

REFERENCE DOCUMENT REGISTER O.A.	
BUCKTON LYSENKO REV	3-0
DISCIPLINE DRAWING NO.	REVISION OR DATE
ARCH M-PLAN	11.0.09
STRUCT	
MECH	
ELECT SLA N775	23.8.10
SURVEY 4111	22.8.09

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STATUS/REVISION	DESCRIPTION	DRAWN	DATE
3-0	TENDER ISSUE	DB	10.09.10

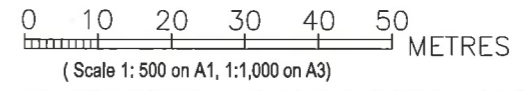
Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
Eh Field 2	Illuminance	Lux	66.57	114	24.5	0.37	0.21
Eh Field M1	Illuminance	Lux	63.99	106	19.2	0.30	0.18
Eh Field 1	Illuminance	Lux	102.62	162	59.3	0.58	0.37

Qty	Symbol	Label	Description	Lumens	LLF
15	A	204292m10	SLA BLS2000_2000BL lmax +10_0 deg.	200000	0.850
2	B	204293m10	SLA BLP2000_2000BL lmax +10_0 deg.	200000	0.850
2	C	204279m10	SLA BLS2000_2000BL + GS Top and LHS lmax +10_0 deg.	200000	0.850
2	D	204280m10	SLA BLS2000_2000BL + GS Top and RHS lmax +10_0 deg.	200000	0.850

**WARRINGAH COUNCIL**  
 THIS PLAN TO BE READ  
 IN CONJUNCTION WITH  
 Construction  
 Certificate No. *CC2011/0086*

FLOOD LIGHT "ON"  
 FLOOD LIGHT "OFF"

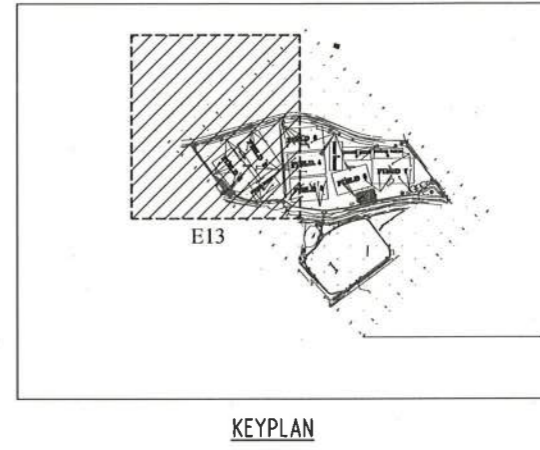
LEGEND



ARCHITECT	LIGHTING SUPPLIER
HABITATION	SA Concord SYLVANIA Where Innovation comes to Light!
CLIENT	
WARRINGAH COUNCIL	
<b>BUCKTON LYSENKO</b> CONSULTING ENGINEERS <small>Unit 407, Henry Lawson Business Centre          Blighfield Place          Rosalee Street, Drumroyne NSW 2047          Telephone: (02) 9719 5700          Facsimile: (02) 9719 3711          E-Mail: email@bucktonlysenko.com.au</small>	
PROJECT	
<b>NOLAN RESERVE</b> <b>STAGE 1 WORKS</b>	
DRAWING TITLE	
<b>ELECTRICAL SERVICES</b> <b>SWITCHING ARRANGEMENT</b> <b>SECTIONS 1 'ON'</b> <b>SHEET 2 OF 7</b>	
DESIGNER	DRAWN
DB	DB
SCALE	CAD FILE
AS SHOWN	25381E07_3D
CHECKED	
APPROVED	
1	2
3	C
DRAWING STATUS LEGEND	
0	PRELIMINARY DESIGN DRAWING
1	DEVELOPMENT APPLICATION
2	AUTHORITY APPROVAL
3	TENDER PURPOSES
C	CONTRACT PURPOSES
NOTE: DRAWINGS ISSUED FROM STATUS 0 TO 3 SHALL NOT BE USED FOR CONTRACT PURPOSES	
PROJECT	STATUS
25381	3 - 0
REVISION	DRAWING No.
	E07

