PLANNING APPLICATIONS COMMITTEE
12th December 2013.

UPRN	**APPLICATION NO.**	**DATE VALID**
Address/Site:	13/P1744 The Canons Leisure Centre Madeira Road Mitcham CR4 4HD	01/07/13
Ward:	Cricket Green	
Proposal:	Conversion of 2 x existing tarmacadan tennis courts into 2 x multi use games areas with 6 x 6m high floodlighting masts. 4.5m high weld-mesh fencing to the perimeter and a net roof above.	
Drawing Nos:	111-0701-001, 111-0701-002, 111-0701-004 Rev A, 111-0701-005 Rev A, 111-0701-006 Rev A, 111-0701-2/D&A/Rev A, Lighting Design Report (12/11/2013), Phase 1 Ecological Survey, Reply to Planning Questions – 22/10/2013, Bat Survey Report, Heritage Statement, Valuation Report, Bat Mitigation Plan & Biodiversity Statement (15/11/2013).	
Contact Officer:	Claire Berry (020 8545 3120)	

RECOMMENDATION **Grant permission subject to conditions**

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1. INTRODUCTION

1.1 This application is brought before the Planning Applications Committee as a result of objections received.

2. CHECKLIST INFORMATION.

- Heads of agreement: No.
- Is a screening opinion required: No.
- Is an Environmental Statement required: No.
- Has an Environmental Impact Assessment been submitted: No.
- Press notice: Yes.
- Site notice: Yes.

- Design Review Panel consulted: No.
- Number of neighbours consulted: 3
- External consultations: Natural England
- Number of jobs to be created: Not relevant.

3. SITE AND SURROUNDINGS

3.1 The application site forms part of the Canons Leisure Centre, which is on the corner of Madeira Road and Commonside West in Mitcham. The existing tennis courts are located towards the north west side of the leisure centre site; adjacent to the bowling green and on the boundary with the Cumberland Nursing Home.

3.2 The leisure centre site is located within the Mitcham Cricket Green Conservation Area and the grounds include two listed buildings; The Canons (Grade II*) and The Dovecote (Grade II). Open land beyond the application site to the north east and south west is designated as Metropolitan Open Land.

3.3 The site does not fall within a controlled parking zone or a flood risk zone.

3.4 The site falls within designated open space. There are several trees in the vicinity of the site, four of which will be removed as part of the proposed development.

3.5 The site is covered by two Proposals Sites designations. The application site itself is Proposal Site 25P with a proposed use as “Indoor bowls centre” and the wider area is within Proposal Site 35P, which has a proposed use as “Country Park”. The site is not adjacent to sites of recognised nature conservation interest but it is adjacent to a Green Corridor.

4. CURRENT PROPOSAL

4.1 The application is for the conversion of 2 x existing tarmacadan tennis courts into 2 x Multi Use Games Areas (MUGAs) with 6 x 6m high floodlighting masts, 4.5m high weld-mesh fencing to the perimeter and a net roof above. The applicant has confirmed that whilst some MUGAs can accommodate tennis, this particular MUGA will not due to the different surfacing required.

4.2 In 2010 the Council’s Leisure Services commissioned a Playing Pitch Strategy (PPS) which identified the lack of floodlit 3G Multi Use Games Areas (MUGAs) in the borough. It identified that older MUGAs have a variety of surfaces and are less likely to be floodlit nor available for public use. This surface will provide a dry/safe/ rubberised surface for the increasing 50+ groups which meet in the Canons. In 2010, when Greenwich Leisure Limited (GLL) became the leisure centre contractor

and signed a fifteen year contract, an opportunity arose to address the PPS deficiency adjacent to the Leisure Centre.

4.3 The applicant advises that the “tennis” courts at the rear of the Canons are in poor condition and have not been operated for 25 years, being used only occasionally to store trees. The application seeks to convert the courts into MUGAs to bring them back into use in a deprived ward of the borough.

4.4 The MUGAs could not be sited elsewhere as there is nowhere else that can provide staffing to administer bookings and carry out routine day to day maintenance to the area. Leisure and Culture officers have agreed that GLL will provide the staff to run the facility on a day to day basis and provide changing facilities in the Leisure Centre. The applicant confirms that GLL will also ensure lighting times are strictly adhered to and courts are empty on time.

4.5 The applicant has been successful in obtaining partner funding to deliver this project in this location, to the value of £175k. Part of the agreement is that they charge affordable rates to ensure that the facility is sustainable and has a legacy.

4.6 The application as originally submitted comprised 8 metre high floodlighting columns. It has since been amended to comprise 6 metre high floodlighting columns. As part of this alteration a net roof has been added to protect the lower floodlighting columns from damage caused by footballs.

4.7 As part of the application, the applicant has submitted the following documents;

- Planning Statement & Design and Access Statement – The document provides detailed information on the use and construction of MUGAs, the siting of the proposed MUGAs, the proposed fencing and the proposed floodlighting columns.
- Heritage Statement – The document concludes that the proposed MUGA site is mostly hidden from view with no direct views from Canons House or Park Place. Replacement tree planting on the east side of the copse to mitigate the impact and local concerns.
- Lighting Design – This document provides detailed guidance on the proposed luminance levels.
- Phase 1 Ecological Survey – This report is based on a broad desktop study on the entire copse.
- Bat Survey Report – This report follows the initial survey by focussing on the impact on bats. It also relates to the entire copse.
- Bat Mitigation Plan – This study focuses solely on the application site. It identifies that a licence will not be required for works as a roost will not be destroyed and a bat will not be permanently deprived of its roost site. It also confirms that changes to a foraging area of a maternity colony of rare bats has been mitigated.

- Statement from Ecological Consultant – This final report confirms that if the measures outlined in the Bat Mitigation Plan along with dark netting are made planning conditions, the impact on the woodland will be successfully minimised and the bats will have an increased foraging area. The report addresses all concerns raised in the ecological survey and the bat survey.

5. RELEVANT PLANNING AND ENFORCEMENT HISTORY

5.1 09/P1767 – Advertisement consent refused in respect of the installation of two non-illuminated wooden banner frames – one on Madeira Road and one on Commonside West.

5.2 97/P0906 – Planning Permission granted in respect of installation of closed circuit television cameras (nine in total) on six metre high poles or wall bracket mounted within the grounds of the Canons Leisure Centre and the Canons.

5.3 95/P1025 – Planning permission granted in respect of alterations to Cumberland sports hall including the erection of roof extension, installation of two external staircases leading from the proposed first floor mezzanine level and the construction of a new glazed link between existing pool gallery and the proposed mezzanine level (Revisions to scheme granted planning permission 30 March 1995, LBM ref 94/P1030).

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5.4 94/P1030 – Planning permission granted in respect of raising the roof of the Cumberland sports hall.

5.5 92/P0207 – Planning permission granted in respect of a two-storey extension to the club house

6. CONSULTATION

6.1 The planning application has been publicised by means of a conservation area and listed building press and site notice. Individual letters were sent to three neighbouring properties. Thirty representations were received, which raised the following planning related concerns;

- Serious risk to wildlife, including the local bat population, and damage to the green corridor;
- Further loss and damage to the trees and bats in the adjacent woodland area;
- Introduction of unacceptable light pollution in the Mitcham Cricket Green Conservation Area and in the setting of the listed Park Place and Canons House.
- The proposed floodlighting will also have a detrimental impact on local wildlife and local residents;
- There is a greater need for tennis courts than football pitches in Mitcham. The tennis courts should therefore be restored and

improved. Studies carried out by the Council show that the provision of sports pitches is 'significantly better' than elsewhere in the borough;
- The proposal is not in keeping with the conservation area;
- The use of the proposed pitches will generate noise pollution in the park and adjacent bowling club.

6.2 Suggestions have been made in respect of the provision of a putting green/skate board park. Officers note that this is not relevant to the assessment and determination of this application.

6.3 One resident was concerned that the Council had not consulted Merton Historical Society. Officers would note that the Council did seek the input of its own Conservation Officer who requested that the floodlighting columns were reduced to 6 metres high. Comments were also received from the Mitcham Cricket Green Community and Heritage Civic Society which raised concerns in respect of the above outlined issues.

6.4 The plans do not indicate that the proposed facilities will be available and affordable for local residents.

6.5 The occupier of 76 Mitcham Park questioned why they were not consulted on the proposal. Officers would note that the Council consulted those adjacent to the proposed MUGAs and also advertised the proposals by means of a Conservation area press and site notice. It is noted that 76 Mitcham Park is over 500 metres away from both the grounds of the Canons and the actual application site.

6.6 Following discussion with the applicant, the height of the floodlighting columns was reduced. All those who had previously objected, were re-consulted. Six further letters of objection were received which reiterated earlier concerns.

6.7 <u>Future Merton Conservation Officer</u>
The lighting columns should be no higher than 6 metres in order to preserve the character and appearance of the conservation area and the setting of the listed buildings. Officers note that this has subsequently been addressed by the applicant who has reduced the height of the columns to 6 metres.

6.8 <u>Natural England</u>
Natural England does not object to the proposed development in respect of the protection of bats. On the basis of the information available, their advice is that the proposed development is likely to affect bats through damage or destruction of a foraging area for a maternity roost of bats. They are satisfied however, that the proposed mitigation is broadly in accordance with the requirements of the Bat mitigation guidelines and should maintain the population identified in the survey report. All works should proceed in accordance with the

approved mitigation strategy, to maintain lighting curfews and habitat management measures. Any amendments need to be agreed in writing.

6.9 Natural England refer to proposals adjacent to local wildlife sites such as e.g. A Site of Nature Conservation Importance (SNCI) and local Nature Reserve (LNR) however this is not relevant to this application site.

6.10 Development Control -Trees Officer
The Council's Tree Officer initially raised concerns about the loss of four trees, which the applicant satisfactorily addressed by amending the plans to show 250 oak and beech whips in clumps over a 320 square metre area. Secondly concerns was raised in respect of the high levels of light spillage which the applicant addressed by reducing the height of the floodlighting columns to 6 metres. The applicant has also included baffles for the floodlighting columns. Finally the Tree Officer suggested that the four trees to be felled should be retained on site to act as log piles to attract and encourage insects. The applicant has agreed to this.

