Operations Cash Flow

Revenue	2012	2013	2014	2015	2016	2017	2018	2019	2020
Program Revenue									
CoJ Hire	$ -	$ -	$ -	$ -	$ 113,312	$ 127,946	$ 144,469	$ 161,334	$ 168,675
Community Hire Revenue	$ -	$ -	$ -	$ -	$ 214,357	$ 242,039	$ 273,296	$ 308,589	$ 348,441
Commercial Hire Revenue	$ -	$ -	$ -	$ -	$ 956,922	$ 1,080,499	$ 1,220,034	$ 1,377,590	$ 1,537,383
Subtotal - Rental Revenue	*$ -*	*$ -*	*$ -*	*$ -*	*$ 1,284,591*	*$ 1,450,483*	*$ 1,637,799*	*$ 1,847,513*	*$ 2,054,499*
Ticket Revenue	*$ -*	*$ -*	*$ -*	*$ -*	*$ 1,158,084*	*$ 1,307,639*	*$ 1,476,508*	*$ 1,614,482*	*$ 1,687,941*
Subtotal - Program Revenue	*$ -*	*$ -*	*$ -*	*$ -*	*$ 2,442,676*	*$ 2,758,123*	*$ 3,114,307*	*$ 3,461,995*	*$ 3,742,440*
Other Income									
Food and Beverage Revenue	$ -	$ -	$ -	$ -	$ 64,230	$ 72,524	$ 81,890	$ 92,376	$ 102,725
Art Gallery Sales Commission	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*
Restaurant Lease	*$ -*	*$ -*	*$ -*	*$ -*	*$ 99,343*	*$ 101,827*	*$ 104,372*	*$ 106,982*	*$ 109,656*
Commercial Office Lease	*$ -*	*$ -*	*$ -*	*$ -*	*$ 178,878*	*$ 186,927*	*$ 195,339*	*$ 204,129*	*$ 213,315*
Parking Revenue	*$ -*	*$ -*	*$ -*	*$ -*	*$ 331,144*	*$ 339,422*	*$ 347,908*	*$ 356,606*	*$ 365,521*
Sponsorship and Grants	*$ -*	*$ -*	*$ -*	*$ -*	*$ 119,252*	*$ 124,618*	*$ 130,226*	*$ 136,086*	*$ 142,210*
Council Contribution	*$ -*	*$ -*	*$ -*	*$ -*	*$ 496,716*	*$ 509,134*	*$ 521,862*	*$ 534,909*	*$ 548,281*
Subtotal - Other Income	*$ -*	*$ -*	*$ -*	*$ -*	*$ 1,289,562*	*$ 1,334,453*	*$ 1,381,597*	*$ 1,431,087*	*$ 1,481,709*
Total Revenue	**$ -**	**$ -**	**$ -**	**$ -**	**$ 3,732,238**	**$ 4,092,575**	**$ 4,495,904**	**$ 4,893,082**	**$ 5,224,148**

Expenses	2012	2013	2014	2015	2016	2017	2018	2019	2020
Variable Costs									
Cost of CoJ Hire Revenue	$ -	$ -	$ -	$ -	-$ 113,312	-$ 127,946	-$ 144,469	-$ 161,334	-$ 168,675
Cost of Community Hire Revenue	$ -	$ -	$ -	$ -	-$ 214,357	-$ 242,039	-$ 273,296	-$ 308,589	-$ 348,441
Cost of Commercial Hire Revenue	$ -	$ -	$ -	$ -	-$ 505,263	-$ 570,513	-$ 644,189	-$ 727,379	-$ 808,724
Cost of Food and Beverage Revenue	$ -	$ -	$ -	$ -	-$ 44,961	-$ 50,767	-$ 57,323	-$ 64,663	-$ 71,907
Other Program Costs	$ -	$ -	$ -	$ -	-$ 1,042,276	-$ 1,176,875	-$ 1,328,857	-$ 1,453,034	-$ 1,519,147
Subtotal - Variable Costs	*$ -*	*$ -*	*$ -*	*$ -*	*-$ 1,920,169*	*-$ 2,168,140*	*-$ 2,448,133*	*-$ 2,714,999*	*-$ 2,916,893*
Undistributed Operating Expenses									
Marketing	$ -	$ -	$ -	$ -	-$ 178,878	-$ 186,927	-$ 195,339	-$ 204,129	-$ 213,315
Staffing	$ -	$ -	$ -	$ -	-$ 776,244	-$ 811,175	-$ 847,678	-$ 885,823	-$ 925,686
Administrative and General	$ -	$ -	$ -	$ -	-$ 122,134	-$ 137,906	-$ 155,715	-$ 173,100	-$ 187,122
Total Undistributed Operating Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**-$ 1,077,256**	**-$ 1,136,009**	**-$ 1,198,732**	**-$ 1,263,052**	**-$ 1,326,123**
Fixed Charges									
Rates and Taxes	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Insurance	$ -	$ -	$ -	$ -	-$ 54,528	-$ 55,892	-$ 57,289	-$ 58,721	-$ 60,189
Air-Conditioning	$ -	$ -	$ -	$ -	-$ 59,551	-$ 61,039	-$ 62,565	-$ 64,130	-$ 65,733
Lifts	$ -	$ -	$ -	$ -	-$ 48,071	-$ 49,273	-$ 50,505	-$ 51,767	-$ 53,061
Fire Protection	$ -	$ -	$ -	$ -	-$ 10,045	-$ 10,296	-$ 10,553	-$ 10,817	-$ 11,087
Energy	$ -	$ -	$ -	$ -	-$ 208,556	-$ 220,027	-$ 232,128	-$ 244,895	-$ 258,364
Cleaning	$ -	$ -	$ -	$ -	-$ 106,904	-$ 109,577	-$ 112,316	-$ 115,124	-$ 118,002
Buildings Staff	$ -	$ -	$ -	$ -	-$ 53,484	-$ 55,891	-$ 58,406	-$ 61,035	-$ 63,781
Security	$ -	$ -	$ -	$ -	-$ 21,704	-$ 22,681	-$ 23,701	-$ 24,768	-$ 25,882
Repairs and Maintenance	$ -	$ -	$ -	$ -	-$ 44,484	-$ 45,596	-$ 46,736	-$ 47,904	-$ 49,102
Management	$ -	$ -	$ -	$ -	-$ 78,923	-$ 80,896	-$ 82,918	-$ 84,991	-$ 87,116
Sundries	$ -	$ -	$ -	$ -	-$ 30,852	-$ 31,623	-$ 32,413	-$ 33,224	-$ 34,054
Void Allowance and Contingency	$ -	$ -	$ -	$ -	-$ 19,372	-$ 19,856	-$ 20,353	-$ 20,861	-$ 21,383
Total Fixed Charges	**$ -**	**$ -**	**$ -**	**$ -**	**-$ 736,473**	**-$ 762,646**	**-$ 789,884**	**-$ 818,237**	**-$ 847,756**
Total Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**-$ 3,733,898**	**-$ 4,066,794**	**-$ 4,436,750**	**-$ 4,796,289**	**-$ 5,090,772**
Operating Surplus / Deficit	**$ -**	**$ -**	**$ -**	**$ -**	**-$ 1,660**	**$ 25,781**	**$ 59,155**	**$ 96,793**	**$ 133,376**
Cumulative Surplus / Deficit	**$ -**	**$ -**	**$ -**	**$ -**	**-$ 1,660**	**$ 24,121**	**$ 83,275**	**$ 180,069**	**$ 313,445**
Financing Costs (Interest and Principle)	**$ -**	**$ -**	**$ -**	**$ -**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**
Capital Replacement Cost	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Net Position After Financing Costs and Capital Replacement	**$ -**	**$ -**	**$ -**	**$ -**	**-$ 4,504,484**	**-$ 4,477,042**	**-$ 4,443,669**	**-$ 4,406,031**	**-$ 4,369,447**
Cumulative Position after Financing Costs and Captal Replacement	**$ -**	**$ -**	**$ -**	**$ -**	**-$ 4,504,484**	**-$ 8,981,527**	**-$ 13,425,196**	**-$ 17,831,226**	**-$ 22,200,674**

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	$ 176,349	$ 184,373	$ 192,762	$ 201,533	$ 210,702	$ 220,289	$ 230,313	$ 240,792	$ 251,748	$ 263,202	$ 275,178	$ 287,699	$ 300,789
	$ 393,438	$ 444,247	$ 436,827	$ 456,703	$ 477,483	$ 499,208	$ 521,922	$ 545,670	$ 570,498	$ 596,455	$ 623,594	$ 651,968	$ 681,632
	$ 1,607,334	$ 1,680,468	$ 1,756,929	$ 1,836,870	$ 1,920,447	$ 2,007,828	$ 2,099,184	$ 2,194,697	$ 2,294,555	$ 2,398,958	$ 2,508,110	$ 2,622,229	$ 2,741,541
	$ 2,177,122	*$ 2,309,088*	*$ 2,386,519*	*$ 2,495,105*	*$ 2,608,633*	*$ 2,727,326*	*$ 2,851,419*	*$ 2,981,158*	*$ 3,116,801*	*$ 3,258,616*	*$ 3,406,883*	*$ 3,561,896*	*$ 3,723,962*
	$ 1,764,742	*$ 1,845,038*	*$ 1,928,987*	*$ 2,016,756*	*$ 2,108,519*	*$ 2,204,456*	*$ 2,304,759*	*$ 2,409,626*	*$ 2,519,263*	*$ 2,633,890*	*$ 2,753,732*	*$ 2,879,027*	*$ 3,010,022*
	$ 3,941,864	*$ 4,154,126*	*$ 4,315,506*	*$ 4,511,862*	*$ 4,717,151*	*$ 4,931,782*	*$ 5,156,178*	*$ 5,390,784*	*$ 5,636,065*	*$ 5,892,505*	*$ 6,160,614*	*$ 6,440,922*	*$ 6,733,984*
	$ 108,856	$ 115,454	$ 119,326	$ 124,755	$ 130,432	$ 136,366	$ 142,571	$ 149,058	$ 155,840	$ 162,931	$ 170,344	$ 178,095	$ 186,198
	$ -	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*
	$ 112,398	*$ 115,208*	*$ 118,088*	*$ 121,040*	*$ 124,066*	*$ 127,168*	*$ 130,347*	*$ 133,606*	*$ 136,946*	*$ 140,369*	*$ 143,879*	*$ 147,475*	*$ 151,162*
	$ 222,914	*$ 232,945*	*$ 243,428*	*$ 254,382*	*$ 265,829*	*$ 277,792*	*$ 290,292*	*$ 303,356*	*$ 317,007*	*$ 331,272*	*$ 346,179*	*$ 361,757*	*$ 378,036*
	$ 374,659	*$ 384,025*	*$ 393,626*	*$ 403,467*	*$ 413,553*	*$ 423,892*	*$ 434,489*	*$ 445,352*	*$ 456,485*	*$ 467,898*	*$ 479,595*	*$ 491,585*	*$ 503,875*
	$ 148,610	*$ 155,297*	*$ 162,285*	*$ 169,588*	*$ 177,220*	*$ 185,194*	*$ 193,528*	*$ 202,237*	*$ 211,338*	*$ 220,848*	*$ 230,786*	*$ 241,171*	*$ 252,024*
	$ 561,988	*$ 576,038*	*$ 590,439*	*$ 605,200*	*$ 620,330*	*$ 635,838*	*$ 651,734*	*$ 668,028*	*$ 684,728*	*$ 701,846*	*$ 719,393*	*$ 737,377*	*$ 755,812*
	$ 1,529,425	*$ 1,578,968*	*$ 1,627,192*	*$ 1,678,432*	*$ 1,731,430*	*$ 1,786,251*	*$ 1,842,962*	*$ 1,901,635*	*$ 1,962,344*	*$ 2,025,164*	*$ 2,090,175*	*$ 2,157,461*	*$ 2,227,107*
	$ 5,471,289	**$ 5,733,094**	**$ 5,942,698**	**$ 6,190,294**	**$ 6,448,581**	**$ 6,718,032**	**$ 6,999,140**	**$ 7,292,419**	**$ 7,598,408**	**$ 7,917,669**	**$ 8,250,790**	**$ 8,598,384**	**$ 8,961,092**

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	-$ 176,349	-$ 184,373	-$ 192,762	-$ 201,533	-$ 210,702	-$ 220,289	-$ 230,313	-$ 240,792	-$ 251,748	-$ 263,202	-$ 275,178	-$ 287,699	-$ 300,789
	-$ 393,438	-$ 444,247	-$ 436,827	-$ 456,703	-$ 477,483	-$ 499,208	-$ 521,922	-$ 545,670	-$ 570,498	-$ 596,455	-$ 623,594	-$ 651,968	-$ 681,632
	-$ 845,521	-$ 883,992	-$ 924,214	-$ 966,265	-$ 1,010,230	-$ 1,056,196	-$ 1,104,253	-$ 1,154,496	-$ 1,207,026	-$ 1,261,946	-$ 1,319,364	-$ 1,379,395	-$ 1,442,158
	-$ 76,199	-$ 80,818	-$ 83,528	-$ 87,329	-$ 91,302	-$ 95,456	-$ 99,800	-$ 104,341	-$ 109,088	-$ 114,052	-$ 119,241	-$ 124,666	-$ 130,339
	-$ 1,588,268	-$ 1,660,534	-$ 1,736,089	-$ 1,815,081	-$ 1,897,667	-$ 1,984,011	-$ 2,074,283	-$ 2,168,663	-$ 2,267,337	-$ 2,370,501	-$ 2,478,359	-$ 2,591,124	-$ 2,709,020
	-$ 3,079,776	*-$ 3,253,964*	*-$ 3,373,420*	*-$ 3,526,910*	*-$ 3,687,385*	*-$ 3,855,161*	*-$ 4,030,571*	*-$ 4,213,962*	*-$ 4,405,697*	*-$ 4,606,156*	*-$ 4,815,736*	*-$ 5,034,852*	*-$ 5,263,938*
	-$ 222,914	-$ 232,945	-$ 243,428	-$ 254,382	-$ 265,829	-$ 277,792	-$ 290,292	-$ 303,356	-$ 317,007	-$ 331,272	-$ 346,179	-$ 361,757	-$ 378,036
	-$ 967,341	-$ 1,010,872	-$ 1,056,361	-$ 1,103,897	-$ 1,153,573	-$ 1,205,483	-$ 1,259,730	-$ 1,316,418	-$ 1,375,657	-$ 1,437,561	-$ 1,502,252	-$ 1,569,853	-$ 1,640,496
	-$ 197,093	-$ 207,706	-$ 215,775	-$ 225,593	-$ 235,858	-$ 246,589	-$ 257,809	-$ 269,539	-$ 281,803	-$ 294,625	-$ 308,031	-$ 322,046	-$ 336,699
	-$ 1,387,349	**-$ 1,451,523**	**-$ 1,515,564**	**-$ 1,583,873**	**-$ 1,655,260**	**-$ 1,729,864**	**-$ 1,807,831**	**-$ 1,889,313**	**-$ 1,974,467**	**-$ 2,063,458**	**-$ 2,156,461**	**-$ 2,253,656**	**-$ 2,355,232**
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	-$ 61,694	-$ 63,236	-$ 64,817	-$ 66,438	-$ 68,098	-$ 69,801	-$ 71,546	-$ 73,335	-$ 75,168	-$ 77,047	-$ 78,973	-$ 80,948	-$ 82,971
	-$ 67,376	-$ 69,061	-$ 70,787	-$ 72,557	-$ 74,371	-$ 76,230	-$ 78,136	-$ 80,089	-$ 82,091	-$ 84,144	-$ 86,247	-$ 88,403	-$ 90,613
	-$ 54,388	-$ 55,748	-$ 57,141	-$ 58,570	-$ 60,034	-$ 61,535	-$ 63,073	-$ 64,650	-$ 66,266	-$ 67,923	-$ 69,621	-$ 71,362	-$ 73,146
	-$ 11,365	-$ 11,649	-$ 11,940	-$ 12,238	-$ 12,544	-$ 12,858	-$ 13,180	-$ 13,509	-$ 13,847	-$ 14,193	-$ 14,548	-$ 14,911	-$ 15,284
	-$ 272,575	-$ 287,566	-$ 303,382	-$ 320,068	-$ 337,672	-$ 356,244	-$ 375,837	-$ 396,508	-$ 418,316	-$ 441,324	-$ 465,597	-$ 491,204	-$ 518,221
	-$ 120,952	-$ 123,976	-$ 127,076	-$ 130,252	-$ 133,509	-$ 136,847	-$ 140,268	-$ 143,774	-$ 147,369	-$ 151,053	-$ 154,829	-$ 158,700	-$ 162,668
	-$ 66,651	-$ 69,651	-$ 72,785	-$ 76,060	-$ 79,483	-$ 83,060	-$ 86,797	-$ 90,703	-$ 94,785	-$ 99,050	-$ 103,508	-$ 108,165	-$ 113,033
	-$ 27,047	-$ 28,264	-$ 29,536	-$ 30,865	-$ 32,254	-$ 33,705	-$ 35,222	-$ 36,807	-$ 38,463	-$ 40,194	-$ 42,003	-$ 43,893	-$ 45,868
	-$ 50,329	-$ 51,587	-$ 52,877	-$ 54,199	-$ 55,554	-$ 56,943	-$ 58,366	-$ 59,826	-$ 61,321	-$ 62,854	-$ 64,426	-$ 66,036	-$ 67,687
	-$ 89,294	-$ 91,526	-$ 93,814	-$ 96,160	-$ 98,564	-$ 101,028	-$ 103,553	-$ 106,142	-$ 108,796	-$ 111,516	-$ 114,303	-$ 117,161	-$ 120,090
	-$ 34,906	-$ 35,778	-$ 36,673	-$ 37,590	-$ 38,529	-$ 39,493	-$ 40,480	-$ 41,492	-$ 42,529	-$ 43,592	-$ 44,682	-$ 45,799	-$ 46,944
	-$ 21,918	-$ 22,465	-$ 23,027	-$ 23,603	-$ 24,193	-$ 24,798	-$ 25,418	-$ 26,053	-$ 26,704	-$ 27,372	-$ 28,056	-$ 28,758	-$ 29,477
	-$ 878,494	**-$ 910,508**	**-$ 943,855**	**-$ 978,600**	**-$ 1,014,805**	**-$ 1,052,540**	**-$ 1,091,876**	**-$ 1,132,889**	**-$ 1,175,657**	**-$ 1,220,262**	**-$ 1,266,794**	**-$ 1,315,342**	**-$ 1,366,002**
	-$ 5,345,618	**-$ 5,615,995**	**-$ 5,832,840**	**-$ 6,089,383**	**-$ 6,357,450**	**-$ 6,637,565**	**-$ 6,930,278**	**-$ 7,236,163**	**-$ 7,555,820**	**-$ 7,889,877**	**-$ 8,238,991**	**-$ 8,603,850**	**-$ 8,985,172**
	$ 125,670	**$ 117,099**	**$ 109,859**	**$ 100,911**	**$ 91,132**	**$ 80,467**	**$ 68,861**	**$ 56,256**	**$ 42,588**	**$ 27,792**	**$ 11,799**	**-$ 5,466**	**-$ 24,080**
	$ 439,115	**$ 556,214**	**$ 666,072**	**$ 766,984**	**$ 858,115**	**$ 938,582**	**$ 1,007,444**	**$ 1,063,699**	**$ 1,106,288**	**$ 1,134,080**	**$ 1,145,879**	**$ 1,140,412**	**$ 1,116,332**
	-$ 4,502,824	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**	**-$ 4,502,824**
	$ -	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	-$ 4,377,153	**-$ 4,385,725**	**-$ 4,392,965**	**-$ 4,401,913**	**-$ 4,411,692**	**-$ 4,422,357**	**-$ 4,433,962**	**-$ 4,446,568**	**-$ 4,460,236**	**-$ 4,475,031**	**-$ 4,491,025**	**-$ 4,508,290**	**-$ 4,526,904**
	-$ 26,577,827	**-$ 30,963,552**	**-$ 35,356,517**	**-$ 39,758,430**	**-$ 44,170,122**	**-$ 48,592,479**	**-$ 53,026,441**	**-$ 57,473,009**	**-$ 61,933,245**	**-$ 66,408,276**	**-$ 70,899,301**	**-$ 75,407,591**	**-$ 79,934,496**

