CENTRAL DARLING



SHIRE COUNCIL

ORDINARY COUNCIL MEETING

ATTACHMENTS

WEDNESDAY, 22 MARCH 2023

Table of Contents

8.1	Request for Fir	nancial Assistance - Country Women's Association, White Cliffs Branch	
	Attachment 1	Country Women's Association White Cliffs - request financial assistance - 2022-23 annual rates and charges	e 4
8.4	GRANTS REG	ISTER – FEBRUARY 2023	
	Attachment 1	Morris & Piper Advisory Monthly Report - February 2023	6
	Attachment 2	Tracking Report February 2023	8
9.2	Central Darling	Shire Council Workforce Management Plan 2023-2027	
	Attachment 1	Central Darling Shire Council Workforce Management Plan - 2023-202	79
9.4	Wilcannia Visto	or Accomodation Business Case	
	Attachment 1	Dunn & Hillam Arthitects-quote	26
	Attachment 2	Balmoral Group -quote	60
11.4	Waste Facilitie	s Operational Strategic Plan and Long Term Plans of Management	
	Attachment 1	Ivanhoe LTPoM	72
	Attachment 2	Waste Facilities Strategic Plan	. 102
	Attachment 3	Menindee LTPoM	. 129
	Attachment 4	Wilcannia LTPoM	. 161
	Attachment 5	White Cliffs LTPoM	. 198
	Attachment 6	Tilpa LTPoM	. 215

...

OMMUNITY GRAN	TS APPLICATION
PPLICANT'S DETAILS	
pplicant:	Country Womens Association of NSW
ddress:	PO Box 509
	White Cliffs NSW 2836
elephone:	0414935803
mail:	Honor.bosslady@gmail.com
BN:	
ank Account Name:	
SB:	
ccount Number:	
ROJECT/ACTIVITY DE	TAILS
ame of Project/Activ	ty: Waiver of Council Rates 2022-23
mount of Funding Re	quested: \$787.81

Around 6 months ago it was discovered that the WCCWA was struggling for members and was considering going into recession and selling the land and building here in White Cliffs. Many ladies got together and have revitalised the members to save this Branch and building with more

Unfortunately due to Covid and the inability to do fundraising the WCCWA is non-financial in its current state. The previous committee did not hold a meeting for 2 years.

We have a number of new members from White Cliffs and surrounds and are hoping to create a family/friendly group of ladies and put some life back into the building and fundraise. We have already started fundraising and hope to raise enough to cover for the 2023-24 financial year.

It is with all of the above in mind that I request from Central Darling Shire if you would consider waiving the attached Rates for 2022-23?

GD18/5228 - Community Grants Application

than 20 new members joining.

Page 1 of 2

 ,		

AUTHORISATION OF APPLICANT

Name:	Honor Taylor	
Position:	Vice President	
Signature:	- the	
Date:	14.03.23	

PRIVACY STATEMENT

Council is collecting your personal information in accordance with the Privacy and Personal Information Protection Act 1998.

The purpose for collecting your personal information is to obtain and record details to assess your application. The intended recipients of the personal information collected includes Council officers, delegates or other agents contracted by Council. If necessary for reporting purposes, your name will be made publicly available on Council's website. Your contact details will not be made public on Council's website and will be removed from all applications and reports in Council's Business Papers.

The supply of your personal information is voluntary. If you cannot provide or do not wish to provide the information sought, Council may not be able to process your application.

You may make an application for access or amendment to information held by Council. Council will consider any such application in accordance with the Act. Enquiries concerning this matter can be directed to the Public Officer by email <u>council@centraldarling.nsw.gov.au</u> or addressed to Central Darling Shire Council, PO Box 165, Wilcannia NSW 2836.

Your information will be collected and stored by Central Darling Shire Council, 21 Reid Street, Wilcannia NSW 2836.

GD18/5228 - Community Grants Application

Page 2 of 2

0-----

MORRIS & PIPER

ADVISORY

Central Darling Shire Council - Monthly Report – February 2023

Introduction

This monthly report is prepared for the Central Darling Shire Council (CDSC) under the current 2022-23 Service Agreement. The report captures work completed in February 2023 and sets out a proposed detailed work schedule for the month of March 2023. The report will also look forward to potential activities to be undertaken into Autumn 2023.

February 2023 Update

- Finalised and submitted the following applications:
 - NSW EV Fast Charging Site Host (Expression of Interest) for Menindee, Ivanhoe and White Cliffs.
 - $\circ~$ Local Government Recovery Grants (NSW) (\$1,000,000 ex GST) multiple projects across Shire.
- Notified that the following grant application was successful:
 - Fixing Local Roads Program Racecourse Rd, Menindee, Sealing and Resilience Improvement (NSW) (\$2,343,472 ex GST)
- Notified that the following grant applications were unsuccessful:
- 0 N/A
- Drafting the following applications:
 - Regional Drought Resilience Planning Program Application (NSW).
- CDSC grant program contract management support, reporting and acquittal of all CDSC grant funding, including the following updates:
 - o SCCF Rd 2 acquittal has progressed and should be finalised in March 2023.
 - Continued to work on SCCF Rd3-0448 milestone report.
 - Implementation Meeting for the Sunset Strip Stormwater Mitigation project held 23 February 2023.
 - o Regional Youth Holiday Break Completion & Acquittal Report submitted.
 - Continued to work on acquittal for LSP-040 (DSP Tranche 2). Advice received from the Department of Regional NSW that the final report for LSP-039 had been approved and payment recommended.
 - Continued to work on Community Events Program 0137 Reporting and variation (Aboriginal Community Engagement Workshops).
 - o Attempting to close out the Menindee Diorama acquittal with localised input.
- Provided general grant and project management advice, including:
 - Regional Drought Resilience Planning Program (NSW), Connect Communities Program, and Local Roads and Community Infrastructure Phase 4.

Monthly Report - February 2023

1

morrispiper.com

MORRIS & PIPER

ADVISORY

Proposed March 2023 Work Schedule

- Review Darling River Flood Plain Mapping (Preparing Australia Program) project and either acquit or apply for an extension.
- Preparing and finalising applications for the following projects:
 - NSW Business Improvement Districts Pilot Program (Registration of Interest).
 - 2023-24 Floodplain Management Program (NSW)
 - Regional Drought Resilience Planning Program Application progress development of a joint application as lead for consortium of CDSC, Broken Hill City Council and Far West Unincorporated area.
- Continue CDSC grant programs support including tracking, reporting and acquittal grant funding.
- Continue to explore and research grant funding opportunities to meet Council priorities.

Proposed Schedule for Autumn 2023

- Continue to work on and submit new grant applications due March 2022 to May 2023, including
 matching CDSC project priorities with grant opportunities as they become available with a focus
 on funding for:
 - Streetscapes
 - Review of the EMPlan.
 - Roads and Airstrips
 - \circ ~ Disability Access to public buildings (e.g., Post Offices and public amenities)
 - Cemeteries / Heritage Trail App (application submitted)
 - Menindee Street Art
 - Solar Panels for Council buildings
 - Ivanhoe Swimming Pool heating
 - Ivanhoe Community Golf Club
 - $\circ \quad \text{Sound Dome Beautification}-\text{White Cliffs}$
 - \circ $\;$ Landfill improvements (Litter fencing, CCTV, operational)
- Support and advice for:
 - Baaka Culture Centre development (as required)
- Continued grants administration advice and support (including reporting and acquittals).

Summary of days worked:

Total Days under Service Agreement (to end June 2023)	Rolling Total Days Used	February 2023	Days Remaining at 28 February 2023
84	47	6	31

Please contact me if there are anything you would like to discuss regarding the above report.

Prepared by:

Andrew Morris Director, Morris & Piper Advisory 3 March 2023 Email: andrew@morrispiper.com Mobile: 0427 015 580

Monthly Report - February 2023

2

morrispiper.com

							Gi	rant Funding Received															
		Total Appr	roved Grant				Pri	ior to Current Financial		Grant Funding Received	Total Grant Funding	Grant Funding to be					Total Expended Prior to			Total Unexpended	Ond	cost	
Grant Title	Column1	Funds	Grant	ts Received 2019 Grant	s Received 2020 Gr	ants Received 2021 Gran	nts Received 2022	Year	Grants Received 2023	YTD 2023	Received	Received	Expended 18-19	Expended 19-20	Expended 20-21	Expended 21-22	Current Financial Year	Expended 22-23	Total Expended	Balance G	rant Completion Date App	olicable G	<u>इ</u> म
Stronger Country Communities Fund Rounding 2	CAPITAL	ş	1,395,084.00 \$	460,377.00	\$	460,377.00	\$	920,754.00		\$ 920,754.00 \$	920,754.00 -\$	446,424.00 \$	235,325.39 \$	341,100.29 \$	759,771.64 \$	28,008.69	\$ 1,364,206.01 \$	30,336.59 \$	1,394,542.60 \$	30,877.99	30/06/2021	N	N
Stronger Country Communities Fund Rounding 3	CAPITAL	s	760,340.00		s	304,136.00	s	304,136.00		\$ 304,136.00	304,136.00 \$	456,204.00		s	154,605.40 \$	370,242.74	5 524,848.14 \$	230,030.33 \$	754,878.47 \$	235,491.86	30/06/2022	N	N
Baaka Cultural Centre	CAPITAL	Ş	3,500,000.00				\$	-		\$ - 5	- \$	3,500,000.00				9	3 - ¹	\$	- \$	3,500,000.00	30/06/2024	N	N
Upgrade of Pooncarrie Road	CAPITAL	Ş	37,500,000.00	\$	500,000.00 \$	8,000,000.00 \$	8,500,000.00 \$	17,000,000.00 \$	8,000,000.00	\$ 25,000,000.00	25,000,000.00 \$	12,500,000.00	ş	874,516.78 \$	2,914,047.78 \$	17,444,711.93	21,233,276.49 \$	7,673,293.08 \$	28,906,569.57 \$	16,266,723.51		Y	N
Local Roads and Community Infrastructure Program	CAPITAL	ş	3,721,674.00		\$	856,098.82 \$	358,110.00 \$	1,214,208.82		\$ 1,214,208.82	1,214,208.82 \$	2,507,465.18		\$	593,090.38 \$	409,563.02	\$ 1,002,653.40 \$	328,178.13 \$	1,330,831.53 \$	2,719,020.60	30/06/2022	N	N
DSP Council Capacity and Capability Building	CAPITAL	ş	150,000.00	\$	37,500.00		ş	37,500.00		\$ 37,500.00	37,500.00 \$	112,500.00		\$	167,385.43 \$	30,680.78	\$ 198,066.21 \$	6,716.15 \$	204,782.36 -\$	48,066.21	30/06/2022	N	N
DSP Infrastructure / Employment Generation / Community	r																						
Projects	CAPITAL	\$	1,430,000.00	\$	557,500.00		\$	557,500.00		\$ 557,500.00	557,500.00 \$	872,500.00		\$	753,915.02 \$	217,598.50	\$ 971,513.52 \$	12,155.67 \$	983,669.19 \$	458,486.48	30/06/2022	N	N
FWJO Toilet Facility Upgrades	CAPITAL	\$	230,000.00	\$	10,000.00 \$	220,000.00	\$	230,000.00 \$	225,000.00	\$ 455,000.00	455,000.00 -\$	225,000.00	\$	7,626.36 \$	85,857.01 \$	162,157.63	\$ 255,641.00	\$	255,641.00 -\$	25,641.00	30/06/2023	N	N
FWJO Tourism Infrastrucure Enhancement	CAPITAL	\$	550,000.00	\$	50,000.00 \$	350,000.00	\$	400,000.00 \$	150,000.00	\$ 550,000.00	550,000.00 \$			\$	85,857.01 \$	147,676.11	\$ 233,533.12 \$	111,827.67 \$	345,360.79 \$	316,466.88	30/06/2023	N	N
FWJO Tourism Technology	CAPITAL	\$	220,000.00		\$	145,000.00	\$	145,000.00 \$	75,000.00	\$ 220,000.00	220,000.00 \$			\$	12,345.59 \$	10,315.29	22,660.88	\$	22,660.88 \$	197,339.12	30/06/2023	N	N
MDBEDP Victory Caravan Park Amenity Block Upgrade	CAPITAL	ş	489,665.00			ş	440,700.00 \$	440,700.00		\$ 440,700.00 \$	440,700.00 \$	48,965.00			s	15,981.00	\$ 15,981.00 \$	32,823.25 \$	48,804.25 \$	473,684.00	30/04/2022	N	N
																					/ /		
Crown Reserve Improvement Fund - Tilpa Community Hall	CAPITAL	ş	103,/14.00			Ş	103,/14.00 \$	103,714.00		\$ 103,/14.00 \$	103,/14.00 \$					\$	- 5	43,685.00 \$	43,685.00 \$	103,/14.00	30/04/2022	N	N
Crown Reserve Improvement Fund - Victory Park Electrical																					/ /		
Upgrades	CAPITAL	Ş	130,000.00			Ş	130,000.00 \$	130,000.00		\$ 130,000.00 \$	130,000.00 \$	•				5	-	Ş	- \$	130,000.00	30/04/2022	N	N
Stronger Country Communities Fund Round 4 Central																							
Darling Pump Tracks Project	CAPITAL	ş	752,409.00				Ş	- \$	305,705.00	\$ 305,705.00	305,705.00 \$	446,704.00				9	- \$	212,400.00 \$	212,400.00 \$	752,409.00	2/09/2022	N	N
Cultural Tourism Accelerator	CAPITAL	Ş	10,000.00				ş	-		\$ - \$	- \$	10,000.00				ş	-	\$	- \$	10,000.00		N	N
Active Transport Plan	CAPITAL	ş	85,600.00				Ş			s - s	- Ş	85,600.00				9	- \$	45,100.00 \$	45,100.00 \$	85,600.00		N	N
Remote Airstrip Upgrade Program Rd 9	CAPITAL	ş	72,750.00				Ş	- Ş	31,650.00	\$ 31,650.00 \$	31,650.00 \$	41,100.00				9	- \$	8,426.27 \$	8,426.27 \$	72,750.00		N	N
Disaster Risk Reduction Fund (NSW)	CAPITAL	Ş	100,000.00				Ş	- \$	44,000.00	\$ 44,000.00 \$	44,000.00 Ş	56,000.00				ę		Ş	- \$	100,000.00	31/03/2024	N	N
Wilcannia Trail Design	CAPITAL	ş	314,420.00				Ş			s - s	- ş	314,420.00				9	-	ş	- \$	314,420.00			
Stronger Country Communities Fund Rounding 5	CAPITAL	Ş	831,508.00				Ş	- \$	665,206.40	\$ 665,206.40	665,206.40 Ş	831,508.00				9		Ş	- \$	831,508.00		n	n
							\$			\$ - 5	- \$					9	-	\$	- \$				<u></u>
Management Plan for Crown Land	OPERATING	ş	100,000.00				Ş			s - s	- Ş	100,000.00 \$	21,824.26 \$	78,440.77 \$	5,301.00 \$	- 9	5 105,566.03	ş	105,566.03 -\$	5,566.03	30/06/2021	N	N
Baaka Curatorial Co-ordination Project	OPERATING	Ş	15,000.00				Ş			\$ - \$	- \$	15,000.00				ç		Ş	- \$	15,000.00 N/A	1	N	N
DSP Council Stategic Planning	OPERATING	Ş	220,000.00	\$	55,000.00		\$	55,000.00		\$ 55,000.00 \$	55,000.00 \$	165,000.00		\$	12,723.58 \$	47,306.64	60,030.22	\$	60,030.22 \$	159,969.78	30/06/2022	N	N
Menindee Rural Drought Emergency Funding Water																							
Carting	OPERATING	Ş	80,000.00	Ş	80,000.00		Ş	80,000.00		\$ 80,000.00 \$	80,000.00 Ş		Ş	36,355.00 \$	22,275.00 \$	- ;	5 58,630.00	Ş	58,630.00 Ş	21,370.00	30/06/2021	N	N
Financial Assistant Grant Entitlement 2022/2023 - Local																							
Roads	OPERATING	Ş	1,710,939.00				Ş	- \$	509,360.00	\$ 509,360.00	509,360.00 Ş	1,201,579.00		Ş		ş	-	Ş	- \$	1,710,939.00	30/06/2022	N	N
Financial Assistant Grant Entilement 2022/2023 - Non																							
Roads	OPERATING	Ş	4,689,329.00				Ş	- \$	924,106.00	\$ 924,106.00 \$	924,106.00 Ş	3,765,223.00				ç		Ş	- \$	4,689,329.00	30/06/2022	N	N
BAAKA Curation/CoOrdination Project	OPERATING	Ş	90,000.00				\$			\$ - 5	- \$	90,000.00					ş -	\$	- \$	90,000.00 N/A		N	N
Baaka Corporation Establishment - Legal Cost	OPERATING	ş	25,000.00		\$	10,043.65	\$	10,043.65		\$ 10,043.65 \$	10,043.65 \$	14,956.35		\$	10,043.65 \$	1,211.00	\$ 11,254.65	\$	11,254.65 \$	13,745.35 N/A		N	N
Prenaring Australia Program - Darling River Flood Mapping	OPERATING	¢	100 000 00			c	90.000.00	90,000,00		\$ 90,000,00	90.000.00 ¢	10 000 00			c	170 55 0	170 55	c	170 55 6	99.879.45	31/03/2024	N	N
Wilcannia Town Clean Un	OPERATING	ç	330,000,00			ç	50,000.00 \$	50,000.00		\$ 50,000.00	50,000.00 \$	330,000,00			\$	1/0.55	, 1/0.55	217.66 \$	4 618 47 \$	33,023,43	30/06/2023	N	N
Holiday Break Program - White Cliffs Gymkhana	OPERATING	ç	10,000,00			¢	10,000,00 \$	10,000,00		\$ 10,000,00	10,000,00 \$	550,000.00			<	10,000,00	10,000,00	217.00 \$	4,010.47 5	530,000.00	30/00/2023	14	
Holiday Break Program	OPERATING	ŝ	14 750 00			, ,	10,000.00 \$	10,000.00		ç 10,000.00 ,	10,000.00 \$	14 750 00			ç	10,000.00	20,000.00	ç	10,000.00 \$	14 750 00			
Office of Sport - Active Fest Events	OPERATING	ć	27.040.00			\$	27.040.00 \$	27.040.00		\$ 27.040.00	27.040.00 \$	14,7 50.00					-	, ,		27,040,00	30/06/2022	N	V
NSW Planning Portal API	OPERATING	ŝ	80,000,00			, ,	27,040.00 \$	27,040.00	80.000.00	\$ 80,000,00	80.000 nn ¢							ç	, c	80.000.00	30/06/2022	N	N
Community Events Program (NSW)	OPERATING	ç	119 876 00				3	- >	00,000.00	\$ 00,000.00 ;	00,000.00 \$	119.826.00						46 650 00 \$	46 650 00 \$	119 826 00	30/00/2023	N	N
Wilcannia Visitor Accommodation Business Case	OPERATING	ç	156 356 00				3			s		15,525.00						40,000.00 Ş	40,000.00 \$	15,525.00		14	
Pagional roads Panais Program	CARITAL	ç	4 261 246 00				Ç		4 261 246 00	¢ 4 261 246 00 0	4 261 246 00 \$	4 261 246 00					-	Ļ	- ,	10,550.00			_
Mosquito Program	OPERATING	ç	16 000 00				2 C	- >	4,301,240.00	\$ 4,501,240.00 ;	4,301,240.00 5	4,301,240.00						c		16,000,00			
		ş	64,492,650.00 \$	460,377.00 \$	1,290,000.00 \$	10,345,655.47 \$	9,659,564.00 \$	21,755,596.47 \$	15,371,273.40	\$ 37,126,869.87	37,126,869.87 \$	31,471,478.53 \$	257,149.65 \$	1,338,039.20 \$	5,577,218.49 \$	18,895,623.88	\$ 26,068,031.22 \$	8,781,839.80 \$	34,854,271.83 \$	34,063,372.78			

DRAFT Workforce Management Plan 2023 - 2027









Central Darling Shire Council

Item 9.2 - Attachment 1

Acknowledgement of Country



Photo courtesy of Martin Bass

Council respectfully acknowledges the traditional owners, the Barkindji people, as the custodians of this land. We pay respect to all Aboriginal community Elders, past and present, who have resided in the area and have been an integral part of the history of the region.

We acknowledge the ongoing connection that Aboriginal people have to this Country, especially water and recognise Aboriginal people as the original custodians of this land. We thank them for their generosity in sharing their aspirations for the future and hope that this plan will affect change for communities of the shire.

Contents The Integrated Planning and Reporting Framework 4 Our values......7 10 Challenges and Opportunities 11 Ageing Workforce (Internal Factors) 11 Technology and Change (Internal Factors)......11 Sustainable Workforce (Internal and External Factors)11 Leadership Capability (Internal Factor) 13 Workplace Culture (Internal and External Factors)......14 Diversity and Inclusion (Internal and External Factors).....14 Focus Area 1 – Recruitment, Selection and Retention......15 Focus Area 3 – Workforce Health and Wellbeing16 Focus Area 4 – Workplace Culture 17

The Integrated Planning and Reporting Framework

As part of the New South Wales Government's commitment to a strong and sustainable local government system, legislation was enacted in October 2009 that introduced a planning reporting tool for local government known as the Integrated Planning and Reporting (IP&R) framework.

The following diagram identifies the various components of Central Darling Shire's integrated planning and reporting framework and how they are linked to each other.

STRATEGY/PLAN	PURPOSE	CURRENCY/ EXPIRY
COMMUNITY STRATEGIC PLAN (CSP)	Peak plan providing community perspectives about priority issues to address and goals to work towards across the shire as a whole.	10 years
TOWN AND DISTRICT IMPROVEMENT PLANS	Plans describing the improvement priorities and needs of each town and surrounding district within the shire.	10 years
RESOURCING STRATEGY	Strategy comprising three plans (see below) to ensure council is able to adequately resource its ongoing activities and operations whilst working towards the CSP's long-term goals	
Long-term Financial Plan	Documenting council's projected income and expenditure and modelling to ensure long-term financial sustainability	10 years
Asset Management Plan	Providing a comprehensive account of the service standards and maintenance requirements and schedules for all council assets.	10 years
• Workforce Management Plan	Identifying council's anticipated human resource priorities and activities to meet the goals and targets of the Delivery Program	4 years
DELIVERY PROGRAM	Plan documenting council activities, projects and initiatives during each council term, to work towards the long-term goals described in CSP	4 years
OPERATIONAL PLAN	Annual plan programming ongoing activities, projects and initiatives and budget to achieve Delivery Program goals and targets	1 year
ANNUAL REPORT	Report documenting council activities in relation to its statutory responsibilities and reporting on progress of projects and initiatives outlined in the Operational Plan	1 year

The diagram below identifies the various components of the Central Darling Shire's IP&R framework and how they are linked to each other.



Our Workforce Management Plan

The Central Darling Shire Council Workforce Management Plan (the "Plan") is designed to ensure that our workforce is structured and appropriately skilled to meet the community aspirations described in the Community Strategic Plan ("CSP"), and associated plans. It also guides the Council in its initiatives to attract and retain the right staff and in identifying priorities and needs in skills development and training for staff.

The strategies and actions outlined in this Plan will contribute to an engaged and productive workforce that can support the objectives set out in the Community Strategic Plan, while maintaining our commitment to delivering quality the services to our community.

Snapshot of Central Darling Shire Council

Central Darling Shire is the largest Shire in NSW, and yet has the smallest population. It covers an area about the size of the main island of Tasmania and yet has a population of less than 2,000 people. The Shire is extremely diverse with four main communities – Wilcannia, Menindee, Ivanhoe and White Cliffs. Each of these communities are different in their commerce, geography and Indigenous and European cultures.

The administration centre of the Shire is based in Wilcannia, which is situated on the Barrier Highway, approximately 198 kms east of Broken Hill, 470 kms north of Mildura and 260 kms west of Cobar.



Our values

Through a collaborative approach and strong commitment, the values that will support our mission and guide us in achieving our vision are:

- Energising leadership
- Customer service and contribution to community
- Innovation and continuous improvement
- Equal opportunity and caring for individuals
- Political harmony
- Teamwork
- Ethical behaviour

Current Workforce Structure

Central Darling Shire's organisation structure incorporates three directorates.

Under the direction of the General Manager, these directorates plan and deliver all services to the Shire according to local priorities and needs, and relevant state government acts and legislation. The diagram below provides an outline of the service delivery responsibilities of each directorate.

The General Manager is supported by an Executive Assistant, Human Resource Officer, Risk and WHS Officer, Governance Officer and Community Engagement Officer.

In the absence of an elected council, the Administrator is appointed by the state government and fulfils an oversight role similar to that of elected councillors.



Workforce Overview

As at 31 December 2022, our workforce comprised a headcount of 64 staff, which consists of:

- 50 Permanent full-time / part-time staff
- 3 Fixed term full-time / part-time staff
- 11 Casuals (excluding swimming pool attendants)

Our staff are based in, and operate across, the following locations:

- Ivanhoe
- Menindee
- White Cliffs
- Wilcannia
- A number of remote locations

Workforce Profile

The information below is a snapshot of the profile of our workforce as at 31 December 2022:





Years of Service







Our workforce resides in the following locations, with staff who work remotely being required to attend the Shire on a frequent basis:

Central Darling Shire (Ivanhoe, Menindee, Wilcannia, White Cliffs)	53
Other NSW locations (regional and metropolitan)	8
Victoria	1
South Australia	1
Queensland	1

Workforce Capability

At the time of preparing this Workforce Management Plan, there has been limited information captured to provide an indication of the skills and qualifications for our workforce.

As work progresses to develop robust HR systems and processes, such information will be captured and used in of developing and growing our workforce from within the Shire.

We are committed to developing our workforce to ensure a sustainable future for all who reside and work in the Shire.

Turnover

Staff turnover during the 2021/22 Financial Year has been calculated at 3.60%. This is below the average for local government in NSW.

Excess Annual and Long Service Leave

Our staff continue to have excess leave balances. The inability to backfill (internally or externally) is a contributing factor to our staff being hesitant to take leave.

Steps are currently underway to reduce the excess leave entitlements to ensure our staff are able to take their leave in a timely manner.

Challenges and Opportunities

Like many councils in regional NSW, we have many challenges that will impact on our ability to maintain current services. For Central Darling Shire, the challenges and opportunities include:

Ageing Workforce (Internal Factors)

With 72% of our workforce over the age of 40, working in the operational (outdoor) area, and the physical demands of the activities being performed, there are risks to the safety, health and wellbeing of our staff.

The opportunity for us is to work with our staff to develop safe systems of work that will minimise the impact on the health and wellbeing of our staff.

With less than a quarter (17%) of our workforce being under the age of 30, there is an opportunity for our organisation to explore opportunities around traineeships and/or apprenticeships. This will assist in developing the young people in our Shire to gain ongoing employment.

Technology and Change (Internal Factors)

Our council continues to explore cost effective technology to improve efficiency and effectiveness in delivering its services to the community. The challenge in implementing and using technology across the organisation is the limited capability our operational staff have in the use of technology.

There is an opportunity for staff to be trained in the use of basic technology to perform key functions, which will in turn build confidence, skills and capability in the individual staff member.

Sustainable Workforce (Internal and External Factors)

While Council experienced a low turnover for the 2021/22 financial year, a large proportion of staff 79%, have been with us for 10 years or less.

The origins of our staff include 8% overseas, 31% Aboriginal, 61% Australian, with 83% residing in the Shire towns and villages.

Recruiting for qualified professionals to assist the organisation deliver sound governance and infrastructure activities continues to be a significant challenge.

During 2021/22 the organisation found recruiting to all positions, whether professional or operational, challenging. This has been attributed to a number of reasons, including the work readiness of people seeking employment with the organisation, housing availability and/or the lack of infrastructure and facilities to attract families to the Shire.

The professional areas which the organisation find's challenging, is the attraction of qualified professionals in the areas of engineering, finance, human resources, work health safety and governance. One way council has successfully addressed this challenge is the exploration of options around attendance onsite combined with remote working.

Other occupations where the organisation find challenging to recruit include administrative/executive support and truck drivers.

In addition, initial discussions within the community have identified that local government is not seen as attractive to younger workers. We have commenced discussions with key government agencies, including the Wilcannia Central School, to identify opportunities to grow a sustainable workforce from within the community.

Governance (Internal and External Factors)

An ongoing challenge for our organisation is the need to keep abreast of legislative changes and to adhere to relevant requirements as it relates to governance in general, work health safety and human resource management.

To address this challenge, the organisation has successfully appointed appropriately qualified and skilled professionals to establish appropriate systems and processes to ensure that the organisation meets its legislative obligations.

From a workforce management perspective, the organisation has developed a HR Framework, with the strategies at both operational and strategic levels currently being implemented. Progress of the HR framework is regularly monitoring by the Management Executive Group.

Housing / Accommodation (External Factor)

Management and technical professionals have access to subsided housing in Council owned housing/accommodation. However, access to suitable private housing/accommodation across the Shire for staff remains a constant challenge and is a barrier to engaging quality staff across all areas of the workforce.

To address this challenge, the organisation will need to explore both alternative employment methods as well as explore other options for housing/accommodation.

Services and Facilities (External Factor)

Anecdotal evidence acquired through external recruitment processes, particularly for professional staff, has identified that the limited services and facilities available for families in the Shire has impacted upon their decision to apply and/or accept positions. The availability of reliable connectivity for some candidates is also a factor in their decision as to whether to apply and/or accept a role.

From an attraction perspective, there is an opportunity for Council to explore improved services and facilities with the aim of attracting people with young families and/or businesses.

Workforce Capability (Internal and External Factor)

It is important that our employees have the right skills and abilities to meet the actions and strategies outlined in the Community Strategic Plan, and associated plans. Through aligning our learning and development programs to our strategic focus, the organisation is able to guide expected behaviours and provide our staff with the knowledge, skills and attitudes to enhance their ability, progress future work requirements and career progression.

At present, there is no formal training plan or program in place for staff other than for compliance related requirements (eg licences, Code of Conduct, WHS, etc).

There is an opportunity for our organisation to develop an organisation wide training plan in accordance with the requirements of the Local Government (State) Award that aligns with other legislative requirements. This will ensure that the learning and development meets the required compliance requirements and is appropriately targeted and financially sustainable.

In terms of skill shortage areas, our organisation has identified all positions as being difficult to recruit, however the following critical positions have been identified:

- Engineering Civil, Utilities, Roads, Project
- Water Treatment Plant Operators
- Truck Drivers
- Administration / Customer Service Officers
- Finance Officers

In addition, there is limited access to tradespeople (eg plumbers, electricians, etc) across the Shire. The challenge the organisation has in this area is that we are unable to take on apprenticeships in this area without a qualified tradesperson being available. This is a legislative requirement for engaging traineeships/apprenticeships.

To address this gap, the organisation needs to explore the concept of "growing from within the community". This can be achieved through the development of a tailored program that can be taken into schools at around Year 8. As the students' progress through their schooling, then there are opportunities to combine a traineeship/apprenticeship with their studies. Initial discussions with Wilcannia Central School have identified a strong partnership opportunity to achieve this outcome.

Being a remote location, access to quality face to face training is a challenge. Therefore, it is important that we explore options of partnering with our neighbouring councils to provide quality training in key areas. There is also a potential opportunity for our council to source cost effective online programs.

Leadership Capability (Internal Factor)

Another area of focus for us in the next 12-24 months is the development of our leadership team.

Strong and accountable leadership brings the best out of staff which in turn motivates and engages staff to be the best they can be.

To address the gap in our leadership capability, there is an opportunity to provide coaching, training and support for members of the Management Executive Group. The next level of leaders (our supervisors) would also benefit from development, along expanding the program to our potential upcoming leaders.

Workplace Culture (Internal and External Factors)

Research indicates that a positive workplace culture has a significant impact in retaining staff and attracting high calibre staff.

Currently our organisation lists the following as staff benefits:

- Access to a Rostered Day Off each month (indoor staff)
- Access to a Rostered Day Off each fortnight (outdoor staff)
- Access to an Employees Assistance Program (3 free sessions per year)
- Long Service Leave after 5 years
- Access to flexible work options
- Learning and development opportunities

Anecdotal evidence indicates that our organisation would benefit from a brand refresh. With a significant number of new employees who have joined Central Darling over the past 2 years, it is timely to engage them in refreshing our brand.

