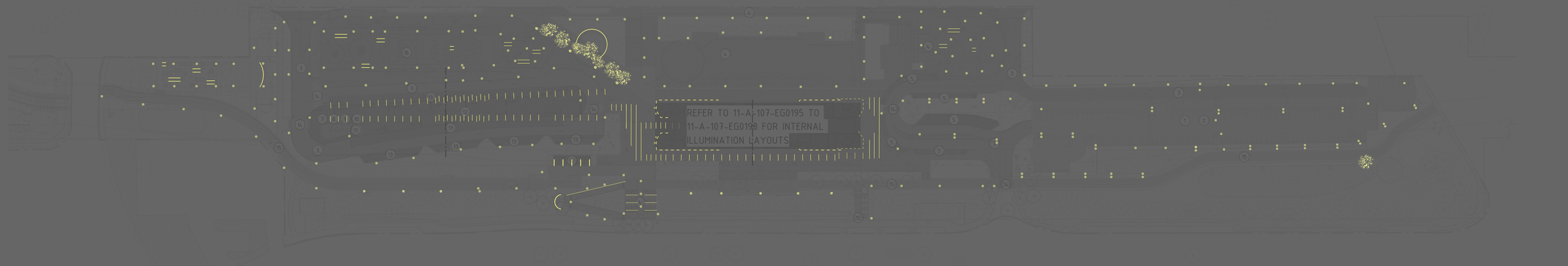
Appendix Q: Lighting Strategy

ARMADALE PRECINCT LIGHTING LAYOUT CONCEPT

SEE PAGES FOR CONCEPTUAL OVERVIEW OF LIGHTING DESIGN



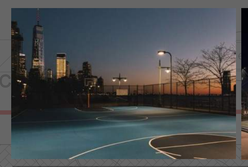
The lighting concept depicted above is illustrative only and requires further development.

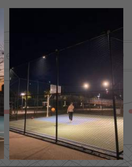
METRONET - BYFORD RAIL EXTENSION
Armadale Landscape Precinct Lighting Layout Concept

Sketches P68297-002
Revision Date: 11.05.2023
Revision: 01

NDYLIGHT
LIGHTING DESIGN

CIRCULAR SEAT ILLUMINATED WITH FLEXIBLE OUTDOOR LED NEON UNDER TOP MOST LIP PROVIDING SCULPTURAL AMBIENT GLOW TO SEATING AREA

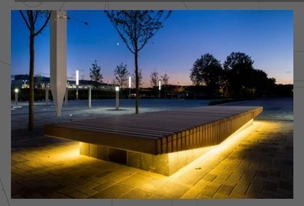


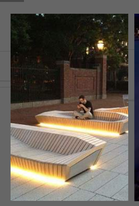


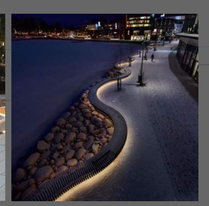
SPORTS COURTS AND BOULDERING WALLS LIT FOR APPROPIATE RECREATIONAL LIGHTING LEVELS BY POLE LIGHTING WITH FORWARD THROW BEAMS

SEE BUS TERMINAL LIGHTING CONCEPT

LIGHTING STRIPS INTERGRATED INTO SEVERAL SEATS. STRIP LOCATED IN EDGE SLOT BELOW TOP SLATS PROVIDES A SOFT GLOW SPILLING THROUGH GAPS AND INTO SURROUNDING SPACE.







POLE LIGHTING ALONG BIKE PATH WITH SEESAW POLE TYPES

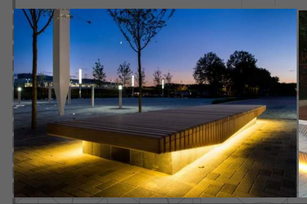
PEDESTRAIN CROSSING THROW FROM LIGHT POLES

The lighting concept depicted above is illustrative only and requires further development.

METRONET - BYFORD RAIL EXTENSION
Armadale Landscape Lighting 1 of 4

Sketch No. P68297-002-NEXSK01-NDYLIGHT
Revision Date: 11.05.2023
Revision: 01

NDYLIGHT
LIGHTING DESIGN

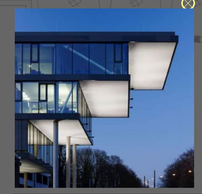


LIGHTING STRIPS INTERGRATED INTO SEVERAL SEATS. STRIP LOCATED IN EDGE SLOT BELOW TOP SLATS PROVIDES A SOFT GLOW SPILLING THROUGH GAPS AND INTO SURROUNDING SPACE.

CIRCULAR SEAT ILLUMINATED WITH FLEXIBLE OUTDOOR LED NEON UNDER TOP MOST LIP PROVIDING SCULPTURAL AMBIENT GLOW TO SEATING AREA

PUBLIC AREA SEESAW LIGHTING POLES DUAL PURPOSED TO THROW PATTERNED (GOBO) LIGHTING FOR SPECIAL EVENTS AND WAYFINDING FROM THE KEY ENTRANCE

CIELING BAFFLES TO CONTINUE TO EXTERIOIR STATION ENTRANCE REFER TO CONCOURSE CONCEPT



UPLIGHTING TO VIADUCT AND DESIGNATED ART AREA FROM BUILDING EDGE TO ILLUMINATE VIADUCT SURFACE AND GIVE LIGHT TO CIELING SPACE.

PLAYGROUND

SEE BUS TERMINAL LIGHTING CONCEPT

SEE STATION CONCOURSE AND PLATFORM CONCEPTS

PEDESTRAIN CROSSING THROW FROM LIGHT POLES

LIGHTING TO BIKESHELTER TO CONTINUE LINEAR CIELING APPORACHES IN BUS CANOPY AND STATION VIADUCT

CIRCULAR SEAT ILLUMINATED WITH FLEXIBLE OUTDOOR LED NEON UNDER TOP MOST LIP PROVIDING SCULPTURAL AMBIENT GLOW TO SEATING AREA

LOW LEVEL LINEAR LIGHT ON STAIR RISERPROVIDING LIGHTING TO THE STAIR LANDINGS AND RAMP SECTIONS.

LED LINEAR MOUNTED TO RAILS ON THEUNDERSIDE OF VIADUCT PROVIDES WAYFINDING AND LIGHT AROUND STATION FACADE

LED LINEAR PROVIDES LINE OF LIGHT AND GLOW DOWN THE FACADE OF THE STATION EXTERIOR WRAPPING AROUND EDGES UNTIL GLAZING COMMENCES

The lighting concept depicted above is illustrative only and requires further development.

