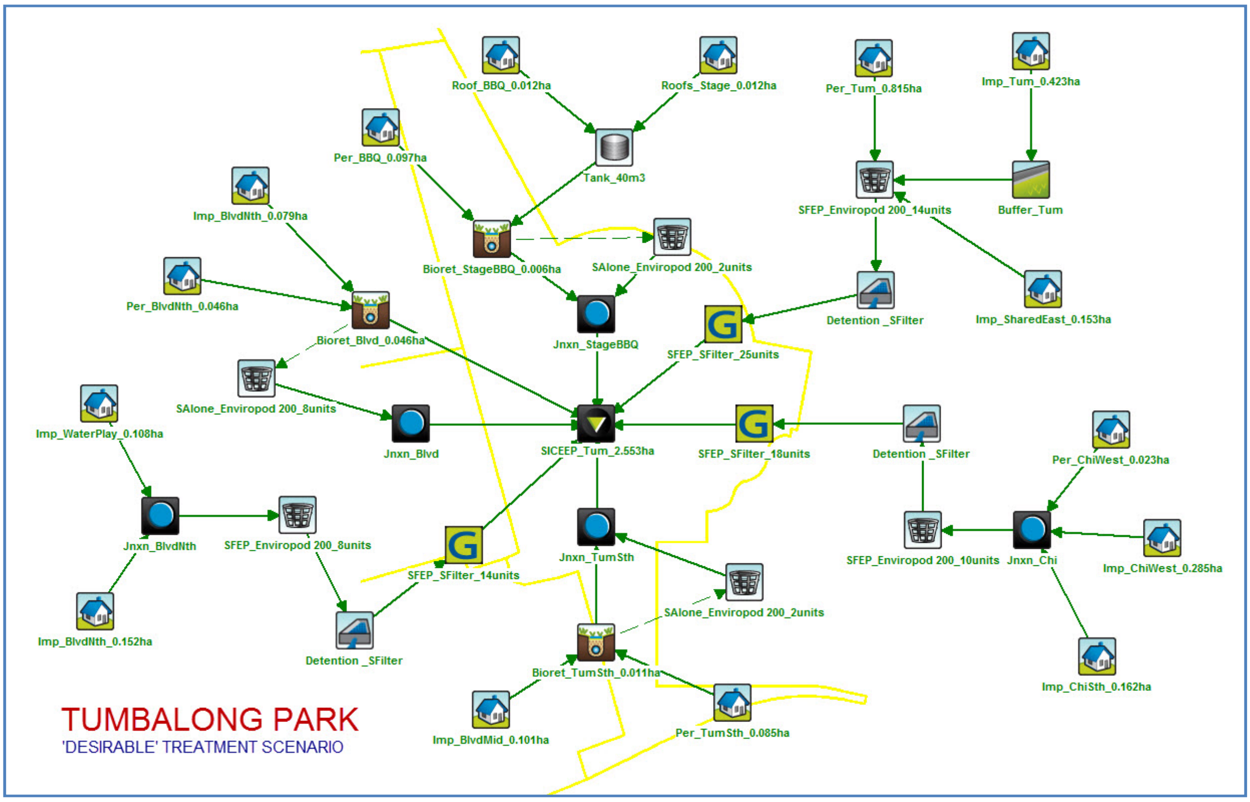


Figure H.10 MUSIC model layout for the Tumbalong Park subcatchment

The results of the MUSIC modelling for all SICEEP PPP subcatchments, taken either individually or collectively, for the Desirable Treatment Scenario are summarised in Tables H.3 to H.8.

Table H.3 Summary of estimated mean annual pollutant loads and reductions for the Bayside subcatchment *(Reporting Node in MUSIC model: SICEEP_Bay_2.904ha)*.

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	724	4830	9.37	69.5
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	651.6	4105.5	6.1	31.3
Total Residual Load to Darling Harbour (kg/yr)	0.00	580.00	2.90	34.00
Total Reduction Achieved (kg/yr)	724.0	4250.0	6.5	35.5
Total Reduction Achieved (%)	**100%**	**88%**	**69%**	**51%**

Table H.4 Summary of estimated mean annual pollutant loads and reductions for the North Exhibition subcatchment *(Reporting Node in MUSIC model: SICEEP_NthExh_2.780ha)*.

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	691	2880	7.14	66.4
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	621.9	2448.0	4.6	29.9
Total Residual Load to Darling Harbour (kg/yr)	0.00	485.00	2.69	29.20
Total Reduction Achieved (kg/yr)	691.0	2395.0	4.5	37.2
Total Reduction Achieved (%)	**100%**	**83%**	**62%**	**56%**

Table H.5 Summary of estimated mean annual pollutant loads and reductions for the South Exhibition subcatchment *(Reporting Node in MUSIC model: SICEEP_SthExh_1.486ha)*.

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	325	2700	4.66	32.7
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	292.5	2295.0	3.0	14.7
Total Residual Load to Darling Harbour (kg/yr)	0.00	290.00	1.40	13.90
Total Reduction Achieved (kg/yr)	325.0	2410.0	3.3	18.8
Total Reduction Achieved (%)	**100%**	**89%**	**70%**	**57%**

Table H.6 Summary of estimated mean annual pollutant loads and reductions for The Theatre subcatchment *(Reporting Node in MUSIC model: SICEEP_Thea_1.517ha)*.

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	458	2210	4.99	43
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	412.2	1878.5	3.2	19.4
Total Residual Load to Darling Harbour (kg/yr)	0.00	333.00	1.60	16.00
Total Reduction Achieved (kg/yr)	458.0	1877.0	3.4	27.0
Total Reduction Achieved (%)	**100%**	**85%**	**68%**	**63%**

Table H.7 Summary of estimated mean annual pollutant loads and reductions for the Tumbalong Park subcatchment *(Reporting Node in MUSIC model: SICEEP_Tum_2.553ha)*.

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	394	3330	5.73	44.9
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	354.6	2830.5	3.7	20.2
Total Residual Load to Darling Harbour (kg/yr)	0.00	359.00	1.99	22.00
Total Reduction Achieved (kg/yr)	394.0	2971.0	3.7	22.9
Total Reduction Achieved (%)	**100%**	**89%**	**65%**	**51%**

Table H.8 Summary of estimated mean annual pollutant loads and reductions for the entire PPP development.

Criteria	Pollutant			
	Gross Pollutants	TSS	TP	TN
Total Development Source Loads (kg/yr)	2592	15950	31.89	256.5
Minimum Reduction Required (%)	**90%**	**85%**	**65%**	**45%**
Minimum Reduction Required (kg/yr)	2332.8	13557.5	20.7	115.4
Total Residual Load to Darling Harbour (kg/yr)	0.00	2047.00	10.58	115.10
Total Reduction Achieved (kg/yr)	2592.0	13903.0	21.3	141.4
Total Reduction Achieved (%)	**100%**	**87%**	**67%**	**55%**

H.7 Bioretention System Properties

The properties of the bioretention systems used in either the Practical or Desired Treatment Scenarios are summarised in Tables H.9 to H.12.