Workplace behaviours contribute to a positive environment in which staff can be productive and enjoy coming to work. Anecdotal information gathered through staff workshops and feedback has identified that behaviours across the organisation have seen staff not wishing to attend work. This in turn contributes to higher levels of unplanned absenteeism across the board.

In addition, recent changes to the industrial relations framework have seen the introduction of a "positive duty of care" now placed on employers to ensure that their workplace is safe for people to come to work.

While there are provisions contained within the Local Government (State) Award and the Model Code of Conduct for Staff on expected conduct in the workplace, we are committed to developing a tailored program, procedures and initiatives that ensures our staff continue to work in a safe environment.

As part of developing our workplace culture, it will be important for us to take time out to recognise our staff. At present there is no program in place other than to recognise years of service, and for many staff, recognition will be challenging. Therefore, we will need to work with the current staff to identify what a recognition program may look like.

Diversity and Inclusion (Internal and External Factors)

Our workforce comprises of 61% Australian, 31% Aboriginal and 8% non-Australian staff. We also have one staff member who identifies with a disability.

We are committed to building a diverse and skilled workforce that reflects the diversity of our community.

To achieve this, we are committed to developing a Diversity, Equity and Inclusion Plan that will assist our organisation in being a better place to live, work and do business.

Workforce Strategies

Detailed below are several focus areas and identified strategies to address the challenges and opportunities outlined in this Plan.

🎾 Focus Area 1 – Recruitment, Selection and Retention

Strategy - Recruit, select and retain the right workforce to ensure the long-term supply of skills and resources.

Actions / Initiatives:

- 1. Review, develop and streamline Council's recruitment and selection policies and procedures for effective and efficient recruitment of new employees.
- 2. Explore position specific recruitment programs for difficult to recruit positions.
- 3. Work with staff to identify options to provide additional rewards such as flexible working hours, flexitime, private use of fleet vehicles, additional leave entitlements, etc.
- 4. Conduct an annual staff satisfaction survey and use outcomes to update and refine the Workforce Management Plan
- 5. Develop and implement strategies and programs that promote Council as an employer of choice
- 6. Participate in the Local Government NSW Remuneration Survey to benchmark council's salary system against similar councils
- 7. Participate in the Local Government NSW HR Metrics survey to benchmark council's employee retention and separation rates against similar councils
- 8. Complete a Housing Assistance Framework that can be used to attract employees
- 9. Review and refine the employee exit interview policy and process
- 10. Maintain a positive ongoing relationship between Council and the United Services Union (USU).

*C

Focus Area 2 – Workforce Development

Strategy – Provide a supportive and productive environment that grows our workforce in knowledge and capability.

Actions / Initiatives:

- 1. Review and update the organisation structure to ensure that it delivers on the Community Strategy Plan and other legislative requirements.
- 2. Identify professional positions that are difficult to fill and develop alternative options to attract applicants such as working remotely
- 3. Prepare controls so measure productivity for remote positions
- Prepare a skills profile for all professional staff positions to ensure that recruitment processes match applicant skills, experience and qualifications with position requirements

- 5. Develop succession plans for key roles to transfer and safeguard corporate knowledge and upskill employees
- 6. Develop and implement annual staff performance review processes
- 7. Undertake a skills gap analysis to identify future skills and organisational learning and development requirements
- 8. Prepare new simplified position descriptions and identify key skills and specific attributes required for all staff roles
- 9. Investigate funding for local employment such as apprenticeships and traineeships, particularly for indigenous positions
- 10. Develop and implement recruitment and training strategies to attract and retain local people
- 11. Support work experience and community and school careers events
- 12. Utilise outcomes of employee satisfaction survey to review and update the Workforce Management Plan
- 13. Develop an induction program for all new employees including corporate systems, WHS and compliance training
- 14. Develop staff reward and recognition program to acknowledge good performance and positive achievements

Focus Area 3 – Workforce Health and Wellbeing

Strategy – A workplace that supports the safety and wellbeing of our workforce.

Actions / Initiatives:

- 1. Continue to monitor staff leave balances to ensure staff take adequate leave.
- 2. Continue to improve WH&S protocols and monitoring
- 3. Ensure a safe workplace through the completion and reporting of actions from Council's Safety Plan and implementation of the Work Health and Safety Management System.
- 4. Explore opportunities to promote the Employee Assistance Program (EAP) for staff
- 5. Ensure a safe workplace through the completion and reporting of actions in Council's Safety Plan and implementation of the Work Health and Safety Management System
- 6. Ensure offers of suitable duties for workers commencing recover at work programs are based on workers skills, experience, and operational need
- 7. Explore opportunities to minimise the risk of injury to workers in the operational workforce.



Focus Area 4 – Workplace Culture

Strategy – A positive workplace culture where staff are the integral drivers of our success.

Actions / Initiatives:

- 1. Review the CDSC Vision and prepare a set of values that aligns the Delivery Program with the 2021/2031 Community Strategic Plan.
- 2. Initiate staff training to ensure broad understanding of Council's corporate values and the NSW Local Government Code of Conduct
- 3. Align human resources policies and procedures, training activities and performance management with council's corporate values
- 4. Develop programs and initiatives to reinforce zero tolerance of workplace bullying, harassment and discrimination of employees
- 5. Identify opportunities to support employee-led initiatives that reinforce positive organisational culture and values
- 6. Develop and implement processes to encourage safe and confidential feedback from staff regarding workplace issues and organisational improvements

Focus Area 5 – Diversity Equity and Inclusion

Strategy – A workplace that displays positive practices and behaviours, with improvement in accessing and participating in employment within our organisation.

Actions / Initiatives:

1. Develop a Diversity, Equity and Inclusion Plan in accordance with the requirements of the Local Government Act.

Monitoring and Evaluation

The monitoring, evaluating and reviewing process is an ongoing and important process in ensuring the progress of this plan. It will enable the organisation to assess what is working and what is not, making any necessary adjustments to plans and/or strategies and then address in a timely manner new workforce or organisational issues which might have arisen.

We will monitor our progress through regular updates provided through the Management Executive Group and Council.

Document History

Date	Summary of Amendments	Council Adopted
March 2023	Document created	



Project Proposal Wilcannia Motel business case

Prepared for: Central Darling Shire Council Issued: 22 August 2022



We acknowledge the Barkindji as the original custodians of the lands and waters on which Wilcannia was built. We respect their cultural and spiritual relationships with place and honour elders past, present and emerging whose knowledge and wisdom has and will ensure the continuation of cultures and traditional practices.

Contents

01	Project Summary	4
02	Project Stages and Process	7
03	Project Fees and Costs	16
04	Practice Profile	20

Report register and quality assurance

Dunn & Hillam Architects operates under a quality management system which has been certified as complying with quality management systems ISO 9001:2015. This report has been reviewed and approved for issue in accordance with the Dunn & Hillam quality assurance policy and procedures.

Job Number	22_P040_WCM - Wilcannia Council Motel
Client	Central Darling Shire Council
Issue Date	22 August 2022

The following report register documents the development and issue of the Project Proposal, undertaken by Dunn & Hillam Architects in accordance with its quality management system.

Project Director	Ashley Dunn
Signature	Allen
Date	22 August 2022

REPORT REGISTER

lssue	Description
01	Project Proposal
02	Project Proposal with consultant fees

Contact Details Workshop 1 Pty Ltd

t/a Dunn & Hillam Architects ACN 098 309 196 ABN 17 098 309 196 A 301/414 Gardeners Road, Rosebery, NSW 2018 T +61 2 9316 7715 E admin@dunnhillam.com.au Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526 Cover image: Dragon Skin residence, Dunn & Hillam Architects

Dunn & Hillam Architects

Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526



Project Summary

Greg Hill General Manager Central Darling Shire Council 21 Reid Street Wilcannia NSW 2836 PO Box 165 Wilcannia NSW 2836

Dear Mr Hill,

We are pleased to be providing this project proposal to you, for the provision of architectural services for the development of a business case for a new motel in Wilcannia.

The brief

Our understanding of the brief for this project is to provide a detailed concept design plan for a motel with the following specifics:

- 20-40 units (depending on if the building is single or two storey)
- Carpark
- Reception
- Restaurant and bar with a commercial kitchen

We understand that the subject site is 35 and 37 Reid Street Wilcannia and that the area at the rear of these properties might be subdivided to result in a site with an area of approximately 2540sqm. There is potential to work with the existing buildings that front onto Reid Street and additional potential to connect to the new Baaka cultural centre across Reid Street. This development will contribute to Council's vision to activate the southern entry into town.

The brief is to be developed throughout Stage 1. The development of the brief is to be finalised by the end of Stage 1 and before proceeding to Stage 2. Any changes to the brief after the completion of Stage 1 resulting in adjustments to the scope of architectural work, budget or project timing may require changes to the fees and costs described within this proposal.

Scope of architectural work

We are providing you with partial architectural services comprising of Stage One Feasibility and Concept Design, to be included in the submission of a Business Case. All stages are described below whether or not they are relevant to this Fee Proposal. In all projects the scope and fees for each stage will be confirmed prior to commencement of that stage.

Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Project Summary

Timing

We would be available to begin work on this project with at least 2 weeks notice, subject to the following:

- Written acceptance of our proposal
- Provision of any drawings or written information that the client possesses on the project and site.

We will agree with you an initial program for your project. This program may need to be revised during the project if affected by external influences such as receipt of approvals or availability of consultants and builders, for example.

Project Budget

You have not provided us with an estimated Cost of Works forecast for this project.

Based on your brief (assuming a 20 unit motel) we have estimated the Cost of Works for this project at \$6,000,000 to \$8,000,000 ex GST.

The Cost of Works is for the supply of materials and labour to construct the building to final completion and excludes professional fees such as our fees and the fees of secondary consultants, council fees, other disbursements associated with our services and GST. This initial estimate of a Cost of Works may not be sufficient to meet your brief and we will endeavour, through our own estimates and by your engagement of a Quantity Surveyor or Cost Consultant, to provide up to date information and professional advice on the Cost of Works as it relates to your current brief as we move through the project. Following the completion of Stage 1 we shall agree an updated Cost of Works and brief before moving on to Stage 2.

You have not provided us with a Project Budget.

The Project Budget includes the Cost of Works and all fees, including ours, those of the consultants and the planning approvals fees and charges. The Project Budget does not include cost of land purchase or ongoing costs. We have not been asked by you to manage the Project Budget.

Secondary and Sub Consultants

We anticipate that you will require a number of secondary consultants for your project. A list of those we feel appropriate with an estimate of their fees is included in the Fee Proposal and Projects Costs section.

We will provide recommendations for the appointment of these consultants and will co-ordinate the work of all consultants as described in the structure and stages of work document. The client shall be responsible for the appointment and payment of all secondary consultants. The Architect shall only be responsible for co-ordination and integration of their services. The Architect will rely upon the expertise of the secondary consultants. The failure of any secondary consultants to perform their duties will be a matter between the client and the secondary consultant. The Architect shall be entitled to engage sub-consultants and shall be responsible to the Client for their services.

6 Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526



Project Stages and Process Introduction

The process of taking a project from the initial meetings and ideas through to construction and the final handover is described by six stages. These stages often have some overlap in time, but will generally occur in this order and incorporate tasks, events and meetings as described by the process below. We provide project management for each of our projects in addition to the design of the project, including management of consultants and their fees, overall project costs, liaising with council, sourcing of specialist and bespoke equipment, project timelines, contract administration and other tasks associated with bringing the project to completion. It is our integrated approach to the creation of an architectural project which allows us to produce work of the highest quality within realistic time frames and budgets.

8 Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526 Project Proposal

Project Stages and Process Stage One: Feasibility and Concept Design

Pre-Design and Feasibility

The preliminary work in any project involves gathering information about the site, the brief, the context and the planning controls and guidelines.

Testing the feasibility of a project involves comparing the aims of the brief with the constraints of the planning legislation and the nominated client budget. We will prepare a concise report that contains the Pre-Design information, our understanding of the project brief and a series of simple massing diagrams. Those diagrams will then help us to calculate rough estimates on construction and project costs.

Our scope of services during this stage can be summarised as;

- obtain the Client's design brief and establish the project objectives and constraints
- arrange, attend and record two (video conference) meetings with the Client
- provide recommendations for the appointment and fee proposals of other Specialist Consultants as required
- attend the Site and visually assess site conditions and constraints
- undertake detailed photographic survey of existing site and buildings
- coordinate survey of existing site and building by Specialist Consultants, if requested by the client
- undertake detailed existing building measurement
- prepare drawings showing existing buildings, visible services and finishes
- review statutory planning controls, guidelines, authority regulations and requirements
- obtain DBYD, 149 certificates and Lands Titles information
- prepare site analysis diagrams to reflect site opportunities and constraints
- prepare massing diagrams to demonstrate planning constraints and spatial requirements of brief
- provide an early estimate of cost based on square meter rates
- prepare Feasibility Report

Concept design

Following close consideration of the Feasibility Report we will develop Concept Designs for the project. This facilitates a discussion between you and us that explores a range of options for your project. The concepts will be supported by a study of relevant precedent projects. A direction for the Schematic design stage will be decided from these Concept Designs.

Our scope of services during this stage can be summarised as;

- arrange, attend and record one meeting with the Client, authorities, other consultants and other relevant parties
- research relevant precedent projects
- prepare sketches, diagrams and other information to adequately explain up to two concept designs
- prepare the Concept Design Report

Stage One will be complete when the clients have approved the Concept Design Report and we have received written approval from the client for proceeding to Stage Two, Schematic Design

Project Proposal 9

Project Stages and Process Stage Two: Schematic Design

A Schematic Design will be developed out of feedback received around the Concept Designs. Drawings and models will be used to describe the development of the design and its response to the client's brief. At this stage we will begin to suggest possible construction methods and passive environmental systems appropriate for the site. We will describe the impact these systems will have on spatial qualities, functionality, construction budget and programme.

We allow for three iterations of the Schematic Design, presenting each to you and receiving feedback to develop the design. If further development of the design is requested, an amendment to the Fee Proposal will be proposed and agreed before proceeding. We recommend a Quantity Surveyor is engaged to provide an Estimate of Probable Cost prior to proceeding to the next stage.

Our scope of services during this stage can be summarised as;

- develop the approved Concept Design and present documents and other information to adequately explain the developed design
- arrange, attend and record up to three meetings with the Client
- arrange, attend and record up to three meetings with authorities, other consultants and other relevant parties
- coordinate the work of other Specialist Consultants
- review the developed design against the budget and coordinate the preparation of an updated forecast of the Cost of Works
- consult with and attend preliminary meetings with relevant authorities regarding the developed design

Stage Two will be complete when the clients have approved the final Schematic Design and we have received written approval from the client for proceeding to Stage Three: Planning/ Development Application.

Project Stages and Process Stage Three: Planning/Development Application

The architectural drawings will be prepared for the Development Application and consultants will be coordinated for their required input. We will produce all documents including plans, sections, elevations and models sufficient to explain the design proposal, a schedule of materials and finishes and the required reports and forms for the purposes of achieving Development Approval. The completed Development Application set will be lodged with council on your behalf and the progress of the project through to approval will be monitored closely. We shall assist in obtaining planning approval by negotiating and attending meetings within a set time allowance. Any requests for changes or additional information from the client or the council beyond what can be resolved within these set hours will be charged at our usual hourly rates.

- confirm statutory authority requirements
- attend a pre-application meeting with relevant authorities prior to submission of formal application
- prepare application, including plans, diagrams, analyses, studies, reports, schedule of proposed materials and finishes and other information for the submission
- coordinate required Specialist Consultants on behalf of the Client
- assist the Client with lodging formal application
- prepare additional drawings and documentation and/or amend existing drawings and documentation to comply with additional authority requirements (up to 6 hours)

Stage Three will be complete when the determination of the planning approval has been received. We will proceed to Stage Four: Construction Documentation at this time or any time prior with your written approval.
Project Stages and Process Stage Four: Documentation for Tender

The period of Documentation for Tender and Construction involves the preparation of a full set of drawings and written specifications from which the project can be built. These documents describe the building in detail, incorporating the construction details, material choices, finishes and products and any amendments required by conditions of approval to construct. We will coordinate the consultants in the preparation of specialist design elements and incorporate their work into our drawings and documents. Each selected item will be discussed with you and approval gained before it is incorporated into the documentation. The method of contractor selection and type of contract both have an influence on the requirements of the documentation set.

It is imperative that enough time is allowed in this stage to document the building thoroughly in order to keep control of the budget and the quality of the construction once the building starts on site. These documents will be used to price the project and so it is vital that all details of the building work are included.

Our scope of services during this stage can be summarised as;

- arrange, attend and record up to four meetings with the Client
- coordinate and integrate the work of other Specialist Consultants
- prepare drawings including plans, elevations and sections, together with other details and schedules suitable to tender the project to get a fixed price to build
- prepare specifications in accordance with the drawings and the Client's requirements describing the quality of
 materials, finishes and quality of work necessary suitable to tender the project to get a fixed price to build
- coordinate the preparation of a pre-tender forecast of the Cost of Works by a Quantity Surveyor
- provide recommendations to the Client on the preferred method of building contractor selection

Stage Four will be complete when the clients have approved the tender documents and we have received written approval from the client for proceeding to Stage Five: Contractor Selection & Construction Certificate (CC).

Project Stages and Process Stage Five: Contractor Selection & Construction Certificate (CC)

Procurement

There are several ways in which a job can be procured and a builder selected. We will discuss these with you to assess the most appropriate method. Our fee allows for either an invited tender of up to three builders or a negotiated contract with one selected builder.

Contractor selection typically occurs when Stage Four is complete, however an alternative pathway is to select a builder at the completion of Stage Three: Planning/ Development Approvals. This allows construction methods, documentation style and timing to be discussed with the builder as the documentation is being developed.

Construction Certificate

We will prepare the necessary documentation for the purpose of obtaining a Construction Certificate from the relevant authorities. The documents will be lodged and reviewed by the certifier however it should be noted that a final Construction Certificate cannot be issued until a builder is nominated.

The construction budget will be reviewed and updated at this stage and will be agreed with the clients prior to the lodgement of the Construction Certificate.

Our scope of services during this stage can be summarised as;

- assist Client in determining the preferred tender process or method of negotiation

If a tender then;

- prepare tender documents and issue to up to 3 tenderers
- respond to enquiries from tenderers
- receive and open the tenders
- together with the cost consultant, if any, assess the tenders
- negotiate with the preferred tenderer if required to obtain an offer acceptable to the Client
- prepare reports on tenders and recommendation for Client acceptance

If a Negotiated Contract then;

- issue relevant documents to the prospective building contractor to describe the scope of the works
- arrange and coordinate negotiations and enquiries with the prospective building contractor
- together with the cost consultant, if any, assess all submissions from the prospective building contractor required to establish the contract price and final project scope
- prepare report and provide recommendations for Client acceptance

Construction Certificate

- prepare drawings including plans, elevations and sections, together with other details and schedules suitable to be submitted for statutory approval
- prepare specifications in accordance with the drawings and the Client's requirements describing the quality of materials, finishes and quality of work necessary suitable to be submitted for statutory approval
- liaise with the Private Certifier in order to achieve a Construction Certificate (CC)

Stage Five will be complete when we have received written approval from the client for preparing the Contract Documents.

Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Project Stages and Process Stage Six: Construction

Contract administration for Construction

The architects continued involvement in this stage ensures that the project gets built according to the agreed documents and contract. We will be in regular communication with the builder ensuring that they understand how we intend the project to be built and the level of finish required. We will answer questions that the builder has regarding the building and provide supplementary details and information if necessary.

Our scope of services during this stage can be summarised as;

- amend drawings, specifications and schedules as required and in accordance with the accepted tender price to enable the construction of the project
- prepare one draft of the contract documents in the form previously approved by the Client in the 'Contractor Selection' phase
- arrange for signing and execution of the building contract documents by the building contractor and owner
- administer the building contract under its terms
- issue copies of construction documentation to the building contractor and issue amended documents as needed
- report regularly to the Client regarding time, cost and progress of the project
- visit the Site periodically to observe the general conformance of the construction works with the building contract documents and instruct the building contractor regarding design quality control, materials selections and performance in regard to the building contract documents
- arrange, attend and arrange for recording of site meetings at regular intervals
- review shop drawings and submissions by the building contractor
- provide the building contractor with instructions, supplementary details and clarification of the contract documents as required
- coordinate the construction services provided by other Specialist Consultants
- assess and determine variations and obtain Client approvals in writing when required
- assess and determine the building contractor's progress claims and issue progress certificates
- assess the building contractor's claims for adjustments of time
- adjust prime cost and provisional sums and other monetary sums
- instruct the building contractor in regard to incomplete work and rectification of any defects
- assess and determine practical completion and issue the notice of practical completion

Project Handover

Once the construction of the project is complete we will conduct a project handover walk-through of the building with the client and builder in attendance. The handover will include an introduction to any systems and equipment, testing all fixtures, handing over of all keys, manuals and warranties, providing a maintenance schedule for finishes and discussing with the builder any defects that need immediate rectification. All Contract certificates will be finalised and issued, including those at the completion of the Defects Liability period.

- during the defects liability period, instruct the building contractor in regard to incomplete work and rectification of defects
- if required, advise the Client and coordinate the procedure for the rectification of any defective work by others

- assess and determine final completion and issue the final certificate

Stage Six will be complete when we have issued the Final Certificate.

14 Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Project Stages and Process Exclusions

The following services have not been included in our fee but can be incorporated into your project for additional fees if requested.

Illustration

- provide 2D marketing drawings
- provide 3D illustrations for public presentations
- provide digital animations

Trade Package Documentation

- assist Client-appointed programmer (or programmer appointed by selected building contractor/ construction manager/ project manager) in preparation of agreed program trade documentation packages
- provide documentation, including relevant drawings, specifications and schedules in trade package format
- provide matching specification for each trade package
- provide set of standard preliminaries suitable for inclusion with all trade package documentation
- coordinate Client-appointed consultants in preparing trade package documentation for specialist sections of the works
- assist Client-appointed building contractor/construction manager/project manager in responding to queries from trade contractors

Other Services

- preparing for Planning tribunal proceedings
- preparing additional documentation for Planning tribunal proceedings
- coordinating on behalf of Client relevant Specialist Consultants to attend Planning tribunal proceedings
- attending Planning tribunal proceedings
- administer the procedures under the building contract for a dispute between the parties
- preparing for court or tribunal proceedings for dispute under the building contract
- coordinating on behalf of Client relevant Specialist Consultants to attend mediation, arbitration, court or tribunal proceedings
- attending mediation/arbitration proceedings for dispute under the building contract
- attending court or tribunal proceedings for dispute under the building contract
- stakeholder or community consultation workshops



Project Fees and Costs

Our fees are calculated on a project by project basis that allow us the time to work throughout the design and construction process as an advisor, coordinator, synthesiser and creative leader. In negotiating the architectural fees it should be understood that fees, (although a significant lump sum), represent a relatively small part of the total project life cycle costs and should not be over emphasised relative to other criteria such as building performance which will have a long term effect on the economic viability of the project. We believe that your selection of an architect for this project is a very important decision. With this appointment (and that of the other consultants) you will be putting together a professional team that ultimately will be judged by the financial, design quality and cost/ time success of the final building project.

Throughout the duration of a project it is usual that the brief, our scope of works and the budget will undergo development and adjustment and it is difficult to fix a fee for a scope of work that is not yet fully defined. We understand that having some surety for the costs of the project, including our fees, is important to your decision making process and so we are diligent in providing fees that are realistic and clearly tied to the description of our process as given earlier in this document. The scope and fees for each stage will be confirmed prior to commencement of that stage. If at any other point the scope of our work changes we will follow the same process of proposing adjusted fees for your approval before proceeding.

Fee Proposal

Item	Description	Amount
1	Stage 1: Feasibility and Concept Design	\$32,700
2	Stage 1: site visit (2 people 1 night)	\$2,200
3	Stage 1: consultant - land surveyor	\$8,500
4	Stage 1: consultant - quantity surveyor	\$14,500
5	Stage 1: consultant - traffic engineer	\$9,500
6	Total (Excluding GST)	\$67,400
7	GST Payable Amount	\$6,740
8	Total (Including GST)	\$74,140

NB. This fee excludes the services of suggested sub consultants for Stage 1 services. Stage Six will be charged on an hourly rate. This fee proposal is valid for 60 days.

Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Project Fees and Costs

Hourly rates

Hourly rates applicable to this project are as follows:

DHA Director / Principal Architect	\$250 per hour + GST	(\$275 per hour)
DHA Associate Architect	\$200 per hour + GST	(\$220 per hour)
DHA Project Architect	\$180 per hour + GST	(\$198 per hour)
DHA Architect	\$160 per hour + GST	(\$176 per hour)
DHA Graduate of Architecture	\$120 per hour + GST	(\$132 per hour)
DHA Student of Architecture	\$90 per hour + GST	(\$99 per hour)

Arrangement for Payment

We require a 10% deposit for Stage 1 at the beginning of Stage 1 and will send an invoice for this deposit upon the signing of our agreement. Invoices will be rendered monthly for work completed within that month. The terms of payment are 7 days. Monies not paid within that period shall attract interest, unless otherwise agreed, at 5% over the 90 day Bendigo Bank Bill rate from the date of invoice until payment.

Specialist Consultants, Fees and Disbursements

The above fees are for our services only and do not include costs such as Council fees, secondary consultants, couriers, printing for formal submissions, travel, accommodation and the like. Such costs will be charged as disbursements and would be in addition to fees and are charged at cost. All disbursement costs will be accounted for in our invoices.

We estimate the disbursements to be:

-	Development Application Fees	TBC
-	Private Certifier/ Construction Certificate	\$3,300
-	DBYD, 149 Certificate, Lands Title information	\$250
-	Travel (private car)	\$1.10 per km
-	Travel Time	\$90 per hour + GST
-	Site visit (1 person 1 night, 3 star accommodation)	\$1,200
-	Site visit (2 people 1 night, 3 star accommodation)	\$2,200
-	Printing for formal submissions or presentations	at cost

Project Fees and Costs

We anticipate that you will require a number of secondary consultants for your project. A list of those we feel appropriate to this proposal is included below, and an estimate of their fees is included above:

Stage 1 Business case

- Quantity Surveyor
- Traffic Engineer
- Land surveyor

We will provide recommendations for the appointment of these consultants and will co-ordinate the work of all consultants. The client shall be responsible for the appointment and payment of all secondary consultants. The Architect shall only be responsible for co-ordination and integration of their services. The Architect will rely upon the expertise of the secondary consultants. The failure of any secondary consultants to perform their duties will be a matter between the client and the secondary consultant. The Architect shall be entitled to engage sub-consultants and shall be responsible to the Client for their services.



Practice Profile Overview

Dunn & Hillam Architects are an established, award-winning and respected architecture and urban design practice with strong relationships with like-minded consultant firms and many repeat clients. We were established in 2001 by Ashley Dunn and Lee Hillam and have grown to be a collaborative practice of 15 smart and interesting people.

We are a full service practice with experience from feasibility and masterplan stages, through concept and schematic design, planning approvals, documentation and construction. We work at a range of scales including strategic frameworks, urban planning, architecture and government policy.





UMS Certification Services





We are proud to be Australia's first architecture practice to be a certified B Corp. B corporations are for-profit companies that are using the power of business to create a positive impact on the world and generate a shared and durable

prosperity. We are certified under the new Design and Building Practitioners Legislation

(registration numbers No. DEP0002044 & PDP0000688)

We are have been ISO 9001 Quality Assurance certified since 2017

We are included on the Government Architect NSW Pre-Qualification for Design and Strategy list, which is a mark of a high standard of design and quality of output and allows government agencies to engage us under alternative procurement rules.

Jonathan Temple is a Green Star Accredited Professional and we have a long history of evidence based and innovative sustainable design.

We are A+ members of the Australian Institute of Architects

Dunn & Hillam Architects regularly win awards in our industry, including the NSW Premiers Prize in 2010.

Ashley Dunn is an Adjunct Professor at UNSW and Lee Hillam is an Adjunct Professor at UTS. Both are current members of design review panels and invited jurors for Design Excellence Competitions. The majority of staff are sessional academics at universities and contribute to industry advancement via committees and publication.

Our past and current clients include government, NGO and private clients, including the Create NSW, Cobar Shire Council, Scouts NSW, The Cobargo Community Development Corporation and Colliers International.

Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Practice Principles

We have five guiding statements that define all our projects.

Architecture is a Force for Good

Architecture creates a sense of place, and belonging, for the people who live and work and play in it, and can contribute positively to our changing world. Good architecture does not become obsolete or out of fashion. It should work with the past and anticipate the future and create an equitable framework for life.

Collaborate

Architecture is a collaborative profession across many disciplines. It integrates urban design, construction, engineering, project management, landscape design, research, government policy, and art. Genuine collaboration with clients and consultants is essential to the success of a project.

Listen Carefully and Think Radically

Strategic thinking and evidence based research leads every project. We listen carefully to the people involved in the project, we watch closely the way places are used, we study what has come before us and think about the future. By approaching every project analytically we can often uncover radically simple solutions.

Good Design is Sustainable Design

The environment and its resources are finite and all design should be considered as part of our strategy for a sustainable life. There is no fixed aesthetic, there is no one way to build sustainably.

Rigorous Process, Bespoke Outcome

We use a collaborative and integrated design process that has been established by us over many years. We've tested it on every scale of project and we get great results that are bespoke, innovative and loved by our clients.

22 Dunn & Hillam Architects

Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Team Structure



Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Ashley Dunn RAIA

Director Adjunct Professor Faculty of Built Environment UNSW

Ashley is co-director of Dunn & Hillam Architects. Ashley worked for award winning practices in London and Germany on large scale and complex public projects before setting up practice in Sydney in 2000.

Ashley has completed a wide range projects for private and government clients in major cities and in regional and remote areas of Australia. He has developed an expertise in the application of carefully considered, sustainable design and technologies as an integrated part of their architecture.

Ashley's key skills lie in strategic thinking, conceptual design, consultant management and team leading to deliver complex projects across all scales. Projects Ashley has worked on have won multiple awards for a wide range of buildings from private houses to public libraries.

Ashley was selected to sit on the NSW State Design Review Panel, and is regularly invited to sit on Design Excellence Review Panels for local government. Dunn & Hillam Architects were selected by the NSW Government Architects Office to trial the (now successful) Design Excellence NSW Government Pre-Qualification List. Ashley is experienced in public consultation and presentation and in the design and incorporation of innovative, practical and effective environmental control systems.

Ashley is currently leading the team in the design and documentation of the Australian Opal Centre in Lightning Ridge in collaboration with Glenn Murcutt AO and Wendy Lewin Architect.

Teaching

Ashley has taught and lectured at the University of NSW since 2001 and was appointed as an Adjunct Professor in 2016. Ashley has been part of the Glenn Murcutt Architecture studio at UNSW since 2005. Ashley was the visiting Professor at Tonggi University in Shanghai, China in 2017. He has also taught at the University of Sydney, Leipzig HTWK and London Universities.

Research and Criticism

Ashley is regularly invited to talk and lecture on the work of Dunn & Hillam Architects at Universities, Professional Institutions, Government forums and conferences. He has co-written a research paper with John Carrick of UNSW, titled: Thermal Comfort Reality in the Australian Climate; A case study of the Junee Library, Junee NSW. This paper was selected to be presented at the Sustainable Transformation Conference in Queensland in 2012.

Ashley is regularly asked to provide criticism and write reviews of completed buildings by journals and other design related publications. Ashley was an active member of the RAIA Bulletin Editorial Committee and sat on the NSW RAIA Awards and Honours Committee. He was also the 2018 Jury Chair for the NSW Country Division Architecture Awards.

Heritage

Ashley is a registered Architect on the NSW Heritage Consultants list and has particular expertise in the creative adaptation and renovation of heritage buildings.

24 Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526



Adjunct Professor UNSW

Cumberland City Design Excellence Panel Member

NSW State Design Review Panel (SDRP) Member (2018 - 2020)

Qualifications

B.A. (Hons) Architecture RIBA Pt I University of North London, UK Diploma in Architecture RIBA Pt II University of North London, UK

Professional Associations

Registered Architect (NSW) No. 7547

Registered Architect (VIC) No. 20849

Registered Architect (NT) No. AR583

Design and Building Practitioners No. DEP0002044 & PDP0000688

NSW RAIA Chapter Councillor (2016 - 2018)

Selected Project Experience Cultural

- Australian Opal Centre, Lightning Ridge NSW
- Sydney Dance Company Studios, Ultimo NSW

Heritage

- Cobar Heritage Centre, Cobar NSW
- Macaria Art Gallery, Camden NSW
- -

Practice Profile Lee Hillam RAIA

Director Adjunct Professor Faculty of Design, Architecture and Building UTS

Lee is co-director of Dunn & Hillam Architects. Lee has also worked within the Government Architect NSW from Oct 2016 - Oct 2018 part time, and full time from Oct 2018 - April 2019 as the Director of Design Excellence (acting). During her time at GANSW she chaired numerous Design Excellence Competition juries, developed the Design Guide for Heritage and been a Chair of the State Design Review Panel.