METRONET - BYFORD RAIL EXTENSION
Armadale Landscape Lighting 2 of 4

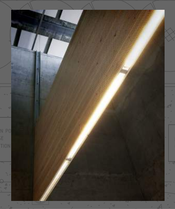
Sketch No. P68297-002-NEXSK02-NDYLIGHT
Revision Date: 11.05.2023
Revision: 01

NDYLIGHT
LIGHTING DESIGN

LIGHTS FROM HIGHER LEVEL WITH BACK SPILL TO ILLUMINATE DARK SPACE BEHIND BUILDING

CLUSTER OF OUTDOOR SPOT LIGHTS FIXED TO SEESAW TYPE POLE TO ILLUMINATE PLAZA AREAS

LIGHTING STRIPS INTERGRATED INTO SEVERAL SEATS. STRIP LOCATED IN EDGE SLOT BELOW TOP SLATS PROVIDES A SOFT GLOW SPILLING THROUGH GAPS AND INTO SURROUNDING SPACE.



SIMILAR TREATMENT TO MAIN ENTRANCE AND PLAZA THROUGH OVERHEAD LINEARS IN ACOUSTIC BAFFLES BELOW VIADUCT.

LIGHTING POSITIONED TO AIDE WAYFINDING TO FRONT OF STATION

PEDESTRAIN CROSSING THROW FROM LIGHT POLES

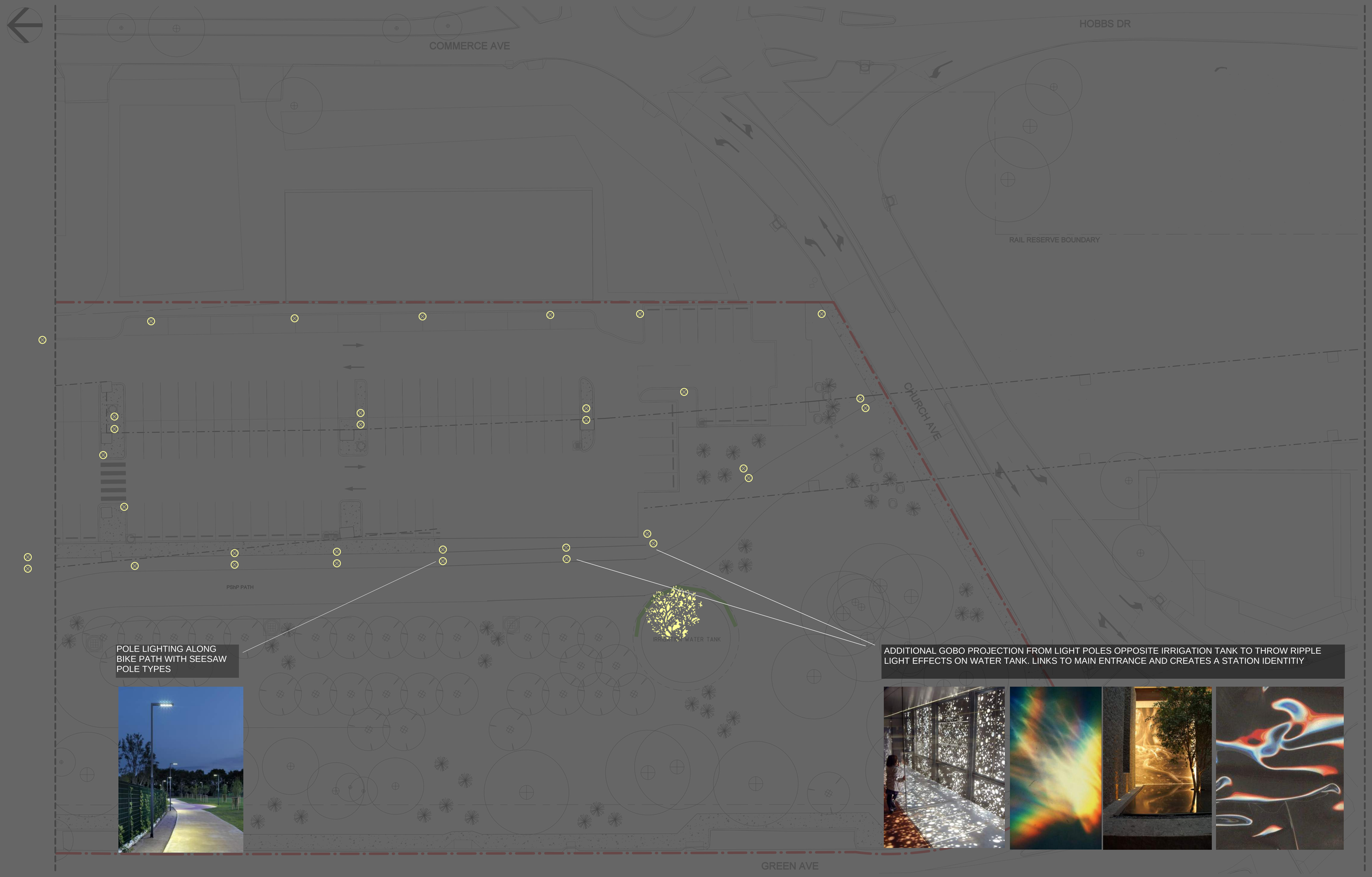
REFERENCE DESIGN

The lighting concept depicted above is illustrative only and requires further development.

METRONET - BYFORD RAIL EXTENSION
Armadale Landscape Lighting Page 3 of 4

Sketch No. P68297-002-NEXSK03-NDYLIGHT
Revision Date: 11.05.2023
Revision: 01

NDYLIGHT
LIGHTING DESIGN



POLE LIGHTING ALONG BIKE PATH WITH SEESAW POLE TYPES

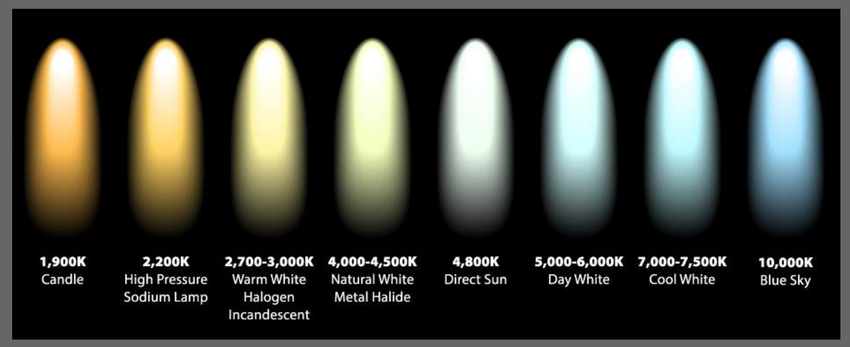
ADDITIONAL GOBO PROJECTION FROM LIGHT POLES OPPOSITE IRRIGATION TANK TO THROW RIPPLE LIGHT EFFECTS ON WATER TANK. LINKS TO MAIN ENTRANCE AND CREATES A STATION IDENTITIY

The lighting concept depicted above is illustrative only and requires further development.