Table H.9 General properties of Bioretention Road Median Strips along Darling Drive ('Desirable' Scenario)

Property	Value
Inlet Properties	
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	100
Storage Properties	
Extended Detention Depth (m)	0.30
Surface Area (m^2)	Varies
Filter and Media Properties	
Filter Area (m^2)	Varies
Unlined Filter Media Perimeter (m)	0.01
Saturated Hydraulic Conductivity (mm/hr)	180
Filter Depth (m)	0.60
TN Content of Filter Media (mg/kg)	400
Orthophosphate Content of Filter Media (mg/kg)	20
Infiltration Properties	
Exfiltration Rate (mm/hr)	0
Lining Properties	
Is base lined?	Yes
Vegetation Properties	
Vegetated with Effective Nutrient Removal Plants	Yes
Outlet Properties	
Overflow Weir Width (m)	Varies
Underdrain present?	Yes
Submerged Zone with Carbon Present	No

Table H.10 General properties of Bioretention Tree Pits along The Boulevarde

Property	Value
Inlet Properties	
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	100
Storage Properties	
Extended Detention Depth (m)	0.30
Surface Area (m^2)	Varies
Filter and Media Properties	
Filter Area (m^2)	Varies
Unlined Filter Media Perimeter (m)	0.01
Saturated Hydraulic Conductivity (mm/hr)	180
Filter Depth (m)	0.60
TN Content of Filter Media (mg/kg)	400
Orthophosphate Content of Filter Media (mg/kg)	20
Infiltration Properties	
Exfiltration Rate (mm/hr)	0
Lining Properties	
Is base lined?	Yes
Vegetation Properties	
Vegetated with Effective Nutrient Removal Plants	Yes
Outlet Properties	
Overflow Weir Width (m)	Varies
Underdrain present?	Yes
Submerged Zone with Carbon Present	No

Table H.11 General properties of Bioretention Strips in Landscaped Areas

Property	Value
Inlet Properties	
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	100
Storage Properties	
Extended Detention Depth (m)	0.30
Surface Area (m^2)	Varies
Filter and Media Properties	
Filter Area (m^2)	Varies
Unlined Filter Media Perimeter (m)	0.01
Saturated Hydraulic Conductivity (mm/hr)	180
Filter Depth (m)	0.60
TN Content of Filter Media (mg/kg)	750
Orthophosphate Content of Filter Media (mg/kg)	55
Infiltration Properties	
Exfiltration Rate (mm/hr)	0
Lining Properties	
Is base lined?	Yes
Vegetation Properties	
Vegetated with Effective Nutrient Removal Plants	Yes
Outlet Properties	
Overflow Weir Width (m)	Varies
Underdrain present?	Yes
Submerged Zone with Carbon Present	No

Table H.12 General properties of Bioretention Strips in Terraced Landscaping

Property	Value
Inlet Properties	
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	100
Storage Properties	
Extended Detention Depth (m)	0.30
Surface Area (m^2)	Varies
Filter and Media Properties	
Filter Area (m^2)	Varies
Unlined Filter Media Perimeter (m)	0.01
Saturated Hydraulic Conductivity (mm/hr)	180
Filter Depth (m)	0.60
TN Content of Filter Media (mg/kg)	750
Orthophosphate Content of Filter Media (mg/kg)	55
Infiltration Properties	
Exfiltration Rate (mm/hr)	0
Lining Properties	
Is base lined?	Yes
Vegetation Properties	
Vegetated with Effective Nutrient Removal Plants	Yes
Outlet Properties	
Overflow Weir Width (m)	Varies
Underdrain present?	Yes
Submerged Zone with Carbon Present	No

H.8 Sample Tank Reliability Calculation Spreadsheet

CALCULATION OF TANK RELIABILITY TO SUPPY RAINWATER FOR TOILET FLUSHING & IRRIGATION

Tank Name	Bayside
Roof Area (m2)	11230
Capture Efficiency (%)	85
Capture Absorption (mm)	0.1
Diverted Rain (mm)	1
Diverted Volume (m3)	11.23
Daily Water Usage (m3)	25
Tank Storage Volume (m3)	235
Initial Storage Available (%)	0
Critical % Volume for Mains Switch	10%
Critical Volume for Mains Switch	23.5

Number of days tank overflows	26
Volume of water overflowing/bypassing tank (m3)	5722

Days in a Year with Water Left in Tank	168
Volume of mains water saved each year (m3)	4193
Days in a Year without Water Left in Tank	198
% Reliability	46%