**LIGHTING DESIGN NOTES** (These notes applies to drawings E13 - E15)

- Where SLA Brielines have been included in this design, "Imax" photometric data has been utilized. For further calculations and/or for installation aiming details please consult your SLA representative.
- A maintenance factor of 0.85 has been applied to all luminaires. A maintenance policy should be adopted to support the maintenance factor of 0.85.
- M.H. (ave) of 25m indicates height above the playing surface to a single crossarm.
- Maximum glare rating for Field 1 only is 46.7 for observer locations as per Figure 6 AS2560.2.3-2007. Glare ratings are based on a diffuse playing surface reflectance of 25%.
- AS4282 Assessment Results - ALL FLOODS SWITCHED ON
- Assessment to AS4282 1997 "Control of the obtrusive effects of outdoor lighting" has been undertaken for this lighting calculation. A maximum Ev of 7.3 lux calculated at the residential boundaries.
- Threshold increment has been calculated on Pittwater Rd, Kentwell Rd, Nenagh St, Hillcrest Pl, Palm Ave, Riverview Pde, Campbell Pde and Quirk Rd. The maximum threshold increment calculated is 15.6% based on the assumed average roadway luminance of 1cd/m<sup>2</sup>.
- The luminous intensity emitted by the floodlights has been assessed (for pre-curfew times only) using a large controlling dimension of >75 metres and a Level 2 intensity control (refer to Table 2.2 AS4282-1997). The maximum elevation used in the design is 70 degrees. This results in a maximum luminous intensity of 58 367 candelas per floodlight, which complies.
- There have been no obstructions such as trees included in this lighting calculation.
- Refer to E02 - E05 for the arrangement of each light fitting.



REFERENCE DOCUMENT REGISTER Q.A.				
BUCKTON LYSENKO REV	1-0	1-1	1-2	3-0
DISCIPLINE DRAWING NO.	REVISION OR DATE			
ARCH	M-PLAN	11.6.09	11.6.09	11.6.09
STRUCT				
MECH				
ELECT	SLA N195	25.11.09	26.11.09	23.8.10
	SLA N2817			
SURVEY	4111	22.6.09	22.6.09	22.6.09

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STATUS/REVISION	DESCRIPTION	DRAWN	DATE
1-0	ISSUE FOR DA	DB	16.11.09
1-1	RE-ISSUED FOR DA	DB	2.12.09
1-2	SCALE + DRAWING DISCRIP TN CHANGE	DB	4.12.09
2-0	ISSUED FOR CONSTRUCTION CERTIFICATE	DB	21.06.10
3-0	ISSUED FOR TENDER	DB	10.9.10

ARCHITECT  
HABITATION

CLIENT  
WARRINGAH COUNCIL

PROJECT  
NOLAN RESERVE  
STAGE 1 WORKS

DRAWING TITLE  
ELECTRICAL SERVICES  
SLA LIGHTING CALCULATIONS  
SHEET 1 OF 3

DESIGNER  
DB

DRAWN  
DB

SCALE  
AS SHOWN

CAD FILE  
25381E13\_30

CHECKED  
1 2 3 C

APPROVED  
1 2 3 O

DRAWING STATUS LEGEND

0 PRELIMINARY DESIGN DRAWING  
1 DEVELOPMENT APPLICATION  
2 AUTHORITY APPROVAL  
3 TENDER PURPOSES  
C CONTRACT PURPOSES

NOTE: DRAWINGS ISSUED FROM STATUS 0 TO 3 SHALL NOT BE USED FOR CONTRACT PURPOSES

PROJECT STATUS REVISION DRAWING No.  
25381 3 - 0 E13

LIGHTING SUPPLIER  
SA Concord  
CONCORD SYLVANIA  
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Calculation Summary	Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
EH Field 1		Illuminance	Lux	102.79	162	59.3	0.58	0.37
EH Field 2		Illuminance	Lux	67.82	117	24.8	0.37	0.21
EH Field JF1		Illuminance	Lux	64.76	106	19.4	0.30	0.18
Ev Spill Boundary 1		Illuminance	Lux	N.A.	1.2	0.4	N.A.	N.A.
Ti Pittwater Rd_Lv		L_Veiling	Cd/Sq.M.	N.A.	0.03	0.02	N.A.	N.A.
Ti Pittwater Rd_1_Lv		L_Veiling	Cd/Sq.M.	N.A.	0.02	0.02	N.A.	N.A.
Ti Kentwell Rd_Lv		L_Veiling	Cd/Sq.M.	N.A.	0.00	0.00	N.A.	N.A.
Ti Nenagh St_Lv		L_Veiling	Cd/Sq.M.	N.A.	0.18	0.16	N.A.	N.A.