METRONET - BYFORD RAIL EXTENSION
Armadale Landscape Lighting Page 3 of 4

Sketch No. P68297-002-NEXSK04-NDYLIGHT
Revision Date: 11.05.2023
Revision: 01

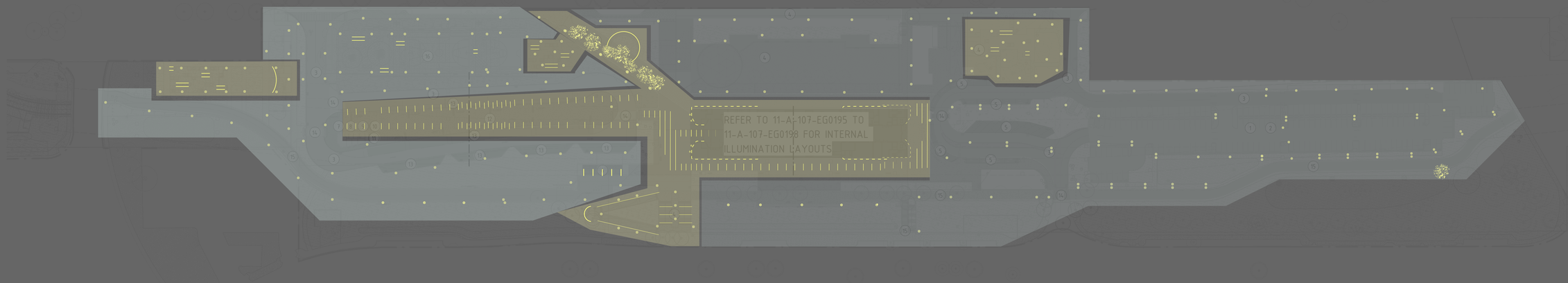
NDYLIGHT
LIGHTING DESIGN



WARMER COLOUR TEMPERATURE TREATMENT OF STATION BUILDINGS AND PLAZA AREAS CREATES A WELCOMING FEEL TO THESE AREAS WITHIN THE PRECINCT. THIS IS ENHANCED BY WARM ARCHITECTURAL AND LANDSCAPE TEXTURES TO CREATE A COMFORTING AND SAFE FEELING IN THESE AREAS. THIS EFFECT WILL ALSO HELP WITH WAYFINDING BY CREATING A PATH OF CONSISTENT LIGHT FROM KEY ENTRANCES. MOVEMENT AT NIGHT THROUGH THE REMAINDER OF THE PRECINCT IS ENCOURAGED BY A COOLER TEMPERATURE IN CONTRAST.

3000K

4000K



COLOUR TEMPERATURE MAPPING

The lighting concept depicted above is illustrative only and requires further development.

METRONET - BYFORD RAIL EXTENSION
Armadale Colour Temperature Mapping Concept

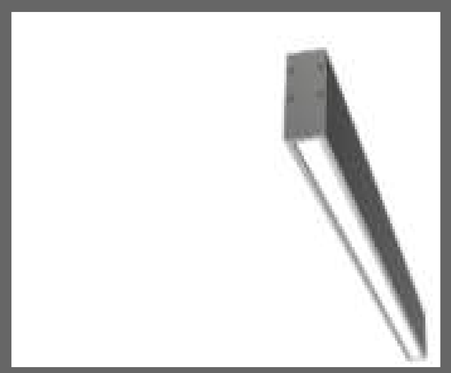
Sketches P68297-002
Revision Date: 11.05.2023
Revision: 01

NDYLIGHT
LIGHTING DESIGN

LANDSCAPE LUMINAIRE PALLETTE

POLE LUMINAIRES WILL BE USED AS GENERAL LANDSCAPE LIGHTING TO PROVIDE SAFE ILLUMINATION FOR MOVEMENT THROUGHOUT THE PRECINCT. POLES WILL BE MOUNTED TO 'BREAK-BACK' HINGED TYPE POLES FOR MAINTAINABILITY AS REQUIRED BY PTA. CARE WILL BE TAKEN TO ALIGN POLES IN THE LANDSCAPE TO PREVENT DAYTIME VISUAL CLUTTER AND ALSO PREVENT INTERRUPTION OF MOVEMENT THROUGHOUT PATHWAYS AND VARIOUS PRECINCT SPACES

FLEXIBLE LINEAR NEON TYPE LIGHTING WILL BE INTERGRATED INTO LANDSCAPE FEATURES TO PROVIDE A SOFT GLOW AND HIGHLIGHT THROUGHOUT THE LANDSCAPE. FLEXIBLE NEON WILL BE IK AND IP RATED IN ACCORDANCE WITH PTA REQUIREMENTS TO WITHSTAND WEATHER AND IMPACT OR VANDALISM



DIFFUSED LINEAR PROFILES WILL BE USED IN CANOPIES AND EXTERNAL CIELING TREATMENTS AROUND THE STATION BUILDINGS. THESE LINEAR LIGHTS WILL ACT AS WAYFINDING TO KEY AREAS AND A VISUAL IDENTITY WITHIN THE STATION.

ELLIPTICAL SHAPES PROJECTORS USED IN THE PLAZA AREAS AND KEY LANDSCAPE AREAS ALLOW DIRECTIONAL POOLS OF LIGHTS AND ALSO ENABLE THE USE OF GOBOS AS A STATION IDENTITY DESIGN ELEMENT

The lighting concept depicted above is illustrative only and requires further development.