Date	Rainfall mm/Day	Rain collected for the day (m3)	Stored rain at start of day (m3)	Stored rain at end of day (m3)	Adjusted Stored rain at end of day_No negatives (m3)	Count for Days With Rain in Tank (1,0)	Count for Days With Rain in Tank at Start of Day > Daily Demand (1,0)	Count for Days With Tank Overflowing (1,0)	Overflowing Volume (m3)
1/01/1957	0.15625	-10.69306563	0	-25	0	0	0	0	0
2/01/1957	0.09375	-11.28965938	0	-25	0	0	0	0	0
3/01/1957	8.89	72.674945	0	47.674945	47.674945	1	0	0	0
4/01/1957	3.84	24.47017	47.674945	47.145115	47.145115	1	25	0	0
5/01/1957	0.22	-10.08454	47.145115	22.145115	22.145115	0	25	0	0
6/01/1957	1.78	4.80644	22.145115	1.951555	1.951555	0	22.145115	0	0
7/01/1957	0	-12.18455	1.951555	-23.048445	0	0	1.951555	0	0
8/01/1957	0	-12.18455	0	-25	0	0	0	0	0
9/01/1957	1.02	-2.44814	0	-25	0	0	0	0	0
10/01/1957	0	-12.18455	0	-25	0	0	0	0	0
11/01/1957	0	-12.18455	0	-25	0	0	0	0	0
12/01/1957	0	-12.18455	0	-25	0	0	0	0	0
8/11/1966	105.16	991.62023	0	966.62023	966.62023	1	0	1	731.62023
9/11/1966	31.07	284.394135	235	494.394135	494.394135	1	25	1	259.394135
10/11/1966	2.03	7.192815	235	217.192815	217.192815	1	25	0	0
11/11/1966	4.32	29.05201	217.192815	221.244825	221.244825	1	25	0	0
12/11/1966	0.32	-9.12999	221.244825	196.244825	196.244825	1	25	0	0
13/11/1966	4.26	28.47928	196.244825	199.724105	199.724105	1	25	0	0
14/11/1966	0	-12.18455	199.724105	174.724105	174.724105	1	25	0	0
15/11/1966	0	-12.18455	174.724105	149.724105	149.724105	1	25	0	0
16/11/1966	0	-12.18455	149.724105	124.724105	124.724105	1	25	0	0
17/11/1966	0.25	-9.798175	124.724105	99.724105	99.724105	1	25	0	0
18/11/1966	1.27	-0.061765	99.724105	74.724105	74.724105	1	25	0	0
19/11/1966	0	-12.18455	74.724105	49.724105	49.724105	1	25	0	0
20/11/1966	0	-12.18455	49.724105	24.724105	24.724105	1	25	0	0
21/11/1966	0	-12.18455	24.724105	-0.275895	0	0	24.724105	0	0
22/11/1966	0	-12.18455	0	-25	0	0	0	0	0
23/11/1966	0	-12.18455	0	-25	0	0	0	0	0
24/11/1966	0	-12.18455	0	-25	0	0	0	0	0
25/11/1966	0	-12.18455	0	-25	0	0	0	0	0
26/11/1966	1.27	-0.061765	0	-25	0	0	0	0	0
27/11/1966	0	-12.18455	0	-25	0	0	0	0	0
28/11/1966	0	-12.18455	0	-25	0	0	0	0	0
29/11/1966	0	-12.18455	0	-25	0	0	0	0	0
30/11/1966	0	-12.18455	0	-25	0	0	0	0	0
1/12/1966	2.75	14.065575	0	-10.934425	0	0	0	0	0
2/12/1966	8.92	72.96131	0	47.96131	47.96131	1	0	0	0
3/12/1966	1.09	-1.779955	47.96131	22.96131	22.96131	0	25	0	0
4/12/1966	13.24	114.19787	22.96131	112.15918	112.15918	1	22.96131	0	0
5/12/1966	18.24	161.92537	112.15918	249.08455	249.08455	1	25	1	14.08455
6/12/1966	18.26	162.11628	235	372.11628	372.11628	1	25	1	137.11628
7/12/1966	7.42	58.64306	235	268.64306	268.64306	1	25	1	33.64306
8/12/1966	0	-12.18455	235	210	210	1	25	0	0
9/12/1966	7.12	55.77941	210	240.77941	240.77941	1	25	1	5.77941
10/12/1966	0	-12.18455	235	210	210	1	25	0	0
11/12/1966	0	-12.18455	210	185	185	1	25	0	0
12/12/1966	0	-12.18455	185	160	160	1	25	0	0
13/12/1966	0	-12.18455	160	135	135	1	25	0	0
14/12/1966	12.44	106.56147	135	216.56147	216.56147	1	25	0	0
15/12/1966	0	-12.18455	216.56147	191.56147	191.56147	1	25	0	0
16/12/1966	0	-12.18455	191.56147	166.56147	166.56147	1	25	0	0
17/12/1966	0	-12.18455	166.56147	141.56147	141.56147	1	25	0	0
18/12/1966	0	-12.18455	141.56147	116.56147	116.56147	1	25	0	0
19/12/1966	0	-12.18455	116.56147	91.56147	91.56147	1	25	0	0
20/12/1966	0	-12.18455	91.56147	66.56147	66.56147	1	25	0	0
21/12/1966	0	-12.18455	66.56147	41.56147	41.56147	1	25	0	0
22/12/1966	0	-12.18455	41.56147	16.56147	16.56147	0	25	0	0
23/12/1966	1.53	2.420065	16.56147	-6.018465	0	0	16.56147	0	0
24/12/1966	0	-12.18455	0	-25	0	0	0	0	0
25/12/1966	0	-12.18455	0	-25	0	0	0	0	0
26/12/1966	1.01	-2.543595	0	-25	0	0	0	0	0
27/12/1966	0	-12.18455	0	-25	0	0	0	0	0
28/12/1966	0.23	-9.989085	0	-25	0	0	0	0	0
29/12/1966	0	-12.18455	0	-25	0	0	0	0	0
30/12/1966	0.77	-4.834515	0	-25	0	0	0	0	0
31/12/1966	3.27	19.029235	0	-5.970765	0	0	0	0	0
							44240.78606	257	57223.68475

All Years	Total 1s	Total 1s	1677
	Total 0s	Total 0s	1975
	Total Days	Total Days	3652
	% Reliability	% Reliability	46%

H.9 Stormwater360 Proprietary Devices

H.9.1 STORMFILTER®

The second potential SQID proposed for SICEEP PPP development is the StormFilter, also a Stormwater 360 product. As a stormwater management device, the StormFilter (see Figure H.11) is a best management practice designed to remove a range of target pollutants including fine solids, soluble heavy metals, oils and total nutrients. Apart from meeting stringent regulatory requirements, the StormFilter systems are usually installed below ground allowing savings in land space and hence increase development yield. StormFilter's compact design reduces construction and installation costs by limiting excavation. Small to medium sized chambers can be delivered on-site fully assembled, whereas the larger types can be constructed from precast components or cast-in-place. Shown in Figure H.12 and Figure H.13 are examples of a fully assembled chamber and a chamber that is constructed out of precast components respectively.

StormFilter systems can be configured to suit flat sites and sites with shallow groundwater levels. Hydraulic drops for StormFilters range from 0.55 to 0.93 m. Likewise, with no metallic component, StormFilters are also suited at sites with salty groundwater conditions (personal communication with Stormwater360). We note that the SICEEP is close to the Darling Harbour and salty groundwater could potentially inundate the system during high tide events.

Figure H.11 A fully installed and operational StormFilter system
(Source: Stormwater360)

Figure H.12 A fully assembled treatment chamber being hoisted in place
(Source: Stormwater360)

Figure H.13 A treatment chamber constructed out of precast panels
(Source: Stormwater360)

The StormFilter system usually includes the inlet and outlet pipes, a treatment chamber, an internal weir and bypass mechanism. The bypass mechanism protects the chamber from high flows and ensures the captured pollutants are not lost during high intensity storm events. The system can be configured to either create the required drop or work around the limited drop without impacting the performance of the system.

Stormwater360 recommends the use StormFilter in combination with Enviropod pit inserts to ensure treatment of the whole spectrum of stormwater pollutants. This combination or treatment train approach, called SFEP, uses the Enviropod pit inserts as the at-source or primary treatment measure and the StormFilter, usually located near the outlet of the catchment, as the secondary treatment measure. The SFEP screening and enhanced filtration process is indicated in Figure H.14.

As with pit inserts, the StormFilter devices may be substituted, during design development by landscape features or alternative devices such as centralised GPTs. Further modelling will be undertaken during the design development stage, to investigate alternative solutions.