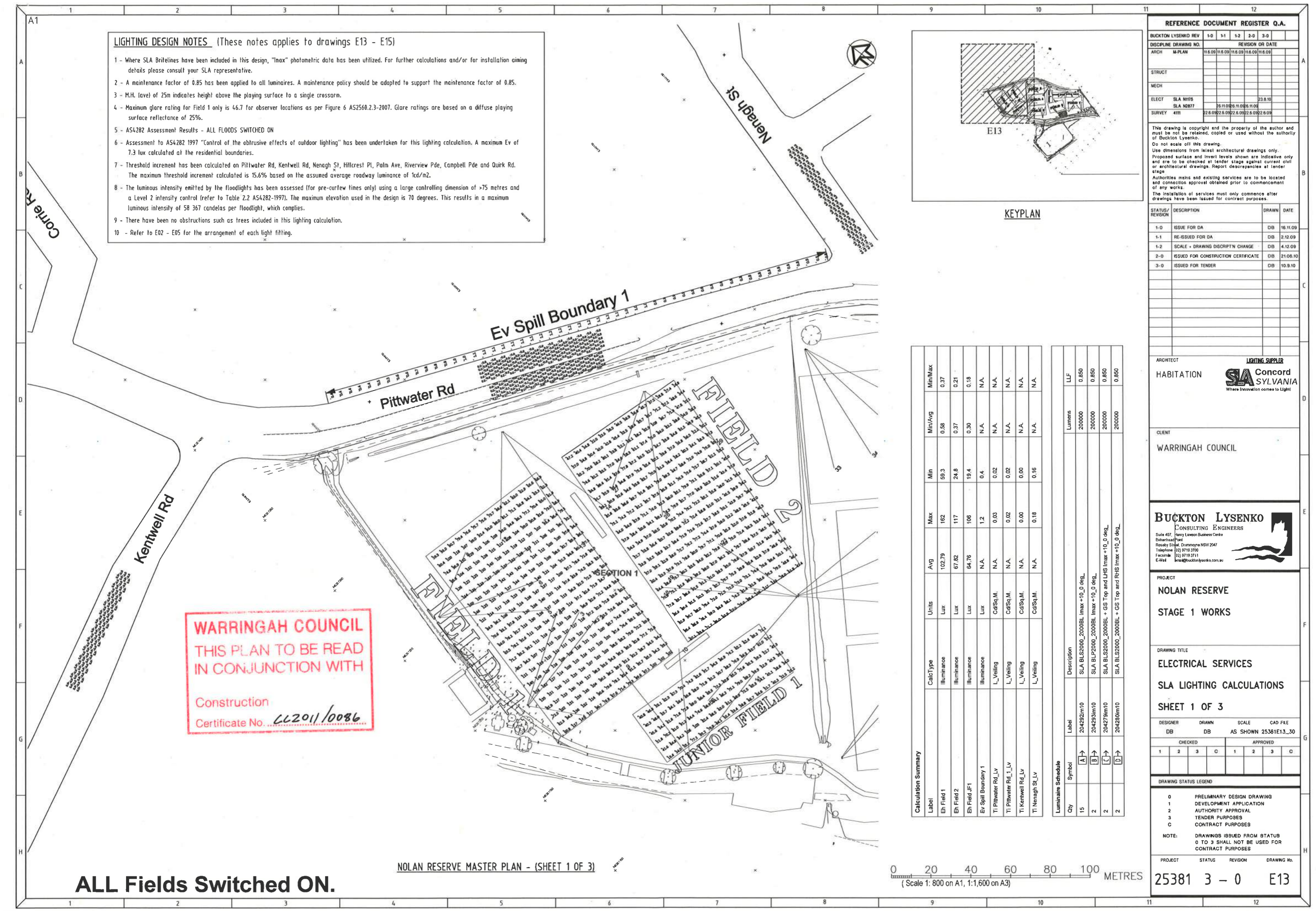
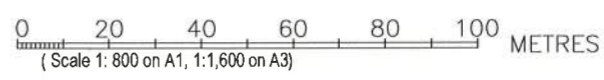
  

Luminaire Schedule	Qty	Symbol	Label	Description	Lumens	LLF
15	A	204292m10	SLA BLS2000_2000BL	Imax +10.0 deg.	200000	0.850
2	B	204293m10	SLA BLS2000_2000BL	Imax +10.0 deg.	200000	0.850
2	C	204279m10	SLA BLS2000_2000BL	+ GS Top and LHS	200000	0.850
2	D	204280m10	SLA BLS2000_2000BL	+ GS Top and RHS	200000	0.850

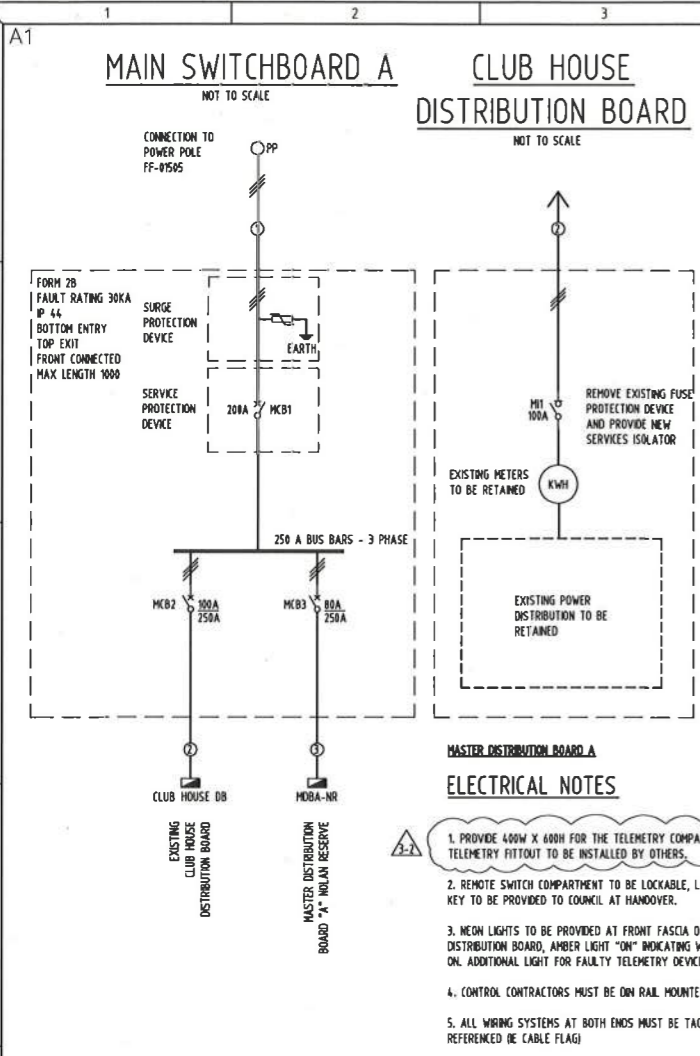
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THIS PLAN TO BE READ  
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Construction  
Certificate No. 662011/10086

