re-development of the 6.5 Ha	High	As required	• Investigate potential issues associated with using highly degraded groundwater from beneath this area for irrigation of the 6.5 Ha.	Regular monitoring of the ground water is carried out by sample testing at all bore. Testing is carried out annually. During construction works, testing is carried out six monthly

Table 5.5 and 5.6 to be updated next year.

Table 5.7 - Construction management				
Issues	Priority	Timing	Actions	Update
5.7.1 Approvals	High	As required	• Submit a development application that seeks the consent of Council for planned	Refer to Development Works Summary for details of development applications submitted since 2010

			construction works such as, building or, landscaping, and the use of signage. The determining authority for the Club is the City of Botany Bay Council. • Consult with the Sydney Water Corporation prior to the commencement of any major construction works.		
5.7.2	Soil erosion	High	As required	• Incorporate the aim to minimise soil erosion into all plans for construction. (Minimisation of soil erosion can be satisfied by following the actions in Table 0.6).	Refer to Construction Management Plans
5.7.3	Dust control	High	As required	• Manage all construction activities in such a way as to minimise dust.	Refer to Construction Management Plans
5.7.4	Noise control	High	As required	• Manage noise particularly from large truck and plant movements during construction activities.	Refer to Construction Management Plans
5.7.5	Waste control	High	As required	• Investigate the potential for recycling waste products generated during the building process.	
5.7.6	Tree protection	High	As required	• Use tree protection measures whenever construction works have the potential to impact on trees on the golf course. General	Refer to Construction Management Plans

			tree protection measures are contained in Appendix 20.	
5.7.7 Protection of the ESBS	High	As required	• Install protective fencing, at least 1m from the outer edge of the remnant, around any ESBS remnant within 100 m of construction works. • The fencing must include an effective silt barrier to protect the remnant from eroded sediments or runoff during construction. • Protective fencing is to be maintained in working order for the duration of building or development works.	Refer to Construction Management Plans
5.7.8 Potential re-development of the 6.5 Ha	High	As required	• Ensure re-development is consistent with the management actions and principles of this EMP.	All work carried out on the 6.5Ha was done in accordance with the Chief Auditors recommendations.

Tables 5.8 to 5.14 will be supplied in the next update of this EMP

8.6 Site Specific Recommendations

Updated Table 6.1 to 6.3 will be supplied in the next Update of this EMP

Part 9 Appendix 10. Section 95(2) Certificate & Letter of Conditions

The Certificate has now expired but is no longer required. Authority for bush regeneration is covered by the current 132C Scientific Licence. See Appendix 12.

Part 10 Appendix 12. The Club's Section 132C Scientific Licence

Current Licence

Part 11 Appendix 23. Landscape Plans for Course Redevelopment

The attached Landscape Plans have been approved by Botany Council under the Development Application Approvals listed below. The table also lists progress on the plans as of the date of this EMP Update.

Development Application	Start Date - Plan	Construction Certificate	Progress	Status	Certificate
DA 02/458 Stage 1 Works	02.06.2011 Revegetation Plan - 17.01.11	248/10 23 June 2011	Good	Work is on-going	86/12 Interim Occupation 31 May 2012
DA 12/241 Stage 2 Works	03.09.2013 Stage 2 - Revegetation Plan - 09.05.13	91/13 19th June 2013	Good	Work is on-going	n/a
DA 15/010 Stage 3 Works	26.04.2016 Revegetation Plan - 2nd October 2015		Due to commence	Preparation	n/a

Full size (A3) versions of the plans contained in these appendices are available on request.