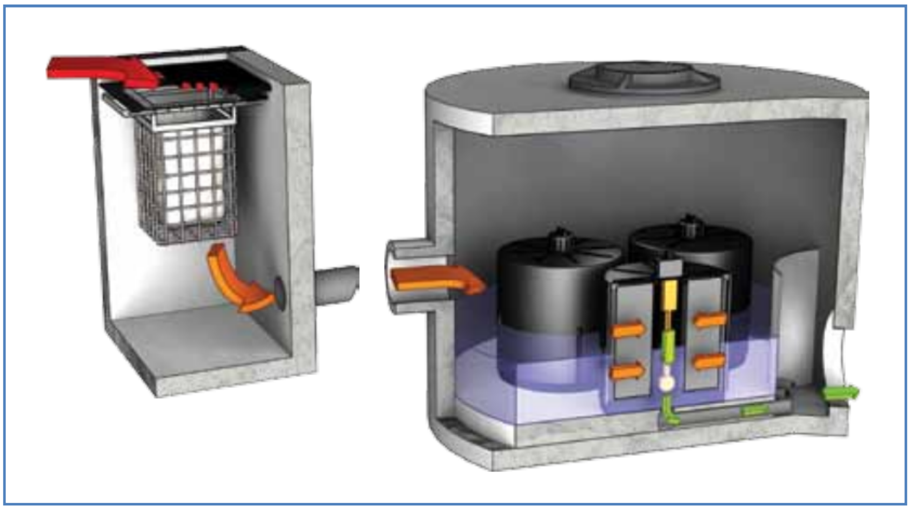


Figure H.14 Screening and enhanced filtration of stormwater pollutants in an SFEP treatment train
(Source: Stormwater360)

Stormwater360 has conducted field testing of the StormFilter device under Australian conditions with the assistance of experts from the Australian academe. The treatment efficiencies of the StormFilter system, when used in the SFEP treatment train in reducing gross pollutants, TSS, TP and TN are 100%, 74%, 49% and 32% respectively. As with the Enviropods, these treatment efficiencies were derived from the result of the Kuranda field testing that is discussed in Appendix H.

Like any infiltration system, pollutants retained by the StormFilter system must be periodically removed to restore the system to its fully efficiency and effectiveness. Maintenance requirements and frequency are dependent on the pollutant load requirements of the site. Additional maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms.

In consideration of Council and developers, StormFilters are specifically designed to reduce maintenance requirements compared to alternatives such as raingardens. Annual maintenance only involves cleaning of the chamber and the cartridges. Replacement of the filtration media cartridge is required after a designated period.

Stormwater360 offers a Maintenance Service for a designated period to achieve a cost-effective turnkey solution for maintaining the stormwater system and to ensure ongoing regulatory compliance.

StormFilter systems will be installed, either on-line or off-line, at appropriate locations within SICEEP generally within the shared zones and adjoining the Boulevard.

H.9.2 SFEP Treatment Train Field Testing (Information provided by Stormwater360)

In 2005, a field evaluation of the SFEP technology was undertaken near the township of Kuranda. Stormwater360 supplied the product, sampling equipment and guidance on installation of the devices. The site was installed and wholly funded by QLD Department of Main Roads and was monitored over an extended period of time by James Cook University (JCU, 2008). This study was extended by Stormwater360 (Kuranda) for an additional 2 years to expand the data set. The results obtained by Stormwater360 were also independent as Cairns Water was engaged for sampling collection and analysis together with the program being overseen by a peer reviewer from Queensland University of Technology. The research referred to herein provides information to inform the performance claims of both the Enviropod and StormFilter technologies.

The site setup, equipment and monitoring protocols were independent and identical for both the JCU and Kuranda studies. The peer reviewer's assessment of the Kuranda study found that "…the data collection has been based on a very rigorous and technically demanding monitoring program. This adds further credibility to the field evaluation undertaken." (Goonetilleke, 2010). The data from the JCU and Kuranda studies have been correlated and published in the Australia Water Association's Water Journal in September 2011.

Table 2. Summary of results.

Analyte	No. of events	Range of Influent EMCs (mg/L)	Median Influent EMC (mg/L)	Range of Effluent EMCs (mg/L)	Median Effluent EMC (mg/L)	Mean Removal Efficiency (Sum of Loads)
SSC	6	75 to 4384	1181	8 to 63	20	99%
SSC < 500 micron	6	48 to 180	105	8 to 62	20	78%
TP	6	0.08 to 0.19	0.123	0.02 to 0.15	0.055	47%
TN	6	0.6 to 1.5	1.045	0.2 to 0.9	0.615	44%
TKN	6	0.6 to 1.2	1.007	0.175 to 0.800	0.515	49%
NH3-N	6	0.05 to 0.15	0.050	0.05 to 0.07	0.050	31%
TOC	6	3 to 16	7	3 to 10	5	32%
DOC	6	3 to 12	7	3 to 11	6	21%

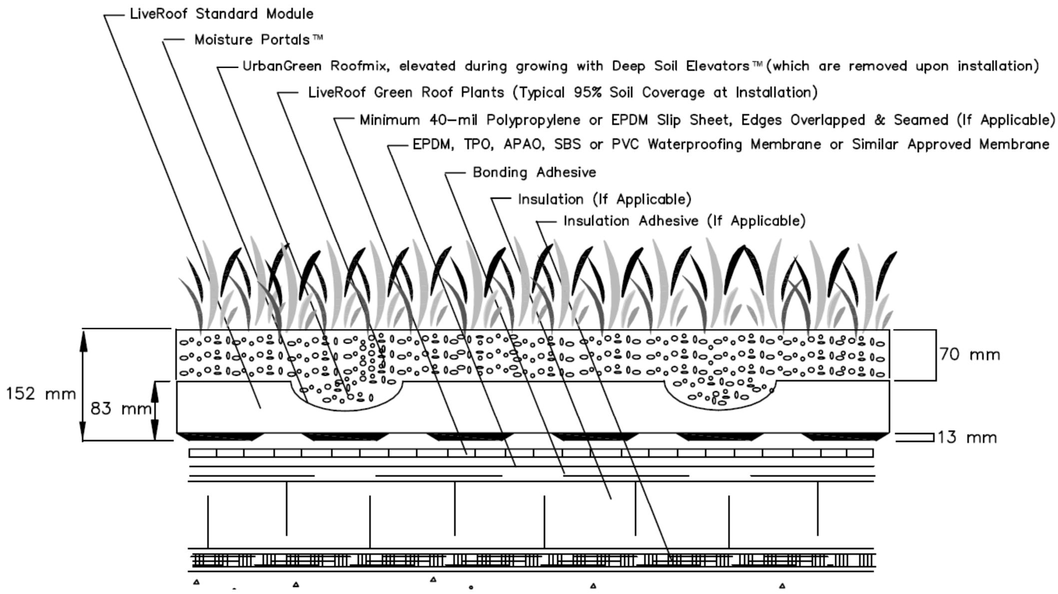
H.9.2 LiveRoof® System

LiveRoof is a modular a pre-vegetated engineered green roof system that is easily installed onto the roofing membrane in a similar manner to readymade lawn products. Pre-vegetation of LiveRoof® is undertaken at local nurseries using localised plant stock for approximately three months prior to installation. This means that only strong, mature plants are installed onto the roof top. The LiveRoof solution can be applied to the green roof of the ICC Exhibition south building. The system can also be utilised for the sloping roofs of the entrance of the ICC Exhibition south building. Given the roof's steep pitches, LiveRoof will ensure a healthy strong living roof in the shortest possible time to reduce the possibility of wind and rain scour.

