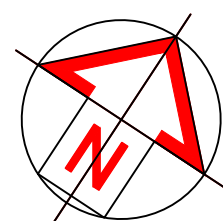


ROYAL RANDWICK RACECOURSE

NIGHT RACING UPGRADE

ELECTRICAL SERVICES

D & C PACKAGE



DRAWING SCHEDULE

E-000 - LEGEND, NOTES & KEY PLAN

E-010 - THEATRE OF THE HORSE LIGHTING LAYOUT

E-001 - TRACKSIDE LIGHTING LAYOUT - SHEET 1 OF 9
E-002 - TRACKSIDE LIGHTING LAYOUT - SHEET 2 OF 9
E-003 - TRACKSIDE LIGHTING LAYOUT - SHEET 3 OF 9
E-004 - TRACKSIDE LIGHTING LAYOUT - SHEET 4 OF 9
E-005 - TRACKSIDE LIGHTING LAYOUT - SHEET 5 OF 9
E-006 - TRACKSIDE LIGHTING LAYOUT - SHEET 6 OF 9
E-007 - TRACKSIDE LIGHTING LAYOUT - SHEET 7 OF 9
E-008 - TRACKSIDE LIGHTING LAYOUT - SHEET 8 OF 9
E-009 - TRACKSIDE LIGHTING LAYOUT - SHEET 9 OF 9

E-020 - SPECTATOR PRECINCT LIGHTING LAYOUT

E-030 - LUMINAIRE SCHEDULE & DETAILS
E-031 - MAIN SINGLE LINE DIAGRAMS - SHEET 1 OF 2
E-032 - MAIN SINGLE LINE DIAGRAMS - SHEET 2 OF 2

LIGHTING LEGEND

POLE NO. REFER TO TRACKSIDE POLES/LUMINAIRES SCHEDULE
A - HOME STRAIGHT
B - INSIDE COURSE
C - STARTING CHUTE
R - MOUNTED ON GRANDSTAND

TRACKSIDE LIGHTING SHALL BE EQUAL TO BELOW:

POLE REFERENCE NUMBER
REFER TO SCHEDULE ON DRG E-030 FOR POLE HEIGHT,
MOUNTING HEIGHTS & NUMBER OF LED FLOOD LIGHTS
WITH BAFFLE/VISORS

TOTH LIGHTING SHALL BE EQUAL TO BELOW:

TH-1 THORN ALTIS S 396L NB CL1 1857
ON EXISTING 7.5m POLE OR MOUNTED OFF BUILDING
AWNING AT 10m ABOVE GROUND (1277W LED)

TH-2 THORN ALTIS S 396L MB CL1 1957
ON EXISTING 7.5m POLE OR MOUNTED OFF BUILDING
AWNING AT 10m ABOVE GROUND (1277W LED)

SPECTATOR PRECINCT LIGHTING TO MATCH EXISTING:

nA IP55 40W LED LIGMAN ATLANTIC AA-95016-1-W30

nLP1 IP65 LED SIMILAR TO LIGMAN MN-91222-SC90 ON 7.5m POLE

nLP4 IP65 LED SIMILAR TO BEGA-66853-HI ON 7.5m POLE

nLP5 IP65 LED SIMILAR TO BEGA-66852-HI ON 10m POLE

x## EXISTING LUMINAIRE
ALLOW TO CLEAN & RELAMP WITH LED

n## NEW LUMINAIRE

CONTROLS

LCP LIGHTING CONTROL PANEL

LCR AUTOMATIC LIGHTING CONTROL RELAYS

PC AUTOMATIC LIGHTING CONTROL HEAD-END COMPUTER

POWER LEGEND

E ELECTRICAL HDUPVC ORANGE
CONDUIT

E X ELECTRICAL PIT

DISTRIBUTION BOARD (DB)

SURGE DIVERTER

GEN G-# DIESEL GENERATOR (STAND-BY_
WITH INTEGRAL SKID TANK (
MINIMUM 12 HRS AT FULL LOAD)

SS AUSGRID SUBSTATION

PC SUM COSTS

1. ALLOW A PC SUM OF \$50 000 FOR
REFURBISHMENT/REPLACEMENT OF LIGHTING TO GATES &
ENTRIES.

GENERAL NOTES

1. ALL EXTERNALLY MOUNTED EQUIPMENT, CONTROL GEAR,
CABLING AND CONNECTIONS SHALL BE CORROSION RESISTANT
AND WEATHERPROOFED.

2. PROVIDE THREE (3) SETS OF AS-BUILTS IN AUTOCAD AND O&M
MANUALS IN BOTH HARD AND SOFT COPIES.

COMMUNICATIONS LEGEND

C COMMUNICATIONS HDUPVC WHITE CONDUIT

C X COMMUNICATION PIT

15A 15A SOCKET OUTLET

XXA YYA ISOLATOR/SWITCH

20A CIRCUIT BREAKER WITH 'XX'TRIP
SETTING (A) & 'YY' FRAME SIZE (A)

20A RCD PROTECTED CIRCUIT BREAKER
'20A' DENOTES 20 AMP

ATS AUTOMATIC TRANSFER SWITCH
'MTS' DENOTES MANUAL TRANSFER
SWITCH

POWER NOTES

1. ALLOW TO UNDERBORE IN AREAS AROUND THE RACETRACK
FOR CONDUITING & PIT WORKS. PROVIDE APPROPRIATE VISUAL
CABLE MARKING TAPE OVER CONDUITS RUNS ALONG WITH
SURFACE CABLE MARKERS.

2. PROVIDE LIGHTNING PROTECTION SYSTEM TO EACH LIGHTING
MAST/POLE INCLUDING EARTH CONDUCTOR CABLE& EARTHING
STAKE.

3. ALLOW TO SUPPLY ALL LIGHTING BY GENERATOR ONLY.
GENERATOR SIZES AS FOLLOWS:
GEN-1A - 800kVA
GEN-2 - 1200kVA
GEN-3 - 800kVA
GEN-4A - 1200kVA

LIGHTING NOTES

1. ALLOW COMMISSIONING & AIMING OF FLOODLIGHTS IN 2 STAGES
(PRE COMMISSIONING & FINAL COMMISSIONING). ALLOW FOR
THESE WORKS TO BE CARRIED OUT AFTER HOURS.

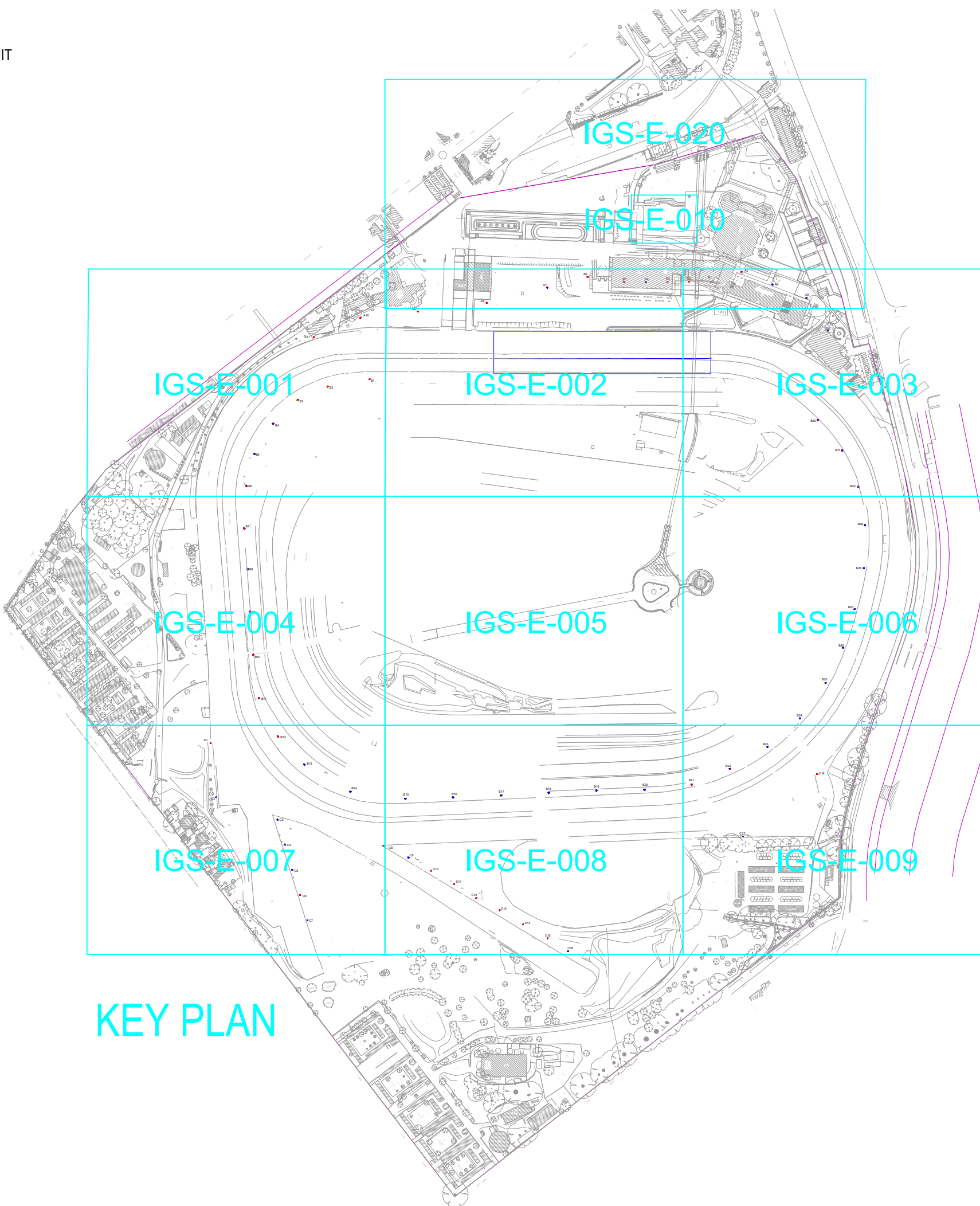
2. ALL POLES, MASTS, FOOTINGS AND ASSOCIATED EQUIPMENT
SHALL BE PROVIDED AS PART OF THIS CONTRACT. POLES
SHALL COMPLY WITH OUTDOOR STRUCTURAL COPES FOR
LOCAL WIND CONDITIONS.

3. ADJACENT FLOOD LIGHTS SHALL BE CONNECTED TO DIFFERENT
PHASES TO MINIMISE STROBOSCOPIC EFFECTS.

4. AUTOMATIC LIGHTING CONTROL SYSTEM SHALL:
- PROVIDE SCREEN BASED MIMIC DIAGRAMS, GRAPHICS& USER
INTERFACES FOR OPERATOR ACCESS TO SYSTEM CONTROL
AND MONITORING FUNCTIONS.
- ENABLE MONITORING & DATA LOGGING OF ALL SPECIFIED
LIGHTING QUANTITIES PRESENT IN THE TRACKSIDE LIGHTING
INSTALLATION (PROVIDE DALI OR SIMILAR DIGITALLY
ADDRESSABLE LIGHT FITTINGS).