HEATHLAND PLANTS

	Lepidosperma laterale (Sword Sedge) Planting Method - Tubes Density - 20 per 100 m2 Qty - 2,565
	Lepidosperma viciatum (Sword Sedge) Planting Method - Tubes Density - 20 per 100 m2 Qty - 2,565
	Allocasuarina distyla (She-oak) Planting Method - Tubes Density - 7 per 100 m2 Qty - 898
	Bossiaea hetrophylla (Bossiaea) Planting Method - Tubes Density - 30 per 100 m2 Qty - 3,848
	Caustis pentandra (Caustis) Planting Method - Tubes Density - 15 per 100 m2 Qty - 1,924
	Dilwynia glaberrima (Eggs & Bacon) Planting Method - Tubes Density - 200 per 100 m2 Qty - 25,654
	Eriostemon australasius (Eriostemon) Planting Method - Tubes Density - 9 per 100 m2 Qty - 1,154
	Haemodorum planifolium (Bloodroot) Planting Method - Tubes Density - 7 per 100 m2 Qty - 898
	Stylidium spp (Trigger Plant) Planting Method - Tubes Density - 50 per 100 m2 Qty - 6,413
	Gompholobium glabratum (Pea Flower) Planting Method - Seed Density - 20 per 100 m2 Qty - 2,565
	Rhinocarpus pinifolius (Wedding Bush) Planting Method - Tubes Density - 35 per 100 m2 Qty - 4,489
	Xanthorrhoea resinosa (Grass Tree) Planting Method - Established Density - 2 per 100 m2 Qty - 256
	Hibbertia obtusifolia (Guinea Flower) Planting Method - Tubes Density - 30 per 100 m2 Qty - 3,848
	Hibbertia fascicularis (Guinea Flower) Planting Method - Tubes Density - 30 per 100 m2 Qty - 3,848
	Leucopogon ericoides (Bearded Heath) Planting Method - Tubes Density - 7 per 100 m2 Qty - 898
	Monotoca scoparia (Bearded Heath) Planting Method - Tubes Density - 3 per 100 m2 Qty - 385
	Pimelea linifolia (Slender Rice Flower) Planting Method - Tubes Density - 175 per 100 m2 Qty - 22,447
	Austrostipa pubescens (Spear Grass) Planting Method - Seed Density - 20 per 100 m2 Qty - 2,565
	Austrodanthonia tenuior (Wallaby Grass) Planting Method - Seed Density - 200 per 100 m2 Qty - 25,654
	Microlaena stipoides (Weeping Grass) Planting Method - Seed Density - 200 per 100 m2 Qty - 25,654
	Dichelachne crinita (Plume Grass) Planting Method - Seed Density - 20 per 100 m2 Qty - 2,565
	Eragrostis brownii (Browns Love Grass) Planting Method - Seed Density - 200 per 100 m2 Qty - 25,654

GRASSLANDS

	Austrodanthonia tenuior (Wallaby Grass) Planting Method - Seed Density - 300 per 100 m2 Qty - 93,325
	Microlaena stipoides (Weeping Grass) Planting Method - Seed Density - 500 per 100 m2 Qty - 93,325
	Dichelachne crinita (Plume Grass) Planting Method - Seed Density - 500 per 100 m2 Qty - 93,325
	Eragrostis brownii (Browns Love Grass) Planting Method - Seed Density - 500 per 100 m2 Qty - 93,325

CLIMBERS

	Kennedia ribicunda (Dusky Coral Pea) Planting Method - Tube Density - 50 per 100 m2 Qty - 215
	Hibbertia scandens (Snake Vine) Planting Method - Tube Density - 50 per 100 m2 Qty - 215

SANDY GRASSLANDS

	Kennedia prostrata (Running Postman) Planting Method - Tube Density - 50 per 100 m2 Qty - 2,415
	Austrodanthonia tenuior (Wallaby Grass) Planting Method - Seed Density - 100 per 100 m2 Qty - 4,831
	Microlaena stipoides (Weeping Grass) Planting Method - Seed Density - 100 per 100 m2 Qty - 4,831
	Eragrostis brownii (Browns Love Grass) Planting Method - Seed Density - 100 per 100 m2 Qty - 4,831

BANKSIA WOODLAND

	Banksia aemula (Wallum Banksia) Planting Method - Tube Density - 35 per 100 m2 Qty - 880
	Austrodanthonia tenuior (Wallaby Grass) Planting Method - Seed Density - 500 per 100 m2 Qty - 12,560
	Dichelachne crinita (Plume Grass) Planting Method - Seed Density - 500 per 100 m2 Qty - 12,560
	Microlaena stipoides (Weeping Grass) Planting Method - Seed Density - 500 per 100 m2 Qty - 12,560
	Eragrostis brownii (Browns Love Grass) Planting Method - Seed Density - 500 per 100 m2 Qty - 12,560

FEATURE TREES

	Angophora costata (Smooth Barked Apple) Planting Method - Tube Density - 1 per 100 m2 Qty - 30
	Corymbia gumifera (Red Bloodwood) Planting Method - Tube Density - 1 per 100 m2 Qty - 30
	Eucalyptus capitellata (Stringybark) Planting Method - Tube Density - 1 per 100 m2 Qty - 30

