Annexure 4

Green Star Road Map (prepared by Medland Metropolis)

MEDLAND METROPOLIS | BUILDING SERVICES ENGINEERS AND GREEN STAR ACCREDITED PROFESSIONALS

NSW POLICE - POTTS HILL

GREEN STAR ROAD MAP

CLIENT

PROJECT MANAGER

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ARCHITECT

HBO + EMTB

Project: NSW Police – Potts Hill
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Based upon the requirements of:
Green Star - Office Design v.3
2008

REPORT VERIFICATION

PROJECT	NSW Police – Potts Hill
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DOCUMENT TYPE	Green Star Road Map

REVISION	DATE	DESCRIPTION	PREPARED BY	ADMIN CHECK	APPROVED BY
A	30/09/08	Preliminary	Shaun Carr	Denise Quinlan	Shaun Carr
B	22/10/08	Revised Preliminary	Shaun Carr	Denise Quinlan	Shaun Carr
C	24/10/08	Revised preliminary	Brian Calcutt	Denise Quinlan	Shaun Carr

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EXECUTIVE SUMMARY

This report provides details of the Green Building Council Australia (GBCA) – Office Design rating tool (Green Star) and how the rating tool relates to the proposed NSW Police – Potts Hill development.

To be eligible for Green Star certification using the current Office Design tool, at least 80% of the total net lettable floor area must be classified as an office building. The NSW Police – Potts Hill development currently meets this criterion.

A preliminary Green Star rating assessment calculation has been performed by Medland Metropolis based on previous project experience, and information regarding the NSW Police – Potts Hill development currently at hand. No detailed calculations have been performed as part of this preliminary rating assessment.

Key findings from the preliminary rating assessment calculation were as follows:

- By implementation of 'good practice' initiatives in environmental sustainable design, 47 weighted credits are achieve, thus a 4 star Green Star rating is achieved. (4 star rating = 45 points), however a greater buffer is recommended to be certain of achieving this target.
- A potential additional 25 weighted points have been identified. These weighted points can be claimed over and above the points calculated within the 4 star Green Star rating above.

The feasibility and cost premiums associated with the additional 25 weighted points required to achieve a 4 star Green Star rating are discussed within this report. Careful consideration needs to be given to these points by the project team in determining whether these credits are pursuable for the NSW Police – Pott Hill development. Based on the initial assessment, a safety factor of 3 points has been achieved above the cut-off point for a 4 star development. We would suggest that a minimum safety margin of 10% (i.e. 5 points) be maintained.

At this stage no 'innovation' points have been considered for further development towards the calculation assessment.

SECTION 1 | INTRODUCTION

The purpose of this report is as follows:

1. To brief the design team on the process involved in designing for and achieving Green Star Accreditation
2. To brief the design team on their individual roles in achieving Green Star Accreditation for the project.
3. To provide an assessment of the current Green Star rating for the project.
4. To provide information for discussion for the development of the Green Star rating of the project.
5. To provide a frame work for the progression of the accreditation process.

PROJECT DESCRIPTION

The project consists of three new mixed use buildings: Building 1 – Office; Building 2 – Office and Workshop; Building 3 – Warehouse. Building 1 must achieve 4 Star Green Star and Building 2 should attempt to achieve similar.

GREEN STAR CERTIFICATION

WHAT IS IT?

Green Star registration is a voluntary process where a building design is demonstrated to have met the requirements of the Green Building Council Australia (GBCA) for registration. The buildings performance is measured against a set of quantifiable objectives using a calculation rating tool. The eventual rating, once accredited by the GBCA, corresponds to the awarding of Green Stars as follows:

45 Points	Four Green Stars	"Best Practice"
60 Points	Five Green Stars	"Australian Excellence"
75 Points	Six Green Stars	"World Leader"

ELIGIBILITY

To be eligible for a rating under the Green Star Office Design rating tool, 80% or more of the building's total Net Lettable Area (NLA) must be intended for office purposes.

The actual "rating" calculation involves the use of a GBCA rating tool spreadsheet that outlines a series of criteria for achieving the credits in each category of the rating system. The actual criteria for the "Office Design" rating tool are out lined later in this report.

