FILE: 2025/2109

DEPARTMENT OF BIODIVERSITY, CONSERVATION AND ATTRACTIONS REPORT

PROPOSAL	The installation of lighting and luminaires at Charles Court Reserve
LOCATION	Lots 0 on Plan 4480 and 792 on Plan 2948, and 5168 on Plan 91504 (R22527) Charles Court Reserve, Nedlands
COST	$1,300,000
APPLICANT	City of Nedlands
LANDOWNER	City of Nedlands
LOCAL GOVERNMENT	City of Nedlands
MRS CLASSIFICATION	Regional Open Space
DECISION TYPE	Part 5, *Swan and Canning Rivers Management Act 2006*, Ministerial Determination
ATTACHMENTS	1. Lighting layout (6 pages) 2. Rugby WA letter of support (1 page) 3. External referral responses: a) City of Perth (2 pages) b) City of Nedlands (5 pages) 4. Summary of public submissions (3 pages) 5. Site photos (2 pages) 6. Light spill diagrams a) Original light spill diagrams (Sage Consulting Engineers) (22 pages) b) Revised light spill diagrams (Sage Consulting Engineers) (5 pages)
RECOMMENDATION	**APPROVAL WITH CONDITIONS**

1. INTRODUCTION

1.1 The Department of Biodiversity, Conservation and Attractions (DBCA) has received an application from the City of Nedlands (the City) to remove six lighting towers and install eight new lighting towers at Charles Court Reserve (the reserve), Nedlands (**Figure 1** and **Attachment 1**) to support nighttime sporting use.

1.2 The reserve is used all year round by several formal and informal groups and community users. The primary user is the Nedlands Rugby Union Football Club. The reserve currently contains a mix of rugby and soccer pitches and one cricket pitch. The proposal involves the reconfiguration of the reserve to support three rugby pitches, two cricket pitches and one soccer pitch.

***Figure 1**: Charles Court Reserve - Swan Canning Development Control Area (outlined in blue)*

1.3 Current lighting is provided by six 10m poles which provide lighting of the rugby pitches up to 10 lux. The existing lights are currently available to be used Monday to Friday 5:30pm to 9:00pm. The proposal does not involve any increase in hours of use. The upgrade will increase the illuminance and allow for safer training and matches.

1.4 The proposed works include the following:

- removal and disposal of the six existing poles and luminaires
- installation of eight new light poles with LED luminaires, and associated infrastructure including pad footings for poles, underground cables and distribution board (**Figure 2**)
- increase in lux levels from 10 lux to 100 lux for all three rugby pitches with Pitch 1 having capability to reach 200 lux for 2027 Rugby World Cup training (which requires 200 lux).

1.5 The proposed development is on land reserved for Regional Open Space (ROS) under the Metropolitan Region Scheme and is within the Swan Canning development control area (DCA). The land is under the care, control and management of the City. The proposed development is across three lots. Lot 0 is freehold land and Lot 5168 is Crown reserve vested in the City of Nedlands. Lot 792 is freehold land covered by the Bruce Trust, which is a 1909 declaration of trust between the Bruce Family and the Road Board to hold the land in trust for public use as a reserve and recreation ground.

1.6 The proposed development is to occur entirely within the DCA and therefore requires approval from the Minister for the Environment in accordance with Part 5 of the *Swan and Canning Rivers Management Act 2006* (SCRM Act).

1.7 This draft report has been prepared in accordance with section 75(2) of the SCRM Act.

***Figure 2**: Charles Court Reserve – Location of the eight new poles (P1 to P8)*

2. CONSULTATION

2.1 In accordance with section 73 of the SCRM Act, the application was referred to the City of Nedlands and the City of Perth with an invitation to make a submission. The local government boundary between the City of Nedlands and the City of Perth runs along Broadway and through the middle of the carpark adjacent to the Nedlands Rugby Club to the Swan River. Given the proximity to the City of Perth, it was referred to both local governments for advice.

City of Perth

2.2 The City of Perth has no comments in relation to the proposal. The City of Perth's response is provided in **Attachment 3a**.

City of Nedlands

2.3 The City of Nedlands provided the following advice:

- The transition to LED floodlighting supports more sustainable asset management by significantly reducing operational costs and maintenance requirements, while also enhancing safety for both players and the broader community.
- Historically, the City has limited floodlighting provision to 50 lux to support recreational-level sporting activities. However, many large-ball sports now advocate for a minimum standard of 100 lux.
- This proposal acknowledges the social value and community benefits arising from the lighting upgrade, particularly through supporting health, wellbeing and active recreation. It also demonstrates strong alignment with the City's Integrated Planning Framework, and specifically supports the strategic outcomes identified within the *City of Nedlands Council Plan 2023-33*; City of Nedlands *Foreshore Management Plan*;

Strategic Active Sports Facilities Plan 2025-2045 (in draft); *City of Nedlands Local Planning Scheme No. 3* (Updated January 2020) and *City of Nedlands Disability Access and Inclusion Plan 2023-24*.

2.4 The City's comments are provided in **Attachment 3b**.

Public consultation – submissions on application

2.5 In accordance with section 74 of the SCRM Act, the application was advertised on the DBCA website commencing on 3 October 2025 until 13 November 2025 with an invitation to make a submission. To increase awareness of the proposal, letters were delivered to residents along the Esplanade advising of the opportunity to provide comment.

2.6 DBCA received 11 submissions, with five submissions supporting the proposal and six submissions objecting to the proposal. A summary of the comments made in the submissions and DBCA responses to those comments are provided in **Attachment 4**.

Submissions on draft report

2.7 In accordance with the requirements of section 75 of the SCRM Act, this draft report and recommendation will be provided to the applicant and the relevant stakeholders being the City of Nedlands and the City of Perth, as well as anyone who made a submission under section 74 of the SCRM Act.

2.8 The draft report and recommendation will also be published on the DBCA website for a minimum period of 14 days with an invitation for public submissions.

3. RELEVANT POLICIES AND PLANS

- State Planning Policy 2.9 – *Water* (SPP 2.9)
- Corporate Policy Statement No. 42 – *Planning for Land Use, Development and Permitting Affecting the Swan Canning Development Control Area* (Policy 42)
- Corporate Policy Statement No. 45 – *Planning for Miscellaneous Structures and Facilities in the Swan Canning Development Control Area* (Policy 45)
- Corporate Policy Statement No. 50 – *Planning for dewatering affecting the Swan Canning Development Control Area* (Policy 50)
- Australian/New Zealand standard AS/NZS 4282 – *Control of the obtrusive effects of outdoor lighting*
- *National Light Pollution Guidelines for Wildlife* (Department of Climate Change, Energy, the Environment and Water, 2023)

4. ENVIRONMENTAL AND PLANNING CONSIDERATIONS

- Environmental protection
- Lighting management
- Amenity
- Public access

5. BACKGROUND

5.1 Charles Court Reserve (the reserve) is located on the Esplanade in Nedlands and serves as the home ground of the Nedlands Rugby Union Football Club. The Club was established in 1934 and secured its permanent home at the reserve in 1951. The City of

Nedlands' *Foreshore Management Plan* (2025) identifies the reserve for active recreational use.

5.2 The reserve currently contains two rugby fields, five small soccer pitches and a cricket pitch. The current lighting at the reserve comprises six poles at approximately 10m high and lighting levels of approximately 10 lux. **Attachment 5** shows recent photos of the existing poles and one of the rugby fields.

5.3 The applicant has advised that the current lighting is reaching its end of life. It does not comply with current relevant standards and is insufficient for safe evening training. The City has received funding from the Department of Creative Industries, Tourism and Sport through the Community Sporting and Recreation Facilities Fund and Club Night Lights Program to upgrade the lighting, as well as financial support from the State Government to progress the proposal.

5.4 The proposal involves the reconfiguration of the reserve to support three rugby pitches (Pitch 1 being the closest to the clubhouse), two cricket pitches between the rugby fields and a soccer pitch to one side.

5.5 The lighting upgrade involves the removal and disposal of the existing six 10m light poles, and the installation of eight new poles over the three new rugby pitches. Two new lighting poles that are within the land subject to the Bruce Trust (Lot 792) must be a maximum of 10m high as the land is bound by a height restriction. A further two poles are 30m tall and four poles are 33m tall (**Table 1**).

Pole number	Height	Number of light fixtures
1	30m	2
2	33m	8
3	10m	3
4	33m	8
5	33m	7
6	10m	3
7	33m	8
8	30m	2

Table 1: *Pole numbers, heights and light fixtures*

5.6 The proposed lighting upgrade will increase illumination across the three rugby fields to a maximum of 100 lux. The proposed lighting design will support the existing Nedlands Rugby Club's amateur and semi-professional teams. Amateur level training and matches and semi-profession training require 50 and 100 lux, and the semi-profession matches and international level training require 100 and 200 lux. The 100 lux and 200 lux levels are proposed to be used only occasionally.

5.7 The reserve is one of four designated training venues for in Perth for the 2027 Men's Rugby World Cup. International teams will use the site under an exclusive-use agreement from 20 September to 26th October 2027, ahead of and during the tournament period (1 October to 13 November 2027). To accommodate training requirements for the World Cup, Pitch 1 is proposed to have the capacity to reach 200 lux.

5.8 The Club's junior and senior men's teams train on Tuesday and Thursday evenings. Junior teams begin training around 4.30pm with seniors finishing at around 8pm. As women's rugby participation grows, it is expected that the light usage will extend to Monday and Wednesday evenings.

5.9 Operating hours for the lighting are detailed in **Table 2**. Lights will be controlled by timers, with Pitches 1 and 2 operating on a shared control panel and Pitch 3 on a separate control panel. The lights will be switched off by 8.30pm, except on match nights when they may operate until 9:00pm.

Months	Days of use	Time - lights off	Fields (Area 1 – pitches 1 & 2, Area 2 – pitch 3) and Lux
Mid-March to mid-Sept (every week) – Men's rugby training	Tuesday & Thursday	20:30	Area 1 – Pitch 1 at 50 lux & Pitch 2 at 50 lux Area 1 – Pitch 1 at 100 lux & Pitch 2 at 100 lux (one event only per year)
July to mid-Sept (every week) – Men's rugby finals training			Area 2 – Pitch 3 at 50 lux
July or August (one event only per year) – Men's rugby match	Friday (one night only per year)	21:00	Area 1 – Pitch 1 at 100 lux & Pitch 2 at 100 lux Or Area 1 – Pitch 1 at 200 lux & Pitch 2 at 100 lux
20 September – 26 October 2027 (three events only) – Men's Rugby World Cup	2027 Rugby World Cup (three events only)	20:30	Area 1 – Pitch 1 at 200 & Pitch 2 at 100 lux
Mid-March to mid-Sept (every week, starting in 2028) – Women's rugby training	Wednesday	20:30	Area 1 – Pitch 1 at 50 lux & Pitch 2 at 50 lux

***Table 2**: Charles Court Reserve Lighting – hours of operation*

6. DISCUSSION

Environmental protection

6.1 Policy 42 aims to ensure that land use and development on and adjacent to the river system maintains and enhances the quality and amenity of the river environment. Development adjacent to the river should be carefully undertaken to prevent detrimental impacts to the foreshore area.

6.2 To allow for the installation of the new lighting, trenching will be required to lay the new cabling. The cabling requires approximately 700m of trenching for cabling. In response to concerns raised by DBCA, the cabling has been relocated further away from the river and riverwall (Drawing No. E1B).

6.3 The depth of the concrete pole footings required to install the lighting will be approximately 1m (total height of the pole footings is 1.2 metres with 20cm remaining above ground). A construction environmental management plan (CEMP) will be required prior to installation of the poles and can include geotechnical information as well as outline how the trenching will be managed to prevent any impacts to the river or foreshore.

6.4 Dewatering, if required, must be consistent with Corporate Policy 50 *Planning for dewatering affecting the Swan Canning Development Control Area*. An advice note in this regard has been included.

Environmental protection – flora and fauna

6.5 Artificial lighting is recognised as a potential environmental impact that requires careful assessment and management. Policy 45 recognises that lighting can support and enhance recreational use of the foreshore and Riverpark but may also impact wildlife if light spill, glare and upward light are not adequately controlled.

6.6 The proposed lighting has been designed in accordance with AS2560.2 *Sports Lighting* and also to align with the AS/NZS 4282 *Control of the obtrusive effects of outdoor lighting* (AS/NZS 4282). The design also complies with the Bruce Trust height restriction, which limits structures on that land to 10m.

6.7 Light spill to the river is possible, particularly from the poles which are closest to the foreshore and riverwall (Poles 5 - 8). Pole 6 is the closest to the riverwall, setback approximately 20m.

6.8 The selected luminaires (RAPTOR 4 LED floodlights) incorporate rear and side shields to manage light spill and glare. Poles 3 and 6 have Rival LED floodlights with shields to minimise spill and glare. The lighting modelling provided (**Attachment 6a**) indicates that with the proposed shielding and beam control, and levels of 50 lux, light levels at the riverwall would be between 1 and 10 lux, reducing to 0.01 lux around 84 to 139m into the river. While these measures reduce light spill, the predicted levels at the riverwall exceed recommended ecological thresholds.

6.9 The lighting modelling prepared by Sage Consulting Engineers Pty Ltd (2025), includes illumination summary diagrams that demonstrate the projected illuminance and light spill towards the river under four different lighting scenarios (**Attachment 6a**). The most frequently used scenario will be Scenario 4, using 50 lux Pitches 1 and 2, and Pitch 3 switched off (see **Table 2**). **Table 2** shows that Scenarios 1, 2 and 3 which utilise higher lux are required much less frequently.

6.10 The lighting has been assessed against the *National Light Pollution Guidelines for Wildlife* (Department of Climate Change, Energy, the Environment and Water, 2023) and AS/NZS 4282. These guidelines recommend that light spill into natural areas including foreshores and waterways should be at or below 0.01-0.03 lux, approximately equivalent to moonlight, to avoid impacts on fauna and ecological processes. This is particularly relevant given the presence of medium to dense seagrass bed immediately offshore to the reserve, which support habitat, foraging and nursery functions for estuarine species.

6.11 Scientific evidence indicates that even low levels of artificial light can disrupt photosynthetic processes and circadian rhythms and reduce seagrass growth, particularly during the flowering period from December to May each year. Artificial light at night can also alter fish abundance and habitat use and increase predation risk on sessile invertebrate communities.

6.12 The *National Light Pollution Guidelines for Wildlife* acknowledge the impact that the colour of lighting can have on wildlife and in particular, wildlife can be sensitive to blue light.

6.13 The wavelength of light is also a critical factor, with shorter wavelengths (blue/white) penetrating water deeper than longer wavelengths (red/amber). Shorter wavelengths can

increase seaweed growth, creating a canopy that blocks natural light from reaching seagrass. Warmer light (typically ≤3000K) is generally preferred for sensitive aquatic environments instead of blue or white lights (typically 4000K–6500K).

6.14 The proposed lighting has a colour temperature of 4000K, which has a reduced blue component, although it is not considered the lowest-impact option for areas adjacent to aquatic habitats. However, the applicant has advised that 4000K is necessary for maintaining sufficient illumination for rugby training.

6.15 The rugby pitches are located within an area of the reserve where the river edge is a constructed riverwall instead of a natural shoreline. Due to the lack of foreshore vegetation, the area provides limited terrestrial habitat value. The applicant updated the lighting modelling to include a strip of vegetation along the edge of the riverwall. The updated modelling (**Attachment 6b**) demonstrates some reduction in light spill into the river immediately adjacent to the wall, although light spill into the river remains above guideline values. A condition requiring a landscaping plan has been included to reduce the levels into the river as far as possible.

6.16 It is possible that Ospreys may use the new lighting towers for nesting; however, if that does occur, DBCA can be contacted for further advice on how to manage the issue. This is included as an advice note.

6.17 To confirm that the lighting is installed in accordance with the proposed plans, a lighting audit is recommended within three months of installation and will be required as a condition of approval. If the audit indicates that the predicted lux levels are exceeded, the lighting will need to be adjusted accordingly.

Visual amenity and lighting

6.18 Policy 42 and SPP 2.9 require that development in the Riverpark or DCA enhances and protects the character and landscape setting of the Swan Canning River system and maintains or enhances public access and enjoyment of the river environment. Charles Court Reserve is vested for recreational purposes, and the proposed lighting upgrade is consistent with this use. However, the proposal increases the lighting levels across the playing fields, which has the potential to impact on the adjacent residential properties.

6.19 The applicant has advised that the taller light poles (30 and 33m) were necessary partly to offset the lower 10m poles on the Bruce Trust land, and also to ensure light can be directed down onto the pitches instead of sitting horizontal to the adjacent residences.

6.20 The proposal does not involve any increase in hours of use. The upgrade will increase the illuminance and allow for safer training and matches. In addition, the new lights will be controlled remotely by the City of Nedlands and switch off automatically each night.

6.21 The installation of the 30 and 33m light towers will result in a change to the visual character of the reserve, particularly as the poles will extend above the existing tree line. The reserve is largely open and lacks screening vegetation along the Esplanade, meaning the new poles will be visible from nearby residences.

6.22 All eight poles are comprised of galvanised steel, with a pole base that tapers at the top of the pole (**Figure 3**). The crossarms are galvanised steel, curved and at various widths

depending on the number of floodlights or light fixtures. Drawings E5A to E9A (**Attachment 1**) provide the specifications of the individual lighting units.

***Figure 3**: Two photos showing examples of poles, similar to what will be installed at Charles Court Reserve – left: pole base and above-ground portion of footing; right: top of a pole with three floodlights.*

6.23 Light spill from the new lighting towers also has the potential to affect adjacent residents located along the Esplanade. The applicant has proposed lighting infrastructure that incorporates mitigation measures such as shields, to reduce the light spill to the adjacent residents. According to the lighting modelling, light spill from poles 1 to 4 (closest to the residential properties along the Esplanade) will be approximately 1 to 8 lux, which is within the maximum 10 lux level recommended by AS/NZS 4282 for a suburban setting (A3 zone).

6.24 While the proposal will alter the visual landscape and increase evening use of the reserve, the controls on operational hours and the use of shielding and landscaping will reduce potential impacts on adjacent residents and other users of the foreshore. The applicant has advised that lighting will be switched off by 8:30pm or 9:00pm depending on the activity (as outlined in **Table 2**) and will switch off automatically.

6.25 To confirm that the lighting is installed in accordance with the proposed plans, a lighting audit is recommended within three months of installation and will be required as a condition of approval. If the audit indicates that the predicted lux levels are exceeded, the lighting will need to be adjusted accordingly.

Public access

6.26 Policy 42 and SPP 2.9 require proposed development enhances the public's access to and enjoyment of the river. Public access along the foreshore is available on the existing formal pathway. The proposal will not alter existing public access along the foreshore. A condition of approval can ensure that public access will not be restricted during the works unless necessary for safety purposes.

7. SWAN RIVER TRUST

7.1 In accordance with section 75(3A) of the SCRM Act, the Swan River Trust considered DBCA's draft report at its meeting of 10 February 2026 and resolved to advise the Director General of DBCA that it recommends the application be approved subject to the conditions outlined in this draft report, with an additional advice note to Condition 8

(requiring an Operations Plan), requesting a 5-year monitoring program be implemented following installation of the new lighting to determine whether actual light spill levels will have any measurable impact on the condition, extent, or health of the adjacent benthic seagrass communities. Monitoring results should be submitted to DBCA regularly for the purpose of understanding ecological impacts of the lighting and to consider any necessary future changes to the Operations Plan.

7.2 DBCA supports the recommendation for a monitoring program, and this requirement has been included as an advice note to Condition 8.

8. CONCLUSION

8.1 The proposal to install new lighting towers at Charles Court Reserve aims to improve community use, safety and amenity for sporting activities in an area with established active recreational use. Although the 30 and 33m light poles will be visible above the tree line and alter the reserve's visual character those changes are considered acceptable given the established sporting context and the public benefits associated with improved lighting.

8.2 Lighting modelling indicates that some light spill to the river will exceed recommended levels for dark ambient environments. Potential impacts to seagrass and estuarine fauna are acknowledged; however the proposal incorporates a range of mitigation measures, including light shields, controlled beam angles and the use of 4000K luminaires. Further management through the recommended operations plan and additional landscaping will assist in reducing light spill and limiting ecological effects.

8.3 Lighting levels of up to 200 lux are proposed to accommodate occasional international-level training events associated with the 2027 Men's Rugby World Cup. These higher levels will be infrequent, time-limited and managed through the operations plan to ensure potential impacts are minimised.

8.4 DBCA has engaged with the applicant to explore opportunities to reduce light spill further, including alternative configurations and lower colour-temperature lighting. The applicant advised that additional design changes are not feasible as the lighting would not meet the requirements and criteria for funding or sporting infrastructure.

8.5 On balance, the proposal is expected to deliver community and recreational benefits while ensuring that potential environmental and amenity impacts are reduced as far as possible through appropriate conditions. The proposal is therefore recommended for approval, subject to conditions.

9. RECOMMENDATION – APPROVAL WITH CONDITIONS

That the Director General of DBCA advises the Minister for the Environment that the proposal at Charles Court Reserve (**Attachment 1**), as described in the application received on 1 October 2025, and the additional information provided, be approved, subject to the following:

CONDITIONS

1. Approval to implement this decision is valid for three (3) years from the date of this approval. If substantial on-site works have not commenced within this period, a new approval will be required before commencing or completing the development.
2. The applicant shall notify the Department of Biodiversity, Conservation and Attractions in writing not less than seven (7) days prior to the commencement of works (**Advice Note 1**).
3. All works are to be undertaken in accordance with a construction environmental management plan which is to be submitted to and approved by the Department of

Biodiversity, Conservation and Attractions, prior to the commencement of works (**Advice Note 2**).

4. All works are to be undertaken in accordance with a landscaping plan which is to be submitted to and approved by the Department of Biodiversity, Conservation and Attractions prior to commencement of works. (**Advice Note 3**)
5. No extracted water from dewatering is to enter the river, either directly or indirectly (via the stormwater system), unless approved by the Department of Biodiversity, Conservation and Attractions (**Advice Note 4**).
6. The authorised works shall not prevent public access along the foreshore reserve unless temporary closure is necessary for safety purposes. In the event the path is closed, a clearly signed, safe alternative route shall be provided.
7. Within three months of installation, a lighting audit is to be conducted to demonstrate that the lighting has been installed in accordance with the approval (**Advice Note 5**).
8. The approved use is to be undertaken in accordance with an operations plan which is to be submitted to and approved by the Department of Biodiversity, Conservation and Attractions prior to commencement of use (**Advice Note 6**).
9. Upon completion of the works, all waste materials, equipment and machinery shall be removed, and the site cleaned up to the satisfaction of the Department of Biodiversity, Conservation and Attractions.