Lee has worked for Richard Leplastrier, Architect and Jeffrey Broadfield and Associates as a carpenter and project manager from 1993 - 1999. Lee is a board member of the Southern Cross Community Housing organisation.

Lee is a highly respected and award winning architect with specialist expertise in heritage, cultural and community projects, strategic frameworks, masterplans and conceptual design and in developing and writing clear policy. Lee's communication, collaboration and interpersonal skills allow her to move even the most complex projects forward.

Teaching

Lee is an Adjunct Professor at UTS and has taught and lectured at the University of NSW and Sydney University.

Practice Management

Lee has been instrumental in setting up Dunn & Hillam Architects to be a highly professional small practice. Dunn & Hillam Architects are ISO 9001 certified, on the NSW Government Architects Design Excellence Pre-Qualification list and have recently become the first NSW practice to become a certified B Corp.

Policy and Writing

Lee is the lead consultant for both the Government Architect's Design Excellence Competitions Guidelines and the Local Government Design Review Panels Manual.

Lee was key in producing the Design Guide for Heritage while at Government Architect NSW.

Lee has written numerous reviews for the architectural press, the most current on the new Quay Quarter development by AMP Capital.



Adjunct Professor UTS NED Southern Cross Community Housing

Liverpool Design Excellence Panel Chair

Invited Juror for City of Sydney Design Excellence Competitions

Qualifications

Bachelor of Architecture University of New South Wales

Professional Associations

Registered Architect (NSW) No. 7352

Certificate in Governance for Notfor-Profits

Selected Project Experience

Cultural

- Gunnedah Cultural Precinct, Gunnedah NSW
- Gunnedah Koala Sanctuary, Gunnedah NSW
- Sydney Dance Company Studios, Ultimo NSW

Heritage

- Cobar Heritage Centre, Cobar NSW
- Macaria Art Gallery, Camden NSW

Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Policy Projects

Design Excellence Competition Guidelines

Government Architect NSW

These Guidelines will give essential and practical advice on how to plan and deliver a successful Design Excellence Competition to meet statutory requirements.



Design Guide for Heritage

Government Architect NSW

The Design Guide for Heritage provides advice to guide a broad range of design work in heritage places in NSW.



Design Review Panel Manual for Local Government

Government Architect NSW

This manual provides advice on how to establish, manage and participate in a design review panel convened by a local council.



26 Dunn & Hillam Architects

Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Public Projects

Cobar Heritage Centre

Cobar, NSW

This project included a masterplan for the site, restoration of the heritage building and transform the Museum in a way that integrates stories of the traditional Custodians of the land and waters and the history and ongoing story of mining in Cobar.

Artspace Gallery and Gunnery Remedial Works

Woolloomooloo, NSW

The first of many engagements for work on the NSW State Heritage listed Gunnery building in Woolloomooloo was to remodel and extend the Artspace Gallery.





Sydney Dance Company Studios

Ultimo, NSW

Full architectural services and project management through construction for the temporary relocation of the Sydney Dance Company facilities from Walsh Bay to a warehouse in Ultimo.



Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Masterplan Projects

Gunnedah Cultural Precinct

Gunnedah, NSW

A strategic masterplan and concept design for a cultural precinct the City of Gunnedah.



Alice Springs Telegraph Station Masterplan

Alice Springs, NT

Dunn & Hillam were engaged to re-plan the visitor experience of the site, incorporating significant new facilities while protecting its valuable heritage.

Glen Helen Eco Resort

West MacDonnell National Park, NT The new resort will include a mix of high end facilities for international and local tourists



28 Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Residential Projects

Dogtrot House

Congo, NSW

'The creation of buildings that embody "everything you need and nothing you don't" is an honourable one; the pursuit of buildings that simultaneously evoke joy and delight even more so. How refreshing to visit Dogtrot House; a simple, refined building on the far south coast that successfully achieves both.'

Jury citation

Dragon Skin House

Mossy Point, NSW

The controlled composition of a broad palette of materials creates a pretty and engaging house which entertains the locals. It feels appropriate that in this case, the house does not try to hide in its beautiful landscape, but rather it complements and contributes to it.





Desert House

Alice Springs, NT

The Desert House is a project which represents the innovation needed to build sustainably in the remote and harsh Central Australian climate. It embraces the old technology of earth cooling and Malqaf or wind catcher ventilation alongside super insulated prefabricated panels and a fly-roof.



Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Projects in Progress

Cobar Learning Precinct

Cobar, NSW

Cobar Child Care Centre proposes a courtyard form to enclose and support the landscaped play-spaces in the centre.



Ward Oval Pavilions Masterplan

Cobar, NSW

This project involves the brief and Design development of the Ward Oval Multi-purpose hall, and the refurbishment of the existing Pavilion buildings, car-parking, consolidation of the services to the buildings across the site and locating of a new sports shed.



The Gunnery Transformation

Woolloomooloo, NSW

We have been engaged by Create NSW to work with them to upgrade and revitalise the State Heritage Listed Gunnery Building to ensure that it is able to meet the current and future needs of Artspace and see the building transformed into a state of the art, multi-platform centre for contemporary art.



30 Dunn & Hillam Architects

Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Awards

	Award	Category	Project	
2022	National Heritage Trust (NSW) Awards, Winner	Judge's Choice	The Great Cobar Museum & Visitor's Information Centre	
	National Heritage Trust (NSW) Awards, Winner	Conservation - Built Heritage	-	
	National Heritage Trust (NSW) Awards, Highly Commended	Conservation - Interiors & Objects	-	
	AIA NSW Awards, Winner	Heritage - Creative Adaptation		
	AIA NSW Awards, Winner	EmAGN Project Award	-	
2019	AIA NSW Awards, Shortlisted	Interior Architecture	Sydney Dance Company	
	Houses Awards, Shorlisted	New House under 200sqm	Dragon Skin House	
2018	AIA NSW Awards, Commendation	Heritage	Macaria Art Gallery	
2015	AIA NT Awards, Winner	Residential – New	Desert House	
	AIA NSW Awards, Shortlisted	Sustainable Architecture	Alfalfa House	
	AIA NSW Awards, Shortlisted	Small Project Architecture	Alfalfa House	
2014	Houses Awards, Winner	New House under 200sqm	Dogtrot House	
	Houses Awards, Commendation	New House over 200sqm	Desert House	
	AIA NSW Awards, Winner	Residential – New	Dogtrot House	
	AIA NT Awards, Winner	Sustainable Architecture	Desert House	
	BPN Sustainability Awards, Shortlisted	Single Dwelling – New	Desert House	
2013	BPN Sustainability Awards, Shortlisted	Office Fitout	Republic of Everyone	
2011	21st Century Terraces, Shortlisted	Competition		
2010	AIA NSW Awards, Winner	Premier's Prize	Junee Library	
	AIA NSW Awards, Shortlisted	Small Project Architecture	Botany Studio	
	Scale vs. Status, Winner	Competition		
1996	Shwimmhalle, Germany, Commended	Competition		
	Schulzentrum, Germany, Winner	Competition		
1995	RIBA Bronze Medal	Degree Work		

Dunn & Hillam Architects Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Publications

	Publications	
2019	Architecture Australia	Review of Short Lane Housing
	Architecture Australia	Review of Lismore Regional Gallery
2018	Architecture Australia	Review of Cowper Street Housing
	Houses Magazine	Dunn & Hillam Practice Profile
	Living In The Desert, Phaidon	Desert House
2017	Fulcrum	Review of Real Estates; Life Without Debt
2016	Architizer	D + L House
	Architecture + Design	D + L House
	Sanctuary Magazine	C + T House
2015	60 Years of Architecture at UNSW	Architecture by Hand and Mind
	Architecture Australia	Review of Tzannes Irving Street Brewery
	Design Quarterly	Artspace Gallery
	BlouinArtinfo	Artspace Gallery
	c3 Magazine	Dogtrot House
2014	Phaidon Atlas	Desert House
	Scoop Homes and Art	Desert House
	Houses Magazine	Dogtrot House
	The Australian A Plus	Desert House
	Australian Financial Review	Desert House
	Sydney Morning Herald Domain	Dogtrot House
2013	Architecture Bulletin	Best Practice: Forward - Thinking Models
2012	Sydney Morning Herald Domain	Airies House
	Indesign	Republic of Everyone
2011	Green Magazine	M + G House
2010	Low Price Houses	Botany Studio
	Indesign	Botany Studio
	Green Magazine	Style vs. Status Competiton Winning Entry
	Sydney Morning Herald Domain	M + V House
	Sydney Morning Herald Domain	Newtown House 2
	Green Magazine	Botany Studio + House
	Architecture Australia	Junee Library
2009	Southern Cross Newspaper	Junee Library
2008	A Pocketful of Beach Houses	Palm Beach House
2007	UNSW Compendium	Good Practice in Learning + Teaching
2005	100 Top Houses From Down Under	Palm Beach House
	Houses Magazine	Palm Beach House

32 Dunn & Hillam Architects

Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526

Practice Profile Talks

	Talks	
2022	Perspectives Talk	MAGIC
	Sydney University Lecture	New Design in Old Settings
2020	The Architect's Bookshop: Isolation Talks	Practice Talk
	Sydney University Lecture	New Design in Old Settings
2019	Sydney University Lecture	Heritage: Policy and Practice
	Government NSW	Heritage Webinar
	Business of Architecture and Design (BoAD)	Disruption and the Future
2018	AIA NSW Regional Architecture Conference	Rethink / Recalibrate / Regenerate
	University of New South Wales	Engaging Women in the Built Environment
	Sustainability Awards Talk	(1) What Are The Incentives For Sustainability, And Are We Missing The Bigger Picture?(2) How Is Technology Helping To Promote Sustainability Across The Built Environment?
2017	Sustainability Awards Talk	Architecture on Show
	Sydney University Lecture	The Value of Heritage
2016	AIA NSW TNT Talk	Makers and Thinkers
	Shanghai Urban Forum	A Proposition for Local, Specific and Appropriate Development
	Tongji University, China Lecture	Building Quietly
	Tongji University, China Lecture	Reflections on 10 Years of the Glenn Murcutt Studio at UNSW
2015	East Side FM Radio Interview	Artspace Gallery
	AIA NSW Country Division Talk	Building Quietly
2014	AIA NSW TNT Talk	Building Quietly
2013	Parlour Talk	Transform; altering the future of architecture
	AIA NSW Architectural Practice Talk	Small Practice
2012	ABC Radio National Interview	Ormiston Gorge Masterplan
	Surry Hills Library Talk	The Future: Small Houses, Big Libraries!
	ABC Radio National Interview	West MacDonnell Ranges Park Masterplan
	Sustainable Transformation Conference	Thermal Comfort Reality in the Australian Climate; A case study of the Junee Library, Junee NSW
2011	AIA NSW Country Division Talk	Design in Context - Innovation in Regional
2010	Public Libraries NSW Impact Conference	A case study of the Junee Library: Incorporating Tradition and Innovation in the Design and Construction of a New Library
	AIA NSW TNT Talk	Botany Studio
2008	Australian Institute of Building Surveyors Environmental Health Australia	The Possibilities of Working in Regional Areas
2007	AIA NSW Talk	Young Architects Exemplary Design Practice series

Dunn & Hillam Architects

Nominated Architects: Ashley Dunn NSW ARB No. 7547 and Jonathan Temple NSW ARB No. 8526



Workshop 1 Pty Ltd t/a Dunn & Hillam Architects A 301/414 Gardeners Road, Rosebery, NSW 2018 T +61 2 9316 7715 E admin@dunnhillam.com.au W dunnhillam.com.au



Wilcannia Visitor Accommodation Project Business Case



A PROPOSAL PREPARED BY BALMORAL GROUP AUSTRALIA FOR THE CENTRAL DARLING SHIRE COUNCIL

> PROPOSAL REFERENCE 2234 12 AUGUST 2022



THE KNOWLEDGE YOU NEED – THE INTEGRITY YOU TRUST[™]

Balmoral Group Australia Pty Ltd Economics, Analytics and GIS Consultants

ABN 87 135 700 239 ACN 135 700 239

Web - www.balmoralgroup.com.au Web - www.balmoralgroup.us Email – info@balmoralgroup.com.au

Sydney Office Suite 1, Level 10 70 Phillip St Sydney, NSW, 2000, Australia Phone +61 2 9051 2490

Head Office 165 Lincoln Avenue Winter Park Florida, 32789, USA Phone - +1 407 629 2185

Tallahassee Office 113 S Monroe Street Tallahassee Florida, 32301, USA Phone - +1 850 201 7165

Proposal Authors – Grant Leslie Cover Photo – Destination NSW

Contact Grant Leslie Director - Australia 0432 862 714 (mobile) Balmoral Group <u>gleslie@balmoralgroup.com.au</u>

Commercial-In-Confidence Copyright © Balmoral Group Australia Pty Ltd 2022

Proposal Number 2234 12 August 2022

Sydney is where the Australian office of Balmoral Group resides. It is the traditional home of the Gadigal Aboriginal people of the Eora Nation. The authors acknowledge the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past and present

Mr Andrew Morris Director Morris & Piper andrew@morrispiper.com

Wilcannia Visitor Accommodation Project

Dear Andrew

Thank you for the opportunity to prepare this proposal for the assessment and support for the community of Wilcannia.

Our understanding of the project that is the subject of the Business Case is that this project will fund a strategic business case to look at the options for the development and construction of a motel accommodation in town and the viability of linking the operations of the motel with the management and operation of the council owned Victory Park Caravan Park on the banks of the Darling River.

The business case will explore not only the viability of these accommodation options, but the operating models required to run both assets in a viable way, but also explore the overall economic impact on the town of Wilcannia and the region more broadly.

Our experience in this space is extensive and so we are very familiar with the NSW Government funding process and requirements of this project.

We have assessed our capacity and have sufficient resources to complete the project within the required timeframe.

Our team is excited for this opportunity, and dedicated to its success. If selected, each of our team members is committed to making this our highest priority, and will dedicate our resources to offer expertise and resources that will address all of Councils requests and ensure that the work withstands critique and the test of time. This is the type of project our team members are known for, specialise in, and enjoy.

Grant Leslie

Grant least Director, Australia

+61 432 862 714

gleslie@balmoralgroup.com.au

Name of Project – Wilcannia Visitor Accommodation Project		
Supplier name Balmoral Group Australia		
Supplier ABN 87 135 700 239		
Contact person and	Grant Leslie	
phone number	+61 432 862 714	
	<u>aleslie@balmoralgroup.us</u>	

Schedule of Prices – Lump sum:			
Price: Lump sum (valid for 90 days)	\$ 57,844.50 (GST exclusive)		

Description	Price ex GST
Project Inception	\$1,757.00
Socioeconomic Profile	\$3,626.00
Case for Change	\$13,485.50
Proposal Analysis	\$12,600.00
Implementation	\$7,140.00
Reporting	\$19,236.00
Total Investment	\$57,844.50

Balmoral Group Australia's Insurance Details				
Insurance Type	Amount	Insurer	Policy Number	Expiry Date
Public Liability Insurance, as required by the PMS Scheme contract referred to above	\$20M	Vero Insurance	Policy Number LCS017124781-3991	March 2023
Professional Indemnity Insurance, is required, as per the PMS Scheme contract referred to above	\$10M	Vero Insurance	Policy Number LCS017124781-3991	March 2023
Workers Compensation As required by law	Workers Compensation	icare workers insurance	Policy Number 120017001	November 2022

Signed by Balmoral Groups authorized representative who warrants that I have the authority to submit this proposal on behalf of the company and is not aware of any conflict of interest.

Name Grant Lealie	Signature	
Grant Leslie	Grant lead :-	
Title	Date	
Director - Australia	12 th August 2022	

References

The following table provides references for recent work undertaken by Balmoral Group Australia.

	Referee 1	Referee 2
Name	Daniel Masters	Phil Johnston
Position	Executive Director Program Delivery and	Director Community and Economic
	Innovation	Development
Location	Investment NSW	Narromine Shire Council
	Level 2, 105 Prince Street, Orange, NSW	P.O. Box 115 Narromine NSW 2821
	2800	
Phone - Landline		02 6889 9999
Phone - Mobile	0427 670 198	0427891323
Email	daniel.masters@dpc.nsw.gov.au	pjohnston@narromine.nsw.gov.au

Project Understanding

The Wilcannia Visitor Accommodation Project will address the critical shortage of visitor accommodation available in Wilcannia and the resulting economic impact on the town and region.

Wilcannia has numerous issues with the lack of accommodation currently available with no commercially operated motel accommodation available in the township. Both existing motels were extremely outdated and have closed to the public with one being used for staff accommodation for the adjoining roadhouse. Visitors to the town, whether tourists or those visiting for work, are heavily reliant on the Council owned and operated Caravan Park (with no cabin accommodation) and a private rural caravan park 15 kilometres from town that also operates basic tourist cabins. The current situation fails to cater for visitors to the town who are not self-accommodating through caravans or camping, with the nearest available motel accommodation located in the town of White Cliffs almost 100 kilometres from Wilcannia. Visting workers accommodation is particularly impacted with those visiting for work having to stay in basic cabins (if available) or drive in for the day from White Cliffs, Broken Hill (196 kilometres) or Cobar (260 kilometres).

In the next 18 months the Baaka Cultural Centre will be built and opened in Wilcannia, attracting an influx of visitors to what will become the key Aboriginal cultural site in the Far West of New South Wales. Motel accommodation and an upgraded and modern Caravan Park will be essential to accommodate and extend the stay of those visiting the Baaka Cultural Centre in Wilcannia.

Project Experience

Balmoral Group have been involved in several projects similar to the requirements of this project over many years. The following is a list of relevant programs that will support our bid for this project.

NSW Regional Economic Development Strategies

Balmoral Group prepared eight of the 25 REDS including the following reports - Midwestern, Central Orana, Castlereagh, Far West, Western Plains, Western Murray, Abercrombie Mid Lachlan. These reports have been used widely since they were first published.

Central Darling Shire Council Baaka Cultural Centre Business Case

Prepared of the Baaka Cultural Centre Business Case. Involved comprehensive socio-economic analysis of Wilcannia and Central Darling LGA to inform a Cost Benefit Analysis for the project consistent with NSW Treasury Guidelines. The project entailed understanding and communicating Aboriginal cultural and management perspectives and values, as well as working closely with a diverse group of stakeholders and design team. *The Business Case was successful in gaining funding*.

Pooncarie Road Upgrade EOI and Business Case

Project Lead for the development of an Expression of Interest and subsequent business case for the upgrade and enhancement of Pooncarie Road in Central Darling Shire. Involved spatial data analytics combined with traffic analysis to evaluate economic cost of road closures. *The Business Case was successful in gaining funding*

Regional Growth Fund 3.0 Strategic Business Case

Prepared the Regional Growth Fund 3.0 Strategic Business Case. Work included the development of Options using multicriteria analysis and demand modelling, Cost-Benefit Analysis, Financial Appraisal, and contribution to overall report writing. The Strategic Business Case ultimately contributed to the overall New Policy Proposal submission for the Department for Regional NSW to NSW Treasury. *The Business Case was successful in gaining funding.*

Regional Industry-Education Partnership Program Evaluation

Prepared the program and outcome evaluation of the pilot program of the NSW Regional Industry-Education Partnership (RIEP) Program. Work included developing a theory of change to support the evaluation, and the development of an econometric model to quantify the benefits to students for engaging in the program. A Cost-Benefit Analysis developed highlighted the benefits of the program and will inform the future development and improvements to the scheme.

Maitland City Council, Raymond Terrace-Government Road intersection Upgrade Business Case

Prepared the business case supporting the upgrade of Raymond Terrace-Government Road intersection in Maitland. Key tasks included client liaison and development of the approach, researching non-market values and applying data to a Cost-Benefit Analysis, and report writing. The analysis provided Maitland City Council with a strong case to apply for funding to address a critical traffic flow and human health risk in the LGA. *The Business Case was successful in gaining funding*.

West Dapto Rd Upgrade – Business Case

Prepared the development of the Business Case and guiding the project team. BGA has been retained to deliver a business case for the upgrade of West Dapto Rd which is part of enabling infrastructure for the West Dapto Development area. The region is expected to include 19,000 new dwellings and house over 50,000 people in the next 30 years. The Business Case will be submitted

to the Housing Acceleration Fund (NSW Government) and involved producing a detailed socioeconomic profile, applying the NSW Government Business Case guidelines to the project and ensuring the cos-benefit analysis is in line with NSW Treasury Guidelines. *The Business Case was successful in gaining funding.*

Narromine Shire Industrial Precinct and Freight Exchange Business Case

Prepared the delivery of a strategic business case for an Industrial Precinct and Freight Exchange at Narromine. The business case demonstrated how the economic benefits that arise from government investment in enabling infrastructure (i.e., roads, and connectivity to utilities), will allow a private operator to establish an Intermodal and offer services to the region's engine and value-adding industries, including livestock and cropping, meat and grains manufacturing, transport services, and machinery repair and maintenance. *The Business Case was successful in gaining funding.*

Upgrade of Lake Rowlands Dam CBA

Prepared the Business Case and cost-benefit analysis to upgrade the Lake Rowlands Dam, Central Tablelands Water. The business case analysed four options for increasing the capacity of Lake Rowlands Dam against the benefits associated with alleviating water security risks in the local and wider water-network region.

Norfolk Island Sewerage Treatment Plant Upgrade Business Case

Prepared the Business Case supporting an upgrade of the sewerage treatment plant on Norfolk Island. Contributions to the overall project included extensive stakeholder consultation research and review of nonmarket and market-proxy values for the indirect costs and benefits flowing from the proposed upgrade, as well as report review and quality control. *The Business Case was successful in gaining funding*.

Organisational Profile

Balmoral Group Australia is committed to addressing the nexus of public policy and design within socioeconomics, infrastructure, and natural resources. We have significant experience in Australia and globally in Economic Development, Cost Benefit Analysis and Strategy, and we have delivered a number of projects at all levels of government to aid in decision making and policy development.

As a niche economics firm, The Balmoral Group has completed precedent-setting projects for public and consortia clients, using sophisticated statistical analysis, Geospatial Information Systems (GIS) modelling and specialised stakeholder engagement techniques to address complex policy issues. We specialise in data visualisation using PowerBI and GIS which we have applied to innovative work for Turf Australia, DPI (NSW), Department of Regional NSW, NSW Property, Department of Social Services (Federal), the ACT Government, Department of Resources (QId) and National Parks. Our ability to distil complex data into simple geospatial representations and tools that suits the needs of our clients allows them to access data to meet a range of purposes very efficiently.

Balmoral Group works on the motto The Knowledge you Need, the Integrity you Trust[™] and this is at the core of our business and underpins all of the work we do.

Proposed Methodology

Given limited resources and competing requests for funding, the NSW Government prioritises proposals that align with its strategic priorities, offer good value for money and have the capacity to be managed and delivered effectively¹. This methodology aligns itself with NSW Treasury and Department of Premier and Cabinet Guidance on the development of Business Cases. It will be critical to the success of the project that all parties work together to create a successful outcome. BGA will leverage substantially on the work already carried out on previous submissions to complete the Business Case, for example community engagement, project costings, timelines and the like.

Task 1 – Project Inception Meeting

The Balmoral Group staff is experienced in managing large and small projects within budget and on time. Our first step upon award of this project would be to conduct a Kick-off Meeting in Wilcannia with all interested parties attending with the Central Darling Shire Council Project Manager to compare schedules, and verify that our expectations as to deliverables, proposed data sources, and software choices for providing data and reports are acceptable. Our project manager will assemble the team, verify tasks for each individual and finalize the project plan.

Task 2 – Socioeconomic Profile

BGA will assemble the socioeconomic profile in draft form within one week the inception meeting with supporting spreadsheets and maps as appropriate, for Central Darling Shire Council to review. Revisions based on feedback will be incorporated into a final profile. The socioeconomic profile will also include an estimate of property prices in the immediate region around the proposed works. This data will be gathered from RP Data.

The purpose of the socioeconomic profile will be to help understand demographics of the region and the changes that have occurred over time. The profile will be used to build the base case for the Cost Benefit Analysis and building the case for change.

Task 3 – Developing the Case for Change

BGA's approach to preparing the case for change will be to discuss the rationale for the investment, the strategic alignment and community support for the project. The case for change will need to have community support and so with project partners a number of community workshops will be conducted to gain community (especially indigenous) support for the project. These yarns will be conducted over 2 separate occasions. The first to propose the project and gain feedback. the second to present the final project considering the feedback from the first workshop.

For the report the case for change section of the report will discuss:

- > The Project background, explaining the need for the investment
- The Strategic Alignment how well does proposal align with priorities, actions, directions and strategies outlined in prevailing State, regional and local government documents.
- Expected Outcomes documenting the key outcomes from the proposal including, case studies historical trends, literature review
- Stakeholder and Community Support Demonstrate clear community support for the project through consultation with stakeholders.

¹ DPC <u>Business Case Guidelines</u> 1.3

Task 4 – Analysis of the Proposal

In this section of the report much of the economic analysis will be carried out. The key components of this part of the report include;

- The Proposal objectives and indicators The objectives describe the desired changes to be brought about by the proposal. These objectives should be directly linked to the problems or opportunities identified.
- Defining a Base Case The base case allows an assessment of relative costs and benefits of the preferred solution (as well as other alternative solutions). This is typically known as the base case and will be the scenario to which the proposal will be compared to.
- Other Options Considered This section will describe how and why the preferred option was selected and what the other options considered were.
- Information about the proposal. This section of the Business Case will include several sub sections, such as
 - o Scope of works Location, Size of the project, property purchase requirements etc.
 - Proposal exclusions if any works that may be required and are not addressed in the proposed works, they will be highlighted here
 - o Related Projects are there any interrelated projects that this work relies on.
- Projected Costs The cost estimates for the project will include estimates that have been already completed by a suitably qualified cost estimator. We will need to consider reporting and ongoing costs. These figures will be fundamental to building the Cost Benefit Analysis.
- Cost Benefit Analysis BGA has significant experience in preparing Cost Benefit Analysis for NSW Treasury. The CBA will include a base case, valuation of all costs and benefits in real terms, whole of life estimates, the reference group in which costs and benefits accrue and discounting in line with treasury guidance (currently 3%, 7% and 10%).
- > Financial Appraisal It is likely that a cash flow analysis will be sufficient for this project
- Proposed funding Discussion on the funding options available to the project including cocontributions from Council, Industry, Community and Commonwealth Government if relevant
- Financial Health Status Where applicants propose to use funding from non-government sources, either to fund upfront capital costs or ongoing costs, the Department will need to assess the viability of these funding sources. Underlying financial statements may be provided for this purpose.

Task 5 – Implementation

If successful the project will need to be implemented and therefore project milestones, project governance and project risks will be discussed. This section of the report will also need to demonstrate that Central Darling Shire Council has the capacity, capability and experience to deliver the project through:

- Program milestones will typically provide for key events and decision points that have been planned and are achievable.
- Proposal Governance In this section the report will need to address a number of governance arrangements

- Risk Assessment It is recommended by DPC that a risk management plan and a risk register be developed for the project.
- Asset Management and Operations This section outlines who has responsibility for the ownership, operation and maintenance of the assets that will be created by the proposal and a brief description of the activities to manage these assets over their life.

Project Inception and Ongoing Meetings

The Balmoral Group staff are experienced in managing large and small projects within budget and on time. Our first step upon award of this project would be to conduct an inception meeting with the Project Control Group and all interested parties to compare schedules, and verify that our expectations as to deliverables, proposed data sources, and software choices for providing data and reports are acceptable. We will also agree on the project scope at the inception meeting. We understand that these meeting are likely to be a hybrid style. Our preference is to have face to face meetings and understand that this is not always possible for all times.

At the project inception meeting all contact protocols established regarding fund applicants.

Reporting

BGA will prepare a draft Business Case for review of the Project Control Group. The report will be aligned with the NSW Government Guidelines for Business Cases. We have allowed for 2 reviews of the draft report before the final report will be issued.

Timeline

This project is estimated to take between six and eight to twelve weeks to complete from the time of engagement. This timeline may vary slightly depending on the timing of the stakeholder workshops and the availability of data.

VALERIE SEIDEL PRINCIPAL ECONOMIST	 QUALIFICATIONS: University of Sydney, Australia Master of Commerce in Economics University of Central Florida Post-graduate studies: Environmental Economics University of Tampa, Bachelor of Science Accounting, Economics EXPERIENCE Valerie Seidel is President and Principal Economist of The Balmoral Group. Her economics experience has focused on infrastructure and natural resource valuation, GIS/statistical models of resource allocation and optimization, and cost-benefit analysis. She has completed projects researching economic impacts of public policies, and application of econometric methods.
GRANT LESLIE MANAGING CONSULTANT	 QUALIFICATIONS: White Ribbon Ambassador Advanced Diploma in Marketing, Advanced Diploma in Management. Fellow – Institute of Managers and Leaders Bachelor Applied Science, Environmental Management (partially completed) UWS EXPERIENCE Mr. Leslie is the Australian Director of Balmoral Group Australia, based in Sydney. He has 25 years' experience in the water and environment sector, having worked in laboratory, consultancy, operations, engineering and strategic management roles in both private and Not for Profit businesses.
MANAGING CONSULIANI	His key skills include stakeholder engagement, project management and quiding the development of reports.
EDWIN CHIHAVA SENIOR ECONOMIST	 QUALIFICATIONS: Master of Science in Economics, University of Zimbabwe Bachelor of Science in Economics (Honours), University of Zimbabwe EXPERIENCE Edwin Chihava is a Senior Economist at the Balmoral Group. He has over ten years' experience in Economic Research, Policy and Analysis across several government departments and the financial services sector. Edwin has strong experience in research, cost benefit analysis and economic modeling and is highly analytical, accurate and insightful. He is experienced in leveraging tools such as SQL, E-Views, SAS, VBA, Advanced Excel and STATA for data manipulation, modelling and forecasting as well as Power BI for data visualization.



Central Darling Shire Council



Ivanhoe Waste Facility Long Term Plan of Management



Robert Bailey Consulting Unit 408 12-24 William Street Port Macquarie, NSW 2444 Phone 0448737383

January 2021

1
Table of Contents

Contents

Table	of Contents	2	
1.0	Overview	3	
2.0	Background	4	
3.0	Purpose	4	
4.0	Operations	5	
5.0	Landform Concept Design	7	
6.0	Acts and Policies Associated with the Project	8	
7.0	Delivery	8	
9.0	Appendices	11	
Appendix 1- Notes to Accompany Design Drawings11			
Appendix 2 – Design Concept Figures 1 to			
Appendix 3 - Aerial Site Plan27			
Appendix 4 – Waste PlacementTechnique29			

1.0 Overview

The Ivanhoe Waste Facility is described as lot 40 DP 754687, is located about two kilometres from the township of Ivanhoe off the Ivanhoe to Cobar Road and serves a district population of around 200 residents. It utilises an excavation and fill method for waste disposal, together with stockpile areas for the recovery of green waste and scrap metal. Asbestos is accepted at the facility for disposal in a separate excavation and there is provision to accommodate deceased animals. The facility occupies around 10 hectares of land and has been in operation for many years. There is no means of accurately measuring the quantity of waste being received, but going by the resident population together with transient population, it could be expected the facility would receive between 200 tonnes to 250 tonnes of waste material per annum

The site is not supervised, that is, there is no Council presence to oversee the operation of the facility or to collect fees nor is the site controlled, that is gates are not shut to limit access to defined times. Previous Council endeavours to supervise and control the site have been discontinued primarily because of resourcing constraints. Uncontrolled and unsupervised sites are difficult to manage effectively and rely on good signage and user cooperation to control indiscriminate waste placement, dumping of prohibited wastes and contamination of recoverable materials. Regular attendances at the site by Council staff with suitable plant to push up waste and separate contamination from stockpiles of recoverable .materials should form part of the future management protocols for the waste facility.