6.11 Future Merton Strategic Policy and Research Officer
Approval recommended subject to conditions regarding mitigation measures, planting of native species, curfews and lighting. It is also recommended that suitably worded informatives should be attached to any planning decision referring to restrictions to vegetation clearance to being outside the bird breeding season (October to March) and ensuring that fox dens with dependent cubs are not disturbed.

6.12 Environmental Health Officer
No objections subject to the inclusion of conditions on light spillage and hours of use.

7. POLICY CONTEXT

7.1 National Planning Policy Framework (March 2012)
Para 70 of the NPPF states that planning decisions should:

- "plan positively for the provision and use of shared space, community facilities (such as local shops, meeting places, sports venues, cultural buildings, public houses and places of worship) and other local services to enhance the sustainability of communities and residential environments;
- guard against the unnecessary loss of valued facilities and services, particularly where this would reduce the community's ability to meet its day-to-day needs;…"

7.2 Para 74 of the NPPF states that existing open space, sports and recreational buildings and land, including play fields, should not be built on unless:

- "an assessment has been undertaken which has clearly shown the open space, building or land to be surplus to requirements; or
- the loss resulting from the proposed development would be replaced by equivalent or better provision in terms of quantity and quality in a suitable location; or
- the development is for alternative sport and recreational provision, the needs for which clearly outweigh the loss".

7.3 London Plan (2011)

The relevant policies in the London Plan include:
3.1 (Ensuring Equal Life Chances for All)
3.16 (Protection and Enhancement of Social Infrastructure)
3.19 (Sports Facilities)
6.9 (Cycling)
6.13 (Parking)
7.3 (Designing Out Crime)
7.4 (Local Character)
7.8 (Heritage Assets and Archaeology)
7.15 (Reducing Noise and Enhancing Soundscapes)
7.18 (Open Space)
7.19 (Biodiversity and Access to Nature)
7.21 (Trees & Woodlands)

7.4 Merton LDF Core Planning Strategy (2011)

The relevant policies in the Merton LDF Core Planning Strategy include:
CS11 (Infrastructure)
CS13 (Open Space, Nature Conservation, Leisure and Culture)
CS14 (Design)
CS18 (Active Transport)
CS19 (Public Transport)
CS20 (Parking, Servicing and Delivery)

7.5 Merton Unitary Development Plan (2003)

The relevant policies in the Merton UDP (2003) include:
BE.1 (Conservation Areas)
BE.8 (Setting of Listed Buildings)
BE.16 (Urban Design)
BE.22 (Design of New Development)
L.11 (The Protection of Existing Facilities and Land)
L.12 (Provision of New Facilities)
NE.2 Development in proximity to MOL.
NE.4 (Wandle Valley Country Park)
NE.8 (Green Corridors)
NE.11 (Trees; Protection)
PE.2 (Pollution and Amenity)
PE.3 (Light Pollution)
PE.8 (Contaminated, Vacant and Derelict Land)
Site Proposal 25P – Proposed Use: Indoor Bowls Centre

Site Proposal 35P – Proposed Use: Country Park

8. PLANNING CONSIDERATIONS

8.1 The planning considerations in this case relate to the principle of the development and the impact of the proposal on the local biodiversity and on the character and appearance of the surrounding area including visual and neighbour amenity.

8.2 Principle of Development – Loss of the Tennis Courts
Notwithstanding the identification of land including the application site for an indoor bowls centre under site proposal 25P in the Unitary Development Plan the proposals would not preclude development in the long term were the Council to review its long term aspirations for the Canons complex of sports facilities. Officers would however note that this proposal designation is not rolled forward into the draft Site and Policies Plan which is at an advanced stage and to be the subject of an examination in public in January. The proposal comprises an alternative sports use benefiting from improved facilities within an area of open space and is accordingly considered acceptable in principle.

8.3 Merton's Playing Pitch Study (June 2011), which did not include the Canons' tennis courts in its list of existing courts (page 115-116), found with regards to tennis that "There are 114 tennis courts in community use in Merton on club and park sites, together with at least 42 courts at secondary schools." and "There are considered to be sufficient courts to meet demand now and in the future." Although not part of the Development Plan, the study recommended to: "Retain the current level and distribution of tennis courts to meet current and future demand within the borough". The loss of the tennis courts is therefore considered to be acceptable.

8.4 Evidence Base to Support an Alternative Use
London Plan Policy 7.18 states that the 'replacement of one type of open space with another is unacceptable unless an up to date needs assessment shows that this would be appropriate'. On a similar note Core Strategy Policy CS13 states that; 'based on assessment of need and capacity, opportunities in culture, sport, recreation and play will be promoted by safeguarding the existing viable cultural, leisure, recreational and sporting facilities and supporting proposals for new and improved facilities;…'

8.5 In accordance with the NPPF, London Plan Policies and Core Strategy Policies the applicant draws attention to Merton's Playing Pitch Study (June 2011). The report, which previously clarified a satisfactory number of tennis courts across the borough; shows that the supply of football pitches in Mitcham is significantly lower than other areas, it having a total of only 6.73% of pitch provision in the borough. Representations received from neighbouring occupiers highlight the following statement in this report; *"MUGAs are widely distributed*

throughout the borough but there is significantly better provision in Mitcham and Colliers Woof than other parts of the borough". However, the applicant has pointed out that this refers to old pitches which are very much in need of an upgrade, often not floodlit and are mainly located in schools which can make access difficult. The proposed MUGAs are modern 3G pitches of which there is currently one in Raynes Park school and an older one in Lavender Park which is in need of an upgrade.

8.6 The data in the Merton's Playing Pitch Study (June 2011) shows that there is a greater need for MUGAs in Mitcham than tennis courts and the principle of the provision of these MUGAs, in this location, is in accordance with planning policy.

Visual amenity

8.7 The Council's Conservation Officer has stated that the height of the floodlighting columns should not exceed 6 metres, and accordingly the applicant has reduced the height to 6 metres. It is a matter of judgement as to whether the proposal will preserve the character and appearance of the conservation area in accordance be policy BE.1 in the Council's Unitary Development Plan. In this instance, officers consider that owing to the reduced height of the floodlighting and its siting within a leisure centre, that the impact on the conservation area would be minimal. The site is in fairly close proximity to listed buildings however, it is separated by the large leisure centre building. As such, the proposal would not detrimentally affect the setting of the listed buildings.

8.8 Development on land outside the boundaries of MOL but in proximity to it may damage the open character of the MOL and UDP policy NE.2 seeks to safeguard the visual amenities of MOL from inappropriate development that is in proximity to it. The floodlighting would be seen from neighbouring MOL but against the backdrop of the Canons Leisure centre building from the north and alongside the centre when seen from the south. The proposals would have a limited impact on views from and into MOL and would neither mar character of the open areas or the backcloth to these open spaces.

Biodiversity/Wildlife Issues

8.9 London Plan policy 3.19 states that **'**development proposals that increase or enhance the provision of sports and recreation facilities will be supported. … The provision of floodlighting should be supported in areas where there is an identified need for sports facilities to increase sports participation opportunities, unless the floodlighting gives rise to demonstrable harm to local community or biodiversity.'

8.10 London plan policy 7.19 states that development proposals should wherever possible, make a positive contribution to the protection, enhancement, creation and management of biodiversity. 'Net gains', 'positive' and 'enhanced' biodiversity outcomes are also required by the

NPPF (paragraph 109) and Merton's Core Planning Strategy Policy CS13.

8.11 The proposed mitigation for the 301sqm area of proposed green corridor to be built on, which at the time of a site visit was vegetated mainly by nettles and two trees, consists of a 320sqm area within the existing green corridor. This currently has mowed grass for sport/active recreation use, and will have a relaxed mowing regime and 250 assorted whips (native broadleaved species) planted. According to the ecologist: "The relaxed mowing regime will increase the insect food supply for birds and bats and strengthen the wildlife corridor, particularly for small mammal species such as hedgehog and voles. It will enable movement to and from adjacent gardens as well as provide cover and food sources."

8.12 With suitable conditions to ensure the delivery and maintenance of the area shown on drawing no.111-0701-006 Rev.A, the proposed mitigation measures would be acceptable and in time, would be likely to result in a net gain in biodiversity.

8.13 Natural England advise that all species of bat are European Protected Species and it is for the developer to decide whether a species licence will be needed. A licence may be required to carry out mitigation work as well as for impact directly connected with the development. It is for the local planning authority to consider whether the permission would offend against Article 12(1) of the Habitats Directive and if so, whether the application would be likely to receive a licence.

8.15 The ecological consultant advised that a licence would not be required. Officers are satisfied that the proposals would not offend against Article 12(1) of the Habitats Directive (or Regulation 41 of The Conservation of Habitats and Species Regulations 2010, as amended) and a licence is therefore unlikely to be required.

8.16 Residential Amenity

The closest residential building is the nursing home in Whitford Gardens which lies to the north of the application site. There are high trees and hedges on that boundary which would restrict the view of the new MUGA from the nursing home and vice versa and the Council's Environmental Health Officer has confirmed that the impact of the floodlighting on the nursing home would be minimal. A condition to prevent light spillage and to restrict hours of use would provide further protection. The proposal is accordingly considered acceptable in terms of residential amenity.

9 CONCLUSION

9.1 The proposal would provide new and improved sports facilities meeting a recognized need, would enhance biodiversity in the area and by virtue of appropriate mitigation measures would not affect the

protection of bats in the area. It is acknowledged that the proposals would have some impact on the conservation area. However, the key new feature, the floodlighting columns have been reduced in height and when considered against the backdrop of the various building that make up the Cannons cluster of sports facilities, and the siting of the proposals which are relatively remote to listed buildings and other structures, it may be considered that the character and appearance of the conservation area would be preserved and that on balance the potential benefits outweigh any visual impact. The proposal is accordingly considered acceptable and in accordance with the London Plan (2011), The Council's Core Strategy (2011) and the Council's Adopted Unitary Development Plan (2003).