ADVICE NOTES

1. Notifications and documents required as a condition of this approval can be emailed to rivers.planning@dbca.wa.gov.au.
2. Regarding **Condition 3**, the construction environmental management plan (CEMP) should describe how the authorised works will be managed to minimise potential environmental impacts. Guidance for preparation of a CEMP is provided in DBCA Guidance Note – *Construction Environmental Management Plans* (the PDF will download automatically) and Policies, plans and guidelines | Department of Biodiversity, Conservation and Attractions.
3. Regarding **Condition 4**, the landscaping plan should include:
    a. the location, planting densities and species composition proposed (local native species),
    b. a schedule of works,
    c. weed control, including target species and any chemicals to be used, and its management within a water sensitive environment,
    d. a reticulation plan, indicating type and location of sprinkler, bubbler, drippers and if bore or scheme water will be utilised, and
    e. ongoing monitoring and maintenance requirements.
4. Regarding **Condition 5**, in the event it is proposed to dispose of extracted water either directly or indirectly (e.g. via the stormwater system) to the river, a dewatering management plan, demonstrating that the default guideline values contained within the Department of Biodiversity, Conservation and Attractions' Policy 50: *Planning for dewatering affecting the Swan Canning Development Control Area* will be met, is to be approved by the Department of Biodiversity, Conservation and Attractions.
5. Regarding **Condition 7** all lighting is to be installed in accordance with the lighting plan prepared by Sage Consulting Engineers Pty Ltd dated 9 May 2025 (Drawings E1B and 5A to 9A). In particular, the audit should demonstrate:
    a. the predicted glare and lux levels are being met,

b. the lighting has been installed in accordance with the relevant Australian Standards AS2560.2 and AS/NZS 4282, and

c. LED lighting installed is a maximum of 4000K correlated colour temperature.

6. Regarding **Condition 8**, the operations plan shall address (but not be limited to):

   a. hours and days of operation,

   b. all lighting to be switched off between the hours of 9.00pm and 6.00am, Monday to Sunday,

   c. all lighting to remain switched off between 01 November and 01 March each year,

   d. the preparation and implementation of a program for the annual monitoring of any adverse impacts to benthic habitat occurring within the light spill area (i.e. the area where illuminance is equal to or greater than 0.01 lux).

      Prior to the use of the new lighting, the applicant should undertake baseline surveys during the height of the seagrass growth season (February – March) to ascertain the health and percentage cover of all benthic species present in the area. Once the lights are installed, annual monitoring should be undertaken during the height of seagrass growth season (February – March) to show the greatest rate of growth or decline of benthic species for a period of five (5) years.

      The applicant should report the baseline surveys to DBCA prior to commencing the 5-year annual monitoring program. Additionally, the applicant should report monitoring results to DBCA on or before 30 June each year, demonstrating changes (if any) against the baseline surveys. The results will be used by DBCA to review and determine whether any changes to the Operations Plan are required, and to inform of any proposed amendments to the Operations Plan.

   e. specifications inside each lighting unit detailing bulb type, luminaire design and wavelength characteristics (this will ensure future replacements of the lights/bulbs maintain ecological safeguards).

7. The applicant is advised that in the event that ospreys use the new lighting towers for nesting, DBCA's Swan Region office should be contacted for further advice on how to manage the issue.

DRAFT REPORT ENDORSED

Signed: Date: 26/02/2026

Teresa Gepp

Acting Executive Director, Conservation and Ecosystem Management Division

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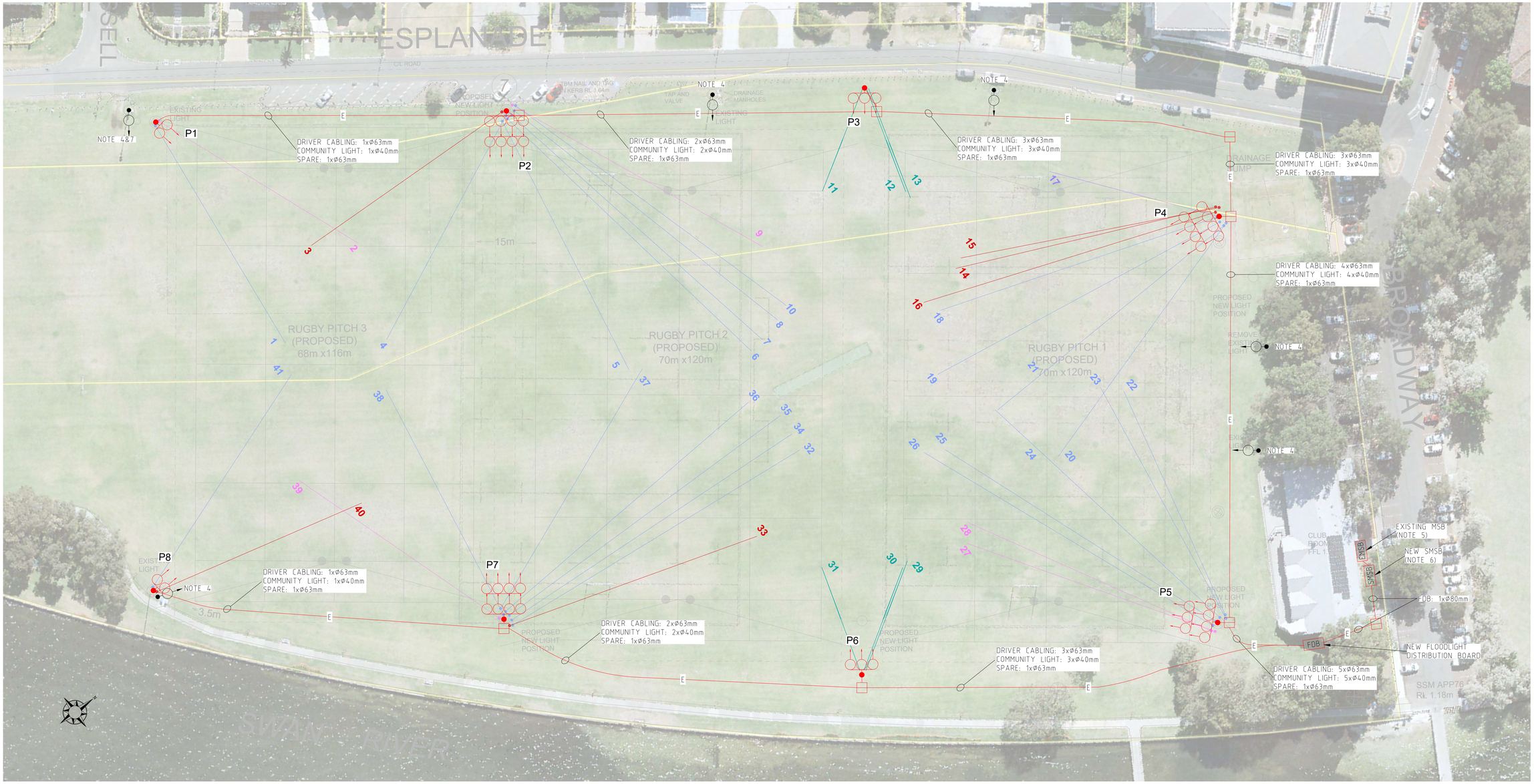
Full Size 1:1 ; Half Reduction 1:2
SCALE (mm)

ALL DIMENSIONS ARE IN MILLIMETRES
DRAWN IN ACCORDANCE WITH AS1100-1992
DO NOT SCALE
THIRD ANGLE PROJECTION



SITE PLAN

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NOTES:

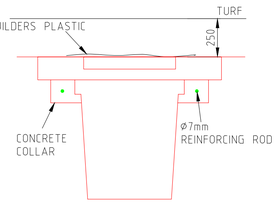
1. MACHINE TRENCHING IN THE VICINITY OF THE TREE DRIP LINE IS PROHIBITED. HAND TRENCHING REQUIRED WITH CARE TO AVOID ANY DAMAGE TO TREE ROUTES. ALTERNATIVE ROUTES TO BE AGREED ON WITH CONSULTATION WITH THE CITY OF NEDLANDS.
2. SURVEY AND PEG LOCATIONS OF POLES. CONFIRM LOCATIONS WITH THE CITY'S REPRESENTATIVE PRIOR TO INSTALLATION TO CLEAR TREES AND OBSTRUCTIONS.
3. COORDINATE WITH THE CITY TO REMOVE EXISTING POLES AND LUMINAIRES AND DISPOSE OFF SITE. BURY FOOTINGS AND MAKE EXISTING CONDUITS REDUNDANT.
4. REMOVE EXISTING POLE AND LUMINAIRES AND DISPOSE OFF SITE. BURY FOOTING IN ACCORDANCE WITH SPECIFICATION.
5. EXISTING M.S.B. MOUNTED ON CLUBROOM TO BE RE-LABELED TO "BUILDING MAIN DISTRIBUTION BOARD".
6. NEW S.M.S.B. FINAL LOCATION SHALL BE DETERMINED ON SITE IN CONSULTATION WITH CITY OF NEDLANDS.
7. EXISTING FLOODLIGHT POLE & MSB. APPLY TO W.P. FOR DISCONNECTION.

POLE LOCATIONS GPS CO-ORDINATES (PCG94)

POLE #	EASTING	NORTHING
P1	49772.2894	259076.5877
P2	49821.5700	259146.7045
P3	49869.6618	259220.0297
P4	49946.8260	259270.4050
P5	50025.9455	259210.4826
P6	49983.9084	259133.3083
P7	49920.5086	259071.5802
P8	49863.4471	259007.3201

LEGEND

- XXX — SWITCHBOARD/DISTRIBUTION BOARD
- CABLE PIT (ACO 66)
- E — CABLE/CONDUIT ROUTE
- PROPOSED FLOODLIGHT
- EXISTING POLE TO BE REMOVED



OVAL CABLE PIT ILLUSTRATION
N.T.S.

PERTH ONE CALL SYSTEM
DIAL 1100
DIAL BEFORE YOU DIG

WARNING
CONTRACTOR TO CONFIRM THE LOCATION OF ALL SERVICES PRIOR TO COMMENCEMENT OF WORKS.

WARNING

BEWARE OF UNDERGROUND SERVICES

The locations of underground services are approximate only and their exact position should be proven on site. No guarantee is given that all existing services are shown.

BEWARE OF OVERHEAD POWER LINES

Minimum clearances for Streetlight Pole/ Luminaire to Overhead Power Lines
- Low Voltage – 1m
- High Voltage – 3m
- Extra High Voltage – 6m

COMPLY WITH AS/NZS7000 CLEARANCES

ISSUE	REVISION	DATE	CHECKED
B	REVISED POLE LOCATIONS TABLE RE-ISSUED FOR TENDER	24.06.2025	A.P.
A	ISSUED FOR TENDER	27.05.2025	A.P.

A1

SAGE CONSULTING ENGINEERS Pty. Ltd.
UNIT 1, 17 FOLEY STREET
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City of Nedlands

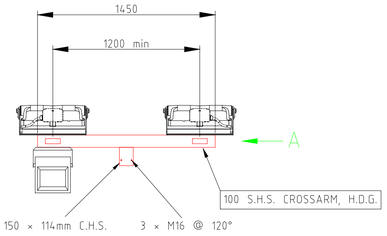
ELECTRICAL SERVICES
CITY OF NEDLANDS
CHARLES COURT RESERVE
SITE PLAN

DESIGNED	DRAWN	CHECKED
C.L.	J.H.	C.L.
DATE	SCALE	
09/05/2025	1:500 @ A1	

PROJECT No. 3171
DRAWING No. E1B
SHEET 1 OF 9

0 10 20 40 60
Full Size 1:1 ; Half Reduction 1:2
SCALE (mm)

ALL DIMENSIONS ARE IN MILLIMETRES
DRAWN IN ACCORDANCE WITH AS1100-1992
DO NOT SCALE
THIRD ANGLE PROJECTION



HEADFRAME (2 FLOODLIGHTS)
(1:25 @ A1)

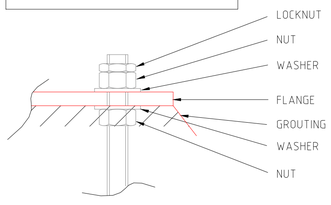
FLOODLIGHT No. #

FLOODLIGHT LABEL ON CROSS ARM

POLE # CIRCUIT # FROM MSB

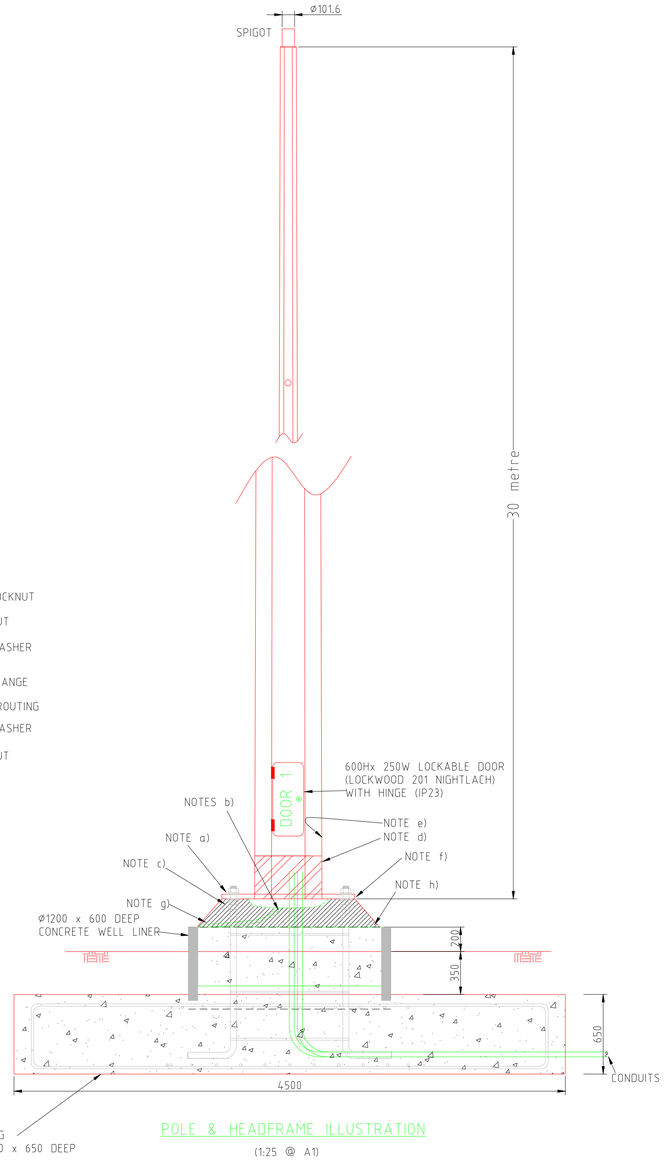
POLE LABEL

BASIC WIND SPEED REGION A
TERRAIN CATEGORY 1
SPEED PROBABILITY V500
IMPORTANCE LEVEL 2 COMPLY WITH:
AS/NZS 1111
AS/NZS 1112
AS/NZS 1554
AS 1163
AS 1170.2
AS/NZS 1594
AS 1798
AS 2159
AS 3600
AS/NZS 3679
AS/NZS 3834
AS 3996
AS 4100
AS 4600
AS 4680
AS/NZS 4671
AS 4676
AS/NZS 4677

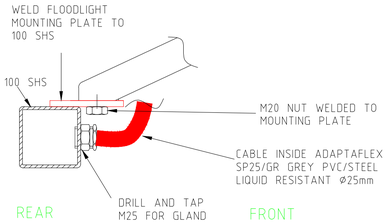


HOLDING DOWN BOLT DETAILS
NOT TO SCALE

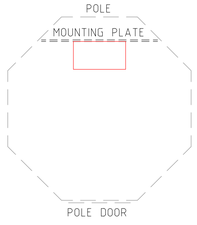
POLE BASE NOTES:
a) 12 x M30 @ 550 PCD (TYPICAL TO POLE MANUFACTURERS' DESIGN) AT LEAST 2 THREADS MUST BE EXPOSED. CUT ANY BOLT LENGTH EXCEEDING 3 THREADS & COAT WITH INORGANIC ZINC RICH PAINT.
b) GRADE GROUT INSIDE POLE TO DRAIN.
c) SEAL GROUT INSIDE & OUTSIDE OF POLE WITH SIKAGARD 700S.
d) COAT HOLDING BOLTS, NUTS, WASHERS, FLANGE AND POLE UP TO 350mm WITH GULL GRAY ULTRA SHIELD BY SHIELD COAT.
e) SPRAY FISH OIL ONTO INTERIOR OF POLE BASE AN FLANGE.
f) FINISH POLE FOOTING WITH NON-SLIP SURFACE.
g) CUT DRAIN FLUSH WITH GROUT INSIDE POLE.
h) PROVIDE CONCRETE WELL LINER



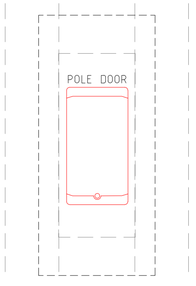
POLE & HEADFRAME ILLUSTRATION
(1:25 @ A1)



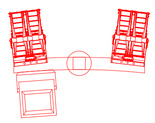
VIEW IN DIRECTION OF ARROW 'A'
SCALE 1:5 @ A1



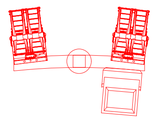
DOOR 1 - SECTION
SCALE 1:10 @ A1



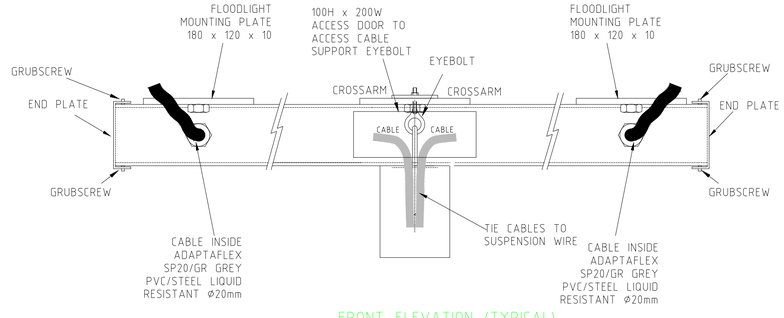
DOOR 1 FRONT VIEW
SCALE 1:10 @ A1



CROSSARM (POLE 1) - TOP VIEW
(1:25 @ A1)



CROSSARM (POLE 8) - TOP VIEW
(1:25 @ A1)



FRONT ELEVATION (TYPICAL)
SCALE 1:5 @ A1

ISSUE	REVISION	DATE	CHECKED
A	ISSUED FOR TENDER	27.05.2025	A.P.

A1

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A.C.N. 644 065 529

City of Nedlands

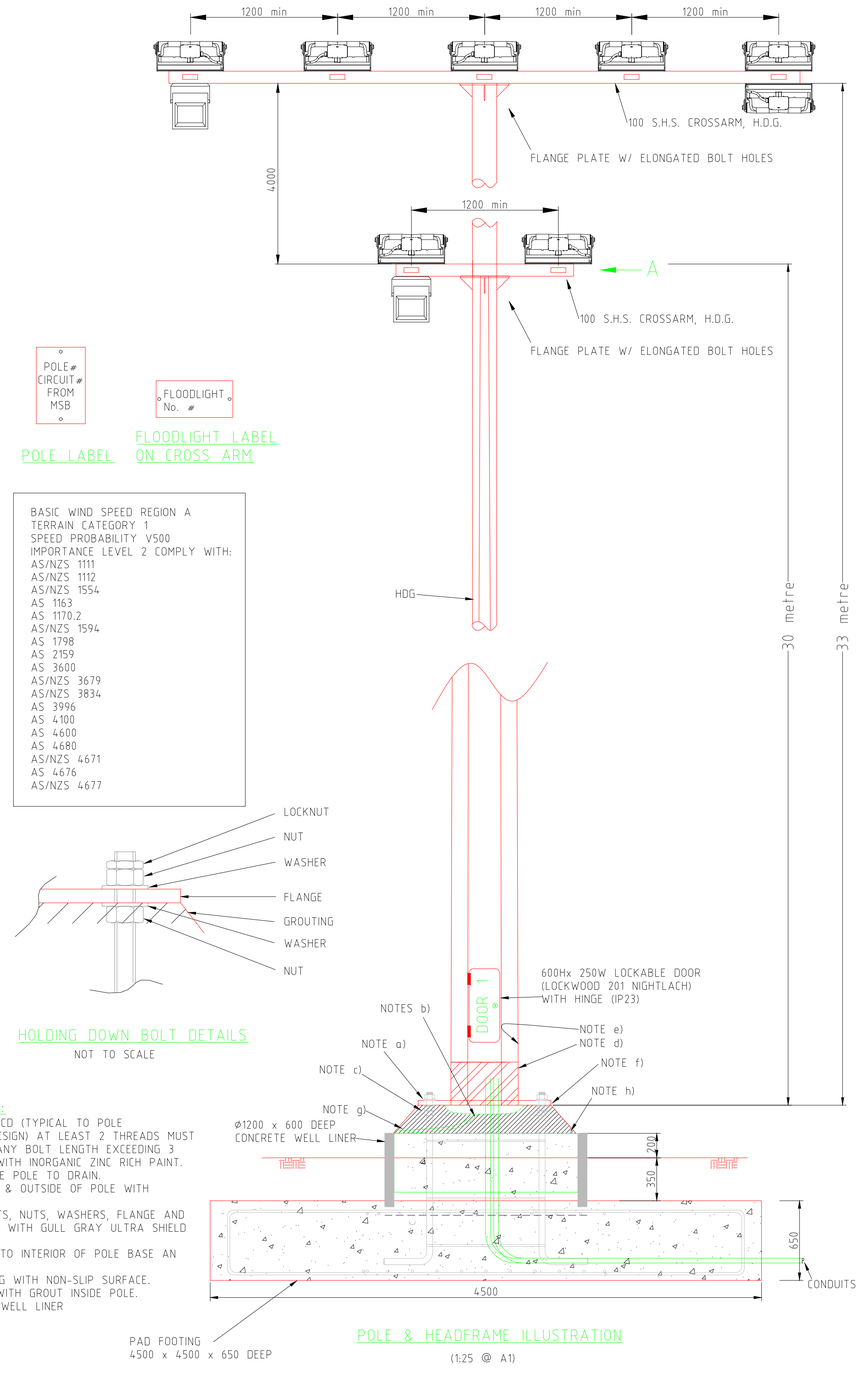
ELECTRICAL SERVICES
CITY OF NEDLANDS
CHARLES COURT RESERVE
POLE 1 & 8 POLE & HEADFRAME ILLUSTRATION

DESIGNED	DRAWN	CHECKED
C.L.	J.H.	C.L.
DATE: 09/05/2025	SCALE: AS SHOWN @A1	

PROJECT No. 3171
DRAWING No. E5A
SHEET 5 OF 9

0 10 20 40 60
Full Size 1:1 ; Half Reduction 1:2
SCALE (mm)