It is difficult to determine what proportion of the site has been previously trenched and filled, though the disturbed and waste covered nature of the overall site indicates above ground disposal of inert material may have been a common practice in the past and that the ground beneath has not been trenched and filled. A defined area of the site has recently been closed and partially rehabilitated under a Waste Less, Recycle More grant. Other improvement works have seen previous stockpiles of wood waste, mattresses and waste concrete landfilled and the areas rehabilitated and litter fences extended. Litter remains an issue and the procurement and use of mobile litter fences that are positioned near to the active tipping area and the regular removal of the collected litter should be undertaken

The current excavation contains a quantity of leachate that is being generated from an up gradient catchment where surface water is directed to the landfill. Much of the waste mass within the landfill is not covered and the application of cover seems to be at irregular intervals. The quantity of waste being placed for disposal seems excessive for the small local population. Geotechnical engineer, Robert Amaral, has provided concept designs and notes (see Appendices 1 and 2) that demonstrate how the leachate is to be removed and treated, the up gradient catchment diverted, the existing waste mass re-shaped and capping applied. At present, green waste and concrete are being stockpiled, though these should be landfilled if there is no re-use potential for these materials. A CAT 950 rubber tyre loader (FEL) is used to push up the waste which achieves minimal compaction. The resulting shape of the waste mass is poor, compaction is negligible and the waste remains uncovered. An improved means of placing the waste material appears in Appendix 4 which should be adopted together with more frequent attendances of the FEL plant at the facility.

Scrap metal is separated and placed in a stockpile to be taken off site by a collection contractor. Recovered materials should be removed or processed routinely so that the stockpile is maintained at a manageable size. Given the site is not supervised, controlling contamination of the metals stockpile is difficult and Council staff should endeavour to remove contamination routinely whenever attending the site. Fluctuations in the market value of scrap steel have an effect on the frequency of the removal of this material from site.

Changes to current practices have been identified and together with the Amaral concept design filling plans and final landform designs, provide the guidance for the long term management of the waste facility.

2.0 Background

Central Darling Shire Council has determined to undertake a review of the operations of its waste facilities in order to identify how the residual life of the landfill can be maximised, how improvements to current practices could be introduced, where efficiencies may be gained and risks mitigated. Council's aim is to achieve sustainable management of the waste facility that is commensurate with available resources.

Council has prepared a scope of works and engaged Robert Bailey Consulting and Robert Amaral Geotechnical (Landfill) Engineer to prepare a long term plan of management for the Ivanhoe Waste Facility that will provide a final landform design, filling/staging plans and procedures to improve operational performance and to mitigate risks.

3.0 Purpose

The purpose of this Long Term Plan of Management (LTPoM) is to provide a process with the highest probability of achieving the defined project aims. The LTPoM would address long term planning and the future design of the Ivanhoe Waste Facility in considering the final landform, activity area interrelationships, existing and future infrastructure, plant utilisation, complying with the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016), valuing responsible environmental performance, improving existing landfill management practices and recognising resource recovery opportunities.

The primary aims of the project are:

- To put measures in place that will maximise the residual life of the landfill
- To identify improvements to existing practices that will translate into cost efficiencies and provide for the realisation of these opportunities.
- To develop plans for the coordinated development of the facility over the longer term.
- To engage practices that will ensure responsible environmental performance is achieved
- To comply with the requirements of the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016) together with other relevant legislation, regulations and codes where applicable

- To address risk
- To contribute to the development of an overarching strategic plan for Council's waste facilities including the preparation of a financial model that will predict future incomes and expenditures and will provide for the managed development of the facility over the longer term.

4.0 Operations

- 4.1 **Current operations for the general waste active tipping area –** general waste, including self haul and kerbside collected waste, is deposited at the edge of the excavation and there are no measures in place to contain the size of the active tipping area. The site is not supervised, therefore signage is the principal means of controlling the disposal area. The waste material is pushed up occasionally (perhaps once a week) using a backhoe or front end loader (FEL) and the waste material is not compacted. Windblown litter is an issue as a consequence of these practices. A large up gradient catchment directs surface water into the excavation.
- 4.2 Proposed improvements to the operation of the general waste tipping area - Geotechnical engineer Robert Amaral (Amaral) has prepared concept designs for the future operation of the current general waste disposal area that includes sequencing and concept designs for staging and final landform. The first step will be to shape the up gradient catchment away from the landfill and then prepare an evaporation area and pump out the leachate for disposal. (see Appendices 1 and 2). Using an excavator with a long reach, or similar suitable plant, pull back the deposited waste to concentrated area within the landfill and develop a shape suitable for capping. Track compact the waste and apply the final capping. Develop the tipping platform for future waste placement. Capping material can be sourced from the windrows of ENM located near to the landfill. Place bollards or barricades to control the size of the active tipping area. Suitable mobile litter fences could be used to limit the size of the tipping area. (an example of a suitable litter fence is shown in Appendix 6) Continue landfilling in accordance with the Amaral concept designs (see Appendices 1 and 2).
- 4.3 **Existing landfill plant -** a front end loader (FEL)
- 4.4 **Proposed improvement to landfill plant utilisation** Appendix 4 provides guidance on the placement and partial compaction of the deposited waste using the FEL and keeping the depth of waste to about 2.0 metres. The ongoing use of the FEL will be a compromise between avoiding the purchase cost of a more suitable item of plant (eg traxcavator) and the accelerated consumption void space and cover material
- 4.5 **Current site control and supervision** the site is not supervised that is there is no Council presence to oversee the operation of the facility or to collect fees nor is the site controlled, that is gates are not shut to limit access to defined times. Previous Council endeavours to supervise and control the site have been discontinued primarily because of resourcing constraints.

Improved signage and the use of bollards or mobile litter fences will be required to better manage traffic and to identify where waste is to be deposited.

- 4.6 **Proposed improvement to site control and supervision –** no changes are proposed to site control and supervision other than to provide improved signage and measures to control the size of the tipping platform.
- 4.7 **Current Green Waste Management –** there is a separate area remote from the active waste disposal area where self haul green waste and wood waste are stockpiled, pushed up and can be shredded as part of a service contract. Contamination is significant where plastics and metals are evident. The stockpile also includes materials such as MDF(medium density fibreboard), treated pine, particle board and laminated timber. Shredding can be expensive and the contaminated product has little re-use value other than for cover material or placement over disturbed areas to control dust and erosion.
- 4.8 Proposed improvements to green waste management although no change is proposed to the manner in which green waste is stockpiled, the location may shift to be closer to the general waste disposal area. The existing stockpile of green waste is contaminated and should be landfilled. For the current stockpile and for the future management of green waste, as an alternative to shredding and to save costs, when suitable plant is available, that is larger plant with tracks such as dozer or excavator, the stockpiled green waste can be spread, larger items of contamination removed and the green waste broken up using a number of passes of the track machine. The broken up green waste can then be landfilled or placed on top of capped surfaces, depending on the quality of the finished product to control dust and erosion. It may also be used as cover as a substitute to ENM.
- 4.9 **Current scrap metal management –** self haul scrap metal is stockpiled and on sold to a service contractor whereby the material is taken off site on a routine basis. The scrap metal stockpile is pushed up from time to time using the Council FEL
- 4.10 **Proposed scrap metal management –** an effort should be made to ensure the scrap metal is contained to one controlled stockpile area and not allowed to spread or multiple stockpile areas develop. Contamination remains an issue and some effort should be made to better manage the contamination. This may require contamination to be removed routinely. A collection contractor should be engaged to remove the accumulated scrap metal on a regular basis
- 4.11 **Current and proposed waste concrete management –** Historically waste concrete and other inert materials were placed over previously trenched and filled areas or over virgin areas of the site. A recent Waste Less, Recycle More grant has seen some of above ground waste concrete combined and covered and contaminated green waste and contaminated scrap metal landfilled. Currently, receivals of waste concrete are being stockpiled within the site, however the retained concrete and future loads of waste concrete

should be confined to the general waste disposal area. Suitable waste concrete can be utilised to form internal berms at the general waste disposal area or on access tracks where such use is appropriate

4.12 Deceased animals and asbestos disposal- the issue confronting Council with difficult wastes such as asbestos is that the waste facility is not controlled nor supervised. Therefore Council relies on those wanting to dispose of asbestos to act responsibly. The information contained on Council's website states " Any wastes containing or potentially containing asbestos are classified as asbestos waste and must be disposed of properly, according to NSW legislation and relevant guidelines. There are significant penalties that apply if legislation isn't adhered to, including illegal dumping of asbestos and placing into kerbside bins. Furthermore, improper handling and disposal of this material can put you, others and the environment at risk". There is a download on the website that provides guidance on the correct means of disposing of asbestos. The Waste Regulations require final depth of soil above the asbestos should be 1 metre as prescribed in the Waste Regulations (2014) (see Appendix 5) and cover applied at the end of each day to a depth of at least 0.5 metres. Council should develop an asbestos policy and require advanced notice of a person's intention to dispose of asbestos in order that plant can be on site to assist with the correct means of unloading asbestos and to apply the ENM cover in accordance with the Waste Regulations. Equally Council should develop a procedure for the management of deceased animals.

4.13 **Litter-** litter fences have been established in the vicinity of the active tipping area and retain much of the windblown litter coming from the active tipping area. The litter is contained against the litter fencing and continues to accumulate. Mobile litter fences should be procured and positioned near to the active tipping area to prevent the spread of windblown litter. (see Appendix 6) A program should be established whereby the accumulated litter is collected routinely and then landfilled

5.0 Landform Concept Design

Final landform design and filling/staging plans have been prepared for the future development of the lvanhoe waste facility and these appear as –

- Notes to Accompany Design Drawings in Appendix 1,
- Guide to Site Capacity in Appendix 1,
- Concept Designs in Appendix 2

This suite of documents provides information on the development of the landfill for future decades and offers guidance for the orderly progression of the landfilling operations. Each sub stage is essentially a building block that in total combination will deliver the final landform. It will be most important that the design is followed in order to deliver the desired outcomes. This may require periodical examination by an external party (surveyor, geotechnical engineer) to confirm the landfilling works are progressing in keeping with the adopted designs.

Council should also be aware that operating a landfill effectively and in keeping with the EPA Guidelines requires skilled plant operators, correct plant, an understanding of grades, reduced levels, waste placement, surface water management, covering and compaction. Council staff who have been given the responsibility to oversee the operation of the facility and contractors who may be engaged to perform specific tasks should be trained accordingly and be familiar with the designs and the principles supporting those designs

6.0 Acts and Policies Associated with the Project

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Waste) Regulation 2014
- EPA Environmental Guidelines: Solid Waste Landfills (2nd edition 2016)
- Environmental Planning and Assessment Act 1979
- Environmental Planning and Assessment Regulation 2000
- Infrastructure SEPP 2007

7.0 Delivery

Desired Outcomes - Ivanhoe waste facility will be developed in a planned and co-ordinated manner.

- The project will deliver the stated aims
- Risk will be managed
- Regulatory agencies gain confidence in Council's management processes
- Succession planning is achieved
- Landfill void space will be maximised
- Residual life of the landfill will be optimised
- Long term planning prevents re-work resulting in corresponding savings
- Budgets can be developed for the capital works and programmed for delivery in a measured way and for optimum benefit

Key Actions to deliver the desired outcomes

Milestone 1 – Re-instate the landfill (Amaral Appendices 1 and 2)

Key Tasks

• Re-shape the up gradient catchment to divert surface water away from the landfill

- Prepare an evaporation pond or suitable surfacer irrigation area and pump leachate from the landfill to the pond or irrigation area
- Use an excavator with a long reach, or similar plant to pull back the deposited waste to a concentrated area within the landfill and develop a shape suitable for capping. Council's FEL may be suitable if an excavator is not available.
- Track compact the waste and apply the final capping.
- Develop the tipping platform where lifts of placed waste will not exceed 2.0 metres or thereabouts or as required by the Amaral concepts RLs.(Appendix 2)
- Procure and position litter fencing near to the active tipping area
- Continue landfilling until the current excavation achieves the final design landform

Milestone 2 - recommence landfilling at the newly developed active tipping area

- Crush and landfill the existing stockpile of green waste
- Re-establish the green waste stockpile area near to the landfill
- Landfill the existing stockpile of waste concrete
- Provide barricades to control the depositing of waste to ensure materials are confined to the active tipping area
- Push up waste in accordance with the "waste placement technique" (Appendix 4)
- Apply cover routinely from the established stockpile of ENM
- Collect litter regularly where it has accumulated at the litter fencing and place into the landfill

Milestone 3 – prepare an asbestos management policy

- Review the asbestos information currently contained on Council's website
- Develop protocols for advanced notice for the disposal of asbestos
- Train Council staff who may be required to deal with incoming loads of asbestos in the correct management of asbestos

Cost Estimates - Figures provided below for the likely cost of works required to achieve the milestones are cost estimates only and may well vary depending on a range of circumstances. The purpose of the estimates is to provide inputs for the financial model that has been developed in the overarching Strategic Plan. The Strategic Plan has been prepared to provide guidance for the future management of all of Council's waste facilities.

Milestone 1

Re-instate the landfill Year 1 \$40,000 (capital cost)

Procure and position mobile litter fencing (10 x 3 mere long panels @ \$900) \$9,000

Milestone 2

Recommence landfilling at the reinstated active tipping area **Year 2 \$10,000** (capital cost) Increase the operational budget by 30% to enable more regular landfill servicing

Milestone 3

Prepare an asbestos management policy (in house- no direct cost)

9.0 Appendices

Appendix 1- Notes to Accompany Design Drawings

NOTES FOR INCLUSION WITH LANDFILL DESIGN DRAWINGS 20205i

GENERAL

There are a number of issues / circumstances which have an impact on the design of the Ivanhoe Landfill as discussed in detail by Bob Bailey in the main text of this LTPOM :

- * very small size of the waste source community
- * remote location
- * unlimited access to an unmanned site
- * limited access to purpose built landfill equipment
- * advantageous low permeability geologic soil profile
- * advantageous evaporation to rainfall ratio (at least 6:1)
- * extensive volume of scattered waste (largely inert)

Some of these issues have no ready solution due to cost restraints.

The following design details attempt to take account of these issues and do not always follow the NSW EPA Guidelines for Landfills but can be technically supported / defended because of the advantageous geological nature of the site and its very favourable climatic environment.

In particular, the usual major environmental issue for landfills is the generation and potential movement off site of leachate which, at lvanhoe, is essentially non-existent.

FIGURE 1 SITE SURVEY PLAN (DECEMBER 2020)

Central Darling Shire Council has provided an up to date 0.5m contour plan of the site which is reproduced herein as Figure 1.

FIGURE 2 SITE PLAN

The area of interest of the entire property is noted on **Figure 1** and has been redrawn herein as **Figure 2** with simplified contours, excluding local stockpiles and the like.

The operational area of interest essentially varies from RL 88 and RL 89 when local excavations and stockpiles are excluded, with a possible very small gradient downwards towards the southeast.

FIGURE 3 STAGE 1 FILLING PLAN

The first essential order of business is to dewater the existing pond in the middle of the existing landfill so that this area can be accessed by the front end loader (FEL) to remove all existing waste within and to the south of the pond.

This can be done by essentially pumping the water out to the surrounding (on site) environment where it will readily evaporate and remove the key leachate contaminants of ammonia and BOD taking care to use a pump out rate that does not allow any water to leave the site.

In this regard, the existing catchment which feeds the pond needs to be excised from it by soil bunding. The very favourable evaporation to rainfall ratio only works if the area of evaporation (pond) is not overwhelmed by a large external catchment.

Once dewatered, all the existing waste to the south of main waste mass needs to be collected by the FEL and moved into the Stage 1 filling area.

Following the removal of all the waste out of the pond and into the Stage 1 filling area , place a windrow of soil about 1m or so high against the base of the Stage 1 waste southern batter as shown on **Figure 3**.

The FEL can be used to place and tamp this soil bund against the waste face such that any future rainwater that collects in this area can be pumped out as clean water as it will not have contacted any waste.

As shown on **Figure 3** the waste placed in the Stage 1 filling area should be tamped down with the FEL from about RL 89 along its east-west crest line to about RL 88 to the north.

Some form of survey markers should be placed along this crest line to give the FEL operator guidance as to what level he needs to achieve.

In order for this work to be achieved using an FEL, additional soil will need to be used to allow the waste to be pushed up and trafficked.

If necessary (and beneficially) loads of solid (concrete / other) material can be sourced from the many random stockpiles within 200m or so of the operational area to assist in building this Stage 1 shape.

Once developed the Stage 1 area should be covered with 300mm of soil as an Intermediate Cover.

FIGURE 4 SECTION A - A

A cross section through the completed Stage 1 filling area is shown on this figure.

FIGURE 5 STAGE 2 FILLING PLAN

This figure illustrates the completion of the Stage 2 filling program.

Prior to placing any waste, the pond area needs to be divided in two as shown on **Figure 5** by a soil bund.

Once the soil bund is in place, waste filling should commence from the west, moving east.

Access to the south eastern quadrant of the landfill should be restricted by the use of logs or other obstructions to control indiscriminate dumping.

As with the Stage 1 filling program, additional soil and / or local inert concrete pieces or the like can be used to allow the FEL to push up and ride over the waste.

In this regard most of the demolition materials brought to the site should be beneficially used and co-disposed with household waste to develop the various stages.

FIGURE 6 STAGE 3 FILLING PLAN

As shown on this figure, at the completion of the Stage 3 filling program, the entire area below RL 88 will have been filled and provided with a dome shape to divert rainwater off the current filling area.

At this stage the first three filling areas should all be covered with an Intermediate cover of 300mm of soil.

During these first three stages of filling, any necessary soil required to assist the FEL in shaping the Stages can be excavated from the mounded area on the southern side of Stages

1, 2 and 3 as this area will be largely excavated as part of the following excavation / filling stages.

Excavation from this area however should be carried out as a near surface stripping operation (less than 1m deep) such that the newly formed surface sheds surface water away from the landfilling area.

FIGURE 7 STAGE 4 FILLING PLAN

This figure illustrates the Stage 4 excavation and filling program when half completed.

The excavation should be carried out as a single operation with the excavated soil being placed strategically placed for later use.

The excavation should extend to RL 86, an average depth of about 2.5 to 3m.

A low soil bund will need to be placed along the top of the northern excavation face to divert rainwater runoff to the east.

Filling and access should be restricted to the western end so that the filling proceeds to the east over an advancing fill face which will need covering as it proceeds to allow trafficking by the FEL and, progressively, by householders.

Because of the depth of fill being placed during this and the subsequent Stage 5 filling program, the disposal of larger construction and demolition materials (including nearby stockpiled materials) can be beneficially placed to allow trafficking by the FEL.

During our site visit it was noted that there is a large volume of scattered small metal items (mainly tin cans and the like) across the immediately adjoining area. These could also be beneficially collected periodically by the FEL and disposed of in the landfill to help fill voids within the waste mass.

FIGURE 8 STAGE 5 FILLING PLAN

This figure illustrates the excavation and filling half way through the Stage 5 filling program.

As with Stage 4, this stage will provide a considerable volume of soil for later use during later overtopping stages.

At the completion of Stages 4 and 5 a final soil cover of 600mm can be applied (including the already placed 300mm Intermediate cover).

It will be the case that as the Stage 4 and 5 surfaces advance from west to east the surface will require local regrading (backblading by the FEL) to maintain a relatively uniform surface for vehicular access which will result in a somewhat deeper final cover.

FIGURE 9 STAGES 6 AND 7 FILLING PLANS

Stages 6 and 7 illustrate the overtopping of the previous stages to marry in Stages 4 and 5 to the south with Stage 1 to the north to form the final, domed landform.

The average depth of these filling programs will be about 2m and will proceed from west to east.

There will be excess soil available from the previous excavations and a direct covering of at least 600mm of soil as the waste face advances should allow ready access for the FEL and private vehicles.

FIGURE 10 STAGES 8 AND 9 FILLING PLAN

This figure illustrates the completed landform after Stages 8 and 9 have been filled and covered.

The sequencing of filling for these stages would be the same as for Stages 4 and 5.

ESTIMATED LIFE OF LANDFILL

TABLE 1

Stage	Void	Cover *	Net	Life **
	Capacity (m3)	Required (m3)	Void (m3)	(years)
1	1,500	300	1,200	4
2	1,000	200	800	2.7
3	1,800	360	1,440	4.8
4	5,600	1,120	4,480	14.9
5	4,500	900	3,600	12

6	2,000	400	1,600	5.3
7	1,400	280	1,120	3.7
8	2,200	440	1,760	5.9
9	3,000	600	2,400	8
Totals	23,000	4,600	18,400	61+

* an assumed cover to waste ratio of 20% has been made. Due to the necessary use of additional cover to allow the FEL to push up and ride over the waste at this site, a greater usage ratio is likely.

** an assumed incoming waste stream of 300m3 per year (200 tonnes @ 0.7 +/- tonnes per m3) has been used. The incoming waste stream may be considerably more than this.























Appendix 3 - Aerial Site Plan



Appendix 4 – Waste Placement Technique



Note -- Tamp down the exposed waste with the FEL bucket from the top and then, if accessible, from the toe area push any loose waste into the leading face. Then tamp in the exposed waste with the FEL bucket. Scatter some soil over the leading face from the top (and from the bottom, if accessible) after tamping is completed. This will save cover material and reduce windblown litter

WASTE PLACEMENT TECHNIQUE USING FEL ONLY

Appendix 5 - Protection of the Environment Operations (Waste) Regulation 2014

80 Disposal of asbestos waste

(cf clause 42(4) of 2005 Reg)

- (1) (Repealed)
- (2) When a person delivers asbestos waste to a landfill site, the person must inform the occupier of the landfill site that the waste contains asbestos.
- (3) The following persons must ensure that when a person unloads or disposes of asbestos waste at a landfill site (regardless of whether the site is subject to an environment protection licence) no dust is generated from the waste—
- (a) the person unloading or disposing of the asbestos waste,
- (b) the occupier of the landfill site.
- (4) Subject to any alternative cover conditions provided in an environment protection licence held by the occupier or approved in writing by the EPA, the occupier of a landfill site must ensure that asbestos waste disposed of at the site is covered with virgin excavated natural material—
- (a) initially (at the time of disposal), to a depth of at least 0.15 metre, and
- (b) at the end of each day's operation, to a depth of at least 0.5 metre, and
- (c) finally, to a depth of at least 1 metre (in the case of bonded asbestos material or asbestos-contaminated soils) or 3 metres (in the case of friable asbestos material) beneath the final land surface of the landfill site.
- (5) In this clause, *landfill site* means a landfill site that can lawfully receive asbestos waste.

Appendix 6 – Example of Suitable Mobile Litter Fencing





January 2021

Robert Bailey Consulting Port Macquarie NSW 0448737383

Central Darling Shire Council Waste Facilities Operations Strategic Plan

Contents

1.	Summary	4
2.	Purpose	6
3.	Overview of current operations	6
4.	Current and Emerging Influences	8
5.	Proposed changes to Key Performance Areas	9
5	5.1 Landfill Rationalisation (White Cliffs, Wilcannia, Ivanhoe, Menindee, Tilpa and S	unset
S	Strip Waste Facilities)	9
	5.1.1 Landform Design	11
	5.1.2 Filling Plans	12
	5.1.3 Final Capping	12
	5.1.4 Leachate Management	12
	5.1.5 Master Planning	13
	5.1.6 Plant and Waste Placement	13
	5.1.7 Staff Training	15
5	5.2 Waste Minimisation and Resource Recovery	16
5	5.2.1 Cost Benefit	16
	5.3 Organics Management	16
	5.3.1 Overview	16
	5.3.2 Organics Management Plan	17
	5.3.3 Improvement Works	17
	5.4 Resources	19
	5.4.1 Overview	19
	5.5.2 Financial Modelling	19
6.	Appendix 1 – Waste Placement Technique	26
Ap	pendix 2 - Pollution Defence	27

1. SUMMARY

This Strategic Plan is the overarching document that provides direction for the future management of the waste facilities operated by Central Darling Shire Council. It establishes the principles from which long term plans of management have been developed for five of the six existing waste facilities and proposes the preparation of a closure plan for the waste facility at Sunset Strip, the site being closed and the area rehabilitated. Many of the elements within this suite of documents are interrelated and have strategic direction linkages

There will be two phases to the future operations of the waste facilities. The first phase will be in re-instating the sites to an improved standard after which deposited waste materials can be pushed up, compacted, shaped and covered on a regular basis. Geotechnical engineer, Robert H Amaral has developed concept designs for these improvements which form part of the long term plans of management for each facility. For some sites, the attainment of initial works that enable the improvements may require the engagement of contractors with suitable plant, such as a dozer, excavator, tip trucks and loader.

As general principles, litter should be contained and collected routinely and the stockpiles of separated materials formalised or landfilled. Only materials that have potential for beneficial on site re-use or transporting off site for re-processing should be separated and stockpiled. Activity areas should be rationalised, concentrated and not spread throughout a site.

The second phase will be the ongoing operation and development of the waste facilities in accordance with the concept designs as prepared by consulting geotechnical engineer, Robert H Amaral that are contained within the long term plans of management for each facility. The objective is for sites to be maintained to an acceptable standard which will include the routine pushing up and covering of the deposited waste materials. Operational budgets may need to be reflective of the increased frequency of such works at some sites.

The theme of this strategic plan reflects the resource constraints that confront Council in the delivery of all services, including waste services. The Shire has a very large geographical area, a small population, significant distances between towns and villages, many connecting roads are not sealed, a limited rate base from which to draw income streams and a part reliance on government support.

The financial modelling included in this strategic plan suggests a direction for Council if adopted that should be affordable, be environmentally sound, will not require the purchase of specialist plant, will continue with existing or improved service standards and not rely solely on contractors or on government assistance. The likely cost of delivering the milestones prepared within the long term plans of management for the waste facilities at Wilcannia, Menindee, lvanhoe, Tilpa and White Cliffs and for the closure of Sunset Strip have been reflected into the modelling.

A number of assumptions were made in developing the model and the model cannot be absolute in its assessments because of the variables in distances, availability of plant, the results of community consultation, changes to Government legislation, plant hire rates, contractor performance and others. The model also relies on information provided by Council in its preparation. However, the model does provide relative comparisons of the likely financial effect of undertaking particular works. There is always the "do nothing" option and for Council to continue to accept the risks. In recent consultations where changes to legislation have been enacted, the Environment Protection Authority (EPA) has made it clear that their preference is for smaller waste facilities to be closed and larger waste facilities to be secured and controlled, that is, access is limited only to times when there will be an operator's presence on site to supervise activities and the sites are capable of being locked and access denied. Having a controlled and supervised site is fundamental in mitigating many of the risks associated with the operation of the waste facilities. Although it is desirable to have the sites supervised and controlled, this endeavour has been tried in recent years by Council and the approach abandoned for a variety of reasons. Having uncontrolled and unsupervised site is a risk. Should this approach continue to be the case, Council will rely on the provisions within the POEO (Waste) Regulations 2014 whereby it is considered a defence (pollution defence) if the waste facility includes measures to reduce fire risk, reduce odour, noise and dust, control public access to the site and generally maintain the facility. This strategic plan provides Council with measures that would help support a pollution defence.

Paramount in the in the delivery of change will be in the undertaking of stakeholder engagement where change is proposed. This particularly relates to the closure of the Sunset Strip waste facility and where Council staff will be required to adopt changed practices in the manner in which the landfills are operated. A stakeholder engagement plan has been prepared that provides Council with guidance on undertaking engagement and the implementation will be an important endeavour. It is unlikely that any change to existing services and practices will receive universal agreement, however reaching general consensus should be the objective and encouraging stakeholder input a priority. When embarking on engagement, the more data and information that can be presented will enable stakeholders to be better informed and limit speculation. In this regard, Council should consider engaging geotechnical engineer Robert Amaral to train/educate staff who will be given the responsibility for delivering this strategic plan and the accompanying long term plans of management and for the ongoing monitoring of progress to ensure the intent of the Plans are being met

The key objectives of this strategic plan are to-

- 1. close and rehabilitate the Sunset Strip waste facility and to provide long term aftercare
- 2. operate the waste facilities at Wilcannia, White Cliffs, Tilpa, Ivanhoe and Menindee in accordance with the long term plans of management as prepared for each site and to deliver the milestones as proposed
- 3. develop and deliver training plans for waste staff and contractors
- 4. manage green waste in a manner that will not present a legacy issue
- 5. manage waste concrete in a manner that will not present a legacy issue
- 6. manage used tyres in a manner that will not present a legacy issue

- 7. adopt the "waste placement technique" as shown in Appendix 1
- 8. develop an asbestos policy
- 9. install standardised informational, directional and instructional signage at each site
- 10. adopt operating measures that will support "pollution defence" including the procurement and installation of CCTV monitoring at the waste facilities
- 11. procure and place mobile litter fences to contain windblown litter
- 12. rationalize and concentrate activity areas

2. PURPOSE

Central Darling Shire Council has engaged Robert Bailey Consulting and Robert Amaral Geotechnical Engineer to prepare a strategic plan for the future operation of Councils waste facilities and to develop long term plans of management for each individual facility that will include concept designs for the progressive staged landfilling and establish milestones in the attainment of the final landforms. These documents will provide guidance in the development of the waste facilities over many decades and will enable succession planning as personnel transition to and from Council

3. OVERVIEW OF CURRENT OPERATIONS

3.1 White Cliffs, Wilcannia, Ivanhoe, Tilpa, Menindee and Sunset Strip Waste Facilities

Staffing

Council's waste facilities serve relatively small populations with Wilcannia and Menindee at around 550 persons being the larger and Sunset Strip at about 85 and Tilpa (district) at 44 being the smallest. The quantities of waste being managed at the sites are therefore not major and it would be difficult to justify having the facilities controlled and supervised, perhaps with the exception of Wilcannia, Ivanhoe and Menindee.

The White Cliffs and Tilpa landfills are relatively well managed and are reflective of Council staff assuming responsibility and accountability for the operations of the facilities. For Wilcannia, Ivanhoe and Menindee, these waste facilities are not particularly well operated and the day to day management responsibility of these landfills should be delegated to specific Council personnel. Those given the responsibility for the management of the landfills should become familiar with the long term plans of management for each site and be accountable for the adoption of the changed practices. Equally, field staff who undertake the on-site activities should become familiar with the objectives of the long term plans of management and be trained in waste placement, landform shaping, compaction and covering

The management of the Sunset Strip waste facility is performed under a partnership agreement between Central Darling Shire Council and the Sunset Strip Progress Association. The site is not well managed and there is a noted failure to prevent fires, failure to report a pollution event, a failure to provide fall protection, a failure to prevent windblown litter and a failure to prevent the depositing of prohibited substances. Residents of Sunset Strip receive a discount to their domestic waste management charge in exchange to the Progress Association undertaking the landfill management. It should not be assumed that Council can simply abrogate its responsibilities by engaging the Progress Association to operate the waste facility.

Retained Above Ground Wastes

At present, most waste facilities generally separate and stockpile green waste, scrap metal and used tyres. With the exception of scrap metal, there are no plans for the re-use or recycling of these materials. Contamination is an issue as is the potential to attract contractors to process the green waste and to a lesser extent, collect the scrap metal. The two main options are to control contamination and pay the cost of re-processing green waste for beneficial on-site re-use for erosion/dust control or as re-vegetation medium or to confine the materials to landfill. If directly landfilled, green waste would consume a large amount of void space if not well compacted and would require a significant quantity of ENM to effectively cover the material once landfilled.

As an alternative to shredding and to save costs, when suitable plant is available, that is larger plant with tracks such as dozer or excavator, the stockpiled green waste can be spread, larger items of contamination removed and the green waste broken up using a number of passes of the track machine. The broken up green waste can then be landfilled or placed on top of capped surfaces, depending on the quality of the finished product to control dust and erosion. It may also be used as cover as a substitute to ENM.

The regional waste group NetWaste has a contract in place for the shredding of green waste however Central Darling Shire is not a participant. NetWaste has obtained prices from a contractor for the shredding of used tyres, however it is dependent on a number of Councils participating. Central Darling may need to work in conjunction with neighbouring Councils such as Cobar and Broken Hill if this option is to be pursued. Placing small quantities of used tyres on the floor of the landfill and covering as the waste mass progresses in an alternative for the disposal of waste tyres.