LOW LYING

	Patersonia sericea (Purple Flag) Planting Method - Tube Density - 300 per 100 m2 Qty - 11,091
	Astroloma pinifolium (Pine Heath) Planting Method - Tube Density - 10 per 100 m2 Qty - 370
	Lomandra cylindrica (Lomandra Terete Form) Planting Method - Tube Density - 13 per 100 m2 Qty - 480
	Wahlenbergia gracilis (Bluebell) Planting Method - Tube Density - 100 per 100 m2 Qty - 11,091

PLANTING SCHEDULE

Heathland (12,827 m2)	Qty
Lepidosperma laterale (Sword Sedge)	2,565
Lepidosperma viciatum (Sword Sedge)	2,565
Allocasuarina distyla (She-oak)	898
Bossiaea hetrophylla (Bossiaea)	3,848
Caustis pentandra (Caustis)	1,924
Dilwynia glaberrima (Eggs & Bacon)	25,654
Eriostemon australasius (Eriostemon)	1,154
Haemodorum planifolium (Bloodroot)	898
Stylidium spp (Trigger Plant)	6,413
Gompholobium glabratum (Pea Flower)	2,565
Rhinocarpus pinifolius (Wedding Bush)	4,489
Xanthorrhoea resinosa (Grass Tree)	256
Hibbertia obtusifolia (Guinea Flower)	3,848
Hibbertia fascicularis (Guinea Flower)	3,848
Leucopogon ericoides (Bearded Heath)	898
Monotoca scoparia (Bearded Heath)	385
Pimelea linifolia (Slender Rice Flower)	22,447
Austrostipa pubescens (Spear Grass)	2,565
Austrodanthonia tenuior (Wallaby Grass)	25,654
Microlaena stipoides (Weeping Grass)	25,654
Dichelachne crinita (Plume Grass)	25,654
Eragrostis brownii (Browns Love Grass)	25,654
Sub-Total	166,747
Grasslands (18,665 m2)	Qty
Austrodanthonia tenuior (Wallaby Grass)	93,325
Microlaena stipoides (Weeping Grass)	93,325
Dichelachne crinita (Plume Grass)	93,325
Eragrostis brownii (Browns Love Grass)	93,325
Sub-Total	373,300
Climbers (430 m2)	Qty
Kennedia ribicunda (Dusky Coral Pea)	215
Hibbertia scandens (Snake Vine)	215
Sub-Total	430
Sandy Grasslands (4,831 m2)	Qty
Kennedia prostrata (Running Postman)	2,415
Austrodanthonia tenuior (Wallaby Grass)	4,831
Microlaena stipoides (Weeping Grass)	4,831
Eragrostis brownii (Browns Love Grass)	4,831
Sub-Total	16,908
Banksia Woodland (2,512 m2)	Qty
Banksia aemula (Wallum Banksia)	880
Austrodanthonia tenuior (Wallaby Grass)	12,560
Dichelachne crinita (Plume Grass)	12,560
Microlaena stipoides (Weeping Grass)	12,560
Eragrostis brownii (Browns Love Grass)	12,560
Sub-Total	51,120
Feature Trees (2,936 m2)	Qty
Angophora costata (Multi Smooth Barked Apple)	30
Corymbia gumifera (Red Bloodwood)	30
Eucalyptus capitellata (Stringybark)	30
Sub-Total	90
Low Lying (3,697 m2)	Qty
Patersonia sericea (Purple Flag)	11,091
Astroloma pinifolium (Pine Heath)	370
Lomandra cylindrica (Lomandra Terete Form)	480
Wahlenbergia gracilis (Bluebell)	11,091
Sub-Total	23,032
Total	631,627

****SPECIES ARE INDICATIVE ONLY AND WILL BE FINALISED IN CONSULTATION WITH SYDNEY WATER AND THE DEPARTMENT OF ENVIRONMENT, CLIMATE CHANGE AND WATER****

SCALE
1:1000 @ A0

DATE
17.01.11

OGILVY CLAYTON GOLF COURSE ARCHITECTS

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NOTES
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PROJECT
BONNIE DOON GOLF CLUB