RECOMMENDATION

Grant permission subject to the following conditions;

1. A.1 Commencement of development within 3 years

2. A.7 Approved Plans

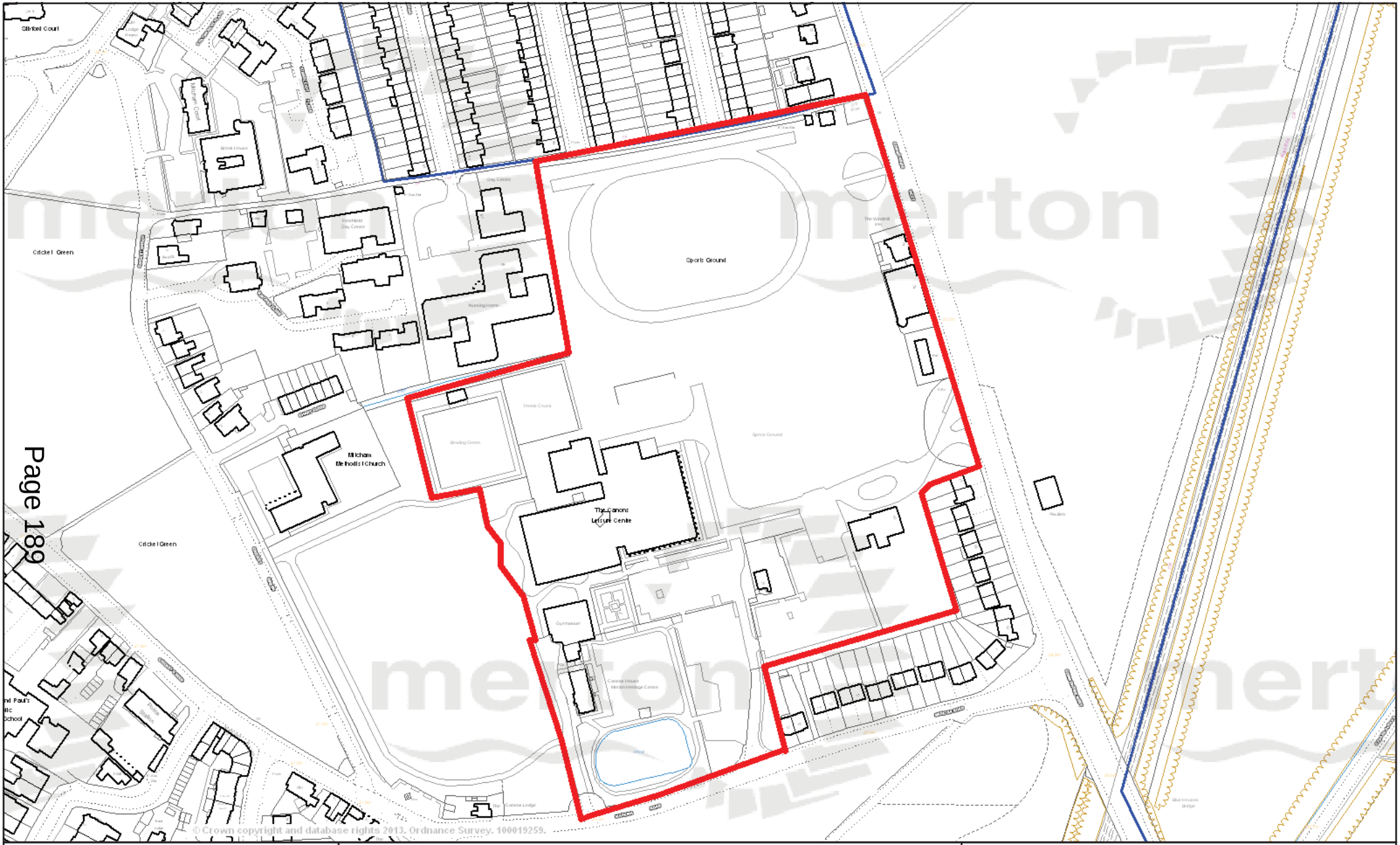
3. B.3 Materials as Specified

4. D.10 External Lighting.

5. Non-Standard The mitigation measures shown on drawing no. 111-0701-006 Rev A shall be carried out prior to commencement of development hereby approved and shall be retained thereafter.
   Reason: To protect the biodiversity and local wildlife in the area and to comply with policies CS13 in the Merton LDF Core Planning Strategy (2011) and 7.19 in the London Plan (2011).

6. Non Standard The use of the floodlighting shall cease by 9.45pm each day and shall not be used at all during the months of May, June, July and August.
   Reason: To protect the biodiversity and local wildlife in the area, to protect the amenities of neighboring occupiers and to comply with policies PE.2 in The Council's Unitary Development Plan, CS13 in the Council's Core Strategy 2011 and 7.19 in the London Plan.

7. Non Standard Prior to first use, a monitoring report setting out the mitigation methods as detailed in the Bat Mitigation Plan 2013 shall be submitted to and approved in writing by the Local Planning Authority.
   Reason: To protect the biodiversity and local wildlife in the area and to comply with policies CS13 in the Merton LDF Core Planning Strategy (2011) and 7.19 in the London Plan (2011).



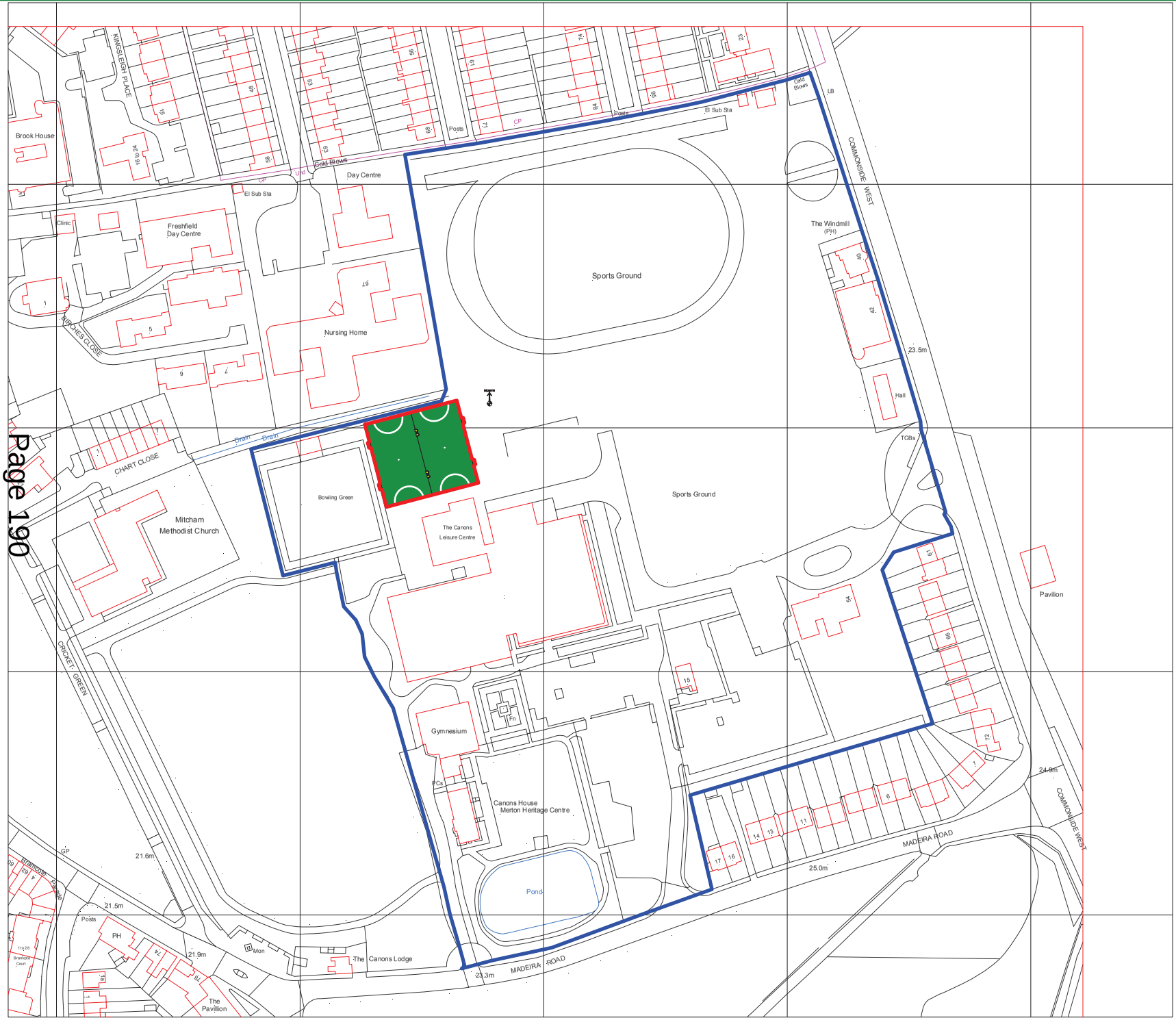
DEVELOPMENT CONTROL

The Canons Leisure Centre

Scale 1/2500

Date 26/11/2013

London Borough of Merton
100 London Road
Morden
Surrey
SM4 5DX



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Unit 3: Greenwich Business Park
53 Norman Road
LONDON
SE10 9QF