Existing Plant

It is evident that the placing, compacting, shaping and covering of general waste is somewhat difficult when using the types of plant currently available for use at the various landfills. Council generally relies on using front end loaders (FEL) in the operations of the landfills. It is understandable that Council relies on multi-purpose items of plant given the constraints faced and the significant distances between the waste facility sites. Improvements to the manner in which the FELs are used and improved techniques of waste placement are provided in the long term plans of management and demonstrated in Appendix 1 of this Plan.
Waste Collection Services

The availability of a domestic waste collection service is limited to the towns of Wilcannia, Ivanhoe and Menindee where a weekly collection of residual household waste is provided using Council day labour. New collection vehicles were purchased in recent years for each town and are being written down over 20 years. There is no kerbside recycling or organics collections offered to residents and no near term intention to consider the introduction of these services. There are approximately 700 services provided to residents living within the collection areas and an annual domestic waste management charge (DWMC) of \$470 is applied. All collected household waste is taken to the local waste facilities for disposal. Should the Sunset Strip waste facility be closed, the domestic waste collection service at Menindee should be extended to include Sunset Strip residences and potentially other residences or businesses along the route. The distance from Menindee to Sunset Strip is around 18 kilometres.

4. CURRENT AND EMERGING INFLUENCES

There are a number of current and emerging factors that will have an influence on how Council approaches the management of its waste facilities. The NSW Government's current ambition of improving environmental performance of waste facilities through a recent revision of the POEO (Waste) Regulations 2014, by increasing resource recovery through the expansion of the Waste Levy and by controlling the spread of weeds through the Raw Mulch Exemption. All of these measures contribute to a level of complexity as to how Council will need to operate its waste facilities into the future.

4.1 Licensing Requirements

For Central Darling Shire Council's waste facilities, there is no requirement to licence the sites under current legislation, however, changes introduced to the POEO (Waste) Regulations in November 2014 place greater emphasis on mitigating risks in the operation of landfills under the banner of "pollution defence". It is considered a defence if the landfill is being operated in accordance with the requirements as prescribed in the (Waste) Regulations in that mitigation measures have been put in place for the management of dust, odour, prohibited wastes, uncontrolled access, surface/ground water pollution and fires in order to achieve a measurable degree for "pollution defence".

4.2 Raw Mulch Exemption

For Central Darling Shire Council the Raw Mulch Exemption is hardly relevant whilst ever Council does not shred the green waste that has been delivered to the waste facilities and to sell or give away the shredded product. The stockpiles of green waste retained on the Wilcannia, Ivanhoe and Menindee sites are being grossly contaminated with general waste and would not be suitable for shredding and a contractor may be reluctant to shred the material and risk damage to his plant. Shredded green waste can be beneficially re-used within waste facilities for erosion control, dust suppression, berm formation and as a revegetation medium as part of the landform final capping. Alternative procedures for the management of green waste are included into the long term plans of management for the various waste facilities

4.3 Section 88 Waste and Environment Levy

Under Section 88 of the *Protection of the Environment Operations Act 1997* (POEO Act), occupiers of certain scheduled waste facilities are required to pay the waste and environment levy.

Originally relevant only to the Sydney Metropolitan Area (SMA) and then to the Extended Regulated Area (ERA) (Illawarra to the Hunter) the levy was further expanded in July 2009 to incorporate what is now know as the Regional Levy Area (RLA) and includes the north coast Local Government Areas (LGA) from Port Stephens to the Queensland border as well as the Blue Mountains and Wollondilly LGAs.

Although a further expansion of the levy area is re-visited by authorities from time to time, it is most unlikely Central Darling Shire will be included in any future expansion

5. PROPOSED CHANGES TO KEY PERFORMANCE AREAS

5.1 Landfill Rationalisation (White Cliffs, Wilcannia, Ivanhoe, Menindee, Tilpa and Sunset Strip Waste Facilities)

A strategic plan should examine the "need" or "strategic alignment" for a particular service or operation to be certain a continuation, expansion, introduction or cessation is warranted. For Central Darling Shire, an overview of the existing waste facilities demonstrates a general geographic spread of facilities that aligns with the centres of population, with the exception of the Sunset Strip waste facility. The Sunset Strip waste facility is located within about 18 kilometres of Menindee. The following table 1 examines the benefits and detractions of closing the Sunset Strip waste facility or continuing to operate the facility

Table 1

Action	Benefit	Detraction	Risk
Prepare a closure plan	Closure of the landfill	Residents at Sunset	Residents become vocal
for the Sunset Strip	and rehabilitation of the	Strip will need to take	in their opposition to
waste facility. Prepare a	site will result in an	bulky wastes to the	the closure of the waste
Stakeholder	environmental	Menindee waste facility	facility (mitigate the
Engagement Plan.	improvement	for disposal	risk by undertaking
Enact engagement.			stakeholder engagement
Consider stakeholder	Risks will be mitigated	Some residents of	in accordance with the
input. Make a		Sunset Strip may	stakeholder engagement

1	G '1 '11 '	4 1 0	1
determination. Prepare	Council will no longer	oppose the closure of	plan)
a report to Council	have an administrative	the waste facility	
recommending the	obligation		
closure of the Sunset		There may be some	
Strip waste facility in	The domestic waste	initial illegal dumping	
accordance with the	collection service	of household waste near	
closure plan should this	would be extended to	to the closed facility	
be the determination	include residents of		
Notify the Sunset Strip	Sunset Strip providing		
Progress Association	an improved means of		
(SSPA) of the report	waste disposal		
and the date it will be			
considered, advising	The full Domestic		
that submissions will be	Waste Management		
accepted prior to the	Charge (DWMC) will		
meeting. Council	apply to Sunset Strip		
makes a determination.	residents		
Implement the Council			
resolution.	There will be no		
Submit the closure plan	ongoing cost in		
to the EPA for approval	operating the waste		
before undertaking	facility. Saving can be		
closure actions if this is	used towards the		
Council's resolution.	expanded collection		
	service and for		
	operational		
	improvements at the		
	Menindee waste facility		
	Residents and business		
	on the route between		
	Menindee and Sunset		
	Strip may be entitled to		
	receive the collection		
	service		
	The EPA generally		
	support the closure of		
	small village landfills		
	e		
	Better utilisation of		
	Council's domestic		
	waste collection vehicle		
Business as Usual.	For Council, the day to	Council continues to be	A failure of the SSPA
(BAU) Council	management of the	at risk from an	to prevent fires
continues with the	waste facility is	agreement where the	•
partnership agreement	undertaken by a third	management of the	Uncontrolled fire
with the SSPA to	party relieving Council	waste facility	spreads beyond the
operate and manage the	of the management	underperforms the	waste facility
Sunset Strip waste	obligations	requirements of the	boundaries
facility		EPA Environmental	
	For Sunset Strip	Guidelines: Solid Waste	Environment Protection
	residents, they receive a	Landfills (2 nd edition	Authority (EPA)

substantial reduction in	2016) and Regulations	"caution" or Penalty
the DWMC as an offset	(Waste) 2014 made	Infringement Notice
to the facility	under the POEO Act	(PIN) as a result of a
management	1997	failure to report a
obligations		pollution incident (eg
-	Management fees are	fire)
Convenience for	recurring	
residents to dispose of	-	A failure of the SSPA
bulky wastes	Loss of potential	to provide and maintain
-	savings that could be	fall protection. Injury to
	used to support an	facility users
	extension of the	
	domestic waste	A failure of the SSPA
	collection service and	to control windblown
	improvements to the	litter. EPA notice,
	operations of the	caution or PIN
	Menindee waste facility	
		A failure of the SSPA
	Residents require to self	to prevent prohibited
	haul household waste	wastes from being
	for disposal	deposited at the landfill
		•
	The landfill is in close	
	proximity to the	
	residential development	
	(spread of fire, rodents,	
	flies, odour, dust)	

Summary - The "need" to retain the Sunset Strip waste facility is difficult to justify given the potential risks, the relatively close proximity to an alternative waste disposal facility and the ease at which a domestic waste collection can be extended to Sunset Strip from its operating base in Menindee some 18 kilometres away

Environmental - the environment would be improved should closure occur. Any illegal dumping should be addressed as soon as reported or detected, that is, waste removed to Menindee landfill, dumping investigated and the law applied to perpetrators

Financial – recurrent savings should be realised with the site closure and these funds used towards the provision of a domestic waste collection service to the Sunset Strip residents and for operational improvements at the Menindee waste facility.

Social- a kerbside general waste collection service would be a benefit to residents

Conclusion - close and rehabilitate the Sunset Strip waste facility

5.1.1 Landform Design

Filling plans are in effect the individual building blocks placed in a defined sequence that deliver the final landform design. For all Council's sites, where the method of waste disposal is an excavation and fill on relatively flat ground, the sequence is not critical nor the final landform

overly complicated. For the foreseeable future, the landfills will progress as a series of trenches or within existing voids and the final landform designed as a domed cap that can be shaped to shed surface water. Final landform designs will be incorporated into individual long term plans of management for each waste facility

A closure plan has been prepared for the Sunset Strip waste facility should closure be Council's determination

5.1.2 Filling Plans

The current method for waste disposal at all of Councils sites is to undertake large excavations, fill the voids with general waste and cap using the ENM overburden. The current voids at Wilcannia, White Cliffs, Menindee and to a lesser extent, Ivanhoe, will not be fully consumed for a number of years, The long term plans of management as prepared for each site will include concept filling plans that will provide guidance on the progressive landfilling for the site. Returning Ivanhoe and Wilcannia landfills back into workable shapes will require detailed concept designs. However, once the current excavations have been filled, future trenching should become much simpler. Although the unit rate to undertake large excavations is more economical then for smaller trenches, the large voids are more difficult to control and operate compared to the smaller trenches. Mobile litter fencing can be placed in near proximity on three sides, waste placement controlled and a tipping face maintained

5.1.3 Final Capping

The current EPA Environmental Guidelines: Solid Waste Landfills (2016) requires the capping to commence within 30 days of completion of landfilling in that area. As Council will continue with the trench/existing void place and fill method, applying a final cap and re-vegetating the existing landfill footprints should be undertaken. The primary environmental goal for site capping and re-vegetation according to the EPA Guidelines is "remediating landfill after closure". Capping will require the site to be shaped to allow for post closure settlement and to shed surface water. A re-vegetation medium (shredded green waste would be suitable) should be applied across the surface to encourage plant growth. Seeding with local native species or grasses should be considered, though natural re-vegetation is likely to occur from remnant plants located near to or within the sites. The design for final capping will be included into the long term plans of management for each site

5.1.4 Leachate Management

The existing landfill footprints do not have constructed leachate collection systems and there is no requirement under the current EPA Environmental Guidelines: Solid Waste Landfills (2016) to install a leachate collection system for the types of waste facilities operated by Central Darling Shire Council. Without leachate collection systems, landfill operators rely on adopting best practice landfill operating procedures, which include keeping the active tipping face to a minimum size, diverting surface water away from the active tipping area, placing and compacting intermediate cover (intermediate cover is required to be placed to a depth of 300 mm over surfaces that will be exposed for more than 90 days), applying daily cover and achieving compaction rates greater than 650 kgs per cubic metre. These practices will be

included into the concept designs of the long term plan of management for each waste facility to ensure leachate is kept to a minimum and there is little risk of groundwater or surface contamination.

5.1.5 Master Planning

Having a long term plan of management for a waste facility is a valuable tool in the designed development that would help ensure the progressive construction of infrastructure follows a logical process. It would improve the likelihood of structures being established with sensible interrelationships, orientation, sequencing and scale.

For townships that have static or declining populations which is representative of the townships within for Central Darling Shire, it is unlikely that master planning is necessary, however there are some basic principles that should be followed that consider interrelationship, traffic flow and drop off sequencing. Activity areas should be clustered to improve operations and to limit unnecessary activity area expansion, drop off areas should have resource recovery at the initial part of a loop and disposal at the end of the loop.

It is proposed in this strategic plan that only scrap metal will be stockpiled for transportation off site for re-processing and green waste temporarily stockpiled, then routinely broken up using a track machine and then landfilled. The better quality crushed material could be used on top of disturbed surfaces to control dust and erosion. Small quantities of tyres can be placed on the landfill floor and progressively covered by the waste mass.

5.1.6 Plant and Waste Placement

For landfills where relatively small quantities of waste are received, that is less than 5000 tonnes per annum, a universal item of plant suitable to manage these wastes would be a traxcavator (crawler loader), such as a Cat 953 K. A traxcavator with a four in one bucket could be used to place and spread the waste at the active tipping area in shallow layers and to compact the waste Compaction rates of 650 kilograms per cubic metre could be achieved and a more uniform finish maintained that would require a minimum of daily cover material. Well compacted waste would be less likely to generate windblown litter and would have reduced post closure settlement.

The traxcavator could be used to construct stormwater diversion berms, pre-strip the landfill floor, shape and grade the intermediate cover, push up the green waste/metals stockpiles, load trucks/trailers and a range of other activities in addition to placing and compacting waste.

However, the cost of purchasing, maintaining and transporting one or more dedicated traxcavators between waste facilities would be significant as opposed to utilising Council's existing plant of FELs and adopting a specific waste placement and covering technique. Such a technique is included as an attachment to this Plan as well as inclusion into the long term plans of management for each waste facility, where appropriate. The provision and use of FELs could be undertaken by Council using day labour or by contractor.

The following table 2 examines the benefits and detractions of various methods of site management and the types of plant and the alternative waste placement techniques

Table 2

System	Benefits	Detraction	Risk
Write a landfill	All day to day	Contracts need to be	No interest from
management tender	management	managed by Council	contractors in the tender
specification. Call	obligations rest with the	staff to ensure the	process
tenders and appoint a	contractor freeing up	services are being	
contractor on a 5-10	Council staff time	delivered in accordance	Contractor default
contract. Specify		with the specification	
outcomes such as	The contractor recruits		Contractor fails to
compaction rates,	and manages staff.	Annual performance	deliver the specified
covering, attendance	Deals with HR matters	reviews to be	outcomes
frequency, litter		undertaken by Council	
management. Apportion	The contractor procures		Council should not call
landfill management	and maintains suitable	"In contract" variations	for tenders unless there
responsibilities	plant. Sources	can be expensive	is an intention to
	replacements in the		proceed. Should the
	event of plant	The specification	tendered prices be
	breakdown	would include defined	beyond Council's
		outcomes with limited	capacity to pay, then
	Contractor can provide	flexibility.	Council does not
	quality assurance in		proceed, there is
	keeping with the	There is a high	reputational loss
	specified outcomes	probability that the cost	
		would be beyond	Contractor failure to
	One contract may	Council's willingness to	report a pollution event
	include the	pay	(for a range of reasons)
	management of		
	multiple sites		
	Consumption of void		
	space and consumption		
	of cover material is		
	defined in the		
	specification and can be		
	measured		
Council operates the	Council can use	Staff need to be trained	Failure to deliver the
landfills using day	existing plant and field	in the delivery of the	long term plans of
labour and existing	staff and adjust site	long term plans of	management because of
plant. Council FELs	attendances as required.	management and the	 - *lack of staff training
used at Wilcannia,		waste placement	* underfunding
Ivanhoe and Menindee	Costs are currently	techniques	* failure to commit
and occasional	known and can be		
contractor FEL at White	controlled as needed.	Budgets would need to	
Cliffs to supplement		be increased to be able	

bobcat and mini	No need to purchase	to achieve the desired	
excavator. Occasional	specialist plant or train	outcomes	
dozer used at Tilpa	staff in its use		
Waste placed in $2 - 2.5$			
metre rises, top down	No need to re-deploy		
and "cliffed" face	staff or make		
achieved. Waste	redundancies as work		
compacted using	practices will continue		
downward pressure			
from the bucket when			
height is achieved.			
Cover applied to			
"compacted" waste as			
the tipping platform			
advances. Cover			
dropped over "cliffed"			
face at the end of the			
process to control litter.			

Conclusion – on balance, the approach most likely to deliver the best outcome given Council's resource constraints is - Council operates the landfills using day labour and existing plant, adhering to adopted concept filling plans and placing/covering waste in accordance with defined waste placement technique

5.1.7 Staff Training

It is incumbent on Council to ensure staff and contractors associated with the operations of the waste facilities are knowledgeable in the content of site management documents, have been trained in their implementation and are competent and capable in their delivery.

Long Term Plans of Management (LTPoM) have been prepared for all of Council's waste facilities and provide guidance on waste placement and compaction, principles to follow to minimise the production of leachate and the rehabilitation of previously disturbed areas. Council staff should be aware of the content and objectives of these LTPoM and be versed in the implementation.

It is therefore important that training, both start up and refresher training forms part of Councils standard procedures in the operation of the waste facilities

Conclusion – develop training plans for waste staff and contractors. This may take the form of engaging the geotechnical engineer who prepared the concept filling plans for the waste facilities to deliver initial training and knowledge

5.1.8 Litter Management

Fixed litter fences have been established in the vicinity of the active tipping areas at some sites and at the perimeter boundaries of other sites and retain much of the windblown litter coming from the active tipping areas. The litter contained against the litter fencing continues to accumulate and there is no program established to regularly collect and landfill the litter. Mobile litter fences are more effective, can be placed in close proximity to the active tipping areas and re-located as the tipping platform moves

Conclusion – Procure mobile litter fences and positioned fencing near to the active tipping areas to prevent the spread of windblown litter. Develop a program whereby the accumulated litter is collected routinely and landfilled

5.2 Waste Minimisation and Resource Recovery

5.2.1 Cost Benefit

There have been many studies that demonstrate the benefits of recycling and the NSW EPA has a calculator on its website that shows the value in monetary savings for recycling household materials. The key driver for Councils to provide kerbside or drop off recycling services in their communities is residents "feeling good" through their recognising the environmental benefits of recycling and by making a contribution to environmental sustainability from their own actions. There are many benefits to waste minimisation and recycling but it needs to be put in context.

Conclusion - For Central Darling Shire, the small population coupled with long distances between towns and villages together with large transport distances to recycling processing centres basically make most recycling initiatives non viable with the exception of the collection of scrap metal at the larger waste facilities and "return and earn" at Wilcannia

5.3 Organics Management

5.3.1 Overview

Statistics support the view that approximately 40% of the waste stream consists of organic material. This can be in the form of garden waste, lawn clippings, food waste, construction timber, pallets, poles, posts, bark, saw dust, mill wastes etc. The potential to recover these

material types, effectively manage contamination and reduce the quantity of organic material going to landfill is significant and cannot be understated. There is the reality however that each phase in the recovery, processing and re-use of organic wastes has a corresponding direct cost. Achieving a balance where environmental and social benefits equal or out way the costs of recovery, processing and re-use is the challenge confronting any Council

It is also important to understand that the processing of inert manufactured timber waste and garden waste requires a lower order of environmental control compared to the processing of organic waste containing food. Generally speaking, where food is involved processing systems are required to be enclosed, such as in tunnels, within impermeable fabric or other forms of covers to control odour, vermin, leachate and vectors. Simple systems, such as windrow composting, are not generally suitable where food waste is included.

Equally, the Raw Mulch Exemption limits the uses for shredded organic waste unless it complies with AS 4454 (Composts, Soil Conditioners and Mulches). However, shredded green waste (mulch) can be used beneficially at the waste facilities for a range of beneficial re-use purposes

5.3.2 Organics Management Plan

Fundamental to the future management of organic waste is in the balance of the cost to landfill this material with the corresponding consumption of landfill void space as opposed to the cost of segregating and shredding the organic waste for beneficial re- use in the operations of the landfill. The difficulty confronting Council is the fact that the waste facilities are not controlled nor supervised. The reality is that this status is unlikely to change in the near to medium term and the consequence is that separated green waste becomes highly contaminated. Contractors are unwilling to shred the material for fear of damage to their plant and any material that may be shredded is contaminated with foreign material There is little point in separating green waste, break it up and landfill the poorer quality product and use the better quality product for erosion/dust control or for covering waste.

Conclusion – green waste can be separated and stockpiled as a temporary measure. When suitable plant is available, that is larger plant with tracks such as dozer, excavator, the stockpiled green waste is spread, larger items of contamination separated and the green waste broken up using a number of passes of the track machine. The broken up green waste is then landfilled or placed on top of capped surfaces, depending on the quality of the finished product

5.3.3 Improvement Works

The long term plans of management prepared for the individual waste facilities have identified areas where improvement works need to be undertaken as a first priority to ensure the future

operation of the facilities can proceed to deliver cost benefits and improved environmental outcomes. These are defined in the LTPoM as "milestones"

In general, these works relate to the winning of cover material before future waste is placed or re-shaping and covering existing waste. The Amaral concepts plans contained in the respective LTPoM provide guidance on these improvement works.

At this stage, these works (milestones) are likely to be unplanned expenditures and may require Council to apportion funds to enable the works to proceed. The likely cost of these works is included into the financial modelling contained in Part 5.4 of this strategic plan and within the individual long term plans of management.

Conclusion - operate the waste facilities at Wilcannia, White Cliffs, Tilpa, Ivanhoe and Menindee in accordance with the long term plans of management as prepared for each site and deliver the milestones as proposed

Summary of Actions

- 1. close and rehabilitate the Sunset Strip waste facility and provide long term aftercare.
- 2. extend the domestic waste collection service to include residences at Sunset Strip
- 3. Council operates the landfills using day labour and existing plant, adhering to adopted concept filling plans and placing/covering waste in accordance with defined waste placement technique
- 4. develop training plans for waste staff and contractors. This may take the form of engaging the geotechnical engineer who prepared the concept filling plans for the waste facilities to deliver initial training and understanding
- 5. procure mobile litter fences and positioned fencing near to the active tipping areas to prevent the spread of windblown litter. Develop a program whereby the accumulated litter is collected routinely and landfilled
- 6. recycling initiatives are to be limited to the collection of scrap metal at the larger waste facilities and "return and earn" at Wilcannia
- 7. green waste can be separated and stockpiled as a temporary measure. When suitable plant is available, that is larger plant with tracks such as dozer, excavator, the stockpiled green waste is spread, larger items of contamination separated and the green waste broken up using a number of passes of the track machine. The broken up green waste is then landfilled or placed on top of capped surfaces, depending on the quality of the finished product
- 8. operate the waste facilities at Wilcannia, White Cliffs, Tilpa, Ivanhoe and Menindee in accordance with the long term plans of management as prepared for each site and deliver the milestones as proposed
- 9. adopt measures to enable "pollution defence" to be demonstrated, including the procurement and installation CCTV stations at the Menindee, Ivanhoe, Wilcannia and White Cliffs waste facilities

5.4 Resources

5.4.1 Overview

Council's ambitions for waste management and the resourcing to enable the delivery of those ambitions need to be in balance. The implementation of the "milestones" that will deliver the strategic plan need to be in balance with Council's adopted time frame and the available resources. Achieving this balance will be essential if the strategy delivery is to align with expectations. For this reason, the strategic plan is not overly ambitious. The focus is sustainability and working with the resources that are available to achieve realistic outcomes

Those given the responsibility of delivery will need to have the capability, the capacity and the commitment to do so. Capable means skills and knowledge, capacity means depth of resources and commitment means a pressing desire to deliver. The strategic plan will provide the pathway to deliver the adopted ambitions, but the implementation will rest with Council. Success will depend on support from Council and at the Executive and Management levels in providing capability, capacity and commitment.

The strategic plan implementation programs will require effort in their delivery by sufficient staff with the necessary specialist skills. This may require a revision of the roles and responsibilities of current staff and the engagement of additional human resources, either contractors or staff, for the delivery phases. It may also require an investment in current staff through skills development.

Financial modelling will be a valuable tool in predicting future operational income, operational expenditure and proposed capital works. A financial model has been prepared based on the 2020/21 Waste budget and the 2019/20 actual incomes and expenditures. This baseline model has been adapted to reflect the cost of the key proposed actions identified in this strategic review and should be used as a guide to the cost implications of adopting the defined pathways.

5.5.2 Financial Modelling

The financial model is simply a spreadsheet and Council can modify the model to reflect alternative approaches. The model is simply a tool to help predict the effect of proposed actions and the ensuing result to the bottom line and is based on information provided by Council together with assumptions.

How to Read the Financial Models

The recurrent income streams have been taken from information provided by Council based on the 2019/20 actual financials and the 2020/21 budgets for Waste. An annual increase of 2% has been applied in line with the Consumer Price Index (CPI).

Operational expenditures have been added where additional works are required at the waste facilities to reflect improvements to the landfill operations.

The cost of capital works has been included where capital improvements are required and much of the cost assessments are based on the estimates from similar activities undertaken at other Council sites or relevant information obtained by contractors in the waste industry. The cumulative effect of operational income and operational expenditure is shown at the bottom line of "balance of reserves". Council should establish a Waste Reserve to ensure depreciation provisions are retained to enable the future requirements for capital purchase to be met. Any shortfall in operational income would need to be addressed by increasing fees and charges and the quantum of these increases would reflect into the Domestic Waste Management Charge payable by residents. Introducing gate fees at the waste facilities for domestic, commercial, industrial and demolition wastes has not been considered given this was tried in the recent past and subsequently abandoned..

Assumptions

- Sums identified in the LTPoM milestones are provisional sums only and are based on comparable industry costings
- The Sunset Strip waste facility will be closed, annual savings will be used in part to
 provide a domestic general waste collection service and part will be added to the
 operations of the Menindee waste facility
- Operational budgets for the Wilcannia, Menindee and Ivanhoe waste facilities will increase by 30% in order to achieve the LTPoM improvements.
- White Cliffs and Tilpa waste facilities will operate under current budgets
- Grant funding will become available for the provision of CCTV surveillance to the Wilcannia, White Cliffs, Ivanhoe and Menindee waste facilities
- Grant funding will become available for the procurement of litter fences for the Menindee, Ivanhoe and Wilcannia waste facilities

Baseline Financial Model

Central Darling Shire Council - Was	ste Manageme	ent Long Ten	m Financial F	lan - Base Ca	ise							
CPL for moome forecasts				- 250.	299	296	2%	250	2%	2%	.2%	24
	Job Number	Actual	Budget	Foremast.	Foredast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Farekist
		2018/20	2020/21	2021/22	2022/23	2023/24	2024/25	20,25/26	2026/27	2027/28	2024/25	2025/26
Income												
Annual Charges												
Printa Charges		103,348	003,400	615,468	627,222	640,333	653,140	666,202	679.526	693,117	706,979	721,119
				0	0	0	0	2	0	0	0	0
				0	0	D	3	a	п	0		0
				-0	- <u>a</u>	D	α	0	0	0	1	0
Manager and the second				U.	D	B	0	1	п	0	0	0
Sub-total Doniestik, Garbage Charges		100,348	c0.3.40G	615,463	627,277	540.333	053,140	666,202	0,79,526	693,117	706,979	\$71,119
Table Barris												
Tipping rees			88.000			-					ma rina i	
		20,401	00,401	20.5/0	37,702	20,600	60,033	01,233	0.0.408	113,702	09,991	00,051
									u m		u a	0
Sub-Jurial Francis Pous	_	55.461	252 463	55.570	20 20 2	24 415	60.037	61 222	52.459	62 207	A4 941	105.221
Can when of the Williams			55,85	34,370	271744	30,000	50,255	01,715	JAN ANI	11.447.07	54,0411	(Bolycos)
Total Income		658,809	658,861	67,2,038	685,479	699,189	713,172	727,436	741,984	756,824	771,961	787,400
CPI for expenditure forecasts				236	256	295	2%	2%	2%	2%	255	7%
Expenditure										17.		
Garbage & Senitation												
Clearly up Day Expenses	W1/3-9082-9992	4,355	2,000	2,040	2,081	2,122	2,105	2,239	7,252	2,297	2,343	7,390
Domestic Waste Collection												
- Wicentifie	0173-3201-2028	36,343	25,000	25,500	20,010	26,530	27,051	27,002	28,154	28,757	25,291	29,877
Merindes	0073-0292-0095	40,245	40,000	40,000	41,010	42,448	43,297	44,153	45,046	+15,947	46,866	47,304
- Ivanice	01/3-0091-2015	8,677	20,000	20,400	20,808	21,224	21,549	22,082	22,523	22,974	23,433	23,902
Stringt Pumit surre/Bue Shelbers	0075-0092-0014	0		0	a	. D	0	0	0	C.	0	0
Wheeline Bin R&M	0073-0201-2023	160	5,000	5,100	5,202	5,305	5.412	5,520	5,631	5,743	5,858	5,975
Sub-total Garbaga: 8 Santation		67,790	92,000	\$3,840	90,217	97,631	99,534	101,575	105,607	105/079	.07.793	109,949
Tip Manugement Costs												
Tip Costa				and the second s	and and		Sec. 1	Galaxies.				
-Wilsennie	1126-6638-1.710	26,008	25,000	25.500	26,010	26,533	27,061	27,602	28,154	28,717	29,291	29,877
- Ska well Strips	00159-0009-00012-	1.79	10,000	10,200	10,404	10,612	10,524	11,041	11,262	11,487	11,717	11,951
- Tiloa	18174-3049-3015	009	2,000	2,040	2,081	2,122	2,155	2,209	2,252	2,297	2,343	2,390
White Citra	0)74-3103-3815	\$ 100	10,000	10,200	10,404	10,612	10,824	11,045	11,262	11,487	11,717	12,951
- Merandon	H171-9033-9827	28,683	30,000	30.500	31,212	31,635	32,473	33,122	33,785	34,461	15,150	35,853
- Ivanificae	001/3-00391-0029	5,222	15,000	15,300	10,006	15,518	18,236	16,551	16,892	17,230	12,578	17,926
200-0054 Tib ManaGalaway (2001)		66,201	92,000	33,046	6015TS	34,011	39,584	101,575	103,607	105/058	107,793	109,949
Street Cleaning Costs												
Street Cleary no Epsel												
- Wilcannica	18774-0331-0000	23,218	45,000	45.900	46,818	47,754	48, 209	49,684	56,677	51,091	\$2,725	53,779
Menindee	0(25-63), 0007	39,791	40,000	40.800	61,616	42,440	43,297	44.163	45,046	45,947	40.856	47,804
- Tvanhoe	0176-0012-0008	22,304	25,000	25.500	26,810	26,533	22.061	27,002	28,154	28,717	29.291	29,877
Whiteciffs	0(22-03):-5585	8,228	11,000	11.220	11,444	11,673	11,907	12,14	42,388	14,636	12.888	13,140
		704,091	151'300	123,420	125,888	128,405	130/974	133,994	5.16,258	135,991	141.771	144,606
Other Samitary & Garhage	0(28-00)-5002	466	5,000	5,100	5,202	5,305	5.412	5,520	5,631	5,743	5,853	5,975
Other Evnenses		Hep	dian	37199	215.05	3,100	3/412	5.52	5,631	2,793	9.858	34313
To Remediation as per Depo Schedule				6	. 0		0	0	3	0	0	. 0
Dept of Plant & Enuis Value \$873,745 million				E.	ñ	2	ñ.	č		n.	0	0
and the second stands and the shares of a second		100 374	46.874	47.766	48,216	49,600	50,684	51,697	5.25	15.796	\$4,862	10 949
Deep of Center Infrastructure		the second se						14 A 19 A	the second se	and which it is not all	ALC: NOT THE REAL PROPERTY OF	the second se
General Overticad			and and a second s	D	Ū.		j)	0		0	p	B

Sec. 1

Item 11.4 - Attachment 2

Central Darling Shire Council - Waste Management Long Term Financial Plan - Base Case

CFE for income forecasts	Job Number	Arthuid 2019/20 45,824	Butges 2020/21 46,824	216 Forecast 2021/22 -47,760	2% Forecast 2022/23 40,716	2% Forecast 2023/24 49,690	2% Forecast 2024/25 50,664	2% Forecast 2020/26 51,697	2% Forecast 2026/27 52,731	235 Foreuast 2027/28 53,795	2% Forecast 2024/26 5+,362	2% Forecast 2026/26 55,959
Total Expenditure		287,372	356,824	363,960	371,240	378,654	386,238	393,963	401,842	409,879	418,076	426,438
Net Operating Surplus (Shortfall)		171,437	302,037	308,078	314,239	320,524	326,935	333,473	340,143	346,946	353,884	360,962

Central Darling Shire Council - Waste Management Long Term Financial Plan - Base Case

CPI for income forecasts	Job Aumber	Autual	Budgel	2% Foregasi	2% Forecast	2% Forecast	2% Forecast	2% Forecast	295 Forecast	2% Forecast	2% Forecast	2% Forecast
Capital Income		2618/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2925/27	* 2027/28	2024/25	2023/28
Capital Expenditure		0	D	0	a	0	0	0	0	0	0	0