Appendix 3 - Joondalup Performing Arts and Cultural Facility - Architectural Design Competition Design Report: ARM Architecture (2013)

JOONDALUP PERFORMING ARTS & CULTURAL FACILITY

ARCHITECTURAL DESIGN COMPETITION

STAGE 2

PREPARED FOR THE
CITY OF JOONDALUP
JULY 2013

ARM
ARCHITECTURE

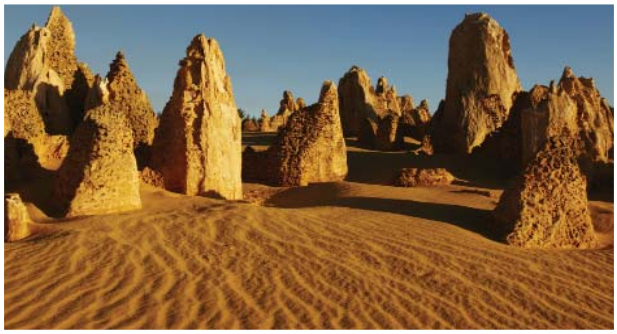
CONTENTS

A. DESIGN SOLUTION

THE WINNING DESIGN DELIVERS A VENUE THAT EXCITES AND INSPIRES BOTH USER AND PATRON. IT BRINGS VITALITY AND AN ENHANCED SENSE OF PLACE TO THE PRECINCT IN WHICH IT WILL BE SITED. ABOVE ALL, IT ACHIEVES DESIGN EXCELLENCE IN BOTH FORM AND FUNCTION.

VIEW ALONG GRAND BOULEVARD INTO ENTRY FORECOURT

AERIAL VIEW



WHAT BELONGS?

Our design hinges on capturing an immutable quality that belongs to the location, the region and the community of that place. Europeans settlement has long had a difficult relationship with occupying the Australian space, especially where the visual and climatic character of the landscape has little relationship to the rolling fields of Europe. Architects, attempting to deal with this difficulty, have travelled two paths: on the one hand, all buildings are classical temples upon their “chora”, and on the other hand, they are organic huts, embedded within their environment. New Norcia or Kings Park Education Centre. The heart of the new suburb of Joondalup cannot be a temple or a hut. The new cultural centre must transcend this dilemma and become both of the landscape and a significant and permanent cultural “place”. Too temple-like and it alienates itself from the wider terrain and the community. Too organic and it disappears into a parody of the landscape and its subtle texture. The building can carry a civic gravitas and come from the ground itself.

This part of the Swan Coastal Plain and in particular the Yanchep-Joondalup chain is an old coastal dune system, underlain by Tamala limestone. We are so familiar with the presence of eroded limestone that we almost don’t see it. Its form, its colour and its texture is the very foundation of our location.

The action of water on the Tamala has created serrations, caverns and even the fossil sands of the Spearwood dune system. Ground water of the Gnangara bubbles from the limestone at Lake Joondalup. In this south western part of the continent, the caves, the beach front & cliffs, the pinnacles at Nambung National Park, are so familiar, so remarkable. Could the “animus” represented in limestone create a meaningful emblem, a profound leitmotif, for a new complex on Central Park.

As well, the wash of water on this landscape, especially on the shores of the Lake, produces another familiar effect, the ripples of the water edge. This undulated surface is dynamic and at the same time a static illustration of the water that made it. In the dry season, the water level drops, exposing the rippled bed of the lake. When full, the lake shimmers with the rippling water: perhaps giving the location its name: the Nyungar word, “Doondalup”, meaning “the lake that glistens”.

Here then are two aspects of the eternal effect of water on the landscape that are characteristic of our region; the crenelated limestone and the rippled ground. These markings suggest a strategic direction for our scheme. Our design springs from these natural traits of the Joondalup region.

VIEW FROM LEVEL 1 INTO MAIN ENTRY FOYER

A CULTURAL LANDFORM

The scheme is structured in being a large eroded block. The scale of the block is such that it carries the dignity of a significant civic building and yet it is permeable and opened out to the street and to the gardens. On the exterior the erosion generates openings, cloisters, garden spaces and fenestrated gaps. On the inside, the erosion creates spaces, inner courtyards, foyers and elevated decks or terraces. The experience is of an abstracted cliff-scape, a terrain that is inhabited by performance and community activities. The strategy provides a range of options for spatial types; from open, light and natural spaces for informal public uses though to dark, curated spaces necessary for performance and art. From the new gardens, one moves from the stone piazza, through a cloistered entry plaza, amongst the limestone pinnacles, into the cove of the foyer and the inner terrain beyond. Within the building, fissures and holes provide views out and connection to the exterior. As well, gaps and erosions allow for courts, garden retreats and community enclaves up through the building. The whole exterior is rendered as both stone building and landform. It could recall the memory of a stone ruin of the early settler or the rocky outcrop of a beach head. The intention is to inhabit the building as if occupying a limestone block; not in a kitsch way, but in a way that illuminates the memory of the landscape and its texture.

INSIDE THE ROCK

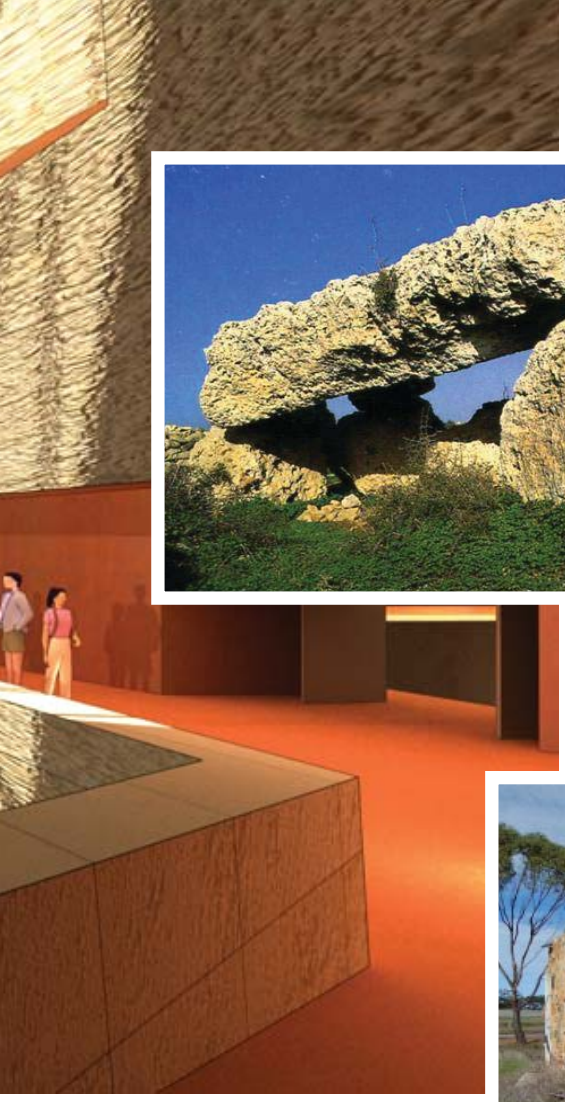
The layout of the building is structured on the procession from the parkland and the eroded façade, through to the remarkable interior landscape. From the north western corner the building works diagonally from public through performance spaces to back-of-house, loading and car parking access on the south eastern corner. The public spaces are shaped and finished on the theme of erosion and polishing, stone that has been worn open and stone that has been cut sheer through. These spaces provide a remarkable journey through to the performance spaces of Hall, Black Box and rehearsal spaces and upper level galleries and foyers. For the performer the back of house is a logical and practical array of spaces that are designed to meet the primary needs of show making; proximity of loading to stage and storage; adjacency of dressing rooms and stage, etc.

LIMESTONE IN ALL ITS SCALES

If you cut and polish a piece of travertine, a limestone made by geothermally heated supersaturated alkaline springs, you create a block with holes, fissures and gaps, but also beautifully grained and polished faces. The strategic trajectory for the JPACF utilises this allegorical act.

The building is rendered as an abstracted block. It is "cut" on its outer perimeter, but is perforated with gaps and caverns through its entire mass. It is both natural and manmade. The raw and the polished. The space and the surface.

The building can be finished in the traditional limestone of our region. The building will use an array of limestone finishes, roughhewn, sawn, honed, as cladding for the exterior and the interior primary spaces.



VIEW FROM JINAN GARDENS INTO ENTRY FORECOURT

B. URBAN DESIGN

THE WINNING DESIGN DEMONSTRATES HOW THE JPACF WILL FIT WITHIN, INTERACT WITH AND ENHANCE THE EXISTING PRECINCT.

CONTEXT/PRESENCE

The JPACF sits within the central activity zone of Joondalup, adjacent to the major shopping centre, to the rail station and the substantial hub of education facilities in the central city. Importantly it is adjacent to Joondalup's central park land and the green spine that notionally links through to the Lake. Any new building must establish its presence in the context of the mass of the giant mall and the relatively low scale educational facilities. The cultural centre building is of a scale that can generate a civic identity but it is by no means as imposing as the shopping centre.

We have chosen to create a density for the complex by choosing a simple geometric block, incorporating the car parking (more on this later), ensuring the new building is neither overwhelmed by it massive neighbour, but also does not suffer as a formal folly.

ACTIVATED EDGES

A primary rule of new public buildings is that they are not fortresses. Unlike the cultural facilities of the 1960s and 70s, contemporary public buildings need to operate 12 hours a day, 7 days a week. They need to open to their surroundings, integrated into the ant tracks that surround them. They should be active participants in their precincts, contributing activities to the neighbouring parks and streets. Our Proposal opens the building up to the park and forecourt area, with active uses, foyers, cafes and community spaces opening onto this important public realm. This is a key part of the design, critical to the experience of the new facility. During the day, active uses, small performances, displays etc., organised within the foyer are then visible to the park and forecourt users, inviting them to enter. In the evening the open foyers and café vistas allow everyone to see what's happening and be seen.

On Grand Boulevard, the building balances openings and solid façade commensurate with its face towards the main road; not closed but protected, with openings to allow vision in without intrusion from the vehicular environment. The south and east are the facades are formal and enclosed due to the nature of their interior spaces. But they are again by no means "back", more formal and helping create the dignified mass of the building, in balance with the very open north and north-west. We have located the car parking on the eastern side with access off Teakle Crt, away from the main public faces of the building.

OPEN BUILT FORM

The eroded mass of the building creates both a presence along Grand Boulevard, but it is also permeable and "broken down" into small elements. The intention is for a striking form but one that as you get closer, dissolves, and opens up to the visitor, welcoming you to the interior and its events.

PARKING

We have chosen to include the parking as a built structure above the ground, as part of the overall mass of the JPACF. This decision has been made for 4 reasons:

1/ The car parking levels assist in the scaling up of the building to help in generating a critical civic mass, particularly in the context of the Lakeside Joondalup Shopping Centre.

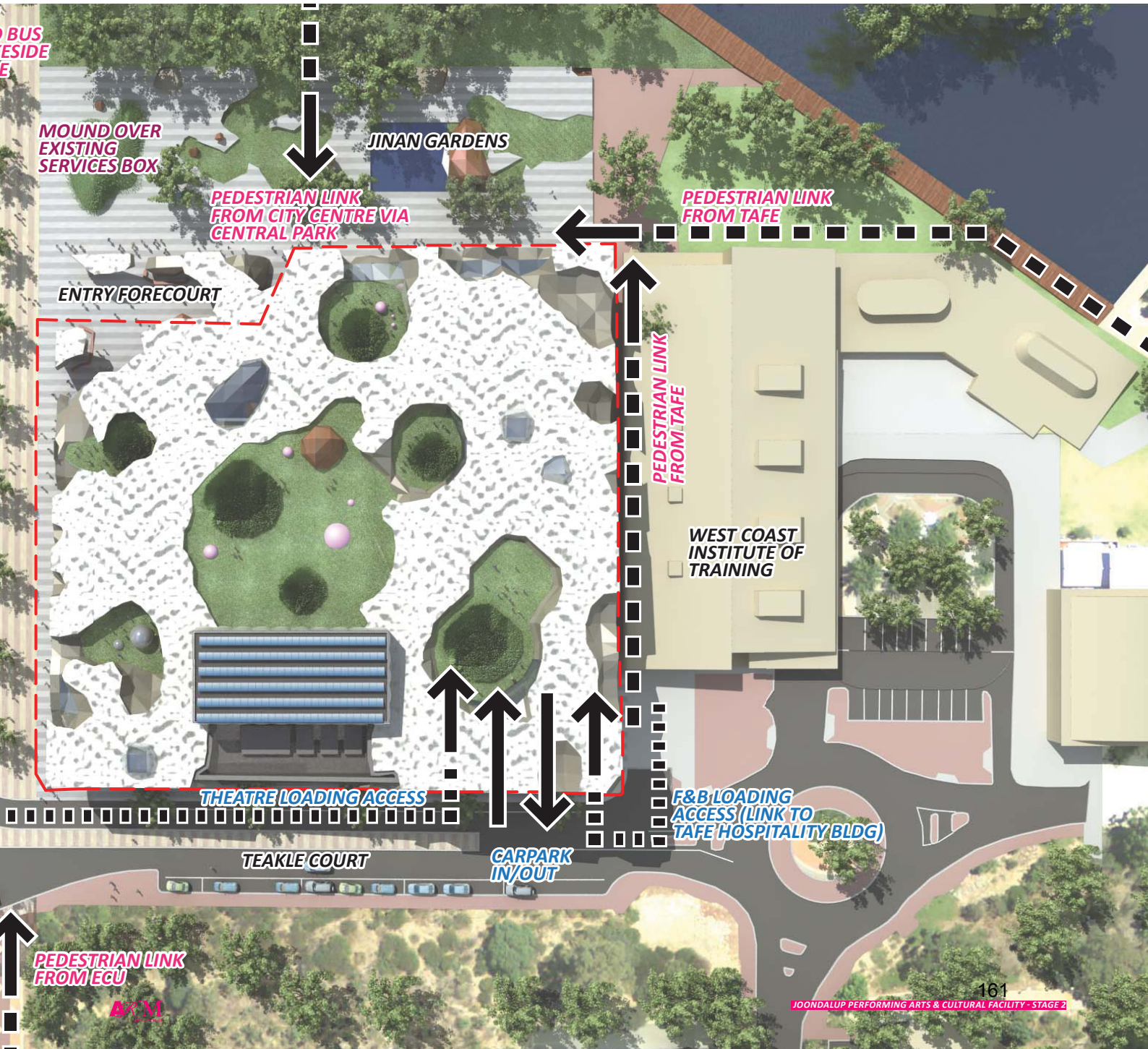
2/ Underground car parking is expensive and environmentally problematic.

3/ An open undercroft option creates a poor urban design outcome with negative street level experience and buildings detached from the street line.

4/ The decision to provide the extent of car spaces as nominated is easily varied through the design phase, should further research require more (or less).

SITE PLAN

VIEW OF THE BUILDING FROM GRAND BOULEVARD GATEWAY



VIEW FROM GRAND PROMENADE INTO NEW LANDSCAPE

LANDSCAPE MASTERPLAN & JINAN GARDENS

We have chosen to consider the masterplanning of the area to the north of the site as part of our scheme, to incorporate the proposed Jinan Gardens into a new activated forecourt for the buildng.

The landscape scheme takes geological ideas of 'porosity', dissolution and amorphous overprinting and deploys these within a slightly elevated plinth. The design accommodates a building forecourt and amphitheatre with secondary 'spill-over' and event spaces as well as external dining and cafe zones.

Historic cultural references to the style of Jinan gardens include formal still water bodies and informal sunken lakes and stream that connect to the existing lake to form a cleansing system that expresses stormwater capture from the site.

An abundance of natural rock and cut stone evoking the Jinan garden aesthetic builds upon the geological references. Leafy green planting zones are used to separate areas and organise the outdoor spaces around the building. Some planter beds become lowered akin to sinkholes dropping below forecourt level.

The nearby existing parklands are retained for visual and contextual reasons, and are characterised by a 'geometric bush school' aesthetic. A clear threshold and level change between forecourt plinth (including Jinan garden) and bush landscape allows for both to cohabit adjacent to one another. This integrated approach is preferred over a discrete walled garden typical of Chinese gardens around the world. Structures and landscape features would become contemporary interpretations of the Jinan garden style.

A formal avenue of mature trees is retained and is strengthened by ground surface treatments that invite promenading and the opportunity to view the landscape scheme from a moving vantage point.

Trees selected for the outdoor zones will be clear stem, small leafed and open canopied, providing shade but allowing the building architecture to express itself.