Tel. 020 8293 6655
info@msc-global.co.uk

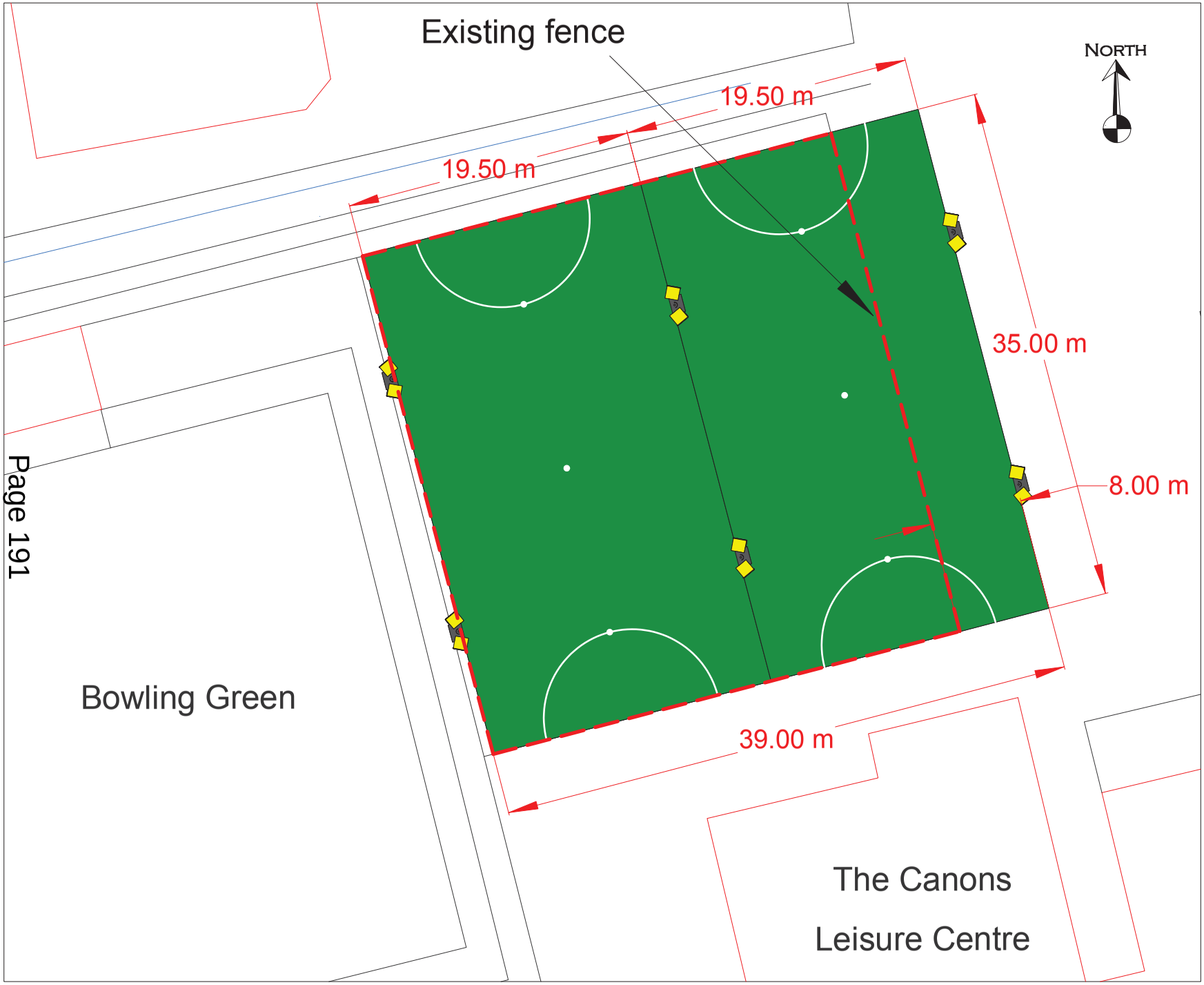
Canons Leisure Centre, Madeira Road

Red Line

Drawing Number 111-0701-002

Date: March 2013

Scale: 1:1500 at A3



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Canons Leisure Centre,
Madeira Road

Proposed layout

Drawing Number
111-0701-001

Date: March 2013

Scale: 1:250 at A3

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Unit 2 Greenwich Business Park
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Tel 020 8293 6855
info@msc-global.co.uk
Canons Leisure Centre, Madeira Road
Front view elevation
Drawing Number 111-0701-004 Rev A
Date: November 2013
Scale: 1:125 at A3
AMENDED
6 m HEIGHT FLOODLIGHT COLUMNS
3 m HEIGHT EXISTING FENCE
4.5 m HEIGHT FENCE WITH ROOF NET
LONDON BOROUGH OF MERTON
12 NOV 2013
Scale: 1:100
Scale: 1:50
Scale: 1:20

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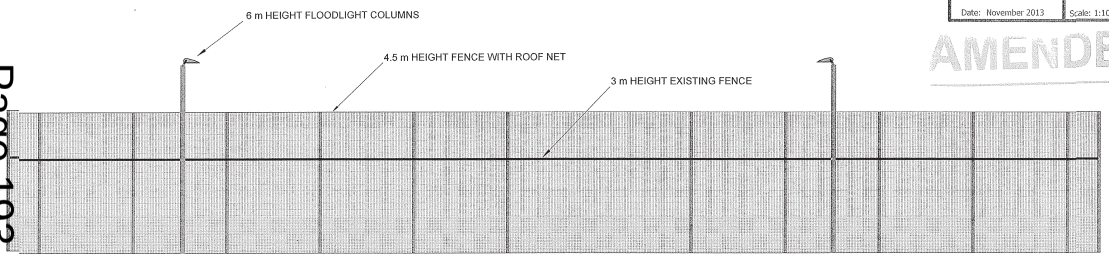
Canons Leisure Centre,
Madeira Road

Lateral view elevation

Drawing Number
111-0701-005 Rev A

Date: November 2013 | Scale: 1:100 at A3

AMENDED



LONDON BOROUGH OF MERTON

12 NOV 2013

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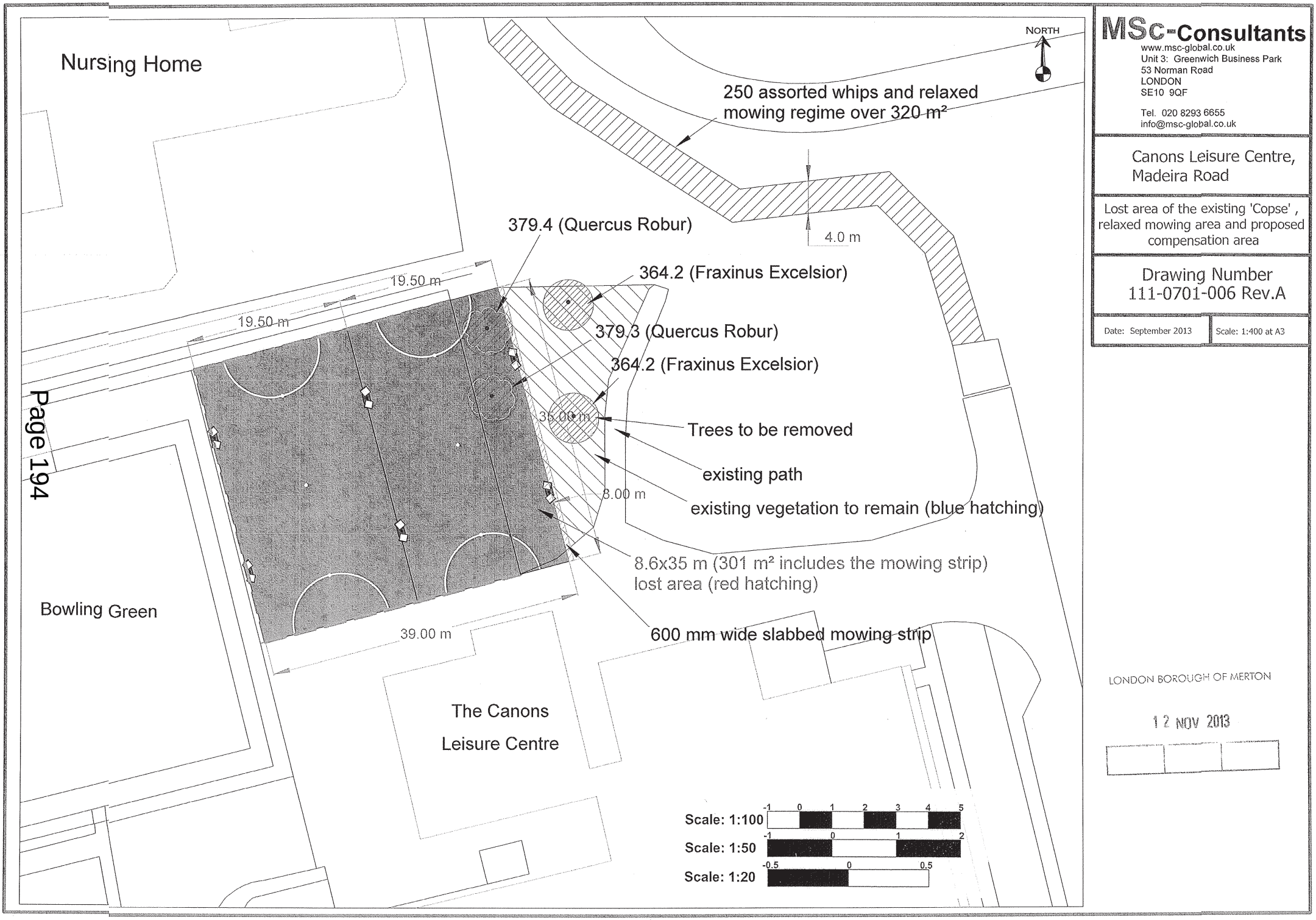

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Canons Leisure Centre, Madeira Road

Lost area of the existing 'Copse' , relaxed mowing area and proposed compensation area

Drawing Number
111-0701-006 Rev.A

Date: September 2013

Scale: 1:400 at A3

Canons Leisure Centre, Madeira Road

Lighting Design

Project code:	3062d
Date:	22/10/2013
Client:	Canons Leisure Centre
Client Representative:	
Lighting Consultant:	
Project Consultant:	Materials Science Consultants Ltd.
Planning Consultant:	
Lighting Design Company:	Luminance Pro Lighting Systems Ltd
Lighting Design Representative:	Matthew Hawkins
Lighting Design Software:	CalcuLux Area 7.7.0.1
Design Criteria:	To provide a lighting scheme suitable for 5 a side recreational Football, whilst minimising light spill and glare to neighbouring properties. MUGA = 200lux maintained at 0.5 uniformity
Columns:	6 No. 6 metre nominal (HiLux model: HLC060LS)
Luminaires:	8 No. (HiLux model: Match 107)
Lamps:	8 No. (1kW metal halide)
Notes:	Individual MUGA dimension: 19.50 x 35 metres. Overall perimeter dimension: 39 x 35 metres. This lighting design is solely based on the use of the equipment detailed. Any deviation from this equipment will produce differing results. The superior optics of the HiLux Match luminaire have been specifically selected to minimise the effects of nuisance overspill to adjacent dwellings.