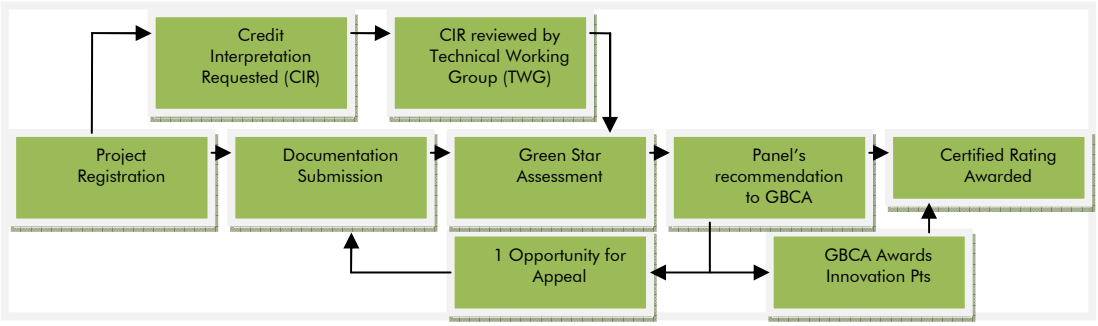
WHO IS INVOLVED

The entire project, construction and client team are involved in the process. The process will not succeed without the participation and formal written contribution from all members of the project team. The following members have a specific role which is described later in this report.

- Client
- Green Star accredited professional (Medland Metropolis)
- Architect
- Building Services Engineers (Medland Metropolis)
- Builder
- Structural Engineers
- Civil Engineers

WHAT IS THE PROCESS?

For future information, the process for project registration to eventual certification is described as per the flow chart below.



Once the project is registered an "assessment fee" invoice and a "Certification Agreement" are generated. Once the "assessment fee" invoice is paid and the "Certification Agreement" is finalised the certification process begins.

WHAT IS THE COST?

An "assessment fee" set by the GBCA is based on the size of the project and is approximately as follows:

Project Size (NLA)	Members	Non-Members
< 5,000m^2	$ 5,500 + GST	$ 6,325 + GST
5,000 – 10,000 m^2	$ 6,500 + GST	$ 7,475 + GST
10,000 – 20,000 m^2	$ 8,500 + GST	$ 9,775 + GST
20,000 – 40,000 m^2	$ 11,500 + GST	$ 13,225 + GST
greater then 40,000 m^2	$ 15,500 + GST	$ 17,825 + GST

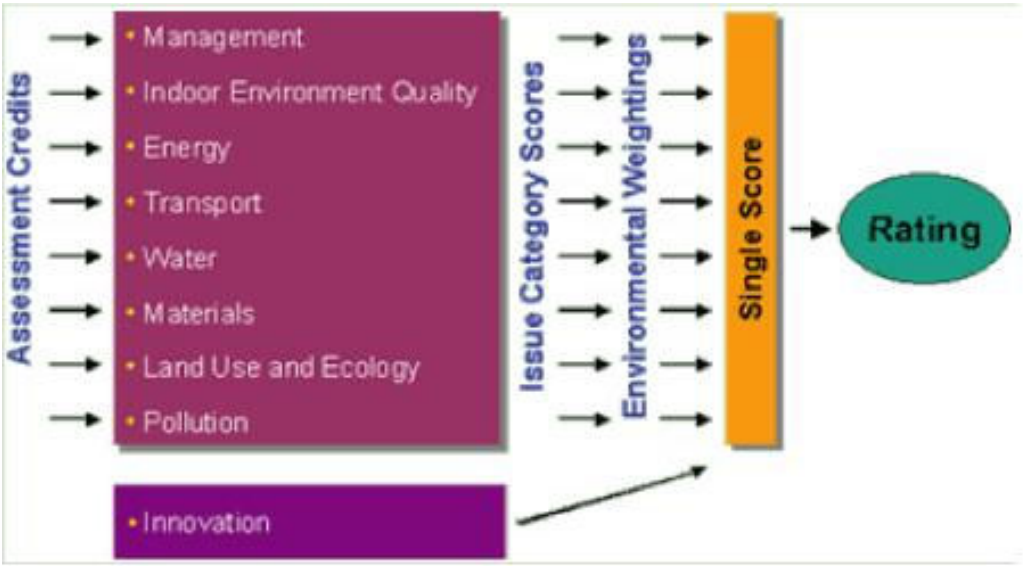
WHAT IS INVOLVED IN THE SUBMISSION FOR ASSESSMENT?

The submission process involves the review by the GBCA assessors of the following information:

- Submission forms and pre-submission checklists
- Construction documentation including all specifications and drawings
- A cover page and written demonstration of "to the letter" compliance with each rating point category
- Reports, calculations to support the documentation of each credit point

To achieve a credit each credit submission the documentation must clearly demonstrate compliance with the GBCA "Office Design" manual "Compliance Requirements". An electronic copy of the relevant compliance will be provided for reference.

The flow chart below outlines the process involved in calculating the eventual rating for each project.