VIEW FROM FOYER INTO LANDSCAPE AND ROOFTOP COURTYARDS

C. FUNCTIONALITY

THE WINNING DESIGN DEMONSTRATES A CLEAR UNDERSTANDING OF HOW A PERFORMING ARTS FACILITY FUNCTIONS, THE RELATIONSHIP OF ITS COMPONENT PARTS, FLOW PATTERNS, ENVISAGED ACOUSTIC CHARACTERISTICS AND PROVIDES COMMENTARY ON HOW PRIMARY BUILDING SERVICES ARE ADDRESSED.

BUILDING LAYOUT

On analysis of the brief, we grouped the functions into three zones:

- Theatres
- Community spaces
- Carpark

The three zones have discrete entries and circulation, allowing the truly multifunctional uses of the Cultural Facility to function independently from each other, while still belonging together in a single building.

This could also have benefits for operational costs (restricting services to only the area of the building being used), and potential staging of construction.

THEATRE ZONE

The two theatre spaces are central to the building. Back-of-house support areas are immediately behind both theatres, with direct access to loading off Teakle Court. Two rehearsal spaces are located behind the Black Box, suitable for use by touring shows. The two spaces can be opened into one larger space for small performances.

Foyer spaces are adjacent to the park and the Grand Boulevard corner, maximising visibility for pedestrian and vehicle traffic, activating the park space, and enjoying northern light and a green aspect. Foyer spaces are split over multiple levels centred around large voids, allowing the space to be easily separated for different events, while maintaining connection and sense of place. Restaurants and bars spill out of into carved-out forecourts, courtyards and rooftop spaces.

The Art Gallery is considered as a performance space, with similar requirements for efficient front-of-house and back-of-house access. Lifted to a prominent location above Grand Boulevard, the Gallery is accessible from the main foyer and loading dock, and has a unique opportunity for a Sculpture Courtyard above the street.

COMMUNITY ZONE

The feasibility study highlighted community spaces as some of the most highly utilised in the building. It made sense to us to cluster together the studios for crafts and visual arts, with some of the lesser-utilised spaces such as ancilliary rehearsal rooms and conference rooms, allowing them to be flexibly programmed for anything from dance classes to community meetings.

The community spaces are located overlooking the park, along the main pedestrian desire line from the TAFE. A small upper-level courtyard provides vantage points into the foyer and the park.

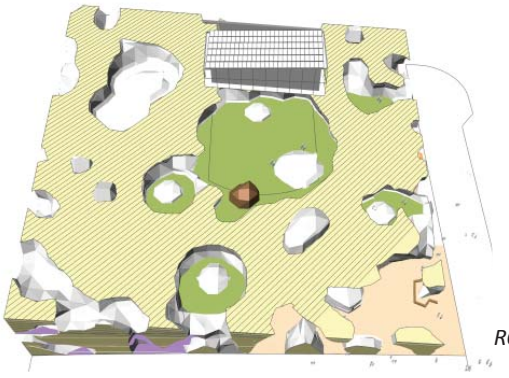
CARPARK ZONE

By placing the carpark above ground, it becomes an efficient space with the potential for natural ventilation and lighting, effectively separate from the theatre and community zones. This frees up the theatre and community zones from the mechanical ventilation of an underground carpark through the building above, and the associated negative strucutral and acoustic impacts of such a design restriction.

GROUND

LEVEL 1

LEVEL 2



ROOF

LYRIC THEATRE

THEATRE DESIGN

The main theatre is designed for optimal staggered sightlines with an intimate connection to the stage and good visibility even from the ends of the rows and the rear of the auditorium. While the seating has been designed in the continental style, wider than average rows have been provided to ensure comfortable access to every seat. The seating layout is also fully DDA compliant with excellent distribution of wheelchairs through all ticketing levels.

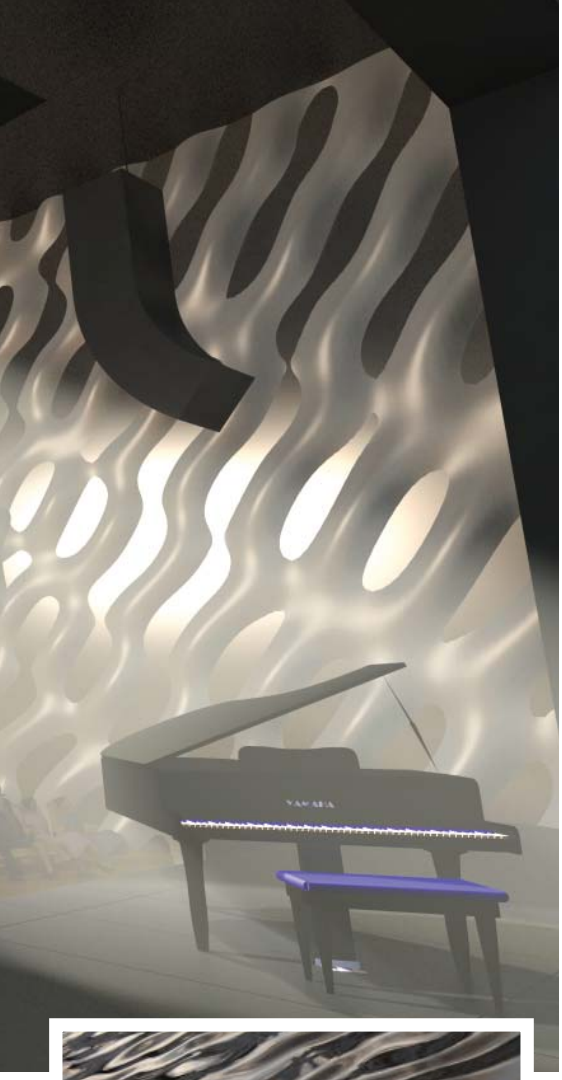
The stage designs and back of house area will allow for many varied activities to occur simultaneously and includes wide corridors and loading paths to ensure that performers and technical equipment can easily transit to the main theatre, black box and rehearsal rooms. These layouts are designed with efficiency and safety in mind so that technical staff can safely manage most projects, saving the theatre time and money.

Our review of the stated goals of Council for the new facility suggests to us that a strong foundation has been laid with much thought already given to the desires for the new facility. The practical nature of supporting an arts facility will require some mixture of commercial and community programming to keep the facility financially sound. We can help the team meet this goal by ensuring that all performance spaces are properly designed to support the needs of both touring acts and speakers as well as community arts groups. Examples of Schuler Shook's project experience in this regard include our recent work for Arts Centre Melbourne and Dallas City Performance Hall. The Arts Centre Melbourne brief required a space that could support everything from Broadway touring to a children's show. We helped create a solution by designing a new Technical Zone over the stage that allows the technical staff to set up for one type of production and quickly 'change over' to support the different needs of another production type.

We understand Council's interest in creating a facility that is an attractive place of wonder and excitement that will nurture an appreciation for the arts. We want the Joondalup Performing Arts and Cultural Facility to be a place that is just as enjoyable for technical theatre staff and artists as it is for community members who come to see a show or participate in an inclusive arts event.

Our goal is to create a place that everyone wants to return to – the artists because it supports their art well, and the community because it gives them a sense of belonging, as audience members and active participants.

LAKE JOONDALUP



ACOUSTIC DESIGN

FLEXIBLE REQUIREMENTS

The wide range of performance types intended for the auditorium calls for careful planning.

The length of time for the sound in a room to decay by 60dB is referred to as the reverberation time of the room. The reverberation time of a room is proportional to the volume of the room and inversely proportional to the amount of acoustic absorption contained in the room. Traditionally a venue for spoken theatre has a low reverberation time so that the speech intelligibility is preserved. However, most venues with a low reverberation time are not suited to the performance of classical unamplified music because the sound quality is dry and does not assist in blending the sound of the instruments.

The acoustics of the 850 seat Auditorium have been specifically designed to suit a wide range of performance types. These include:

- Dance with live and pre-recorded accompaniment
- Spoken theatre
- Contemporary popular music
- Chamber music
- Small scale opera
- Orchestral music.

Unlike other existing venues in Western Australia this Auditorium will be a true multi-purpose venue offering uncompromised acoustic conditions for the full range of uses referred to in the brief.

THEATRE & SPOKEN PERFORMANCE

The Auditorium is designed to be an intimate venue for spoken theatre, with a volume of 5,500 m3. The design reverberation time in the room is in the range 0.9 – 1.1 seconds. Speech clarity and communication from the stage to the audience are enhanced by early reflections from the specifically designed curved walls at the front of the audience area, and the curved ceiling panels adjacent to the proscenium and between the lighting bridges. Distribution of the reflection coverage is controlled by the design of these surfaces, and this ensures the excellence of the listening conditions in all parts of the audience.

The materials for the seats, wall and ceiling materials are chosen to provide an even frequency response in the room while naturally assisting projection of sound from the stage.

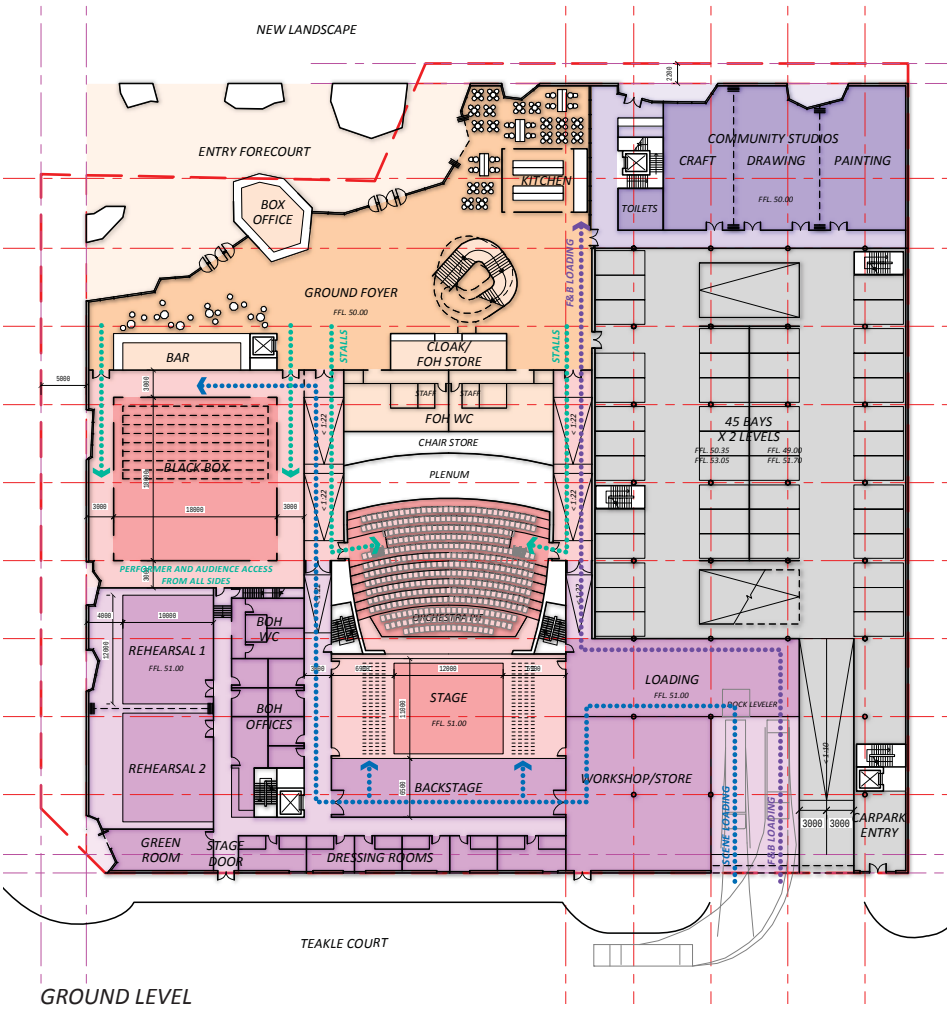
DANCE

For Dance presentations with pre-recorded accompaniment and amplified Concerts the specified reverberation time is ideal and a sound system including loudspeakers mounted adjacent to the theatre proscenium will be used. For performances requiring live musical accompaniment an orchestra pit is provided for up to 30 musicians. The curved wall and ceiling surfaces around the proscenium promote even sound distribution from the pit and the stage and allow the musicians direct feedback of the sound in the auditorium.

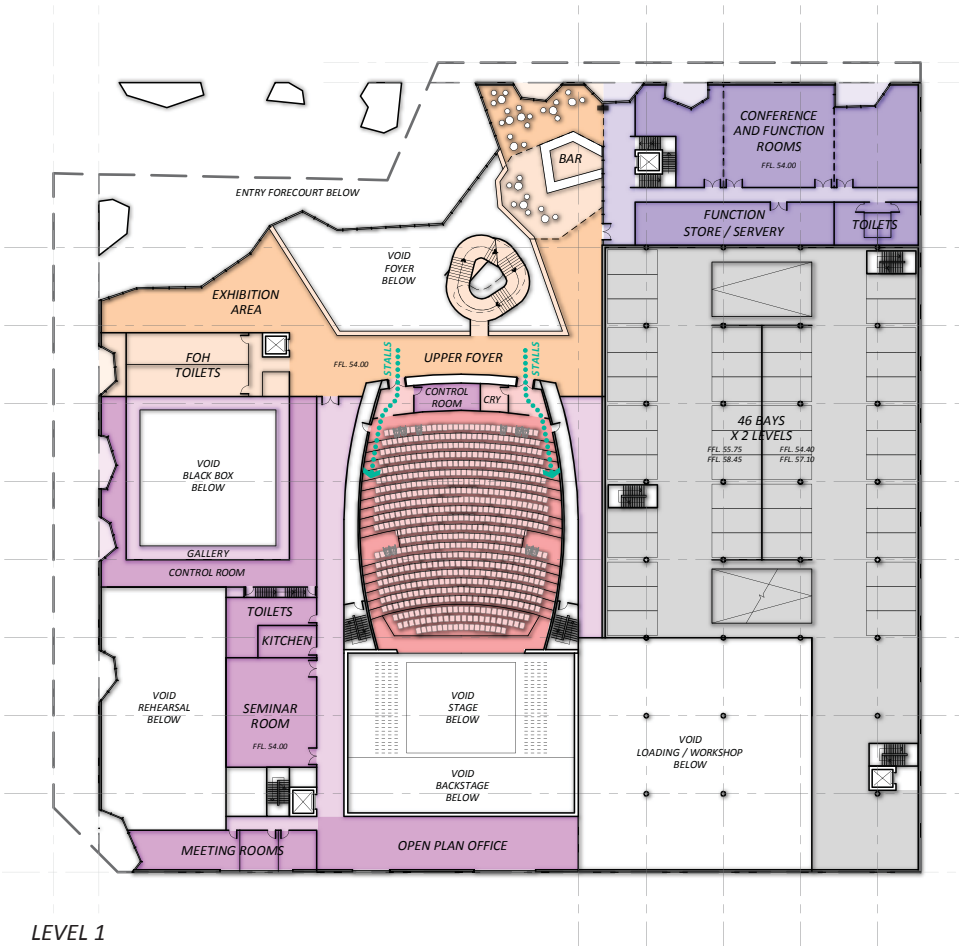
MUSIC

Most auditoria with this specification prove unsuccessful for chamber and orchestral music, due to the intimate natural reverberation time in the auditorium and the insufficient feedback for orchestral musicians seated on the main stage under the fly tower. This Auditorium is designed to include an electronic enhancement system that is proven to successfully address these issues.

With this system the reverberation time and strength of early reflections is enhanced using an array of loudspeakers positioned in the auditorium and fly tower. The audience hears a seamless blend of the performers' true sound and subtle levels of processed sound to simulate the presence of a larger room. The musicians on stage hear the effect of a stage shell without the need to provide large temporary wall and ceiling panels. This established technology allows the room dimensions to remain fixed at an economically attractive size while providing an acoustic environment that has no compromise. The system is tailored to each individual installation, and changes the acoustic conditions in the auditorium from a touch screen. A range of settings is programmed at the time of installation to cater for different sizes of orchestra and program types.



GROUND LEVEL



LEVEL 1

BUILDING STRUCTURE

GROUND FLOOR

The soil bearing capacity for the area is expected to be between 200 to 300 KPa for large footings on engineered soil; however this will need to be confirmed by a geotechnical investigation. The adoption of pad footing under the columns will probably be feasible.

The rafts supporting the stair and core walls (main stability elements) will probably be 650 to 800mm thick.

A 120mm to 150mm thick slab on ground will be proposed for the site depending on the geotechnical investigation report and the traffic/use expected for the floor.

The grids shown at the loading dock area are working well structurally however considerations may be given on what vehicular access must be provided.

LEVELS 1 AND 2

The carpark framing is typically formed by post tensioned band beams (generally 320mm deep) and 160mm slab on metal tray.

An acoustic barrier is required to isolate the carpark to the remaining structure. An expansion joint (which allows ground and structure movements reducing cracking and other serviceability issues) is proposed to run along with the acoustic barrier.

The proposed stair in the foyer can be made as a reinforced concrete structure or steel framed.