5. PROVIDE UPS BACKUP TO LIGHTING CENTRAL CONTROL
SYSTEM COMPUTER WITH 15 MIN BACKUP.

KEY PLAN



AMENDMENTS/REVISIONS

Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	12.11.17

CLIENT

Australian Turf Club®

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CONSULTANT

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ALWAYS ONE STEP AHEAD

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PROJECT

ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

DRAWING TITLE

ELECTRICAL SERVICES
LEGEND, NOTES & KEY PLAN

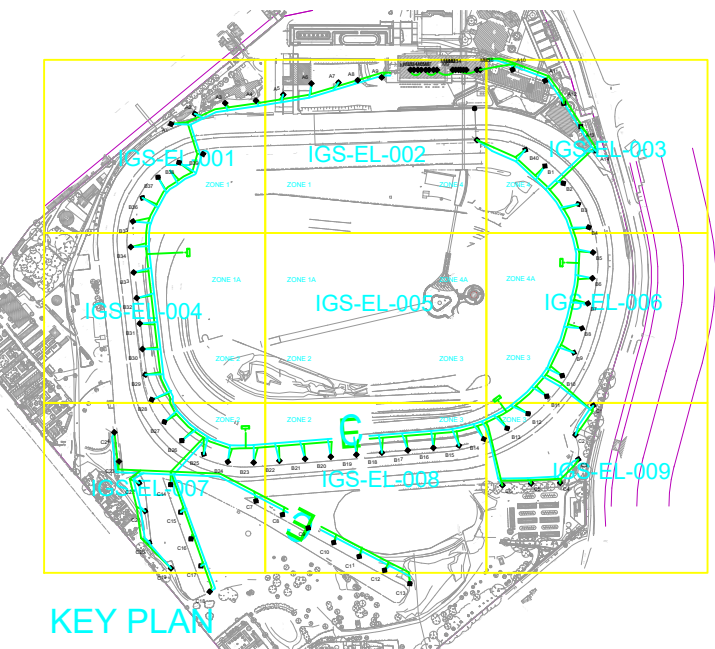
PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
J.V.	J.V.	V.N.	NTS @A1	Nov 17
PROJECT No.	DRAWING No.	REVISION		
EN-N17_19	E-000	02		

AMENDMENTS/REVISIONS				
Rev	Description	Initials	Date	
01	PRELIMINARY ISSUE	V.N.	07.11.17	
02	CONCEPT ISSUE	V.N.	17.11.20	

- NOTES**
- THE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ELECTRICAL SERVICES SPECIFICATION.
 - THE ELECTRICAL CONTRACTOR SHALL CO-ORDINATE WITH THE LATEST ARCHITECTURAL DRAWINGS & WITH THE OTHER TRADES WHEN CARRYING OUT THE WORKS.
 - REFER TO DRG IGS-E-000 FOR LEGEND, POLE & LUMINAIRE SCHEDULE & CONTROLS METHODOLOGY.



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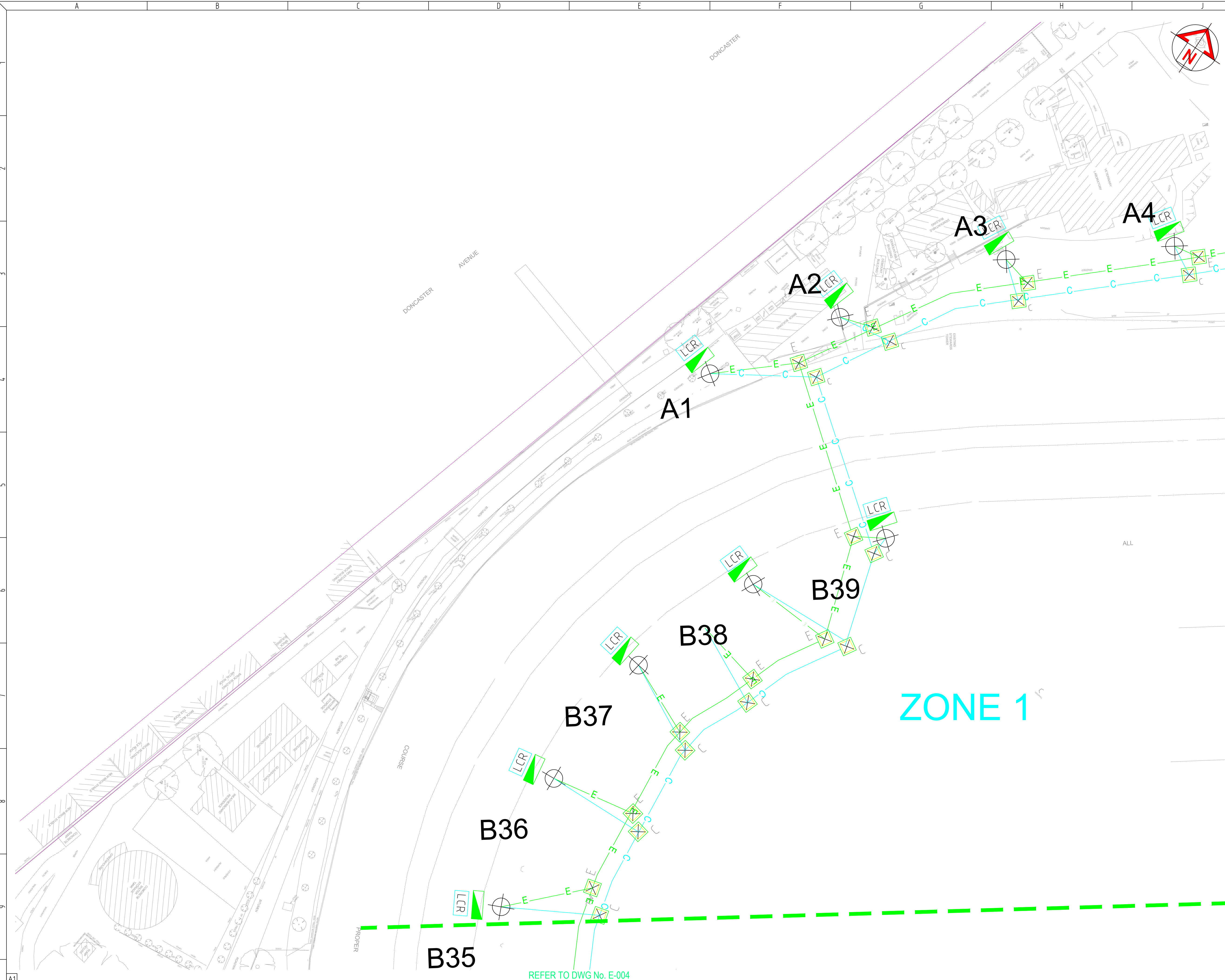
PROJECT

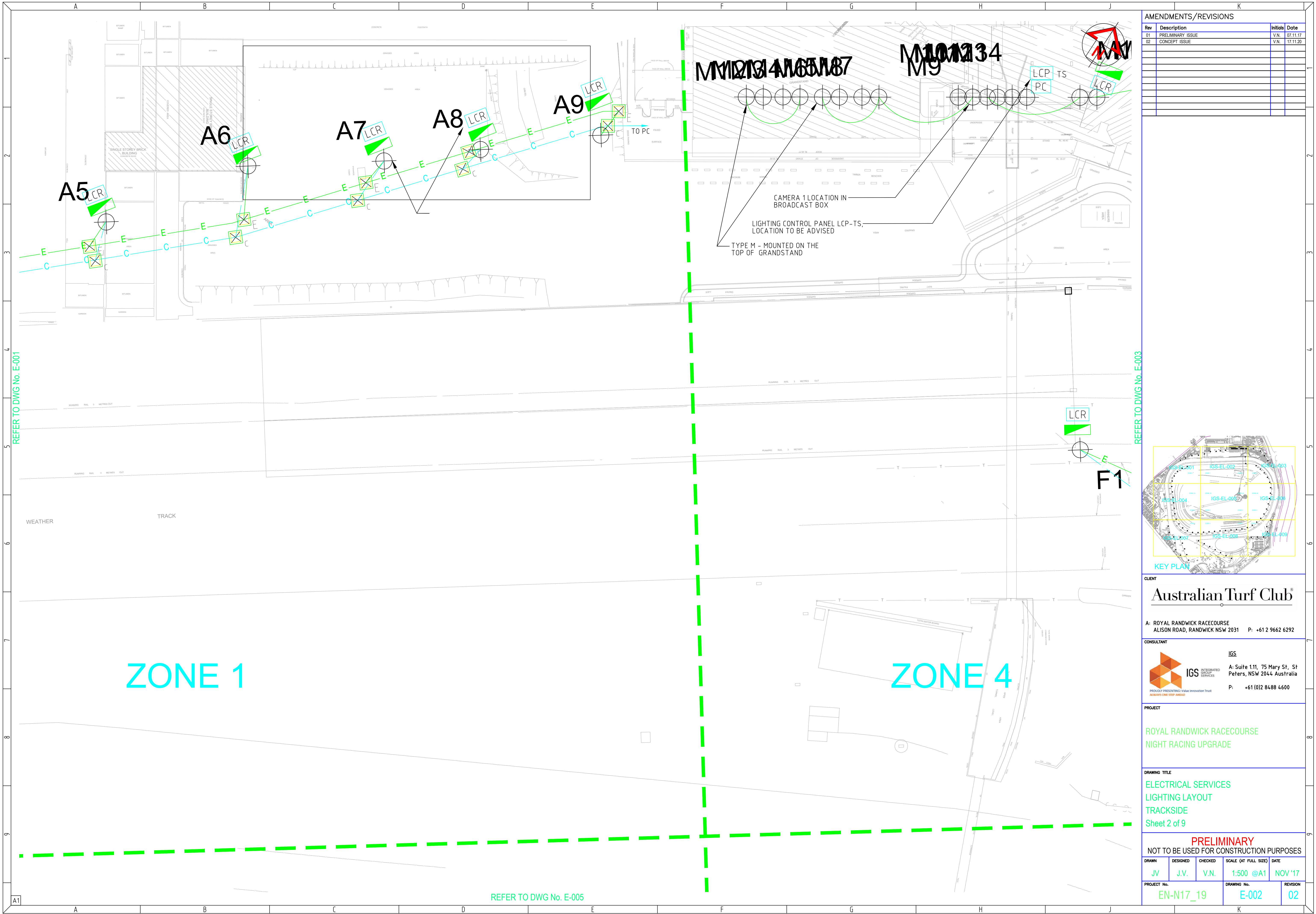
ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

DRAWING TITLE

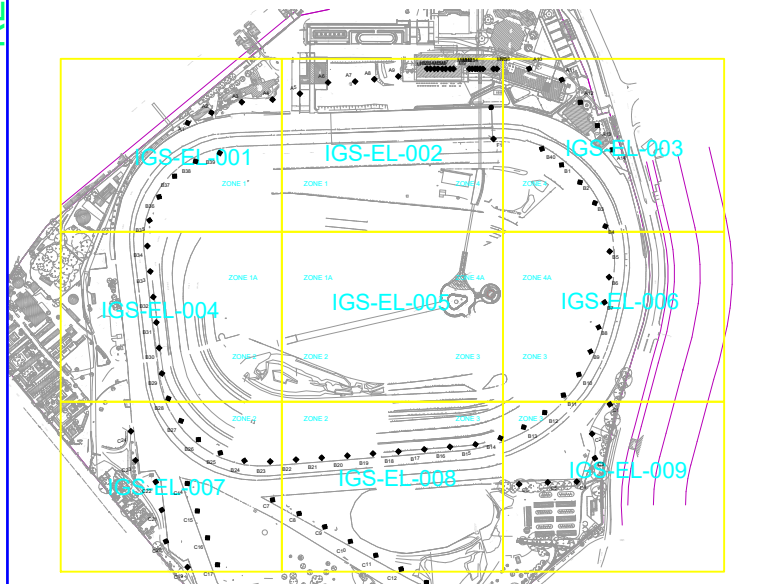
ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE
Sheet 1 of 9

PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES				
DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17
PROJECT No.		DRAWING No.		REVISION
EN-N17_19		E-001		02





AMENDMENTS/REVISIONS				
Rev	Description	Initials	Date	
01	PRELIMINARY ISSUE	V.N.	07.11.17	
02	CONCEPT ISSUE	V.N.	17.11.20	



KEY PLAN

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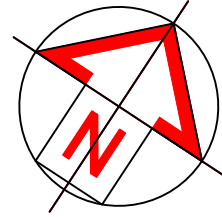
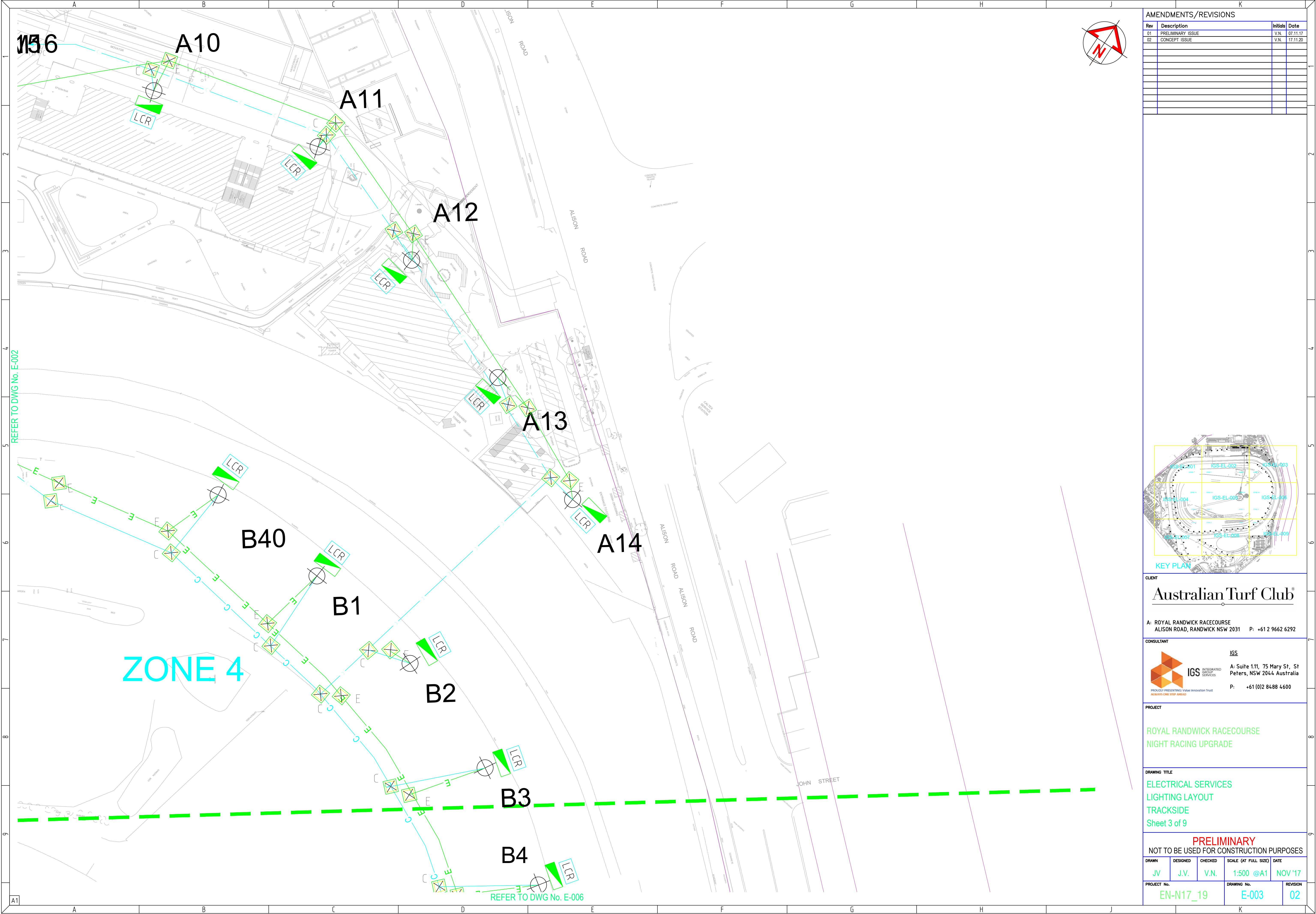
IGS
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PROJECT
**ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE**

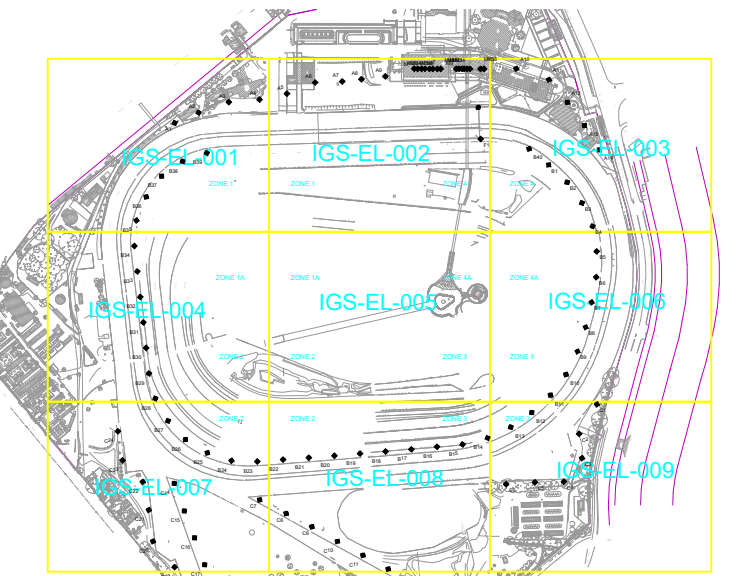
DRAWING TITLE
**ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE
Sheet 2 of 9**

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17
PROJECT No.		DRAWING No.		REVISION
EN-N17_19		E-002		02



AMENDMENTS/REVISIONS			
Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20



KEY PLAN

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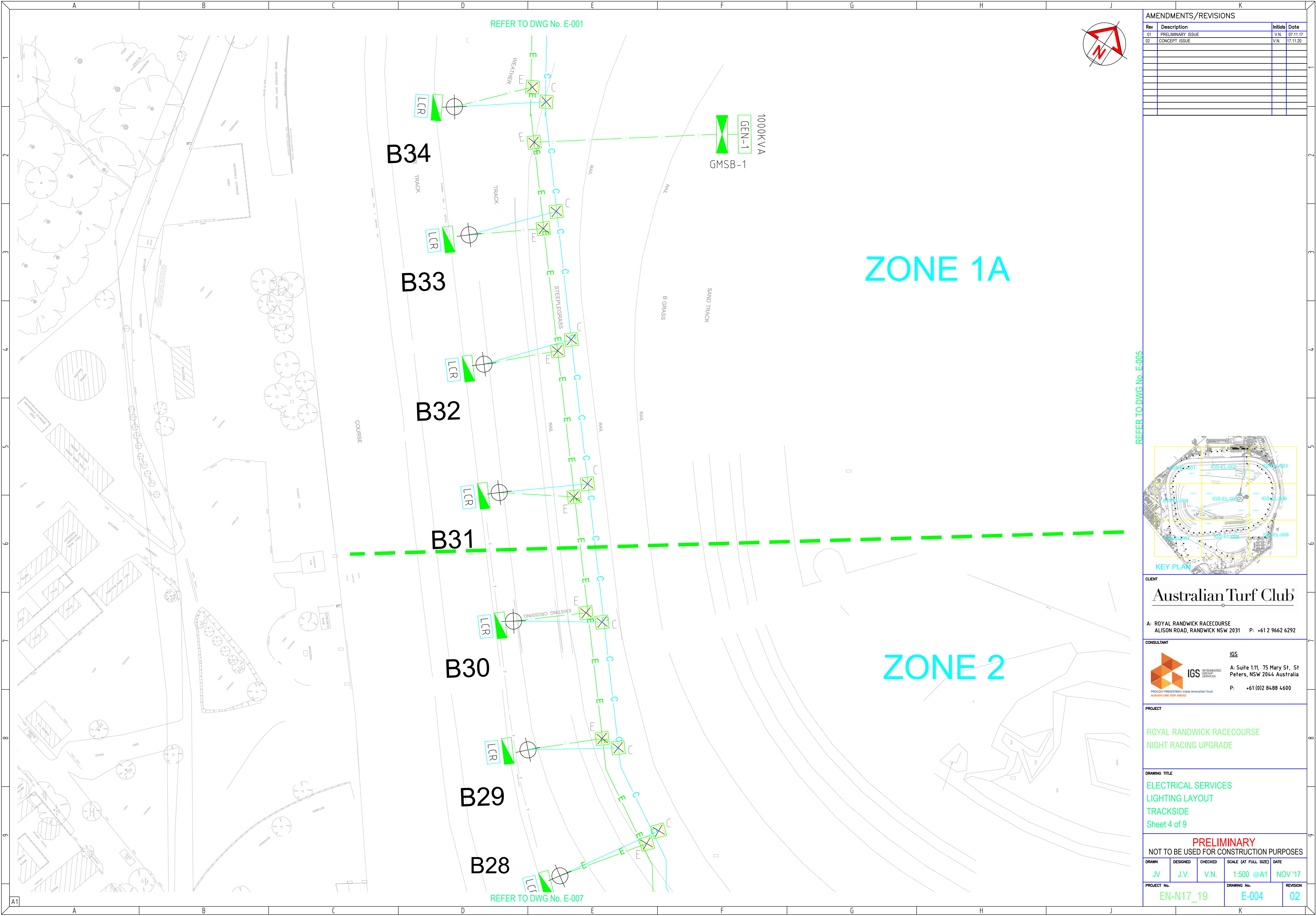
CONSULTANT
 **IGS** INTEGRATED GROUP SERVICES
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PROJECT
**ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE**

DRAWING TITLE
**ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE**
Sheet 3 of 9

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17
PROJECT No.		DRAWING No.		REVISION
EN-N17_19		E-003		02