SECTION 3 | INITIAL PROJECT ASSESSMENT DETAILS

The following is an initial assessment of the project in its current form. Assumptions have been made relating to some aspects of the project and will require verification from the respective members of the design team.

INITIAL ASSESSMENT OVERVIEW

Credit Number	Title	Points Available	Points Claimed
MANAGEMENT			
Man-1	Green Star Accredited Professional	2	2
Man-2	Commissioning Clauses	2	2
Man-3	Building Tuning	2	2
Man-4	Independent Commissioning Agent	1	1
Man-5	Building Users' Guide	1	1
Man-6	Environmental Management	2	2
Man-7	Waste Management	2	2
	Total	12	12
INDOOR ENVIRONMENT QUALITY			
IEQ-1	Ventilation Rates	3	1
IEQ-2	Air Change Effectiveness	2	0
IEQ-3	Carbon Dioxide Monitoring and Control	1	1
IEQ-4	Daylight	3	1
IEQ-5	Daylight Glare Control	1	1
IEQ-6	High Frequency Ballasts	1	1
IEQ-7	Electric Lighting Levels	1	1
IEQ-8	External Views	2	1
IEQ-9	Thermal Comfort	2	1
IEQ-10	Individual Comfort Control	2	0
IEQ-11	Hazardous Materials	N/A	N/A
IEQ-12	Internal Noise Levels	2	2
IEQ-13	Volatile Organic Compounds	3	3
IEQ-14	Formaldehyde Minimisation	1	1
IEQ-15	Mould Prevention	1	1
IEQ-16	Tenant Exhaust Riser	1	1
	Total	26	16
ENERGY			
Ene-	Conditional Requirement	Condition Requirement	Condition Requirement
Ene-1	Greenhouse Gas Emissions	20	5
Ene-2	Energy Sub-metering	2	2
Ene-3	Lighting Power Density	3	2
Ene-4	Lighting Zoning	2	2
Ene-5	Peak Energy Demand Reduction	2	1
	Total	29	12
TRANSPORT			
Tra-1	Provision of Car Parking	2	0
Tra-2	Fuel-Efficient Transport	1	0
Tra-3	Cyclist Facilities	3	1
Tra-4	Commuting Mass Transport	5	1
	Total	11	2

WATER			
Wat-1	Occupant Amenity Water	5	3
Wat-2	Water Meters	1	1
Wat-3	Landscape Irrigation	1	0
Wat-4	Heat Rejection Water	4	0
Wat-5	Fire System Water Consumption	N/A	N/A
	Total	11	4
MATERIALS			
Mat-1	Recycling Waste Storage	2	2
Mat-2	Building Reuse	N/A	N/A
Mat-3	Reused Materials	1	1
Mat-4	Shell and Core or Integrated Fitout	2	1
Mat-5	Concrete	3	1
Mat-6	Steel	2	0
Mat-7	PVC Minimisation	2	1
Mat-8	Sustainable Timber	2	0
Mat-9	Design for Disassembly	1	0
Mat-10	Dematerialisation	1	0
	Total	16	6
LAND USE AND ECOLOGY			
Eco-	Conditional Requirement	Condition Requirement	Condition Requirement
Eco-1	Topsoil	1	1
Eco-2	Reuse of Land	1	0
Eco-3	Reclaimed Contaminated Land	N/A	N/A
Eco-4	Change of Ecological Value	4	1
	Total	6	2
EMISSIONS			
Emi-1	Refrigerant - Ozone Depletion Potential	1	1
Emi-2	Refrigerant - Global Warming Potential	2	0
Emi-3	Refrigerant Leaks	2	0
Emi-4	Insulant - Ozone Depletion Potential	1	1
Emi-5	Watercourse Pollution	3	2
Emi-6	Discharge to Sewer	5	1
Emi-7	Light Pollution	1	1
Emi-8	Legionella	1	0
	Total	16	8
	TOTAL CREDITS	127	60
INNOVATION			
Inn-1	Innovative Strategies and Technologies	5 points in total for Inn-1, 2 & 3.	0
Inn-2	Exceeding Green Star Benchmarks		0
Inn-3	Environmental Design Initiatives		0
	TOTAL		0
OVERALL WEIGHTED SCORE		47	

This equates to a Green Star Rating of 4 stars.

SECTION 4 | POTENTIAL ADDITIONAL CREDITS

The following is a list of potential points available that would be required to achieves a 4 Green Star rating and has been provided for information only. The credits listed have been selected due to their achievability and cost. These credits require further discussion and analysis to determine their feasibility for potential implementation into the project.