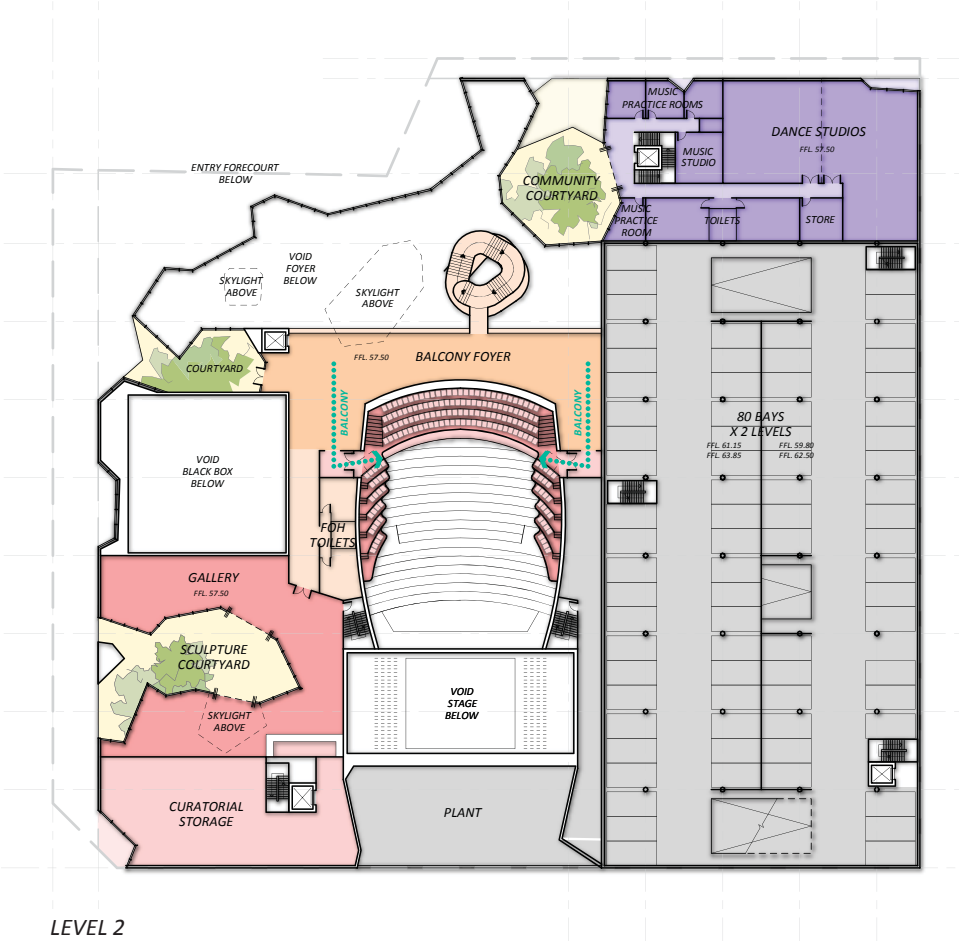
We are proposing a concrete frame for the remaining structure due to the nature of the building. The concrete walls or columns surrounding the voids can be used to support band beams or /and slabs between them. Steel columns and trusses will be required to support the Foyer facade.

ROOF STRUCTURE

Roof steel trusses are proposed to cover the gallery, the black box and the theatre areas. These trusses can be 2000mm deep and will support catwalks, grid mesh floors, lighting bridges and flying systems as required. A light weight roof system is proposed to cover the remaining area.

The gallery, the black box and the theatre perimeter walls can be 150mm to 180mm thick precast panels. Internal cladding will make this acoustically appropriate for the theatre requirements. Walls can also be light weight walls between braced steel or concrete columns.

The main lateral stability elements are required to extend and provide stability to the roof framing.



LEVEL 2

INTERIOR FOYER

ENVIRONMENTALLY SUSTAINABLE DESIGN

KEY ESD DESIGN FEATURES

We have investigated a number of potential solutions to integrate into the design and add value for the City of Joondalup. These are as follows:

1/ CLIMATICALLY APPROPRIATE DESIGN

The design features opportunities to take advantage of the annual diurnal range with potential for natural ventilation and night purging through the incorporation of high level windows and ventilation.

2/ THERMAL LABYRINTH

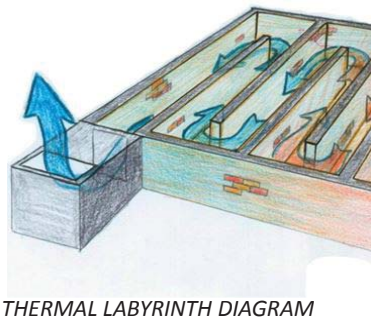
A thermal labyrinth located underneath the building would pre-cool/heat incoming air and thereby reduce mechanical heating/cooling demands. By locating the 400 parking bays above-ground, we allow for the possibility of a thermal labyrinth.

Based on previous experience with the design and integration of thermal labyrinths, a cooling of the incoming air by between 5 – 7 degrees C has been achieved (i.e. 33 degree ambient air exiting the labyrinth at 26 – 28 degrees). The air would then be distributed via underfloor ductwork to each level of the building as part of a displacement ventilation strategy.

The concept is based on a passive heating/ cooling strategy where outside air is pre-treated by drawing it through an extensive underground network that utilises a thermal network with the ground to moderate its temperature. The relatively stable ground temperature and its temperature lag compared to the average ambient temperature throughout the year result in the existence of a significant variation in the ambient temperature and the source temperature for the labyrinth.

There is gaining popularity for the installation of thermal labyrinths with the use of concrete pipes, technically referred to as earth-air heat exchangers. These installations make use of available pre–cast concrete piping typically used for stormwater runoff management to facilitate the exchange of heat with the ground whilst minimising cost due to the availability of such products on a large and affordable scale.

The benefits of these air-treatment options are largely centred on the ability of the system to supply a building with a consistently attenuated diurnal range hence providing substantial energy savings due to the minimal input required from the mechanical system. Coupled with the extremely low maintenance costs and long applicable life times, the installation of a thermal labyrinth or earth-air heat exchanger represents a highly plausible method for economic and environmental savings for the Joondalup Performing Arts & Cultural Facility.



THERMAL LABYRINTH DIAGRAM

3/ PV (PHOTOVOLTAICS)

Photovoltaics generate electrical power by converting solar radiation into direct current electricity. The benefits of photovoltaics are self-explanatory. PVs fit most types of designs, with a number of different size options. We can put together a simple feasibility study within the next stage of the design to show the cost and energy advantages.

4/ RAINWATER RECYCLING

The shallow rake of the roof is ideal for rainwater collection. This can be used within the building to reduce potable water usage, or externally for irrigation of landscape or rooftop green courtyards.

The rooftop courtyard in the community zone has the potential to become an education tool in sustainable lifestyles.

5/ SOLAR GLARE AND SOLAR CONTROL

In response to the importance placed on achieving good indoor environmental quality (IEQ) considerable emphasis has been placed on provide good solar control both in respect to solar glare and occupant comfort.

The external shading provisions proposed range from dedicated external shades to window; roof overhangs; verandahs; covered walkways; and self shading from building form.

Based on the bid design assessments the proposed design response performs exceedingly well providing good shading for 80% of working hours. Most spaces experience shading for over 90% of working hours and no space is shaded less than 80% of this period. The proposed architectural design response therefore exceeds current industry best practice in terms of solar control and provides an optimised solution for glare reduction and solar access, which contributes to improved occupant comfort.

BUILDING SERVICES

The design of building services in entertainment projects is particularly important. Issues that need to be correctly addressed include:

- Architectural compatibility
- Acoustic considerations
- System sizing
- Integrated ticketing systems
- Air distribution
- Fresh air control
- Heating system design
- Control room / biobox conditioning
- Trade waste applications

DISPLACEMENT AIR CONDITIONING SYSTEM

For the 850 seat theatre, we are using a displacement system to achieve low running costs, high occupant thermal comfort, and maximum air freshness. The displacement system introduces air at low level in the occupied zone which rises to high level taking odour and contaminants with it. The air distribution is working with the natural convection currents rather than working against these. The displacement system also allows for stratification meaning that the heat from the lighting is removed from high level maximising the temperature gradient above the occupied zone. Supply air is introduced to the occupied zone at 18°C, this results in a very low temperature gradient in the occupied zone, and maximum occupant comfort. An additional benefit of this high supply air temperature is that the outdoor economy cycle works effectively at ambient temperatures of up to 22°C, meaning annually in Perth the economy cycle provides 100% free cooling for 47% of the daytime and partial free cooling for an additional 25% of the year. This results in significantly less power consumption because the cooling does not run at all for 47% of the year.

LOAD ANALYSIS

The air conditioning must be properly sized to allow for the patron movements. Patrons move from the foyer, to the theatre before performances, during intermission, and after the performance. Understanding this means that the design of the entry foyer air conditioning systems are not oversized, causing spatial, cost and acoustic issues.

Understanding how the lighting operates (the balance between radiant heat, and convective heat from each light) means that the air conditioning system can be used to remove this heat in the most effective way.

INTEGRATED TICKETING

We have previously developed a ticketing interface so that air conditioning responds to ticket sales, operating hours etc. This results in reduced operational costs.

ART GALLERY

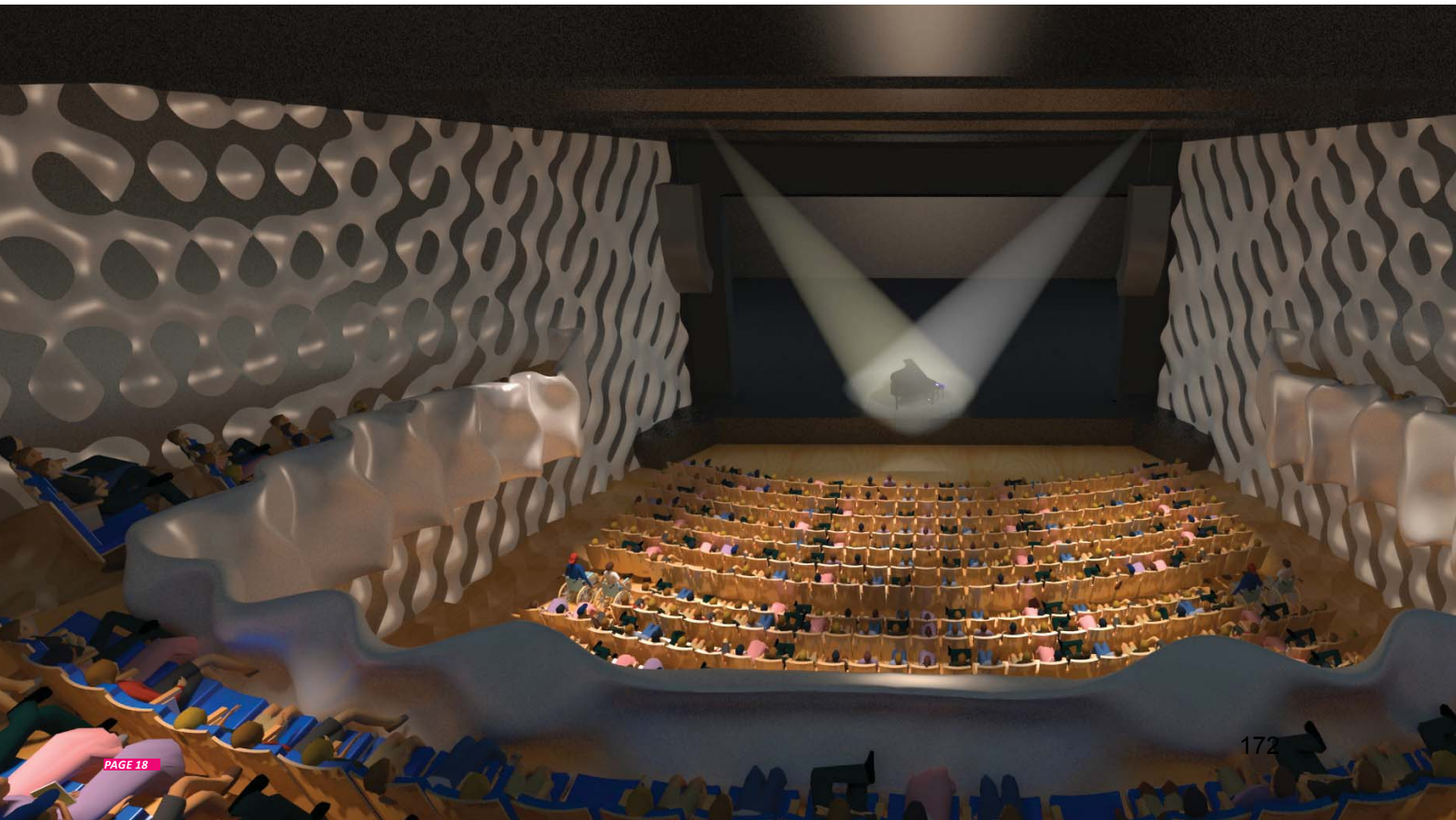
In order to protect the works on display the system is required to control temperature, humidity, and the maximum rate of change for the environmental conditions. In addition to this, the air conditioning uses filtration to provide fine particle control of airborne pollutants minimising damage to works on display.

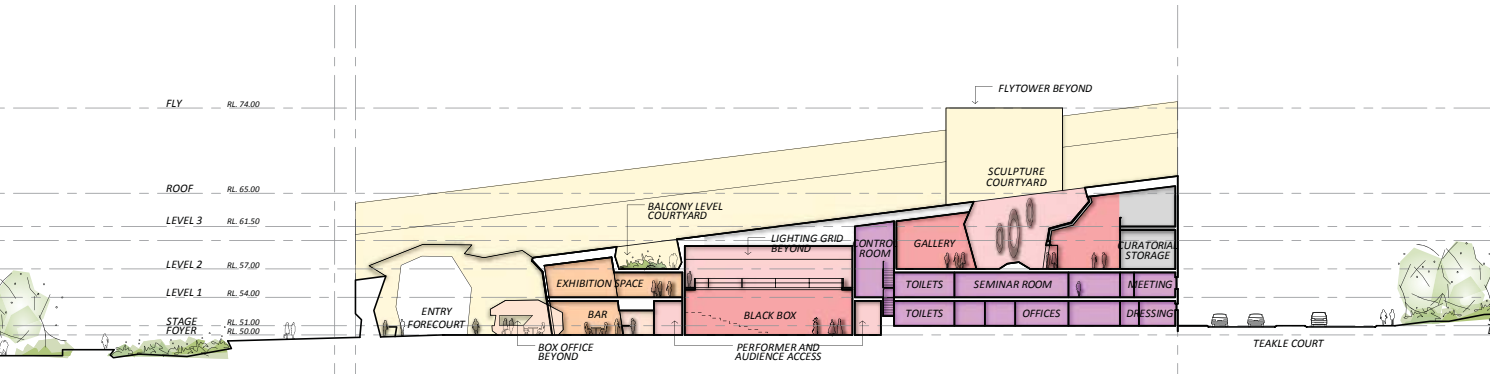
ACOUSTIC CONSIDERATIONS

Noise control is important. The design must avoid sound levels that are tonal. The most effective approach is to control noise at the source, and consider regenerated noise by considering duct air velocity and duct fittings configurations, and using acoustic lined ductwork. It is normal to design to PNC25, however we have completed designs that achieved PNC20.

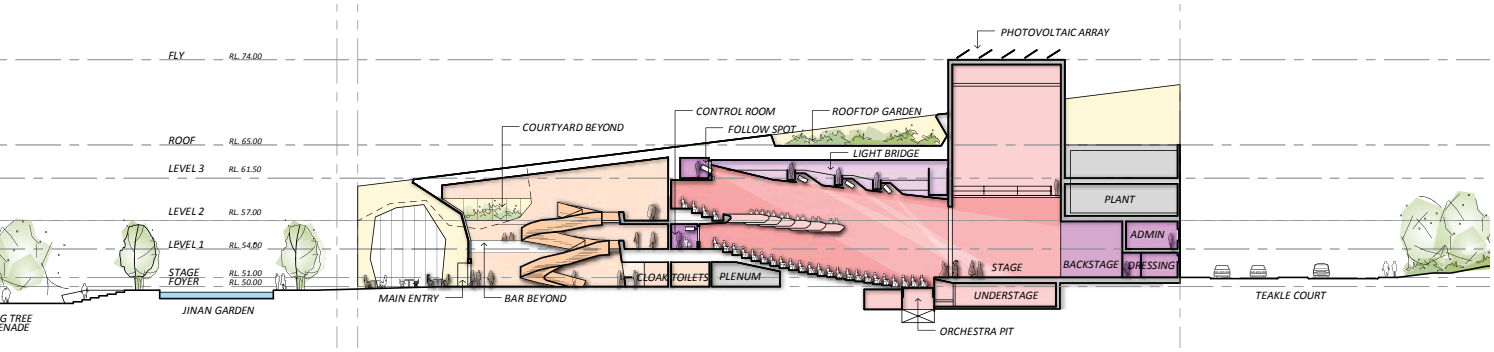
CONTROL ROOM CONDITIONING

Because the load profile is significantly different to the remainder of the building, the control room should be served from a separate system. The high heat loads mean air distribution is extremely important.

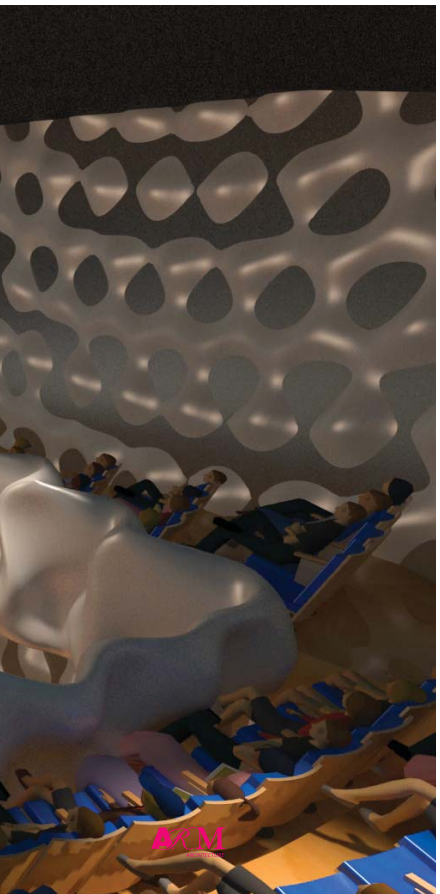




LONG SECTION THROUGH LYRIC THEATRE



LONG SECTION THROUGH BLACK BOX



HYDRAULICS DESIGN APPROACH

Understanding of the operating profiles is important as it will allow us to customise the systems and minimised construction cost as well as the operational cost of the building. Clever design solutions supported by the detail studies and alternative solutions to a known operational need can help to reduce the whole life building cost as well can help to build modern and suitable building,

STORM WATER

The theatre has a large roof area with large catchments per outlet, hence syphonic technologies are often appropriate. Acoustic issues relating to break out noise from the downpipes needs to be integrated in the building. The design will consider the rainfall patterns for Joondalup, to maximise the opportunities to use recycled water in the building. This understanding leads to a cost effective system design, and maximum benefits. Community studio facilities will have a high usage therefore we are proposing to consider a storm water recovery system that could serve the community studios during winter time. This will help to reduce water bills and increase the sustainability of the building.

POTABLE WATER STORAGE SYSTEM

This requires a high capital expenditure, hence a full understanding of the operating profiles and energy sources will allow the storage system to be properly integrated with the solar, gas, and electric hot water energy sources, enabling minimised whole of life costs.

CENTRAL HOT WATER USING GAS AS THE ENERGY SOURCE

We can propose an alternative design to conventional electrical hot water cylinders. The centralised hot water plant utilizing gas heating option could help to reduce electricity bills and reduces carbon footprint of the building. It could also enable to use renewable heat energy sources like solar preheating system.