	0	D	D.	g	D	0	0	0	6	a	0
Net Capital Surplus (Deficit)	0	0	0	0	.0	0	0	6	0	0	D
Reserve Transfer	371,437	302,037	308,078	314,239	320,524	326,935	333,473	340,143	346,946	353,884	360,962
Weste reserve balance 1 July Casif Result for year	392,000 3/1,43/	763,437 302,037	1,055,474 308,078	1,373,552 314,239	1,687,791 320,524	2,008,315 326,935	2,335,250 333,473	2,668,723 340,143	3,008,066 346,946	3,355,811 353,884	3,709,696 350,962
Waste reserve	765,437	1,055,474	1,373,552	1,687,791	2,008,315	2,335,250	2,668,723	3,008,866	3,355,811	3,709,696	4,070,658

Adjusted Financial Model

Central Darling Shire Council - Wa	ste Managem	ent Long Ter	m Financial P	lan - Adjuste	IsboM be							
CPI for income fondailses	Job Number	Achial	Budget	2% Forecast	2% Forecast	2% Forecast	25% Forecast	PH- Forecast	2% Forecast	2% Forecast	2% Füresast	2% Forecast
Income		Smidito	2020421	2021122	2022123	2023124	2024/23	2020/24	2020(2)	2021120	2024125	2040(20
Annual Charges												
Annual Charges (55 special charge removed)		603,348	603,400	607,468	619,617	632,010	544,650	657,543	670,694	664 108	692,790	7:1.746
Surset Strip				D	20,000	20,400	20,309	21,274	21,640	22,082	22.52%	32,974
				0	-0	0		C.	0	.0	0	0
				D	0	0	п	0	0	0	0	3
Manager States and States		-	-	0	0	, ú	Û	d	0	.0	0	a
Sub-Inital Domestic Garbage Charges		603,348	603,400	607,468	639,617	652,410	555,458	678,767	652,342	206,189	720,317	774,919
Tipping Fees												
		55,461	35,461	56.579	57.702	58,856	60.013	61,213	63.458	63,787	54.081	66.381
				0	0	- Aller	0	0	0	0	0	and and a
				.9	0	0	0	0	0	a	D	â
Sub-cotal tipping Free		55,451	55,461	55,570	57,702	58,856	60,033	67,233	62,458	63,202	54,981	66,291
Total Income		658,809	658,851	664,038	697,319	711,265	725,491	740,000	754,800	769,897	785,294	801,000
THE REAL PROPERTY OF PROPERTY.				Table .	201		-					
Ov for experimence correction.				295	2%	7,90	256	2%	5.90	236	-90-	2%
Cachage & Spectration												
Carbage & Santation		7 255	7,005	2.040	COLUMN 1	100.000	a second		1.000	7.007		2 202
Domestic Waste Collection	30/5/00/4-000	2,000	2,000	2,042	2,061	4,144	2,195	2,200	1.154	2.297	2,394.1	2,841
- Wilcannia	3073-0001-0005	15,343	25,000	25,500	25.010	26.530	27,061	27.602	28,154	78,717	29,291	29.877
- Menindee	0073-0001-0009	40.245	40,000	-#0,600	41,616	42,448	43,297	44,163	45,046	45,947	46,866	47,904
- Ivanhoe	3073-0001-0010	8,677	20,000	20,400	20,808	21,224	21,049	22,082	22,523	22.974	23,433	23,902
Surget Strip				12,600	12,240	12,455	12,734	52,989	13,249	13.514	13,784	14,050
Street Furniture/Bus Shelters	3673-0001-0014	0		0	0	0	0	0	D	0	0	0
Wheele Bin R&M	9073-0001-0090	160	5,000	5,100	5,202	5,300	5,412	5,520	5,53	5,743	5,858	5.975
Sub-total Garbage & Sanitation		57,790	92,000	105,840	107,957	110,516	112,318	114,565	116,856	119,193	121,577	124.008
Tip Management Costs Tip Costs												
Wilcannia (increase 30%)	3073-0800-0801	25,008	25,000	32,000	32,640	35,297	13,959	34,638	35 331	35.037	35.758	37-993
- Sunses Strip (dose and monitoring)	3073-2003-2012	179	13,000	530	510	530	531	541	552	563	574	586
-Tipa	3073-0065-0015	1,009	2,000	2,040	2,081	2,122	2,155	2,208	2,252	2,297	2,343	2,390
- White Cirts	0073-0607-0016	4,100	10,000	10,200	10,404	10,612	10,824	11,041	11,262	11.487	11,717	11.951
- Menindee (increase 30%)	9073-0003-0017	28,683	30,000	40,000	40,800	41,616	42,440	43,297	-19,163	45,0%5	45,947	46,866
 Ivanhoe (increase 30%) 	0073-0063-0058	3,222	15,000	20,000	20,400	20,308	21,229	21,649	72,082	22,523	22,974	23,433
Sub-total Tip Management costs		58,204	92,000	104,740	106,835	156,971	111,151	113,374	115,041	117,954	120,313	122,720
Street Cleaning Costs												
Street Cleaning Costs				10.000	an an a	The second second	10000	1000		-	- Oak	and the second
- micannica	9274-0964-0900	33,218	45,000	45,900	46,818	47,754	48,209	49,684	90,677	51,691	52,225	53,779
- Methode	0022-0061-0000	53,791	40,000	40,900	41,015	42,440	43,297	44,163	-5,046	- 45,947	46,866	47,804
- Iver noe	0075-0003-0000	0.730	25,330	25,500	ve,010	20,530	27/901	27,602	28,154	23,717	25,291	29,877
- WINDLINS	0077-001-08C	104,051	121/000	123,420	1,75,888	126,406	130,974	133,594	136,265	12,636	141,771	13,196
						de	and and a		1. S. C. S.	and the second	and and a	a surface
Other Sanitary & Garbage	0773-0064-0060	45.6	5.000	5.100	5 202	5,206	5.413	5 520	15474	5 747	C 868	5.075
and a second a	Statistics a source	466	5,000	5,100	5,202	5,305	5.412	5.520	5631	5,743	5,858	5.075
Other Expenses					Ance	sisse		Starter.	-doorg	2000	2,020	-14.2
I p Remediation as per Deph Schedule				0	0	0	T.	0	3	п	a.	п
Depo of Hart & Equip Value \$871,745 to 5%				ū	- 0	0	D	D	â	ц	õ	0
Depri of Other Infrastructure		96,824	45.824	47,760	48,716	45,690	50,564	51,697	52,/31	53,786	54,862	55,969
Seneral Overhead				0	0	D	B	0	0	0	0	0

Central Darling Shire Council - Waste Management Long Term Financial Plan - Adjusted Model

CPI for income forecasts				2%	2%	2%	2%	2%	2%	2%	2%	2%
	Joh Kanbar	Actual 2019/20	Badget 2020/24	Foresent 2021/92	Foreast 2022/20	Forecast 2023/24	Foreboat 2024/24	Forecast 2026/04	Formand 2020/27	Formonist 2027/28	Foreign I 2020/025	Forecest 20MCB
Remediation Provision				D		5	C	Q		C	0	
		46,824	45,824	47.750	48,715	49,690	50,654	51,597	52,731	53,758	51,862	55,959
Total Expanditure	•	207,372	356,824	386,860	394,598	402,400	410,539	412,750	427,125	435,643	444,381	453,259
Net Operating Surplus (Shortfull)		371,437	302,037	277,178	362,721	308,776	314,951	321,250	327,675	334,220	340,913	347,732

Central Darling Shire Council - Waste Management Long Term Financial Plan - Adjusted Model

CFI for Income forecests	Job New Der	Avtural 2019/20	800ppt 2020/21	2% Forecast 2021/22	2% Forecast 2022/2%	2% Forecast 2823/24	2% Forecent 2024/26	2% Foresent 2025/28	2% Forecast 2028/27	7% Forecast 2027/18	246 Forecest 2034/25	2% Forecast 2825(26
Capital Juco me WARH Grant Litter Fances WARH Grant CCTV					21, 00 0	21.000						
		ŏ.	•	0	D	21,000	0	٥	0	0	•	
Capital Expenditure												-
Wicsonia Miestone 1			10000				10008					
Witemia Miestone 2			5000									
Wicemia Miestone 3						5020						
Ivanhoe Hivestore 1			40603									
Ivenhoe Hitestore 2				100CD								
Menindee Mikestone 1			8000									
Menindee Mikestone 2			5000									
Tilos Nilestone 1			5000	5500	5000							
Tilce Nilemone 2						15000						
Title Nilestone 3							5000	6000	6400	6000		
Survet Stop desure			10,033	1,000	1,000							
Suret Stop aftercare				500	500	506	500	500	500	500		
Star Baning				8,000								
CCIV Menindes, Meninoe, Wilczonia	_					70,000						
		D	\$3,000	24,500	6,901	30,500	15.500	6,500	6,500	5.500	0	• · · · •
Net Capital Sarphus (Gafidt)		•	[83,000)	[24,500]	(6,500)	(39,500)	(15,500)	(6,600)	(6,500)	(6,500)		
Reporte Transfer		371,437	219,037	151,678	296,221	270,270	200,461	214,750	3ZL,175	327,729	340,413	347,732
Working response buildings 1. http://		352.000	763 437	197 476	1 73: -57	1 531 311	1 610 649	2 110 100) and a same	1.746.4025	3 072 754	3 414 657
Casi: Result for year		371,437	219,037	757,678	796,221	279,276	299,451	314,750	321, 175	2,745,620	340,913	347,732
Wate reserve		762.427	982,474	1.285.152	1.531.378	1.020.640	2.110.100	2.474.870	2.745.026	1073.354	3414.608	1.767 399

Notes to Accompany Adjusted Model

- increased DWMC by 20,000 to reflect SS inclusion
- removed SS special rate
- increased Menindee DWM collection costs by \$12,000
- removed SS management costs
- increased Wilcanna landfill mgt costsby 30% pa
- increased Menindee landfill mgt costs by 30% pa
- increased Ivanhoe landfill mgt costs by 30% pa
- included milestone capital costs for waste facilities
- added WLRM grant funding for CCTV and litter fences @ 70:30
- added SS monitoring (operational) and aftercare (capital)
- added staff training for implementation of LTPoM

What the model reveals

- 1. Operational income exceeds operational expenditure sufficiently to enable the implementation of the LTPoM works to proceed
- 2. Operational expenditure for the management of the Menindee, Ivanhoe and Wilcannia waste facilities can increase beyond the 30% proposed in the LTPoM as reflected into the adjusted financial model
- 3. The Waste Reserve will continue to accumulate

6. APPENDIX 1 – WASTE PLACEMENT TECHNIQUE



Note -- Tamp down the exposed waste with the FEL bucket from the top and then, if accessible, from the toe area push any loose waste into the leading face. Then tamp in the exposed waste with the FEL bucket. Scatter some soil over the leading face from the top (and from the bottom, if accessible) after tamping is completed. This will save cover material and reduce windblown litter

WASTE PLACEMENT TECHNIQUE USING FEL ONLY

APPENDIX 2 - POLLUTION DEFENCE

The EPA enforces strict rules for land pollution to deter illegal dumping of waste including asbestos, waste tyres, hazardous waste, and restricted solid waste. There is a defence against a land pollution charge for unlicensed landfills, if those facilities maintain certain minimum standards.

By setting minimum operational standards for unlicensed landfills across NSW, the <u>Protection</u> of the Environment Operations (Waste) Regulation 2014 (Waste Regulation) provides a defence to land pollution at unlicensed landfills.

This defence to potential prosecution under section 142 of the POEO Act would be available if the landfill operator, at the time of the alleged land pollution, maintained these minimum standards at their facility.

These standards include measures to

- reduce fire risk
- reduce odour, noise and dust
- control public access to the site
- generally maintain the facility

These minimum standards are not a mandatory practice, however, they do provide a defence for operators against potential prosecution for land pollution under section 142 of the POEO Act.

Actions proposed in the operation of Central Darling Shire Council's waste facilities to achieve pollution defence

- provide mobile litter fences and increase the frequency of litter collection and for waste placement, compaction and covering at the landfill sites
- erect signage advising that the lighting of fires is prohibited
- provide CCTV surveillance at the Wilcannia, White Cliffs, Ivanhoe and Menindee waste facilities
- use crushed green waste for erosion and dust control over disturbed surfaces
- · adopt improved practices that will reduce the potential for the generation of leachate
- train staff in the delivery of the LTPoM

Central Darling Shire Council



Menindee Waste Facility Long Term Plan of Management



Robert Bailey Consulting Unit 408 12-24 William Street Port Macquarie, NSW 2444 Phone 0448737383

January 2021

Table of Contents

Contents

Table	of Contents	2
1.0	Overview	3
2.0	Background	4
3.0	Purpose	4
4.0	Operations	5
5.0	Landform Concept Design	8
6.0	Acts and Policies Associated with the Project	8
7.0	Delivery	8
9.0	Appendices	.11
Appen	ndix 1- Notes to Accompany Design Drawings	.13
Appen	ndix 2 – Design Concept Figures 1 to 12	.17
Appen	ndix 3 - Aerial Site Plan	.30
Appen	ndix 4 – Waste PlacementTechnique	.31
Appen	dix 5 - Protection of the Environment Operations (Waste) Regulation 2014	32
Appen	dix 6 - Example of Mobile Litter Fence	33

1.0 Overview

The Menindee Waste Facility is described as lot 71 DP 46640, is located about four kilometres from the township of Menindee off Racecourse Road and serves a population of around 550 residents. The landfill undertakes an "excavation and fill" method for waste disposal and stockpile areas have been established within the site for the recovery of green waste and scrap metal. Asbestos and used tyres are accepted at the facility as are deceased animals. The site occupies around 20 hectares of land and has been in operation for many years.

The site is not supervised, that is, there is no Council presence to oversee the operation of the facility or to collect fees nor is the site controlled, that is, gates are not shut to limit access to defined times. Previous Council endeavours to supervise and control the site have been discontinued primarily because of resourcing constraints. More regular attendances at the site by Council staff with suitable plant to push up waste and separate contamination from stockpiles of recoverable materials should form part of the future management protocols for the waste facility

A recent Waste Less, Recycle More grant has seen the vast accumulations of above ground waste concrete and contaminated green waste and contaminated scrap metal re-shaped, covered with ENM and compacted to effectively rehabilitate that portion of the site in the delivery of "part closure" works as supported by the grant funding. The application of shredded/crushed green waste across the rehabilitated surfaces is yet to be completed.

Waste is currently being placed in a large excavated void and should have a significant residual life depending on what materials are directed for disposal and the compaction achieved. Green waste and scrap metal are being stockpiled, though there is the option for the green waste to be landfilled in the future if there is no plausible plan for its re-use. A rubber tyre front end loader (FEL) is used to push up and to cover the waste but has limited scope to achieve any compaction of the material. The ongoing use of the FEL will be a compromise between the purchase of a more suitable item of plant (eg traxcavator) and the accelerated consumption void space and cover material. Appendix 4 of this Plan provides guidance on the waste placement technique where a FEL is used that should improve performance if adopted.

Windblown litter is not being well managed and improvements should be pursued. Mobile litter fences may be procured and placed near to the tipping platform to collect windblown litter but also to restrict the area where waste can be deposited.

The current excavation does have about 38 years of residual life as demonstrated in the Amaral concept designs that appear as Appendix 1 of this Plan. This assessment is based on winning cover from the buttresses of the perimeter berm and to re-grade the floor of the excavation to expand the void and to adopt improved waste placement and covering techniques. Currently, excessive quantities of cover material are being consumed unnecessarily. There is also the potential to extend the current excavation beyond the site boundaries with the consent of the Crown.

The landfill does not have a leachate management system and therefore relies on good practices to minimise the production of leachate. Such practices include keeping the active tipping area to minimum size, diverting surface water away from the tipping face, maintaining gradients on the capped and covered areas to shed water and applying cover regularly. These measures should form part of Council's standard operating procedures in the future management of the facility.

Scrap metal is separated and placed in a stockpile to be taken off site by a collection contractor. Recovered materials should be removed or processed routinely so that the stockpile is maintained at a manageable size. Given the site is not supervised, controlling contamination of the metals stockpile is difficult, however endeavours should be undertaken to regularly remove the gross contamination. Fluctuations in the market value of scrap steel have an effect on the frequency of the removal of this material from site.

Changes to current practices have been identified and together with the Amaral concept design filling plans and final landform designs, provide the guidance for the long term management of the waste facility.

2.0 Background

Central Darling Shire Council has determined to undertake a review of the operations of its waste facilities in order to identify how the residual life of the landfill can be maximised, how improvements to current practices could be introduced, where efficiencies may be gained and risks mitigated. Council's aim is to achieve sustainable management of the waste facility that is commensurate with available resources.

Council has prepared a scope of works and engaged Robert Bailey Consulting and Robert Amaral Geotechnical (Landfill) Engineer to prepare a long term plan of management for the Menindee Waste Facility that will provide a final landform design, filling/staging plans and procedures to improve operational performance and to mitigate risks.

3.0 Purpose

The purpose of this Long Term Plan of Management (LTPoM) is to provide a process with the highest probability of achieving the defined project aims. The LTPoM would address long term planning and the future design of the Menindee Waste Facility in considering the final landform, activity area interrelationships, existing and future infrastructure, plant utilisation, complying with the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016), valuing responsible environmental performance, improving existing landfill management practices and recognising resource recovery opportunities.

The primary aims of the project are:

- To put measures in place that will maximise the residual life of the landfill
- To identify improvements to existing practices that will translate into cost efficiencies and provide for the realisation of these opportunities.
- To develop plans for the coordinated development of the facility over the longer term.
- To engage practices that will ensure responsible environmental performance is achieved
- To comply with the requirements of the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016) together with other relevant legislation, regulations and codes where applicable
- To address risk
- To contribute to the development of an overarching strategic plan for Council's waste facilities including the preparation of a financial model that will predict future incomes and expenditures and will provide for the managed development of the facility over the longer term.

4.0 Operations

- 4.1 Current operations for the general waste active tipping area - general waste, including self haul and kerbside collected waste, is deposited at the top of the tipping face as well as at the bottom of the tipping face. There is no site supervision, therefore signage is the main means of directing traffic to the disposal area. The waste material is pushed up using a front end loader (FEL). The tipping platform is located above the excavated void and waste material is progressively pushed into the void, where the tipping face is about 4 metres deep. Some waste material is being deposited at the toe of the tipping face. Windblown litter is an issue largely as a consequence of this procedure and that the waste is only pushed up and covered every few days. The waste is not compacted and an excessive quantity of cover material is consumed when covering the waste, perhaps as much as 70% cover to 30% waste. This is not an efficient method of waste management and disposal. A lot of potential cover material is being sterilised given the thickness of the perimeter berms and a proportion of the internal wall of the berm should be recovered prior to waste placement
- 4.2 **Proposed improvements to the operation of the general waste tipping area** – Geotechnical engineer Robert Amaral (Amaral) has prepared concept designs for the future operation of the current general waste disposal area that includes sequencing and concept designs for staging and final landform. The first step will be to win cover material from the inside face of the perimeter berm and stockpiling this material for future use. (see Appendix 2, figures 2 and 3). Additional cover material can be won by re-grading the floor of the excavation and by removing the current stockpile of green waste and excavating this area to link with the current void.. Landfilling will adopt a top down approach where a tipping platform is established with a tipping face

having a vertical height of 2 - 2.5 metres.. Waste will be pushed onto the tipping face and covered progressively (see Appendix 4). Waste will continue to be deposited in this manner for four passes until the designed landform shape of stage 1 has been achieved. Subsequent stages will be undertaken in accordance with the Amaral concept designs..

- 4.3 **Existing landfill plant -** a front end loader (FEL)
- 4.4 **Proposed improvement to landfill plant utilisation** Appendix 4 provides guidance on the placement and partial compaction of the deposited waste using the FEL and keeping the depth of waste to a maximum of 2 2.5 metres. The ongoing use of the FEL will be a compromise between avoiding the purchase cost of a more suitable item of plant (eg traxcavator) and the accelerated consumption of void space and cover material
- 4.5 **Current site control and supervision –** the site is not supervised, that is, there is no Council presence to oversee the operation of the facility or to collect fees nor is the site controlled, that is, gates are not shut to limit access to defined times. Previous Council endeavours to supervise and control the site have been discontinued primarily because of resourcing constraints. Improved signage and the use of bollards or mobile litter fences will be required to better manage traffic and to identify where waste is to be deposited.
- 4.6 **Proposed improvement to site control and supervision –** no changes are proposed to site control and supervision, however Council may consider the use of CCTV in the future..
- 4.7 **Current Green Waste Management –** there is a separate area where self haul green waste and wood waste are stockpiled, pushed up and can be shredded as part of a service contract. Contamination is significant where plastics and metals are evident. The stockpile also includes materials such as MDF(medium density fibreboard), treated pine, particle board and laminated timber. Shredding can be expensive and the contaminated product has little re-use value. The better quality material can be used for cover material or placement over disturbed areas to control dust and erosion.
- 4.8 Proposed improvements to green waste management – although no change is proposed to the manner in which green waste is stockpiled, the location may shift from time to time as the general waste disposal area changes. The existing stockpile of green waste is heavily contaminated and should be landfilled and the area below this stockpile excavated to provide additional cover material and additional void space. The Amaral concepts provides guidance as to where the existing green waste material should be landfilled (see Appendix 2) For the future management of green waste, as an alternative to shredding and to save costs, when suitable plant is available, that is larger plant with tracks such as dozer or excavator, the stockpiled green waste can be spread, larger items of contamination removed and the green waste broken up using a number of passes of the track machine. The broken up green waste can then be landfilled or placed on top of capped surfaces, depending on the quality of the finished product, to control dust and erosion. Initially, this recovered material should be applied to the recently

capped and partially closed portion of the site. It may also be used as cover as a substitute to ENM.

- 4.9 **Current scrap metal management –** self haul scrap metal is stockpiled and on sold to a service contractor whereby the material is taken off site on a routine basis. The scrap metal stockpile is pushed up from time to time using the Council FEL
- 4.10 **Proposed scrap metal management –** an effort should be made to ensure the scrap metal is contained to one controlled stockpile area and not allowed to spread or multiple stockpile areas develop. Contamination remains an issue and some effort should be made to better manage the contamination. This may require contamination to be removed routinely. A collection contractor should be engaged to remove the accumulated scrap metal on a regular basis
- 4.11 Current and proposed waste concrete management historically waste concrete and other inert materials were placed over previously trenched and filled areas of the site. A recent Waste Less, Recycle More grant has seen the vast accumulations of above ground waste concrete and contaminated green waste and contaminated scrap metal re-shaped, covered with ENM and compacted to effectively rehabilitate that portion of the site in the delivery of a part closure plan. Currently, receivals of waste concrete are being stockpiled near to the existing green waste stockpile area. However, the retained concrete and future loads of waste concrete should be confined to the general waste disposal area. The Amaral "notes" at Appendix 1 provide guidance on how this can be achieved.
- 4.12 Asbestos disposal and deceased animals management- the issue confronting Council with difficult wastes such as asbestos is that the waste facility is not controlled nor supervised. Therefore Council relies on those wanting to dispose of asbestos to act responsibly. The information contained on Council's website states " Any wastes containing or potentially containing asbestos are classified as asbestos waste and must be disposed of properly, according to NSW legislation and relevant guidelines. There are significant penalties that apply if legislation isn't adhered to, including illegal dumping of asbestos and placing into kerbside bins. Furthermore, improper handling and disposal of this material can put you, others and the environment at risk". There is a download on the website that provides guidance on the correct means of disposing of asbestos. The Waste Regulations require final depth of soil above the asbestos should be 1 metre as prescribed in the Waste Regulations (2014) (see Appendix 5) and cover applied at the end of each day to a depth of 0.5 metres. Council should develop an asbestos policy and require advanced notice of a person's intention to dispose of asbestos in order that plant can be on site to assist with the correct means of unloading asbestos and to apply the ENM cover in accordance with the Waste Regulations. Equally Council should develop a procedure for the management of deceased animals.

4.13 Used tyres – a small quantity of used tyres are currently being stockpiled and are accumulating. An alternative measure would be to place used tyres on the

floor of the active tipping area and at the toe of the advancing waste mass as they are received and cover with general waste.

5.0 Landform Concept Design

Final landform design and filling/staging plans have been prepared for the future development of the Menindee waste facility and these appear as –

- Notes to Accompany Design Drawings in Appendix 1,
- Guide to Site Capacity in Appendix 1,
- Concept Designs in Appendix 2.

This suite of documents provides information on the development of the landfill for future decades and offers guidance for the orderly progression of the landfilling operations. Each sub stage is essentially a building block that in total combination will deliver the final landform. It will be most important that the design is followed in order to deliver the desired outcomes. This may require periodical examination by an external party (surveyor, geotechnical engineer) to confirm the landfilling works are progressing in keeping with the adopted designs.

Council should also be aware that operating a landfill effectively and in keeping with the EPA Guidelines requires skilled plant operators, correct plant, an understanding of grades, reduced levels, waste placement, surface water management, covering and compaction. Council staff who have been given the responsibility to oversee the operation of the facility and contractors who may be engaged to perform specific tasks should be trained accordingly and be familiar with the designs and the principles supporting those designs

6.0 Acts and Policies Associated with the Project

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Waste) Regulation 2014
- EPA Environmental Guidelines: Solid Waste Landfills (2nd edition 2016)
- Environmental Planning and Assessment Act 1979
- Environmental Planning and Assessment Regulation 2000
- Infrastructure SEPP 2007

7.0 Delivery

Desired Outcomes -

- The Menindee waste facility will be developed in a planned and co-ordinated manner.
- The project will deliver the stated aims

- Risk will be managed
- Regulatory agencies gain confidence in Council's management processes
- Succession planning is achieved
- Landfill void space will be maximised
- Residual life of the landfill will be optimised
- Long term planning prevents re-work resulting in corresponding savings
- Budgets can be developed for the capital works and programmed for delivery in a measured way and for optimum benefit

Key Actions to deliver the desired outcomes

Sequencing – broadly speaking, win cover material from the inner side slopes of the perimeter berm and stockpile for future use (Amaral Appendix 2), establish the next filling stage (Amaral Appendix 2,), discontinue landfilling at the current active tipping area, apply intermediate cover to the current active tipping, crush and landfill the existing stockpile of green waste in the new stage, landfill the existing stockpile of waste concrete in the new stage, establish litter fences near to the new filling stage, signpost access to the new filling area, place waste in accordance with the "waste placement technique" (Appendix 4), continue to develop the landfill in accordance with the Amaral concept designs

Milestone 1 – Prepare the first stage in the new filling area (Amaral Appendix 2,)

Key Tasks

- Win cover material from the inner side slopes of the perimeter berm and stockpile this material for future use as cover
- Construct a shallow berm on the floor of the new stage that will contain any leachate that may seep from the active tipping area
- Establish litter fencing near to the new active tipping area
- Identify vehicular access to the tipping platform and signpost accordingly
- Develop the tipping platform where lifts of placed waste will not exceed 2.5 metres (Appendix 4)

Milestone 2 – commence landfilling at the new active tipping area

- Crush and landfill the existing stockpile of green waste
- Landfill the existing stockpile of waste concrete
- Expand the void by excavating where the green waste had been stockpiled
- Provide barricades or litter fences to control the depositing of waste to ensure materials are confined to the active tipping area
- Push up waste in accordance with the "waste placement technique" (Appendix 4)
- Apply cover routinely from the established stockpile

Milestone 3 – discontinue landfilling at the current active tipping area.

- Establish barricades to prevent access to the tipping platform from both above and below.
- Cap the existing waste disposal area.
- Collect litter
- Control surface water to manage flows across the adjacent capped landform. This may take the form of shredded green waste berms, silt stop fencing or other suitable means
- Provide signage directing all general waste to the new waste disposal area.

Milestone 4 - prepare an asbestos management policy

- Review the asbestos information currently contained on Council's website
- Develop protocols for advanced notice for the disposal of asbestos
- Train Council staff who may be required to deal with incoming loads of asbestos in the correct management of asbestos

Cost Estimates - Figures provided below for the likely cost of works required to achieve the milestones are cost estimates only and may well vary depending on a range of circumstances. The purpose of the estimates is to provide inputs for the financial model that has been developed in the overarching Strategic Plan. The Strategic Plan has been prepared to provide a roadmap for the future management of all of Council's waste facilities.

Milestone 1

Prepare the first stage in the new filling area Year 1 \$15,000 (capital cost)

Procure litter fencing Year 1 \$10,000

Increase the waste facility operating budget by 30% Year 1 and ongoing

Milestone 2

Commence landfilling at the new active tipping area **Year 1 \$10,000** (capital cost)

Milestone 3

Discontinue landfilling at the current active tipping area. Year 1 \$6,000 (capital cost)

Milestone 4

Prepare an asbestos management policy (in house- no direct cost)

9.0 Appendices

Appendix 1- Notes to Accompany Design Drawings

NOTES FOR INCLUSION WITH LANDFILL DESIGN DRAWINGS 20205m

GENERAL

There are a number of issues/circumstances which have an impact on the design of the Menindee Landfill as discussed in more detail by Bob Bailey in the main text of this LTPoM:

- * an existing relatively large void with little immediately available soil with which to cover
- incoming waste
- * small size of the waste generating community
- * remote location
- * unlimited access to an unmanned site
- * limited available on site heavy equipment
- * advantageous low permeability geologic soil profile
- * advantageous evaporation to rainfall ratio (at least 6:1)

The following conceptual design details attempt to take account of these issues and do not always follow the NSW EPA Guidelines for Landfills but can be technically supported/defended as is allowed for and accepted by the EPA for small, remote communities which are in favourable geological and climatic locations.

At this site, in particular, I have not followed the basic principle of always filling from upstream to downstream in every Stage of filling to limit the extent of run-on surface water entering the waste.

This is feasible at this site since the opportunity for leachate production is severely limited by the low annual rainfall and what leachate does develop during significant rare rainfall events can be readily contained on site by the low permeability soil profile.

The actual waste filling process will be somewhat inhibited due to the reliance on a front end loader (FEL) to carry out all the pushing, spreading, compacting and covering activities but should be capable of doing this by a variety of approaches discussed herein with the occasional use of a piece of larger equipment (bulldozer, excavator and the like).

FIGURE 1 SITE SURVEY PLAN (DECEMBER 2020)

Council has provided an up to date 0.5m contour plan of the site which is reproduced herein as Figure 1.

FIGURE 2 SITE PLAN

The area of interest within the contour plan provided by Council is noted on Figure 1 and has been reproduced herein as Figure 2 with simplified contours, excluding local stockpiles and the like.

FIGURE 3 EXCAVATION PLAN

As noted above, the existing landfill area consists of an already excavated void with oversized perimeter soil bunds or embankments on its southern and eastern sides.

The existing void if filled to about 2m above its perimeter edges has a capacity of about 40,000m3.

Assuming a normal cover usage rate of 20% (daily, intermediate and final) would require 8,000m3 of soil.

The actual soil cover usage rate at this site is more likely closer to 40% or 16,000m3 due to the necessity of using additional soil to allow trafficking by the rubber tyred FEL.

In any event it is important to recover as much of the soil within the oversized perimeter embankments as is feasible.

A recommended excavation plan is provided in Figure 3 with side batters of 1:1.

This will achieve about 7,500m3 of soil cover, well short of what will likely be required.

Further soil could be won by grading the base downwards from west to east at, say, 1%. This would also have the advantage of draining rainwater to the eastern end of the site for easier collection and removal.

This excavation work need not be carried out in one operation but can be done in stages as the filling advances.

Also, the embankment beneath the current green waste stockpile should be removed as shown on Figure 3 to gain additional soil cover (this is included in the above estimates).

FIGURE 4 STAGE 1 FILLING PLAN

This figure illustrates the completed Stage 1 filling with the completed surface shedding rainwater off the site.

FIGURE 5 SUB-STAGE 1A FILLING PLAN

This figure illustrates the completion of the Stage 1A filling whereby waste has been pushed progressively to the south over a leading face of 2m depth.

Where practicable, larger waste matter (cobbles, concrete, timber, demolition material and the like) should be end dumped or pushed over the leading face first, followed by smaller household refuse, fine green waste, paper, cardboard and the like and, where necessary, soil to allow the FEL to traffic the surface and provide some compactive effort.

Occasionally it may be necessary to hire the available bulldozer or excavator from the local Contractor to spread, break up and track roll the waste to provide reasonable access for Council and private vehicles.

Where appropriate, gravel, cobbles, boulders, concrete and other hard materials located across the balance of the adjoining land where legacy stockpiles of waste exist should be utilised to assist in developing an accessible working surface.