Recently Stormwater360 has developed the 'UrbanGreen' range of Low Impact Design solutions. One of these products being the LiveRoof® modular green roof system. LiveRoof® is a pre-vegetated engineered solution that is easily installed onto the roofing membrane in a similar manner to readymade lawn products.

LiveRoof® is pre-vegetated at local nurseries using localised plant stock for approximately three months prior to installation. This means that only strong, mature plants are installed onto the roof top. Given that the project has steep roof pitches, this approach will ensure a healthy strong living roof in the shortest possible time to reduce the possibility of wind and rain scour.

LiveRoof® is a modular pre-vegetated green roof system developed by horticulturalists in a collaborative effort with experts in the fields of logistics, architecture, manufacturing, construction, green roofing and ergonomics. Stormwater360 works with experienced local nurseries and horticultural specialists to offer the most appropriate planting for the project.



Each LiveRoof® module arrives at the job site with full-grown plants inside the container and is simply set in place on the rooftop. The Soil Elevators™ are then removed for a seamless fit, meaning there is no need to start with a brown roof and farm it for years, waiting for it to become a green roof.

The main difference between LiveRoof® and a traditional 'built in place' approach to construct a green roof is that LiveRoof® is:

- pre-grown at a nursery and
- installed using minimal equipment,

This means less chance of penetrating the waterproofing membrane during installation and higher success rate of planting, with minimal maintenance costs.

The unique features and benefits of LiveRoof® are as follows:

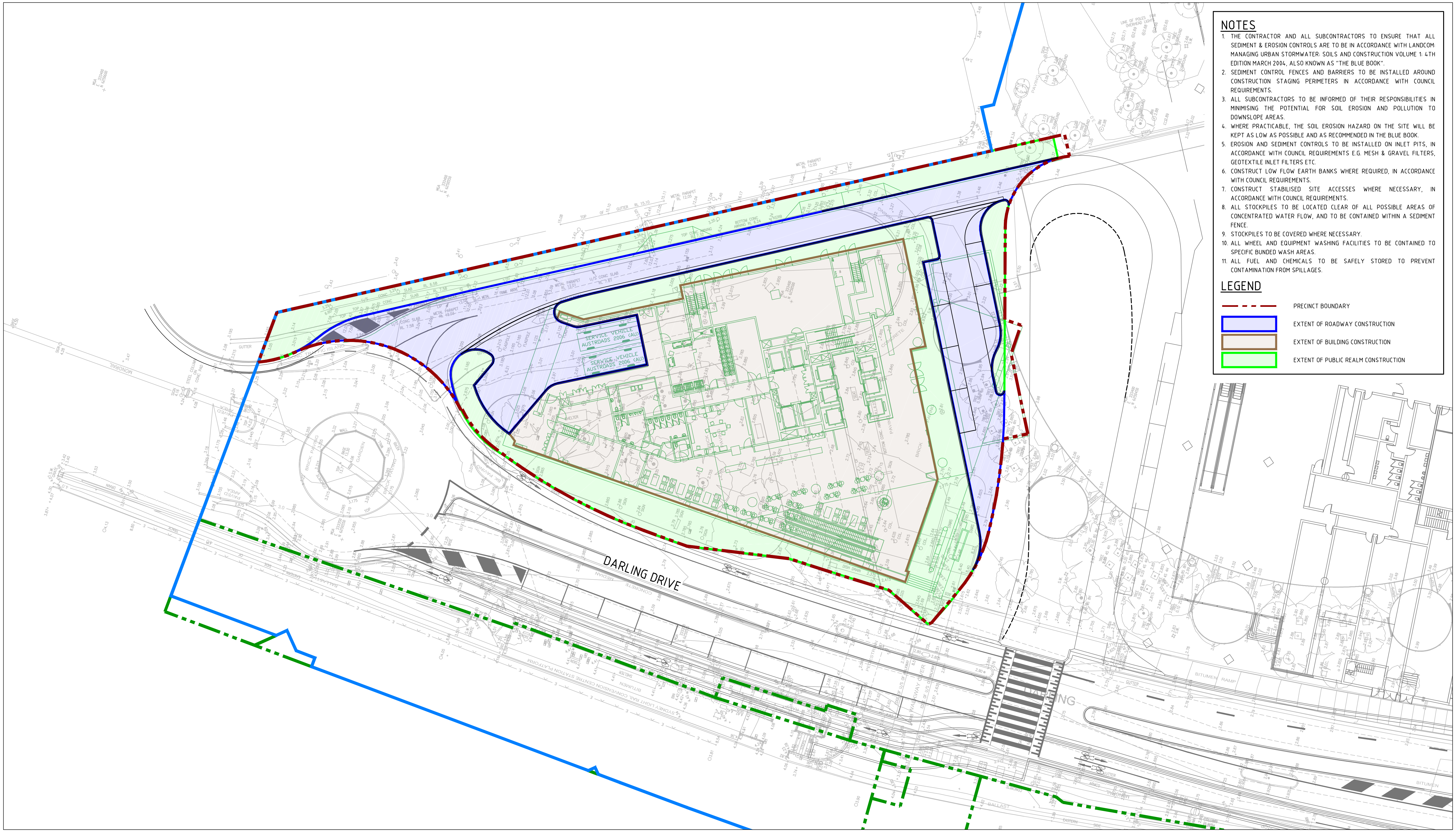
- Quick & easy installation: Most of the installation work can be done on the ground. It's safer, faster, and costs less than working on the roof. Arranging/installing modules on the roof is all that's required.
- Quality assurance process: The LiteRoofTM soil mix and vegetated tray undergo stringent quality assurance procedures to ensure that they meet New Zealand and international guidelines and to ensure that only the strong and healthy plants are installed.
- Fully grown upon installation: LiveRoof® is delivered and installed pre-vegetated for immediate enjoyment of the appearance and benefits from day one.
- Unique Hybrid Design: No visible seams or grid appearance upon installation.
- No filter fabric or drainage board is required. The drainage board is integrated in the module and the carefully engineered growing medium minimises the amount of fines to preventing clogging. Unlike the built-in-place systems, there aren't heavy layers of additional water-retention fabrics, drainage layers, etc. which can be prone to clogging over time.
- No water reservoirs are present in the patented LiveRoof® modules as water build-up causes root rot.
- Engineered UrbanGreen LiteRoofTM Mix inorganic soil has minimal degradation, so plant crowns do not become exposed and damaged, and soil structure is retained over time to ensure good drainage.
- Minimal maintenance is required, and minimal watering is necessary under normal climate conditions.