BASE LOAD SOLAR HEATING SYSTEMS

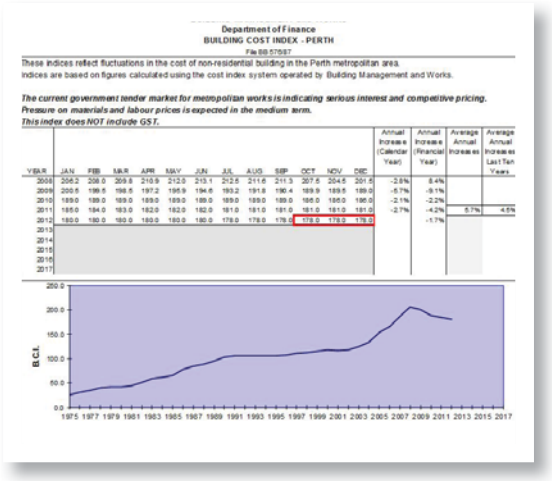
Optimising the solar collector area vs storage volumes for the facility usage profile means not overcapitalising and maximising returns. Similar to the storm water recycle option, we would design a system that serves areas with a high utilisation like community studio or offices. The detail study could show if this option would be beneficial for the building and if it could help minimise whole of life costs.

FIXTURE SELECTION

Low water usage and robust design are required. Sizing of service ducts is important for maintenance and continuity of operation. Using simple design solutions for easy access to services ducts within the toilet we could achieve significantly improved maintenance or repair of services even during major events.

D. COST

THE COST ESTIMATE PROVIDED INCLUDES AN ELEMENTAL BREAKDOWN AND OVERALL COST PER SQUARE METRE CONFIRMED BY A QUANTITY SURVEYOR. IN ADDITION, THE ECONOMIC SUSTAINABILITY PRINCIPLES INCORPORATED IN THE DESIGN MINIMISE ON-GOING OPERATIONAL COSTS.


Department of Finance
BUILDING COST INDEX - PERTH
File 88 57587
These indices reflect fluctuations in the cost of non-residential building in the Perth metropolitan area.
Indices are based on figures calculated using the cost index system operated by Building Management and Works.
The current government tender market for metropolitan works is indicating serious interest and competitive pricing.
Pressure on materials and labour prices is expected in the medium term.
This index does NOT include GST.
B.C.I.

COST PLAN / DONALD CANT WATTS CORKE

The current day costs for the project are summarised in the following table. A detailed budget assement is included in the Appendix.

The comparable client's budget in the Feasibility Study is $91.76m exclusive of GST. We are therefore providing a solution that can meet the client's budget.

SCOPE

The Opinion of Probable Cost allows for the architects' layouts and design intent based on the clients brief. The budget allows for the full 400 car parking spaces.

The OPC allows for the construction of the building and the immediate external works. It does not include for the masterplan external works areas and associated cost.

The costs have been built up to include, and reflect the structure of the clients orginal budget. Therefore they are based on January 2014 prices. For specific assumptions and exclusions refer to next page.

CONTINGENCY

The project is currently at concept stage. Based on best practice we would be expecting the following allowances for contingency:

- Design Contingency – 5.00%, and
- Construction Contingency – 3.50%

Dependent upon the final procurement solution and the balance of risk between the client and the contractor some or all of the contingency allowances may be transferred into any potential contract sum with a contractor.

ESCALATION

The Perth and Western Australian markets have seen a marked change in construction activity and therefore pressure of labour, plant and material. In the lead up to 2008 the market was extremely overheated as a result of over demand directly related to the resources market. We were seeing prices for key materials such as steel and concrete at $12,000/t and $500/m3+ respectively in 2008.

The market has changed considerably over the last two years with demand weakening resulting in a rebalance of cost pressures. The State government produce a retrospective view on non-residential building prices which is extracted below. We have seen over the last two years that markets have been contracting but latterly at a slower rate of contraction. Key materials such as steel and concrete are now around $7,000/t and $400/m2.

Going forward we are expecting the market to start to tighten again but not until late 2013/ early 2014. We would expect prices to remain static through this year based on current expectations and going into 2014 to increase by:

- Calender Year 2013 - 0%
- Calender Year 2014 - 3%
- Calender Year 2015 - 3%
- Calender Year 2016 – 3.5%
- Calender Year 2017 - 3.5%
- Calender Year 2018 – 3.5%
- Calender Year 2019 – 4%
- Calender Year 2020 – 4%

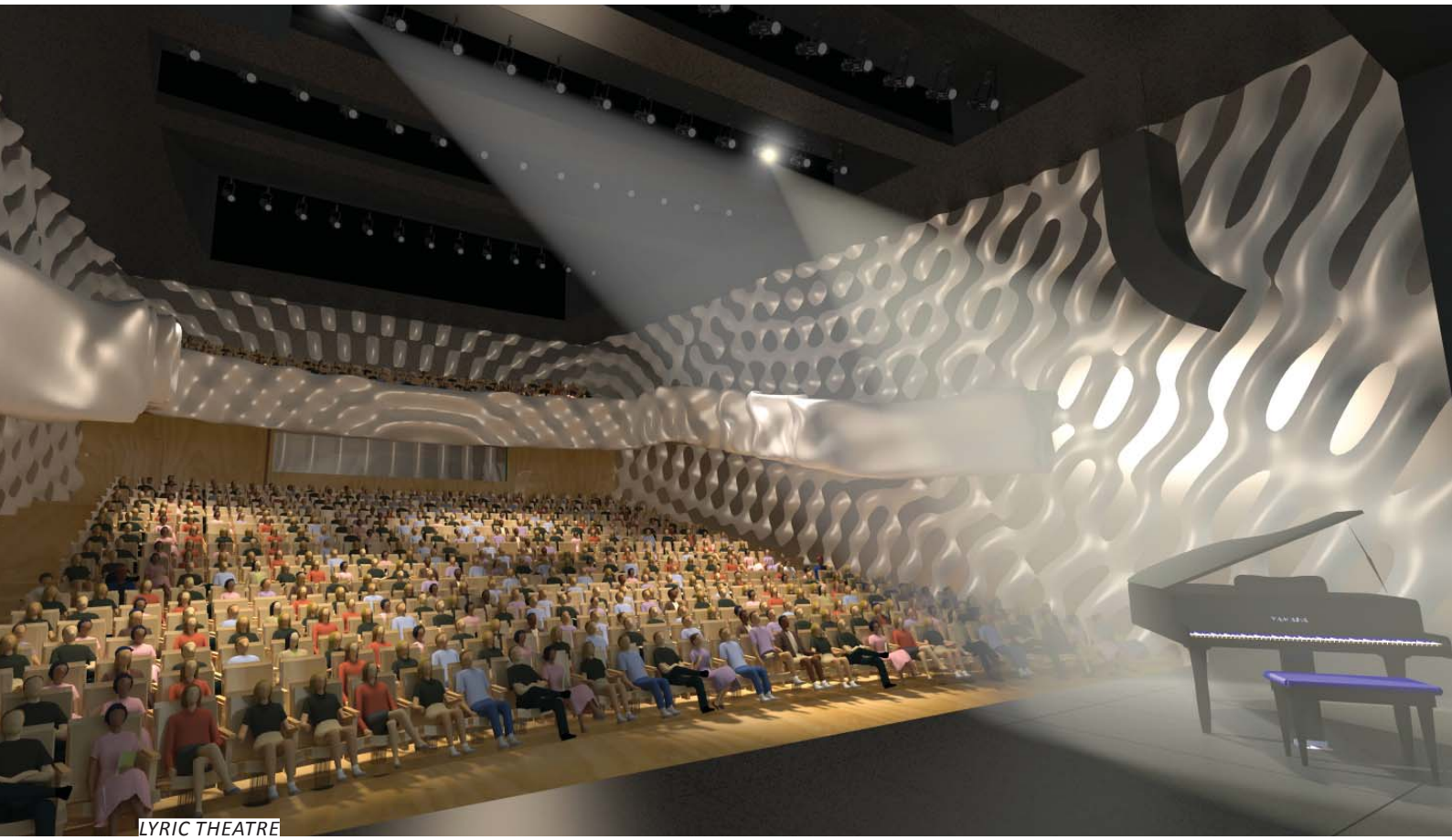
The above opinions are exactly that, opinions. Escalation by its very nature is dynamic and continually changing therefore they will be subject to change. We will, of course, keep you advised as and when changes occur.

EXCLUSIONS

The following are exluded from the Opinion of Probable Estimate:

1/ Abnormal Site Conditions
2/ Major services diversions (provisional allowance has been made)
3/ Piling
4/ Green Star rating and non code ESD initiatives
5/ Solar panels to roof
6/ Masterplan external works area
7/ Escalation beyond January 2014 (as per clients budget)
8/ Client Costs
9/ Land, legal and finance costs
10/ Leasing fees, display suite, marketing etc
11/ All Loose FFE
12/ Sprinklers to Car Park – engineered solution
13/ Assumed natural ventilation to 50% of parking
14/ GST

ELEMENT	TOTAL $	FECA RATE $SQM	GFA RATE $SQM
Substructure	$ 1,757,000	$ 72	$ 72
Superstructure	$ 30,118,000	$ 1,231	$ 1,231
Finishes	$ 5, 068,000	$ 207	$ 207
FFE	$ 2,575,000	$ 105	$ 105
Services	$ 21,301,000	$ 870	$ 870
TOTAL BUILDING WORKS	***$ 60,819,000***	***$ 2,485***	***$ 2,485***
External Works	$ 1,650,000	$ 67	$ 67
External Services	$ 1,350,000	$ 55	$ 55
Main Contractor Prelims	$ 8,667,000	$ 354	$ 354
CURRENT DAY BUILD COSTS	***$ 72,486,000***	***$ 2,962***	***$ 2,962***
Design Contingency	$ 3,618,000	$ 148	$ 148
Construction Contingency	$ 2,820,000	$ 115	$ 115
Furniture, Fitments and Equip.	$ 700,000	$ 29	$ 29
Theatre Technical Equip.	$ 2,500,000	$ 102	$ 102
Professional Fees	$ 8,600,000	$ 351	$ 351
JANUARY 2012 BUILD COSTS	***$ 90,724,000***	***$ 3,708***	***$ 3,708***



LYRIC THEATRE

VIEW INTO MAIN FOYER

DELIVERING A COST-EFFICIENT DESIGN SOLUTION

We believe a successful project that finishes on time and on budget begins with clear communication between the owner and the full design team. The owner must communicate the needs and wishes for the facility. The design team must communicate the costs involved in meeting those wishes.

Schuler Shook will calculate anticipated costs for all of the theatre equipment systems, and we will update these estimates at each phase of the project, to assure that they are kept current with the design and with current technology and product availability.

WHOLE OF LIFE

We believe that the Joondalup Performing Arts and Cultural Facility project represents a unique opportunity to create a truly optimal Whole of Life (WOL) solution that:

- Delivers a low risk adjusted Net Present Value (NPV) cost to the City;
- Incorporates a process that, after bid date, will continue to create savings for the City; and
- Substantially de-risks the performance of the operations through the implementation of detailed analysis identifying risk and abatement issues upfront, and implementation of appropriate risk management strategies.

WOL analysis involves analysing a range of design options and their associated capital of expenditures and on-going operational costs across the life of the Project and optimising these cost outcomes for the Project.

We believe that it is during the design stage that the greatest WOL gains can be achieved. WOL analysis can be applied to whole building systems or to single elements or items of equipment to identify the most cost effective design option over the life of the project. It takes the traditional comparison of capital cost options during the design process through to the next generation by comparing the total Net Present Value (NPV) of construction and operations costs of the asset options over their contract lifetime.

APPROACH AND METHODOLOGY

Our WOL process can be summarised as follows:

- Identification of a range of options and alternatives for comparison;;
- Identification and quantification of the required input costs from those who will be responsible for designing, constructing, operating and maintaining the facility; and
- Optimisation of the options selected and feed it back into the design process.

Our Whole Of Life approach and considerations for the various new work packages attempted to design facilities that:

- Provides a facility that is appropriate to the climate, is sustainable and of low maintenance;
- Has a design that will serve for greater number of functional years thus reducing the life-cycle impact of the facility.
- Have involved intensive interaction throughout the Bid phase between all parties to produce a design solution that is inherently robust and that reduces the risk of systems failure and maintenance.

Accurate budget control means delivering a project for an agreed total outturn cost at the end of the project. Achieving this requires a number of essential factors to be put in place at the outset of the project.

SCOPE & BUDGET ALIGNMENT

The alignment of the available budget and the desired scope must be tested as early as possible. While the project sponsor will doubtless have undertaken a verification process on this before the appointment of the architect, it is not unusual for a mismatch between budget and scope to arise in the early project phases, for example through less budget being approved than was requested, or through additional scope being included late in the process. It is, however, the earliest possible identification of the extent (if any) of this mismatch that will allow it to be managed appropriately. Client agencies usually have high expectations of scope and possibly unrealistic expectation of what budget is required to deliver that scope, so early advice is the best way to defuse and adjust expectations without causing unnecessary angst.

This is achieved through an early test with the cost planner, usually based on discussions, rough sketches, area schedules and some predictions about materials and engineering systems. We work with the cost planner to decide what areas should have more or less contingency allowances made, dependent on the degree of certainty of design.

Once an initial assessment is available, strategies can be put in place. These will include contingency setting, scope adjustment and design innovation to save cost and/or time. The aim is to get the early project settings right, with an appropriate contingency in place. We also look for what we call 'design contingencies' – areas of scope that if necessary, and in the unlikely event that contingencies are exhausted before completion, can be used to defer or eliminate scope and therefore cost in a way which is not affecting the fundamental functional requirements of the project, and which can be reinstated later should funds become available.

VIEW INTO MAIN FOYER

CONTINGENCY SETTING

We work closely with the cost planner in this area. While early contingencies tend to be percentage amounts based on experience, we like to move towards a risk based assessment of contingency as soon as possible. This approach sees all the significant items of cost risk analysed and allowances made for each item, depending on the nature of the risk. The individual allowances are totaled and become the project contingency. In this way it is made very clear that the contingency allowances are not available to use for scope until the PCG or the Project Director decides that the specific risk has passed, and that the amount of contingency allocated to that risk can be released to scope.

In this way, attention is focused on the specifics of cost risk, so that the contingency is appropriate to the risk profile of the project. Typically this will take the form of a spreadsheet with line items for each cost risk, which is reviewed on a regular basis with the cost planner and BMW Project Director. It may be included in the regular project reporting if the Project Director so decides. (Note that it is important that the Cost Planner's scope of seres is aligned with the adopted strategy in this area)

There may also be a separate client contingency which is solely at the client's discretion and may be used for any purpose the client sees fit – this is to be decided in conjunction with the client at the outset. It may for example be applied to some completely unexpected event which causes the project to suffer a cost or scope impost that cannot be otherwise dealt with. Equally it could be applied to discretionary scope late in the project, such as fit out Value Management

VALUE MANAGEMENT

There must be an ongoing process of value management, which is an attitude within the design team to continually question whether emerging design solutions really represent the best value for money for the project. This is a process that relies on both innovation (for example using common materials in uncommon ways) and strategy (for example, not spreading scarce budget out over large areas of the project where there is little impact or benefit, but concentrating it into areas where there is a real and perceived benefit).

For ARM, this is a normal way of working, as we are accustomed to delivering buildings with modest budgets and high aspirations.

This project is of a scale that would warrant one or two formal value management sessions during the development of the design. Typically this would be a facilitated half day workshop, where all the basic design assumptions are examined and questioned to verify that the right choices are being made, and that lateral solutions are not being overlooked.

CONSTRUCTION DOCUMENTATION & TENDERING

There is an art to getting the best value out of a tender process through the way a project is documented. This includes showing the necessary information only, clarity and simplicity of the documents and the referencing systems, and dealing with any more complex or non-traditional areas (if any) in a specific way aimed at assisting tenderers to understand the intent easily without pricing unnecessary risk.

As an example of the latter, an area of the project that might be perceived a high risk by tenderers because it was too much work for them to price, or because it might involve suppliers or construction techniques with which they may not be familiar, can be excised from the tender and priced with the appropriate expert sub contractors and/or suppliers

in advance of the main tender, and this information can be supplied to tenderers to assist them and to avoid unnecessary risk loading. We have used this technique very successfully in several projects in the past. It may also be worth considering an industry briefing if there are any aspects of the design or procurement model that would benefit from early industry input, or where the industry may approach the tender more competitively with a better understanding of what is required.

Increasingly, the industry is becoming accustomed to the benefits of BIM in varying degrees, and using a procurement system that allows the design team and the contractor to fully co-operate in a BIM environment is another way to deliver best value for money and hence control costs. The selection of the correct procurement system given the BIM aspirations of the project is very important, and is something we look forward to discussing with you in more detail.

NIGHT VIEW FROM GRAND BOULEVARD

'Schuler Shook brought great value to the Gallagher Center. They kept the theatre's needs in focus, even with a tight budget. Scores of details would have been easy for us to miss without their professional guidance. I felt their personal attention and credibility as working theatre professionals a winning combination.'

CATHERINE SPRINGFIELD, DIRECTOR OF PERFORMING ARTS, XAVIER UNIVERSITY

CONSTRUCTION ADMINISTRATION

Naturally enough, cost control continues with a high focus during construction. At this point, the remaining contingency would be analysed more closely and the line items in the contingency management spreadsheet allocated to components of the project identified through the tender process and trade breakdowns. There would also need to be some contingency allocated to contractural claims, dependent on the assessment of the track record of the successful tenderer, industry conditions prevailing at the time, and the relationship of the accepted tender to the Cost Planners view of the correct costs, amongst other factors.

We will also have in place a protocol that will prevent the issuing of any instructions to the Contractor without there being an assessment of any cost or time implications of the claim, referred to the Project Director where required (usually above a delegated limit for the Superintendent's Representative).

The ongoing management and reporting of variations is therefore linked to the contingency management tool, and is designed to keep the Project Director and the PCG appraised of the situation regarding variations approved and pending (or anticipated) and the remaining contingency pool.