ALL DIMENSIONS ARE IN MILLIMETRES
DRAWN IN ACCORDANCE WITH AS1100-1992
DO NOT SCALE
THIRD ANGLE PROJECTION



POLE & HEADFRAME ILLUSTRATION
(1:25 @ A1)

POLE # CIRCUIT # FROM MSB

POLE LABEL

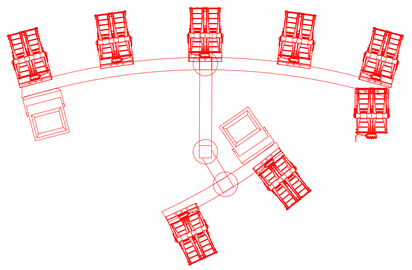
FLOODLIGHT No. #

FLOODLIGHT LABEL ON CROSS ARM

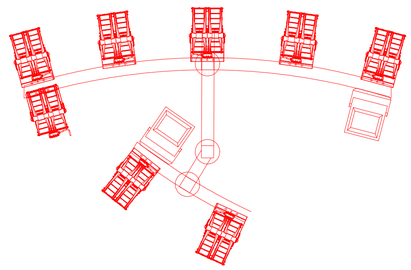
BASIC WIND SPEED REGION A
TERRAIN CATEGORY 1
SPEED PROBABILITY V500
IMPORTANCE LEVEL 2 COMPLY WITH:
AS/NZS 1111
AS/NZS 1112
AS/NZS 1554
AS 1163
AS 1170.2
AS/NZS 1594
AS 1798
AS 2159
AS 3600
AS/NZS 3679
AS/NZS 3834
AS 3996
AS 4100
AS 4600
AS 4680
AS/NZS 4671
AS 4676
AS/NZS 4677

HOLDING DOWN BOLT DETAILS
NOT TO SCALE

POLE BASE NOTES:
a) 12 x M30 @ 550 PCD (TYPICAL TO POLE MANUFACTURERS' DESIGN) AT LEAST 2 THREADS MUST BE EXPOSED. CUT ANY BOLT LENGTH EXCEEDING 3 THREADS & COAT WITH INORGANIC ZINC RICH PAINT.
b) GRADE GROUT INSIDE POLE TO DRAIN.
c) SEAL GROUT INSIDE & OUTSIDE OF POLE WITH SIKAGARD 700S.
d) COAT HOLDING BOLTS, NUTS, WASHERS, FLANGE AND POLE UP TO 350mm WITH GULL GRAY ULTRA SHIELD BY SHIELD COAT.
e) SPRAY FISH OIL ONTO INTERIOR OF POLE BASE AN FLANGE.
f) FINISH POLE FOOTING WITH NON-SLIP SURFACE.
g) CUT DRAIN FLUSH WITH GROUT INSIDE POLE.
h) PROVIDE CONCRETE WELL LINER

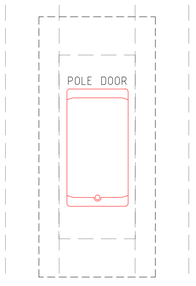


CROSSARM (POLE 2) - TOP VIEW
(1:25 @ A1)

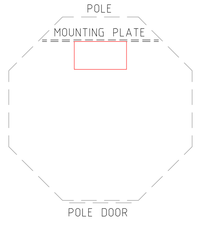


CROSSARM (POLE 7) - TOP VIEW
(1:25 @ A1)

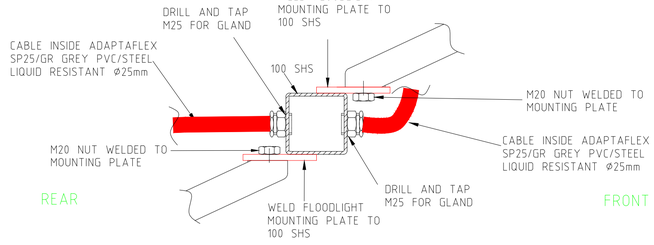
CROSSARM NOTES
1. CROSSARMS TO BE CURVED
2. ENDPLATES TO BE HOT DIP GALVANISED AFTER MANUFACTURE.
3. ALL OPENINGS ON CROSS ARM TO BE BLANKED OFF USING HOT DIP GALVANISED STEEL. SECURE WITH SELF TAPPING SCREWS.
4. DRILL AND TAP CROSSARM FOR INNER CABLE ADAPTOR MOUNTING.



DOOR 1 FRONT VIEW
SCALE 1:10 @ A1

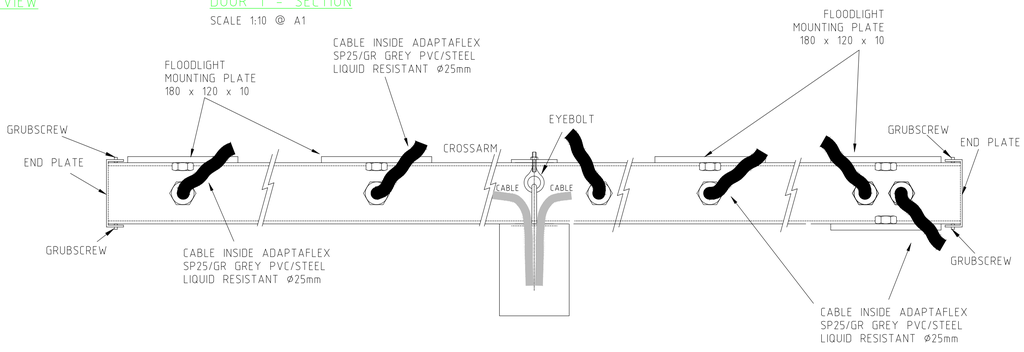


DOOR 1 - SECTION
SCALE 1:10 @ A1



CROSS ARM SECTION
SCALE 1:5 @ A1

CROSSARM NOTES
1. ENDPLATES TO BE HOT DIP GALVANISED AFTER MANUFACTURE.
2. ALL OPENINGS ON CROSS ARM TO BE BLANKED OFF USING HOT DIP GALVANISED STEEL. SECURE WITH SELF TAPPING SCREWS.
3. DRILL AND TAP CROSSARM FOR INNER CABLE ADAPTOR MOUNTING.



REAR ELEVATION (TYPICAL)
SCALE 1:5 @ A1

ISSUE	REVISION	DATE	CHECKED
A	ISSUED FOR TENDER	27.05.2025	A.P.

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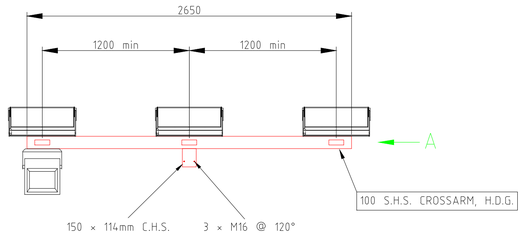
A.C.N. 644 065 529

City of Nedlands

ELECTRICAL SERVICES
CITY OF NEDLANDS
CHARLES COURT RESERVE
POLE 2 & 7 POLE & HEADFRAME ILLUSTRATION

DESIGNED	DRAWN	CHECKED
C.L.	J.H.	C.L.
DATE: 09/05/2025	SCALE: AS SHOWN @A1	

PROJECT No. 3171
DRAWING No. E6A
SHEET 6 OF 9



HEADFRAME (3 FLOODLIGHTS)
(1:25 @ A1)

FLOODLIGHT No. #

FLOODLIGHT LABEL ON CROSS ARM

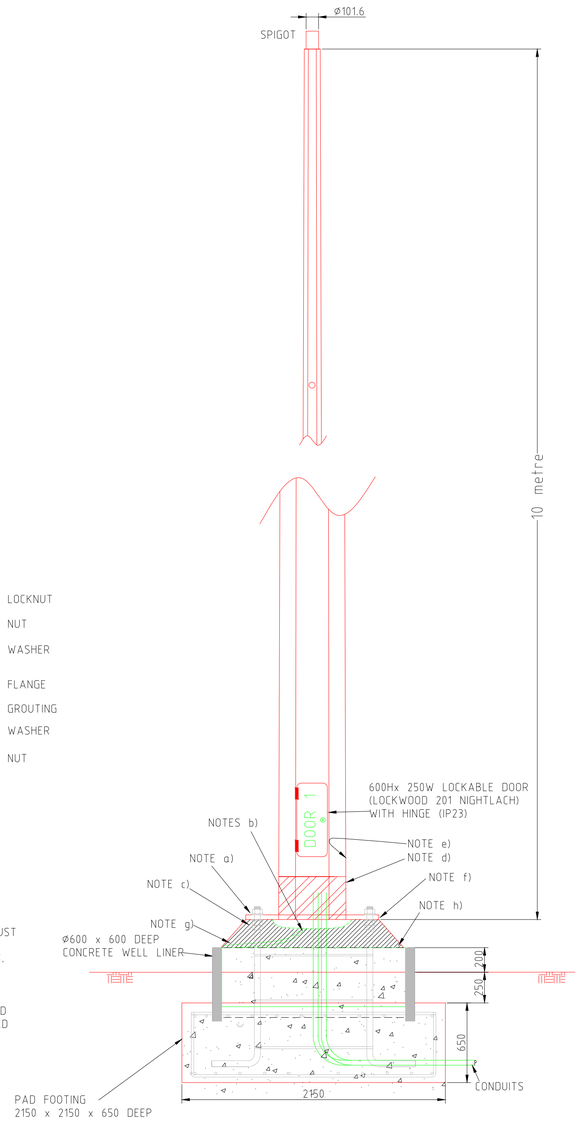
POLE # CIRCUIT # FROM MSB

POLE LABEL

BASIC WIND SPEED REGION A
TERRAIN CATEGORY 1
SPEED PROBABILITY V500
IMPORTANCE LEVEL 2 COMPLY WITH:
AS/NZS 1111
AS/NZS 1112
AS/NZS 1554
AS 1163
AS 1170.2
AS/NZS 1594
AS 1798
AS 2159
AS 3600
AS/NZS 3679
AS/NZS 3834
AS 3996
AS 4100
AS 4600
AS 4680
AS/NZS 4671
AS 4676
AS/NZS 4677

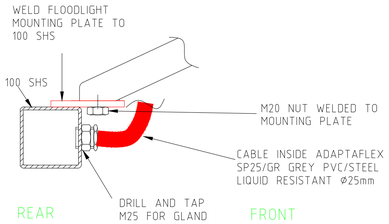
HOLDING DOWN BOLT DETAILS
NOT TO SCALE

POLE BASE NOTES:
a) 12 x M30 @ 550 PCD (TYPICAL TO POLE MANUFACTURERS' DESIGN) AT LEAST 2 THREADS MUST BE EXPOSED. CUT ANY BOLT LENGTH EXCEEDING 3 THREADS & COAT WITH INORGANIC ZINC RICH PAINT.
b) GRADE GROUT INSIDE POLE TO DRAIN.
c) SEAL GROUT INSIDE & OUTSIDE OF POLE WITH SIKAGARD 700S.
d) COAT HOLDING BOLTS, NUTS, WASHERS, FLANGE AND POLE UP TO 350mm WITH GULL GRAY ULTRA SHIELD BY SHIELD COAT.
e) SPRAY FISH OIL ONTO INTERIOR OF POLE BASE AN FLANGE.
f) FINISH POLE FOOTING WITH NON-SLIP SURFACE.
g) CUT DRAIN FLUSH WITH GROUT INSIDE POLE.
h) PROVIDE CONCRETE WELL LINER

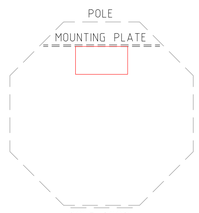


PAD FOOTING ILLUSTRATION
(1:25 @ A1)

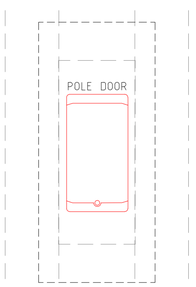
POLE & HEADFRAME ILLUSTRATION
(1:25 @ A1)



VIEW IN DIRECTION OF ARROW 'A'
SCALE 1:5 @ A1

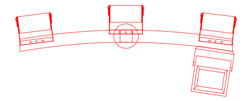


DOOR 1 - SECTION
SCALE 1:10 @ A1

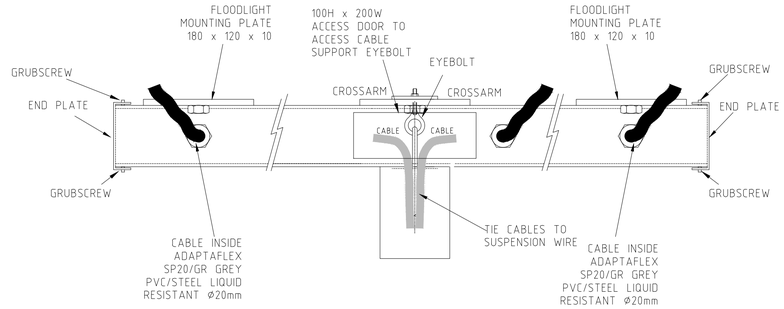


DOOR 1 FRONT VIEW
SCALE 1:10 @ A1

CROSSARM (POLE 3) - TOP VIEW
(1:25 @ A1)



CROSSARM (POLE 6) - TOP VIEW
(1:25 @ A1)



FRONT ELEVATION (TYPICAL)
SCALE 1:5 @ A1

0 10 20 40 60
Full Size 1:1 ; Half Reduction 1:2
SCALE (mm)

ALL DIMENSIONS ARE IN MILLIMETRES
DRAWN IN ACCORDANCE WITH AS1100-1992
DO NOT SCALE
THIRD ANGLE PROJECTION

ISSUE	REVISION	DATE	CHECKED
A	ISSUED FOR TENDER	27.05.2025	A.P.

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City of Nedlands

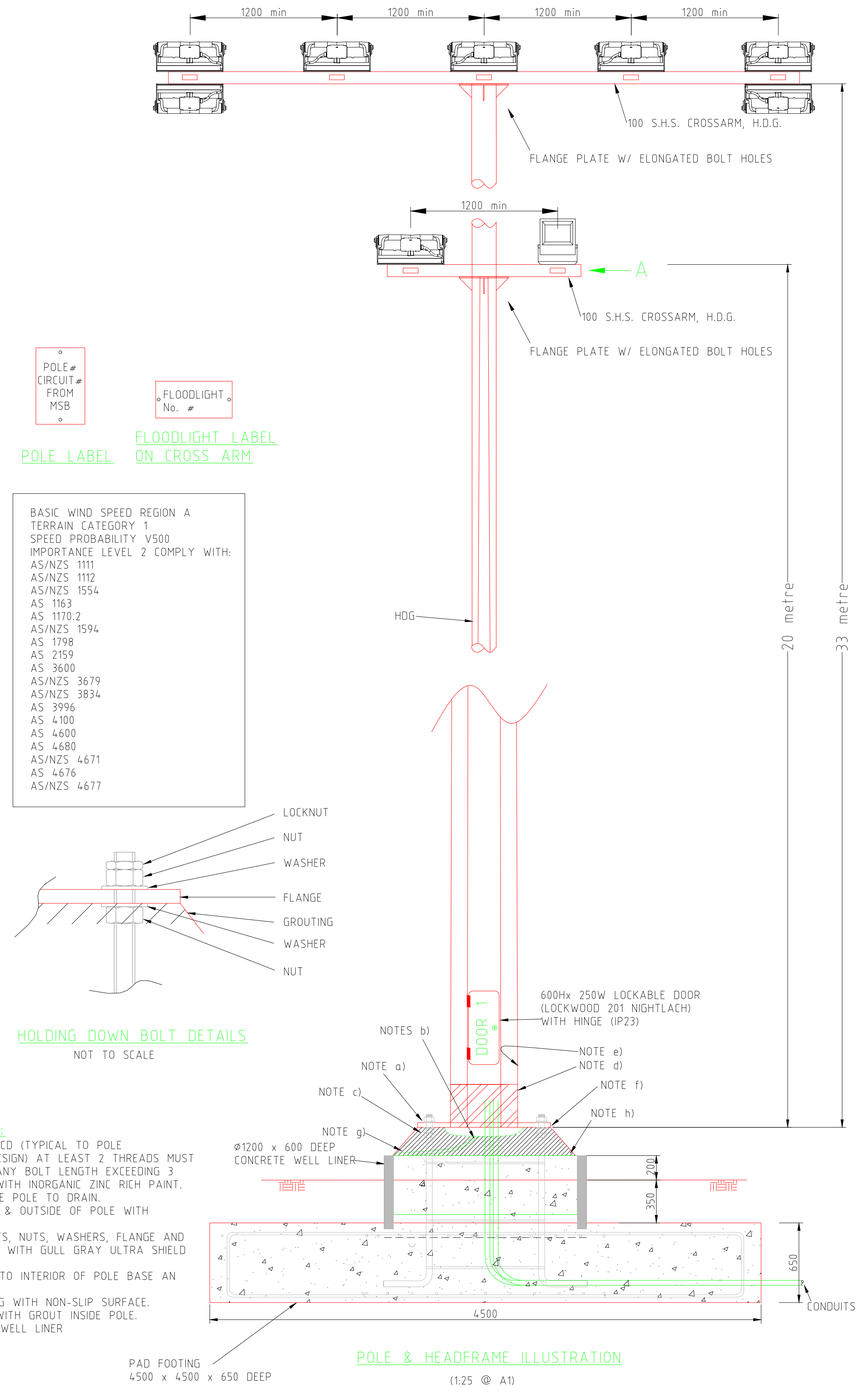
ELECTRICAL SERVICES
CITY OF NEDLANDS
CHARLES COURT RESERVE
POLE 3 & 6 POLE & HEADFRAME ILLUSTRATION

DESIGNED	DRAWN	CHECKED
C.L.	J.H.	C.L.
DATE: 09/05/2025	SCALE: AS SHOWN @A1	

PROJECT No. 3171
DRAWING No. E7A
SHEET 7 OF 9

0 10 20 40 60
Full Size 1:1 ; Half Reduction 1:2
SCALE (mm)

ALL DIMENSIONS ARE IN MILLIMETRES
DRAWN IN ACCORDANCE WITH AS1100-1992
DO NOT SCALE
THIRD ANGLE PROJECTION



POLE # CIRCUIT # FROM MSB

POLE LABEL

FLOODLIGHT No. #

FLOODLIGHT LABEL ON CROSS ARM

BASIC WIND SPEED REGION A
TERRAIN CATEGORY 1
SPEED PROBABILITY V500
IMPORTANCE LEVEL 2 COMPLY WITH:
AS/NZS 1111
AS/NZS 1112
AS/NZS 1554
AS 1163
AS 1170.2
AS/NZS 1594
AS 1798
AS 2159
AS 3600
AS/NZS 3679
AS/NZS 3834
AS 3996
AS 4100
AS 4600
AS 4680
AS/NZS 4671
AS 4676
AS/NZS 4677

HOLDING DOWN BOLT DETAILS
NOT TO SCALE

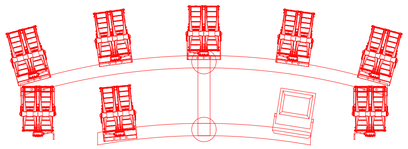
POLE BASE NOTES:

a) 12 x M30 @ 550 PCD (TYPICAL TO POLE MANUFACTURERS' DESIGN) AT LEAST 2 THREADS MUST BE EXPOSED. CUT ANY BOLT LENGTH EXCEEDING 3 THREADS & COAT WITH INORGANIC ZINC RICH PAINT.
b) GRADE GROUT INSIDE POLE TO DRAIN.
c) SEAL GROUT INSIDE & OUTSIDE OF POLE WITH SIKAGARD 700S.
d) COAT HOLDING BOLTS, NUTS, WASHERS, FLANGE AND POLE UP TO 350mm WITH GULL GRAY ULTRA SHIELD BY SHIELD COAT.
e) SPRAY FISH OIL ONTO INTERIOR OF POLE BASE AN FLANGE.
f) FINISH POLE FOOTING WITH NON-SLIP SURFACE.
g) CUT DRAIN FLUSH WITH GROUT INSIDE POLE.
h) PROVIDE CONCRETE WELL LINER

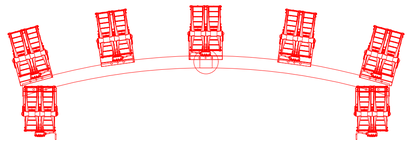
POLE & HEADFRAME ILLUSTRATION
(1:25 @ A1)

CROSSARM NOTES

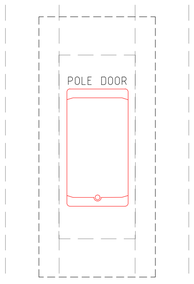
1. CROSSARMS TO BE CURVED
2. ENDPLATES TO BE HOT DIP GALVANISED AFTER MANUFACTURE.
3. ALL OPENINGS ON CROSS ARM TO BE BLANKED OFF USING HOT DIP GALVANISED STEEL. SECURE WITH SELF TAPPING SCREWS.
4. DRILL AND TAP CROSSARM FOR INNER CABLE ADAPTOR MOUNTING.



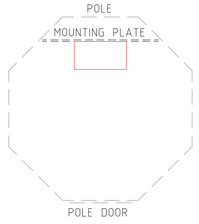
CROSSARM (POLE 4) - TOP VIEW
(1:25 @ A1)



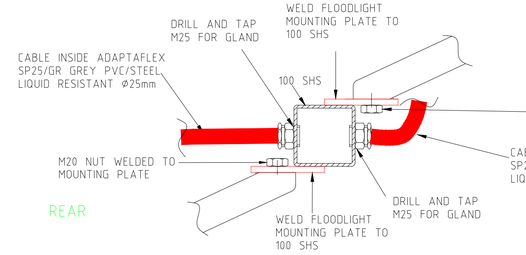
CROSSARM (POLE 5) - TOP VIEW
(1:25 @ A1)



DOOR 1 FRONT VIEW
SCALE 1:10 @ A1



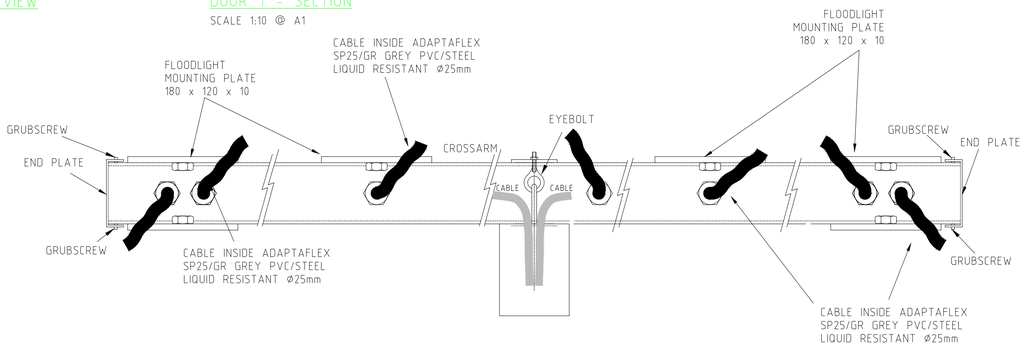
DOOR 1 - SECTION
SCALE 1:10 @ A1



CROSS ARM SECTION
SCALE 1:5 @ A1

CROSSARM NOTES

1. ENDPLATES TO BE HOT DIP GALVANISED AFTER MANUFACTURE.
2. ALL OPENINGS ON CROSS ARM TO BE BLANKED OFF USING HOT DIP GALVANISED STEEL. SECURE WITH SELF TAPPING SCREWS.
3. DRILL AND TAP CROSSARM FOR INNER CABLE ADAPTOR MOUNTING.