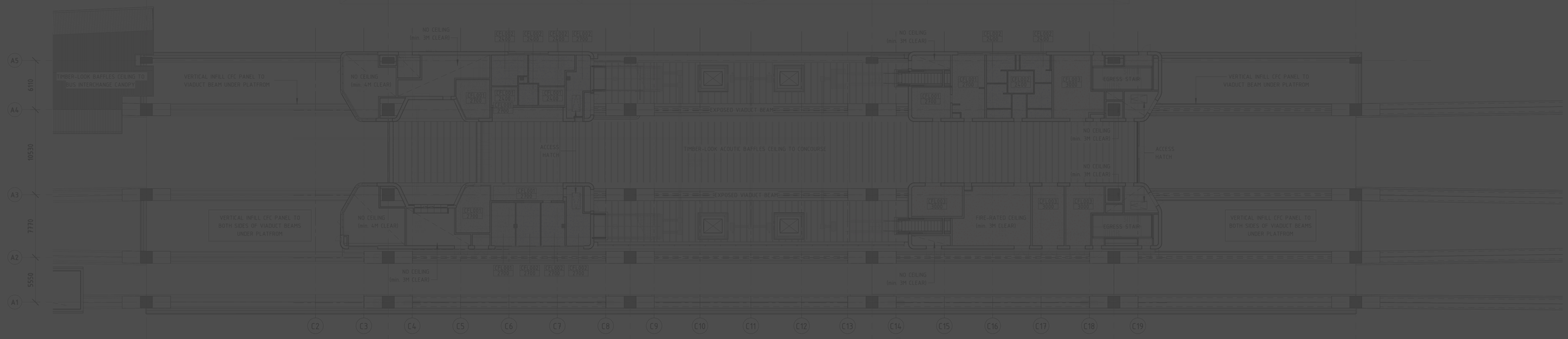
METRONET - BYFORD RAIL EXTENSION
Armadale Landscape Luminaire Pallette Concept

Sketches P68297-002
Revision Date: 11.05.2023
Revision: 01

NDYLIGHT
LIGHTING DESIGN

ARMADALE STATION BUILDINGS LIGHTING LAYOUT CONCEPT

SEE PAGES FOR CONCEPTUAL OVERVIEW OF LIGHTING DESIGN



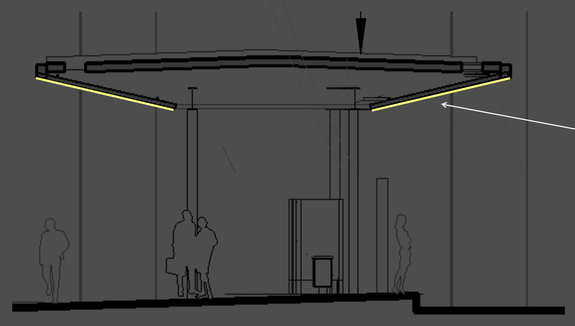
The lighting concept depicted above is illustrative only and requires further development.

METRONET - BYFORD RAIL EXTENSION
Armadale Station Buildings Lighting Concept

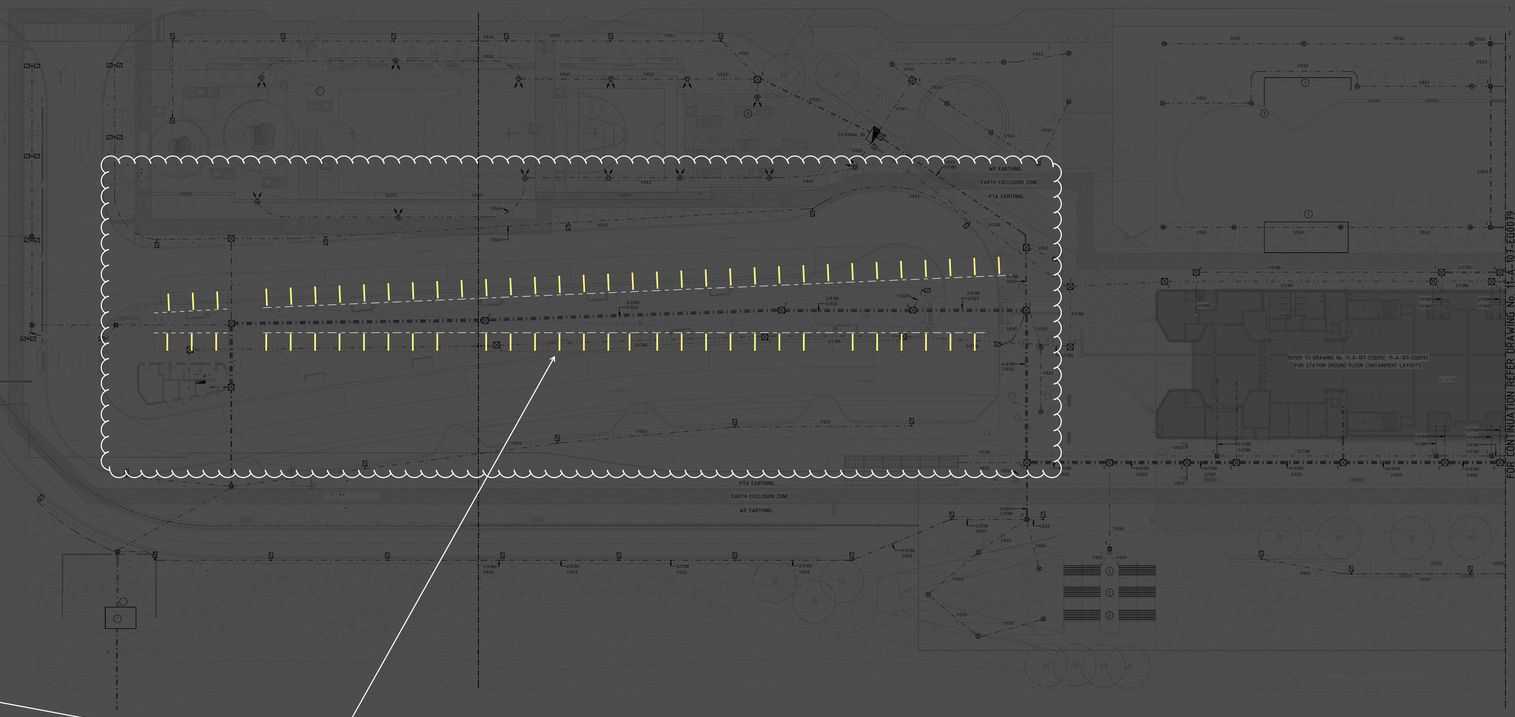
Sketch No. P68297-002-L1SK01[01]-NDYLIGHT
Revision Date: 11.05.2023
Revision: 01