DRAWING # / REVISION
REVEGETATION PLAN

BDGC
RP01





HEATHLAND PLANTS

	<i>Lepidosperma laterale</i> Planting Method - Tubes Qty - 4900
	<i>Lambertia formosa</i> Planting Method - Tubes Qty - 2,795
	<i>Allocasuarina distyla</i> Planting Method - Tubes Qty - 898
	<i>Bossiaea hetrophylla</i> Planting Method - Tubes Qty - 580
	<i>Gonocarpus feuricoides</i> Planting Method - Tubes Qty - 326
	<i>Dilwynia retorta</i> Planting Method - Tubes Qty - 980
	<i>Lomandra filiformis</i> Planting Method - Tubes Qty - 217
	<i>Hardenbergia violacea</i> Planting Method - Tubes Qty - 726
	<i>Darwinia fascicularis</i> Planting Method - Tubes Qty - 508
	<i>Bauera rubioides</i> Planting Method - Tubes Qty - 1379
	<i>Baeckea imbricate</i> Planting Method - Tubes Qty - 1960
	<i>Xanthorrhoea resinosa</i> Planting Method - Established Qty - 726
	<i>Actinotus helianthii</i> Planting Method - Tubes Qty - 3630
	<i>Acacia ulicifolia</i> Planting Method - Tubes Qty - 3993
	<i>Leucopogon ericoides</i> Planting Method - Tubes Qty - 1089
	<i>Monotoca elliptica</i> Planting Method - Tubes Qty - 726
	<i>Pimelea linifolia</i> Planting Method - Tubes Qty - 36

	<i>Austrodanthonia tenuior</i> Planting Method - Cells Qty - 7260
	<i>Microlaena stipoides</i> Planting Method - Cells Qty - 7260
	<i>Dichelachne crinita</i> Planting Method - Cells Qty - 10890
	<i>Pomax umbellata</i> Planting Method - Tube Qty - 370
	<i>Wahlenbergia gracilis</i> Planting Method - Tube Qty - 6316
	<i>Hibbertia scandens</i> Planting Method - Tube Qty - 726

GRASSLANDS

	<i>Austrodanthonia tenuior</i> Planting Method - Cells Qty - 500
	<i>Microlaena stipoides</i> Planting Method - Cells Qty - 500
	<i>Dichelachne crinita</i> Planting Method - Cells Qty - 500

CLIMBERS

	<i>Kennedia rubicunda</i> Planting Method - Tube Qty - 50
	<i>Hibbertia scandens</i> Planting Method - Tube Qty - 50

FEATURE TREES

	<i>Banksia aemula</i> Planting Method - Tube Qty - 500
	<i>Angophora costata</i> Planting Method - Tube Qty - 70
	<i>Banksia serrata</i> Planting Method - Tube Qty - 500
	<i>Corymbia gummifera</i> Planting Method - Tube Qty - 100