REAR ELEVATION (TYPICAL)
SCALE 1:5 @ A1

ISSUE	REVISION	DATE	CHECKED
A	ISSUED FOR TENDER	27.05.2025	A.P.

A1

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City of Nedlands

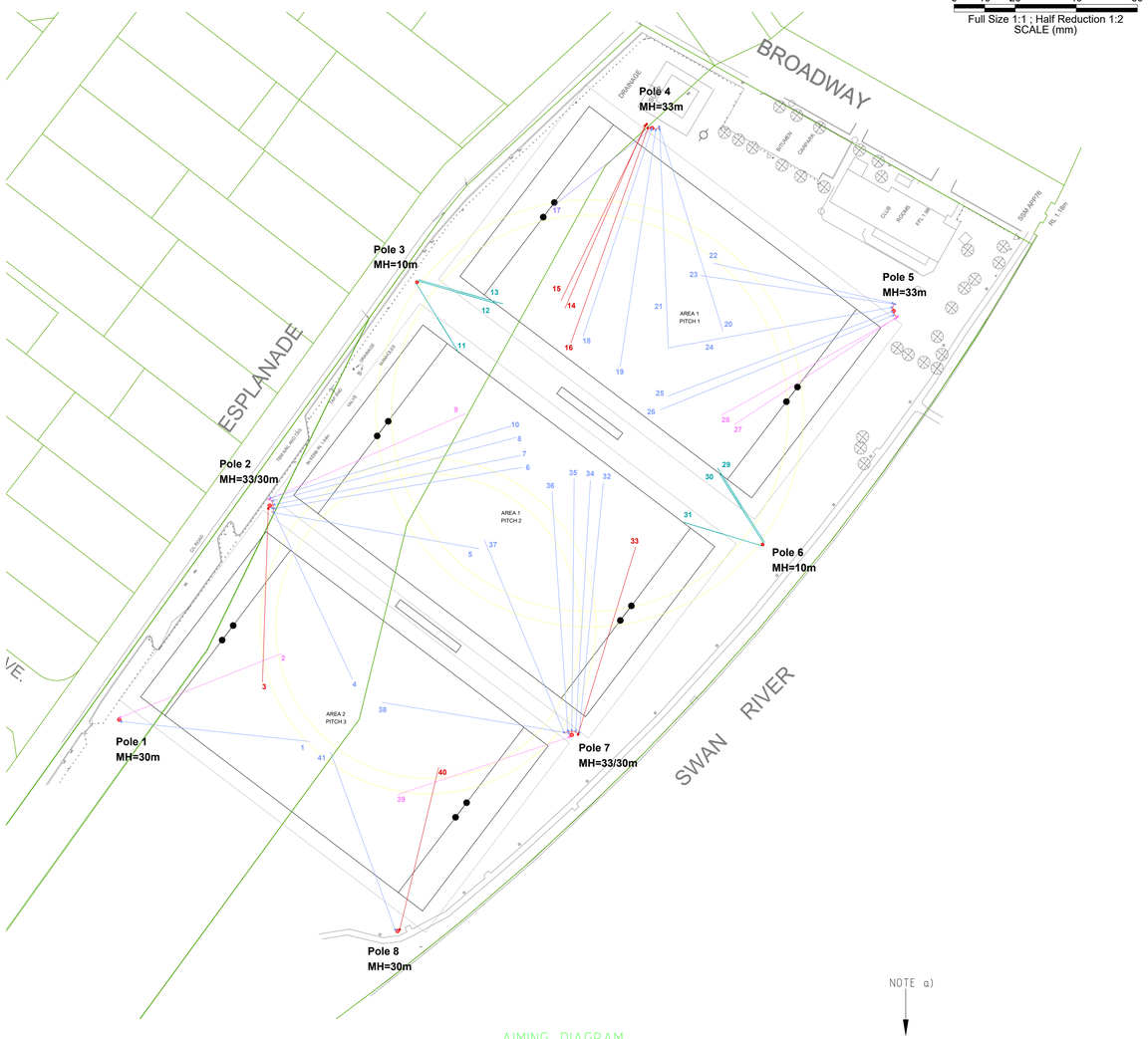
ELECTRICAL SERVICES
CITY OF NEDLANDS
CHARLES COURT RESERVE
POLE 4 & 5 POLE & HEADFRAME ILLUSTRATION

DESIGNED	DRAWN	CHECKED
C.L.	J.H.	C.L.
DATE: 09/05/2025	SCALE: AS SHOWN @A1	

PROJECT No. 3171
DRAWING No. E8A
SHEET 8 OF 9

AIMING SCHEDULE

FLOODLIGHT AIMING SCHEDULE - PCG94							
No	TYPE	MOUNTING HEIGHT	EASTING	NORTHING	DESIGN TILT	AIMING TILT	Project Name
1	SR2A0_BS	30.25	49834.593	259069.439	64	1	Area 2 - 100Lux
2	SR2A0_BS_LS	30.25	49825.416	259098.236	62	-1	Area 2 - 100Lux
3	SR2A0_BS_RS	30.25	49819.219	259088.862	62	-1	Area 2 - 100Lux
4	SR2A0_BS	30.25	49848.658	259089.755	64	1	Area 2 - 100Lux
5	SR2A0_BS	33.25	49890.11	259132.614	64	1	Area 1 - 100Lux
6	SR2A0_BS	33.25	49904.4	259159.286	68	5	Area 1 - 200Lux
7	SR2A0_BS	33.25	49903.835	259163.115	68	5	Area 1 - 100Lux
8	SR2A0_BS	33.25	49902.285	259168.991	68	5	Area 1 - 200Lux
9	SR2A0_BS_LS	32.75	49885.666	259176.798	65	2	Area 1 - 100Lux
10	SR2A0_BS	33.25	49900.711	259172.787	68	5	Area 1 - 100Lux
11	RIVAL_AFC02-LR	10	49877.77	259206.153	57.5	7.5	Area 1 - 100Lux
12	RIVAL_AFC02-LR	10	49885.211	259215.944	57.5	7.5	Area 1 - 100Lux
13	RIVAL_AFC02-LR	10	49884.156	259216.771	55	5	Area 1 - 200Lux
14	SR2A0_BS_RS	33.25	49918.321	259211.343	63	0	Area 1 - 200Lux
15	SR2A0_BS_RS	32.75	49917.053	259213.902	63	0	Area 1 - 100Lux
16	SR2A0_BS_RS	33.25	49920.246	259200.045	66	3	Area 1 - 100Lux
17	SR1A0_BS_RS	20	49913.141	259243.855	65	0	Area 1 - 100Lux
18	SR2A0_BS	33.25	49924.251	259202.2	65	2	Area 1 - 200Lux
19	SR2A0_BS	33.25	49936.381	259192.273	67	4	Area 1 - 100Lux
20	SR2A0_BS	32.75	49970.07	259203.808	65	2	Area 1 - 100Lux
21	SR2A0_BS	33.25	49952.102	259198.749	65	2	Area 1 - 200Lux
22	SR2A0_BS	33.25	49967	259226.107	61	-2	Area 1 - 200Lux
23	SR2A0_BS	32.75	49962.786	259222.131	63	0	Area 1 - 100Lux
24	SR2A0_BS	33.25	49951.805	259198.288	66	3	Area 1 - 100Lux
25	SR2A0_BS	33.25	49952.159	259182.627	67	4	Area 1 - 200Lux
26	SR2A0_BS	33.25	49949.644	259178.122	68	5	Area 1 - 100Lux
27	SR2A0_BS_LS	32.75	49973.735	259173.185	63	0	Area 1 - 100Lux
28	SR2A0_BS_LS	33.25	49969.665	259176.362	63	0	Area 1 - 200Lux
29	RIVAL_AFC02-LR	10	49975.998	259146.836	55	5	Area 1 - 200Lux
30	RIVAL_AFC02-LR	10	49974.944	259147.622	57.5	7.5	Area 1 - 100Lux
31	RIVAL_AFC02-LR	10	49967.705	259138.074	57.5	7.5	Area 1 - 100Lux
32	SR2A0_BS	33.25	49930.879	259154.278	68	5	Area 1 - 100Lux
33	SR2A0_BS_RS	32.75	49941.453	259133.14	63	0	Area 1 - 100Lux
34	SR2A0_BS	33.25	49926.62	259155.097	68	5	Area 1 - 200Lux
35	SR2A0_BS	33.25	49921.312	259155.463	68	5	Area 1 - 200Lux
36	SR2A0_BS	33.25	49914.014	259151.179	67	4	Area 1 - 100Lux
37	SR2A0_BS	33.25	49891.869	259135.463	64	1	Area 1 - 100Lux
38	SR2A0_BS	30.25	49858.39	259082.247	64	1	Area 2 - 100Lux
39	SR2A0_BS_LS	30.25	49863.37	259051.967	63	0	Area 2 - 100Lux
40	SR2A0_BS_RS	30.25	49876.925	259060.839	61	-2	Area 2 - 100Lux
41	SR2A0_BS	30.25	49841.517	259065.992	64	1	Area 2 - 100Lux



AIMING DIAGRAM

AIMING NOTES:

a) X AND Y COORDINATES ARE FOR AIMING PURPOSES ONLY.
b) FLOODLIGHTS TILT ANGLE MUST BE SET AFTER AIMING IS COMPLETE (AS SHOWN IN THE TABLE) OR AS PER SUPPLIER'S RECOMMENDATIONS.
c) HEADFRAME ORIENTATION TO BE AS PER SITE PLAN DRAWING.

SCHEDULE OF LUMINAIRES

Symbol	Qty	Label	Description	Luminaire Lumens	Luminaire Watts	Supplier
	6	RIVAL_AFC02-LR	EWO_Rival_AFC02-LR-FCO-320LED_70CRI-4000K-500mA_PM357247	65859	466.6	LIGHT APPLICATION
	1	SR1A0_BS_RS	SYLVANIA RAPTOR 4 600W - SR1A0G4-740 A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD	77444	601.756	SYLVANIA-SCHREDER
	23	SR2A0_BS	SYLVANIA RAPTOR 4 1200W - SR2A0G4-740 A0 OPTIC CRI70 CCT4000K REAR SHIELD	175057	1233.42	SYLVANIA-SCHREDER
	5	SR2A0_BS_LS	SYLVANIA RAPTOR 4 1200W - SR2A0G4-740 A0 OPTIC CRI70 CCT4000K REAR + LEFT SHIELD	169424	1231.86	SYLVANIA-SCHREDER
	6	SR2A0_BS_RS	SYLVANIA RAPTOR 4 1200W - SR2A0G4-740 A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD	169814	1232.04	SYLVANIA-SCHREDER

SCHEDULE OF SYMBOLS

CONTACTOR - NO
MAKE CONTACT
BREAK CONTACT
TIME SWITCH
CIRCUIT BREAKER
10A SOCKET OUTLET
CONTACTOR OR RELAY COIL
THERMOSTAT
FUSE
ON LOAD ISOLATOR
LINK
R.C.D CIRCUIT BREAKER
ANTI CONDENSATION HEATER
SURGE DIVERTERS
LAMP CONTROL GEAR
CURRENT TRANSFORMER
TERMINAL
kWh METER
AMMETER
VOLTMETER
EARTH
FRAME CONNECTION
1 PHASE
2 PHASE
3 PHASE
TRANSFORMER
CABLE/CONDUIT
POLE
FLOODLIGHT
CABLE PIT
FDB FLOODLIGHTING DISTRIBUTION BOARD
WESTERN POWER PILLAR
10A SOCKET OUTLET

ALL DIMENSIONS ARE IN MILLIMETRES
DRAWN IN ACCORDANCE WITH AS1100-1992
DO NOT SCALE
THIRD ANGLE PROJECTION

A1	ISSUE	REVISION	DATE	CHECKED
	A	ISSUED FOR TENDER	27.05.2025	A.P.

ISSUE	REVISION	DATE	CHECKED

© SAGE CONSULTING ENGINEERS Pty. Ltd.
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A.C.N. 644 065 529

City of Nedlands

ELECTRICAL SERVICES
CITY OF NEDLANDS
CHARLES COURT RESERVE
AIMING SCHEDULE & SCHEDULE OF LUMINAIRES

DESIGNED	DRAWN	CHECKED
C.L.	J.H.	C.L.
DATE 09/05/2025	SCALE 1:1000 @A1	

PROJECT No. 3171
DRAWING No. E9A
SHEET 9 OF 9

Ruth McIntyre
Community Development Project Manager
City of Nedlands

Email: [redacted]

Dear Ruth

Thank you the work that the Shire has been doing with the Nedlands Rugby Union Football Club to allow the facility to be used as host training venue for the Rugby World Cup in 2027.

RugbyWA has requested Field 1 have the capacity of 200 Lux lights for the following purpose:

- To meet the standard for a Professional team to train.
- To meet the standard for a Semi-Professional team to play.

The major purpose of the lighting is for the use of Nedlands club to train given at present they have no real capacity to train after dark. It is likely during the season that the club would use the lights every Tuesday and Thursday evening but they would not need to be turned on greater than 50 Lux (possibly 100 Lux occasionally) for this purpose to enable club participants to train safely.

During the World Cup, the Rugby World Cup staff have indicated that most of the training will occur during the day during the knockout phase (which is the phase being hosted in Perth). At most, it is likely a team may use the lights 1 time during the week they are in Perth for training, so the lights may be turned to 200 Lux 2 or 3 times during the event.

The only other time the club would use the lights at 200 Lux is if they host a Premier Grade game on a Friday or Saturday night. It is unlikely that this will occur more than on 1 occasion per season.

Regards

Simon Taylor
CEO Rugby WA

Grace Patorniti

From: [redacted]
Sent: Friday, 28 November 2025 10:07 AM
To: Rivers Planning
Subject: RE: Referral for Comment - Part 5 - 2025-2109 - Upgrade of lighting and luminaires - Sir Charles Cour Reserve, Nedlands - City of Nedlands

Good morning,

Please be advised that the City has no comments in relation to the lighting upgrades.

Thank you

Amie

CITY OF PERTH
City of Light

Amie Groom
Senior Urban Planner

[redacted]
[redacted]
27 St Georges Terrace, Perth | GPO Box C120, Perth WA 6839
perth.wa.gov.au

From: Rivers Planning <rivers.planning@dbca.wa.gov.au>
Sent: Tuesday, 7 October 2025 3:46 PM
To: planning <planning@cityofperth.wa.gov.au>

Subject: [EXTERNAL] Referral for Comment - Part 5 - 2025-2109 - Upgrade of lighting and luminaires - Sir Charles Cour Reserve, Nedlands - City of Nedlands

Good afternoon,

PART 5 – LOT 5168 0N DEPOSITED PLAN 91504 (RESERVE 22527), SIR CHARLES COURT RESERVE, 181 THE ESPLANADE, NEDLANDS – UPGRADE OF LIGHTING AND LUMINAIRES AT SIR CHARLES COURT RESERVE, THE ESPLANADE, NEDLANDS – CITY OF NEDLANDS

The Department of Biodiversity, Conservation and Attractions (DBCA) has received an application for the above mentioned development. The application can also be downloaded from our website here Upgrade of lighting and luminaires at Sir Charles Court Reserve, The Esplanade, Nedlands | Department of Biodiversity, Conservation and Attractions. Your department is invited to provide comments and recommendations considered relevant to this proposal.

Prior to the report being prepared, the application has been referred to relevant agencies for comments and advice. Accordingly, please provide a response to this office within **42 days** of receipt of this email. Should you not be able to respond within this time, please notify the department as soon as possible, outlining the reasons for the delay and a date when a response may be available.

In preparing your response, please be aware that it may be made available for viewing by the public, unless otherwise requested.

Please forward your response via email to rivers.planning@dbca.wa.gov.au. Should there be any queries regarding this matter, please contact DBCA's Swan Canning Waterways Branch on 9219 9000 or rivers.planning@dbca.wa.gov.au and quote reference number **2025-2109.**

Yours sincerely

Statutory Assessments
Swan and Canning Waterways Branch
Department of Biodiversity, Conservation and Attractions
17 Dick Perry Avenue, Kensington WA 6151
Locked Bag 104, Bentley Delivery Centre WA 6983
Email: rivers.planning@dbca.wa.gov.au Web: www.dbca.wa.gov.au

We acknowledge the Whadjuk people as the Traditional Owners of this land

Department of **Biodiversity, Conservation and Attractions**

City of Nedlands
ABN 92 614 728 214

Enquiries: [redacted]
Our reference: 14102025CCR Lighting
Your reference: PART 5 – PART 5 – LOT 5168 ON DEPOSITED PLAN 91504 (RESERVE 22527) & Lot 0 on Plan 4480, SIR CHARLES COURT RESERVE, 181 THE ESPLANADE, NEDLANDS – UPGRADE OF LIGHTING AND LUMINAIRES AT SIR CHARLES COURT RESERVE – CITY OF NEDLANDS

15 October 2025

Statutory Assessments
Swan Canning Waterways Branch
Department of Biodiversity, Conservation and Attractions
17 Dick Perry Avenue, Kensington WA 6151

Upgrade of lighting and luminaires at Sir Charles Court Reserve, The Esplanade, Nedlands

In accordance with section 73(1)(a) of the Swan and Canning Rivers Management Act 2006, which requires the DBCA to formally refer applications to local governments where deemed relevant by the CEO, I would like to provide additional feedback on the proposed application. This feedback is informed by both current and draft City of Nedlands' plans that are relevant to the existing and intended future use of the area.

Both structured and unstructured sport and recreation activities continue to be in high demand, particularly in inner urban areas such as the City of Nedlands, where increased residential density is both projected and planned. In response, the City has developed initiatives such as the Strategic Sporting Facilities Plan to ensure that existing and planned sporting infrastructure remains responsive to the needs of a growing youth and adult population.

However, there is currently a shortfall in contemporary facilities that adequately meet the evolving sporting requirements and community expectations. Many existing facilities do not comply with statutory regulations or Australian Standards and fail to align with the design principles outlined by national and state sporting bodies.

Incorporating critical sporting infrastructure elements such as compliant floodlighting into current and future upgrade programs is essential to ensure the long-term viability, functionality, and safety of sporting infrastructure.

The transition to LED floodlighting supports more sustainable asset management by significantly reducing operational costs and maintenance requirements, while also enhancing safety for both players and the broader community. Historically, the City has limited

floodlighting provision to 50 lux to support recreational-level sporting activities. However, many large-ball sports now advocate for a minimum standard of 100 lux, reflecting evolving participation demands and safety considerations.

As with many local governments, this shift has prompted the City to review and upgrade planned floodlight replacements across its reserves. There is a clear need to future-proof active sport and recreation facilities to ensure they remain fit-for-purpose, meet contemporary standards, and align with the expectations of current and future users.

Integrating connectivity objectives into the development of public open space is essential to enhancing community service delivery and enabling a broader range of sporting and recreational activities. Ensuring high levels of accessibility and local integration directly contributes to fostering a more engaged community, increasing physical activity participation, and promoting positive mental health and wellbeing outcomes.

This proposal acknowledges the social value and return on investment that such development delivers, particularly through its contribution to improved community health and wellbeing. It also demonstrates strong alignment with the City's Integrated Planning Framework, and specifically supports the strategic outcomes identified within the Council Plan, as outlined below.

City of Nedlands Council Plan 2023-33
This plan combines our Strategic Community Plan and Corporate Business Plan into one document. It articulates the community's vision, outcomes and strategic priorities for the next 10-years, and outlines the City's four-year delivery program.

There are several outcomes and objectives of the Council Plan that this proposed development will help achieve, through upgrading and improving the lighting at Charles Court Reserve.

Outcome 2. A Healthy, active and safe community
Objective 2.2 Grow participation in sport and recreation activities
Objective 2.5 Provide safe community spaces

Outcome 3. A caring and supportive community for all ages and abilities.
Objective 3.1. Support the health and wellbeing of families and children
Objective 3.2. Support young people to flourish
Objective 3.4. Advance opportunities, community participation and quality of life for people with disability.

Outcome 7. Attractive and welcoming places.
Objective 7.2 Enhance playgrounds, parks and reserves.

Foreshore Management Plan
The City of Nedlands Foreshore Management Plan (Management Plan) was prepared in partnership with the Department of Biodiversity, Conservation and Attractions (DBCA) to provide long term, strategic guidance for the future management of the City of Nedlands foreshore over the next 30 years and beyond.

Management Plan Outcomes relevant to the proposal
Outcome 2 Space for social connections and recreation in balance with the protection of environmental values
Objective 2.1 Promote different recreational activities in appropriate locations.
Objective 2.2 Build relationships to optimise recreational opportunities within the foreshore.
Action 2.2.1. Partner with the Nedlands Rugby Club to plan for the long-term sustainability of the Club, having consideration of future impacts of rises in sea levels and extreme weather events on the useability of Charles Court Reserve.

Area Specific Objectives relevant to the proposal
Outcome 5 Place-based planning and delivery for optimal outcomes
Objective 5.9 At Charles Court Reserve, support active recreation, transitioning to nature-based solutions providing improved access to the beach shoreline, with greenway tree plantings and stormwater management for ecological benefit.
Action 5.9.1 Seek private and/or Government funding to assist with the design and construction of the endorsed concept.
Action 5.9.2 Undertake detailed design and construction at Charles Court Reserve having consideration of the recommended elements and staging of the proposed concept. Stage 1: Retain active recreation function until an appropriate alternative location is available.
Action 5.9.3 Stage 2: Option 2: Investigate modifications required to retain and/or enhance the active sports precinct.

Strategic Active Sports Facilities Plan 2025-2045 (in draft)
City Wide Recommendations
9. Establish the principle of replacing all floodlighting with minimum 100lux LED lights.
10. Establish the principal of a financial contribution wherever possible to the development of the facilities for the benefit of community organisations.
14. Establish the prioritisation of investment.
16. Facilitate the development of effective partnerships with other sport and recreation service providers to maximise and coordinate opportunities for residents.

8.6 Foreshore precinct (Charles Court Reserve) recommendations

45. Retain the existing rugby club facility with the extension of the facility to accommodate female change rooms.
47. New LED floodlights 100lux (value to be determined amateur level use).
50. Retain existing rugby pitches (senior pitches) and the option to create a third which could provide for additional training and junior rugby / festivals / tournaments.