AMENDMENTS/REVISIONS			
Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

REFER TO DWG No. E-005

KEY PLAN

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PROJECT

ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

DRAWING TITLE

ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE
Sheet 4 of 9

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17

PROJECT No.	DRAWING No.	REVISION
EN-N17_19	E-004	02

REFER TO DWG No. E-002

ZONE 1A

ZONE 4A

ZONE 2

ZONE 3

AMENDMENTS/REVISIONS

Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

REFER TO DWG No. E-006

KEY PLAN

Australian Turf Club®

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CONSULTANT

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INTEGRATED GROUP SERVICES

PROUDLY REPRESENTING Value Innovation Trust
AUTHORITY ONE STEP AHEAD

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P: +61 (0)2 8488 4600

PROJECT

ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

DRAWING TITLE

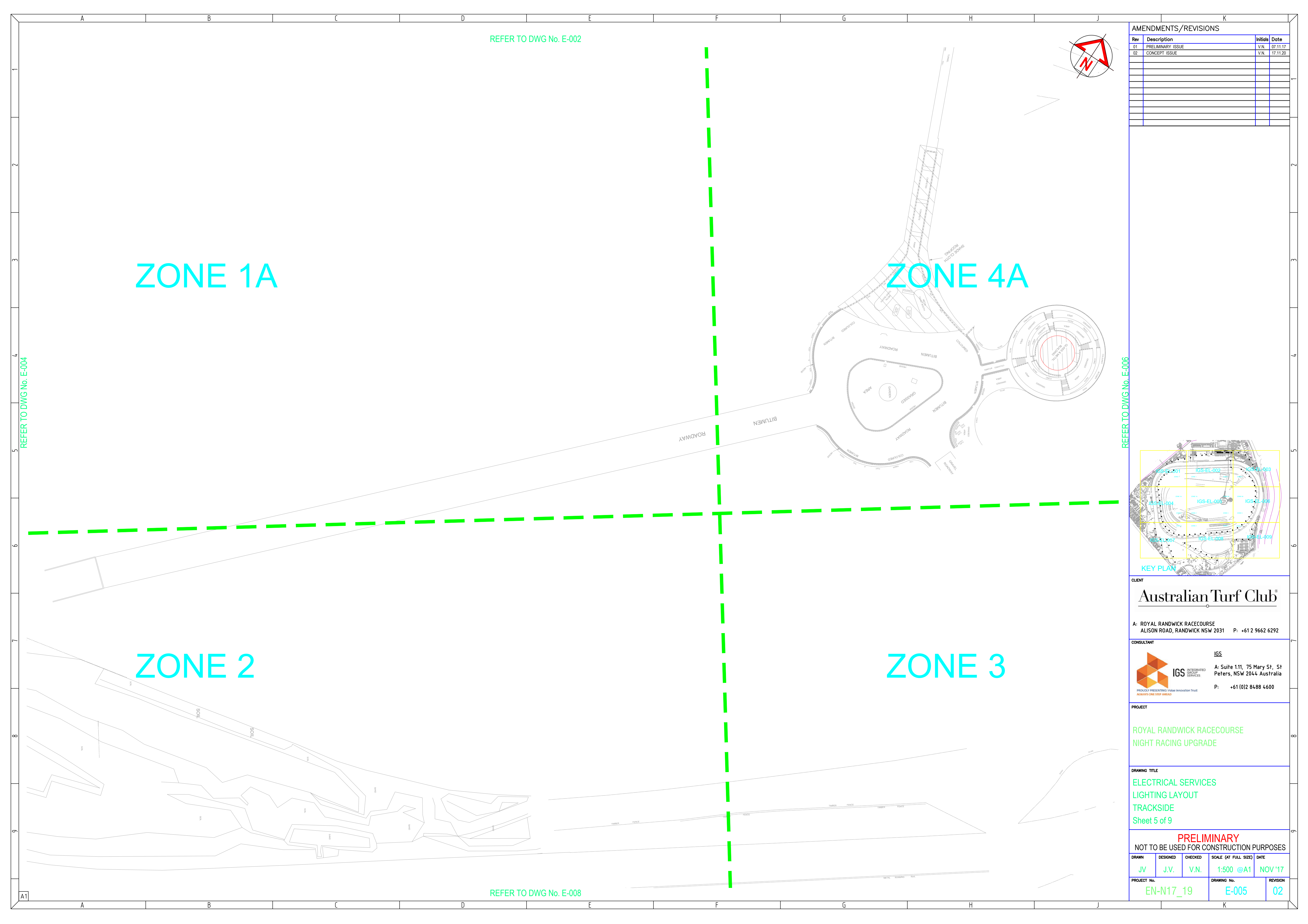
ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE
Sheet 5 of 9

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV'17

PROJECT No.	DRAWING No.	REVISION
EN-N17_19	E-005	02

REFER TO DWG No. E-008



ZONE 1A

ZONE 2

ZONE 3

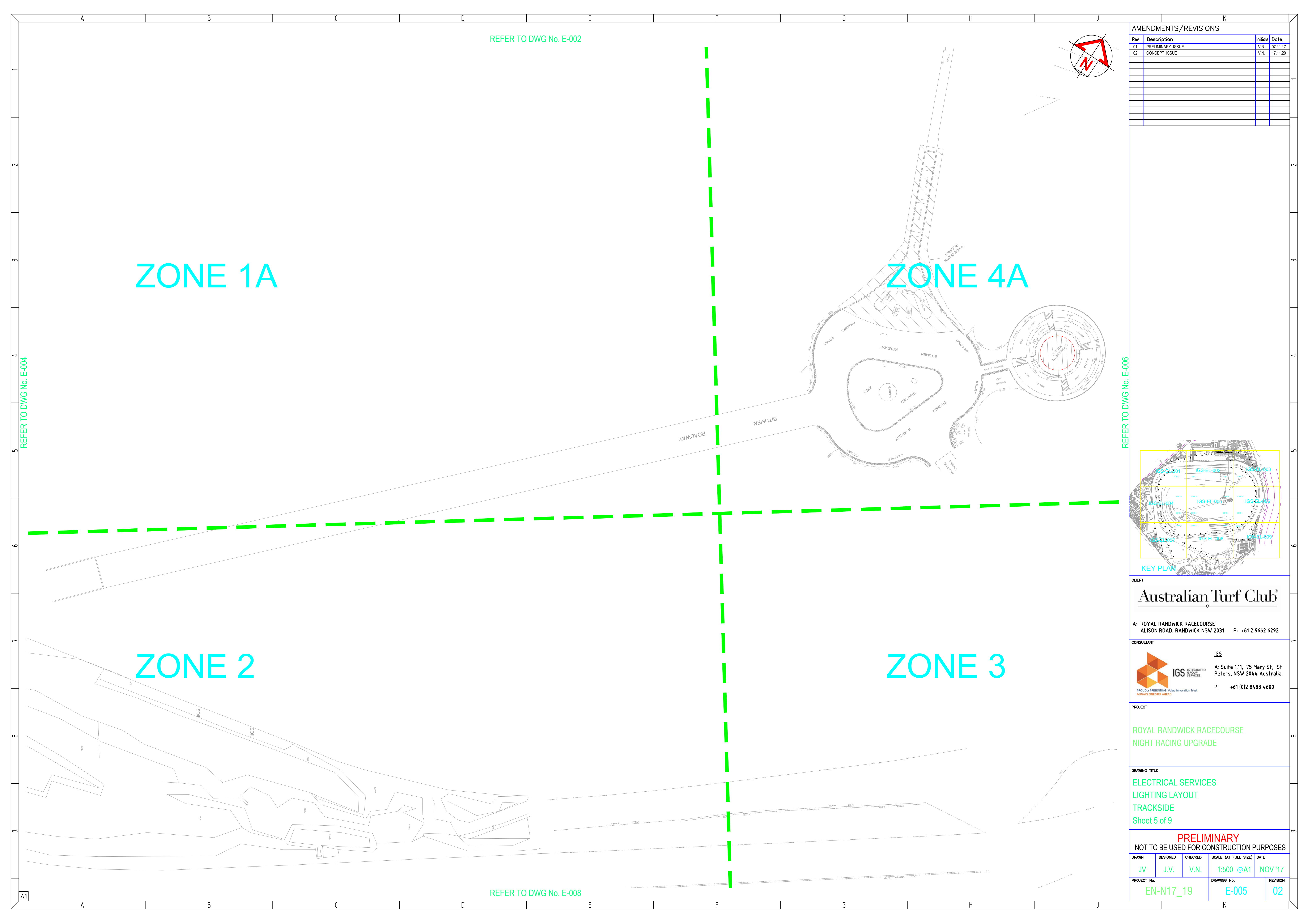
ZONE 4A

REFER TO DWG No. E-002

REFER TO DWG No. E-004

AMENDMENTS/REVISIONS			
Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

CLIENT					
Australian Turf Club®					
A: ROYAL RANDWICK RACECOURSE ALISON ROAD, RANDWICK NSW 2031 P: +61 2 9662 6292					
CONSULTANT					
 IGS INTEGRATED GROUP SERVICES PROUDLY REPRESENTING: Value Innovation Trust AUTHORITY ONE STEP AHEAD		IGS A: Suite 1.11, 75 Mary St, St Peters, NSW 2044 Australia P: +61 (0)2 8488 4600			
PROJECT					
ROYAL RANDWICK RACECOURSE NIGHT RACING UPGRADE					
DRAWING TITLE					
ELECTRICAL SERVICES LIGHTING LAYOUT TRACKSIDE Sheet 5 of 9					
PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES					
DRAWN JV	DESIGNED J.V.	CHECKED V.N.	SCALE (AT FULL SIZE) DATE 1:500 @A1 NOV '17		
PROJECT No. EN-N17_19		DRAWING No. E-005 REVISION 02			

[illegible]

Architectural drawing of the Royal Randwick Racecourse Night Racing Upgrade, showing electrical services and lighting layout. The drawing is divided into four zones: Zone 1A, Zone 2, Zone 3, and Zone 4A. It includes a key plan, a north arrow, and a revision table.

Zone Labels: ZONE 1A, ZONE 2, ZONE 3, ZONE 4A

Key Plan: A small inset map showing the overall layout of the racecourse, with the current drawing area highlighted in yellow. The key plan is labeled "KEY PLAN" and includes a grid of zones (IGS-EL-001 to IGS-EL-009).

Revision Table:

Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

Client: Australian Turf Club®

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Phone: P: +61 2 9662 6292

Consultant: IGS INTEGRATED GROUP SERVICES

Address: A: Suite 1.11, 75 Mary St, St Peters, NSW 2044 Australia

Phone: P: +61 (0)2 8488 4600

Project: ROYAL RANDWICK RACECOURSE NIGHT RACING UPGRADE

Drawing Title: ELECTRICAL SERVICES LIGHTING LAYOUT TRACKSIDE Sheet 5 of 9

Preparation: PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES

Drawn: JV, **Designed:** J.V., **Checked:** V.N., **Scale:** 1:500 @A1, **Date:** NOV '17

Project No.: EN-N17_19, **Drawing No.:** E-005, **Revision:** 02

Architectural drawing of the Royal Randwick Racecourse Night Racing Upgrade, showing electrical services and lighting layout. The drawing is divided into four zones: Zone 1A, Zone 2, Zone 3, and Zone 4A. It includes a key plan, a north arrow, and a revision table.

Zone Labels: ZONE 1A, ZONE 2, ZONE 3, ZONE 4A

Key Plan: A small inset map showing the location of the racecourse within the Sydney area, with a yellow box highlighting the specific area shown in this drawing.

North Arrow: A red arrow pointing towards the top right of the drawing.

Revision Table:

Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

Client: Australian Turf Club®

Consultant: IGS INTEGRATED GROUP SERVICES

Project: ROYAL RANDWICK RACECOURSE NIGHT RACING UPGRADE

Drawing Title: ELECTRICAL SERVICES LIGHTING LAYOUT TRACKSIDE Sheet 5 of 9

Project Information:

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17

Project No.: EN-N17_19 **Drawing No.:** E-005 **Revision:** 02

NOT TO BE USED FOR CONSTRUCTION PURPOSES

Architectural drawing of the Royal Randwick Racecourse Night Racing Upgrade, showing electrical services and lighting layout. The drawing is divided into four zones: Zone 1A, Zone 2, Zone 3, and Zone 4A. It includes a key plan, a north arrow, and a revision table.

Zone Labels: ZONE 1A, ZONE 2, ZONE 3, ZONE 4A

Key Plan: A small inset map showing the location of the racecourse within the Sydney area, with a yellow box highlighting the specific area shown in this drawing.

North Arrow: A red arrow pointing towards the top right of the drawing.