**ALL Fields Switched ON.**

NOLAN RESERVE MASTER PLAN - (SHEET 1 OF 3)



12538117\_BL WORKING DRAWING 03/11/11\_30.dwg Level 1

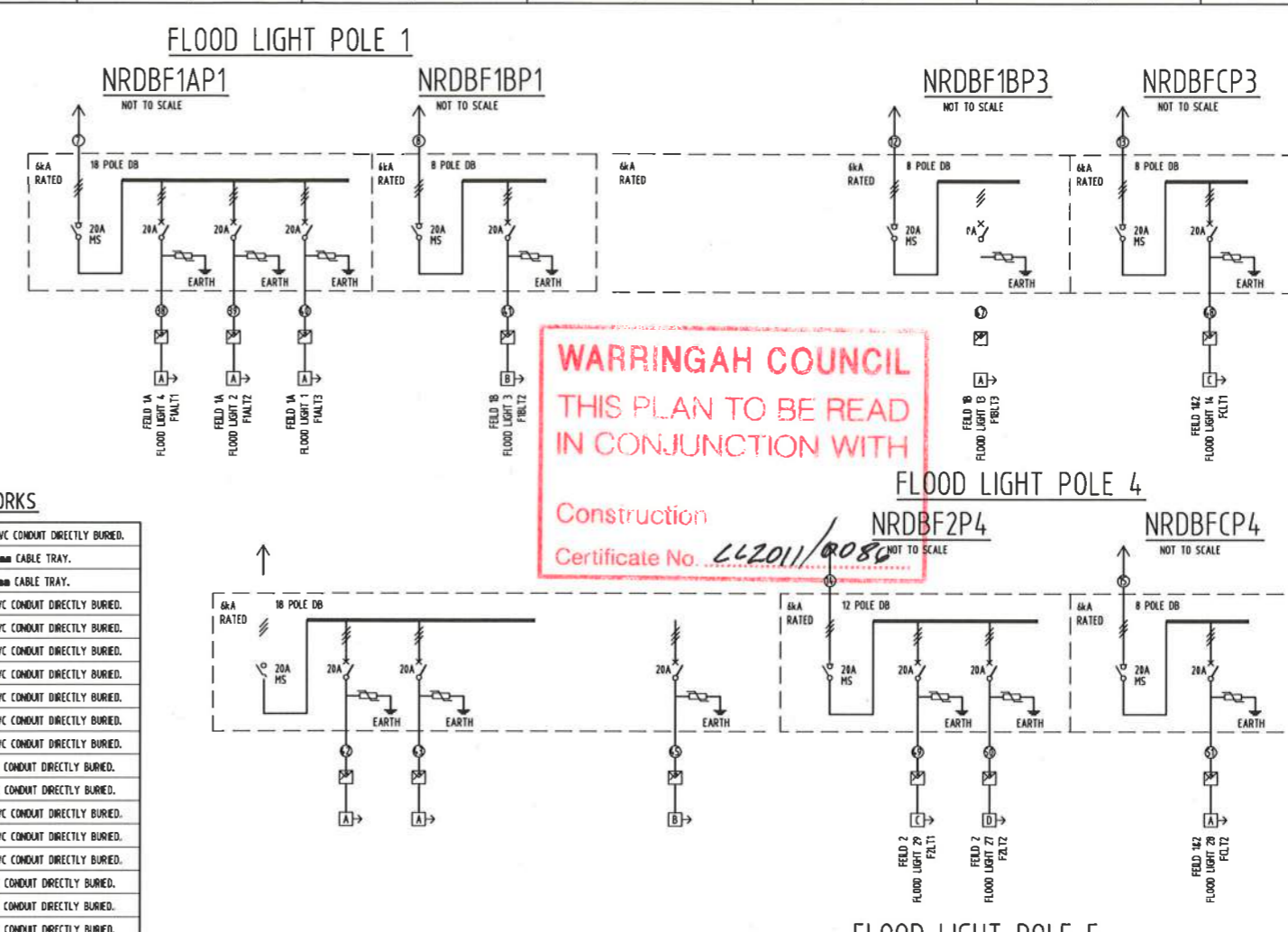


**ELECTRICAL NOTES**

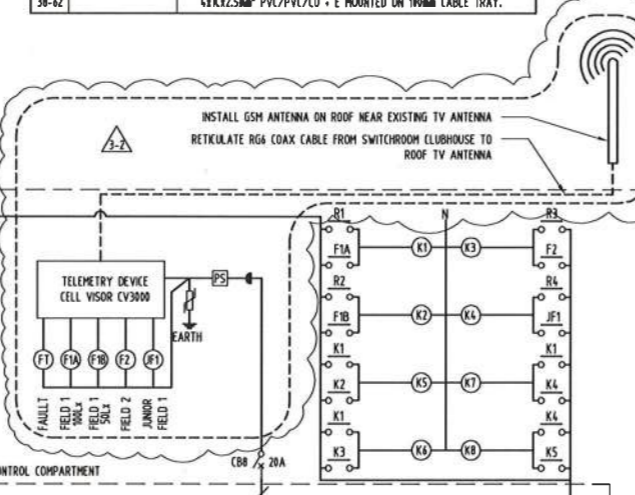
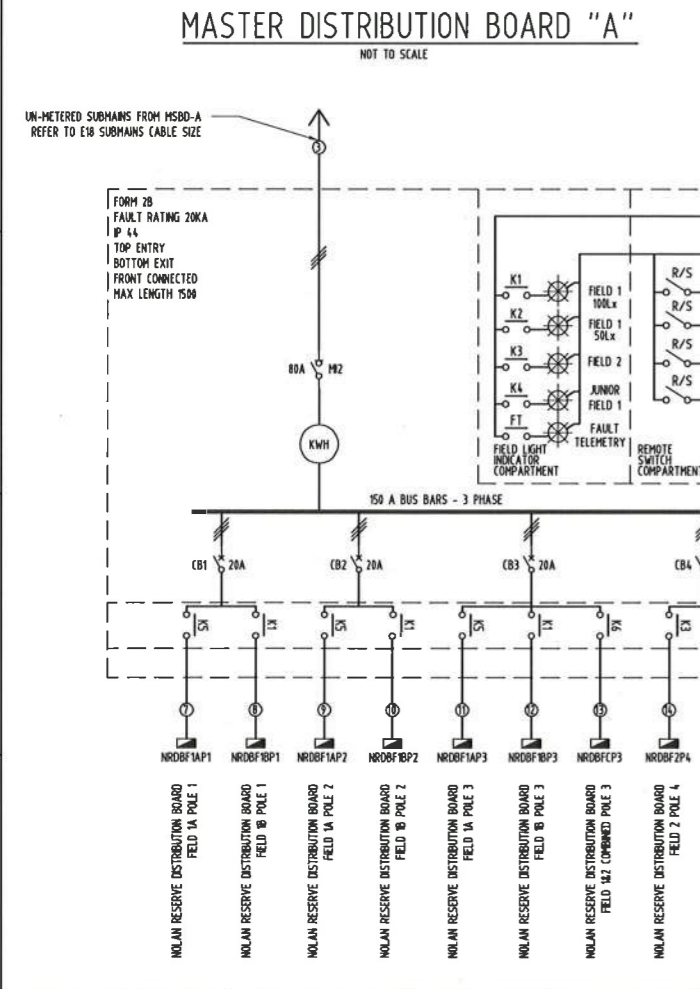
- VOLTAGE DROP (%Vd): 3.5% FROM SWITCHBOARD TO FLOOD LIGHTING POLES DISTRIBUTION BOARDS, 5% CONSUMER MAINS; IN COMPLIANCE WITH AS 3000 & AS 3000. REFER TO ELECTRICAL NOTES E7 ON DRAWING E01.
- CONFIRM SWITCHING ARRANGEMENT WITH COUNCIL PRIOR TO CONSTRUCTION. SWITCHING ARRANGEMENT IS WITH COMPLIANCE TO SLA DESIGN CALCULATIONS. REFER TO DRAWINGS E06 - E12.
- CONFIRM WITH TELEMETRY SUPPLIER NUMBER OF UNITS NECESSARY TO CONTROL LIGHTING OF FIELDS.
- L2 SERVICE PROVIDER TO CONNECT CONSUMER MAINS TO POWER POLE & METERING DEVICES.
- SURGE ARRESTORS MUST BE INSTALLED FOR PROTECTION AGAINST LIGHTNING. EARTHING ROD MUST BE INSTALLED AT THE BUILDINGS FOUNDATION & EACH FLOOD LIGHTING POLE. SOIL RESISTIVITY TEST MUST APPLY FOR THE DEPTH OF EARTHING ROD.
- REFER TO THE COMPLIANCE STANDARDS ON DRAWING E01, THESE WORKS MUST COMPLY WITH THESE STANDARDS.
- ALL WIRING SYSTEMS AT BOTH ENDS MUST BE TAGGED & REFERENCED BY CABLE FLAG.
- WORKSHOP DRAWINGS OF SWITCHBOARDS AND DISTRIBUTION BOARDS MUST BE PROVIDED FOR ENGINEER TO REVIEW, PRIOR TO CONSTRUCTION.