NDYLIGHT
LIGHTING DESIGN

BUS TERMINAL CANOPY LIGHTING CONCEPT



SECTION CONCEPT (NTS)
BUS TERMINAL



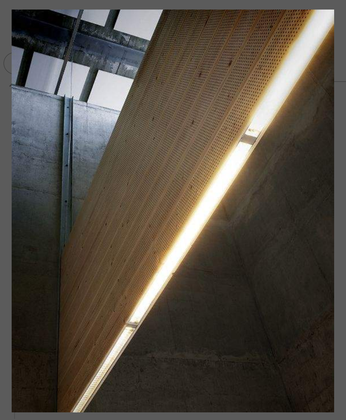
SURFACE MOUNTED LED SQUARE PROFILE LENGTHS IN BETWEEN CANOPY SLATS ON PITCHED SECTION

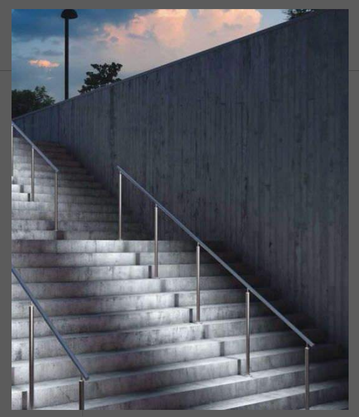
The lighting concept depicted above is illustrative only and requires further development.

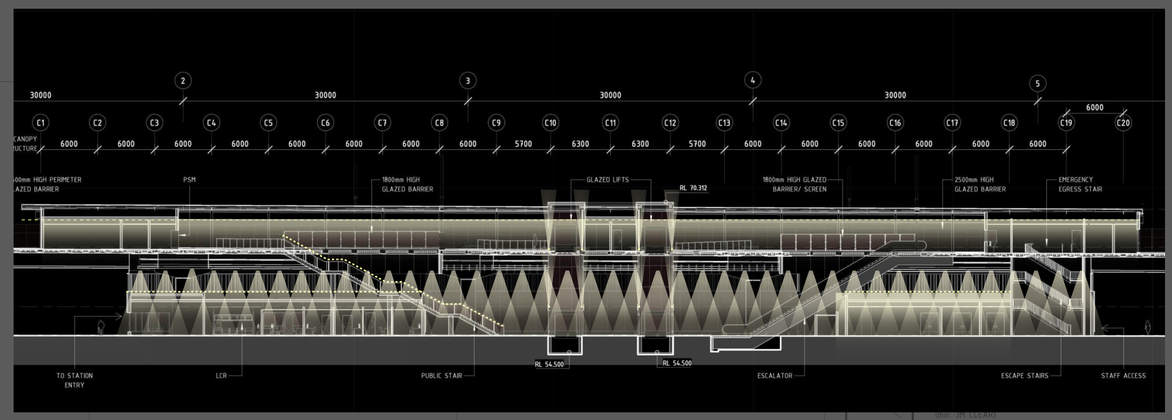
METRONET - BYFORD RAIL EXTENSION
Armadale Bus Terminal Lighting Concept

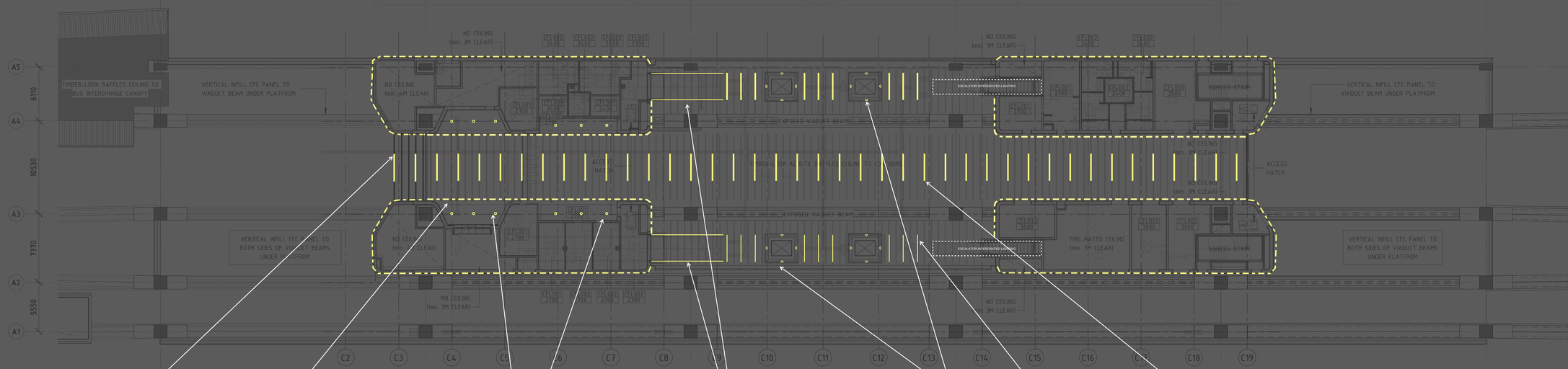
Sketch No. P68297-002-EXNSK01[01]-NDYLIGHT
Revision Date: 11.05.2023
Revision: 01

NDYLIGHT
LIGHTING DESIGN









LINEAR LED EXTRUSIONS AS A CONTINUATION OF THE INTERIOR SCHEME

FLEXIBLE LED NEON PROFILE GRAZING DOWN WALL FROM BELOW LOUVRES. CONTINUES OUTSIDE FOR A LINE OF GRAZING LIGHT EFFECT AT TH ESTATION ENTRANCE

RECESSED DOWNLIGHTS IN CIELING

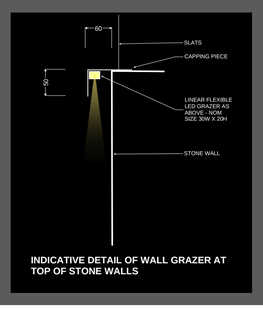
CONTINUOS LED LIGHTING IN UNDERSIDE OF STAIR HANDRAIL

LED NARROW BEAM EFFECT PROJECTOR BEHIND GLASS IN LIFT

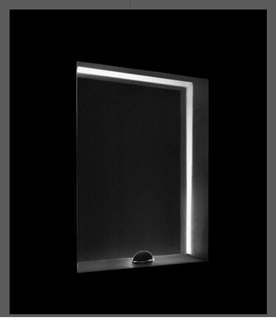
MINITURE LED PROFILE SET IN SLOT IN THE UNDERSIDE OF ACOUSTIC BAFFLES

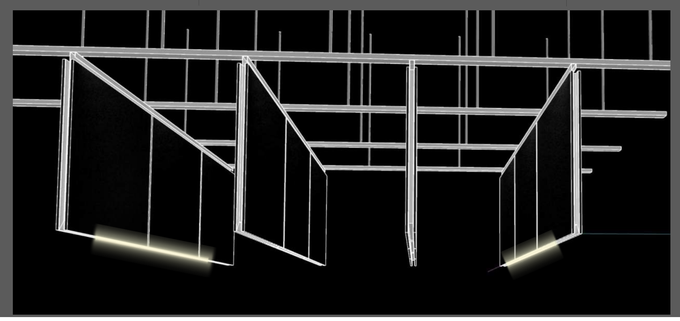
CLOSER SPACING NEAR LIFTS.