Revision Table:

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01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

Client: Australian Turf Club®

Consultant: IGS INTEGRATED GROUP SERVICES

Project: ROYAL RANDWICK RACECOURSE NIGHT RACING UPGRADE

Drawing Title: ELECTRICAL SERVICES LIGHTING LAYOUT TRACKSIDE Sheet 5 of 9

Project Information:

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17

Project No.: EN-N17_19 **Drawing No.:** E-005 **Revision:** 02

NOT TO BE USED FOR CONSTRUCTION PURPOSES

Architectural drawing of the Royal Randwick Racecourse Night Racing Upgrade, showing electrical services and lighting layout. The drawing is divided into four zones: Zone 1A, Zone 2, Zone 3, and Zone 4A. It includes a key plan, a north arrow, and a revision table.

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Revision Table:

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01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

Client: Australian Turf Club®

Consultant: IGS INTEGRATED GROUP SERVICES

Project: ROYAL RANDWICK RACECOURSE NIGHT RACING UPGRADE

Drawing Title: ELECTRICAL SERVICES LIGHTING LAYOUT TRACKSIDE Sheet 5 of 9

Project Information:

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17

Project No.: EN-N17_19 **Drawing No.:** E-005 **Revision:** 02

NOT TO BE USED FOR CONSTRUCTION PURPOSES

Architectural drawing of the Royal Randwick Racecourse Night Racing Upgrade, showing electrical services and lighting layout. The drawing is divided into four zones: Zone 1A, Zone 2, Zone 3, and Zone 4A. It includes a key plan, a north arrow, and a revision table.

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Revision Table:

Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

Client: Australian Turf Club®

Consultant: IGS INTEGRATED GROUP SERVICES

Project: ROYAL RANDWICK RACECOURSE NIGHT RACING UPGRADE

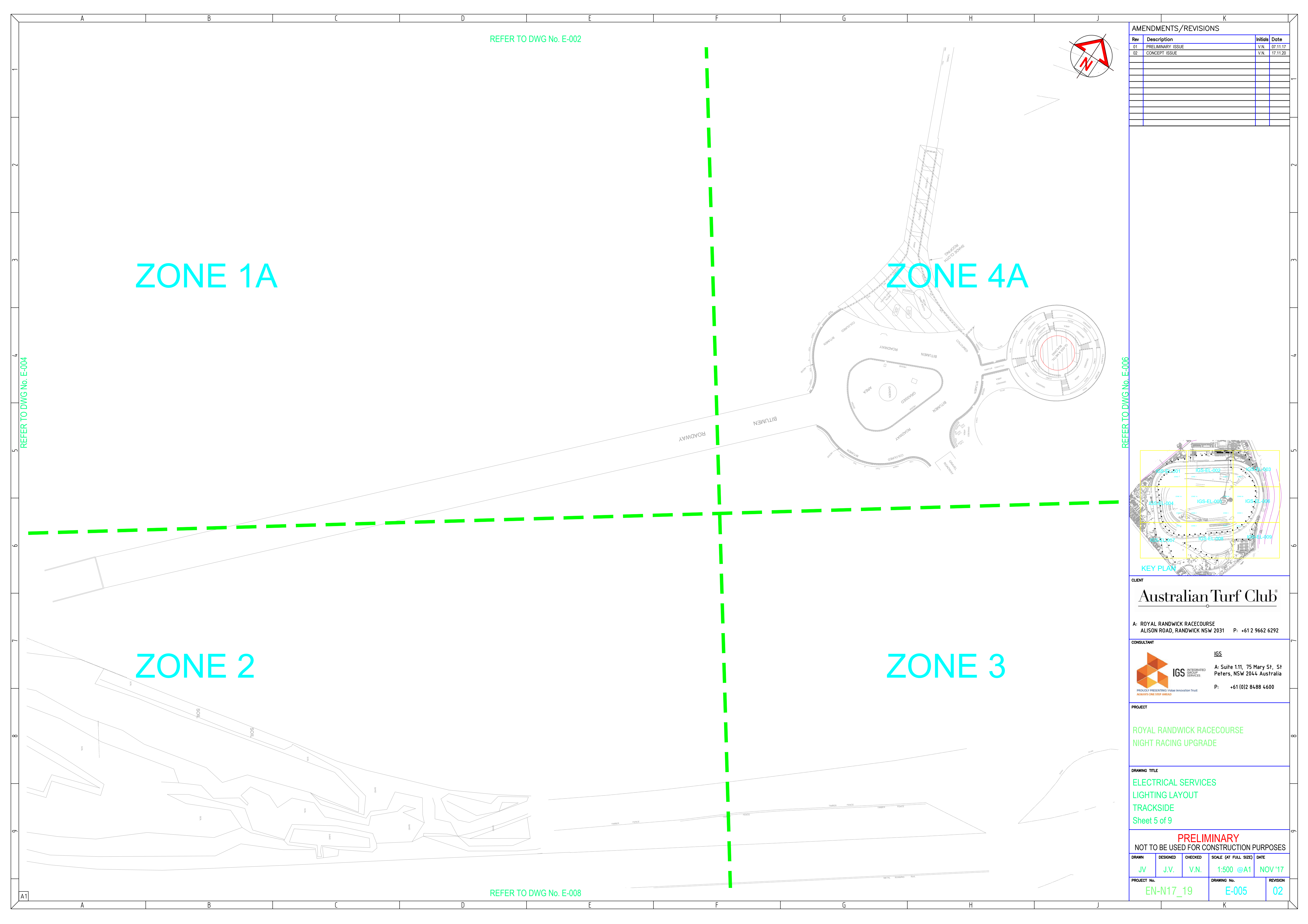
Drawing Title: ELECTRICAL SERVICES LIGHTING LAYOUT TRACKSIDE Sheet 5 of 9

Project Information:

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17

Project No.: EN-N17_19 **Drawing No.:** E-005 **Revision:** 02

NOT TO BE USED FOR CONSTRUCTION PURPOSES



Architectural drawing of the Royal Randwick Racecourse Night Racing Upgrade, showing electrical services and lighting layout. The drawing is divided into four zones: Zone 1A, Zone 2, Zone 3, and Zone 4A. It includes a key plan, a north arrow, and a revision table.

Zone Labels: ZONE 1A, ZONE 2, ZONE 3, ZONE 4A

Key Plan: A small inset map showing the location of the racecourse within the Sydney area, with a yellow box highlighting the specific area shown in this drawing.

North Arrow: A red arrow pointing towards the top right of the drawing.

Revision Table:

Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

Client: Australian Turf Club®

Consultant: IGS INTEGRATED GROUP SERVICES

Project: ROYAL RANDWICK RACECOURSE NIGHT RACING UPGRADE

Drawing Title: ELECTRICAL SERVICES LIGHTING LAYOUT TRACKSIDE Sheet 5 of 9

Project Information:

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17

Project No.: EN-N17_19 **Drawing No.:** E-005 **Revision:** 02

NOT TO BE USED FOR CONSTRUCTION PURPOSES

REFER TO DWG No. E-002

REFER TO DWG No. E-004

REFER TO DWG No. E-006

REFER TO DWG No. E-008

ZONE 1A

ZONE 2

ZONE 3

ZONE 4A

KEY PLAN

AMENDMENTS/REVISIONS

Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

CLIENT

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PROJECT

ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

DRAWING TITLE

ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE
Sheet 5 of 9

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17

PROJECT No.	DRAWING No.	REVISION
EN-N17_19	E-005	02

REFER TO DWG No. E-002

REFER TO DWG No. E-004

REFER TO DWG No. E-006

REFER TO DWG No. E-008

ZONE 1A

ZONE 2

ZONE 3

ZONE 4A

KEY PLAN

AMENDMENTS/REVISIONS

Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20

CLIENT

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PROJECT

ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

DRAWING TITLE

ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE
Sheet 5 of 9

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV '17

PROJECT No.	DRAWING No.	REVISION
EN-N17_19	E-005	02

REFER TO DWG No. E-002

REFER TO DWG No. E-004

REFER TO DWG No. E-006

REFER TO DWG No. E-008

ZONE 1A

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DRAWING TITLE

ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE
Sheet 5 of 9

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PROJECT No.	DRAWING No.	REVISION
EN-N17_19	E-005	02

REFER TO DWG No. E-002

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ZONE 1A

ZONE 2

ZONE 3

ZONE 4A

KEY PLAN

AMENDMENTS/REVISIONS

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PROJECT

ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

DRAWING TITLE

ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE
Sheet 5 of 9

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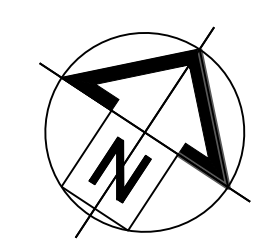
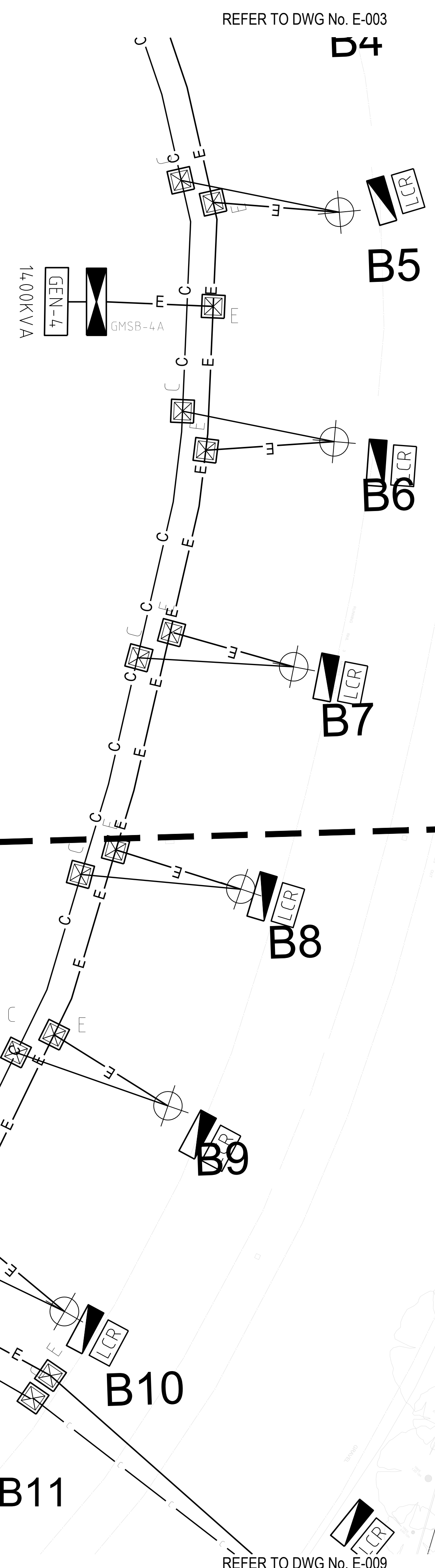
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PROJECT No.	DRAWING No.	REVISION
EN-N17_19	E-005	02