FIGURE 6 SUB-STAGE 1B FILLING PLAN

Figure 6 illustrates the completion of the sub-stages 1A and 1B areas.

As with sub-stage 1A, the sub-stage 1B area should be initially prepared by placing a 1m high soil bund across its eastern end to isolate any rainwater from the balance of the void where there is no exposed waste.

In this way, any rainwater that does collect in this void space can be pumped directly to the environment or otherwise used on site.

The filling process would replicate that used in sub-stage 1A, over a 2m high leading face.

FIGURES 7 AND 8 SUB-STAGE 1C AND 1D FILLING PLANS

Both of these figures illustrate the raising of the landfill surface by between 1 and 2m over the completed Sub-stages 1A and 1B areas.

Working with a leading face of less than about 2m deep may prove difficult using an FEL and will lead to an excessive use of soil.

Placing large objects within a limited depth of waste is also a problem and it may be necessary to open up Stage 4 to cater for larger waste while Stages 1C, 1D, 2 and 3 are being used for household waste and other finer waste materials.

FIGURES 9 AND 10 STAGES 2 AND 3 FILLING PLANS

These figures show the landfill levels at the completion of Stages 2 and 3.

The average depth of filling over these two areas is about 2m. Locally, the waste depth will be less than 2m and only fine waste should be dumped, spread and compacted in these areas.

The depth of existing intermediate soil cover over these stage areas is unknown but could be considerable.

Prior to the placement of waste in these two areas the existing soil cover should be progressively pulled back by a gummy bucket excavator or the FEL to expose the underlying waste before overtopping with new waste.

The removed cover should be used to create soil bunding or stockpiled for later use as a final cover.

The western batters of Stages 2 and 3 and the northern batter of Stage 3 should be battered at 3H:1V.

A "final" cover of 600mm of the local soil should be placed over the completed Stages 1, 2 and 3.

FIGURE 11 STAGE 4 FILLING PLAN

This figure illustrates the Stage 4 filling area at completion of filling.

As with the other stages, this stage should be divided into sub-stages so that filling is carried out within contained/bunded zones similar to the sub-stages shown for Stage 1.

14

Starter bunds about 1m high will be sufficient to separate the waste from unfilled areas and allow adequate segregation of leachate and clean rainwater, provided that waste is not allowed to spill over the top of the containing soil bunds.

The depth of the waste filling in this stage is about 4m and can thus be carried out in two 2m lifts.

Additional soil cover could be obtained by lowering the base of this stage to grade downwards from west to east on a gradient of at least 2%, say, 0.5m at the western side to 1.5m at the eastern side.

This will also allow the use of deeper lifts which would be more suitable to an FEL operation.

FIGURE 12 "FINAL" LANDFILL LANDFORM

Figure 12 illustrates the "final" landfill landform with an average surface gradient of between 4 and 5%.

The several stages and sub-stages should be filled in a similar manner to the earlier stages and sub-stages depending on the available equipment and depth of waste fill.

Although not necessary at this stage or for many years to come, this landform could be overtopped further if required to maintain a suitable, well graded final cap.

ESTIMATED LIFE OF LANDFILL

Stage	Void	Cover	Net	Life
	Capacity (m3)	Required (m3)	Void (m3)	(years)
1	3,750	750	3,000	3.75
2	2,100	420	1,680	2.1
3	2,500	500	2,000	2.5
4	5,300	1,060	4,240	5.3
5	3,600	720	2,880	3.6

TABLE 1

6	3,000	600	2,400	3.0
7	4,700	940	3,760	4.7
8	4,800	960	3,840	4.8
9	2,400	480	1,920	2.4
10	3,100	620	2,480	3.1
11	3,000	600	2,400	3.0
Totals	38,250	7,650	30,600	38.25


Appendix 2 – Design Concept Figures 1 to 12























Appendix 3 - Aerial Site Plan



Appendix 4 – Waste Placement Technique



Note -- Tamp down the exposed waste with the FEL bucket from the top and then, if accessible, from the toe area push any loose waste into the leading face. Then tamp in the exposed waste with the FEL bucket. Scatter some soil over the leading face from the top (and from the bottom, if accessible) after tamping is completed. This will save cover material and reduce windblown litter

WASTE PLACEMENT TECHNIQUE USING FEL ONLY

Appendix 5 - Protection of the Environment Operations (Waste) Regulation 2014

80 Disposal of asbestos waste

(cf clause 42(4) of 2005 Reg)

- (1) (Repealed)
- (2) When a person delivers asbestos waste to a landfill site, the person must inform the occupier of the landfill site that the waste contains asbestos.
- (3) The following persons must ensure that when a person unloads or disposes of asbestos waste at a landfill site (regardless of whether the site is subject to an environment protection licence) no dust is generated from the waste—
- (a) the person unloading or disposing of the asbestos waste,
- (b) the occupier of the landfill site.
- (4) Subject to any alternative cover conditions provided in an environment protection licence held by the occupier or approved in writing by the EPA, the occupier of a landfill site must ensure that asbestos waste disposed of at the site is covered with virgin excavated natural material—
- (a) initially (at the time of disposal), to a depth of at least 0.15 metre, and
- (b) at the end of each day's operation, to a depth of at least 0.5 metre, and
- (c) finally, to a depth of at least 1 metre (in the case of bonded asbestos material or asbestos-contaminated soils) or 3 metres (in the case of friable asbestos material) beneath the final land surface of the landfill site.
- (5) In this clause, *landfill site* means a landfill site that can lawfully receive asbestos waste.

Appendix 6 – Example of Mobile Litter Fence



Central Darling Shire Council



Wilcannia Waste Facility Long Term Plan of Management



Robert Bailey Consulting Unit 408 12-24 William Street Port Macquarie, NSW 2444 Phone 0448737383

January 2021

Table of Contents

Contents

Table of Contents2					
1.0	Overview	.3			
2.0	Background	.4			
3.0	Purpose	.4			
4.0	Operations	.5			
5.0	Landform Concept Design	.8			
6.0 Acts and Policies Associated with the Project8					
7.0	Delivery	.9			
9.0 Appendices					
Appendix 1- Notes to Accompany Design Drawings11					
Appendix 2 – Design Concept Figures 1 to 16					
Appendix 3 - Aerial Site Plan34					
Appendix 4 – Waste Placement Technique35					
Appendix 5 - Protection of the Environment Operations (Waste) Regulation 201436					
Appendix 6 - Example of a Mobile Litter Fence					

1.0 Overview

The Wilcannia Waste Facility is described as lot 107 DP 820452, is located about four kilometres from the township of Wilcannia off Hood Street and serves a district population of around 800 residents. There is no accurate means of determining how much waste is received at the facility, though the quantity of waste being deposited is likely to be about 1,000 tonnes per annum based on the size of the district population. The site is not supervised, that is, there is no Council presence to oversee the operations of the facility or to collect fees nor is the site controlled, that is, gates are not shut to limit access to defined times. Previous Council endeavours to supervise and to control the site have been discontinued, principally because of resourcing constraints. The operations continue to utilise an excavation and fill method for waste disposal, together with stockpile areas for the recovery of green waste and scrap metal. Windblown litter is not being well managed. The facility occupies around 15 hectares of land and has been in operation for many years.

Robert Amaral, geotechnical engineer, has proposed two distinct phases in the future landfilling at the Wilcannia waste facility. The first phase is to continue to fill the current main excavated void with putrescible waste and general household waste, to continue to fill the current trench that is dedicated to inert waste and to fill various depressions (minor voids/trenches) about the overall site. The second phase is to investigate where traditional trench and fill methods can be undertaken as smaller excavations both in virgin ground and over previous excavations. Although the unit rate to undertake large excavations is more economical then for smaller trenches, the large voids are more difficult to control and operate compared to the smaller trenches.

It is difficult to determine what proportion of the site has been previously trenched and filled though the disturbed and waste covered nature of the overall site indicates that there may be limited opportunity to continue with this method into virgin ground and may require test pits to be excavated or investigative trenching undertaken to determine areas where future trenching can occur. Council will need to undertake its own investigations into the residual life of the landfill to confirm areas previously trenched that may or may not be suitable for retrenching and where virgin ground can be identified.

The current excavation (main void) does have about 6 years of residual life as demonstrated in the Amaral concept designs that appear in Appendix 1 as figures 4 -11 of this Plan and a further 5 years in the minor voids/trenches (Appendix 1 figures 12 -15). Future trenching is also included into these concept designs (Appendix 1 figures 1 and 16) which should enable the disposal of general waste for an indeterminable, but likely extensive, period into the future.

. At present, green waste is being stockpiled, though this material may be landfilled in the future. As an interim measure, builder's waste and general inert waste is being deposited in a separate trench in addition to the general waste disposal area (main void). A front end loader (FEL) is used to push up the waste materials which achieves minimal compaction and uses an excessive quantity of cover material when applied to the overly steep tipping face. The resulting shape of the waste mass is poor and the waste can remain uncovered for extended periods of time.

The landfill does not have a leachate management system and therefore relies on good practices to minimise the production of leachate. Such practices include keeping the active tipping area to minimum size, diverting surface water away from the tipping face, maintaining gradients on the capped and covered areas to shed water and applying cover regularly. These measures should form part of Council's standard operating procedures for the future management of the facility.

Scrap metal is separated and placed in a number of stockpiles to be taken off site by a collection contractor. Recovered materials should be removed or processed routinely so that the stockpile is maintained at a manageable size. Fluctuations in the market value of scrap steel have an effect on the frequency of the removal of this material from site.

Changes to current practices have been identified and together with the Amaral concept designs, provide guidance for the long term management of the waste facility.

2.0 Background

Central Darling Shire Council has determined to undertake a review of the operations of its waste facilities in order to identify how the residual life of the landfill can be maximised, how improvements to current practices could be introduced, where efficiencies may be gained and risks mitigated. Council's aim is to achieve sustainable management of the waste facility that is commensurate with available resources.

Council has prepared a scope of works and engaged Robert Bailey Consulting and Robert Amaral Geotechnical (Landfill) Engineer to prepare a long term plan of management for the Wilcannia Waste Facility that will provide a final landform design, filling/staging plans, opportunities within the site for future trenching and procedures to improve operational performance and to mitigate risks.

3.0 Purpose

The purpose of this Long Term Plan of Management (LTPoM) is to provide a process with the highest probability of achieving the defined project aims. The LTPoM would address long term planning and the future design of the Wilcannia Waste Facility in considering the final landform, future landfilling opportunities within the site, activity area interrelationships, existing and future infrastructure, plant utilisation, complying with the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016), valuing responsible environmental performance, improving existing landfill management practices and recognising resource recovery opportunities.

The primary aims of the project are:

- To put measures in place that will maximise the residual life of the landfill
- To indentify where future landfilling can be undertaken within the current site
- To restore the site to a suitable shape through planned waste placement

- To identify improvements to existing practices that will translate into cost efficiencies and provide for the realisation of these opportunities.
- To develop plans for the coordinated development of the facility over the longer term.
- To engage practices that will ensure responsible environmental performance is achieved
- To comply with the requirements of the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016) together with other relevant legislation, regulations and codes where applicable
- To address risk
- To contribute to the development of an overarching strategic plan that will include financial modelling predicting future incomes and expenditures and will provide for the managed development of the facility over the longer term.

4.0 **Operations**

- 4.1 Current operations for the general waste active tipping area general waste, including self haul and kerbside collected waste, is deposited at the active tipping area (main void) and is pushed up about three times per week using a front end loader (FEL). The tipping platform is located above the excavated void and waste material is progressively pushed into the void which is perhaps nine metres deep. Windblown litter is an issue, largely as a consequence of this procedure. The waste is not compacted and an excessive quantity of cover material is consumed when covering the waste, perhaps as much as 60% cover to 40% waste. A lot of potential cover material is being sterilised at the base of the void batters given the sloping sides and depth of the excavation. This is not a particularly efficient method of waste management and disposal.
- 4.2 Proposed improvements to the operation of the general waste tipping area - Geotechnical engineer Robert Amaral has prepared concept designs for the future operation of the current general waste disposal area (main void) as well as landfilling the minor voids and east/west trenches. Initially cover material will be won from the base of the side slopes within the existing excavated void and stockpiled for future use (see Appendix 2 figure 7). Landfilling will adopt a bottom up approach for material taken to the site by Council or contractors where access will be developed to enable vehicles to take waste materials to the floor of the current landform and off load onto a tipping platform. Waste will be pushed onto the tipping face and covered progressively. A top down approach will be adopted for domestic self haul waste where a restricted tipping platform will be established at the top of the excavation and the deposited waste pushed into the void. The size of the tipping platform will be restricted by using, barriers, barricades or mobile litter fencing. Waste will continue to be deposited in this manner until the designated landform shape has been achieved for the current tipping area (main void) before moving to the minor voids and east/west trenches and then ultimately to new trenching. Council will need to undertake its own investigations to confirm areas previously trenched that may or may not be

suitable for re-trenching and where virgin ground can be identified (see Appendix 2 figures 1and16). Mobile litter fencing can be established on three sides of the trenching to manage litter and to control access to the tipping platform

- 4.3 Current operations at the active tipping area for inert waste Inert commercial/industrial wastes and bulky wastes are being deposited in a dedicated area separate from the general waste disposal area (main void). Some of these waste types are bulky, irregular in shape and can be difficult to manage at the tipping area. This operation simply places the waste material within a shallow excavation over virgin ground and is an inefficient use of landfill space and has sterilised potential sources of cover material. Operating multiple waste disposal areas is not considered good practice as it adds to the cost of disposal and consumes resources unnecessarily.
- 4.4 **Proposed improvements to the operation of the active tipping area for inert and bulky waste –**The current inert and bulky waste disposal area will be closed once a shape suitable for final capping is achieved (see Appendix 2 figures 2 and 3). All loads of bulky and inert waste will be taken to the general waste disposal area once the current trench has been filled. The existing inert and bulky waste active tipping area will then be capped and the area rehabilitated
- 4.5 **Existing landfill plant –** a front end loader (FEL)
- 4.6 **Proposed improvement to landfill plant utilisation –** A FEL will continue to be used to push up the waste material. Appendix 4 provides guidance on the placement and partial compaction of the deposited waste using the FEL and keeping the depth of waste to a maximum of 2.5 metres where the bottom up filling is proposed.
- 4.7 Current site control and supervision The site is not supervised, that is, there is no Council presence to oversee the operation of the facility or to collect the fees nor is the site controlled, that is, gates are not shut to limit access to defined times. Previous Council endeavours to supervise and control the site have been discontinued primarily because of resourcing constraints.
- 4.8 **Proposed improvement to site control and supervision** no changes are proposed to site control and supervision other than staff attending the site on a more regular basis to push up and cover the deposited waste materials. Council may consider the use of CCTV to monitor the site.
- 4.9 **Current Green Waste Management** there is a separate area where self haul green waste and wood waste are stockpiled, pushed up and can be shredded as part of a service contract. Contamination is significant where plastics and metals are evident. The stockpile also includes materials such as MDF (medium density fibreboard), treated pine, particleboard and laminated timber. Shredding can be expensive and the contaminated product has little re-use value other than for use as cover material. The lesser contaminated product can be used for placement over disturbed areas to control dust and erosion for.
- 4.10 **Proposed improvements to green waste management** although no change is proposed to the manner in which green waste is stockpiled, the

location may shift from time to time as the general waste disposal area changes. Having activity areas concentrated and not spread throughout the site should be an objective of the general operations of the facility. As an alternative to shredding and to save costs, when suitable plant is available, that is, larger plant with tracks such as dozer or excavator, the stockpiled green waste can be spread, larger items of contamination removed and the green waste broken up using a number of passes of the track machine. The broken up green waste can then be landfilled or placed on top of capped surfaces, depending on the quality of the finished product to control dust and erosion. It may also be used as cover as a substitute to ENM.

- 4.11 **Current scrap metal management -** self-haul scrap metal is stockpiled and on sold to a service contractor whereby the material is taken off site on a routine basis. The scrap metal stockpile is pushed up from time to time using the Council FEL.
- 4.12 **Proposed scrap metal management** an effort should be made to ensure the scrap metal is contained to one controlled stockpile area and not allowed to spread or multiple stockpile areas develop. A collection contractor should be engaged to remove the accumulated scrap metal on a regular basis.
- 4.13 **Current and proposed waste concrete management** Historically waste concrete was placed into windrows and allowed to accumulate to the point where the retained above ground concrete was excessive. A recent Waste Less Recycle More (WLRM) grant has seen these windrows flattened and covered with ENM. Currently, all receivals of waste concrete are confined to the temporary inert waste disposal area. Future loads of waste concrete should be confined to the general waste disposal area (main void) when the temporary inert waste disposal area is closed and capped (see Appendix 1 under reference to figure3). Suitable waste concrete can be utilised to form internal berms at the general waste disposal area or for access tracks where such use is appropriate.
- 4.14 Asbestos and Deceased animals disposal –Asbestos is currently disposed of within a dedicated trench however there is no supervision on site to ensure asbestos is correctly deposited. Therefore Council relies on those wanting to dispose of asbestos to act responsibly. The information contained on Council's website states " Any wastes containing or potentially containing asbestos are classified as asbestos waste and must be disposed of properly, according to NSW legislation and relevant guidelines. There are significant penalties that apply if legislation isn't adhered to, including illegal dumping of asbestos and placing into kerbside bins. Furthermore, improper handling and disposal of this material can put you, others and the environment at risk". There is a download on the website that provides guidance on the correct means of disposing of asbestos. The Waste Regulations require final depth of soil above the asbestos should be 1 metre as prescribed in the Waste Regulations (2014) (see Appendix 5) and cover applied at the end of each day to a depth of 0.5 metres. Council should develop an asbestos policy and require advanced notice of a person's intention to dispose of asbestos in order that plant can be on site to assist with the correct means of unloading asbestos if required and to apply the ENM cover in accordance with the Waste Regulations. Equally Council should develop a procedure for the

management of deceased animals A feature of the long term plan of management is to rationalise the number of waste disposal activity areas and to concentrate the operations rather than have them spread throughout the facility. Decreased animals could be placed at the toe of the lower level advancing face of the general waste disposal area and covered with general waste. Adopting this approach will be a decision for Council's supervisor given the site is not controlled nor supervised

4.15 **Litter-** litter is an issue about the site and the likely source is self haul general waste deposited on the tipping platform at the top of the excavated void. Mobile litter fences should be procured and positioned near to the active tipping area to prevent the spread of windblown litter and to restrict the size of the tipping platform. (see Appendix 6) A program should be established whereby the accumulated litter is collected routinely and then landfilled

5.0 Landform Concept Design

Final landform design and filling/staging plans have been prepared for the future development of the Wilcannia waste facility and these appear as –

- Notes to Accompany Design Drawings in Appendix 1,
- Guide to Site Capacity in Appendix 1,
- Concept Designs in Appendix 2.

This suite of documents provides information on the development of the landfill for future decades and offers guidance for the orderly progression of the landfilling operations. Each sub stage is essentially a building block that in total combination will deliver the final landform. It will be most important that the design is followed in order to deliver the desired outcomes. This may require periodical examination by an external party (surveyor, geotechnical engineer) to confirm the landfilling works are progressing in keeping with the adopted designs.

Council should also be aware that operating a landfill effectively and in keeping with the EPA Guidelines requires skilled plant operators, correct plant, an understanding of grades, reduced levels, waste placement, surface water management, covering and compaction. Council staff who have been given the responsibility to oversee the operation of the facility and contractors who may be engaged to perform specific tasks should be trained accordingly and be familiar with the designs and the principles supporting those designs

6.0 Acts and Policies Associated with the Project

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Waste) Regulation 2014
- EPA Environmental Guidelines: Solid Waste Landfills (2nd edition 2016)

- Environmental Planning and Assessment Act 1979
- Environmental Planning and Assessment Regulation 2000
- Infrastructure SEPP 2007

7.0 Delivery

Desired Outcomes -

- The Wilcannia waste facility will be developed in a planned and co-ordinated manner.
- The project will deliver the stated aims
- Risk will be managed
- Regulatory agencies gain confidence in Council's management processes
- Succession planning is achieved
- Landfill void space will be maximised
- Residual life of the landfill will be optimised
- Long term planning prevents re-work resulting in corresponding savings
- Budgets can be developed for the capital works and programmed for delivery.

Key Actions to deliver the desired outcomes

Sequencing – Broadly speaking, win cover material from the inner side slopes of the current general waste disposal area (main void), modify the access to achieve a bottom to top approach for Council and contractors and a top down approach for self haul domestic waste. Continue landfilling of the main void until filling is completed to finished height and final capping applied and then move landfilling to the minor voids and east/west trenches. Concurrently, continue to have inert waste taken to the temporary inert waste disposal area until a final shape is achieved and the area can be capped. Direct all further inert waste to the general waste disposal area. Undertake site testing to determine where future trenching can occur. Determine access to the area identified for future trenching and prepare the first trench to coordinate with the completion of the existing general waste disposal area (minor voids and east/west trenches). Establish mobile litter fences to three sides of the waste disposal trench

1. Milestone 1 – Complete landfilling of the current general waste disposal area (main void), the minor voids and east/west trenches to achieve the landform design and undertake the final capping.

Key Tasks

- Construct vehicular access to the base of the existing excavation (main void)
- Win cover material from the inner side slopes of the excavation and stockpile this material for future use as cover.
- Establish a tipping platform and tipping face at the floor of the excavation.
- Establish a restricted tipping platform at the top of the excavation
- Collect litter from about the site and establish litter fences near to the tipping platform at the top of the excavation

- Place and cover waste in 2 to 2.5 metre lifts at the floor of the excavation until the final height is achieved.
- Push domestic self haul waste into the excavation from the top tipping platform
- Once the major void is filled, move landfilling to the minor voids and east/west trenches until the minor voids and trenches have been filled
- Undertake site testing to determine where future trenching can occur
- Prepare the first trench for the acceptance of general waste and establish litter fencing and tipping platform
- Develop suitable vehicular access to the new general waste disposal trench.
- Apply final capping to the completed general waste disposal areas.

Milestone 2 – Complete the inert waste disposal area

- Discontinue landfilling inert waste once the design final shape is achieved.
- Cap the existing inert waste disposal area.
- Direct all inert waste to the general waste disposal area.

Milestone 3 – Prepare an asbestos management policy

Cost Estimates - Figures provided below for the likely cost of works required to achieve the milestones are cost estimates only and may well vary depending on a range of circumstances. The purpose of the estimates is to provide inputs for the financial model that has been developed in the overarching Strategic Plan. The Strategic Plan has been prepared to provide direction for the future management of all of Council's waste facilities.

Milestone 1

Key tasks in preparing and undertaking landfilling of the current general waste disposal area (main void), the minor voids and east/west trenches to achieve the landform design and undertake the final capping.

Year 1 \$15,000 (capital cost) Note – the site testing and establishment of new trenching will occur outside of the 10 year financial model

Milestone 2

Cap the existing inert waste disposal area **Year 1 \$8,000** (capital cost)

Milestone 3

Prepare an asbestos management policy (in house)

9.0 Appendices

Appendix 1- Notes to Accompany Design Drawings

NOTES FOR INCLUSION WITH LANDFILL DESIGN DRAWINGS 20205w

GENERAL

There are a number of issues/circumstances which have an impact on the design of the Wilcannia Landfill as discussed in more detail in the main text of this LTPOM:

- * an existing relatively large void with gently sloping side batters (1V:3H to 1V:5H)
- * small size of the waste generating community
- * remote location
- * unlimited access to an unmanned site
- * limited available on site heavy equipment
- * limited on site pushing of waste into void (2 days/week)
- * advantageous low permeability geologic soil profile
- * advantageous evaporation to rainfall ratio (at least 6:1)

Using limited size trenches of limited depth can be an effective landfilling method in the absence of large earth moving equipment and purpose built compactors.

On the other hand, the filling of large, deep voids cannot be effectively carried out in the absence of such equipment.

The existing main void at Wilcannia was dug using large earth moving equipment with batters ranging from about 3H:1V to 5H:1V.

The subsequent filling of this main void to the surrounding general ground surface level of about RL 78 will sterilise a large volume of potential soil cover.

Because the filling of the void will be carried out by a rubber tyred front end loader (FEL) with occasional assistance from external heavy equipment, significantly more soil will need to be used to allow the FEL and subsequent waste delivery vehicles (including domestic vehicles) to traffic its surface.

The design of the filling of the main void is based on an effort to retrieve some of the virgin soil in the void batters and to quickly raise its level to about RL 76 which will then be able to be filled using the FEL in a more conventional way.

The ultimate aim is to fill all the larger existing voids and hollows across the site to an overall level of about RL 78 before reverting to a conventional trench and fill method which is more appropriate to smaller sites with limited equipment.

The following conceptual design details attempt to take account of these issues and do not always follow the NSW EPA Guidelines for Landfills but can be technically supported/defended as is allowed for and accepted by the EPA for small, remote communities which are in favourable geological and climatic locations.

At this site, in particular, I have not followed the basic principle of always filling from upstream to downstream in every Stage of filling to limit the extent of run on surface water entering the waste.

This is feasible at this site since the opportunity for leachate production is severely limited by the low annual rainfall and what leachate does develop during significant rare rainfall events can be readily contained on site by the low permeability soil profile.

The actual waste filling process will be somewhat inhibited due to the reliance on a front end loader (FEL) to carry out all the pushing, spreading, compacting and covering activities but should be capable of doing this by a variety of approaches discussed herein with the occasional use of a piece of larger equipment (bulldozer. excavator and the like).

FIGURE 1 SITE SURVEY PLAN (DECEMBER 2020)

Council has provided an up to date 0.5m contour plan of the site which is reproduced herein as **Figure 1.**

FIGURE 2 CONSTRUCTION AND DEMOLITION PIT

The area of interest within the contour plan provided by Council is noted on **Figure 1** and has been reproduced herein as Figure 2 with simplified contours, excluding local stockpiles and the like.

FIGURE 3 C&D PIT FILLING PLAN

This figure illustrates the current C&D pit following closure.

Essentially the current filling practice should be maintained with all incoming C&D material being dumped at the pit edge, then pushed by the FEL into the pit area, tamping down with

the FEL, adding locally available soil/concrete/other hard, small material to allow access and over-riding by the FEL and, finally, track rolling with a heavier piece of equipment before covering with 600mm of soil.

FIGURE 4 CURRENT FILLING AREA

This figure illustrates the existing main void and general waste filling area.

Its location in relation to the whole site is shown on Figure 1.

FIGURE 5 MAIN VOID FILLING PLAN (STAGE 1A)

This figure illustrates the completion of the Stage 1A filling whereby waste has been pushed progressively to the southwest over a leading face of 2m depth.

Where practicable, larger waste matter (cobbles, concrete, timber, demolition material and the like) should be end dumped or pushed over the leading face first, followed by smaller household refuse, fine green waste, paper, cardboard and the like and, where necessary, soil to allow the FEL to traffic the surface and provide some compactive effort.

An access to the Stage 1A filling area from the northern corner of the void is shown on **Figure 5.** This was suggested by John Stevenson on site during our site visit and is considered entirely appropriate as the current disposal batter is 6m deep and cannot be properly controlled using the FEL.

If this alternate access is used by waste collection trucks and professional Contractors using larger vehicles the Stage 1A area can be raised by 2m as illustrated with domestic vehicles continuing to use the upper disposal area. This will necessitate the FEL removing the waste from the toe of the small vehicle disposal batter and reaching up with its bucket to drag down as much of this material as practicable from the waste face.

Occasionally it may be necessary to hire the available bulldozer or excavator from the local Contractor to spread, break up and track roll the waste to provide reasonable access for Council and private vehicles.

Where appropriate, gravel, cobbles, boulders, concrete and other hard materials located across the balance of the adjoining land where legacy stockpiles of waste exist should be utilised to assist in developing an accessible working surface.

This figure also includes the recommended placement of access barriers (soil, logs, other) to restrict the drop off area for small vehicles to reduce the spread of waste placement. The location and type of barriers used should be a field decision based on local experience, available materials and local behaviour but is aimed at having incoming waste placed at the most convenient location from a landfilling perspective.

FIGURE 6 MAIN VOID FILLING PLAN (STAGE 1B)

Figure 6 illustrates the completion of the sub-stages 1A and 1B areas.

The Stage 1B filling should proceed in the same manner as the Stage 1A area, advancing the 2m deep waste face in a north westerly direction using the FEL.

The collection and removal of waste pushed over the small vehicle waste face will require the FEL to travel a greater distance.

FIGURE 7 RETRIEVAL OF SOIL FROM MAIN VOID BATTERS

In order to obtain additional soil cover and void space it is recommended that the relatively flat batters be cut back at 1:1 and be stockpiled adjacent to the void for future use as shown on this figure.

The movement of equipment across the in place covered waste (150mm) will provide much needed compaction and some of the excavated soil can be used to improve trafficability of the waste surface.

FIGURE 8 MAIN VOID FILLING PLAN (STAGE 1C)

This figure illustrates the raising of the landfill surface by about 2m over the completed Stage 1A and 1B areas.

This figure assumes that there will still be two dumping areas: small vehicles as shown from RL 78 and heavy vehicles from the 1A filling area at RL 76.

With improvements to the heavy vehicle access track it may be feasible to have all vehicles drop their waste directly onto the lower area.

FIGURE 9 MAIN VOID FILLING PLAN (STAGE 1D)

This figure shows the landfill level at the completion of Stage 1D.

FIGURE 10 RETRIEVAL OF SOIL FROM MAIN VOID BATTERS

At this point a considerable volume of virgin soil can be retrieved from the gently sloping batters as shown on this figure.

The removal of this soil will provide an extensive 2m deep filling area as shown.

The excavated soil should be stockpiled close to the main void for later use.

FIGURE 11 MAIN VOID FILLING PLAN (STAGES 1E,1F,1G AND 1H)

This figure illustrates Stages 1E, 1F, 1G and 1H at completion of filling of the main void.

The final filling of the main void should be divided into sub-stages so that filling is carried out within contained/bunded zones.

Starter bunds about 1m high will be sufficient to separate the waste from unfilled areas and allow adequate segregation of leachate and clean rainwater, provided that waste is not allowed to spill over the top of the containing soil bunds.

The depth of the waste filling across these stages will vary from 2m to 3m.

A "final" soil cover of 600mm should be used across this area.

At a future point in time this area will likely be overtopped at which time this cover should be largely removed prior to the placement of additional waste.

FIGURE 12 EXCAVATION PLAN FOR MINOR VOID

This existing relatively shallow and gently sloping depression/void should be excavated as shown to provide a 2m deep filling area with the excavated soil stockpiled adjacent for use as cover.

FIGURE 13 STAGE 1A FILLING PLAN FOR MINOR VOID

This figure illustrates a partially completed Stage 1A of this void.

A temporary soil bund (1m) should be placed across its middle as shown to separate waste from the unused area so that any collected rain water can be removed to the environment from the area containing no waste.

To control the dumping of waste at one end of the void, soil bunds should be placed around the balance of the void which can later be pushed over the waste as a final cover.

FIGURE 14 STAGE 1B FILLING PLAN FOR MINOR VOID

This figure illustrates the completed Stage 1A and 1B filling of the minor void.

FIGURE 15 FILLING EXISTING TRENCHES

Two significant trenches/hollows exist between areas of previous filling as shown on **Figure 15.**

These trenches are about 1.5m deep and may be readily filled progressively from either their ends or sides by pushing waste into them with the FEL, mixing in soil, cobbles, concrete and the like to provide a firm base on which to allow the FEL and/or imported heavier equipment to track roll before final cover is placed.

Once complete, the major voids, depressions and trenches will have been filled and the site leaving it at about a uniform RL 78 or so.

Where possible all existing local stockpiles of old waste, concrete, metal and the like should be picked up by the FEL and added to the waste stream to improve access for the FEL and other equipment/small vehicles.

ESTIMATED LIFE OF LANDFILL

Stage	Void	Cover *	Net	Life **
	Capacity (m3)	Required (m3)	Void (m3)	(years)
C&D PIT	Reserved for cu	rrent demolition pr	oject	
Main Void Stage 1A	400	120	280	0.3
Main Void Stage 1B	450	135	315	0.35
Main Void Stage 1C	1,000	300	700	0.78
Main Void Stage 1D	880	260	620	0.69
Main Void Stage 1E	1,500	450	1,050	1.17
Main Void Stage 1F	1,500	450	1,050	1.17
Main Void Stage 1G	1,450	435	1,015	1.13
Main Void Stage 1H	750	225	725	0.81
Minor Void Stage 14	A 1,300	390	910	1.01
Minor Void Stage 1	3 1,350	405	945	1.05
West Trench	2,250	675	1,575	1.75
East Trench	2,230	670	1,560	1.73
Totals	15,060	4,515	10,545	11.7
* assumed 30%	** assumed 90	0m3 / year		

TABLE 1

FIGURE 16 FUTURE TRENCH FILLING PLAN

Figure 16 illustrates a plan view of a 50m x 10m trench with a maximum depth of 2m prior to filling and after filling.