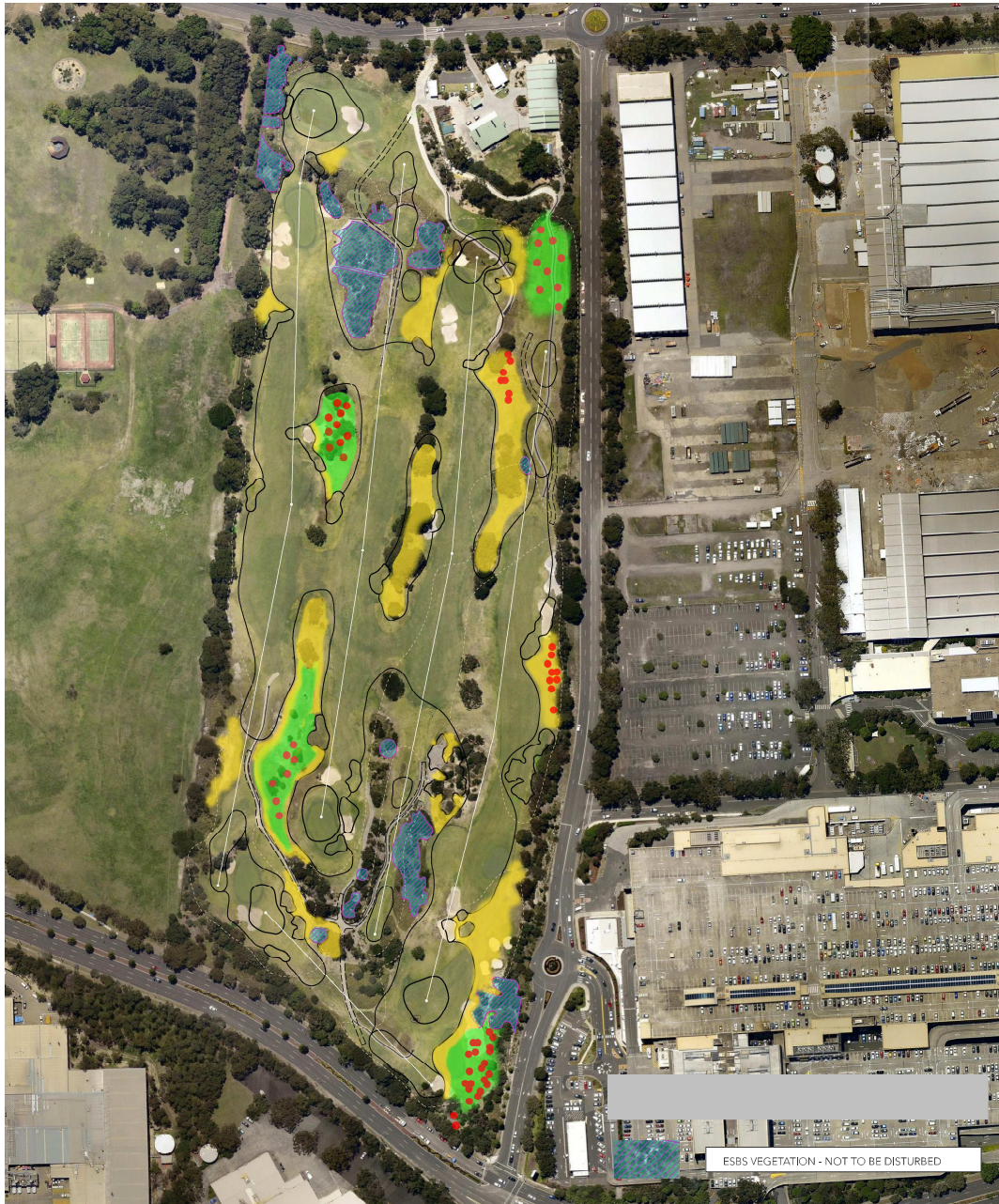
PLANTING SCHEDULE

Heathland (12,100 m2)	Qty
<i>Lepidosperma laterale</i>	4900
<i>Lambertia formosa</i>	2795
<i>Allocasuarina distyla</i>	1778
<i>Bossiaea hetrophylla</i>	580
<i>Gonocarpus feuricoides</i>	326
<i>Dilwynia retorta</i>	980
<i>Lomandra filiformis</i>	217
<i>Hardenbergia violacea</i>	726
<i>Darwinia fascicularis</i>	508
<i>Bauera rubioides</i>	1379
<i>Baeckea imbricate</i>	1960
<i>Xanthorrhoea resinosa</i>	726
<i>Actinotus helianthii</i>	3630
<i>Acacia ulicifolia</i>	3993
<i>Leucopogon ericoides</i>	1089
<i>Monotoca elliptica</i>	726
<i>Pimelea linifolia</i>	36
<i>Austrodanthonia tenuior</i>	7260
<i>Microlaena stipoides</i>	7260
<i>Dichelachne crinita</i>	10890
<i>Pomax umbellata</i>	370
<i>Wahlenbergia gracilis</i>	6316
<i>Hibbertia scandens</i>	726
Sub-Total	59055
Grasslands (2,500 m2)	
<i>Austrodanthonia tenuior</i>	5000
<i>Microlaena stipoides</i>	5000
<i>Dichelachne crinita</i>	2000
Sub-Total	12000
Climbers (100 m2)	
<i>Kennedia rubicunda</i>	50
<i>Hibbertia scandens</i>	50
Sub-Total	100
Feature Trees (1,500 m2)	
<i>Angophora costata</i>	70
<i>Banksia serrata</i>	500
<i>Banksia aemula</i>	500
<i>Corymbia gummifera</i>	100
Sub-Total	1170
Total	72,325

SPECIES ARE INDICATIVE ONLY AND WILL BE FINALISED IN CONSULTATION WITH SYDNEY WATER AND THE DEPARTMENT OF ENVIRONMENT, CLIMATE CHANGE AND WATER

SCALE N/A	DATE 09.05.13	SUITE 2 & 3 24 BAY ROAD SANDRINGHAM VICTORIA 3213 AUSTRALIA info@ogilvyclayton.com www.ogilvyclayton.com
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HEATHLAND