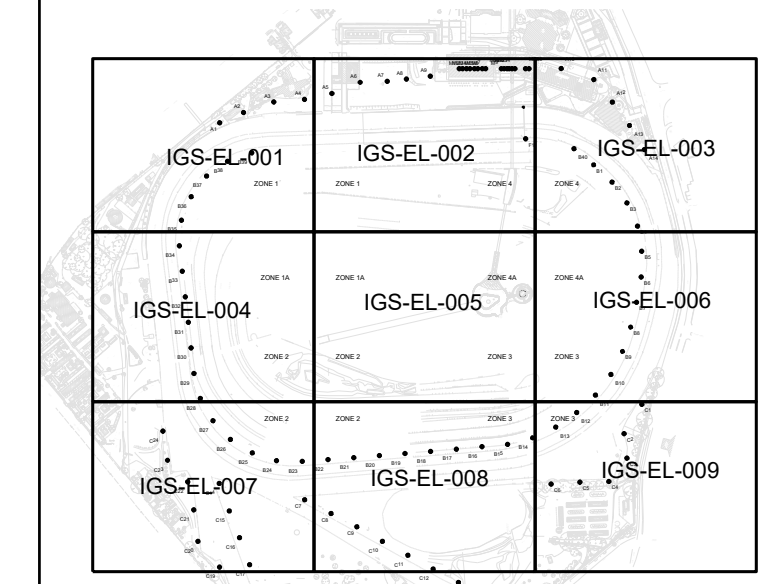
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ZONE 4A

ZONE 3



AMENDMENTS/REVISIONS			
Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	17.11.20



KEY PLAN

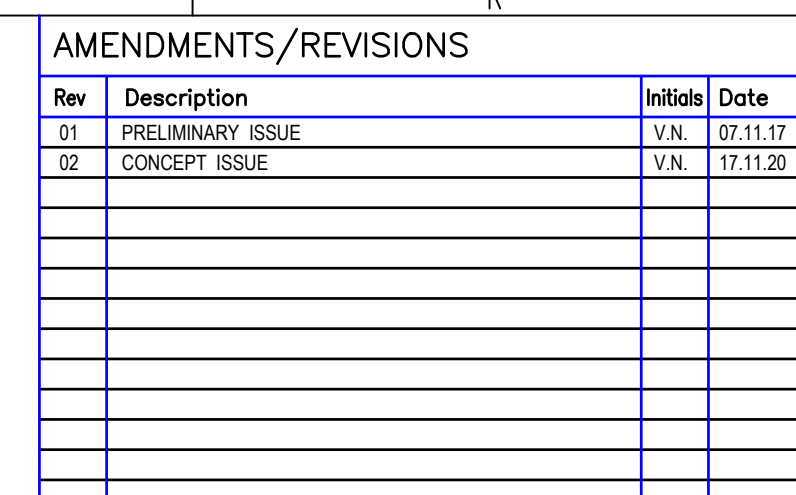
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PROJECT
**ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE**

DRAWING TITLE
**ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE**
Sheet 6 of 9

PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES				
DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
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PROJECT No.		DRAWING No.		REVISION
EN-N17_19		E-006		02

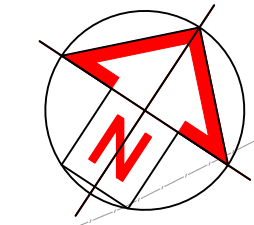


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DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
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PROJECT No.			DRAWING No.	REVISION
EN-N17_19			E-007	02

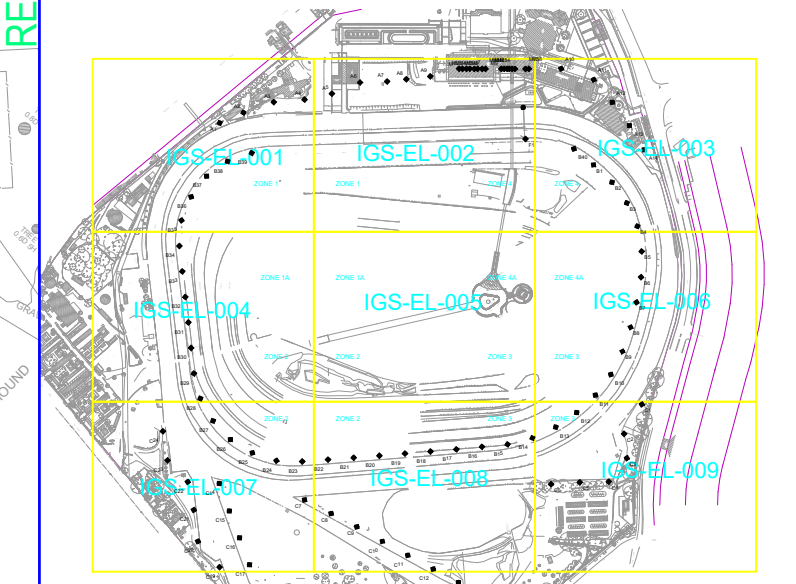
ZONE 2

ZONE 3

REFER TO DWG No. E-005



AMENDMENTS/REVISIONS			
Rev	Description	Initials	Date
01	PRELIMINARY ISSUE	V.N.	07.11.17
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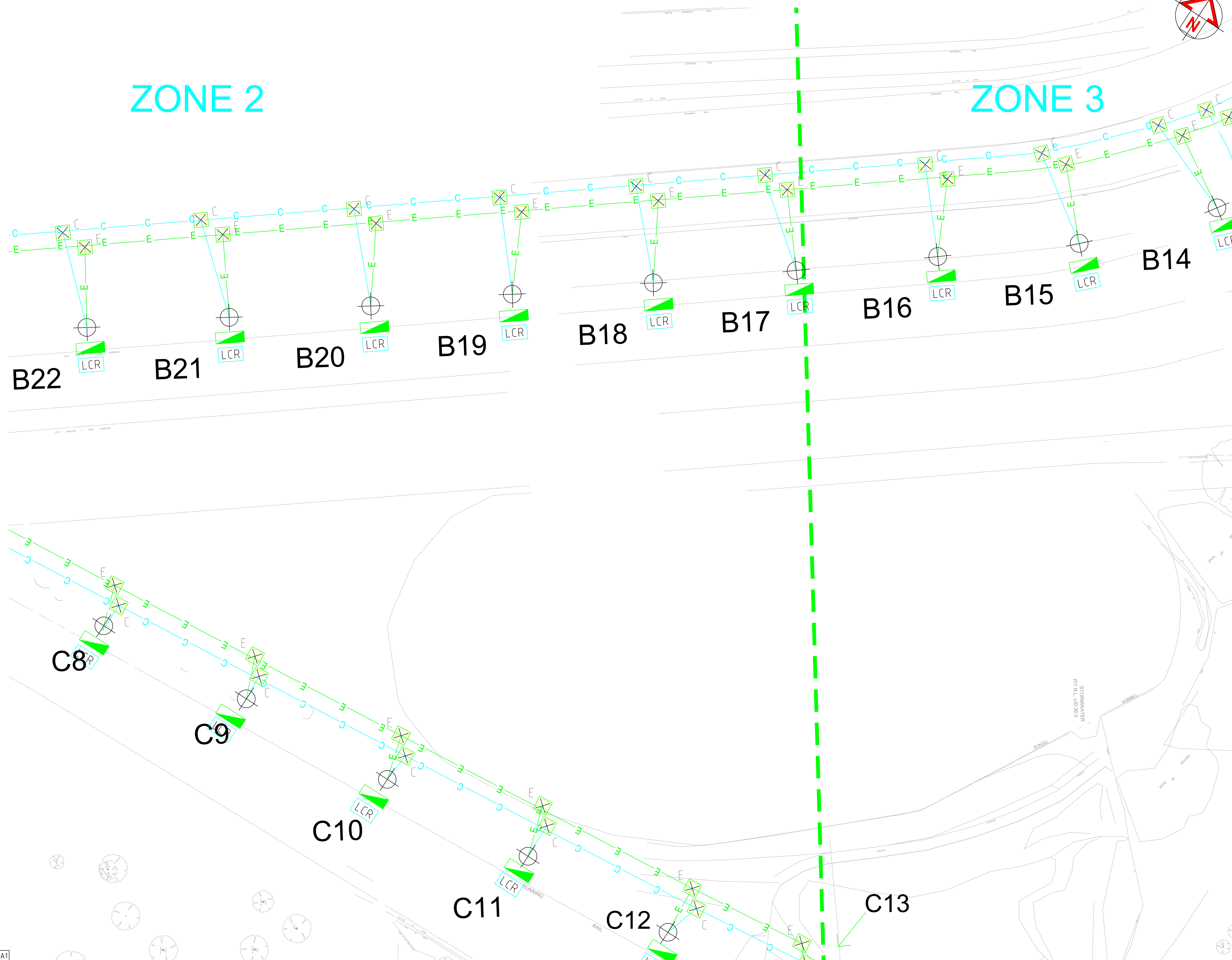
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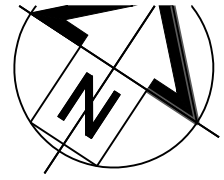
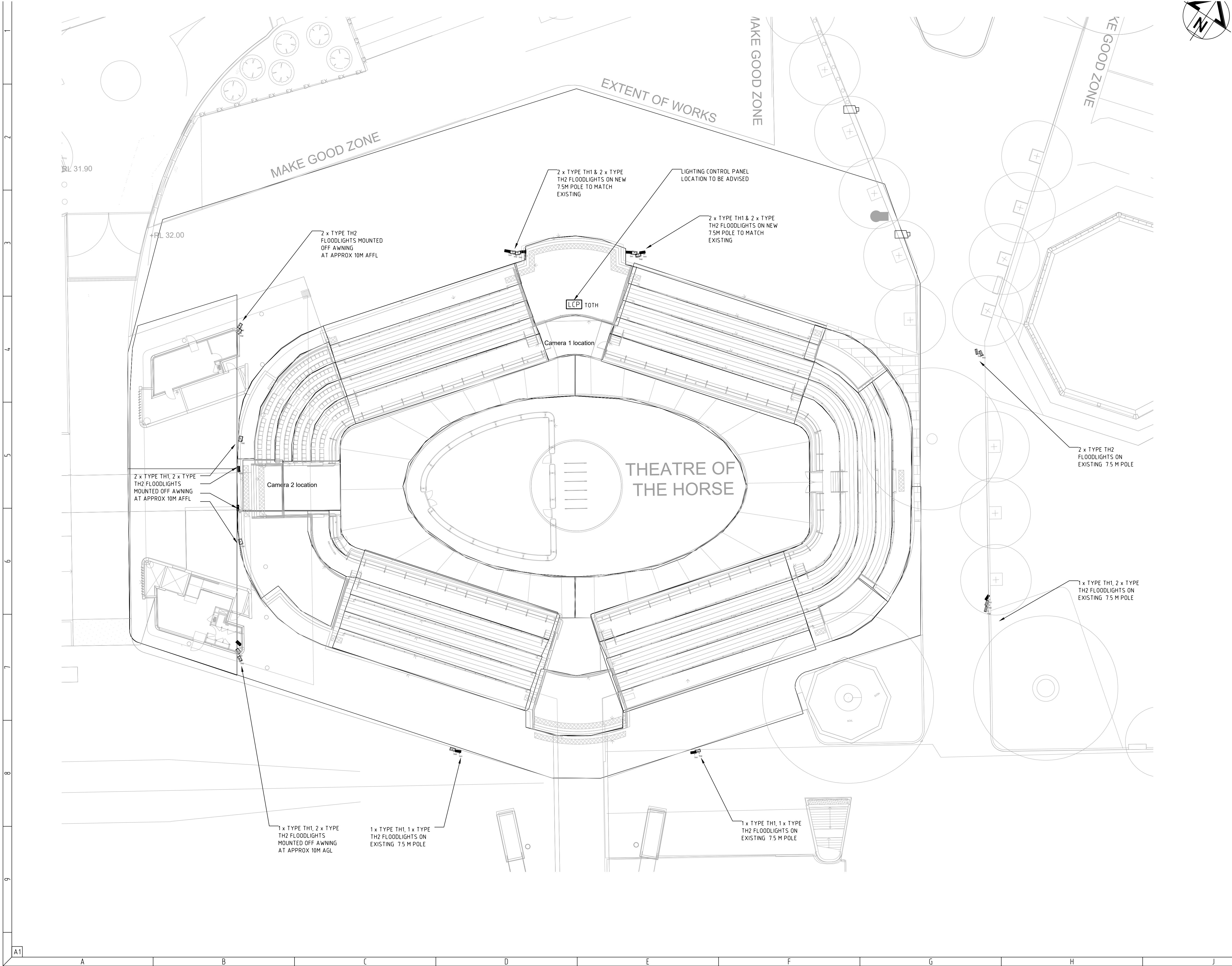
PROJECT
**ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE**