MINITURE LED PROFILE SET IN SLOT IN THE UNDERSIDE OF ACOUSTIC BAFFLES



INDICATIVE DETAIL OF WALL GRAZER AT TOP OF STONE WALLS



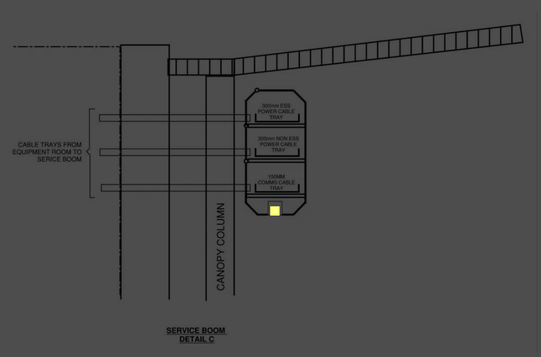


The lighting concept depicted above is illustrative only and requires further development.

METRONET - BYFORD RAIL EXTENSION
Armadale Concourse Lighting Concept

Sketch No. P68297-002-0GNSK01[01]-NDYLIGHT
Revision Date: 11.05.2023
Revision: 01

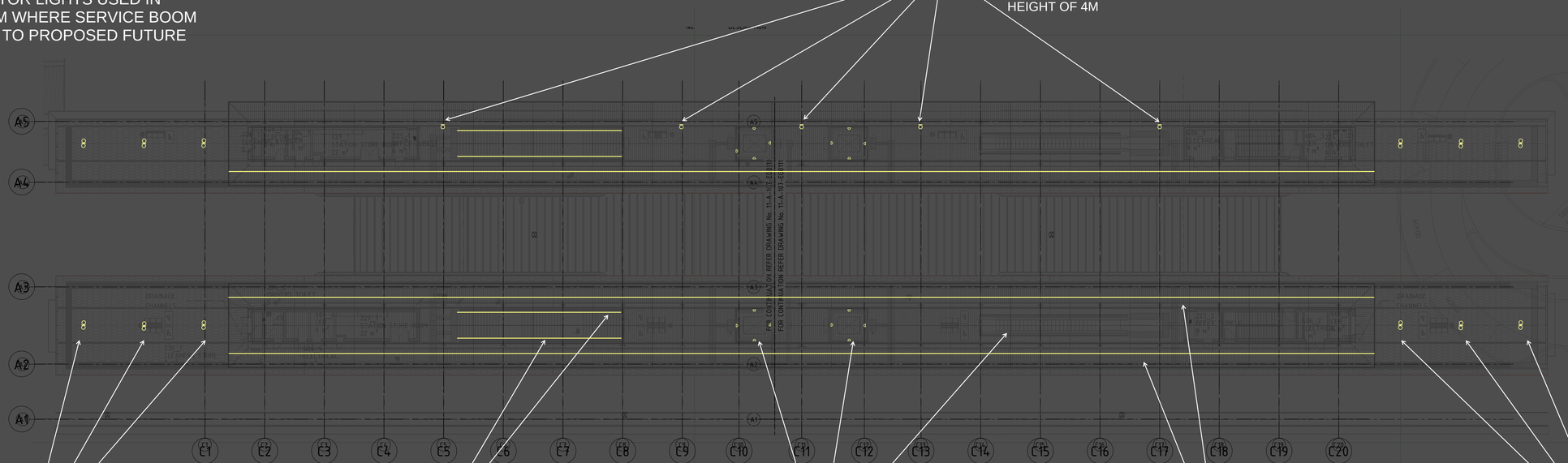
NDYLIGHT
LIGHTING DESIGN



GENERAL PLATFORM LIGHTING PROVIDED BY LINEAR SET IN SLOT IN UNDERSIDE OF THE SERVICE BOOM

POLE MOUNTED PROJECTOR LIGHTS USED IN PLACE OF SERVICE BOOM WHERE SERVICE BOOM IS BLOCKED BY BARRIER TO PROPOSED FUTURE WORKS

POLE MOUNTED LIGHT PROJECTERS TO INFILL PLATFORM AREA IN LIEU OF SECOND SERVICE BOOM. AT MOUNTING HEIGHT OF 4M



4M SEESAW POLES LIGHTS FOR LIGHTING BEYOND CANOPY EXTENTS

CONTINUORS LED LIGHTING IN UNDERSIDE OF STAIR HANDRAIL

LED NARROW BEAM EFFECT PROJECTOR BEHIND GLASS IN LIFT

MINITURE LED PROFILE SET IN SLOT ON THE UNDERSIDE OF SERVICE BOOM

4M SEESAW POLES LIGHTS FOR LIGHTING BEYOND CANOPY EXTENTS

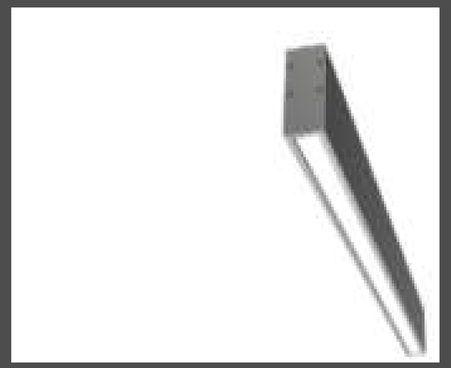
The lighting concept depicted above is illustrative only and requires further development.

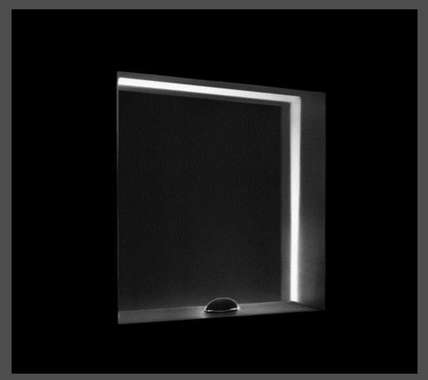
METRONET - BYFORD RAIL EXTENSION
Armadale Platform Lighting Concept

Sketch No. P68297-002-L1SK01[01]-NDYLIGHT
Revision Date: 11.05.2023
Revision: 01

NDYLIGHT
LIGHTING DESIGN

STATION BUILDINGS LUMINAIRE PALLETTE





DIFFUSED LINEAR PROFILES WILL BE USED IN THE CONCOURSE, SET IN A SLOT IN ACOUSTIC CIELING BAFFLES. LINEARS WILL PROVIDE SAFE MOVEMENT WITH GENERAL BRIGHT LIGHT TO CONCOURSE AREA. USE WILL CONTINUE ON THE PLATFORM WHERE THEIR ORIENTATION WILL RUN PARRALLEL IN A SLOT IN THE SERVICE BOOM.