The nominal values shown in this report are the result of precision calculations, based upon precisely positioned luminaires in a fixed relationship to each other and to the area under examination. In practice the values may vary due to tolerances on luminaires, luminaire positioning, reflection properties and electrical supply.

luminance pro
lighting systems
PO Box 1345, Woking, Surrey, GU24 9WL

Email: info@luminancepro.co.uk
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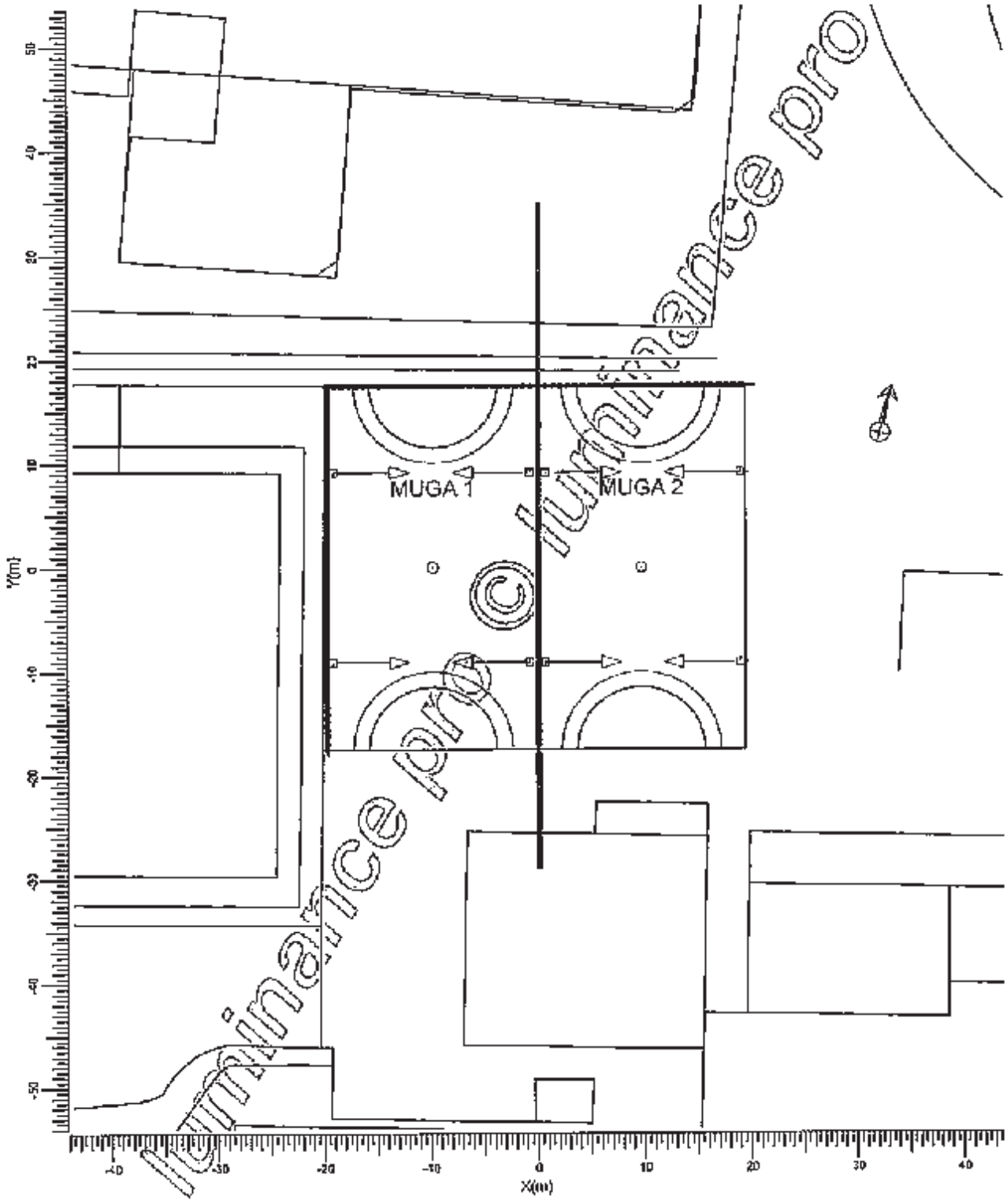
1. Project Description

1.1 Top Project Overview



2. Summary

2.1 General Information

The overall maintenance factor used for this project is 0.90.

2.2 Obstacle Information

Obstacle	Transparency (%)	Position X (m)	Y (m)	Z (m)
Leisure Centre	0	5.36	-25.69	0.00
Leisure Centre1	0	-7.02	-45.91	0.00
Leisure Centre2	0	19.54	-42.94	0.00
Bowls Club	0	-48.66	11.89	0.00
Nursing Home	0	-39.23	29.50	0.00
Nursing Home1	0	-50.24	48.97	0.00
HLR000	0	-19.45	8.75	6.00
		-19.45	-8.75	6.00
Netting 70% stop - North	30	-19.60	17.51	1.50
Netting 70% stop - West	30	-19.60	17.51	1.50
C1	0	0.00	9.10	0.00
		0.00	-9.10	0.00
C2	0	0.00	9.10	1.25
		0.00	-9.10	1.25
C3	0	-19.70	9.10	0.00
		19.70	9.10	0.00
		-19.70	-9.10	0.00
		19.70	-9.10	0.00
C4	0	-19.70	9.10	1.25
		19.70	9.10	1.25
		-19.70	-9.10	1.25
		19.70	-9.10	1.25

2.3 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
A	8	HiLux Match 107WB 17B/48	1 * MH 1000W BT-180	1100.0	1 * 90000

Code	Maintenance factor Luminaire	Lamp7
A	0.90	0.90

The total installed power: 8.80 (kWatt)

Number of Luminaires Per Switching Mode:

Switching Mode	Luminaire Code A	Power (kWatt)
MUGA 1	4	4.40
MUGA 2	4	4.40
All lights	8	8.80

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code A	Power (kWatt)
MUGA 1 Lights	4	4.40
MUGA 2 Lights	4	4.40

2.4 Calculation Results

Switching Modes:

Code	Switching Mode
1	MUGA 1
2	MUGA 2
3	All lights

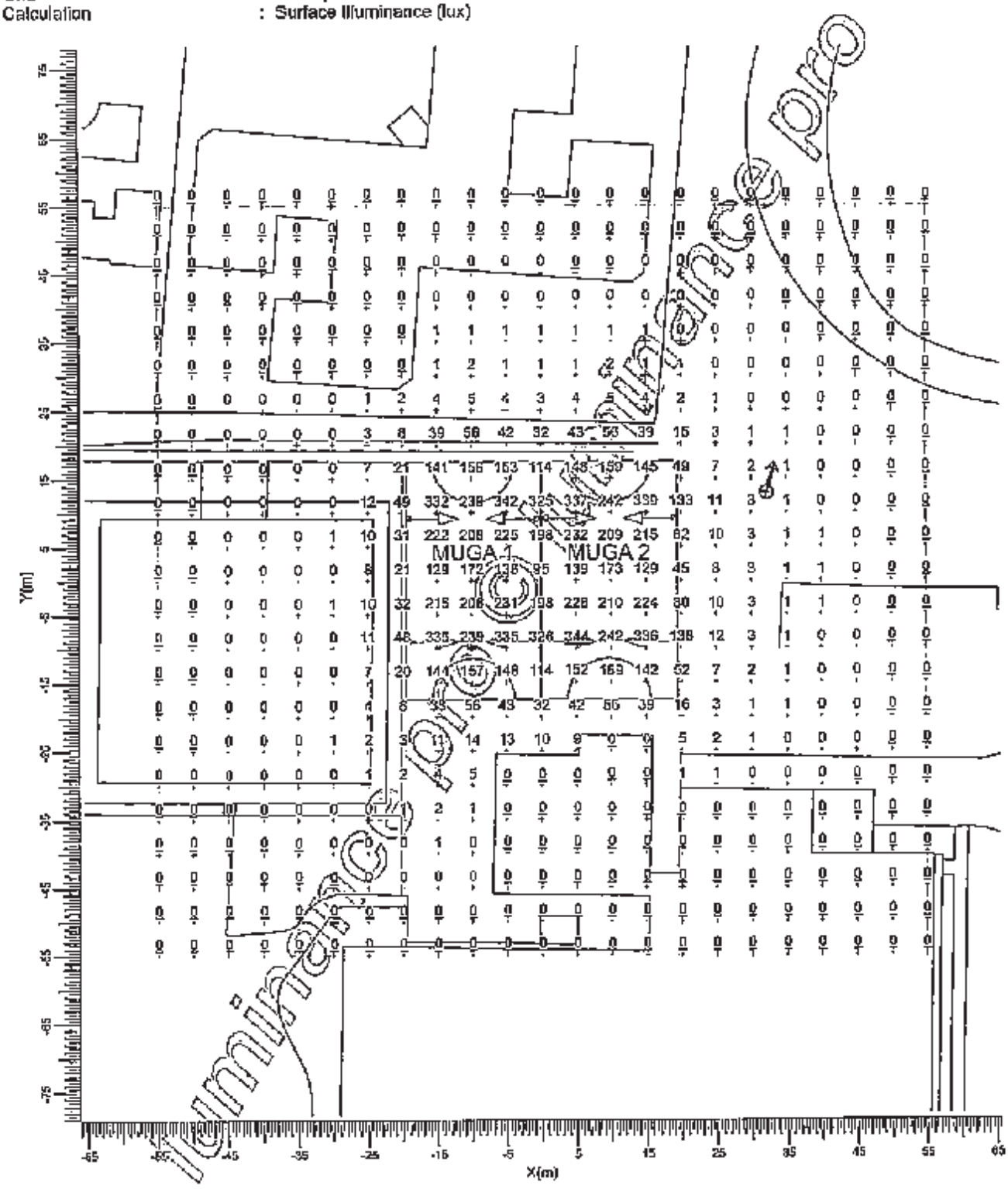
(i)luminance Calculations:

Calculation	Switching Mode	Type	Unit	Ave	Min/Ave
MUGA 1	1	Surface Illuminance	lux	253	0.60
MUGA 2	2	Surface Illuminance	lux	253	0.60
Vertical Grid	3	Surface Illuminance	lux		
Overspill	3	Surface Illuminance	lux		

3.2 Overspill: Graphical Table

All lights

Grid : Overspill at Z = -0.00 m
Calculation : Surface Illuminance (lux)