City of Nedlands Local Planning Scheme No. 3 – Updated January 2020

The LPS identifies the following objectives relevant to this development.

- To provide for a range of active and passive recreation uses such as recreation buildings and courts and associated car parking and drainage.
- To provide for a range of community facilities which are compatible with surrounding development.
- To provide public purposes which specifically delivera range of public recreational facilities.

Under projected recreational needs, the Scheme indicates the City is well serviced with a number of parks, reserves and recreational facilities. It states there is ample Public Open Space of the regional and district orders to cater for anticipated population increases.

City of Nedlands Disability Access and Inclusion Plan 2023-24

The DAIP aims to improve access for all. This includes not just people with a permanent disability, but also parents with young children and prams, the elderly and people from cultural and linguistically diverse backgrounds, as well as those community members who have a temporary impairment.

Outcome 2: Buildings and Facilities states that people with disability have the same opportunities as other people to access the buildings and other facilities of the City of Nedlands.

Sporting clubs and reserves are essential for building community connections, encouraging healthy competition, and supporting both individual and community development. This project will deliver direct benefits to the residents of the City of Nedlands by continuing to support these groups and the facilities they rely on.

This proposed lighting upgrade project aligns with the City's planning framework and the community's vision. It also supports the Foreshore Management Plan, making it a vital investment to help the City manage limited resources efficiently while meeting the needs of the community.

Yours sincerely

71 Stirling Highway Nedlands WA 6009 • PO Box 9 Nedlands WA 6909
T 08 9273 3500 F 08 9273 3670 E council@nedlands.wa.gov.au

Keri Shannon
Chief Executive Officer

71 Stirling Highway Nedlands WA 6009 • PO Box 9 Nedlands WA 6909
T 08 9273 3500 F 08 9273 3670 E council@nedlands.wa.gov.au

City of Nedlands

ABN 92 614 728 214

nedlands.wa.gov.au

ATTACHMENT 2

Summary of public submissions – Part 5 application for Charles Court Reserve (2025/2109)

Issue	DBCA response
SUPPORT	
The lighting will support the rugby training and other community activities associated with the Nedlands Rugby Club and the parkland.	Noted.
The upgrade is overdue and doesn't impact the resident's Tuesday and Thursday evenings.	Noted.
The Club and its facilities are a fantastic asset to the community and promote health and wellbeing benefits to its players and supporters.	Noted
The upgrade would improve the useable area of the facilities at night and presumably also improve safety risks for users.	Noted.
Improving the facility will attract more players, including woman and girls to grow the sport.	Noted.
The better lighting promotes greater night use by users not related to the Club for recreation and dog walking.	Noted.
The new lighting is important for young people so that they have access to this beautiful playing field as much as possible and helps keep them in engaged in sport.	Noted.
Happy to have the new lights installed; however a concern about them being left on all night, which happens regularly now.	Noted. The proposed lighting hours of use are outlined in the Draft Report, Figure 3. Automatic timers will be installed to ensure adherence to specified hours of use.
OBJECTION	
Strongly opposed this proposal in any shape or form because these massive light towers, increased in parking	It is acknowledged that the poles will be visible to residents and may diminish the quality of views for residents. The lighting information from Sage Consulting

ATTACHMENT 2

Issue	DBCA response
and the increase in noise level will adversely affect our views, amenity and quiet enjoyment of this reserve.	complies with Australian Standard *AS/NZS4282:2023 Control of the obtrusive effects of outdoor lighting* zone A3 Medium district brightness of less than 10 lux. The proposal relies on existing parking provisions – no additional parking is proposed. The proposed lighting hours of use will not significantly change from the current use (see Draft Report, Figure 3), so there is not likely to be a significant increase in noise levels.
No objection to the number of light towers being increased from six to eight. Objection to four of the towers being 33 metres high and two are 30 metres high and the location of the Northern Eastern metre tower on Field One. The proponents be requested to provide: • An artistic image of their plan; • Plans that significantly lower than the height of the six towers that are 30 metres plus; with • The location of the Eastern Towers adjusted to closer to the tree line top reduce a visual impairment.	Since the initial advertising of the application, the applicant has provided photos of poles that are similar to those proposed (see the Draft Report, Figure 4). The applicant had opportunities to amend the lighting plan but advised to proceed with the application with no alterations or variations, other than the potential of planting shrubs at 1-1.5m along the river wall.
The linked report [supporting information] is deficient and deceptive in that it fails to provide: • Any projected artists image of the proposed towers; • Fails to disclose the height of the existing towers (which I estimate to be 10 metres high) and the extraordinary increased height planned; and • Fails to provide any technical reason for the need to increase the towers.	Since the initial advertising of the application, the applicant has provided photos of poles that are similar to those proposed (see the Draft Report, Figure 4). The existing towers are 10 high. Also, that the lighting has been designed to meet the *Australian Standards for Sports Lighting* (AS2560.2) for Football (all codes).
Strong objection to the proposal which includes four of the towers being 33 metres high and two of 30 metres high. Inappropriate height particularly in a residential area.	Noted. The lighting has been designed to meet the *Australian Standards for Sports Lighting* (AS2560.2) for Football (all codes).

ATTACHMENT 2

Issue	DBCA response
Part of the rationale for lighting upgrade is for training for Rugby World Cup teams, between 21 September and 25 October 2027 and only be used for some 9 hours.	Correct. The proposed lighting hours of use are outlined in the Draft Report, Figure 3.
The proposal seems to me to be totally unnecessary as users seem to be able to enjoy and use the facilities appropriately.	Noted.
The proposed lighting will be obtrusive and limit peace and enjoyment of our property. It will cause glare and obstruct natural views of the river (5-9pm).	The lighting information from Sage Consulting complies with Australian Standard *AS/NZS4282:2023 Control of the obtrusive effects of outdoor lighting* zone A3 Medium district brightness of less than 10 lux.
Charles Court Reserve is not designed for a large commercial sports venue; other issues such as limited parking, poor water drainage, and erosion (along paths near facility) have not been rectified.	Noted. The main reason for the application is to increase lighting to support community-based sports clubs.
Residents regard this area as a nature reserve with some sports activities. A careful balance of different types of recreation should be considered; however the river and its natural pristine environment should not be compromised by commercial activity.	The City of Nedlands' *Foreshore Management Plan* (2025) identifies that Charles Court Reserve is for active recreational use. The main reason for the application is to increase lighting to support community-based sports clubs.
Much needed upgrades and money should be spent on: improved storm water drainage, repair of retaining walls along the river, tree planting and improved landscaping for fauna.	Noted.
Increased night events would worsen traffic congestion, parking shortages, and create safety risks on narrow Esplanade. Requests inclusion of an on-site car park if lighting proceeds to address convenience and safety.	The proposed lighting hours of use will not significantly change from the current use (see Draft Report, Figure 3), so there is not likely to be a significant increase in traffic or parking requirements.
Prefers retaining current lighting to avoid large-scale development similar to the WACA and serving mainly non-ratepayers.	The proposed lighting hours of use will not significantly change from the current use (see Draft Report, Figure 3). The main reason for the application is to increase lighting to support community-based sports clubs.

Charles Court Reserve

Photos taken 29 August 2025

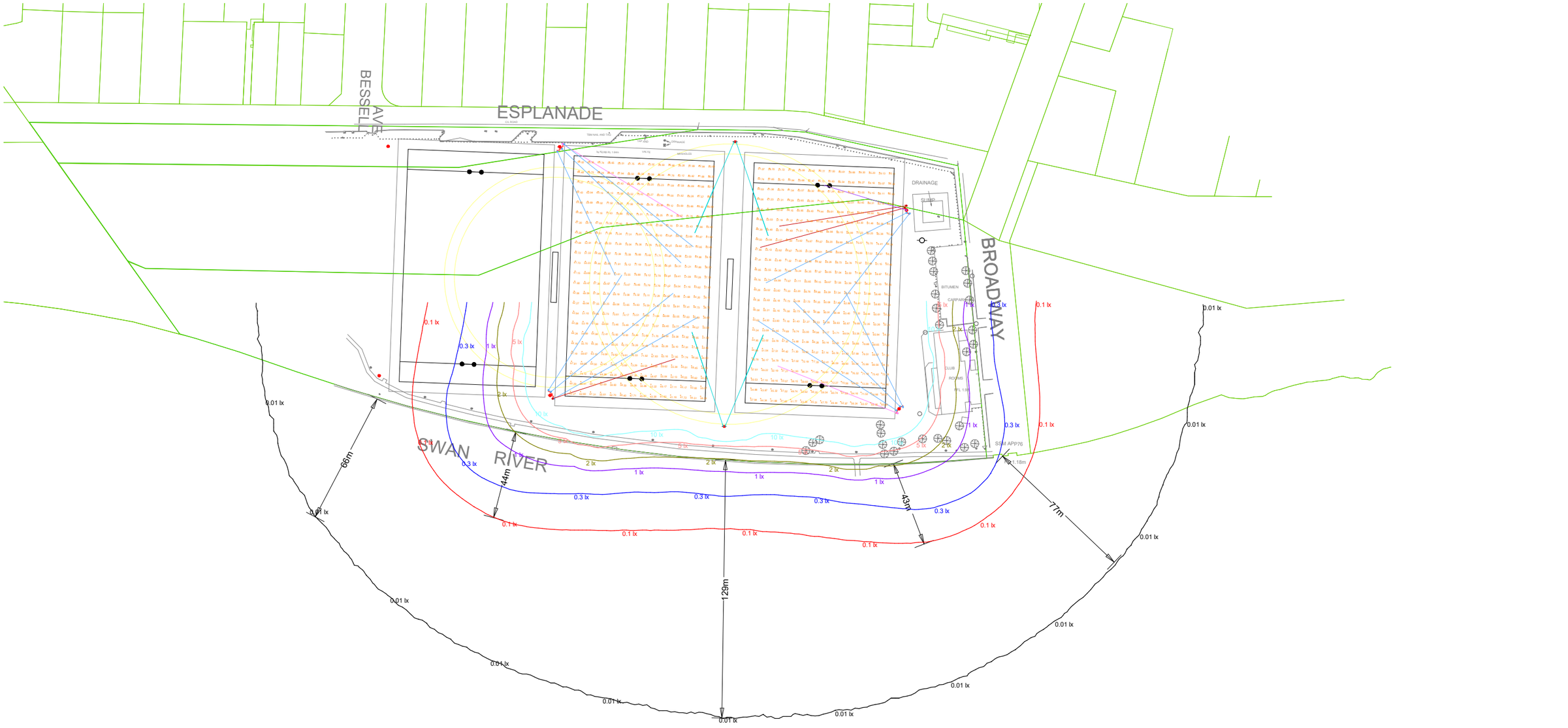
Western side of reserve looking at existing light tower (10m high) in front of 39 Esplanade.

Eastern side of reserve, next to the river, looking across to apartments at 35 Esplanade.

Northern side of reserve at the rugby clubroom, existing light tower (10m high).

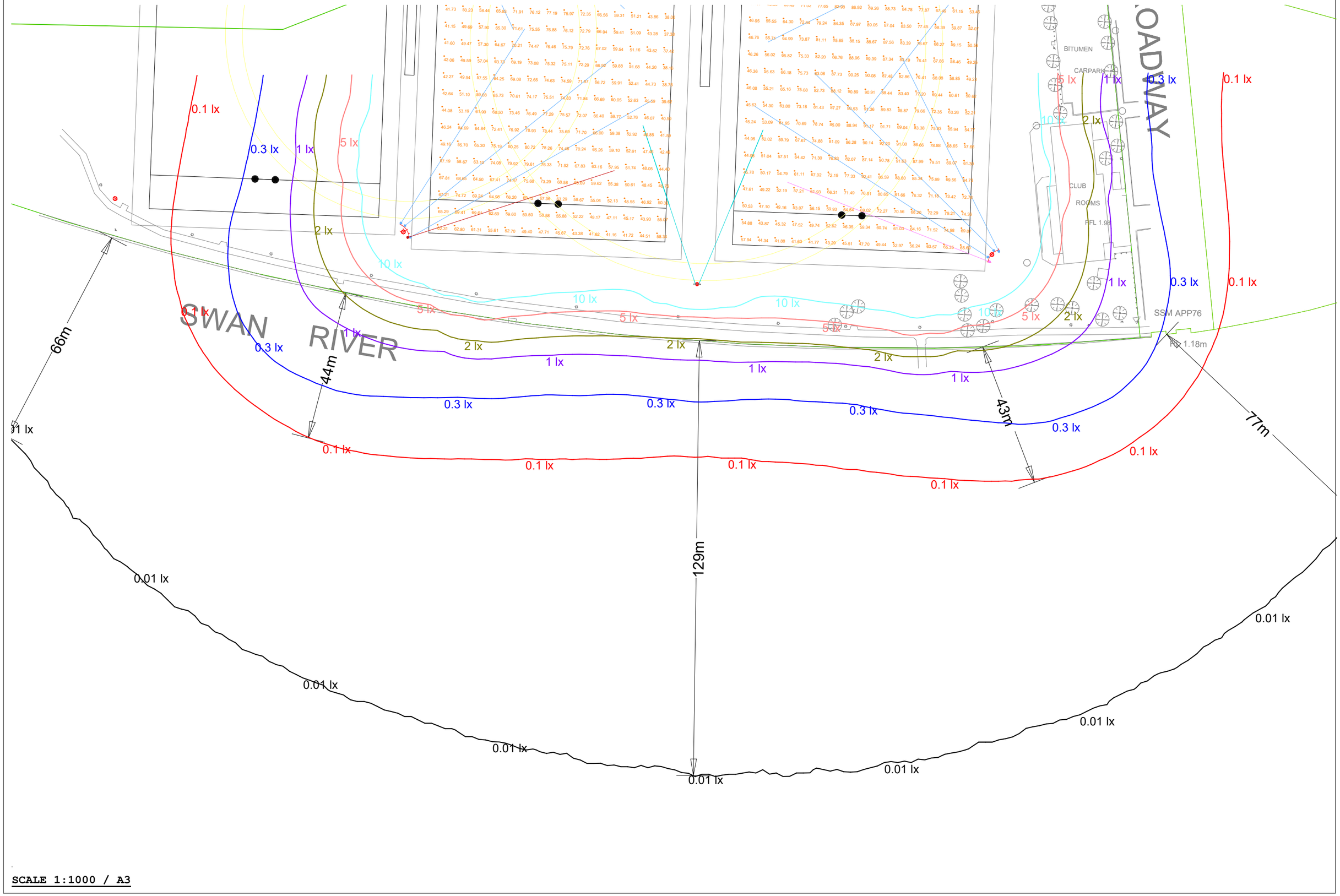
Northern side of reserve at the rugby clubroom carpark, existing light tower (10m high).

3171 Charles Court Reserve (Scenario 4 - 50lux, 50lux, off)



SCALE 1:2000 / A3

SAGE CONSULTING ENGINEERS



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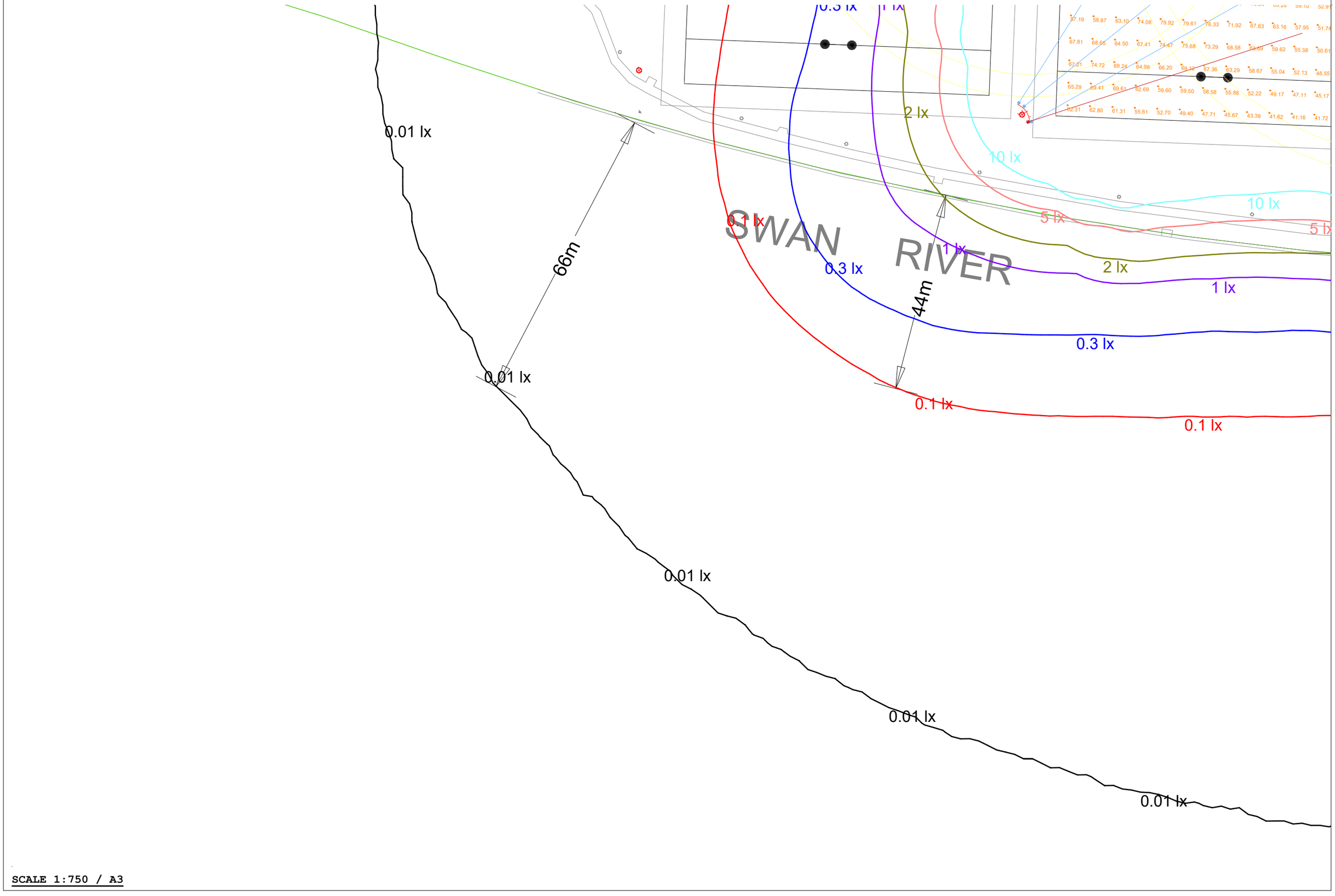
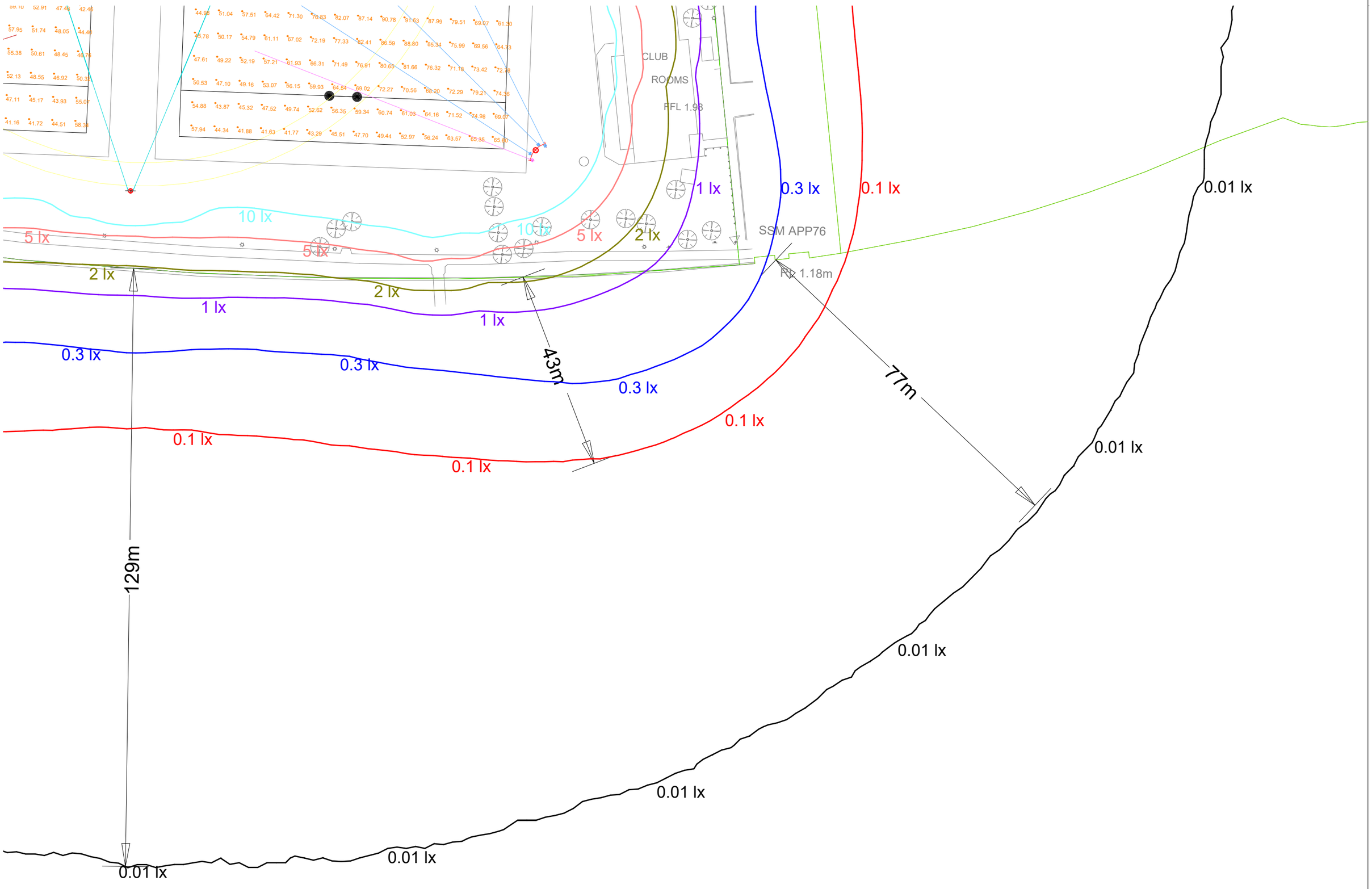