BLADE EFFECT LIGHTING WILL GIVE LIFT SHAFTS A GLOW PROVIDEING SHAFT OF LIGHT TO CONCOURSE AND PLATFORM.

FLEXIBLE LENSED LINEAR WILL PROVIDE GRAZING TO WALLS BELOW LOUVRES PROVIDING AN AMBIENT BACKDROP OF LIGHT TO THE CONCOURSE SPACE. USE WILL CONTINUE EXTERNALLY GRAZING EXTERIOIR WALLS AND HIGHLIGHTING THE BUILDING WITHIN THE LANDSCAPE.

LINEAR WILL ALSO BE USED IN THE UNDERSIDE OF STAIR HANDRAIL WITHIN THE STATION. THIS WILL PROVIDE THE MAJORITY OF LIGHT TO THE STAIRWELL AND WAYFIND UP TO THE PLATFORM

POLE TOP LUMINAIRES WILL BE USED BEYOND THE EXTENT OF THE PLATFORM CANOPY TO PROVIDE GENERAL SAFE LIGHTING TO THESE AREAS. POLES WILL BE CENTRED IN THE PLATFORM.

COLUMN MOUNTED LUMINAIRES WILL BE USED TO PROVIDE LIGHT TO AREAS OF THE PLATFORM NEEDING SUPPLEMENTRY LIGHTING IN LIEU OF SECOND SERVICE BOOM. OPTICS WILL BE CHOSEN TO PURPOSELY SMOOTH LIGHTING LEVELS FOR SAFE MOVEMENT ON PLATFORM.

GENERAL NOTES

- FINAL ILLUMINATION REQUIREMENT TO BE FURTHER COORDINATE AT THE NEXT DESIGN STAGE.

NEERIGEN ST

RAIL RESERVE BOUNDARY

ARMADALE RD

PSHP BY CIVIL

F2-01A

P1-05B

P1-01A

S1-00A

W2-00A

P1-02A

S2-02A

RAIL RESERVE BOUNDARY

ARAGON COURT

HERITAGE TREE

REFER TO ILLUMINATION LAYOUT 2 DRAWING

COMPLY WITH PTA STANDARD 8803-900-003 - TABLE 4
AND AS1158.3.1 TABLE 3.4
MAINTAINED HORIZONTAL = 7 LUX
POINT HORIZONTAL ILLUMINANCE = 1 LUX
POINT VERTICAL ILLUMINANCE = 0.3 LUX
UNIFORMITY = 5

PRINT IN COLOUR

FOR INFORMATION ONLY

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
A	07-06-23	ISSUED FOR INFORMATION	N.L	G.E	A.R	A.E

ORIG SIZE A1

0 100 200 300 400 500 1000mm

AT ORIGINAL PLOT SIZE

MetCONNX

Contractor No: R30-NDY-DWG-EG-260-05001 | Rev: A

REFERENCES

SCALE N.T.S

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED N.L
DRAWN G.E
CHECKED A.R
APPROVED A.E
DATE 07-06-23

Government of Western Australia
Public Transport Authority

BYFORD RAIL EXTENSION

ARMADALE STATION PRECINCT
BEERIGAN BROOK
ILLUMINATION LAYOUT 1

SKETCH DRAWING | Rev: A

CAD DRAWING PATHNAME Autodesk Docs://BRE BYFORD RAIL EXTENSION/R30-NDY-MDL-EG-225-00001.rvt

GENERAL NOTES

- FINAL ILLUMINATION REQUIREMENT TO BE FURTHER COORDINATE AT THE NEXT DESIGN STAGE.

REFER TO ILLUMINATION LAYOUT 1 DRAWING

NEERIGEN ST

RAIL RESERVE BOUNDARY

PSHP BY CIVIL

F2-01A

M1-01A

M1-01A

W2-00A

P1-05B

P1-02A

P1-02A

P1-02A

F7-02A

F7-01A

W2-00A

W2-00A

P1-05B

P1-05B

P1-05B

S2-02A

RAIL RESERVE BOUNDARY

P1-05B

P1-05B

FORREST RD

ARAGON COURT

COMPLY WITH PTA STANDARD 8803-900-003 - TABLE 4
AND AS1158.3.1 TABLE 3.4
MAINTAINED HORIZONTAL = 7 LUX
POINT HORIZONTAL ILLUMINANCE = 1 LUX
POINT VERTICAL ILLUMINANCE = 0.3 LUX
UNIFORMITY = 5

COMPLY WITH PTA STANDARD 8803-900-003 - TABLE 4
AND AS1158.3.1 TABLE 3.5
MAINTAINED HORIZONTAL = 7 LUX
POINT HORIZONTAL ILLUMINANCE = 2 LUX
POINT VERTICAL ILLUMINANCE = 2 LUX
UNIFORMITY = 8

PRINT IN COLOUR

FOR INFORMATION ONLY

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
A	07-06-23	ISSUED FOR INFORMATION	N.L	G.E	A.R	A.E

ORIG SIZE A1

0 100 200 300 400 500 1000mm

AT ORIGINAL PLOT SIZE

MetCONNX

Contractor No: R30-NDY-DWG-EG-260-05002 | Rev: A

REFERENCES

SCALE N.T.S

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED N.L
DRAWN G.E
CHECKED A.R
APPROVED A.E
DATE 07-06-23

Government of Western Australia
Public Transport Authority

BYFORD RAIL EXTENSION

ARMADALE STATION PRECINCT
BEERIGAN BROOK
ILLUMINATION LAYOUT 2

SKETCH DRAWING | Rev: A

CAD DRAWING PATHNAME Autodesk Docs://BRE BYFORD RAIL EXTENSION/R30-NDY-MDL-EG-225-00001.rvt

GENERAL NOTES

- LAYOUT AND QUANITTY IS INDICATIVE ONLY. REQUIREMENT TO BE FURTHER DEVELOPED IN THE NEXT DESIGN STAGE.