**CABLE SCHEDULER STAGE 1 WORKS**

NO	CONSUMER MAINS	CABLE SPECIFICATION
1	CONSUMER MAINS	4xKc95mm <sup>2</sup> XLPE/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
2	CLUBHOUSE DB	4xKc25mm <sup>2</sup> XLPE/PVC/CLU + E ON 300mm CABLE TRAY.
3	MDRA-NR	4xKc16mm <sup>2</sup> XLPE/PVC/CLU + E ON 300mm CABLE TRAY.
7	NRDBF1AP1	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
8	NRDBF1BP1	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
9	NRDBF1AP2	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
10	NRDBF1BP2	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
11	NRDBF1AP3	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
12	NRDBF1BP3	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
13	NRDBF1CP3	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
14	NRDBF2P4	4xKc6mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
15	NRDBF2P4	4xKc6mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
16	NRDBF1P5	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
17	NRDBF1P5	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
18	NRDBF2P5	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
19	NRDBF2P5	4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
20	NRDBF2P6	4xKc6mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
21	NRDBF2P6	4xKc6mm <sup>2</sup> PVC/PVC/CLU + E IN HDPE CONDUIT DIRECTLY BURIED.
38-42		4xKc2.5mm <sup>2</sup> PVC/PVC/CLU + E MOUNTED ON 100mm CABLE TRAY.



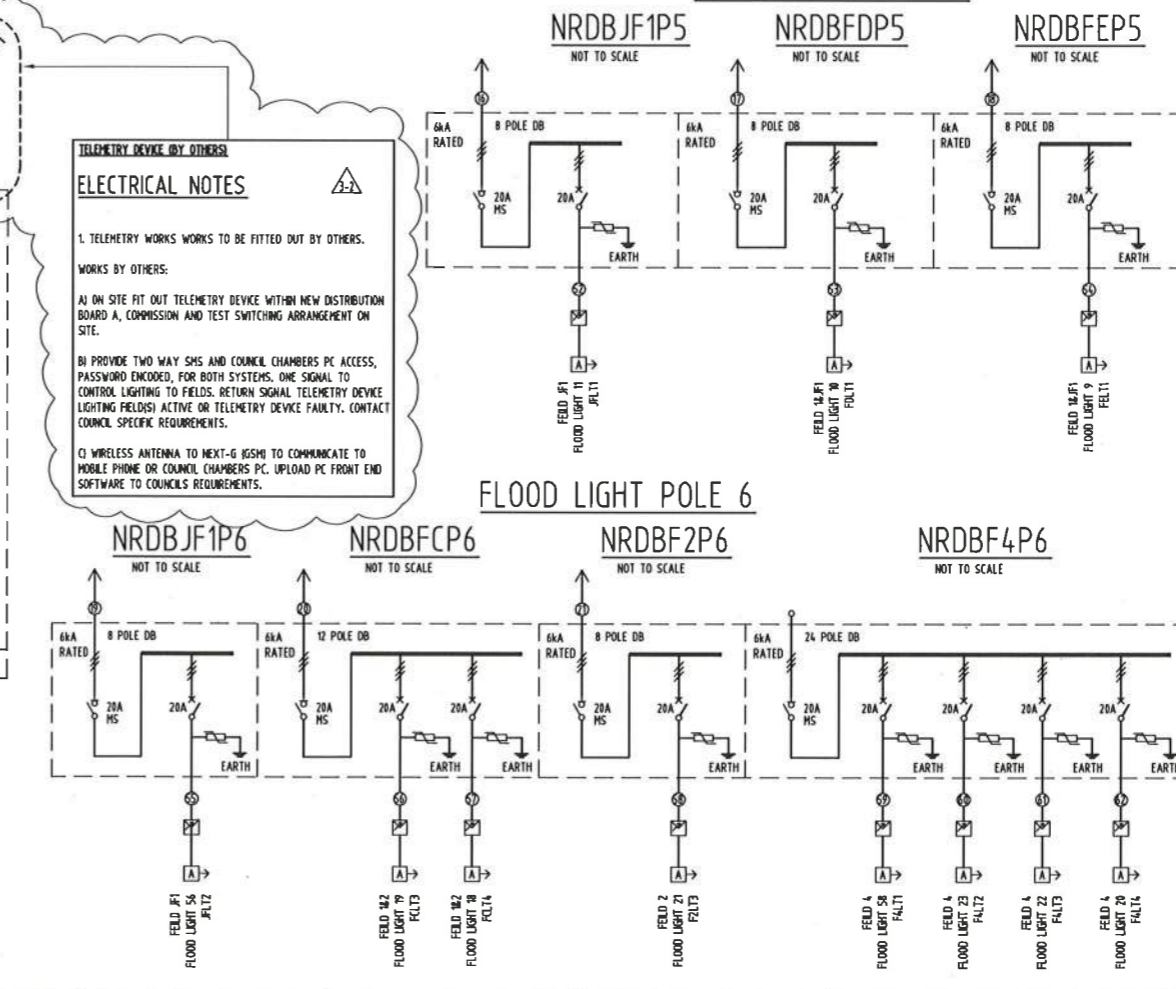
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 Construction Certificate No. LL2011/0080