SCALE 1:750 / A3

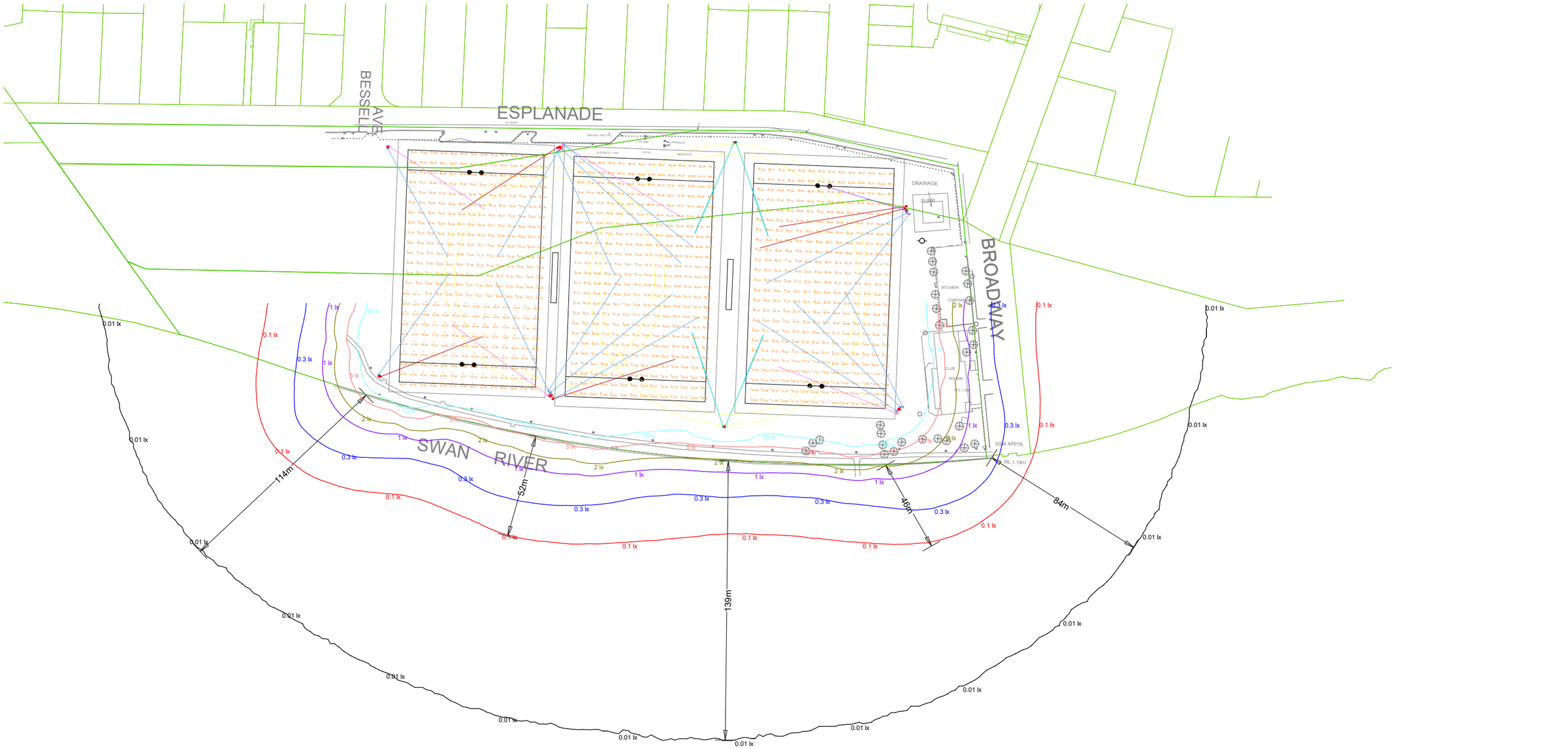


SCALE 1:750 / A3

Luminaire Schedule							
Symbol	**Qty**	**Label**	**Description**	**LLF**	**Luminaire Lumens**	**Luminaire Watts**	**Total Watts**
	11	A0G4-740_BS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR SHIELD - Imax occurs at	0.500	175057	1233.42	13567.62
	3	A0G4-740_BS_RS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax oc	0.500	169814	1232.04	3696.12
	2	A0G4-740_BS_LS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + LEFT SHIELD - Imax occ	0.500	169424	1231.86	2463.72
	4	Rival 467W_AFC02-LR	ewo_Rival_AFC02-LR-FCO-320led	0.500	65859	466.6	1866.4
	1	A0G4-740_600W_BS_RS_65	SR1A0G4-740 RAPTOR 4 600W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax occ	0.500	77444	601.756	601.756

Calculation Summary							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Min/Avg**	**Min/Max**
Rugby pitch 1 - Eh	Illuminance	Lux	67.25	94.80	20.11	0.30	0.21
Rugby pitch 1 - Eh_reduced	Illuminance	Lux	69.76	94.80	40.79	0.58	0.43
Rugby pitch 2 - Eh	Illuminance	Lux	60.21	80.72	36.28	0.60	0.45

3171 Charles Court Reserve (Scenario 3 - 50lux, 50lux, 50lux)



SCALE 1:2000 / A3

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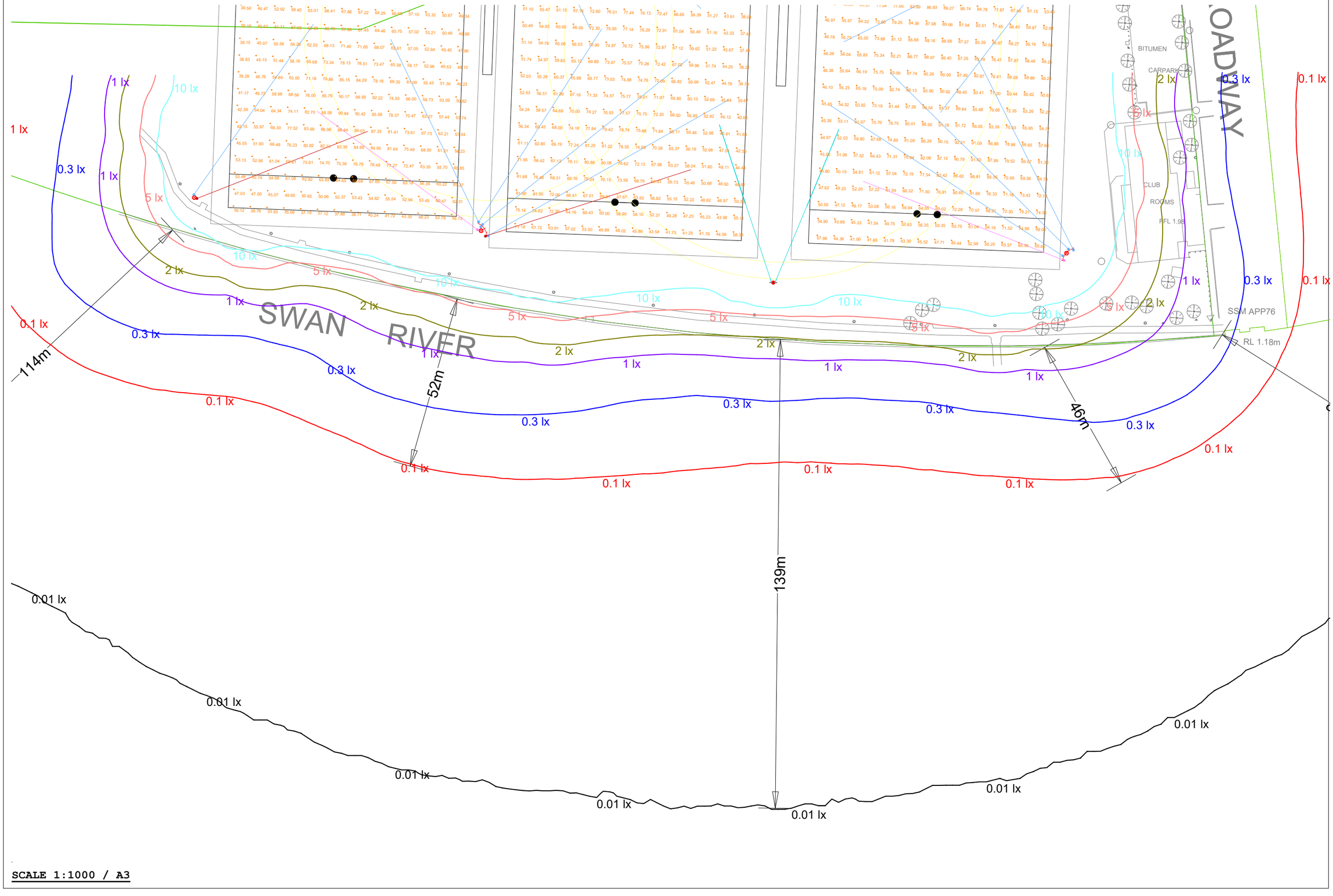
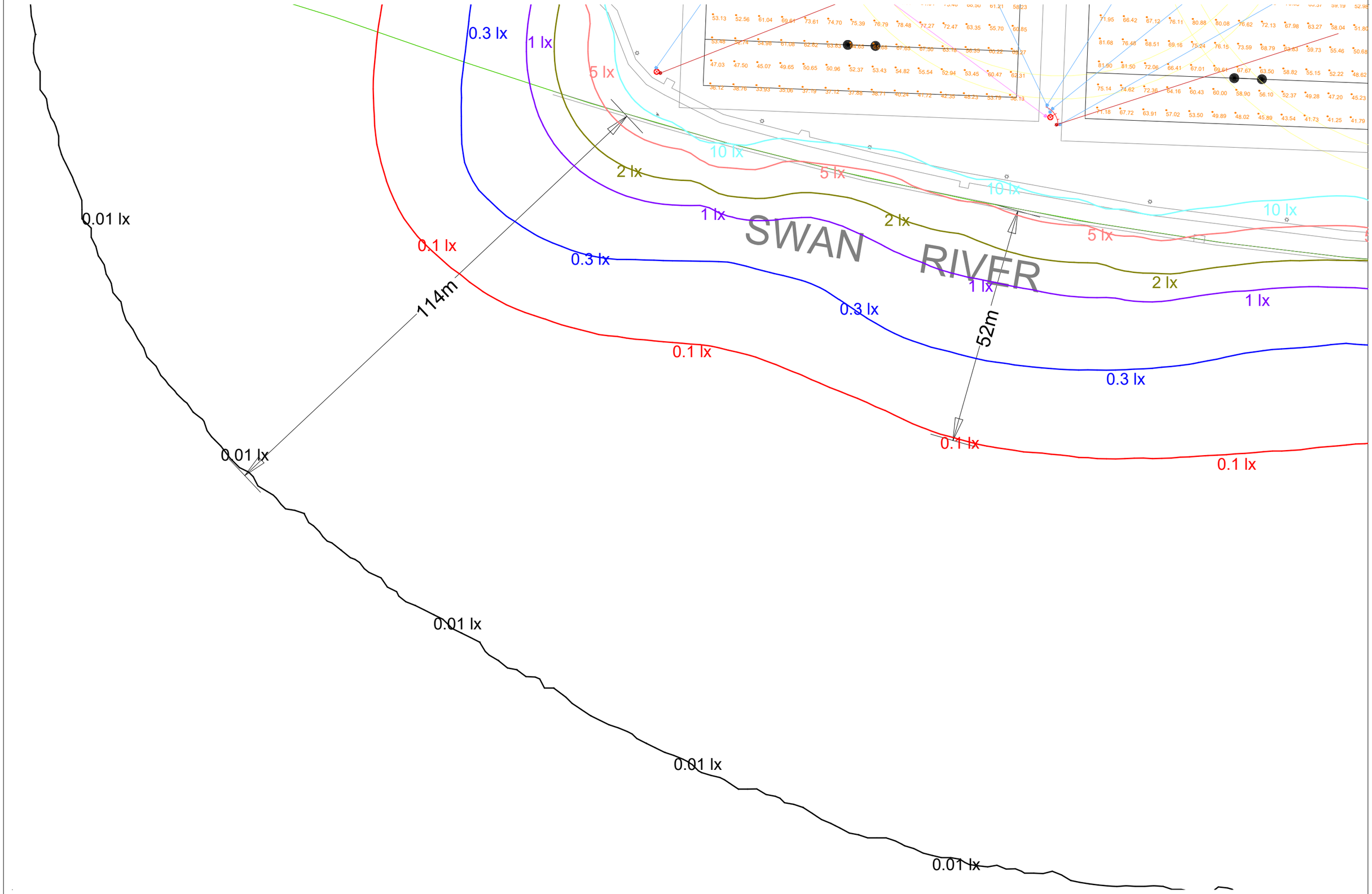
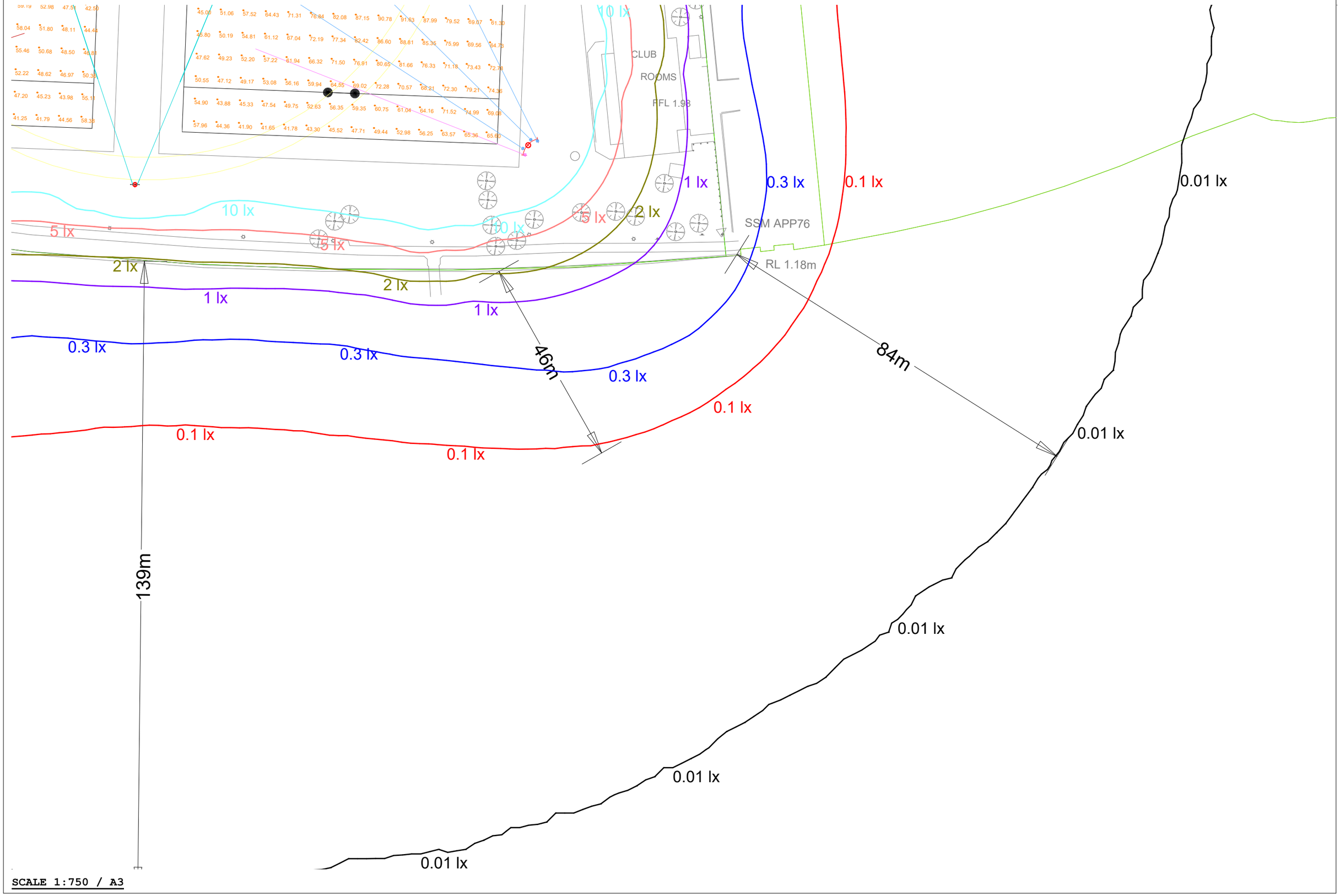

SWAN RIVER
BITUMEN
CARPARK
CLUB ROOMS
RFL 1.98
SSM APP76
RL 1.18m
ROADWAY
1 lx
0.3 lx
0.1 lx
2 lx
5 lx
10 lx
114m
52m
46m
139m
0.01 lx
SCALE 1:1000 / A3



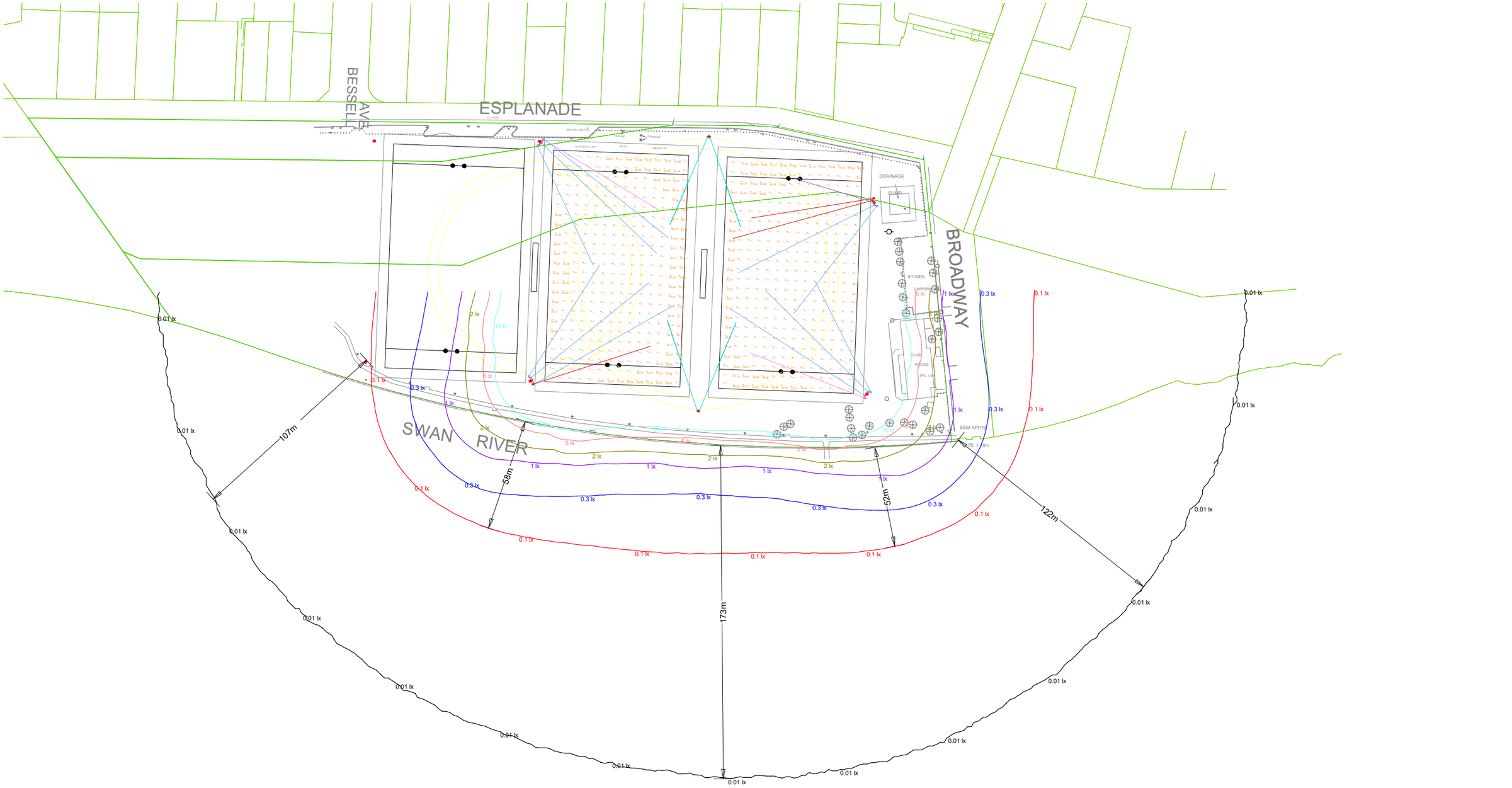
SCALE 1:750 / A3


CLUB
ROOMS
FFL 1.93
SSM APP76
RL 1.18m
10 lx
5 lx
2 lx
1 lx
0.3 lx
0.1 lx
0.01 lx
46m
84m
139m
SCALE 1:750 / A3

Luminaire Schedule							
Symbol	**Qty**	**Label**	**Description**	**LLF**	**Luminaire Lumens**	**Luminaire Watts**	**Total Watts**
	15	A0G4-740_BS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR SHIELD - Imax occurs at	0.500	175057	1233.42	18501.301
	5	A0G4-740_BS_RS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax oc	0.500	169814	1232.04	6160.2
	4	A0G4-740_BS_LS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + LEFT SHIELD - Imax occ	0.500	169424	1231.86	4927.44
	4	Rival 467W_AFC02-LR	ewo_Rival_AFC02-LR-FCO-320led	0.500	65859	466.6	1866.4
	1	A0G4-740_600W_BS_RS_65	SR1A0G4-740 RAPTOR 4 600W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax occ	0.500	77444	601.756	601.756

Calculation Summary							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Min/Avg**	**Min/Max**
Rugby pitch 1 - Eh	Illuminance	Lux	67.26	94.81	20.12	0.30	0.21
Rugby pitch 1 - Eh_reduced	Illuminance	Lux	69.76	94.81	40.80	0.58	0.43
Rugby pitch 2 - Eh	Illuminance	Lux	61.89	83.60	36.36	0.59	0.43
Rugby pitch 3 - Eh	Illuminance	Lux	62.40	91.98	33.93	0.54	0.37