POTENTIAL POINTS CURRENTLY INCLUDED IN CALCULATION

Credit no. and title	Points Targeted	Credit Criteria Applicable	Comments
IEQ-1: Ventilation Rates	2	To achieve 2 points the outside air rate as required by AS1668.2-1991 must be increased by 100%.	This will typically impact on the capacity of the air conditioning plant and riser sizes throughout the building. Estimated Cost; $50,000
IEQ-2: Air Change Effectiveness	2	It may be possible to modify the construction to increase the Air Change Effectiveness throughout to 0.95 to 95% of the NLA through displacement or alternative supply.	This will typically impact of the floor-to-ceiling heights or plant sizes throughout. Estimated Cost; $25,000
IEQ-4: Daylight	3	To achieve 3 points in this category, 90% of the NLA is to have a minimum daylight illuminance of 250 Lux.	Points are awarded as follows: 1 points = 30% of the NLA. 2 points = 60% of the NLA. 3 points = 90% of the NLA. Estimated Cost; To be confirmed with Architect.
IEQ-8: External Views	2	One or two points are awarded where a significant portion of the Office NLA has direct line of sight to the outdoors or into an adequately sized and day-lit atrium.	Points are awarded as follows: 1 points = 60% of the NLA. 2 points = 80% of the NLA. Estimated Cost; To be confirmed with Architect.
Ene-1: Greenhouse Gas Emissions	6	To achieve 6 points the predicted (modelled) greenhouse gas emissions must be maintained below 70kgCO_2/m^2/annum.	Further detailed energy modelling will be carried out to determine these greenhouse gas emissions. Estimated Cost; To be confirmed upon completion of energy modelling.
Ene-3 Lighting Power Density	3	Points are awarded where it is demonstrated that the lighting power densities for 95% of the NLA meets the required criteria.	Points are awarded as follows: 1 points = LPD of 2.5W/m2 per 100 Lux 2 points = LPD of 2.0W/m2 per 100 Lux 3 points = LPD of 1.5W/m2 per 100 Lux Estimated Cost;
Tra-2 Fuel-Efficient Transport	1	80% of all car parking spaces are dedicated solely for use by car-pool participants, small cars, hybrids or other alternative fuel vehicles.	Designated parking spaces are to be provided for small vehicle, motorbike and mopeds and alike. Estimated Cost;
Tra-3 Cyclist Facilities	3	Two points are awarded where secure bicycle storage, accessible showers, changing facilities and	An additional point is awarded where visitor bicycle parking is provided.

		secure lockers are provided for 10% of building staff.	Estimated Cost;
Wat-3 landscape Irrigation	1	One point is awarded where; 90% of potable water consumption for landscape water irrigation has been reduced or a xeriscape garden has been installed.	Rainwater harvesting has been incorporated into the design however further discussions regarding landscape watering are required to determine this credit. Estimated Cost;
Mat-5 Concrete	2	Where the quantity of Portland cement has been reduced up to two points is awarded.	Estimated Cost; $250,000
Mat-6 Steel	1	Where 60% of all steel, by mass, in the project either has a post-consumer recycled content greater than 50%, or is reused.	1 point is awarded. Estimated Cost;
Mat-8 Sustainable Timber	2	Where 95% (by cost) of all timber products used in the building and construction works are sourced from any combination of reused, post-consumer recycled timber or FSC Certified timber.	2 points are awarded. Estimated Cost;
Mat-9 Design for Disassembly	1	Where either 50% (by area) of the structural framing, roofing and façade cladding systems are design for disassembly or 95% of the total façade is designed for disassembly.	1 point is awarded. Estimated Cost;
Emi-6 Discharge to Sewer	2	Up to 4 points are awarded where the building outflows to the sewerage system due to building occupants' usage have been reduced against an average-practice benchmark.	Points are awarded as follows: 1 points = 30% reduction 2 points = 50% reduction 3 points = 70% reduction 4 points = 90% reduction Estimated Cost; Associated with tapware selection and Wat-1.
Emi-8 Legionella	1	One point is awarded where there are no water-based heat rejection systems serving the building.	Estimated Cost; Due to no water cooled air conditioning plant these points can be claimed without additional cost.
TOTAL	32		

PRELIMINARY CO_2 EMISSIONS CALCULATION (CREDIT Ene-1)

Ene-1 credit requires that modelling is performed to determine the buildings likely energy usage. The subsequent energy usage rates are then entered into the CO_2 calculator which converts them into predicted CO_2 emissions.

It should be noted that during preliminary assessment, 5 points from a total possible 20 were included for the Ene-1 credit. This allowance is based on previous project experience of a similar nature. Verification of any points claimed is required.