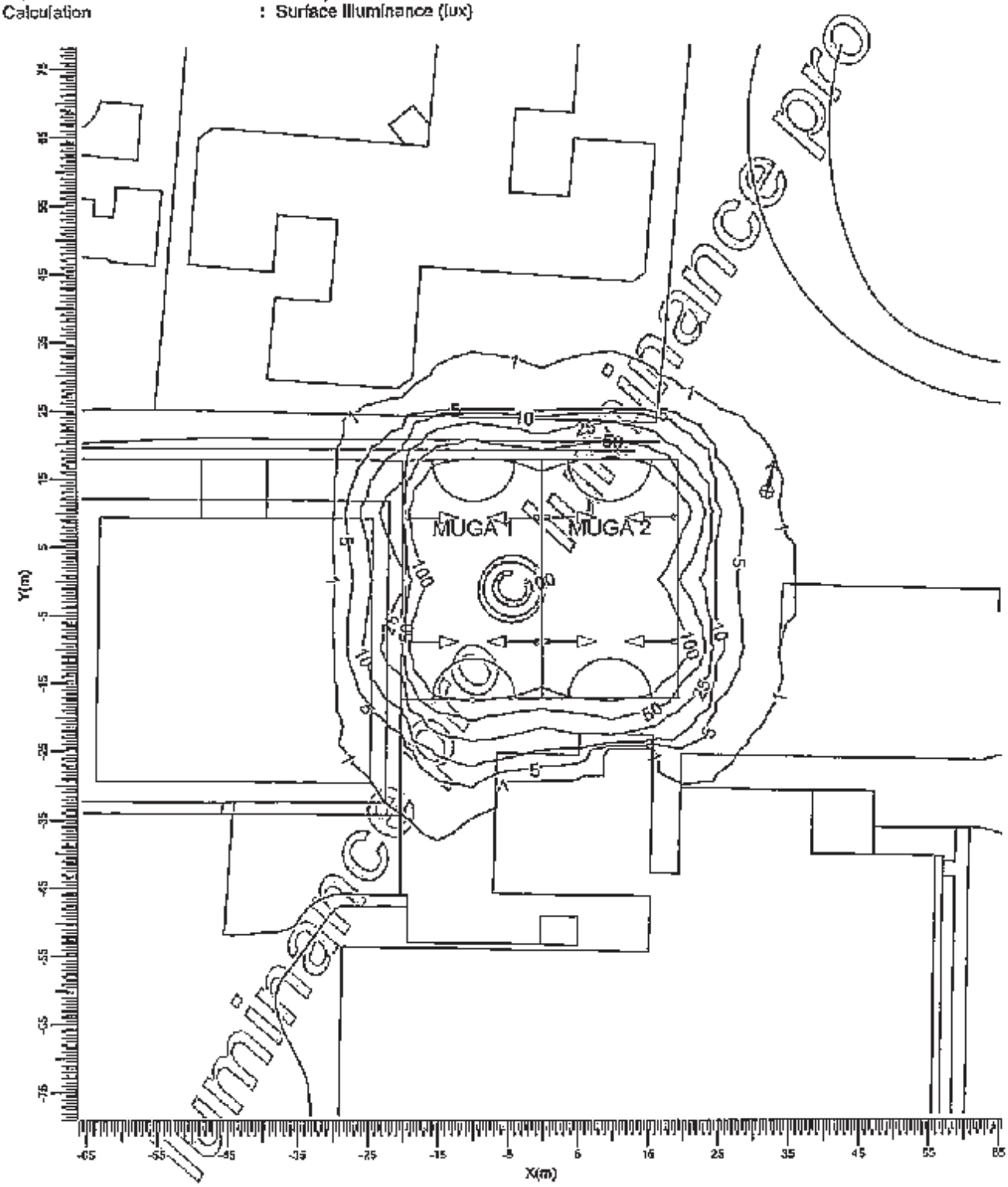
HILux Match 107WB 17B/48

Scale 1:750

3.3 Overspill: Iso Contour

All lights

Grid : Overspill at Z = -0,00 m
Calculation : Surface Illuminance (lux)

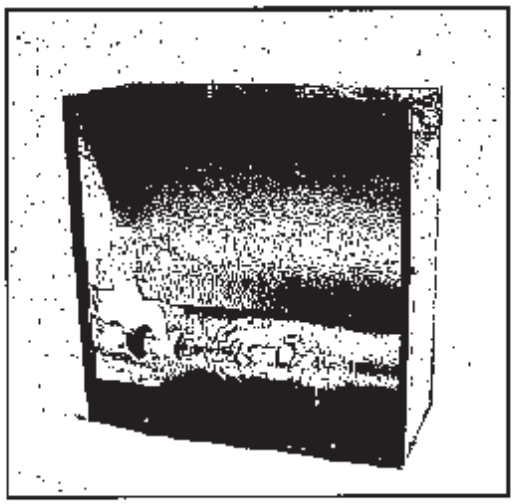


HiLux Match 107WB 17B/48

Scale
1:750

4. Luminaire Details

4.1 Project Luminaires

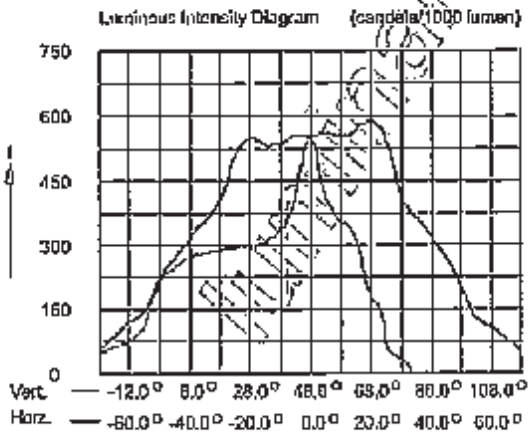


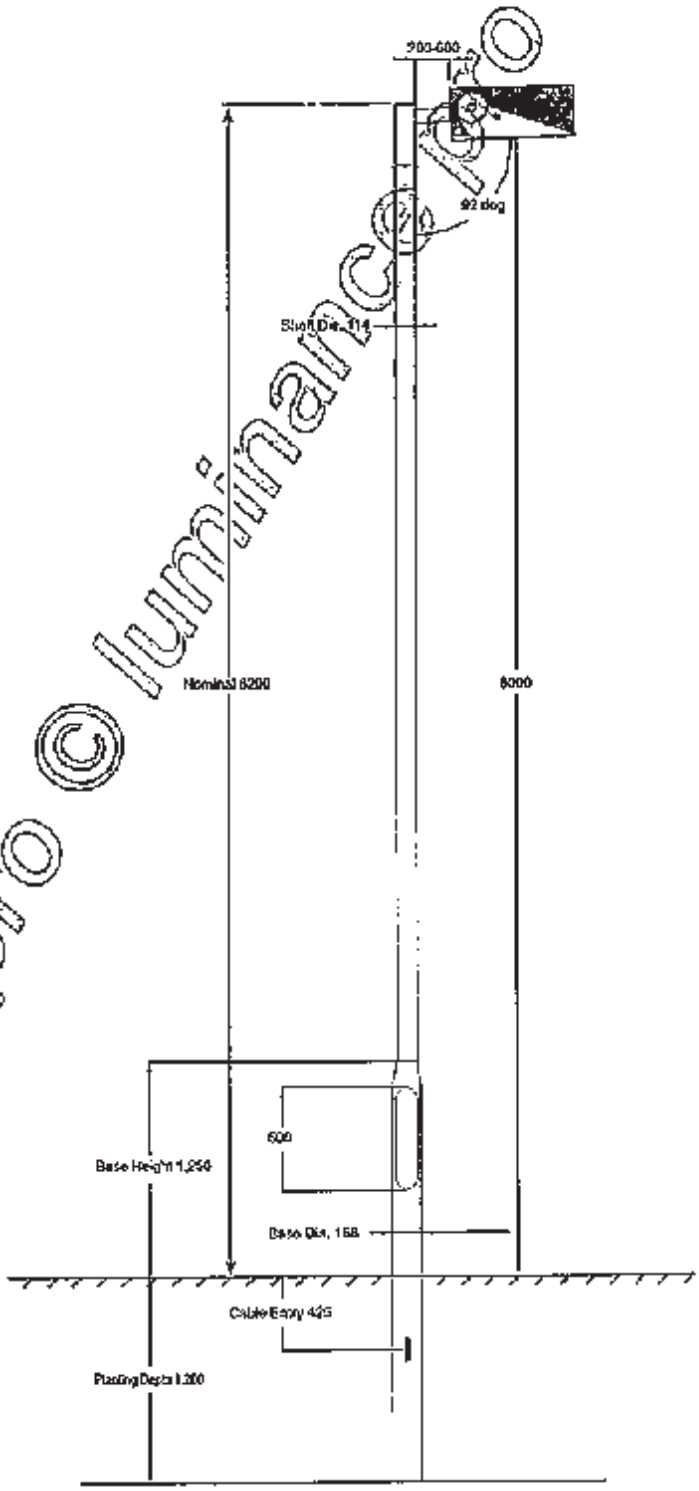
HiLux - Match107/WB 17B

Light output ratios	
DLOR	0.70
ULOR	0.00
TLOR	0.70
Ballast	400v
Lamp flux	90000 lm
Luminaire wattage	1100.0 W
Luminaire voltage	400v +/- 5%
Measurement code	858585V1.0
Luminaire maintenance factor	0.90
Lamp maintenance factor	0.90
Project maintenance factor	0.90

The HiLux projector dramatically reduces light spill and glare outside the intended area, compared with standard angled floodlight projectors.

The horizontal mounting, sharp reflector cut off and low mounting height of the HiLux projector is highly effective at reducing overspill light in environmentally conscious areas.