MANAGING EXPECTATIONS & BUDGETS

We have no doubt that the project will be starting out with the stakeholders' expectations being in advance of the budget that is available. This is 'situation normal' for most public projects these days, and it requires a process of modifying expectations while driving the maximum 'bang for your buck' from the budget and the brief. This is addressed in three ways:

- Regular and strategic communication with stakeholders, taking them on the journey so that they gain a full appreciation of what is and what is not possible within the project parameters, and more importantly, that they believe it. Then the process of prioritizing needs can start, leading to a common acceptance of a brief and a sound base for design to start.
- Strategic design in terms of how and where to apply scarce budget to maximum effect for the stakeholders. Simply put, this means spending the money where it makes a difference, and not where it really doesn't matter.
- Through the innovative use of ordinary building materials and methods we reinvent tried technologies in creative and unusual ways. We strive for maximum impact without maximum cost.

Examples of how we have used innovation in this area include:

- Promedicus, head office , Richmond (Geodesic side wall, 'straight' refurbishment of existing building)
- National Museum of Australia (Highly figured public space, utilitarian exhibition hall structure and linings)
- Marion Cultural Centre (Gestured and complex public facades, regular planning, cost effective rear and side facades)

All of our projects are built with hard working budgets, so this strategy is always being explored and refined to maximum effect. It can be used in methods of production as well as design, for example using BIM to drive manufacture without shop drawings, or to employ industrial processes not normally used in building construction.

'This impressive project, which is the latest addition to Victoria's cultural landscape, has reached the milestone of practical completion three months ahead of schedule.'

FORMER PREMIER MR JOHN BRUMBY, STATE GOVERNMENT OF VICTORIA AT PRACTICAL COMPLETION OF THE MRC & MTC PROJECT

PHASE I – DESIGN COMPETITION

6 WEEKS — **27 JUNE 2013**

Review project objectives, engage sub-contractors/ consultants, and develop

- Review of the proposed site and it constraints
- Analysis of the external factors having a bearing on the site, such as traffic movement.
- A review of the proposed facilities to be incorporated into the facility
- Engage any sub-contractors/consultants
- Development of a concept design for the facility concentrating on organisation and massing, planning of primary elements,
- Detailed assessment of the design option
- Presentation of design

PHASE II – COMPETITION DESIGN REVIEW AND FUNCTIONAL AND TECHNICAL BRIEF

6 WEEKS — **17 FEBRUARY 2014**

12 WEEKS

Review of competition design with Design Team, Quantity Surveyor, the PWG, Project Design Group (PDG) and other Council representatives and key stakeholders.
Preparation of a detailed Functional and Technical Brief (FTB) fully describing the characteristics and performance standards required to be achieved in the Project, including:

- A review of the proposed facilities to be incorporated into the facility
- Contribution to cost plans/estimates, construction programs and other relevant documentation.
- Participation in community consultation and stakeholder engagement forums
- A statement of design philosophy and objectives;
- Overall building and external area design requirements;
- All heritage and collection environment standards for collection and heritage item storage.
- Area details of building finishes and of fittings and movablefurniture and equipment;
- Specific performance standards for building elements, operational requirements, and operational provisions including structure, engineering services, external works, horizontal and vertical circulation, security, access control, retailing and food and beverage services, traffic access/egress and goods handling etc.

PHASE III – PROJECT DELIVERY STRATEGY

PHASE IV – PROJECT DEVELOPMENT (CONCURRENT WITH PHASES II & III)

4 WEEKS — **17 MARCH 2014**

31 MARCH 2014

Assist the Project Manager, Principal and the Quantity Surveyor to prepare a Project Delivery Strategy for the Project. The Strategy will address matters such as:

- The establishment of a master cost and time plan including suitable design and construction contingencies;
- The selection of an initial project delivery strategy and delivery method. Risk areas, demolition of existing buildings, decanting and relocation of current services, commissioning and handover of the Project;
- Determining a recommended project strategy to deliver the project;
- The identification, recommendation and co-ordination with the Principal's Contracts and Purchasing Unit of any contracts which may deliver benefits to the Principal and which are appropriate for the Project;
- Preparation of an external authority approval requirement matrix; and
- Identification of the necessary legal approvals and requirements.

Develop for the PCG's approval, a schematic design development solution for the Project that is consistent with the Functional & Technical Brief and within the master cost and time plan.

- Provide the general administration services necessary for the scope of this phase including consultation, meetings and communications :
- Ensure that design development solutions are consistent with the, Building Code of Australia, Building Regulations and all Acts and Laws affecting the Project
- Prepare the schematic design development documents consisting of drawings and other documents illustrating the general scope, scale and relationship of the project components, including:
  - Preliminary and developed sections and elevations
  - Preliminary and developed selection of building systems and materials
  - Space allocation and utilisation plans based on functional relationships, consideration of materials, systems and equipment and development of conceptual design
  - Functional plans that clearly show the alternate uses of multi-use spaces, including special equipment required for special modes.
  - Development of approximate and detailed dimensions, areas and volumes
  - Perspective sketches
  - Documentation and information for construction of a Project model (model maker to be engaged by the Principal and managed by the Project Manager)
  - Area analysis on net and gross to establish building efficiency
- Co-ordination between the architectural work and all engineering and other involved disciplines for the Project
- Participation in value management studies to ensure efficiency and effectiveness of design development solutions
- Provide regular reporting to and/or attend Project Control Group, Project Working Group and Project Design Group meetings as required.

PHASE V – CONTRACT DOCUMENT PREPARATION FOR TENDER

28 WEEKS — **13 OCTOBER 2014**

Take the Project as approved by the Principal together with the Functional and Technical Brief and the schematic design/development documents and, based upon the selected delivery method, develop the project documentation to a state suitable for tender.

- Develop the nominated specific Project solution to full documentation stage that allows a contractor to achieve construction costs within the ceiling cost approved by the Principal and produce a project solution that is consistent with the Principal's fully developed requirements.
- Provide the services necessary to prepare construction documents for approval by the Principal consisting of drawings, specifications and other documents setting forth in detail the requirements for construction of the Project. The services include:
- Co-ordination between the architectural work and all engineering disciplines for the Project; and review and checking of documents prepared for the Project
- Authority consulting/review/approval services relating to applicable laws, statutes, regulations and codes of regulating entities
- Undertake such design reviews as may be prudent to ensure that design of all disciplines is consistent and in accordance with the FTB.
- Undertake design presentations.
- Advise and assist the Principal and Project Manager to develop the nominated specific Project solution to a documented design stage consistent with that suitable to achieve construction outturn cost within the ceiling cost approved by Principal.
- Brief and co-ordinate the other consultants to carry out the necessary design elements.

PHASE VI – TENDER, AWARD AND PROJECT DELIVERY

8 WEEKS — **24 NOVEMBER 2014**

**Assist the Project Manager to prepare the Project documentation,
put the project/s to tender and award the construction contract/s.**

- Assist the Quantity Surveyor to revise the tender document cost plan and provide a final adjusted cost plan to accord with the delivery method selected for presentation to the Project Control Group.
- Respond to tender queries and requests for information
- Assist as required with the analysis of the tenders received and select the most suitable contractor for each contract.
- Prepare the documentation necessary to facilitate the construction contract.

PHASE VII – CONSTRUCTION ADVICE AND CONTRACT ADMINISTRATION

NOV 2014 ***NOV 2016***

Assist the Project Manager to review compliance with design intent under the construction contract.

- Provide regular reports identifying design progress and design achievements and any project risks;
- Review compliance with construction documentation
- Review contractor submissions, shop drawings for compliance with the Contract, Drawings and Specifications.
- Provide to the Contractor an explanation or a correction of any discrepancy in the Contract Documents
- Provide advice when required on departure or change to design intent with suggestions as to remedy
- Attend regular site meetings, where required.
- Provide specialist advice in respect to constructability, quality control etc
- Assist the Project Manager and Quantity Surveyor to assess variations, where required.

PHASE VIII – DEFECTS LIABILITY PERIOD

NOV 2016 ***NOV 2017***

Attend regular inspections of the building during the defects liability period under the contract and report any matters arising in connection with such inspections and recommend appropriate action.

- Monitor the rectification of defects and completion of all outstanding items.
- Provide update a master defects list
- Organise and attend regular defects meetings on site.
- Evaluate as the completion of all outstanding defects for the provision of Final Completion.

E. TRAFFIC MANAGEMENT & PARKING

THE WINNING DESIGN ADDRESSES VEHICULAR TRAFFIC PATTERNS, INCLUDING LARGE VEHICLE ACCESS/EGRESS AND PARKING FOR PATRONS, PERFORMERS AND STAFF.

The layout of the building is structured on the procession from the parkland and the eroded façade, through to the remarkable interior landscape. From the north western corner the building works diagonally from public through performance spaces to back-of-house, loading and car parking access on the south eastern corner.

All vehicle access is off Teakle Court, keeping the front of the building free from unsightly loading and service areas. Similarly, the existing services building at the entry to the site, if unable to be relocated, will be screened or incorporated into the landscape.

SERVICE VEHICLE ACCESS

An articulated 19m truck can reverse successfully into the theatre loading dock with modifications to the median on Teakle Court. Service access for food & beverage and associated delivery, is adjacent but separate to the scene loading area, with a separate internal path through the building.

DROPOFF ZONE

A dropoff zone for taxis and coaches can be integrated into Grand Boulevard in front of the building. Upon a thorough review of options, this was proven preferable to bringing vehicles into the forecourt area of the building, with associated ramping, kerbing and lane marking creating a barrier to pedestrian access.

CARPARK ACCESS AND EGRESS

The carpark is designed primarily to function on event nights, with large numbers of patrons arriving and leaving together. The queuing distances, entry and exit widths, and number of boom gates have been designed to deal efficiently with this volume of traffic.

Based on a 400-space car park and tidal event flow, the length of queuing space required is approximately 180 metres. This can be halved if 2 lane are provided. Lanes must be 2.7m. If a single queuing lane is provided, an additional “breakdown” strip of 2.0m must also be provided. There are no specifications as to what proportion of the queuing space can be provided off road within the car park site, however all queuing will necessarily be outside of the ticket barriers. This advice is based on Australian Standard 2890.1:2004 Off Street Parking utilising Table 3.3 and Appendix D.

Based on full occupancy of a 400-space car park and tidal event flow, and the likely need to supply 2 queuing lanes, the car park will require 2 entry ticket barriers. The exit flow of vehicles may also require 2 ticket barriers unless the quantity of exiting vehicles can be limited to less than 300 vehicles/hr. If this case only one exit ticket barrier will be required.

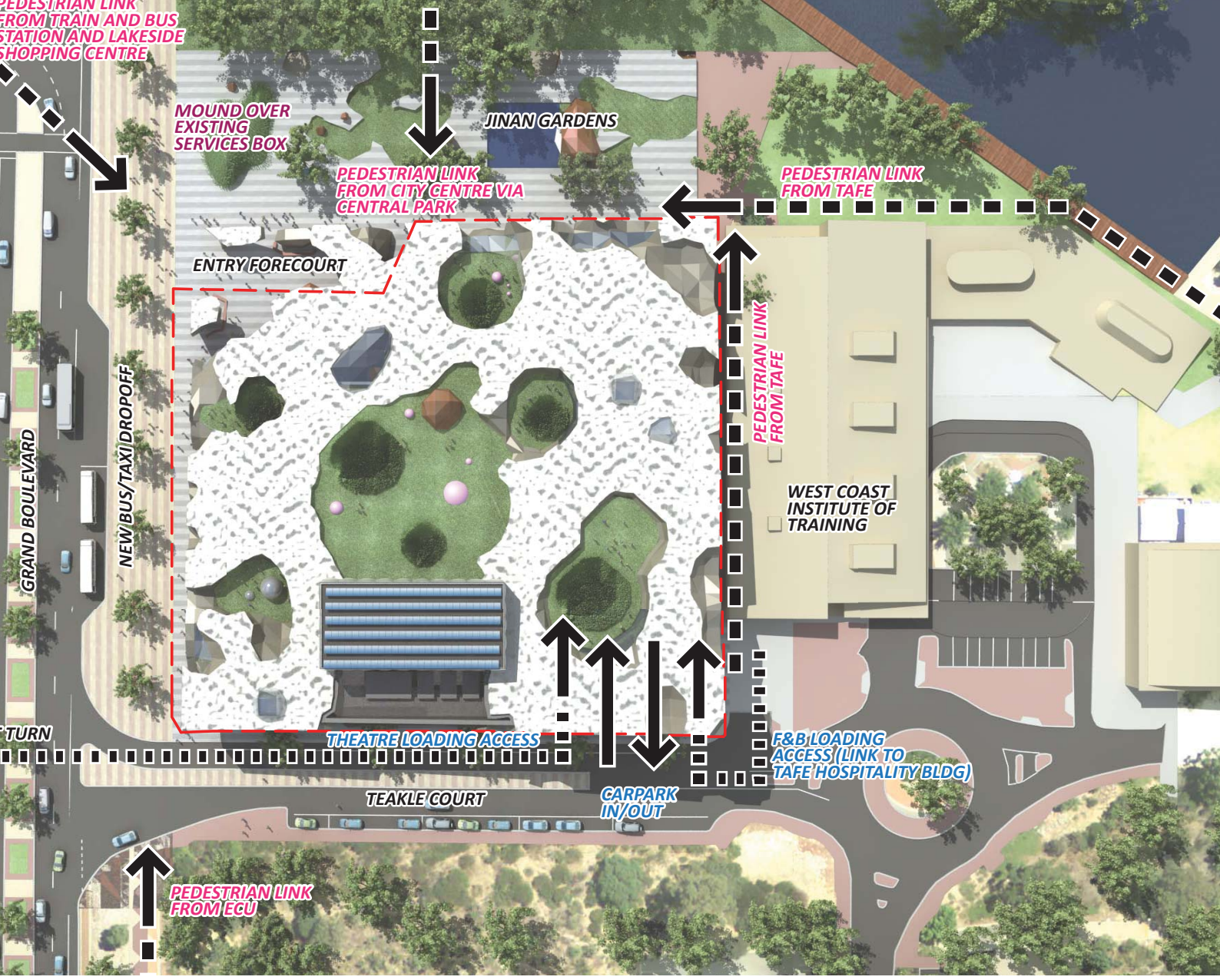
Additionally, the car park is classed as a Category 2 Parking Facility with a category 4 access requirement. This dictates an access and egress width of between 6.0-8.0 metres each, suggesting that two lanes will be provided at entry and exit.

Pedestrian access to the carpark is independent from the main building, to allow use as public short-term parking. There is also an internal access to the main foyer, which can be opened during building operating hours.

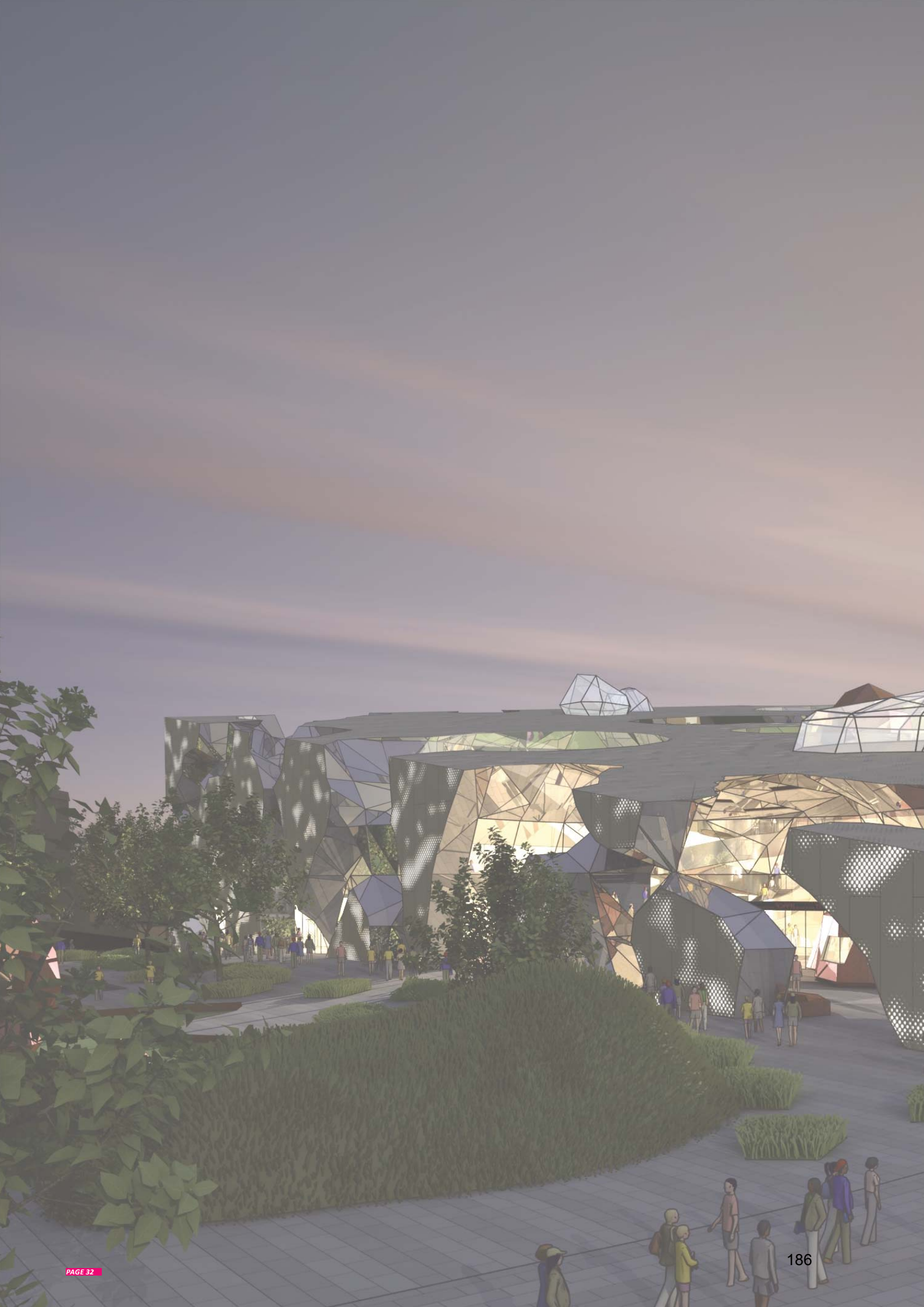
ROAD MODIFICATIONS

Given the importance of the new facility, there is a need to provide a right turn out of Teakle Court onto Grand Boulevard. In a 60km/hr speed zone, standards require a minimum of 85 metres between intersections. Based on plans provided, there is approximately 100m between the Collier Pass and Teakle Court intersections. Traffic analysis would be required in the next stage of design to test the feasibility for the right hand turn, especially when considering the use by heavy vehicles.