**TELEMETRY DEVICE BY OTHERS**

**ELECTRICAL NOTES**

- TELEMETRY WORKS TO BE FITTED OUT BY OTHERS.
- WORKS BY OTHERS:
  - A) ON SITE FIT OUT TELEMETRY DEVICE WITHIN NEW DISTRIBUTION BOARD A, COMMISSION AND TEST SWITCHING ARRANGEMENT ON SITE.
  - B) PROVIDE TWO WAY SMS AND COUNCIL CHAMBERS PC ACCESS, PASSWORD ENCODED, FOR BOTH SYSTEMS. ONE SIGNAL TO CONTROL LIGHTING TO FIELDS. RETURN SIGNAL TELEMETRY DEVICE (LIGHTING FIELDS) ACTIVE OR TELEMETRY DEVICE FAULTY. CONTACT COUNCIL SPECIFIC REQUIREMENTS.
  - C) WIRELESS ANTENNA TO NEXT-G GSM TO COMMUNICATE TO MOBILE PHONE OR COUNCIL CHAMBERS PC. UPLOAD PC FRONT END SOFTWARE TO COUNCIL'S REQUIREMENTS.



**REFERENCE DOCUMENT REGISTER Q.A.**

BUCKTON LYSENKO REV	2-0	3-0	3-1	3-2
DISCIPLINE DRAWING NO.				
ARCH				
MECH				
ELECT				
SURVEY				

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STATUS/REVISION	DESCRIPTION	DRAWN	DATE
2-0	ISSUED FOR CONSTRUCTION CERTIFICATE	DLB	21.06.10
3-0	TENDER ISSUE	DLB	06.09.10
3-1	TENDER ADDENDUM	DLB	10.09.10
3-2	TENDER ADDENDUM	DLB	26.10.10

ARCHITECT: HABITATION  
 LIGHTING SUPPLIER: SIA Concord Sylvania  
 Where Innovation comes to Light

CLIENT: WARRINGAH COUNCIL

**BUCKTON LYSENKO**  
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 Suite 407, Henry Lawson Business Centre  
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 Facsimile: (02) 9719 3711  
 E-Mail: [enquiries@bucktonlysenko.com.au](mailto:enquiries@bucktonlysenko.com.au)