DRAWING TITLE
**ELECTRICAL SERVICES
LIGHTING LAYOUT
TRACKSIDE
Sheet 8 of 9**

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
JV	J.V.	V.N.	1:500 @A1	NOV'17
PROJECT No.		DRAWING No.		REVISION
EN-N17_19		E-008		02





01	PRELIMINARY ISSUE	V.N.	07.11.17
02	CONCEPT ISSUE	V.N.	12.11.20

- NOTES**
1. THE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ELECTRICAL SERVICES SPECIFICATION
 2. THE ELECTRICAL CONTRACTOR SHALL CO-ORDINATE WITH THE LATEST ARCHITECTURAL DRAWINGS & WITH THE OTHER TRADES WHEN CARRYING OUT THE WORKS
 3. REFER TO DWG IGS-E-000 FOR LEGEND, POLE & LUMINAIRE SCHEDULE & CONTROLS METHODOLOGY
 4. ALLOW TO AUGMENT CONDUITS & PITS FOR ADDITIONAL CABLING AS REQUIRED TO NEW LUMINAIRES
 5. ALLOW TO CONNECT NEW 10TH LIGHTING TO NEW PC BASED AUTOMATIC LIGHTING CONTROL SYSTEM

CUSTOMER

Australian Turf Club®

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PROUDLY PRESENTING: Value Innovation Trust
ALWAYS ONE STEP AHEAD

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PROJECT

ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

DRAWING TITLE

ELECTRICAL SERVICES
THEATRE OF THE HORSE
LIGHTING LAYOUT

PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES				
DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
J.V.	J.V.	V.N.	1:200 @A1	Nov 17
PROJECT No.			DRAWING No.	REVISION
EN-N17_19			E-010	02

2	3	7	5	9	1	8	6
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A1

CONTROLS METHODOLOGY

TRACKSIDE

- HOME STRAIGHT MAINTAIN VERTICAL 1400 LUX AT 1.5m AGL & UNIFORMITY U0.7, HORIZONTAL U0.8, AT CAMERA 1
- COURSE PROPER (OTHER THAN HOME STRAIGHT) MAINTAIN VERTICAL 1000 LUX AT 1.5m AGL & UNIFORMITY U0.6 HORIZONTAL U0.8, AT CAMERA 1
- KENSINGTON COURSE (OTHER THAN HOME STRAIGHT) MAINTAIN VERTICAL 1000 LUX AT 1.5m AGL & UNIFORMITY U0.6 HORIZONTAL U0.8, AT CAMERA 1
- DIMMABLE CONTROL GEAR
- ASSUME MF 0.95
- ALLOW TO CONTROL LIGHTING OF THE 2 TRACKS SEPARATELY WHILST MAINTAINING REQUIRED LUX LEVELS.

- MAINTAIN VERTICAL 1000 LUX AT 1.5M AGL & UNIFORMITY U0.7 AT CAMERA 1 & CAMERA 2
- DIMMABLE CONTROL GEAR
- ASSUME MF 0.95

- ALLOW TO DIM UP OVER 2 MINS TO 100% 5mins BEFORE A RACE
- ALLOW TO DIM DOWN OVER 2 MINS TO 20% AFTER A RACE
- PROVIDE OVERRIDE "OFF" & "ON" FOR MAINTENANCE
- ALLOW 30% OF ALL TRACKSIDE LIGHTING ON EMERGENCY BACKUP GENERATOR
- LIGHTING SHALL BE CONTROLLED VIA LIGHTING CONTROL PANEL LCP-TS
- LIGHTING CONTROL SHALL BE VIA A FULLY COMPUTERISED AUTOMATIC SWITCHING AND MONITORING SYSTEM WITH RELAY MODULES LOCATED WITHIN LOCAL DISTRIBUTION BOARDS.
- SYSTEM SHALL PROVIDE SEQUENTIAL SWITCHING AND MONITORING OF THE LIGHTING SYSTEM AND DETECTION AND DISPLAY OF ALARM CONDITIONS
- LIGHTS SHALL BE ENABLED VIA 'RACE DAY' FUNCTION (ACTIVATED MANUALLY) VIA SOFTWARE AND CONTROLLED BY PE CELL AT DUSK TO TURN ON AT 20%

- MAINTAIN VERTICAL 1000 LUX AT 1.5M AGL & UNIFORMITY U0.7 AT CAMERA 1 & CAMERA 2
- ALLOW TO DIM DOWN TO 20% BETWEEN SHOW TIMES
- LIGHTS SHALL BE CONTROLLED VIA LIGHTING CONTROL PANEL LCP-TOTH

SPECTATOR PRESENT

- LIGHTS SHALL TURN "ON" VIA PE CELL
- LIGHTS SHALL TURN "OFF" AT 11 PM ON NIGHT RACE DAYS
- LIGHTS SHALL TURN "OFF" AT TIME TO BE ADVISED ON NON-NIGHT RACE DAYS

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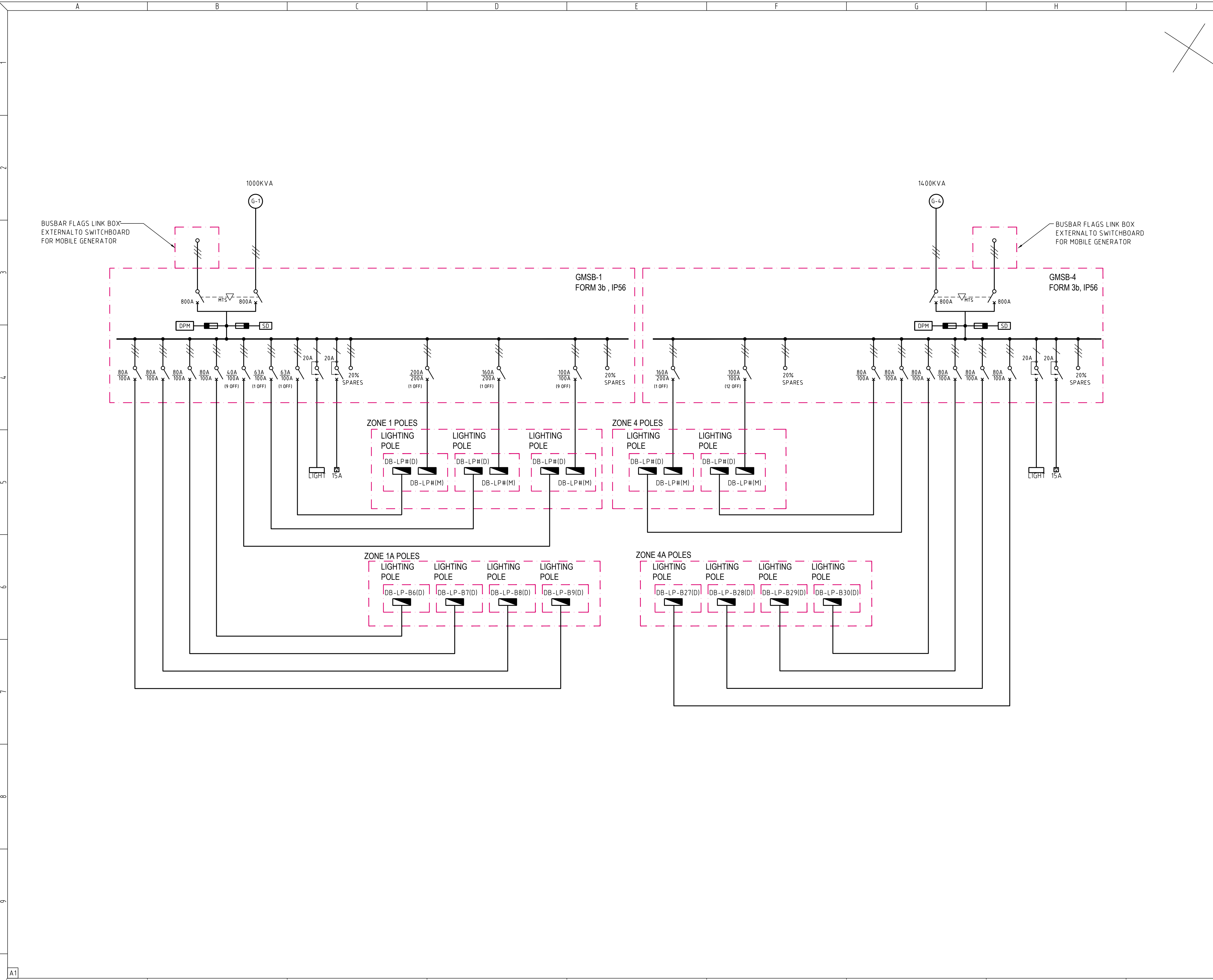
PROJECT

DRAWING TITLE

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN J.V.	DESIGNED J.V.	CHECKED V.N.	SCALE (AT FULL SIZE) NTS @A1	DATE Nov 17
PROJECT No. EN-N17_19			DRAWING No. E-030	REVISION 02



AMENDMENTS/REVISIONS			
Rev	Description	Initials	Date
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02	CONCEPT ISSUE	V.N.	12.11.20

- NOTES:**
1. PROVIDE WEATHERPROOF LIGHT FITTING ON FRONT AND REAR OF OUTDOOR SWITCHBOARDS ALONG WITH 1x15A SOCKET OUTLET
 2. ALLOW TO CARRY OUT MSB EXTENSION AFTER HOURS WHERE NECESSARY TO MINIMISE DISRUPTION TO ATC SERVICES