3171 Charles Court Reserve (Scenario 2 - 100lux, 100lux, off)



SCALE 1:2000 / A3

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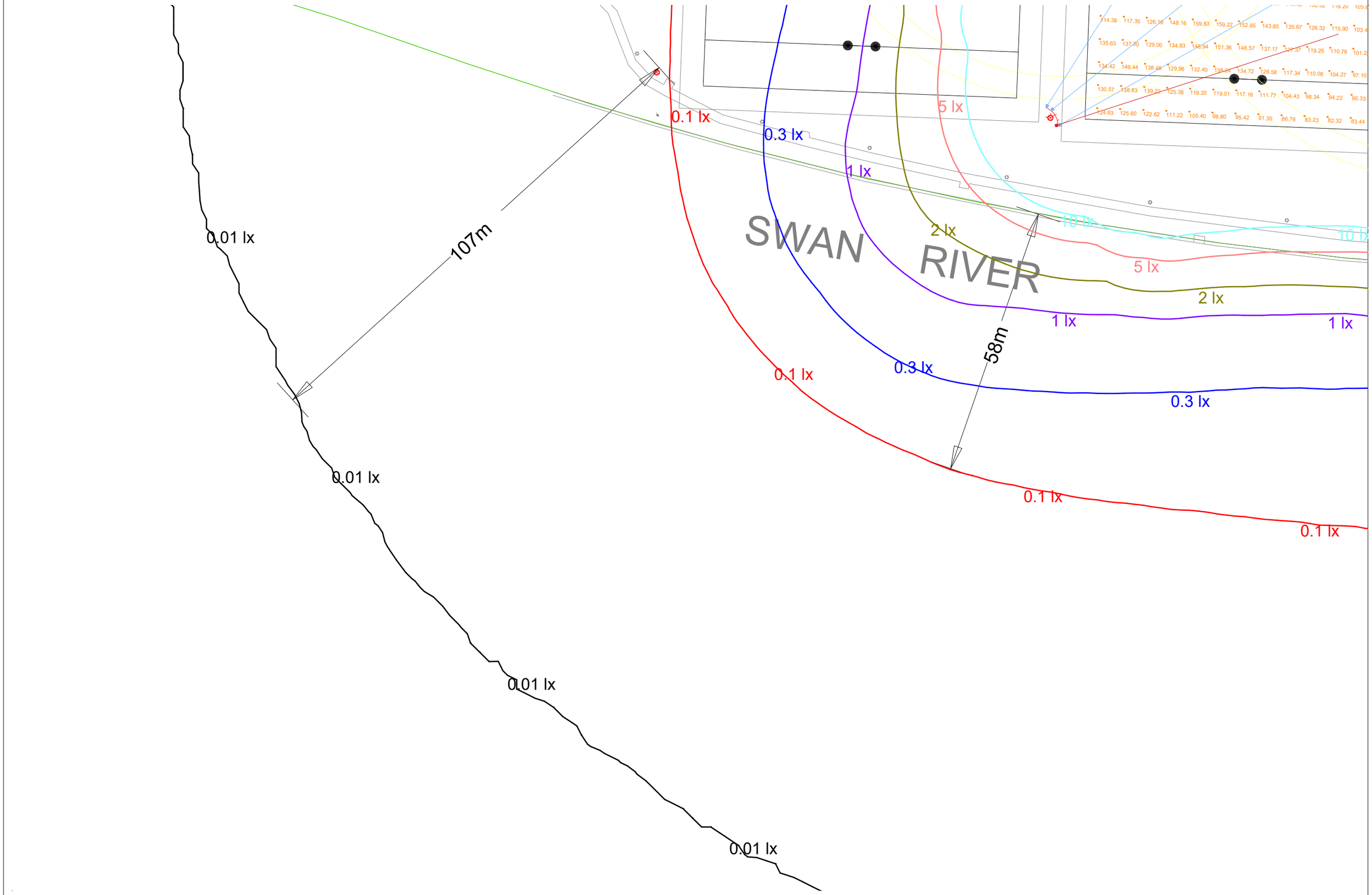
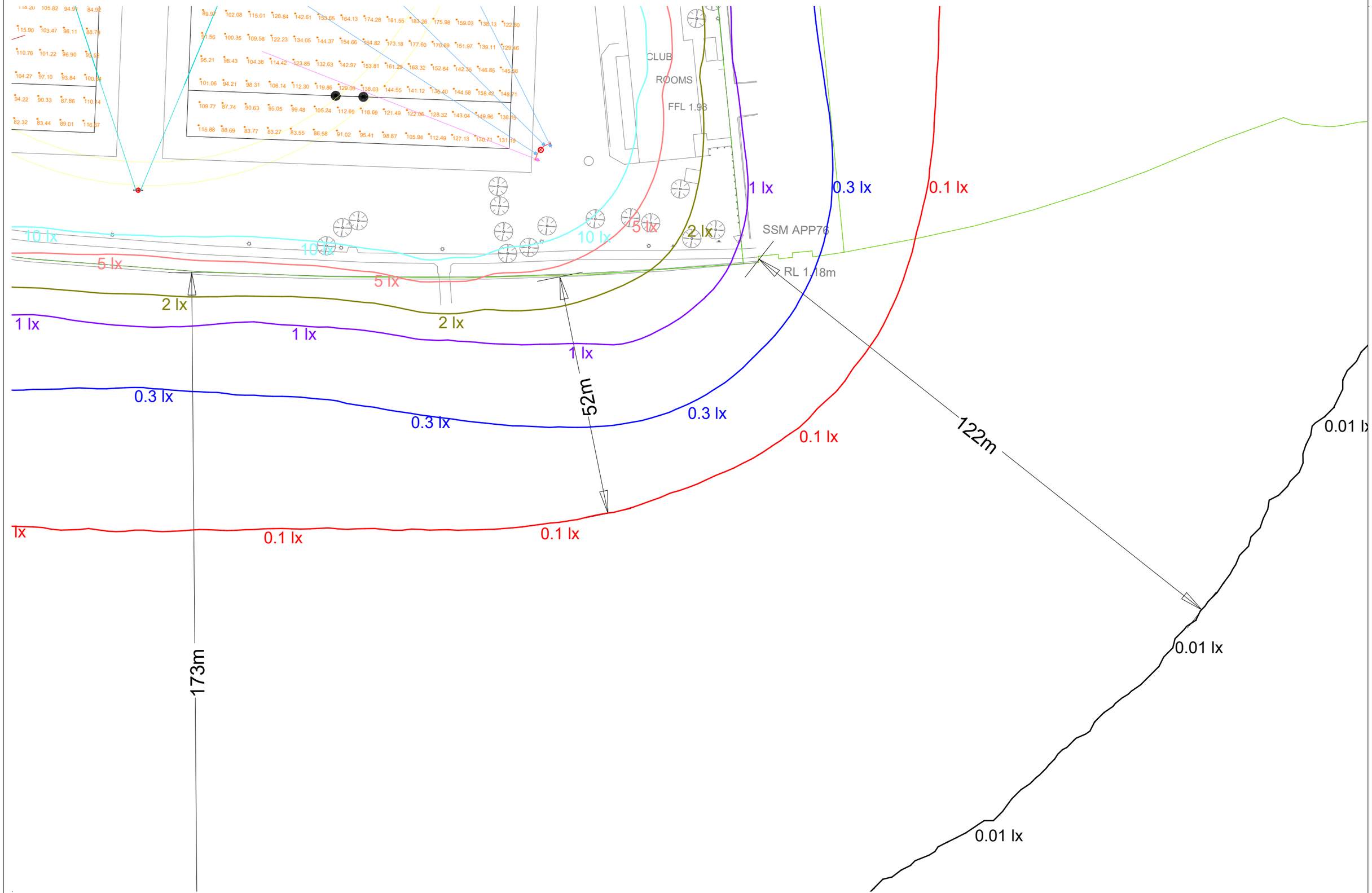
DRAINAGE
SUMP
BROADWAY
BITUMEN
CARPARK
CLUB
ROOMS
FFL 1.99
SSM APP76
RL 1.18m
SWAN RIVER
0.1 lx
0.3 lx
1 lx
2 lx
5 lx
10 lx
58m
52m
173m
122m
0.01 lx
SCALE 1:1000 / A3



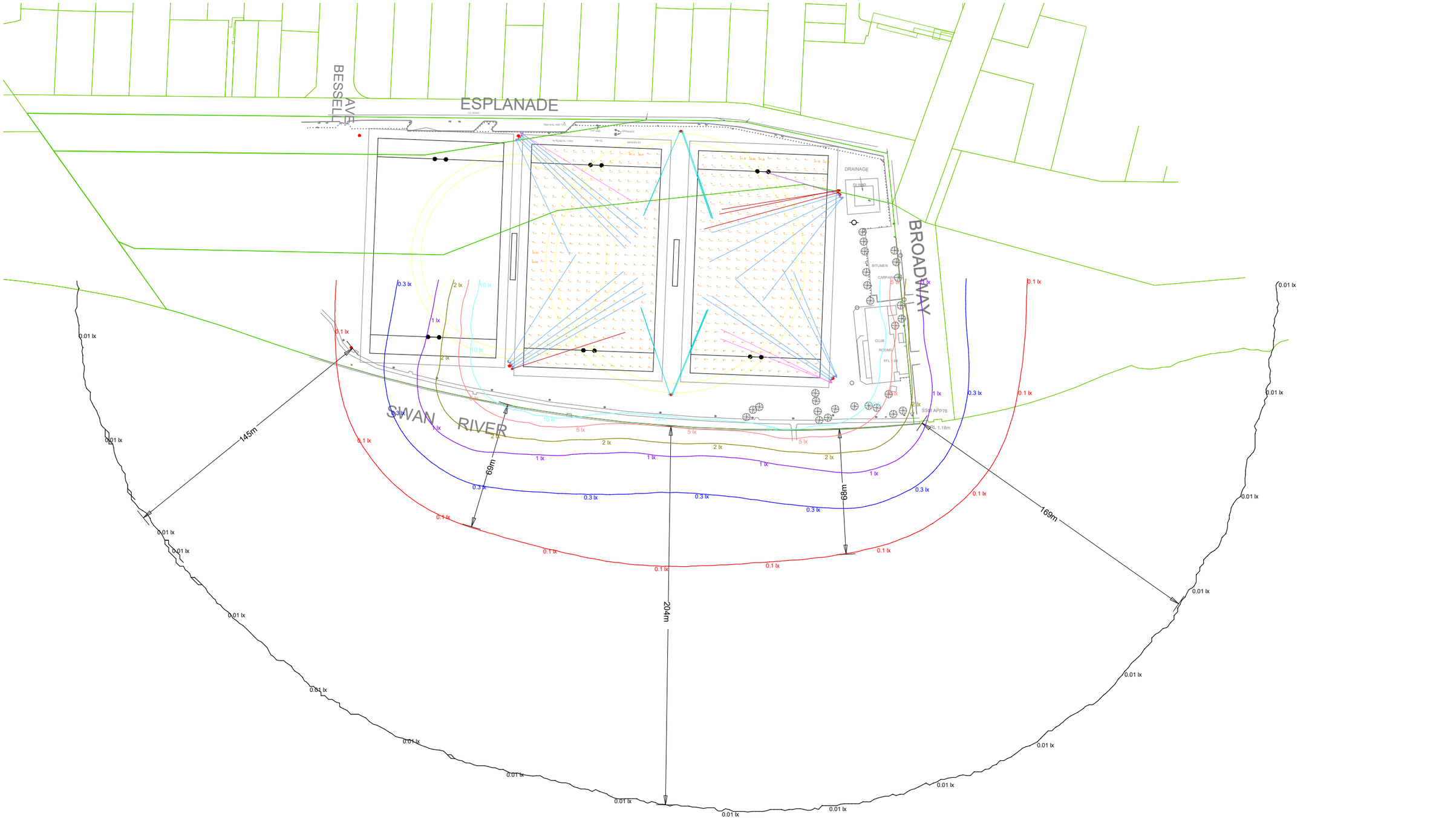
SCALE 1:750 / A3


CLUB
ROOMS
FFL 1.93
SSM APP76
RL 1.18m
1 lx
0.3 lx
0.1 lx
10 lx
5 lx
2 lx
52m
122m
173m
0.01 lx
SCALE 1:750 / A3

Luminaire Schedule							
Symbol	**Qty**	**Label**	**Description**	**LLF**	**Luminaire Lumens**	**Luminaire Watts**	**Total Watts**
	1	A0G4-740_600W_BS_RS_65	SR1A0G4-740 RAPTOR 4 600W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax occ	1.000	77444	601.756	601.756
	11	A0G4-740_BS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR SHIELD - Imax occurs at	1.000	175057	1233.42	13567.62
	2	A0G4-740_BS_LS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + LEFT SHIELD - Imax occ	1.000	169424	1231.86	2463.72
	3	A0G4-740_BS_RS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax oc	1.000	169814	1232.04	3696.12
	4	Rival 467W_AFC02-LR	ewo_Rival_AFC02-LR-FCO-320led	1.000	65859	466.6	1866.4

Calculation Summary							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Min/Avg**	**Min/Max**
Rugby pitch 1 - Eh	Illuminance	Lux	134.50	189.60	40.23	0.30	0.21
Rugby pitch 1 - Eh_reduced	Illuminance	Lux	139.51	189.60	81.58	0.58	0.43
Rugby pitch 2 - Eh	Illuminance	Lux	120.42	161.44	72.57	0.60	0.45

3171 Charles Court Reserve (Scenario 1 - 200lux, 100lux, off)



SCALE 1:2000 / A3

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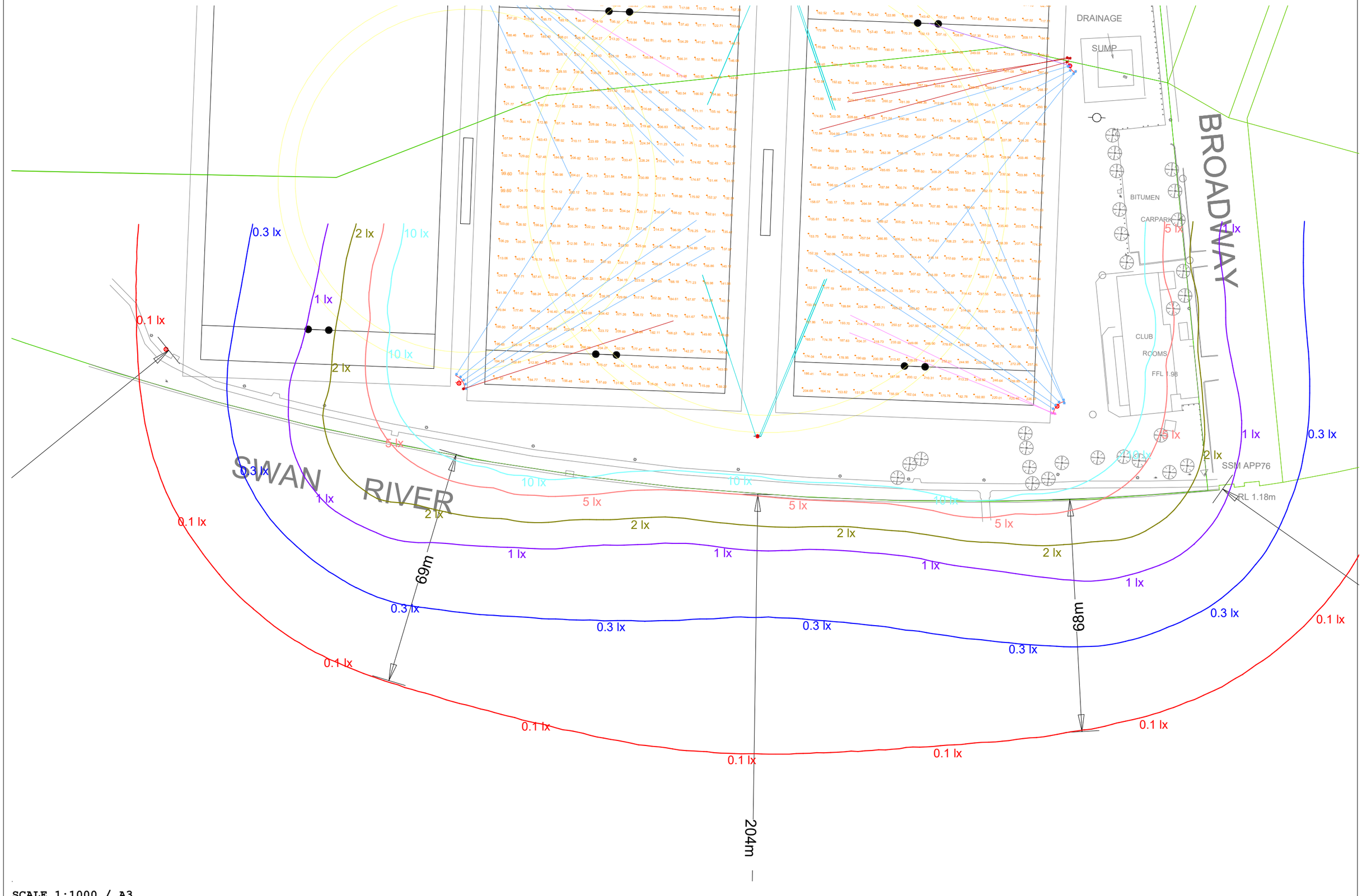
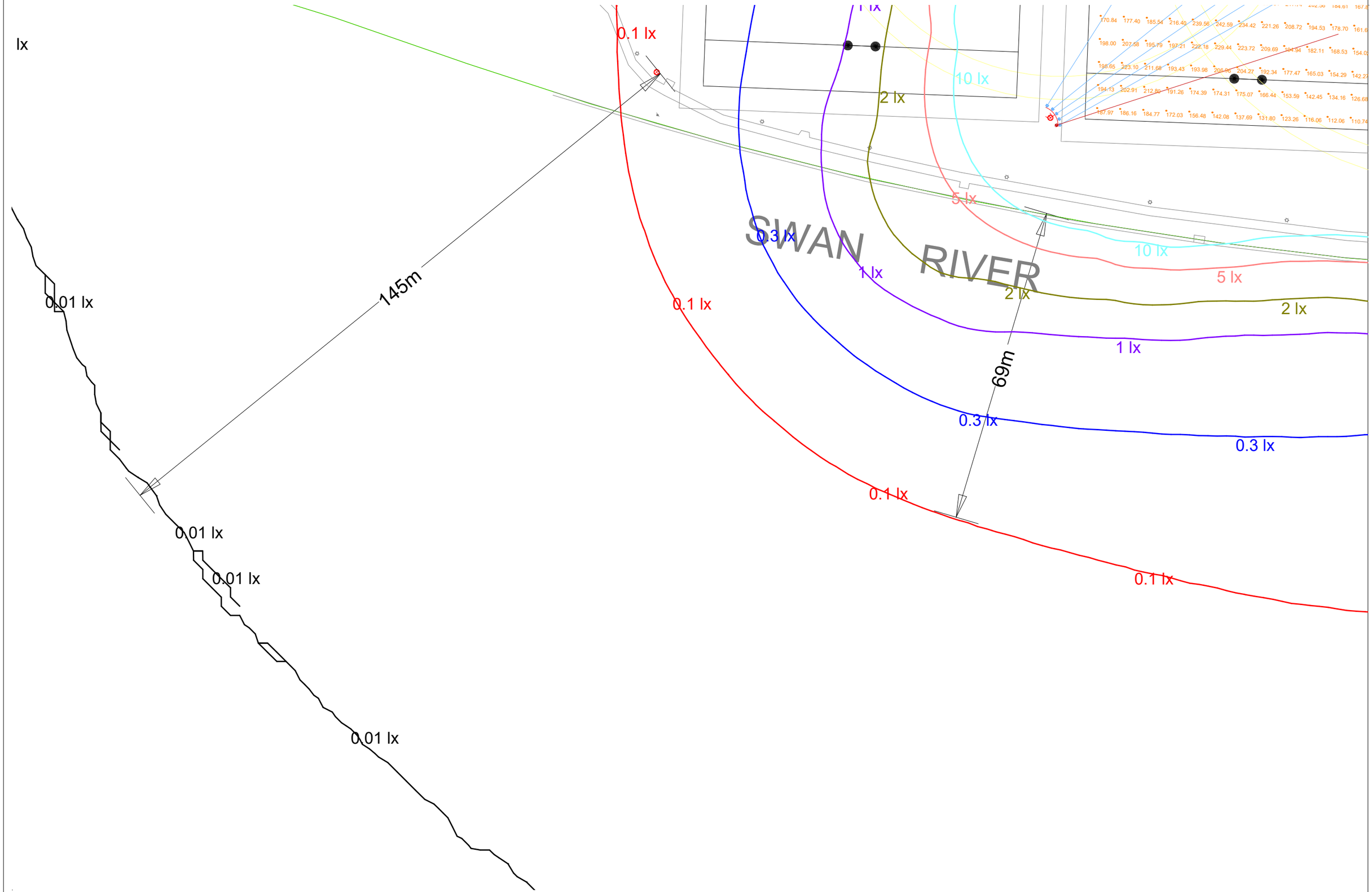
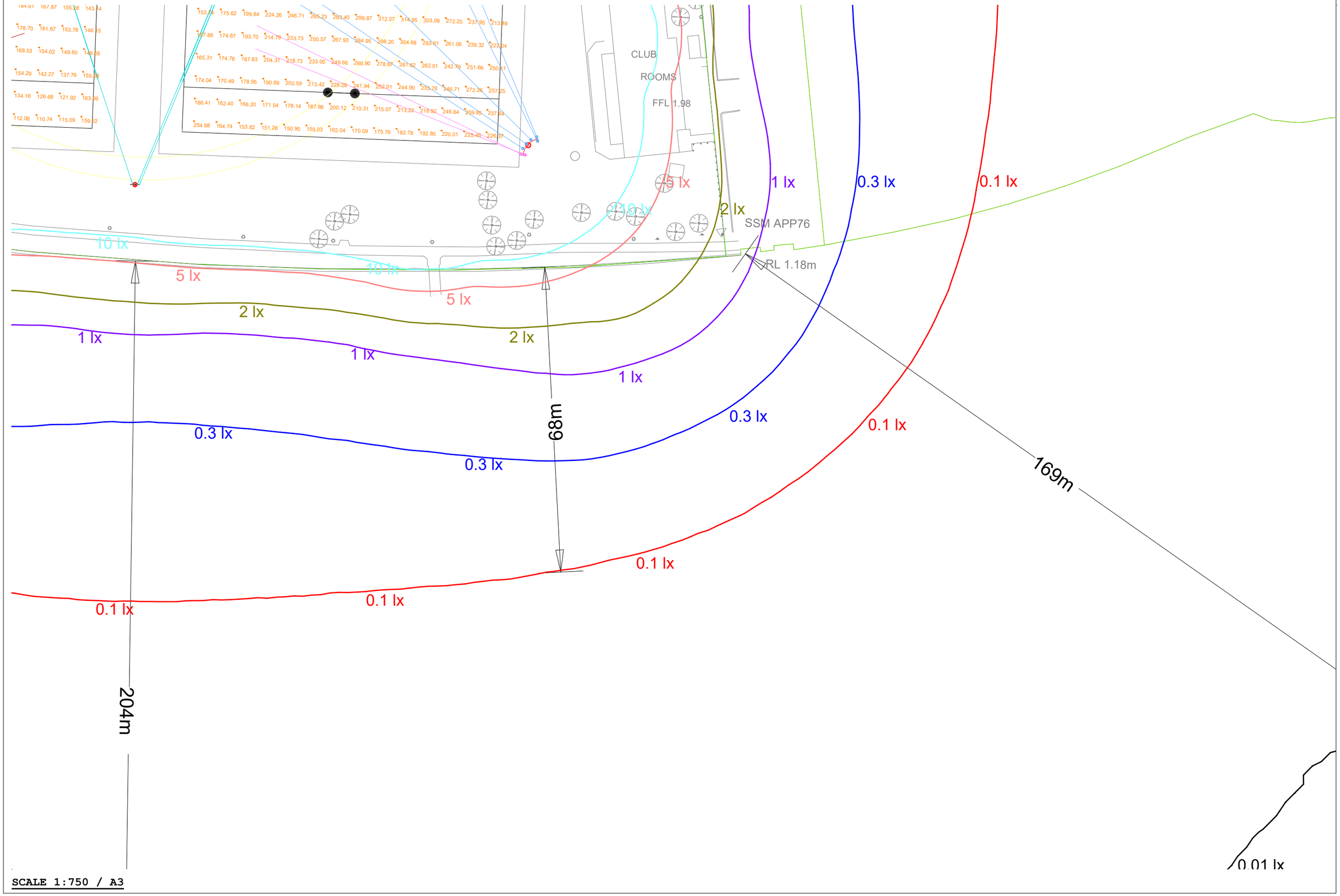