PROJECT: NOLAN RESERVE  
 STAGE 1 WORKS

DRAWING TITLE: ELECTRICAL SERVICES  
 SINGLE LINE DIAGRAM  
 SHEET 1 OF 2

DESIGNER	DRAWN	SCALE	CAD FILE
DLB	DLB	AS SHOWN	25381E17_32

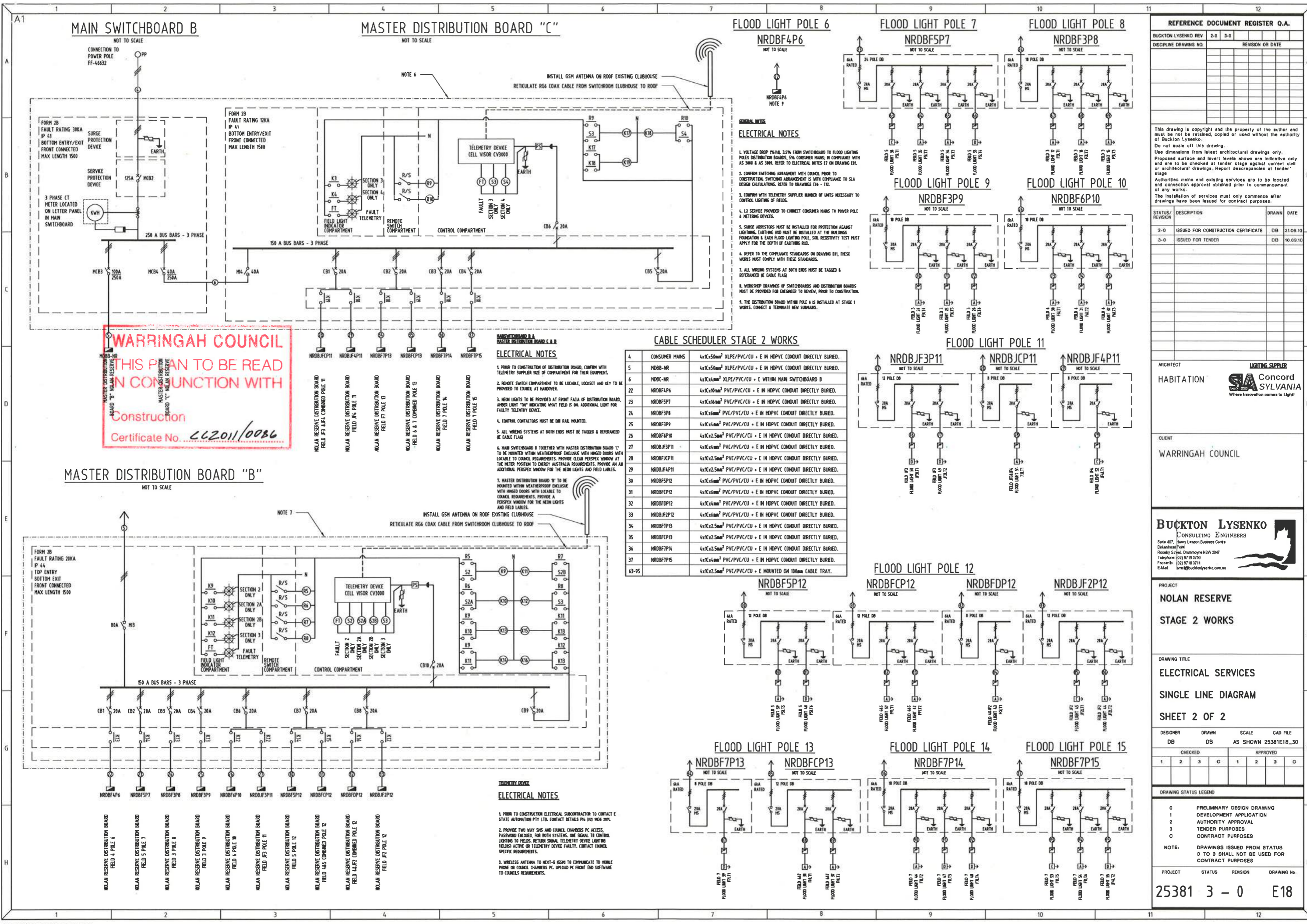
CHECKED				APPROVED			
1	2	3	0	1	2	3	0

DRAWING STATUS LEGEND

- 0 PRELIMINARY DESIGN DRAWING
- 1 DEVELOPMENT APPLICATION
- 2 AUTHORITY APPROVAL
- 3 TENDER PURPOSES
- C CONTRACT PURPOSES

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PROJECT	STATUS	REVISION	DRAWING No.
25381	3	2	E17



**WARRINGAH COUNCIL**  
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 Construction  
 Certificate No. CC2011/0086

**CABLE SCHEDULER STAGE 2 WORKS**

4	CONSUMER MAINS	4xKc50mm <sup>2</sup> XLPE/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
5	MDBB-NR	4xKc50mm <sup>2</sup> XLPE/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
6	MDBC-NR	4xKc4mm <sup>2</sup> XLPE/PVC/CU + E WITHIN MAIN SWITCHBOARD B
22	NRDBF4P6	4xKc10mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
23	NRDBF5P7	4xKc10mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
24	NRDBF3P8	4xKc6mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
25	NRDBF3P9	4xKc4mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
26	NRDBF4P10	4xKc2.5mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
27	NRDBJF3P11	4xKc4mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
28	NRDBJCP11	4xKc2.5mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
29	NRDBJF4P11	4xKc2.5mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
30	NRDBF5P12	4xKc6mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
31	NRDBF6P12	4xKc6mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
32	NRDBFDP12	4xKc4mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
33	NRDBJF2P12	4xKc6mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
34	NRDBF7P13	4xKc2.5mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
35	NRDBF7P14	4xKc2.5mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
36	NRDBF7P15	4xKc4mm <sup>2</sup> PVC/PVC/CU + E IN HDPEV CONDUIT DIRECTLY BURIED.
63-95		4xKc2.5mm <sup>2</sup> PVC/PVC/CU + E MOUNTED ON 100mm CABLE TRAY.

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3-0	ISSUED FOR TENDER	DB	10.09.10

ARCHITECT  
**HABITATION**  
 LIGHTING SUPPLIER  
**SA Concord**  
 PENNSYLVANIA  
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CLIENT  
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**BUCKTON LYSENKO**  
 CONSULTING ENGINEERS  
 Suite 407, Henry Lawson Business Centre  
 Belconnen Park  
 Roadside Hill, Gungahlin NSW 2047  
 Telephone (02) 9718 3700  
 Facsimile (02) 9718 3711  
 E-Mail blysenko@bucktonlysenko.com.au

PROJECT  
**NOLAN RESERVE**  
**STAGE 2 WORKS**

DRAWING TITLE  
**ELECTRICAL SERVICES**  
**SINGLE LINE DIAGRAM**  
**SHEET 2 OF 2**

DESIGNER	DRAWN	SCALE	CAD FILE
DB	DB	AS SHOWN	E18_30

CHECKED			APPROVED		
1	2	3	1	2	3

DRAWING STATUS LEGEND

0	PRELIMINARY DESIGN DRAWING
1	DEVELOPMENT APPLICATION
2	AUTHORITY APPROVAL
3	TENDER PURPOSES
C	CONTRACT PURPOSES

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25381	3	0	E18