APPENDIX B

SEDIMENT AND EROSION CONTROL PLAN

Dwg No. AA004399 – HO-CI-0201



NOTES

1. THE CONTRACTOR AND ALL SUBCONTRACTORS TO ENSURE THAT ALL SEDIMENT & EROSION CONTROLS ARE TO BE IN ACCORDANCE WITH LANDCOM: MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION VOLUME 1: 4TH EDITION MARCH 2004, ALSO KNOWN AS "THE BLUE BOOK".
2. SEDIMENT CONTROL FENCES AND BARRIERS TO BE INSTALLED AROUND CONSTRUCTION STAGING PERIMETERS IN ACCORDANCE WITH COUNCIL REQUIREMENTS.
3. ALL SUBCONTRACTORS TO BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE AREAS.
4. WHERE PRACTICABLE, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE AND AS RECOMMENDED IN THE BLUE BOOK.
5. EROSION AND SEDIMENT CONTROLS TO BE INSTALLED ON INLET PITS, IN ACCORDANCE WITH COUNCIL REQUIREMENTS E.G. MESH & GRAVEL FILTERS, GEOTEXTILE INLET FILTERS ETC.
6. CONSTRUCT LOW FLOW EARTH BANKS WHERE REQUIRED, IN ACCORDANCE WITH COUNCIL REQUIREMENTS.
7. CONSTRUCT STABILISED SITE ACCESSES WHERE NECESSARY, IN ACCORDANCE WITH COUNCIL REQUIREMENTS.
8. ALL STOCKPILES TO BE LOCATED CLEAR OF ALL POSSIBLE AREAS OF CONCENTRATED WATER FLOW, AND TO BE CONTAINED WITHIN A SEDIMENT FENCE.
9. STOCKPILES TO BE COVERED WHERE NECESSARY.
10. ALL WHEEL AND EQUIPMENT WASHING FACILITIES TO BE CONTAINED TO SPECIFIC BUNDED WASH AREAS.
11. ALL FUEL AND CHEMICALS TO BE SAFELY STORED TO PREVENT CONTAMINATION FROM SPILLAGES.

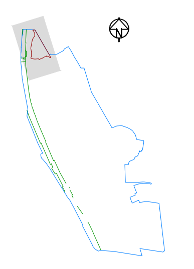
LEGEND

- PRECINCT BOUNDARY
- EXTENT OF ROADWAY CONSTRUCTION
- EXTENT OF BUILDING CONSTRUCTION
- EXTENT OF PUBLIC REALM CONSTRUCTION

SYDNEY INTERNATIONAL CONVENTION, EXHIBITION AND ENTERTAINMENT PRECINCT

DARLING HARBOUR LIVE

REFERENCE MAP



NOTES:

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2. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE.
3. ALL COORDINATES TO MGA. ALL LEVELS TO AHD.
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5. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACTS, SPECIFICATIONS AND DRAWINGS.

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1 : 250

REV	DESCRIPTION	DATE
02	ISSUE FOR DEVELOPMENT APPLICATION	09/08/2013
01	ISSUE FOR INFORMATION	26/07/2013

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PROJECT
SICEEP
DARLING HARBOUR
ICC HOTEL

DRAWING TITLE
SEDIMENT AND EROSION CONTROL PLAN

STATUS
DEVELOPMENT APPLICATION

SCALE @ A1	DRAWN	DESIGNED	REVIEWED	APPROVED
1 : 250	KM	-	-	-

PROJECT NUMBER	DRAWING NUMBER	REV
AA004399	HO-CI-0201	02

Date Plotted: 9 Aug 2013 - 04:57PM File Name: F:\AA004399\E-CAD\C-Civil\D-Final\C-Hotel\HO-CI-0201-SedimentAndErosionControlPlan.dwg

Original Sheet Size A1 - 841 x 594mm

APPENDIX C

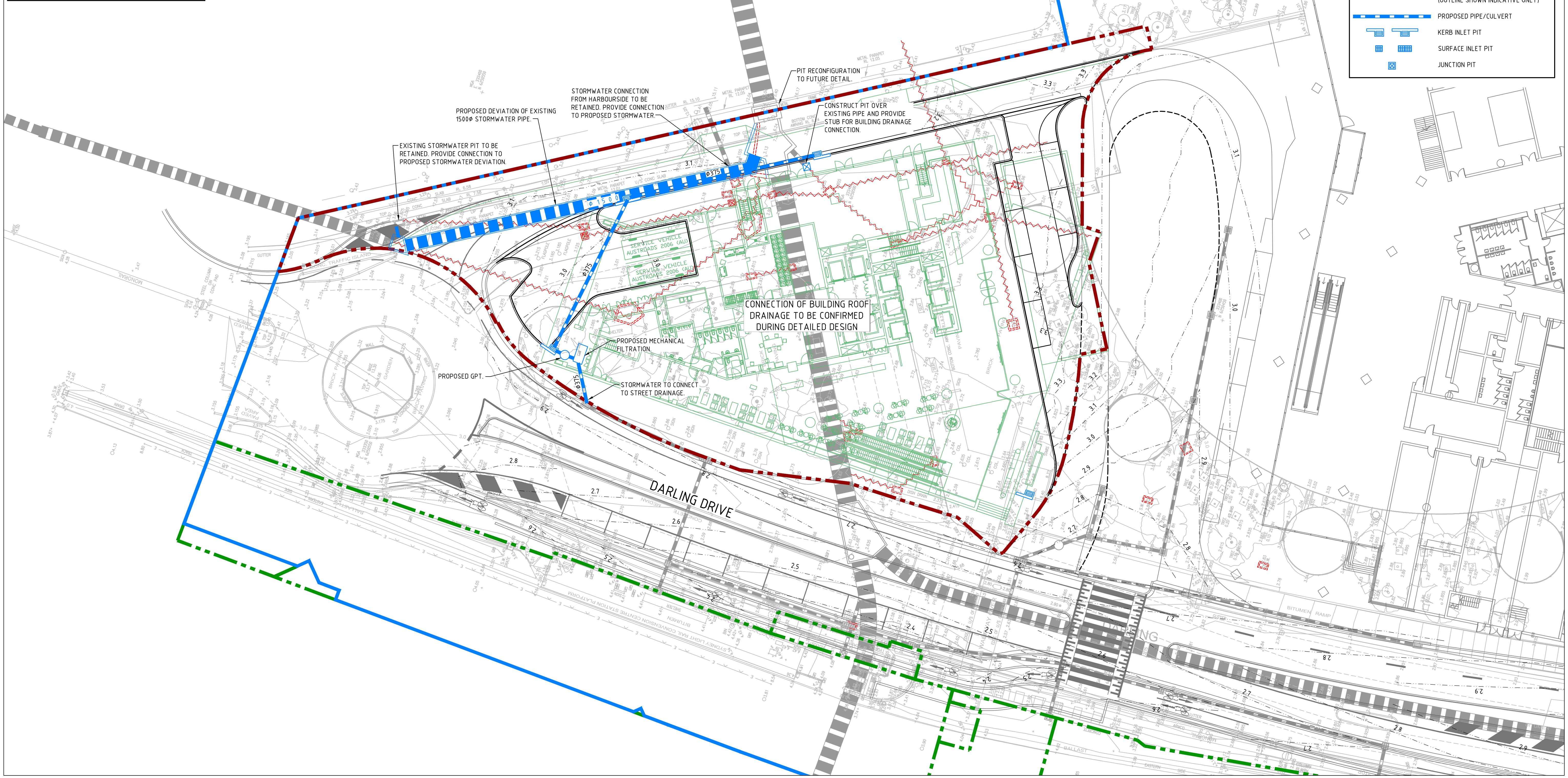
CIVIL WORKS AND STORMWATER PLAN

Dwg No. AA004399 – HO-CI-0301

STORMWATER DRAINAGE LAYOUT SHOWN IS CONCEPTUAL AND FOR DA PURPOSES ONLY

STORMWATER NOTE:
FIG STREET CULVERT ALIGNMENT BASED ON AVAILABLE DATA. LOCATION TO BE CONFIRMED.