NEERIGEN ST

RAIL RESERVE BOUNDARY

ARMADALE RD

PSHP BY CIVIL

PSHP LIGHTING COVERED UNDER EG500

F2-01A

P1-01A

P1-05B

P1-02A

S1-00A

W2-00A

S2-02A

RAIL RESERVE BOUNDARY

SITE MAIN SWITCHBOARD (TBC)
- METER & SPD
- 100A, 1PH
- FORM 1, IP56
- 50MM² CONSUMER MAINS

1E100

ARAGON COURT

HERITAGE TREE

WESTERN POWER - POINT OF SUPPLY (TBC)
- UNI PILLAR
- 63A, 1PH
- CONNECTION FOR FUTURE EVENTS

PSHP BY CIVIL

REFER TO ELECTRICAL LAYOUT 2 DRAWING

PRINT IN COLOUR

FOR INFORMATION ONLY

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
A	07-06-23	ISSUED FOR INFORMATION	N.L	G.E	A.R	A.E

ORIG SIZE A1

0 100 200 300 400 500 1000mm

AT ORIGINAL PLOT SIZE

MetCONNX

Contractor No: R30-NDY-DWG-EG-260-05011 Rev: A

REFERENCES

SCALE N.T.S

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED	N.L
DRAWN	G.E
CHECKED	A.R
APPROVED	A.E
DATE	07-06-23

Government of Western Australia Public Transport Authority

BYFORD RAIL EXTENSION

ARMADALE STATION PRECINCT
BEERIGAN BROOK
ELECTRICAL LAYOUT 1

SKETCH DRAWING

Rev: A

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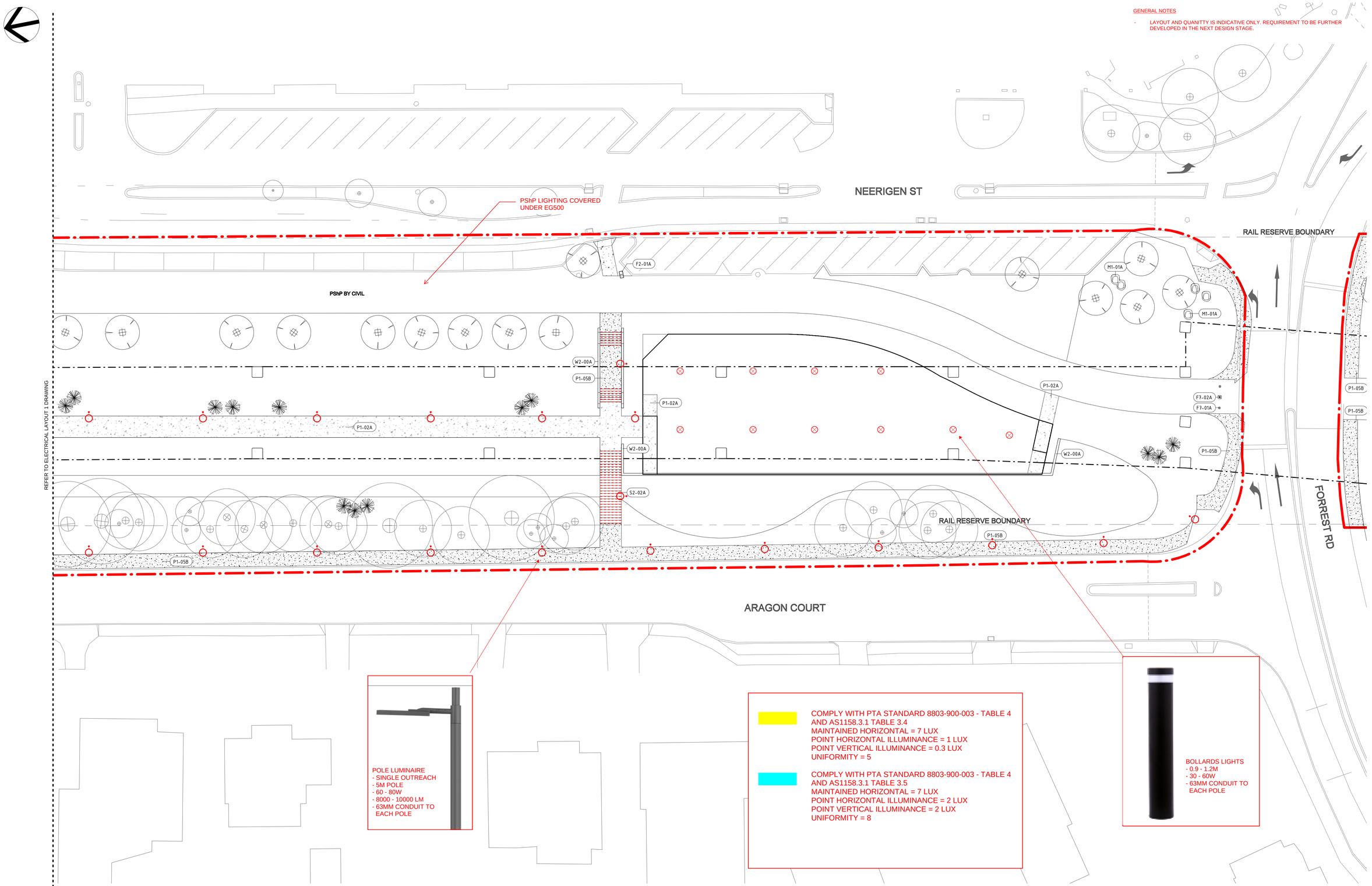

POLE LUMINAIRE
- SINGLE OUTREACH
- 5M POLE
- 60 - 80W
- 8000 - 10000 LM
- 63MM CONDUIT TO EACH POLE

COMPLY WITH PTA STANDARD 8803-900-003 - TABLE 4 AND AS1158.3.1 TABLE 3.4
MAINTAINED HORIZONTAL = 7 LUX
POINT HORIZONTAL ILLUMINANCE = 1 LUX
POINT VERTICAL ILLUMINANCE = 0.3 LUX
UNIFORMITY = 5

COMPLY WITH PTA STANDARD 8803-900-003 - TABLE 4 AND AS1158.3.1 TABLE 3.5
MAINTAINED HORIZONTAL = 7 LUX
POINT HORIZONTAL ILLUMINANCE = 2 LUX
POINT VERTICAL ILLUMINANCE = 2 LUX
UNIFORMITY = 8

BOLLARDS LIGHTS
- 0.9 - 1.2M
- 30 - 60W
- 63MM CONDUIT TO EACH POLE

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