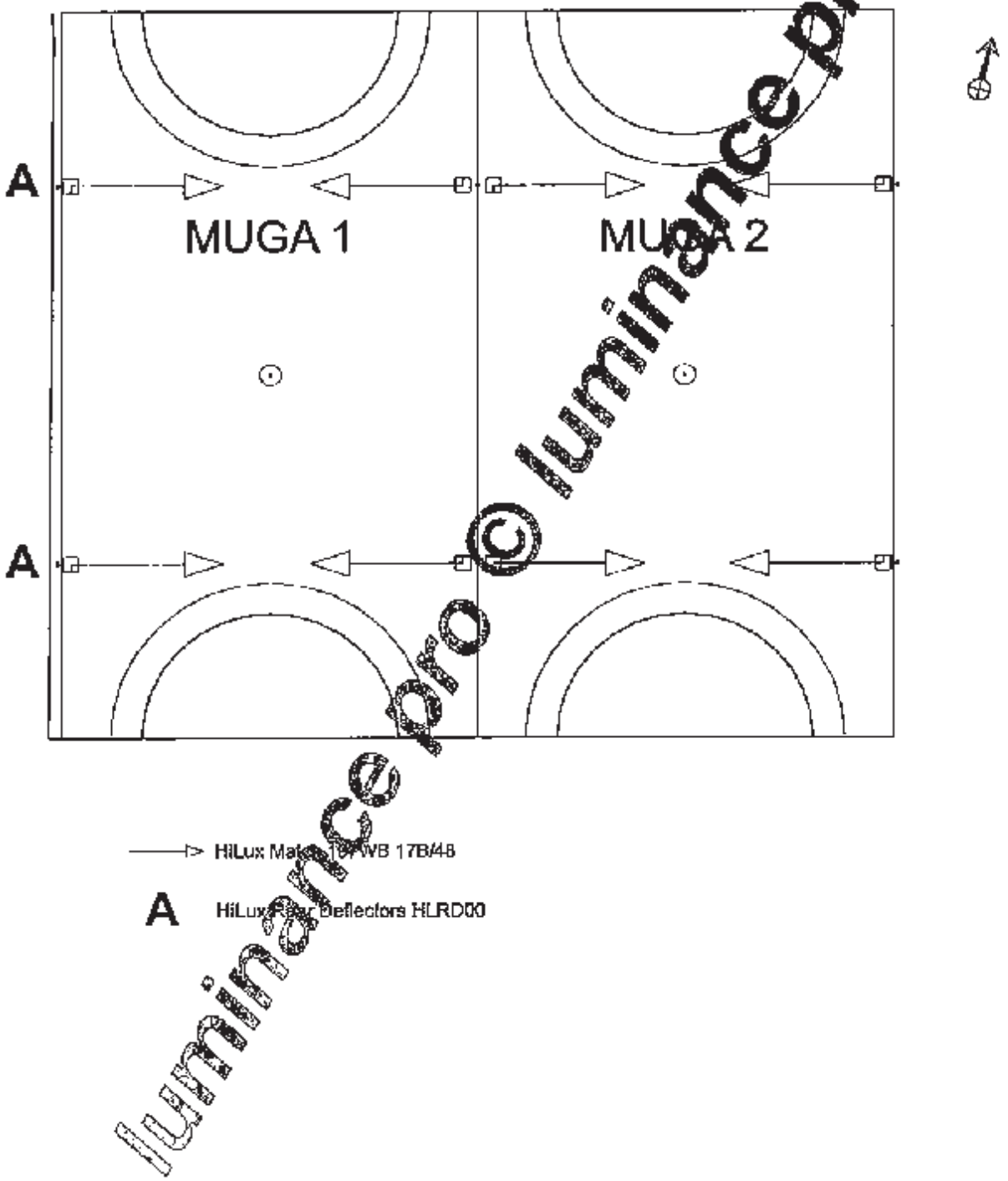
Mounting brackets available for 1, 2, 3 or 4 luminaires.

Columns are tubular, corrosion protection - hot dipgalvanized.

Luminaires and columns are both finished in Green (RAL 6005)

5. Deflectors

5.1 Deflector locations



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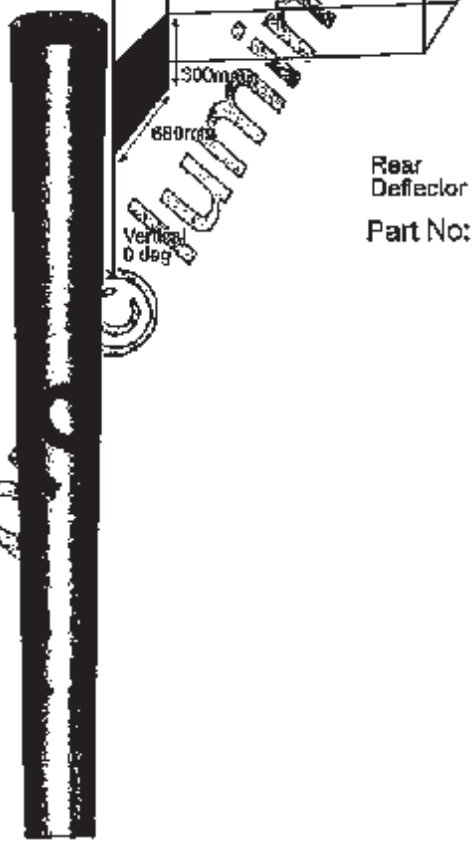
HiLux

Match Projector
Rear Deflector

A



Rear
Deflector

Part No: HLRD00

This indicative drawing is for information only.

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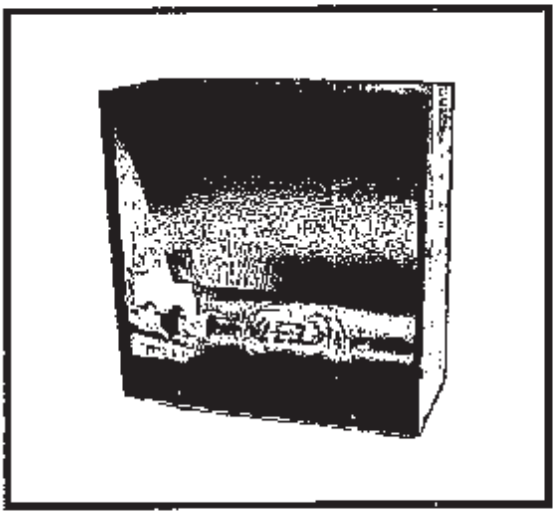


HiLux™ Match®

- ✓ Exceptional light control
- ✓ Flat glass asymmetric technology
- ✓ Fully shielded
- ✓ Designed for outdoor sports lighting
- ✓ Stainless steel components
- ✓ 6mm hinged safety glass
- ✓ Computer designed reflector
- ✓ Non-tarnish reflector
- ✓ Super high reflectance material
- ✓ Super low glare reflectance material
- ✓ Heavy duty mounting
- ✓ IP65 ingress protection
- ✓ Easy, one tool lamp change
- ✓ Pre flexed and tested (option)
- ✓ Powder coat finish (RAL 6005)
- ✓ UK manufactured
- ✓ 10 year limited warranty via direct install
- ✓ 3 year limited warranty via wholesaler distribution

The Match is one in a range of HiLux high performance luminaires designed for use in sports lighting

Match 107/WB 17B

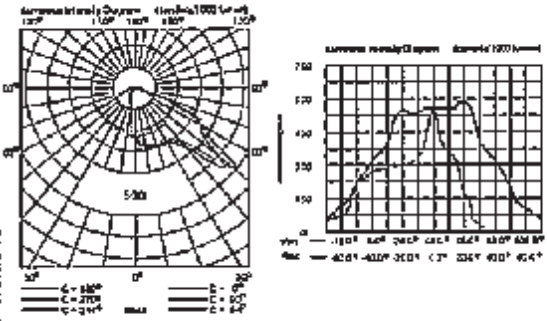
Box quantity	1
Net Weight	25 kg
Body colour (standard)	RAL6005
Optic	Wide beam
IP rating	IP65
Windage	0.21 m^2
Mounting method	4 x M10 factory fitted
Number of lamps	1
Lamp type	MV / E40
Lamp power	1000W
Lamp colour	4200 K
Lamp Access	Via front glass
Supply voltage	400v

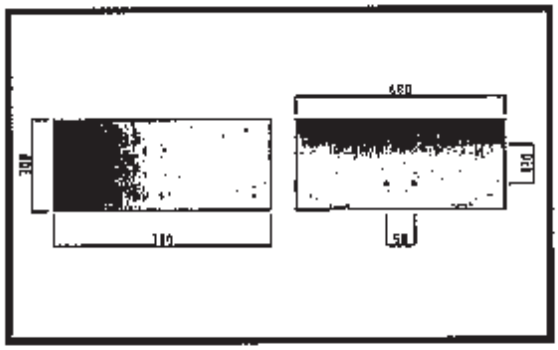
Ordering codes:

MATCH/107/WB/17B Luminaire

Options

/C	Alternative colour finish
/	Deflector (front/FD, rear/RD, side/SD)
/LL	Lamp (supplied loose)
/LFT	Lamp & flex installed and tested
/G	Lamp gear (supplied loose)





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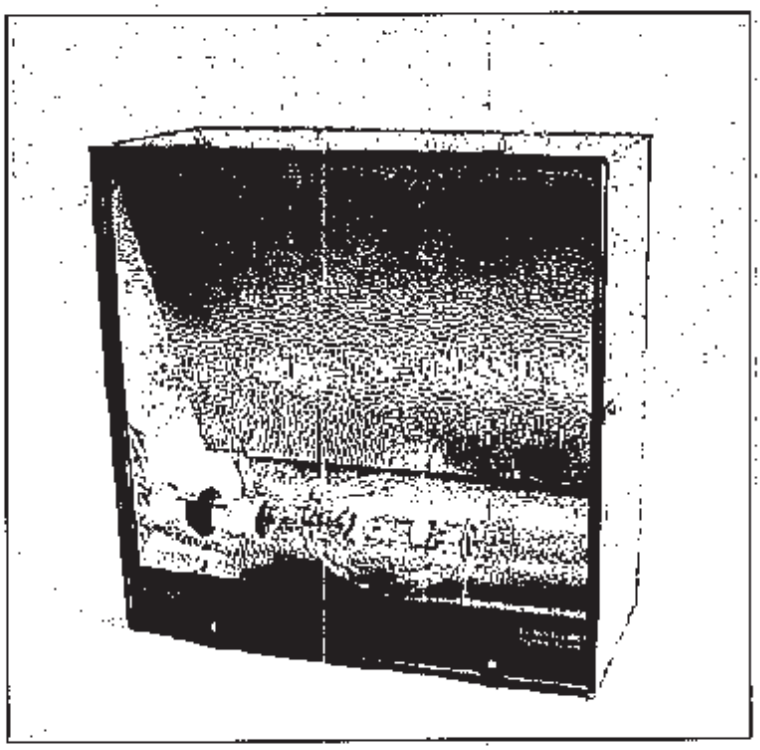
Ref: MATCH/107/WB/17B/5.0/Dec

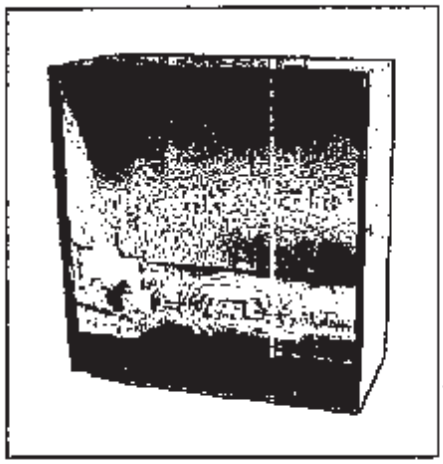
HiLux™ Match™



High Quality Luminaires for the Sports Industry

HiLux

The Match Projector is one in a range of HiLux high performance luminaires designed for use in indoor or outdoor sports lighting applications.