PAVEMENT NOTES
1. ALL PAVEMENTS SUBJECT TO DESIGN BY QUALIFIED GEOTECHNICAL ENGINEER.



LEGEND
- EXISTING PIPE/CULVERT TO BE RETAINED
- EXISTING PIPE/CULVERT TO BE DEMOLISHED
- EXISTING PIT TO BE RETAINED (OUTLINE SHOWN INDICATIVE ONLY)
- EXISTING PIT TO BE DEMOLISHED (OUTLINE SHOWN INDICATIVE ONLY)
- PROPOSED PIPE/CULVERT
- KERB INLET PIT
- SURFACE INLET PIT
- JUNCTION PIT

SYDNEY INTERNATIONAL CONVENTION, EXHIBITION AND ENTERTAINMENT PRECINCT

DARLING HARBOUR LIVE

REFERENCE MAP

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REV	DESCRIPTION	DATE
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01	ISSUE FOR INFORMATION	26/07/2013

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CIVIL WORKS AND STORMWATER PLAN

STATUS
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SCALE @ A1	DRAWN	DESIGNED	REVIEWED	APPROVED
1 : 250	JJB	KM	-	-

PROJECT NUMBER	DRAWING NUMBER	REV
AA004399	HO-CI-0301	02

Date Plotted: 9 Aug 2013 - 05:00PM File Name: F:\AA004399\E-CAD\C-Civil\D-Final\C-Hotel\HO-CI-0301-CivilWorksAndStormwaterPlan.dwg

Original Sheet Size A1 - 841 x 594mm

STORMWATER DRAINAGE LAYOUT SHOWN IS CONCEPTUAL AND FOR DA PURPOSES ONLY

STORMWATER NOTE:
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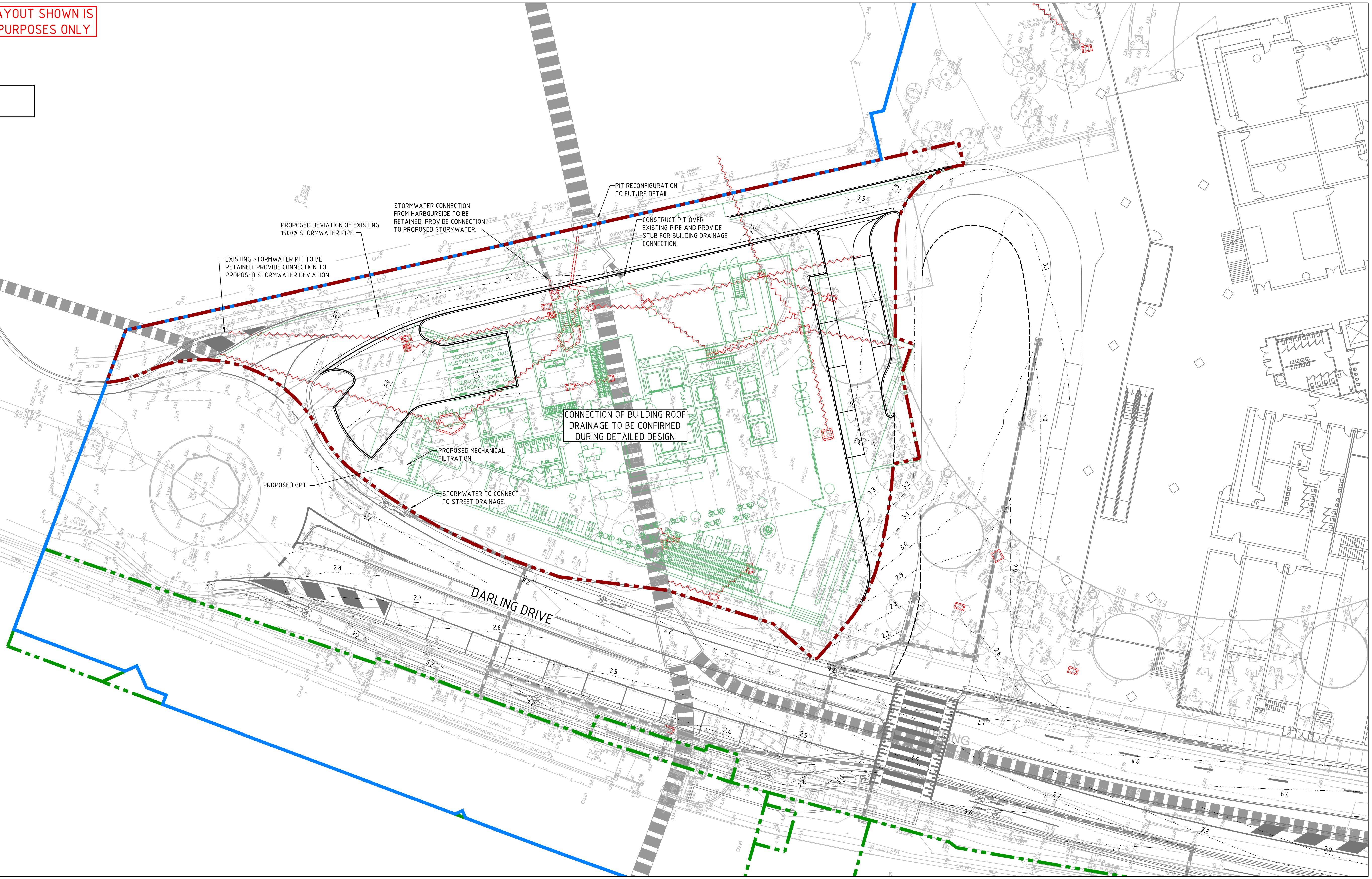

SYDNEY INTERNATIONAL CONVENTION, EXHIBITION AND ENTERTAINMENT PRECINCT

DARLING HARBOUR LIVE

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REV	DESCRIPTION	DATE
02	ISSUE FOR DEVELOPMENT APPLICATION	8/9/2013
01	ISSUE FOR INFORMATION	26/07/2013