	<i>Lepidosperma laterale</i> Planting Method - Tubes Qty - 667
	<i>Lambertia formosa</i> Planting Method - Tubes Qty - 369
	<i>Allocasuarina distyla</i> Planting Method - Tubes Qty - 118
	<i>Bossiaea hetrophylla</i> Planting Method - Tubes Qty - 80
	<i>Gonocarpus teucrioides</i> Planting Method - Tubes Qty - 43
	<i>Dilwynia retorta</i> Planting Method - Tubes Qty - 132
	<i>Lomandra filiformis</i> Planting Method - Tubes Qty - 29
	<i>Hardenbergia violacea</i> Planting Method - Tubes Qty - 95
	<i>Darwinia fascicularis</i> Planting Method - Tubes Qty - 69
	<i>Bauera rubioides</i> Planting Method - Tubes Qty - 198
	<i>Baeckea imbricate</i> Planting Method - Tubes Qty - 264
	<i>Xanthorrhoea resinosa</i> Planting Method - Established Qty - 99
	<i>Actinotus helianthii</i> Planting Method - Tubes Qty - 528
	<i>Acacia ulicifolia</i> Planting Method - Tubes Qty - 533
	<i>Leucopogon ericoides</i> Planting Method - Tubes Qty - 144
	<i>Monotoca elliptica</i> Planting Method - Tubes Qty - 99
	<i>Pimelea linifolia</i> Planting Method - Tubes Qty - 5

Note:
Leptospermum laevigatum will also be included in appropriate numbers

Larger pot sizes (200mm-25L) will be used for a proportion of *Angophora costata* and *Corymbia gummifera*

Larger pot sizes (200mm-25L) will be used for a proportion of *Allocasuarina distyla*, *Xanthorrhoea* and *Banksia aemula*

PLANTING SCHEDULE

Heathland (2,000 m2)	Qty
<i>Lepidosperma laterale</i>	667
<i>Lambertia formosa</i>	369
<i>Allocasuarina distyla</i>	118
<i>Bossiaea hetrophylla</i>	80
<i>Gonocarpus teucrioides</i>	43
<i>Dilwynia retorta</i>	132
<i>Lomandra filiformis</i>	29
<i>Hardenbergia violacea</i>	95
<i>Darwinia fascicularis</i>	69
<i>Bauera rubioides</i>	198
<i>Baeckea imbricate</i>	264
<i>Xanthorrhoea resinosa</i>	99
<i>Actinotus helianthii</i>	528
<i>Acacia ulicifolia</i>	533
<i>Leucopogon ericoides</i>	144
<i>Monotoca elliptica</i>	99
<i>Pimelea linifolia</i>	5
<i>Austrodanthonia tenuior</i>	990
<i>Microlaena stipoides</i>	990
<i>Dichelachne cinita</i>	1440
<i>Pomax umbellata</i>	48
<i>Wahlenbergia gracilis</i>	990
<i>Hibbertia scandens</i>	95
Sub-Total	8,025

Grasslands (4,100 m2)	Qty
<i>Austrodanthonia tenuior</i>	8200
<i>Microlaena stipoides</i>	8200
<i>Dichelachne cinita</i>	8200
Sub-Total	24,600

Emergent ESBS Trees

<i>Angophora costata</i>	32
<i>Banksia aemula</i>	440
<i>Corymbia gummifera</i>	45
Sub-Total	517
Total	33,142

GRASSLANDS

	<i>Austrodanthonia tenuior</i> Planting Method - Cells Qty - 8200
	<i>Microlaena stipoides</i> Planting Method - Cells Qty - 8200
	<i>Dichelachne cinita</i> Planting Method - Cells Qty - 8200

EMERGENT ESBS TREES

	<i>Banksia aemula</i> Planting Method - Tube Qty - 440
	<i>Angophora costata</i> Planting Method - Tube Qty - 32
	<i>Corymbia gummifera</i> Planting Method - Tube Qty - 45

SUMMARY OF AREAS

HEATHLAND WITH TREES & SHRUBS
2,000m2

GRASSLANDS WITH TREES & SHRUBS
1,100m2

GRASSLANDS
3,000m2

3,100m2 = 2.8 plants/m2



PLAN NUMBER

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NOTES

Do not scale from drawings. All dimensions are to be confirmed on site before commencement of work. All discrepancies are to be addressed with the architect. The drawing is copyright and property of the author and must not be retained, copied or dispersed without the permission of OCCM.



ORIENTATION

DATE

2nd October 2015

SCALE

Not to scale

CLIENT

BONNIE DOON GOLF CLUB

TITLE

Revegetation Plan