SCALE 1:1000 / A3


lx
0.01 lx
145m
0.01 lx
0.01 lx
0.01 lx
0.1 lx
0.1 lx
0.3 lx
1 lx
2 lx
5 lx
10 lx
SWAN RIVER
1 lx
2 lx
5 lx
10 lx
69m
0.3 lx
0.3 lx
0.1 lx
0.1 lx
SCALE 1:750 / A3


CLUB
ROOMS
FFL 1.98
SSM APP76
RL 1.18m
10 lx
5 lx
2 lx
1 lx
0.3 lx
0.1 lx
0.01 lx
204m
68m
169m
SCALE 1:750 / A3

Luminaire Schedule							
Symbol	**Qty**	**Label**	**Description**	**LLF**	**Luminaire Lumens**	**Luminaire Watts**	**Total Watts**
	1	A0G4-740_600W_BS_RS_65	SR1A0G4-740 RAPTOR 4 600W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax occ	1.000	77444	601.756	601.756
	19	A0G4-740_BS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR SHIELD - Imax occurs at	1.000	175057	1233.42	23434.981
	3	A0G4-740_BS_LS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + LEFT SHIELD - Imax occ	1.000	169424	1231.86	3695.58
	4	A0G4-740_BS_RS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax oc	1.000	169814	1232.04	4928.16
	6	Rival 467W_AFC02-LR	ewo_Rival_AFC02-LR-FCO-320led	1.000	65859	466.6	2799.6

Calculation Summary							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Min/Avg**	**Min/Max**
Rugby pitch 1 - Eh	Illuminance	Lux	231.53	318.54	62.49	0.27	0.20
Rugby pitch 1 - Eh_reduced	Illuminance	Lux	241.01	318.54	150.90	0.63	0.47
Rugby pitch 2 - Eh	Illuminance	Lux	181.26	245.47	96.11	0.53	0.39

Obtrusive Light - Compliance Report

AS/NZS 4282:2023, A3 - Medium District Brightness, Non-Curfew L1
Filename: 3170 Charles Court Reserve - R2 - 200lux
20/05/2025 10:30:16 AM

Illuminance

Maximum Allowable Value: 10 Lux

Calculations Tested (16):

Calculation Label	Test Results	Max. Illum.
Spill - Esplanade zone 1_Ill_Seg1	**PASS**	1.37
Spill - Esplanade zone 1_Ill_Seg2	**PASS**	1.21
Spill - river bank_area 2_10m_Ill_Seg1	**PASS**	4.34
Spill - river bank_area 2_10m_Ill_Seg2	**PASS**	5.58
Spill - river bank_area 2_10m_Ill_Seg3	**PASS**	5.87
Spill - Esplanade zone 2_Ill_Seg1	**PASS**	0.01
Spill - Esplanade zone 2_Ill_Seg2	**PASS**	8.02
Spill - Esplanade zone 6_Ill_Seg1	**PASS**	2.71
Spill - Esplanade zone 5_Ill_Seg1	**PASS**	5.17
Spill - river bank_area 1_10m_Ill_Seg1	**PASS**	5.81
Spill - river bank_area 1_10m_Ill_Seg2	**PASS**	5.79
Spill - river bank_area 1_10m_Ill_Seg3	**PASS**	3.75
Spill - river bank_area 1_10m_Ill_Seg4	**PASS**	3.79
Spill - river bank_area 1_10m_Ill_Seg5	**PASS**	3.82
Spill - Esplanade zone 4_Ill_Seg1	**PASS**	5.22
Spill - Esplanade zone 3_Ill_Seg1	**PASS**	8.01

Luminous Intensity (Cd) At Vertical Planes

Maximum Allowable Value: 12500 Cd

Calculations Tested (16):

Calculation Label	Test Results
Spill - Esplanade zone 1_Cd_Seg1	**PASS**
Spill - Esplanade zone 1_Cd_Seg2	**PASS**
Spill - river bank_area 2_10m_Cd_Seg1	**PASS**
Spill - river bank_area 2_10m_Cd_Seg2	**PASS**
Spill - river bank_area 2_10m_Cd_Seg3	**PASS**
Spill - Esplanade zone 2_Cd_Seg1	**PASS**
Spill - Esplanade zone 2_Cd_Seg2	**PASS**
Spill - Esplanade zone 6_Cd_Seg1	**PASS**
Spill - Esplanade zone 5_Cd_Seg1	**PASS**
Spill - river bank_area 1_10m_Cd_Seg1	**PASS**
Spill - river bank_area 1_10m_Cd_Seg2	**PASS**
Spill - river bank_area 1_10m_Cd_Seg3	**PASS**
Spill - river bank_area 1_10m_Cd_Seg4	**PASS**
Spill - river bank_area 1_10m_Cd_Seg5	**PASS**
Spill - Esplanade zone 4_Cd_Seg1	**PASS**
Spill - Esplanade zone 3_Cd_Seg1	**PASS**

Threshold Increment (TI)

Maximum Allowable Value: 20 %

Calculations Tested (2):

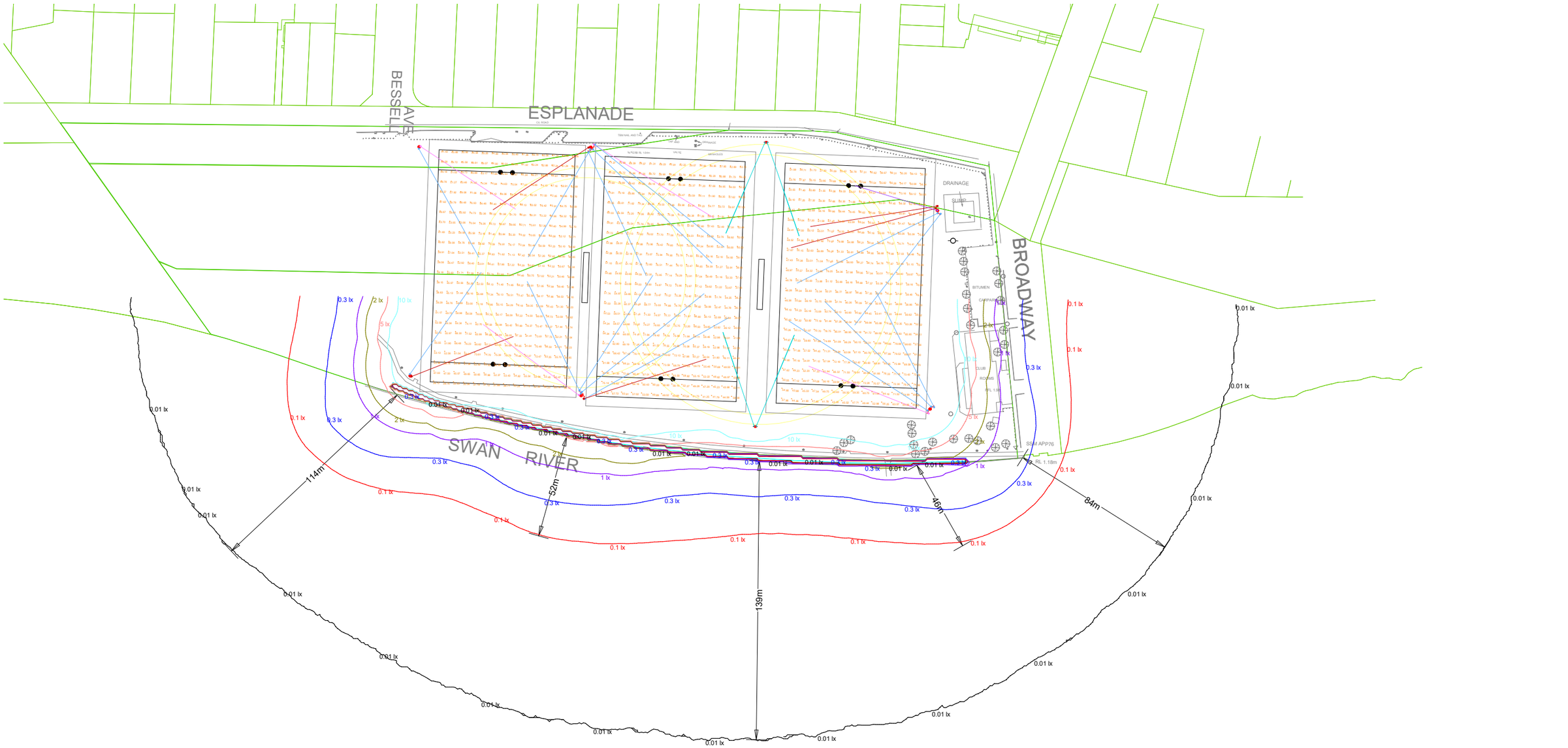
Calculation Label	Adaptation Luminance	Test Results
TI - Esplanade N	1	**PASS**
TI - Esplanade S	1	**PASS**

Upward Waste Light Ratio (UWLR)

Maximum Allowable Value: 2.0 %

Calculated UWLR: 0.0 %
Test Results: **PASS**

3171 Charles Court Reserve (Scenario 3 - 50lux, 50lux, 50lux)



SCALE 1:2000 / A3

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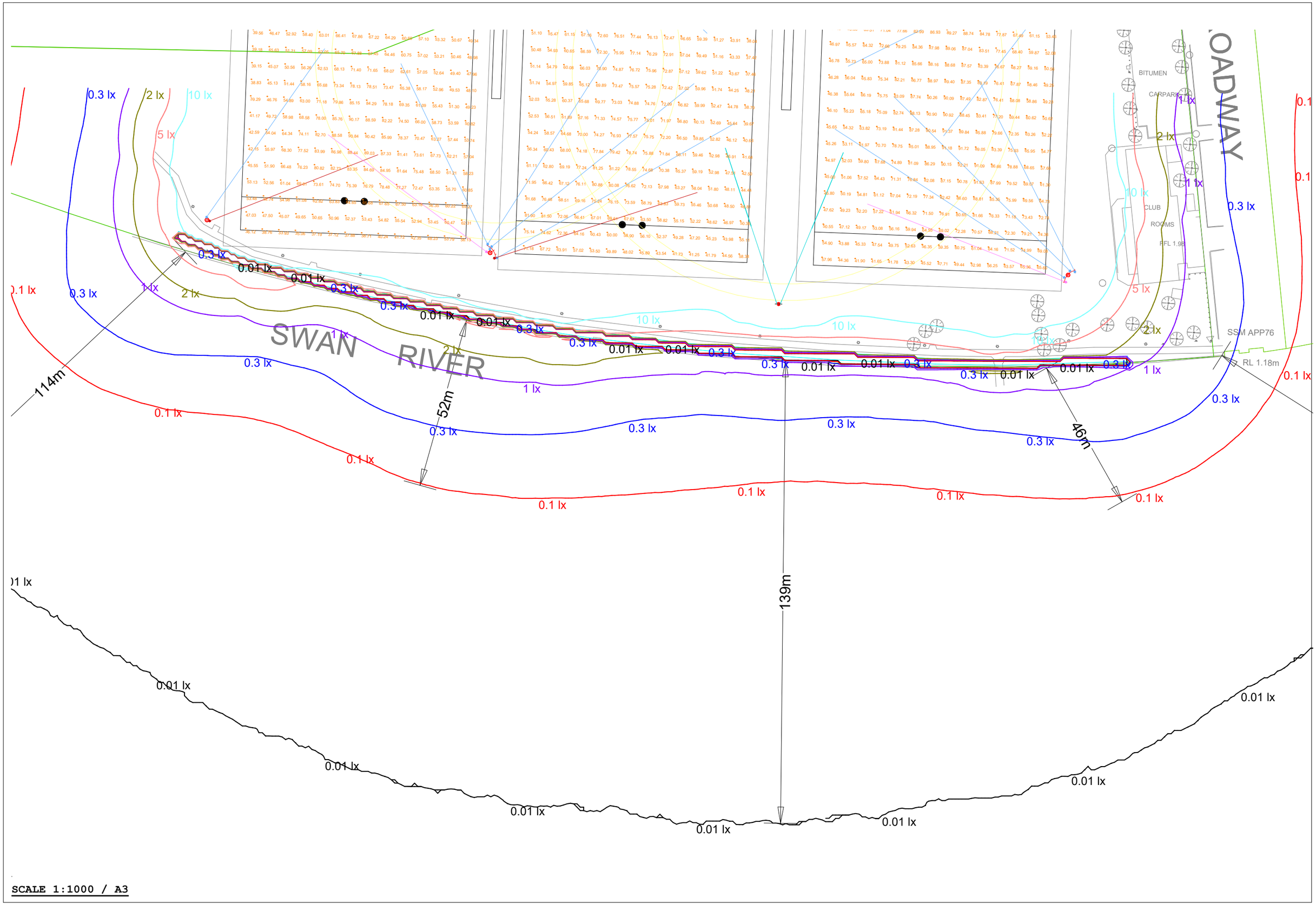
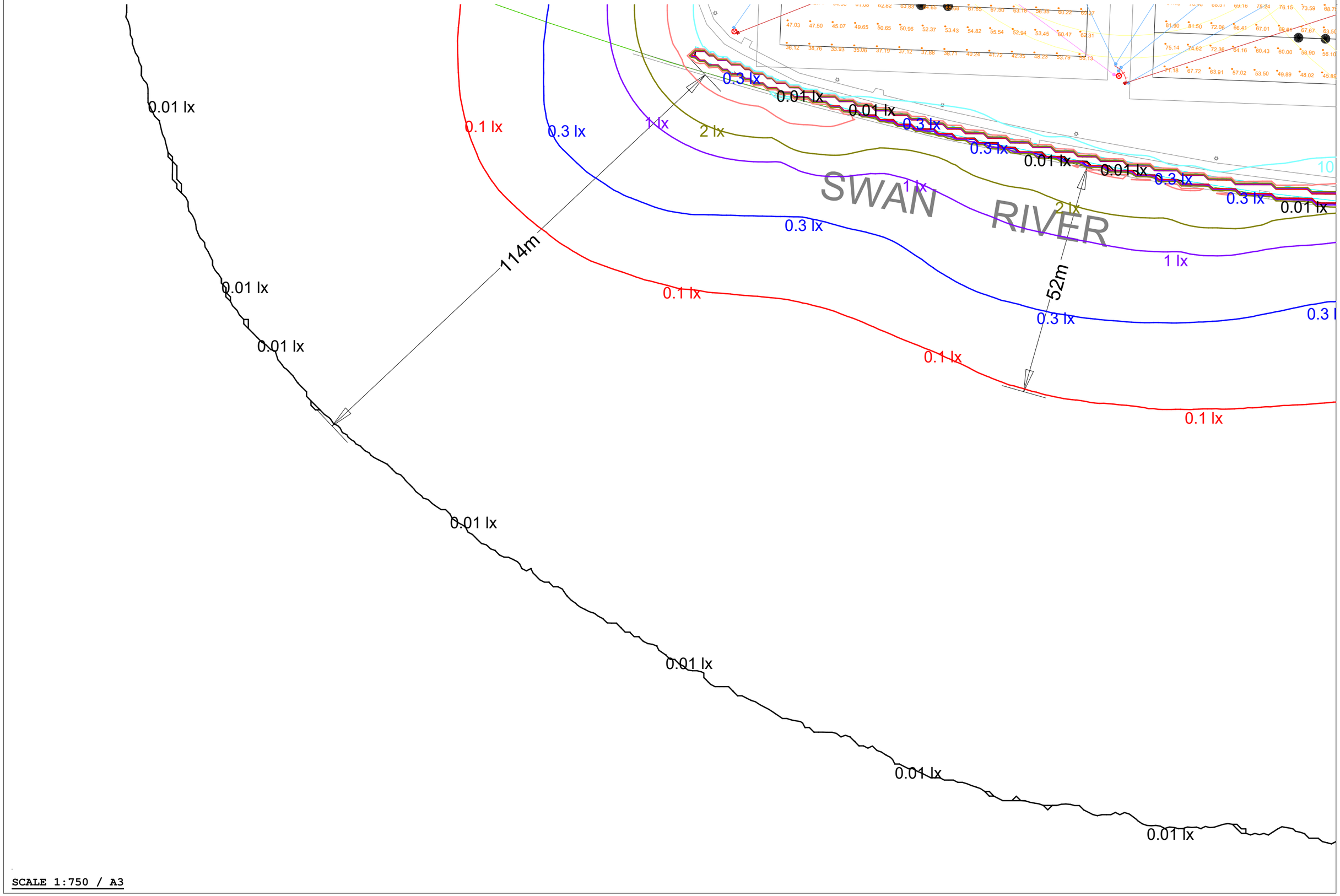
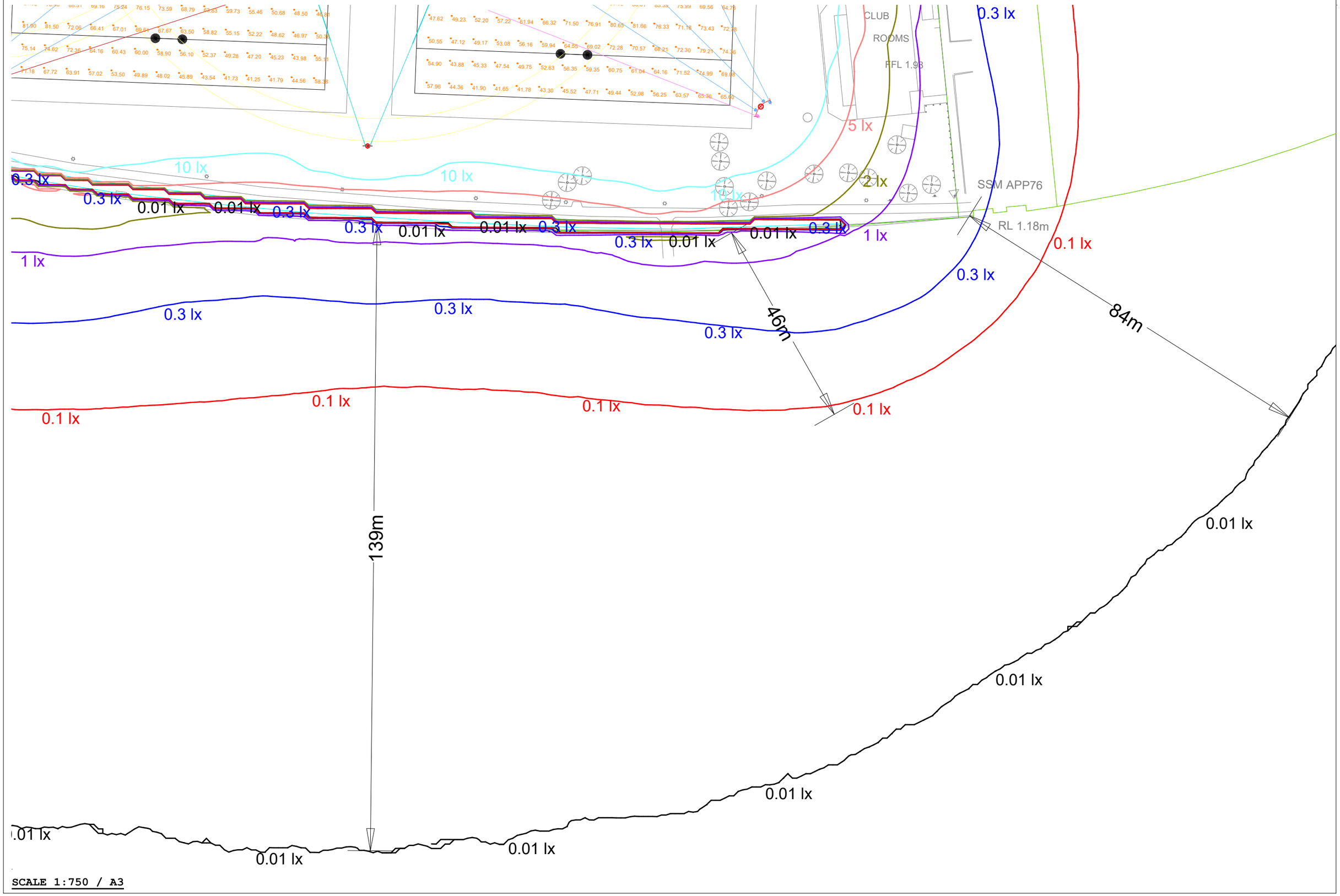

SWAN RIVER
BITUMEN
CARPARK
CLUB ROOMS
RFL 1.98
SSM APP76
RL 1.18m
ROADWAY
0.3 lx
2 lx
10 lx
5 lx
1 lx
0.01 lx
0.1 lx
114m
52m
46m
139m
SCALE 1:1000 / A3



SCALE 1:750 / A3


CLUB
ROOMS
FFL 1.93
SSM APP76
RL 1.18m
10 lx
5 lx
2 lx
1 lx
0.3 lx
0.01 lx
0.1 lx
46m
84m
139m
SCALE 1:750 / A3

Luminaire Schedule							
Symbol	**Qty**	**Label**	**Description**	**LLF**	**Luminaire Lumens**	**Luminaire Watts**	**Total Watts**
	15	A0G4-740_BS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR SHIELD - Imax occurs at	0.500	175057	1233.42	18501.301
	5	A0G4-740_BS_RS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax oc	0.500	169814	1232.04	6160.2
	4	A0G4-740_BS_LS_63	SR2A0G4-740 RAPTOR 4 1200W A0 OPTIC CRI70 CCT4000K REAR + LEFT SHIELD - Imax occ	0.500	169424	1231.86	4927.44
	4	Rival 467W_AFC02-LR	ewo_Rival_AFC02-LR-FCO-320led	0.500	65859	466.6	1866.4
	1	A0G4-740_600W_BS_RS_65	SR1A0G4-740 RAPTOR 4 600W A0 OPTIC CRI70 CCT4000K REAR + RIGHT SHIELD - Imax occ	0.500	77444	601.756	601.756

Calculation Summary							
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Min/Avg**	**Min/Max**
Rugby pitch 1 - Eh	Illuminance	Lux	67.26	94.81	20.12	0.30	0.21
Rugby pitch 1 - Eh_reduced	Illuminance	Lux	69.76	94.81	40.80	0.58	0.43
Rugby pitch 2 - Eh	Illuminance	Lux	61.89	83.60	36.36	0.59	0.43
Rugby pitch 3 - Eh	Illuminance	Lux	62.40	91.98	33.93	0.54	0.37