The suitability of a right turn out of the car park onto Teakle Court will depend upon the anticipated flow of vehicles out of the facility, the need for queuing space on Teakle Court, and the design of the intersection with Grand Boulevard. The left-out only design has the benefit of requiring vehicles to use the roundabout, creating a longer queuing capacity for vehicles exiting onto Grand Boulevard. The right-out option would need to be analysed in the next stage of design as part and separate to the right-turn facility from Teakle Court onto Grand Boulevard.



EXTERNAL VIEW FROM GRAND BOULEVARD



APPENDIX 1
THE PROJECT TEAM

THE ARM ARCHITECTURE TEAM

ARM Architecture has a long history of capability in the development of cultural and arts institutions. Over the past 5 years ARM has completed 3 major performing arts buildings: the recent redevelopment of Hamer Hall Arts Centre, the Melbourne Recital Centre, & the Melbourne Theatre Companys theatre. This has resulted in ARM becoming one of the leading architecture firms in theatre and auditorium design and acoustics in the country.

The ARM team for this project reflects the wide range of experience and skills the ARM office has developed in its overall structure so each project team has the capacity to address all the aspects and complexities of a project. Ian McDougall as overseer brings the reputation of an innovative thinker especially in the area of urban design. Peter Bickle as project director has extensive experience in project delivery ranging from client and stakeholder consultation, design delivery, programme planning and design team coordination. Andrew Lilleyman has been instrumental in the design of many of ARM's recent buildings including the award-winning Perth Arena. Jonothan Cowle and Will Pritchard have worked assiduously on the delivery of the arts and cultural buildings designed by ARM with particular skill in resolving complex functional requirements of the buildings. Jenny Watson is a young architect who has the ability to independently manage the design skills necessary for complex presentations and design documents easily understood by stakeholders.

IAN MCDOUGALL

DIRECTOR IN CHARGE

B ARCH (HONS) /RAIA

Ian McDougall is a Founding Director of ARM Architecture. He was Project Director of the Melbourne Docklands Masterplan, Yarra Edge at Victoria Harbour, and the review of New Quay. He was Design Director for the Albury Library/Museum, One East Melbourne residential tower Shrine of Remembrance and the Melbourne Recital Centre/Southbank Theatre, and Hamer Hall. He is currently the Design Director on the Shrine Galleries of Remembrance and the Geelong Library and Heritage Centre project. Ian was also recently appointed to the Melbourne Festival Board of Directors.

PETER BICKLE

PROJECT DIRECTOR

Peter is Project Director at ARM, contributing a plethora of knowledge gained over 25 years' experience in Melbourne and Sydney.

Since 2002 Peter has been responsible for managing the design and delivery of several significant projects. Peter's design skills and project management experience, built up over many years, have equipped him to handle any building type at any scale.

Peter is currently Project Architect on the Geelong Library. Prior to this he was Project Architect for Hamer Hall redevelopment, MTC Theatre and Melbourne Recital Centre, and for the redevelopment of the Melbourne Central retail precinct.

ANDREW LILLEYMAN

SENIOR DESIGN DIRECTOR

B ARCH (HONS) /RAIA

Andrew is the director of the ARM Perth office during which he has been director in charge for the Wanangkura Stadium in South Hedland and the Perth Arena stadium. Andrew is currently design director for Elizabeth Quay Masterplan. He has also worked on a broad spectrum of projects in Melbourne and Sydney as well as Perth, including the Melbourne Theatre Company and the Melbourne Recital Hall, the Albury Library/Museum, 140 William Street bid, the Shrine of Remembrance Visitor Centre, CUB commercial tower and winter-garden, and the winning design for the King Street Wharf commercial and residential complex in Sydney.

He has taught design, Australian architectural history and advanced computing at the University of Western Australia for a number of years and taught design at RMIT while living in Melbourne. He has also been involved in the production of architectural exhibitions and publications within Western Australia.

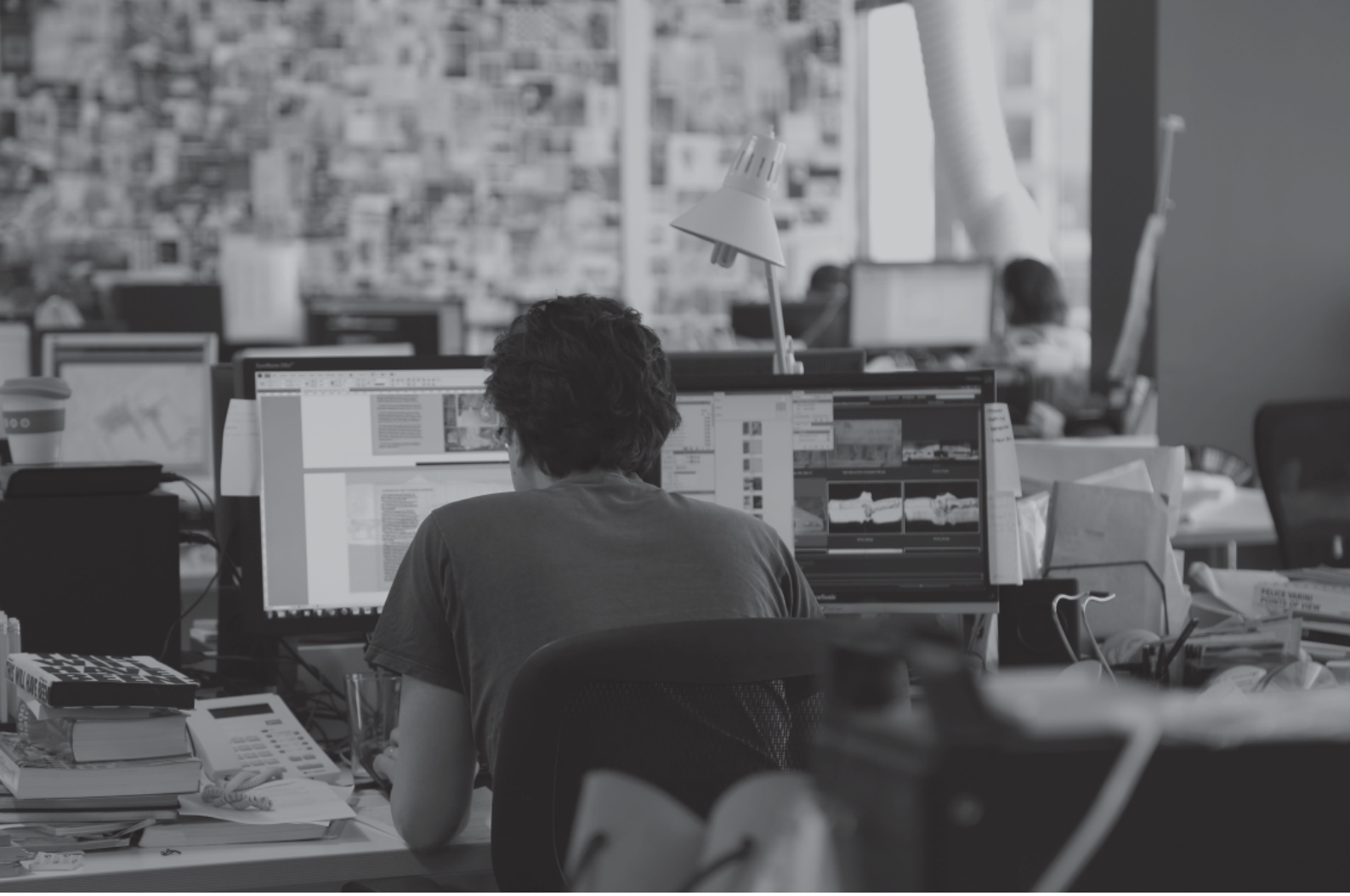
JONOTHAN COWLE

DESIGN ARCHITECT

B ARCH (HONS)/RAIA

Jonothan is a Senior Designer and Associate of ARM Architecture and has extensive experience working over a broad range of projects from retail, masterplanning, high density residential, performing arts, and sports and entertainment venues. Jonothan has also had the opportunity to specialise in the design of a wide range of Auditorium typologies, having worked on the MTC theatre, Melbourne Recital Centre, Perth Arena and recently the Arts Centre redevelopment.

In addition to his role at ARM, Jonothan has been involved in the production of architectural exhibitions and publications, and has been a Design tutor and lecturer at RMIT since 2004. Jonothan is currently working on the Geelong Library & Heritage Centre.



WILLIAM PRITCHARD

PROJECT TEAM

William Pritchard joined ARM in 2002 after invaluable work on civic projects in The Netherlands. His broad Architectural experience in design and project procurement has provided rewarding client engagement in culturally significance civic projects. He is a key team leader with valuable insight into specific building functions & challenges. As project architect of the Albury Library/Museum and Theatre Architect for the Melbourne Recital Centre/ Southbank Theatre projects William developed technical expertise in this area to lead the Auditorium team of Melbourne's Hamer Hall and supporting operational spaces. William is now working on the design co-ordination & procurement of the new Geelong Library and Heritage Centre.

JENNY WATSON

PROJECT TEAM

Jenny has been with the ARM Perth office since 2006, and has recently completed her Masters of Architecture at the University of Western Australia. She has worked on projects such as the Perth Arena, Elizabeth Quay and the Wanangkura Stadium, from early conception stages to construction documentation. Currently Jenny is working on Elizabeth Quay and Murdoch Mixed-Use Precinct masterplans, involving resolution of design options, preparation of feasibility studies, collaboration with consultant teams and preparation of material for presentations and public documents.

THE SCHULER SHOOK TEAM
THEATRE PLANNERS

Schuler Shook provides theatre planning, consulting and technical systems design services for performing arts facilities worldwide. We collaborate with architects, engineers, acousticians, performing arts organizations, as well as municipalities and government officials to translate artistic needs into design and construction requirements.
First established in Australia in 2009, our practice began in the US in 1986. Schuler Shook was founded by partners Duane Schuler and Robert Shook. Our original offices in Chicago and Minneapolis were supplemented in 2001 with the addition of our Dallas office, followed by our Melbourne office in 2009. We have grown to over 35 full time employees, our consultants coming from backgrounds as diverse as theatrical lighting, technical direction, architectural lighting, electrical engineering, and interior design.

Schuler Shook excels at working collaboratively and creatively to achieve excellence in design. We strive to inform the design process in the most positive ways possible to reinforce the architectural concepts and to assure that the building supports the work of the artists engaged there.

Our projects include opera houses, civic theatres, professional theatres, concert halls, dance theatres, ballrooms, worship spaces, and performance venues for universities and colleges; they range from less than 100 seats to over 15,000 seats.

Our practice is continually sharpened with the experience that each project brings. We maintain an openness to the unique aspects of every performing arts facility and each stakeholder. We believe in flexibility, practicality, and expandability. Above all, we design theatres that work, both now and in the future.

We are committed to continuing education in all aspects of our practice, and in serving our profession by regularly presenting and attending local, national, and international educational opportunities. We are also deeply committed to sustainability, and our designers work to improve the sustainability and energy efficiency of arts buildings.

ROBERT SHOOK
ASTC PARTNER
B FINE ARTS / M FINE ARTS

Robert Shook, ASTC, a founding partner of Schuler Shook, will provide general internal overview of the team's efforts. Robert Shook enthusiastically brings to every project a wealth of experience in professional theatre, having been involved in the planning of auditoria and audience areas for hundreds of theatres around the world. His depth of experience as a professional theatrical designer provides him with a keen understanding of backstage operations and technical systems. A noted expert in the field, he is featured in the stage lighting textbooks, Scene Design and Stage Lighting and also Stage Lighting: Foundations and Applications. He promotes intimacy and flexibility in theatre design and is a strong proponent of the collaborative process in the development of successful performing arts facilities.

JIM HULTQUIST
SENIOR THEATRE CONSULTANT
B ARTS / M FINE ARTS

Schuler Shook's theatre planning team for this project will be led by Senior Theatre Consultant Jim Hultquist, ASTC, LEED® AP. As Project Manager, Jim will be serving as the primary point of contact throughout the process. Jim has over 12 years of experience as a theatre consultant in Australia and the US. He was Schuler Shook's Project Manager for the Arts Centre Melbourne's refurbishment of Hamer Hall, with ARM Architecture, as well as the Project Manager for the Bendigo Theatre project that includes a new 1,000-seat theatre. Jim will be available to all design team members as the day-to-day liaison throughout the process for the duration of this project. Jim will attend site visits, stakeholder meetings, and design meetings. Jim is a theatre consultant with a broad range of experience from black box theatres to multi-venue performing arts centers. He also works with manufacturers and other partners to increase the sustainability and energy efficiency of theatre buildings.

RICHARD STUART
THEATRE & PRODUCTION CONSULTANT

Working with Jim for the extent of this project will be noted Australian Theatre and Production Consultant, Richard Stuart. Richard has a great deal of background in planning and design for regional arts centres as well as considerable experience with touring companies throughout Australia and New Zealand. His wealth of relevant experience will serve the Joondalup Performing Arts and Cultural Facility well. Richard brings over 35 years of technical theatre and production experience to the team. He has served as Executive Manager of Production Services for the Queensland Performing Arts Trust, Technical Director at Sydney Opera House, and Technical Manager for the Melbourne International Festival of the Arts. Richard worked closely with Jim Hultquist and ARM Architecture on the Hamer Hall project at Melbourne Arts Centre.

THE MARSHALL DAY TEAM
ACOUSTIC DESIGN

Established in 1981, Marshall Day Acoustics has grown to become one of Australia's largest and most respected acoustic consultants. The engineers in our Adelaide, Melbourne, Perth and Sydney offices provide environmental noise assessment, architectural acoustics and vibration consulting services across Australia.

Our staff are linked across our extensive network of offices to form one team of engineers, architects, musicians, designers and scientists. Our company philosophy, technical resources and uniquely creative working environment, result in an enviable level of staff retention that provides our clients with stable and committed project teams.

Our projects represent our proud history as an innovative, creative and specialist acoustic consultancy at an international and local level. Our experience encompasses performing arts design, building acoustics, planning & resource consents, environmental noise, industrial & marine noise control, sound system design and structural dynamics & vibration analysis. Our projects include major centres in the USA, Australia, New Zealand, China, Singapore, Malaysia, Hong Kong, the Pacific Islands and the Middle East.

PETER FEARNSIDE
MANAGING DIRECTOR

B SCIENCE, FIE AUST, CPEng, MAAS

Peter graduated from The City University, London in 1971 with a Bachelor of Science degree in Mechanical Engineering. He has worked as an acoustical consultant in England, Australia, USA, New Zealand and Malaysia. Since 1987 Peter has been the managing partner of Marshall Day's Melbourne office.Peter has extensive experience in the acoustic design and theatre planning of performing arts centres, television, film and radio broadcasting facilities and specialist buildings

Peter has managed the acoustics and theatre design of many major performing arts projects including Hamer Hall Redevelopment, Melbourne Guangzhou Opera House, China, Melbourne Symphony Orchestra's Rehearsal Hall, Beijing TV Studio Theatre, State Theatre Centre, Perth WA.

BEN WILSON
ASSOCIATE

B SYSTEMS ENGINEERING, B ASIAN STUDIES, AAS, MIOA

Ben Wilson is the Managing Consultant with the Perth office specialising in building and room acoustics, environment noise assessment, industrial noise control, hearing conservation, and theatre systems.

Ben graduated from the Australian National University in 2000 with a Bachelor of Engineering (Hons) in Systems Engineering, and a Bachelor of Asian Studies (Indonesian). He is a Member of the Australia Acoustical Society and the Institute of Acoustics.

Ben has worked as a consultant in Australia and the UK where he has provided acoustic consultancy advice on a wide range of construction projects in the education, healthcare, commercial, and residential sectors.

PETER EXTON
ASSOCIATE

B SCIENCE (HONS), GRAD.DIP MUSIC

Peter Exton is a Senior Consultant with the Melbourne office specialising in concert hall design and development.

Peter graduated from the University of Western Australia in 1985 with an Honours Degree in Physics and then completed a Graduate Diploma of Music at the Tasmanian Conservatorium.

Peter began consulting work with Marshall Day Acoustics in 2004 and continues to perform as a professional violinist throughout Australia. Peter is also involved in ongoing research in concert hall design and development.

Recent project experience includes the Guanghzou Opera House, China, Queensland Performing Arts Centre and Xian Concert Hall, China

JOHN ALEKNA
ASSOCIATE

B APPLIED SCIENCE & PHYSICS

John Alekna is an Associate with the Melbourne office specialising in building acoustics, environmental noise control and sound system design.

John has been involved in acoustic consulting since 1989 after graduating from the University of Technology, Sydney in 1988 with a degree in Applied Physics. John established the Brisbane office for Sydney based RFA Acoustic Design in 1993 and managed the office for over 10 years for RFA, and then Hyder Consulting from 2002. John joined the Melbourne office of Marshall Day Acoustics in 2003.

Recent project experience includes the State Theatre Centre, Perth, Queensland Performing Arts Centre Redevelopment and AAMI Park, Melbourne

THE DONALD CANT WATTS CORKE TEAM

QUANTITY SURVEYOR

Since 1966, DCWC has helped some of Australia's most respected organisations turn their ideas into reality. Our reputation has been built on integrity, passion and reliability and we are now Australia's largest privately owned cost and project management services provider.

We offer nationwide service delivery through our offices in Melbourne, Canberra, Sydney, Brisbane, Regional Queensland, Adelaide and Perth. This unified national structure ensures you receive consistently outstanding results through all phases of your construction project.

In every state and territory, we have partnered with government, private and public organisations to deliver some of Australia's most advanced and complex developments across a wide range of sectors.

Whatever your projects' challenges, our team will work with you to transform your ideas into reality. We are committed to providing you with a service that is focused on delivering outstanding results.

NEIL DICKSON

DIRECTOR

B SCIENCE (HONS), MRICS

Neil's market sector experience cuts across all sectors but specifically includes commercial developments, infrastructure/mixed use, sport and leisure,administration and culture and assembly.

He sits on the GBCA WA State Leadership Group and the WA PCA Sustainability Committee. Neil's expertise includes cost planning, procurement and cost management of building projects.

Neil specialises in providing client's with project set-up, financial and delivery advice across all procurement models to ensure realistic expectations are set and continually monitored.

THE CUNDALL TEAM
ENVIRONMENTALLY SUSTAINABLE DESIGN

Cundall was formed in Australia in August 2003 and in just over eight years the firm has grown to be one of Australia's largest Sustainability Consultant in the built environment.