CLIENT

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PROJECT

ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

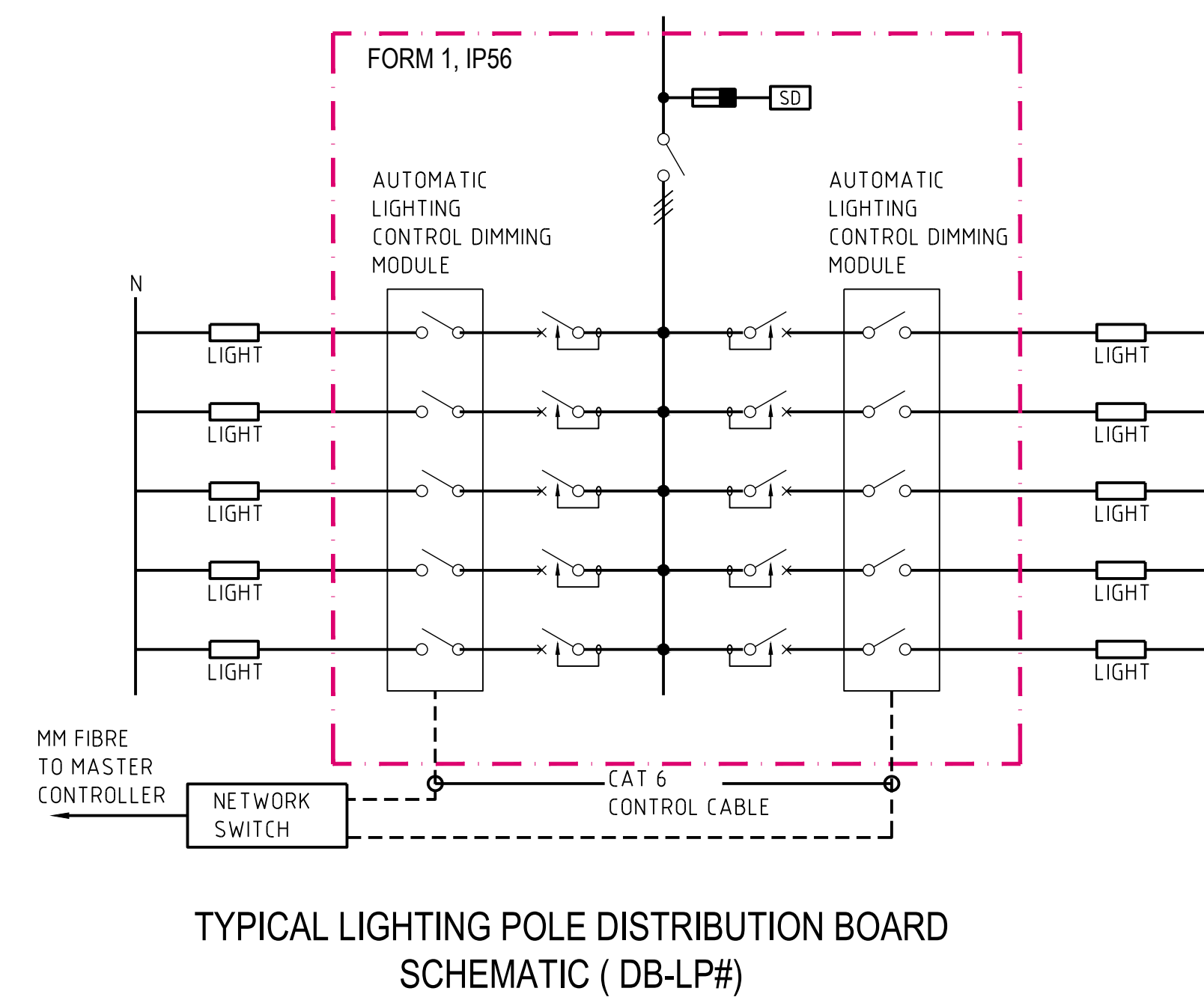
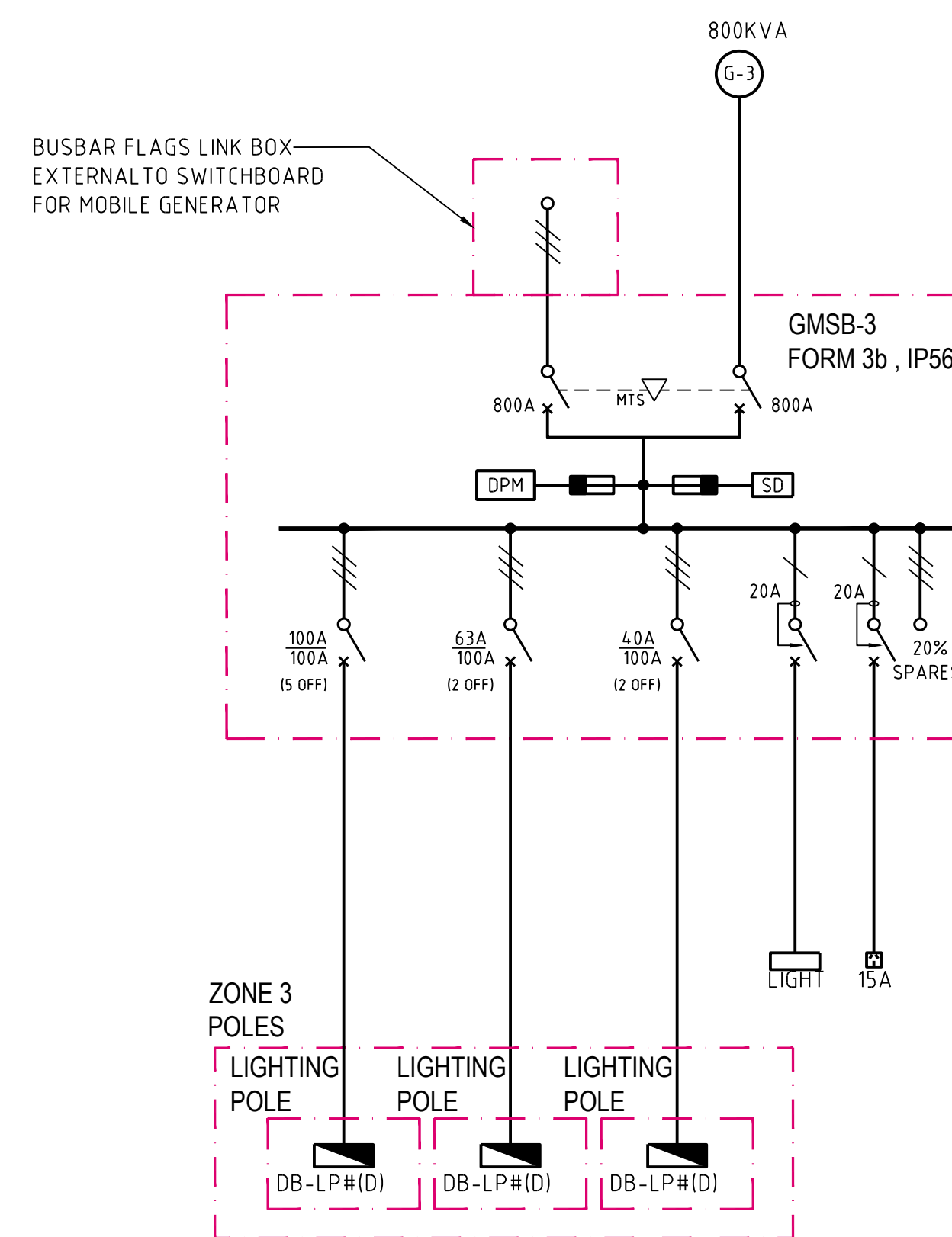
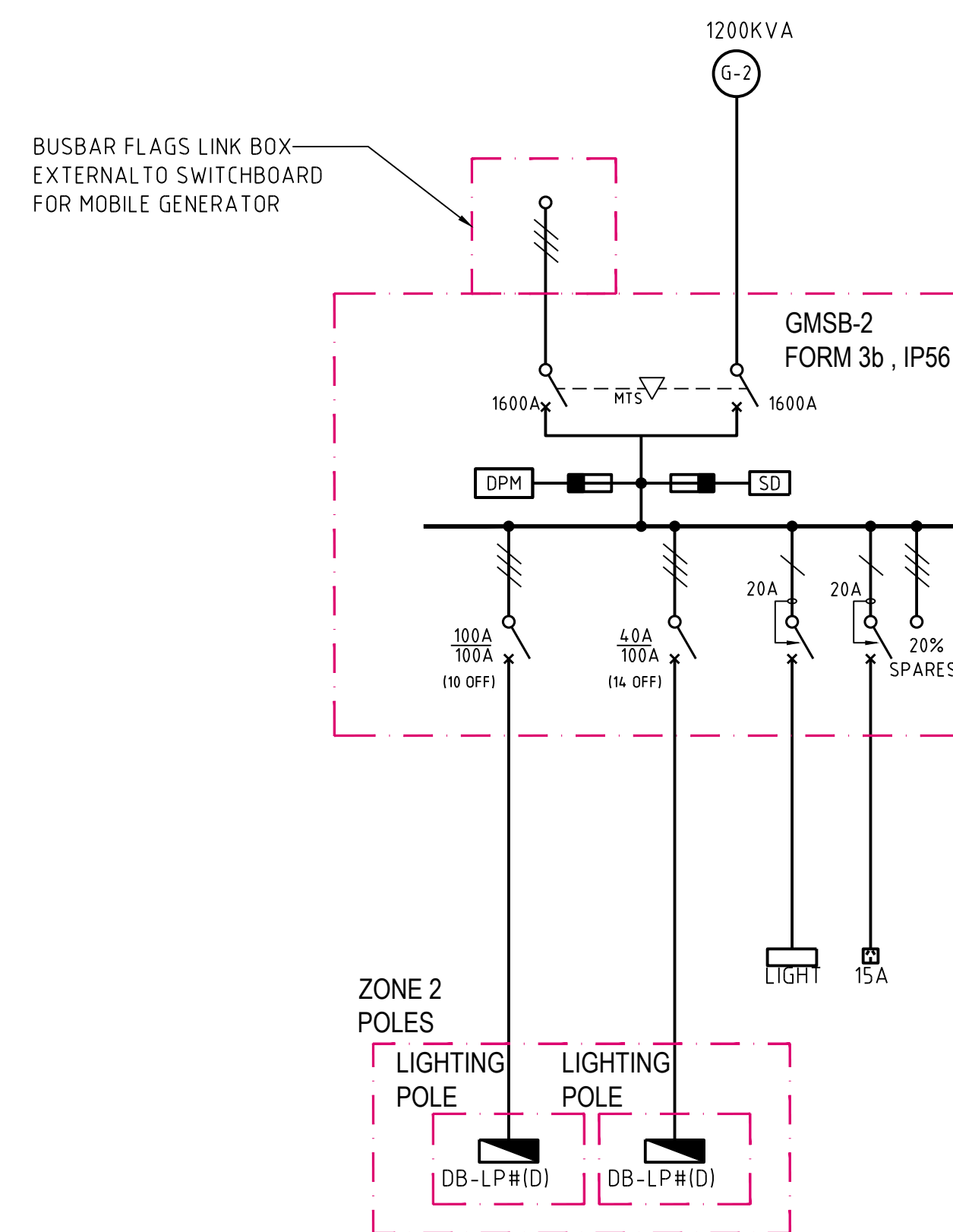
DRAWING TITLE

ELECTRICAL SERVICES
MAIN SINGLE LINE DIAGRAMS
SHEET 1 OF 2

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWN	DESIGNED	CHECKED	SCALE (AT FULL SIZE)	DATE
C.A.	V.N.	V.N.	NTS @A1	Nov 17

PROJECT No.	DRAWING No.	REVISION
EN-N17_19	E-031	02

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NOTES:

- | | | |
|----|---|---|
| 1. | DISTRIBUTION BOARDS SHALL BE LOCATED WITHIN OR ADJACENT TO LIGHTING POLES. ALLOW LIGHT POLE TO HAVE ACCESSIBLE HATCH/DOOR FOR LOCATING DISTRIBUTION BOARDS. | 2 |
| 2. | ALLOW 20A & 40A MCBs TO BE USED FOR FINAL LUMINAIRES SUB-CIRCUITS | |
| 3. | PROVIDE WEATHERPROOF LIGHT FITTING ON FRONT AND REAR OF OUTDOOR SWITCHBOARDS ALONG WITH 1x15A SOCKET OUTLET | |

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PROJECT	
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ROYAL RANDWICK RACECOURSE
NIGHT RACING UPGRADE

DRAWING TITLE

ELECTRICAL SERVICES
MAIN SINGLE LINE DIAGRAMS
SHEET 2 OF 2

PRELIMINARY
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C.A.	V.N.	V.N.	NTS @A1	Nov 17
PROJECT No.			DRAWING No.	REVISION
EN-N17_19			E-032	02