The maximum capacity of this trench is about 700m3, assuming a soil usage to void ratio of 0.3.

Each trench would therefore last about 9 months assuming an annual waste stream of 1,000m3.

The location of all past areas of waste filling is not known and it is likely the case that there are significant areas of the site which have not been filled.

It is recommended that after the site has been regularised as discussed above (approximately 12 years) that a trench landfill system be adopted starting at a selected location (suggested T1/T2 area shown on Figure 1) and progressively moving in 1m steps to the southwest.

An excavator will be needed every 9 months or so to dig a 50m x 20m wide trench to a depth not exceeding 2m and less than 2m when waste is encountered.

The excavated soil should be placed around three sides of the trench to limit access and filling to one open end where the FEL can push waste into the trench and progressively advance the fill face as illustrated in Appendix 4.

In this way the site can be systematically excavated and filled without sterilising large volumes of soil.

With time and experience, it may prove better to excavate a wider trench to better accommodate the incoming waste volume of dumped material. The more regular times of clearing the waste dumping areayuk, the less area is needed clear the waste.





Figure 1




















28











Appendix 3 - Aerial Site Plan



Appendix 4 – Waste Placement Technique



Note – Tamp down the exposed waste with the FEL bucket from the top and then, if accessible, from the toe area push any loose waste into the leading face. Then tamp in the exposed waste with the FEL bucket. Scatter some soil over the leading face from the top (and from the bottom, if accessible) after tamping is completed. This will save cover material and reduce windblown litter

WASTE PLACEMENT TECHNIQUE USING FEL ONLY

Appendix 5 - Protection of the Environment Operations (Waste) Regulation 2014

80 Disposal of asbestos waste

(cf clause 42(4) of 2005 Reg)

- (1) (Repealed)
- (2) When a person delivers asbestos waste to a landfill site, the person must inform the occupier of the landfill site that the waste contains asbestos.
- (3) The following persons must ensure that when a person unloads or disposes of asbestos waste at a landfill site (regardless of whether the site is subject to an environment protection licence) no dust is generated from the waste—
- (a) the person unloading or disposing of the asbestos waste,
- (b) The occupier of the landfill site.
- (4) Subject to any alternative cover conditions provided in an environment protection licence held by the occupier or approved in writing by the EPA, the occupier of a landfill site must ensure that asbestos waste disposed of at the site is covered with virgin excavated natural material—
- (a) initially (at the time of disposal), to a depth of at least 0.15 metre, and
- (b) at the end of each day's operation, to a depth of at least 0.5 metre, and
- (c) finally, to a depth of at least 1 metre (in the case of bonded asbestos material or asbestos-contaminated soils) or 3 metres (in the case of friable asbestos material) beneath the final land surface of the landfill site.
- (5) In this clause, *landfill site* means a landfill site that can lawfully receive asbestos waste.

Appendix 6 - Example of a Mobile Litter Fence



37

Central Darling Shire Council



White Cliffs Waste Facility Long Term Plan of Management



Robert Bailey Consulting Unit 408 12-24 William Street Port Macquarie, NSW 2444 Phone 0448737383

February 2021

Table of Contents

Contents

Table of Contents	2
1.0 Overview	3
2.0 Background	3
3.0 Purpose	4
4.0 Operations	4
5.0 Landform Concept Design	6
6.0 Acts and Policies Associated with the Project	7
7.0 Delivery	7
9.0 Appendices	9
Appendix 1- Notes to Accompany Design Drawings	9
Appendix 2 – Design Concept Figures 1 to 4	11
Appendix 3 - Aerial Location Plan	15
Appendix 4 – Waste Placement Technique	16
Appendix 5 – Pollution Defence	17

1.0 Overview

The White Cliffs Waste facility is located within part lot 366 and part lot 367 of DP 722942, it serves a population of up to 350 residents depending on the time of year (fewer residents during the hotter months) and is the principal means of waste disposal for the local community. The Waste Facility occupies an area of about 3 hectares. Council does not provide a kerbside waste collection service for residents and all waste receivals at the landfill are self haul. Opal mining is the main industry within White Cliffs which does not generate any significant quantity of industrial waste requiring landfilling.

The average annual rainfall is around 300 mm which can come in the form of storms. The evaporation rate exceeds 2000 mm per annum. As a general observation, little leachate would be produced at the landfill as a result of rain events and the water table appears to be well below any excavations within the waste facility. Contamination of the ground water or surface water is not considered to be a significant issue at this site.

The total quantity of waste managed at the facility would likely be less than 300 tonnes per annum and the remoteness of the township, small population, the local geology and weather characteristics need to be considered as mitigating factors when contemplating any changes to current waste disposal practices

The site is not supervised, that is there is no Council presence to oversee the operation of the facility nor is the site controlled, that there are means to limit access to defined times. This is understandable given the small population and limited quantity of materials being received. Nonetheless, Council has an obligation to operate the waste facility in accordance with the POEO (Waste) Regulations 2014.

There is a service road to the various activity areas where facility users can deposit their wastes into the excavation or at the stockpiles areas for scrap metal, green waste and for used tyres. Litter fences are provided within the site and around the boundaries and are relatively effective in preventing the spread of windblown litter. The existing signage that provides information and direction to facility users can be improved, particularly in relation to the lighting of fires.

Geotechnical engineer, Robert Amaral, has provided concept designs and notes (see Appendices 1 and 2) that demonstrate how waste is to be deposited and covered as a number of stages towards the achievement of a final landform. The site has the potential to received waste materials for approximately 40 years

2.0 Background

Central Darling Shire Council has determined to undertake a review of the operations of its waste facilities in order to identify how the residual life of the landfills it operates can be maximised, how improvements to current practices could be introduced, where efficiencies may be gained and risks mitigated. Council's aim is to achieve sustainable management of

the White Cliffs waste facility that is commensurate with available resources and obligations set out in the POEO (Waste) Regulations 2014.

Council has prepared a scope of works and engaged Robert Bailey Consulting and Robert Amaral Geotechnical (Landfill) Engineer to prepare a long term plan of management for the White Cliffs Waste Facility that will provide a final landform design, filling/staging plans and procedures to improve operational performance and to mitigate risks.

3.0 Purpose

The purpose of this Long Term Plan of Management (LTPoM) is to provide a process with the highest probability of achieving the defined project aims. The LTPoM would address long term planning and the future operations of the White Cliffs Waste Facility in considering the final landform, existing and future infrastructure, plant utilisation, complying with the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016) and POEO (Waste) Regulations 2014, valuing responsible environmental performance, improving existing landfill management practices and recognising resource recovery opportunities.

The primary aims of the project are:

- To put measures in place that will maximise the residual life of the landfill
- To identify improvements to existing practices that will translate into cost efficiencies and provide for the realisation of these opportunities.
- To develop plans for the coordinated development of the facility over the longer term.
- To engage practices that will ensure responsible environmental performance is achieved
- To comply with the requirements of the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016) together with other relevant legislation, regulations and codes where applicable
- To address risk
- To contribute to the development of an overarching strategic plan for Council's waste facilities including the preparation of a financial model that will predict future incomes and expenditures and will provide for the managed development of the facilities over the longer term.

4.0 Operations

- 4.1 **Current operations for the general waste active tipping area –** access to the general waste disposal area is by way of a formed track leading to the tipping platform. General waste is deposited in the excavation and progressively covered. There is no formal plan for the staged placement and covering of waste,
- 4.2 **Proposed improvements to the operation of the general waste tipping area –** Geotechnical engineer Robert Amaral (Amaral) has prepared concept

designs for the future operation of the current general waste disposal area that includes sequencing and concept designs for staging and final landform. (see Amaral concept designs and notes Appendix 1 and Appendix 2). The current excavation has a residual life of around 40 years under current receival volumes

- 4.3 **Existing landfill plant -** a front end loader (FEL) that is contract hired on a needs basis together with a Council mini excavator and bobcat
- 4.4 **Proposed improvement to landfill plant utilisation**–there are no proposed changes to the type of plant to be used
- 4.5 Current site control and supervision the site is not supervised that is there is no Council presence to oversee the operation of the facility nor is the site controlled, that is there is no means to limit access to defined times. Given the small population using the facility and infrequent visitations, it is understandable and acceptable that the site is not controlled nor supervised, whilst ever the facility meets the requirements set out in the POEO (Waste) Regulations 2014.
- 4.6 **Proposed improvement to site control and supervision –** no changes are proposed to site control and supervision.
- 4.7 Current Green Waste Management there is a separate area where self haul green waste and wood waste are stockpiled, pushed up and could be shredded as part of a service agreement. Contamination can be an issue. Shredding can be expensive and the contaminated product has little re-use value other than for cover material or placement over disturbed areas to control dust and erosion.
- 4.8 **Proposed improvements to green waste management** although no change is proposed to the manner in which green waste is stockpiled, the location may shift to be closer to the general waste disposal area. For the current stockpile and for the future management of green waste, as an alternative to shredding and to save costs, when suitable plant is available, that is larger plant with tracks such as dozer or excavator, the stockpiled green waste can be spread, larger items of contamination removed and the green waste broken up using a number of passes of the track machine. The broken up green waste can then be landfilled or placed on top of capped surfaces, depending on the quality of the finished product to control dust and erosion. It may also be used as cover as a substitute to ENM.
- 4.9 Current scrap metal management self haul scrap metal is stockpiled in two separate locations within the site. One is for white goods and general scrap and the second for car bodies. The ongoing determination in operating two separate stockpile areas will be a value judgement for Council. The collected scrap metal is on-sold to a service contractor whereby the material is taken off site on a routine basis. The scrap metal stockpiles are pushed up from time to time using the contracted FEL
- 4.10 **Proposed scrap metal management –** ideally, the scrap metal would be contained to one controlled stockpile area and not allowed to spread or multiple stockpile areas develop. This is about site management and not about scrap metal recovery. Should this practice be adopted, a large part of

the site could be barricaded off and rehabilitated. A collection contractor should be engaged to remove the accumulated scrap metal on a regular basis

- 4.11 **Current and proposed waste concrete management –** waste concrete is not being separated but landfilled. No change is proposed to waste concrete management.
- 4.12 Deceased animals and asbestos disposal- deceased animals or asbestos are not accepted at the waste facility. Changes to this position are not proposed

4.13 **Litter**. Litter fences are provided within the site and around the boundaries and are relatively effective in preventing the spread of windblown litter. Litter is generally contained against the litter fencing. Any litter that migrates beyond the site boundaries should be collected routinely

5.0 Landform Concept Design

Final landform design and filling/staging plans have been prepared for the future development of the White Cliffs waste facility and these appear as -

- Notes to Accompany Design Drawings in Appendix 1,
- Concept Designs in Appendix 2
- Guide to Site Capacity in Appendix 2,

This suite of documents provides information on the development of the landfill for future decades and offers guidance for the orderly progression of the landfilling operations. Each sub stage is essentially a building block that in total combination will deliver the final landform. It will be most important that the design is followed in order to deliver the desired outcomes. This may require periodical examination by an external party (surveyor, geotechnical engineer) to confirm the landfilling works are progressing in keeping with the adopted designs.

Council should also be aware that operating a landfill effectively and in keeping with the EPA Guidelines requires skilled plant operators, correct plant, an understanding of grades, reduced levels, waste placement, surface water management, covering and compaction. Council staff who have been given the responsibility to oversee the operation of the facility and contractors who may be engaged to perform specific tasks should be trained accordingly and be familiar with the designs and the principles supporting those designs

6.0 Acts and Policies Associated with the Project

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Waste) Regulation 2014
- EPA Environmental Guidelines: Solid Waste Landfills (2nd edition 2016)
- Environmental Planning and Assessment Act 1979
- Environmental Planning and Assessment Regulation 2000
- Infrastructure SEPP 2007

7.0 Delivery

Desired Outcomes – White Cliffs waste facility will be developed in a planned and coordinated manner.

- The project will deliver the stated aims
- Risk will be managed
- Regulatory agencies gain confidence in Council's management processes
- Succession planning is achieved
- Landfill void space will be maximised
- Residual life of the landfill will be optimised
- Long term planning prevents re-work resulting in corresponding savings
- Budgets can be developed for the capital works and programmed for delivery in a measured way and for optimum benefit

Key Actions to deliver the desired outcomes

Milestone 1 – Progressively deposit the waste material until the final landform is achieved. (Amaral Appendices 1 and 2, figures 1-4)

Key Tasks

- Develop suitable vehicular access to the active tipping area and prepare the tipping platform.
- Establish improved signage that informs and directs facility users
- Develop protocols for the management of green waste
- Concentrate the stockpiling of scrap metal to one location and close off that part of the site where car bodies were being stored
- Push waste progressively into the excavation in accordance with the Amaral concept filling/staging plans and the "waste placement technique" as shown in Appendix 4.
- Source cover/capping material from on site stockpiles of ENM

- Apply cover as shown in the "waste placement technique"
- Continue the process until the final landform is achieved and final capping applied

Cost Estimates - Figures provided below for the likely cost of works required to achieve the milestones are cost estimates only and may well vary depending on a range of circumstances. The purpose of the estimates is to provide inputs for the financial model that has been developed in the overarching Strategic Plan. The Strategic Plan has been prepared to provide direction for the future management of all of Council's waste facilities.

Milestone 1

Progressively deposit the waste material until the final landform is achieved

The cost of achieving milestone 1 will be met from the existing waste budget for the operations of the White Cliffs facility

9.0 Appendices

Appendix 1- Notes to Accompany Design Drawings

Notes to Accompany Figures 1, 2, 3 and 4: Staged Filling Plans for White Cliffs Landfill

Figure 1 Stage 1 Filling Plan

This Figure illustrates the completion of the Stage 1 filling area.

At this point in time the waste has been placed into a mounded shape and covered with an interim soil cover 300mm deep capable of shedding surface rainfall directly to the environment.

This filling should be carried out in several sub-stages, filling from northwest to southeast.

The side batters are shown at a 5H:1V gradient which should be capable of development using an FEL or similar equipment.

The south western batter is " final " and may be covered with an additional 300mm of soil and overtopped with gravel , cobbles, bricks, tiles or other coarse inert fill to control erosion.

This should encourage the collection of dust, seeds and the like to promote the introduction of native shrubs.

Figure 2 Stage 2 Filling and Stage 3 Excavation Plan

This Figure illustrates the completion of the Stage 2 filling sequence and the excavation (to 2m depth) of the Stage 3 filling area.

As with the Stage 1 Filling Plan the waste will be placed in the Stage filling area in several sub-stages from northwest to south east, marrying in with the completed Stage 1 mound.

The north eastern batter is shown as having a gradient of 3H:1V but can be reduced to 5H:1V depending on the equipment available and the experience of the operators.

Again, this completed mound will shed surface water off the landform and reduce leachate production.

The excavation is shown at a depth of 2m which should provide ample soil for internal and final cover.

If this area contains old waste it should not present a problem as it will, in all probability, have been burnt and will be inert and suitable for selective disposal in the Stage 2 landfilling area or as soil cover.

Any water that collects in this excavation may be used for fire fighting, watering to encourage shrub growth over the completed stage areas or simply left to evaporate.

Figure 3 Stage 3 Filling Plan

This Figure illustrates an initial Sub-Stage 3A filling at completion and the balance of the Stage 3 filling area with two more Sub-stages (3B and 3C) using dashed lines at completion.

As shown, the filling sequence should be from up gradient to down gradient.

Figure 4 Stage 1A Filling Plan

This Figure illustrates the initial filling of the Stage 1 filling area, raising this depression so as to allow the shedding of surface water to the southeast.

This Sub-stage should be followed by a further raising to final grade as shown on Figure 4.

Figures illustrating the construction sequences that can be used for final perimeter batters (3H:1V) and internal temporary batters (1:1) have been provided for the larger Central Darling Shire landfills but are probably not appropriate for White Cliffs.

It is likely the case here that survey height markers should be provided as the work progresses so that the operators can achieve these design levels by whatever means they feel comfortable with using available equipment.

Capacity

Using conventional cover usage rates of 20% the following approximate capacities have been estimated for planning purposes :

Stage m3)	void capacity (m3)	soil cover (m 3)	net void available (
1	8,000	1,600	6,400
2	5,000	1,000	4,000
3	12,000	2,400	9,600
totals	25,000	5,000	20,000











Appendix 3 - Aerial Location Plan



15

Appendix 4 – Waste Placement Technique



Note -- Tamp down the exposed waste with the FEL bucket from the top and then, if accessible, from the toe area push any loose waste into the leading face. Then tamp in the exposed waste with the FEL bucket. Scatter some soil over the leading face from the top (and from the bottom, if accessible) after tamping is completed. This will save cover material and reduce windblown litter

WASTE PLACEMENT TECHNIQUE USING FEL ONLY

Appendix 5 – Pollution Defence

The EPA enforces strict rules for land pollution to deter illegal dumping of waste including asbestos, waste tyres, hazardous waste, and restricted solid waste. There is a defence against a land pollution charge for unlicensed landfills, if those facilities maintain certain minimum standards.

By setting minimum operational standards for unlicensed landfills across NSW, the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation) provides a defence to land pollution at unlicensed landfills.

This defence to potential prosecution under section 142 of the POEO Act would be available if the landfill operator, at the time of the alleged land pollution, maintained these minimum standards at their facility.

These standards include measures to

- reduce fire risk
- reduce odour, noise and dust
- control public access to the site
- generally maintain the facility

These minimum standards are not a mandatory practice, however, they do provide a defence for operators against potential prosecution for land pollution under section 142 of the POEO Act.

Central Darling Shire Council



Tilpa Waste Facility Long Term Plan of Management



Robert Bailey Consulting Unit 408 12-24 William Street Port Macquarie, NSW 2444 Phone 0448737383

January 2021

Table of Contents

Contents

Table	of Contents	2
1.0	Overview	3
2.0	Background	3
3.0	Purpose	4
4.0	Operations	5
5.0	Landform Concept Design	6
6.0	Acts and Policies Associated with the Project	6
7.0	Delivery	7
9.0	Appendices	9
Appe	ndix 1- Notes to Accompany Design Drawings	9
Appe	ndix 2 – Design Concept Figures 1 to 6	.13
Appe	ndix 3 - Aerial Location Plan	.19
Appe	ndix 4 – Waste Placement Technique	.20
1.0 Overview

The Tilpa Waste Facility is described as Lot 6881 DP 48661 Crown Reserve, is located about two kilometres from the village of Tilpa off the Wilcannia to Bourke Road and serves a district population of around 40 residents. It is a small landfill and utilises a trench and fill method for waste disposal. The facility occupies around half of one hectare of land and has been in operation for a number of years.

The site is not supervised, that is, there is no Council presence to oversee the operation of the facility nor is the site controlled, that is, there are no gates that can be shut to limit access to defined times. This is understandable given the small population and limited quantity of materials being received. Nonetheless, Council has an obligation to operate the waste facility in accordance with the POEO (Waste) Regulations 2014.

There is a service road about the perimeter of the disposal trench where facility users can deposit their waste into the excavation. There are no means of controlling the spread of the deposited waste within the excavation. A three metre high litter fence has been established along the boundary lines and is effective in intercepting windblown litter.

Geotechnical engineer, Robert Amaral, has provided concept designs and notes (see Appendices 1 and 2) that demonstrate how deposited waste is to be pushed up to one end of the excavation and progressively capped as the final landform is developed. Such work on the landfill will be undertaken when suitable plant is available and could be at intervals exceeding six months. The covering of putrescible waste can be undertaken on a regular basis by a local landholder using a tractor and blade

. When the current void has reached capacity and final shape attained, three additional trenches can be excavated within the existing landfill boundaries as described in Appendix 2, figures 1 and 6. The completed stages 1, 2 and 3 of the existing excavation can then be capped and excess overburden from the trench excavations stockpiled for use as cover material and final capping of the additional trenches. Appendices 1 and 2 provide details of the proposed works. Although many years into the future, when the three additional trenches have been filled and capped, a new landfill can be developed on land immediately adjacent to the current landfill

2.0 Background

Central Darling Shire Council has determined to undertake a review of the operations of its waste facilities in order to identify how the residual life of its landfills can be maximised, how improvements to current practices could be introduced, where efficiencies may be gained and risks mitigated. Council's aim is to achieve sustainable management of the Tilpa waste facility that is commensurate with available resources and obligations set out in the POEO (Waste) Regulations 2014.

Council has prepared a scope of works and engaged Robert Bailey Consulting and Robert Amaral Geotechnical (Landfill) Engineer to prepare a long term plan of management for the Tilpa Waste Facility that will provide a final landform design, filling/staging plans, has identified where future trenching can be undertaken and established procedures to improve operational performance and to mitigate risks.

3.0 Purpose

The purpose of this Long Term Plan of Management (LTPoM) is to provide a process with the highest probability of achieving the defined project aims. The LTPoM would address long term planning and the future design of the Tilpa Waste Facility in considering the final landform, progression to a new trench excavations, existing and future infrastructure, plant utilisation, complying with the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016), valuing responsible environmental performance, improving existing landfill management practices and recognising resource recovery opportunities.

The primary aims of the project are:

- To put measures in place that will maximise the residual life of the landfill
- To identify improvements to existing practices that will translate into cost efficiencies and provide for the realisation of these opportunities.
- To develop plans for the coordinated development of the facility over the longer term.
- To engage practices that will ensure responsible environmental performance is achieved
- To comply with the requirements of the EPA Environment Guidelines: Solid Waste Landfills (2nd edition 2016) together with other relevant legislation, regulations and codes where applicable
- To address risk
- To contribute to the development of an overarching strategic plan for Council's waste facilities including the preparation of a financial model that will predict future incomes and expenditures and will provide for the managed development of the waste facilities over the longer term.

4.0 Operations

- 4.1 Current operations for the general waste active tipping area general waste, which is self haul (Council does not provide a kerbside collection service), is deposited at the edge of the excavation and there are no measures in place to contain the size of the active tipping area. The site is not supervised, therefore signage is the principal means of controlling the disposal area. The waste material is pushed up whenever suitable plant is available. Windblown litter is not an issue given the high mesh fencing that has been established around the perimeter of the site and is in close proximity to the excavation. The shape of the service road that encircles the excavation is directed towards the landfill and may cause water (leachate) to pond within the excavation after storm events. This can be corrected as the final landform develops
- 4.2 **Proposed improvements to the operation of the general waste tipping area** – Geotechnical engineer Robert Amaral has prepared concept designs for the future operation of the current general waste disposal area that provides for the progressive pushing up of deposited waste to one end of the excavation, achieving the design shape and then capping with ENM (excavated natural material). This procedure will be undertaken as three stages until the present excavation is completed filled. Locations within the current site have been identified where three additional trenches can be excavated for future landfilling. Cover material and capping can be provided from the future trench excavations. (see Appendices 1 and 2).
- 4.3 **Existing landfill plant –** whatever suitable plant is available when road works are being undertaken in the local area
- 4.4 **Proposed improvement to landfill plant utilisation** a local landholder to be engaged to push up and cover putrescibles waste on a regular basis using a tractor with a blade and continue to use larger plant when available.
- 4.5 **Current site control and supervision –** the site is not supervised that is, there is no Council presence to oversee the operation of the facility nor is the site controlled, that is gates are not provided to limit access to defined times.
- 4.6 **Proposed improvement to site control and supervision –** no changes are proposed to site control and supervision given the small population being served by the landfill.
- 4.7 **Current green waste management –** green waste is not being separated, and is being landfilled.
- 4.8 **Proposed improvements to green waste management** no changes are proposed to the current means of green waste management

- 4.9 **Current scrap metal management** scrap metal is not being separated and is being landfilled. No changes are proposed to the current procedure.
- 4.10 Current and proposed waste concrete management waste concrete is currently being landfilled and no changes are proposed.
- 4.11 **Deceased animals and asbestos disposal-** deceased animals or asbestos are not accepted at the landfill and no change is proposed to this position.
- 4.12 **Litter-** litter fences have been established about the perimeter of the site and are effective in controlling windblown litter. The fencing is about 3.0 metres high. No changes are proposed.
- 4.13 **Recycling** there is the potential to recover drink bottles and cans from the landfill that fall within the Container Deposit Scheme (CDS) and may be taken to the Return and Earn facility at Wilcannia. Council may be able to facilitate this as a community endeavour.

5.0 Landform Concept Design

Final landform design and filling/staging plans have been prepared for the future development of the Tilpa waste facility and these appear as –

- Notes to Accompany Design Drawings in Appendix 1,
- Concept Designs in Appendix 2 and

These documents offer information on the progressive filling of the current excavationl until the final landform is established and provides the location and design of additional trenching

6.0 Acts and Policies Associated with the Project

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Waste) Regulation 2014
- EPA Environmental Guidelines: Solid Waste Landfills (2nd edition 2016)
- Environmental Planning and Assessment Act 1979
- Environmental Planning and Assessment Regulation 2000
- Infrastructure SEPP 2007

7.0 Delivery

Desired Outcomes – the Tilpa waste facility will be developed in a planned and coordinated manner.

- The project will deliver the stated aims
- Risk will be managed
- Regulatory agencies gain confidence in Council's management processes
- Succession planning is achieved
- Landfill void space will be maximised
- Residual life of the landfill will be optimised
- Long term planning prevents re-work resulting in corresponding savings
- Budgets can be developed for the capital works and programmed for delivery in a measured way and for optimum benefit

Key Actions to deliver the desired outcomes

Milestone 1 – Progressively push up and cap the deposited waste material until the final landform is achieved and capping can be applied (Appendix 2, figures 3, 4 and 5)

Key Tasks

- When suitable plant is available, push all deposited waste to one end of the excavation over three stages until the designed landform shape is achieved.
- Win capping from existing on-site material or from the locations of the future trench excavations (progressively) and place and compact the capping in accordance with the Amaral concept designs (Appendix 2, figures 3, 4 and 5)

Milestone 2 – prepare for the next trench and undertake the excavation

- Prepare future trenches as (Amaral) stages 4, 5 and 6.
- Stockpile excessive overburden for use as cover material and capping for the additional trenches
- undertake landfilling in the new excavation as proposed in Appendix 4

Cost Estimates - Figures provided below for the likely cost of works required to achieve the milestones are cost estimates only and may well vary depending on a range of circumstances. The purpose of the estimates is to provide inputs for the financial model that

has been developed in the overarching Strategic Plan. The Strategic Plan has been prepared to provide a roadmap for the future management of all of Council's waste facilities.

Milestone 1

Progressively push up and cap the deposited waste material over three stages until the final landform is achieved and capping can be applied

Year 1 \$5,000 (capital cost)

Year 2 \$5,000

Year 3 \$5,000

Year 4 \$5,000

Milestone 2

Prepare for the next trench and undertake the excavation Continue landfilling

Year 5 \$15,000 Year 6 \$5,000

Year 7 \$6,000

Year 8 \$6,000

Year 9 \$6,000

9.0 Appendices

Appendix 1- Notes to Accompany Design Drawings

NOTES FOR INCLUSION WITH LANDFILL DESIGN DRAWINGS 20205t

GENERAL

There are a number of issues/circumstances which have an impact on the design of the Tilpa Landfill as discussed in detail in the main text of this LTPoM:

- * very small size of the waste source community
- * remote location
- * unlimited access to an unmanned site
- * limited access to purpose built landfill equipment
- * advantageous low permeability geologic soil profile
- * advantageous evaporation to rainfall ratio (at least 6:1)

Some of these issues have no ready solution due to cost restraints.

The following design details attempt to take account of these issues and do not always follow the NSW EPA Guidelines for Landfills but can be technically supported/defended because of the advantageous geological nature of the site and its very favourable climatic environment.

In particular, the usual major environmental issue for landfills is the generation and potential movement off site of leachate which, at Tilpa, is essentially non-existent.

FIGURE 1 SITE PLAN FROM GOOGLE EARTH

This figure provides an adequate layout of the existing site and the adjoining soil windrow which is understood to have a core of waste material.

The approximate plan area of the site is about 70m x25m.

FIGURE 2 SCHEMATIC SITE PLAN

Figure 2 is a schematic plan of the site showing its main features: an encircling soil bund/levee which is about 1.5 to 2m above the surrounding ground surface, a central dish shaped area into which waste is placed and a scattering of waste concentrated mainly towards its eastern end.

Access is by means of a well graded track which runs around the perimeter of the landfilling area.

FIGURE 3 STAGE 1 FILLING PLAN

The Stage 1 filling plan consists of collecting all of the existing waste located within the dish shaped filling area and concentrating it into the eastern one third or so of the site.

Most of the existing waste is composed of metal and other non-combustible material, the residue of many previous fires.

The majority of this material is small enough to be picked up in a front end loader (FEL) or bobcat bucket and placed in the eastern end of the site.

If placed at the edge of the limited eastern end of the site it should be able to be pushed towards the centre of the filling area, mixed with soil/concrete/other hard material to allow the FEL, bobcat or other small equipment to ride over the waste and extend the waste face into the centre of the filling area.

Once all the loose waste has been moved into or adjacent to the Stage 1 filling area it may be necessary to import a steel tracked piece of equipment (dozer, traxcavator, excavator or the like) to ride over the waste to provide a shaped platform over which a 600mm cover of soil can be placed.

In order for this work to be achieved using an FEL alone, additional soil will need to be used to allow the waste to be pushed up and trafficked.

With the discontinuance of waste burning the rate of landfilling will increase and there will be more "soft" waste such as paper/cardboard and the like to co-mingle with the balance of the harder waste, possibly allowing the lighter equipment to ride over the waste surface with the use of more soil.

It will also be the case that unburnt putrescible waste will need to covered more regularly to control flies, rodent, birds and litter.

FIGURE 4 STAGE 2 FILLING PLAN

This figure illustrates the completion of the Stage 2 filling program.

As far as is practicable, all future incoming waste should be placed and pushed into this Stage 2 area.

During this filling period, the locally available farm tractor should be used to push waste towards the middle of this area.

It would be preferable to block access to the eastern third of the site to help concentrate all waste into the designated area.

All on-site trees should be removed, cut up and placed in with the waste to leave the area clear of all current and future operations.

As with Stage 1, towards the end of this filling stage (or earlier if necessary) heavier equipment may be required to carry out some compaction and raising of the waste to design level before covering with 600mm of soil.

FIGURE 5 STAGE 3 FILLING PLAN

This figure illustrates the completion of the Stage 3 filling program.

A similar filling program to that described above for Stages 1 and 2 should be carried out.

As with the Stage 1 filling program, additional soil and/or local inert concrete pieces or the like can be used to allow the FEL to push up and ride over the waste.

With the discontinuance of burning waste there will be more paper/cardboard and other "soft" waste within the mix, including putrescible waste, which may make it easier for the light equipment to track over the waste with the use of additional soil.

Additional soil will need to be applied in any event to control flies, rodents, birds and litter in the absence of burning.

FIGURE 6 STAGES 4, 5 AND 6 FILLING PLAN

The extensive soil levee banks around the Stage 1, 2 and 3 filling areas are sufficiently wide to allow trenches to be dug as shown on this figure to a depth of 2m or so and still leave sufficient of the levee banks in place to provide adequate protection to the landfill area.

Starting at Stage 4, ready access will be available to fill the trench from both the north and south. A suggested filling method is illustrated in Appendix 4.

As with the other stages the occasional use of a heavier piece of equipment will likely be required to achieve additional compaction, increase the capacity of each trench and allow the placement of the final cover on more uniform surface.

The soil excavated from Stages 4, 5 and 6 should be placed adjacent to the trenches on the completed Stages 1, 2 and 3 to allow covering of the trenches, with the excess soil being spread over the completed landform to promote the shedding of surface water.

Appendix 2 – Design Concept Figures 1 to 6



13











Appendix 3 - Aerial Location Plan



Appendix 4 – Waste Placement Technique



Note -- Tamp down the exposed waste with the FEL bucket from the top and then, if accessible, from the toe area push any loose waste into the leading face. Then tamp in the exposed waste with the FEL bucket. Scatter some soil over the leading face from the top (and from the bottom, if accessible) after tamping is completed. This will save cover material and reduce windblown litter

WASTE PLACEMENT TECHNIQUE USING FEL ONLY