With offices in Sydney, Melbourne, Adelaide and most recently Perth, we have the capability and capacity to work across Australia. Our award winning projects across all states and territories of Australia demonstrates our depth of knowledge and experience.

We work across all sectors of the property, infrastructure and construction industries delivering sustainability, ESD and Engineering services. Our client base includes national, state and local governments, developers, builders, architects, project managers, property/ portfolio managers and engineering consultants.

As a sustainability consultancy our three core service offerings are Sustainability, ESD and Engineering. Each offering is unique and independent in its own right but all work better together.

Our independence and size allows us to provide all three core services or provide any one of them as an independent service.

MARK PITMAN
ASSOCIATE, MANAGER WA
PHD MECH, B ENGINEERING (HONS)

Mark is an experienced industry consultant as well as academic researcher. He has implemented innovative techniques and technologies derived from his research experience in the design of several high-profile projects in WA. Application of the new technologies and techniques have been instrumental in achieving a high-level of environmental consideration in these designs while also enabling cost-savings through high-quality design analysis.

Mark continues to maintain links to academe, lecturing in Building Science and Sustainable Design at Curtin University.

OLIVER GRIMALDI
SENIOR ESD CONSULTANT
M ENGINEERING (HONS)

Oliver has over 6 years experience in the design and construction industry across the public and private sectors, in the UK and Australia.

As Senior ESD consultant, Oliver enjoys being part of Cundall's successful and productive Perth team. Oliver specialises in energy efficiency in buildings, particularly using thermal dynamic modelling software.

Oliver is passionate about fusing sustainable design with wonderful architectural spaces, where buildings and nature live as one.

THE BRETT REEVE & ASSOCIATES TEAM
MECHANICAL & HYDRAULIC ENGINEERING

Reeve & Associates is a boutique building services consultancy with offices in Perth and Auckland.

Reeve & Associates work with other design professionals to integrate as part of the team needed to deliver sustainable entertainment buildings. Our has a team who have worked together on a wide range of projects for the last 15 years. Every member of team has a track record of completing entertainment projects. This experience is also supplemented by work on key New Zealand cinema and entertainment projects including Berkley Cinemas Mission Bay Art deco cinema (4 theatres), City Impact Church (2,500 seat auditorium with full TV broadcast facilities), Berkley Cinemas Whangaparaoa, Force Entertainment Centre, and Imax Auckland.

BRETT REEVE
MECHANICAL ENGINEER
BE MECH (HONS)

Brett has 20+ years' experience in mechanical and hydraulic design of multi-service complex installations on large and small projects in Australia and New Zealand. Brett specialises in Healthcare, Entertainment, Commercial, Hotel and High Rise Residential facilities.

BEATA RAKOWSKA
HYDRAULICS ENGINEER
BE WATER & ENVIRONMENTAL

Beata has 7+ years' experience in and hydraulic and environmental design of buildings and infrastructure in Australia, England and Europe. Beata has a specialist degree in hydraulic services, and hence specialises Healthcare, Retail, infrastructure, and entertainment projects.

THE AECOM TEAM
LANDSCAPE ARCHITECTS

Context, idea, narrative and creative outcomes are central to our design position. Our designers share a desire for theoretically-based applications and a fine grain appreciation to issues of problem solving.

Whether working on the Perth City Link, a major urban redevelopment, Yokine regional playground, or Perth's new northern suburb Alkimos, AECOM's approach to landscape design considers the individuality of the site and the client, as well as the financial mechanisms, implementation and maintenance of the project. The environments we create share an emphasis on texture, animation and a sense of place.

We are award-winning and published professionals – landscape architects, urban designers, ecologists and environmental specialists, many of whom hold multiple academic qualifications from institutions in Australia and abroad. We approach each project from a holistic perspective assemble teams which best suit the particular issues being addressed so our clients profit from the acumen and experience of every member of AECOM.

Over the last few years, our portfolio of work in Western Australia has been building, particularly in the realms of water resource management, cultural centres and new communities. Our practice is growing, with a strong team of local professionals based in Perth.

DAMIEN PERICLES
PRINCIPLE LANDSCAPE ARCHITECT
M LANDSCAPE ARCHITECTURE

Damien Pericles re-joins the Perth AECOM Design and Planning team in 2012 with 12 years' experience as a Principal Landscape Architect and director of design.

Damien is an accomplished designer, client and project manager and team leader. He has worked on a full spectrum of project types, sizes and phases including numerous competitions in Australia, Europe and Asia. With a background in graphic design, horticulture and fine arts, he completed his Masters in Landscape Architecture at ETH in Zurich in 2006.

TOBY TIMCKE
ASSOCIATE LANDSCAPE ARCHITECT

Toby is a landscape architect based in AECOM's Design + Planning studio in Perth and has nine years experience in landscape design and construction in Australia and the United Kingdom. Toby specialises in the project management and detailed documentation of a broad range of projects – from small-scale private residences to large urban, public realm and commercial landscapes.

FARON MENGLER
ASSOCIATE DIRECTOR-
ENVIRONMENTAL DESIGN & WATER MANAGEMENT

Faron Mengler is an Associate Director of AECOMs Design + Planning Studio in Perth. Recognised as a leader in the field of Applied Environment within the firm, he specialises in the application of practical designs and plans that address sustainability opportunities and outcomes for land developments, natural areas, public open spaces, educational campuses and recreational environments. As a senior project manager, with over 14 years related experience, Faron has accomplished a diverse project portfolio including: landscape planning, environmental assessment and the design, documentation and implementation of public open spaces and natural areas sites throughout Western Australia. He is currently involved in the design of the Karratha Senior High School and the concept planning for a tertiary learning environment at the former Sunset Old Men's Home. Faron has also recently been involved in planning sporting ovals and recreation spaces for the Shire of Kalamunda and City of Stirling.

TING LIU
LANDSCAPE ARCHITECT
M URBAN DEVELOPMENT & DESIGN

Ting Liu holds a Masters in Urban Development and Design from the University of New South Wales and a Postgraduate Diploma in Urban and Regional Planning from the University of Sydney. In her studies, Ting's major focus has been on urban growth, the transformation of urban forms and placing making. Her postgraduate experience, together with her undergraduate studies in landscape architecture at Shanghai's Tongji University, has equipped Ting with a holistic understanding of design and planning, from large scale urban planning, to small scale site layout.

THE AECOM TEAM
TRANSPORT PLANNERS

AECOM has vast experience in the design of traffic management facilities for local roads and public transport. This experience has included all stages of design from feasibility, to concept, to preliminary to detailed design. We use our highly experienced multi-disciplined team to deliver a one stop shop. Our services include:

- Traffic engineering and planning services
- Landscape Architecture
- Geometric design
- Pavement design
- Drainage design, including water sensitive urban design
- Signs and line-marking
- Roadway accommodation works, such as driveways and services
- Street lighting
- Footpath and cycleway design
- Public Transport Priority and Facilties
- Road Safety Audits
- Project management and contract administration
- Support during construction

SHONA GATENBY
PRINCIPAL TRANSPORT PLANNER

B TOWN PLANNING (HONS)

Shona is a Principal Transport Planner within the Western Australian Strategic Planning and Advisory Team. Her role includes project managing numerous projects, where she is responsible for day to day co-ordination of the project team and tasks, budget management, preparation of scope of works and ensuring work is completed on time and to high quality.

Shona also has detailed and extensive experience across a broad spectrum of transport planning focus areas, and specialises in taking a strategic approach to multi-disciplinary and master planning projects that can include a range of engineering, planning, environmental, social, economic, and sustainability parameters.

Shona has particular expertise in transport planning for passenger rail, light rail, buses, taxis, cycling and walking, specifically route alignment feasibility, strategic network planning, impact studies, public transport prioritisation, public transport accessibility, transit oriented development, terminus and depot planning, concept layout and design, and services review.

TERESA MATASSA
SENIOR TRANSPORT PLANNER

B SCIENCE

Teresa is a Senior Transport Planner for AECOM in Western Australia. She has 8 years experience private consultancy in Australia and local government in New Zealand. Teresa comes from a multi-disciplinary background and this is reflected in her diverse range of transport experience, from creating safe routes to schools to strategic planning projects for major port and freight precincts in Perth. Teresa is an experienced project manager and has effectively managed a range of projects at AECOM.

Teresa has particular experience in integrated transport planning for activity centres and how to integrate the transport and travel needs of the community with urban development. She has experience in investigating and developing transport infrastructure projects to address safety and access issues, with particular experience in walking and cycling planning. This included a focus on improving access for pedestrians with disabilities, for which Teresa was selected for a 2007 delegation visit to Japan to assist the Japanese government with planning for more inclusive cities.

Teresa also has a keen interest in travel planning and is experienced in creating travel plans for places of employment and education, and working on the WA 'TravelSmart' Household Program.

THE WINWARD TEAM

STRUCTURAL ENGINEERING

Winward Group focuses the energy of a dynamic, creative, experienced and highly skilled group of professionals who share and promote a common appreciation of high quality design. This translates into a comprehensive understanding of the built form and of critical stages in design and construction processes.

There is great depth and breadth of experience within Winward Group, combined with a drive to continually develop and improve. Our goal is to be recognised as the benchmark practice for quality of service and delivery of optimal project outcomes for our clients.

We are challenged by the most complex projects to which we can add greatest value through the application of creative thinking supported by expertise, experience and a focus on buildability.

We have earned an outstanding reputation for delivering economic and readily buildable design solutions and our services are highly sought in competitive PPP and Design & Construct competitions, where we have a very high success rate.

KEVIN WINWARD

EXECUTIVE CHAIRMAN

DIP. CIVIL ENG, DIP. MANAGEMENT

Kevin is the Executive Chairman of Winward Structures and has worked previously on projects such as Melbourne Convention Centre, Hilton Hotel, One40 William Street, and Melbourne Underwater World Aquarium.

ANTHONY MCCULLOUGH

STATE MANAGER, WA

B. CIVIL ENGINEERING (HONS)

Anthony McCullough is the state manager for Winward Structures and has worked on projects such as the London 2012 Olympic Stadium, 140 William St Retail, UAE University, Al Ain Campus and Northam Senior High School Performing Arts Centre.

PETER HINDMARSH

DIRECTOR

B. ENGINEERING (CIVIL)

Peter is a director of Winward Structures and has worked on projects such Altona Performing Arts Centre, the Victorian Arts Centre and the Bioscience Research Centre - La Trobe University.

MAURICE DI GIOVANNI

SENIOR STRUCTURAL ENGINEER

B. ENGINEERING (ARCHITECTURE)

Maurice is a senior structural engineer with experience working on projects such as Moorilla Museum of Old and New Art (MONA), Moorilla Library and Northam Senior High School Performing Arts Centre

THE WOOD & GRIEVE TEAM
ELECTRICAL ENGINEERING

Wood and Grieve Engineers was formed by Tony Wood and Kip Grieve in March 1961. Initially based in West Perth, this two-man consultancy specialised in structural and mechanical engineering.

LILIANA MIRONOV
ELECTRICAL PROJECT ENGINEER

BE (HONS), MIEAUST, CPENG, NPER (ELEC)

Liliana has been selected as the Electrical Project Engineer because of her extensive experience on secondary school projects, her excellent communication skills and her specific knowledge of Electrical Services for schools.

As the Project Engineer, Liliana will be involved in detail for all aspects of the project including schematic design, design development, documentation and construction phase. Liliana will be the main point of contact for communication with the Architect and she will attend all project planning meetings. Liliana will review all reports, specifications, drawings, proposals, costings and recommendations, prior to issue to the Architect and Client.

ROBERT HOLMES À COURT
SENIOR ELECTRICAL ENGINEER

BSC(ENG), MSC(ENG)

Rob has been selected for this project due to his extensive experience in similar projects and inside knowledge of the PA venue requirements. He will be involved in all aspects of the project.

THE ID/LAB TEAM
WAYFINDING

ID/Lab 'Shape Behaviour in the Built Environment'. We develop strategies that address the wayfinding needs of people, by creating easy to navigate, legible spaces, and by developing wayshowing stimuli and tools such as signage and maps. Our recommendations are based on a thorough understanding of how people behave when they navigate. Through a combination of human factors science, environmental psychology and experience, we develop evidence-based strategies that make wayfinding work. As part of making a space navigable we design effective 2D and 3D elements that support wayfinding and experiences of people. The outcomes include wayfinding and signage programs, architectural- and window-super graphics, maps, interpretive signage and branded environments. ID/Lab worked with ARM on the development of the wayfinding and signage program for the redevelopment of Hamer Hall, part of Melbourne Arts Centre. We had to carefully balance fitting in the new signage design with John Truscott's original interiors and assuring that the wayfinding information could be seen, interpreted and used by the visitors to this unique concert hall. The developed signage system is sympathetic to the history of the theatre, and performs to the standards required. The design was so well received that the Arts Centre will implement this now throughout the whole precinct.

MICHEL VERHEEM
DIRECTOR

Michel has over 25 years experience in wayfinding, branding, signage and graphic design, both in Australia and Europe. He has a detailed understanding of human behaviour across a wide range of environments, and a thorough knowledge of best practice guidelines and legislation, including DDA requirements. This experience allows him to provide highly efficient information and wayfinding strategies, which will enable users to effectively navigate a site, whilst meeting commercial and operational objectives.

THE JMG TEAM
BUILDING COMPLIANCE & CERTIFICATION

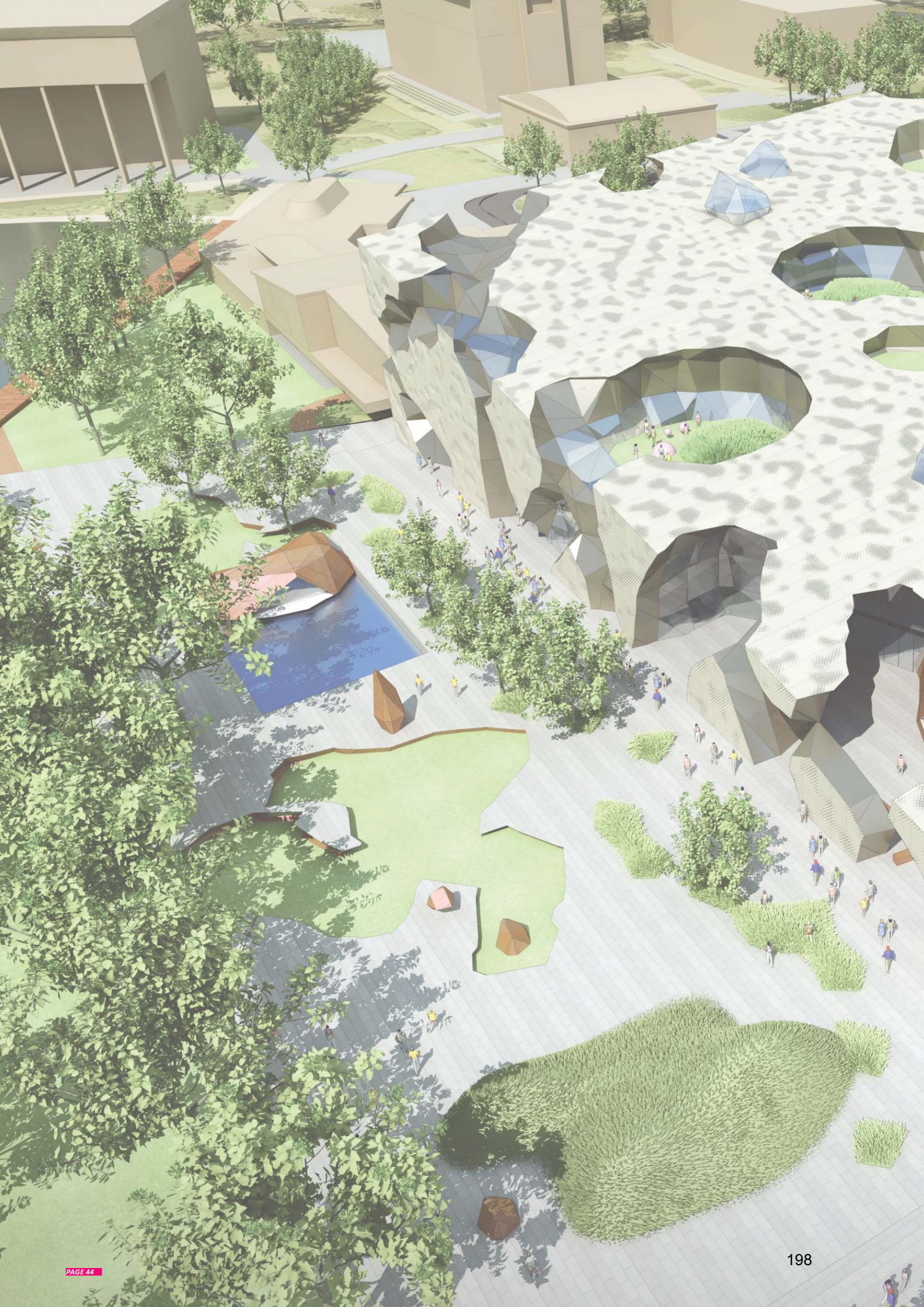
JMG Building Surveyors is the largest and most experienced independent Building Surveying and Certification consultancy in Western Australia.

JMG was established in 2000 under the name John Massey Group Pty Ltd. and now trades under JMG Building Surveyors. Our growth has been the result of developing strong professional relationships with our clients. As a company we pride ourselves on our 'can do' ethos and value add when ever possible.

JMG now employs 17 staff incorporating 9 qualified Building Surveyors and an Accessibility Consultant and our staff have over 100 years of experience in the building industry. The majority of our Building Surveyors are level 1 accredited and hold post graduate or degree qualifications from around Australia and overseas. This enables JMG to certify compliance for the design and construction for all manner and types of buildings. A number of our staff have also gained accessibility accreditation.

JMG is proud to be part of the design teams for many of the largest building projects in the Western Australia and we look forward to providing our expertise and assistance on your next project no matter how large or how small. Our philosophy is to provide a professional certification role that encompasses the sophistication of your design.

JMG specializes in commercial and industrial buildings assessments to assist all stakeholders develop and complete building designs that provide optimum levels of serviceability, life safety and amenity for the benefit of the whole community. Our technical team understands your needs in relation to design flexibility and achieving the highest quality outcomes for your projects.



APPENDIX 2
DETAILED COST PLAN