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DRAWING TITLE
CIVIL WORKS AND STORMWATER PLAN

STATUS
DEVELOPMENT APPLICATION

SCALE @ A1	DRAWN	DESIGNED	REVIEWED	APPROVED
1 : 250	JJB	KM	-	-

PROJECT NUMBER	DRAWING NUMBER	REV
AA004399	HO-CI-0301	02

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APPENDIX D

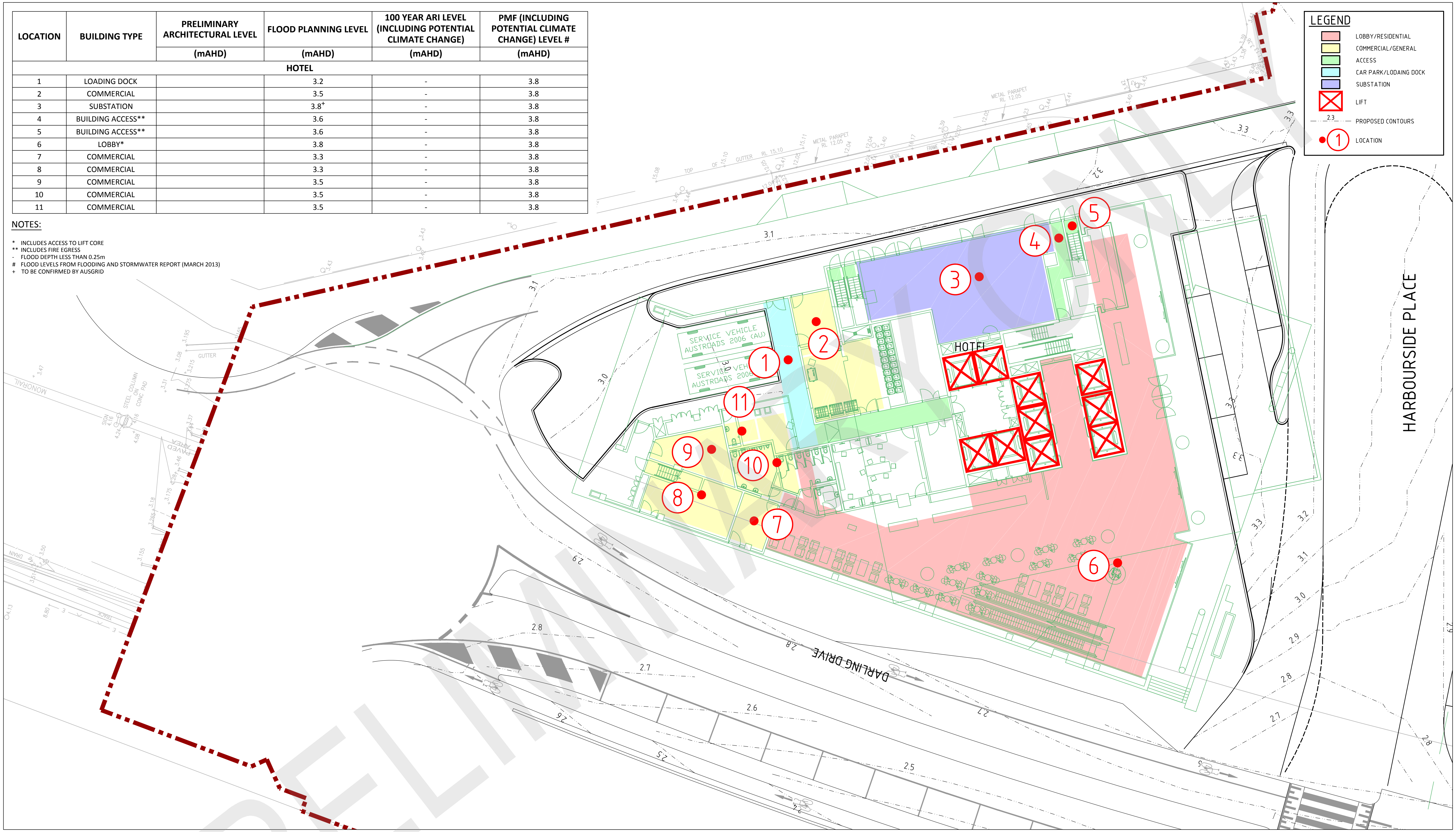
PROPOSED FLOOR LEVEL GRADING AND FLOOD LEVEL (INCLUDING CLIMATE CHANGE) PLAN

Dwg No. AA004399 – SKCHO016

LOCATION	BUILDING TYPE	PRELIMINARY ARCHITECTURAL LEVEL (mAHD)	FLOOD PLANNING LEVEL (mAHD)	100 YEAR ARI LEVEL (INCLUDING POTENTIAL CLIMATE CHANGE) (mAHD)	PMF (INCLUDING POTENTIAL CLIMATE CHANGE) LEVEL # (mAHD)
HOTEL					
1	LOADING DOCK		3.2	-	3.8
2	COMMERCIAL		3.5	-	3.8
3	SUBSTATION		3.8+	-	3.8
4	BUILDING ACCESS**		3.6	-	3.8
5	BUILDING ACCESS**		3.6	-	3.8
6	LOBBY*		3.8	-	3.8
7	COMMERCIAL		3.3	-	3.8
8	COMMERCIAL		3.3	-	3.8
9	COMMERCIAL		3.5	-	3.8
10	COMMERCIAL		3.5	-	3.8
11	COMMERCIAL		3.5	-	3.8

NOTES:

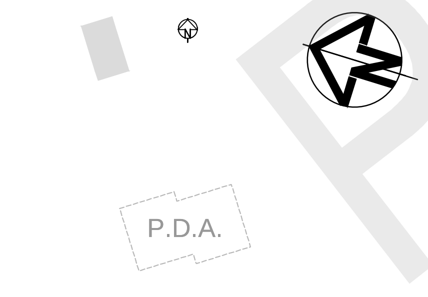
- * INCLUDES ACCESS TO LIFT CORE
- ** INCLUDES FIRE EGRESS
- \- FLOOD DEPTH LESS THAN 0.25m
- \# FLOOD LEVELS FROM FLOODING AND STORMWATER REPORT (MARCH 2013)
- \+ TO BE CONFIRMED BY AUSGRID



SYDNEY INTERNATIONAL CONVENTION, EXHIBITION AND ENTERTAINMENT PRECINCT

DARLING HARBOUR LIVE

REFERENCE MAP



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DRAWING TITLE
FLOOD PLANNING LEVELS

STATUS
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SCALE @ A1	DRAWN	DESIGNED	REVIEWED	APPROVED
1 : 250	KM	-	-	-

PROJECT NUMBER	DRAWING NUMBER	REV
AA004399	SKCHO016	01

APPENDIX E

SYDNEY WATER 'AS BUILT' DRAINAGE PLANS