True 'flat glass' aiming angles are achieved by using a computer optimised design of reflector.

HiLux reflector material provides the highest amount of reflection available, achieving 10-20% more light output than any other product of its type on the market today.

HiLux reflectors do not tarnish or require cleaning under normal use.

The reflector material of similar products will tarnish with age, typically reducing light reflection by 2-5% per year, this amount can never be regained without replacing the reflector.

It is designed to meet the high standards required by architects, consultants, specifiers and end users and has received approval from Planning Departments throughout the United Kingdom.

- ✓ Highest efficiency reflector
- ✓ Non - tarnish reflector
- ✓ Low glare
- ✓ Sharp cutoff angle
- ✓ Fully shielded
- ✓ 6mm toughened safety glass
- ✓ Stainless steel components
- ✓ IP65 protection
- ✓ Low mounting height option
- ✓ Fixed mounting angle
- ✓ One tool lamp replacement
- ✓ Power Factor corrected
- ✓ Branded long life lamps
- ✓ Prewired and tested
- ✓ Aluminium casing
- ✓ Powder coated finish
- ✓ Alternative colour finishes
- ✓ CE Approved
- ✓ UK manufactured
- ✓ 3 year limited warranty via wholesaler distribution.*
- ✓ 10 year limited warranty via direct install.*

*

Built for performance

HiLux Match luminaires provide rugged strength in a lightweight design as well as high quality light output.

The supporting arm attaches to an area with increased strengthening to ensure the luminaire remains at the optimum angle throughout its working life, this also serves to reduce wind vibration.

Built to last

The outer shell is manufactured from tough fully seam welded aluminium, this means there are no joints to allow water or dust to enter.

This shell is then treated, oven cured and a powder coated paint process is applied, this results in a robust high gloss finish which is more durable than many other paint treatments.

Green (RAL6005) is stocked as standard, however alternative colours are available to order subject to manufacturing lead times.

Extended Warranty

It is the superior build quality which gives all HiLux luminaires a 3 year limited warranty as standard.

This warranty is increased to a massive 10 years if installed by Illuminance Pro Lighting Systems Ltd.

Designed to outlast other similar products, only the highest quality components are used in manufacture.

Centre Court Hotel - Covey Standard Track, Surrey

Hythe Cricket Club - Adult Game Area Synthetic

A full range of support engineering is available, from static or hinged columns, to feeder pillars and automated control systems.

HiLux products are manufactured to the highest standards for continued light performance and long lasting installations.

Cottesloe Tennis Club - Club Standard Triple, Surrey

Best on the playing area, best off the playing area...

With more lighting installed in environmentally sensitive areas or near to residential areas, luminaires have to meet demanding criteria.

The Match range is engineered to provide maximum cutoff and ultra low glare.

Less light into the surrounding environment means more light for the players, placing the HiLux Match as the best specified luminaire in the industry.

HiLux™ Match™

Specification

Dimensions	L 700mm W 680mm D 300
Finish	Polyester gloss powder coated
Standard colour	BS381C 267 (green)
Warranty	Ten year limited warranty via direct install *
	Three year limited warranty via wholesaler distribution *
Lamp warranty	Six month limited warranty
Internal wiring	200° C silicone
Lens	6mm toughened optically clear glass
Reflector	High purity anodized aluminium, 95% reflectance
Fasteners	A2 stainless steel
Lamp Access	Hinged glass lens
Ingress protection	IP65 rated
Windage	0.21 (horizontal position)
Country of origin	Great Britain
Voltage tolerance	+/- 5% of operating voltage
Recommended mounting	HiLux fixed angle bracket
Recommended column	HiLux high grade column
Recommended height	8.7m to 10m

* or 20,000 hrs use, whichever is sooner

Product code	Lamp	Number of lamps	Lumen Output	Colour Temp.(°K)	Operating voltage	Luminaire wattage	Weight (kg)
MATCH/090/WB	600W SON-T	1	90,000	2,000	230	636	26
MATCH/100/WB	400W SON-T	2	100,000	2,000	230	864	27
MATCH/130/WB	1kW SON-T	1	130,000	2,000	230	1,054	26
MATCH/180/WB	600W SON-T	2	180,000	2,000	230	1,272	27
MATCH/040/WB	400W multi vapour	1	40,000	4,000	230	430	26
MATCH/080/WB	400W multi vapour	2	80,000	4,000	230	860	27
MATCH/107/WB	1kW multi vapour	1	107,500	4,000	400	1,040	26
MATCH/107/S	1kW multi vapour	1	107,500	4,000	400	1,040	26
MATCH/240/WB	2kW metal halide	1	240,000	4,500	400	2,070	26
MATCH/215/WB	1kW multi vapour	2	215,000	4,000	400	2,080	27
MATCH/230/WB	2kW metal halide	1	230,000	4,100	400	2200	26

Ref/Item: MATCH/2.0.1

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GUIDANCE NOTES FOR THE REDUCTION OF OBTRUSIVE LIGHT

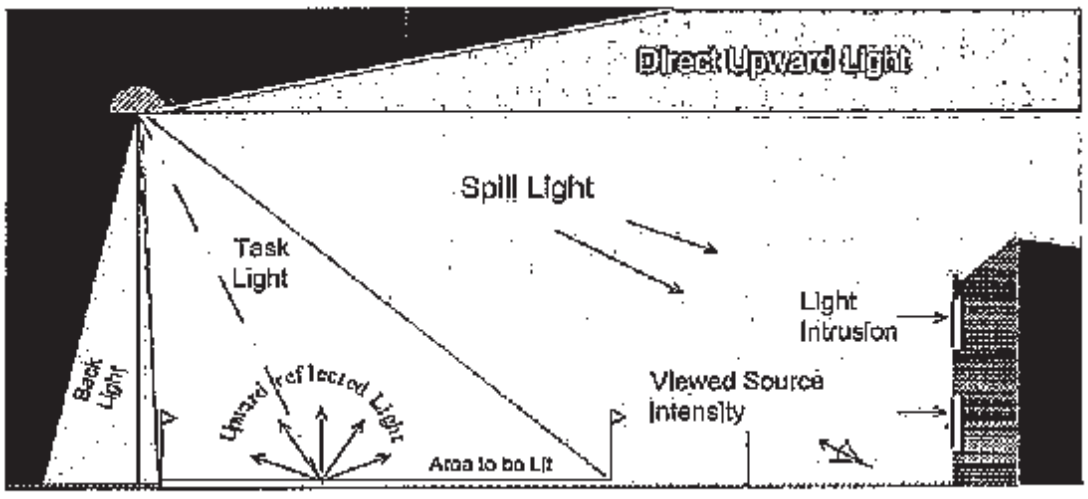
"Think before you light – The right amount of light, where wanted, when wanted."

Man's invention of artificial light has done much to safeguard and enhance our night-time environment but, if not properly controlled, **obtrusive light** (sometimes referred to as light pollution) can present serious physiological and ecological problems.

Obtrusive Light, whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution, which may also be a nuisance in law and which can be substantially reduced without detriment to the lighting task.

Sky glow, the brightening of the night sky, **Glare** the uncomfortable brightness of a light source when viewed against a darker background, and **Light Intrusion ("Trespass"),** the spilling of light beyond the boundary of the property or area being lit, are all forms of obtrusive light which may cause nuisance to others and waste money and energy. Think before you light. Is it necessary? What effect will it have on others? Will it cause a nuisance? How can you minimise the problem?

Figure 1 – Types of obtrusive light



Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light. Organisations from which full details of these standards can be obtained are given on the last page of this leaflet.

Dim or switch off lights when the task is finished. Generally a lower level of lighting will suffice to enhance the night time scene than that required for safety and security.

"Good Design equals Good Lighting"

Any lighting scheme will consist of three basic elements: a light source, a luminaire and a method of installation.

Light sources (Lamps)

Remember that the light source output in LUMENS is not the same as the wattage and that it is the former that is important in combating the problems of obtrusive light.

Most nightime visual tasks are only dependant on light radiated within the visual spectrum. It is therefore NOT necessary for light sources to emit either ultra-violet or infra-red radiation unless specifically designed to do so. It is also understood that light from the shorter wavelengths of the spectrum has important effects on both flora and fauna that should be considered.

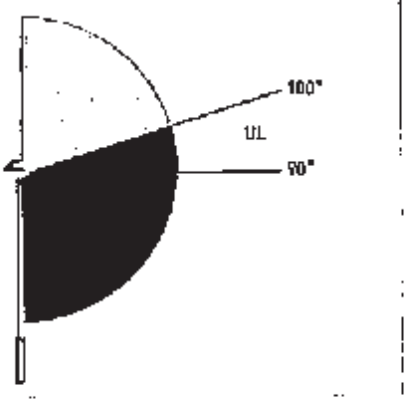
Research indicates that light from the blue end of the spectrum has important non-visual effects on the health of the human body, in particular in our sleep/wake patterns. It is therefore important to appreciate that while in obtrusive light terms the use of blue light should be minimised, there are many night-time tasks such as driving and sports where to be fully awake is an important aid to safety.

Luminaires

Care should always be taken when selecting luminaires to ensure that appropriate products are chosen and that their location will reduce spill light and glare to a minimum.

Use specifically designed lighting equipment that minimises the upward spread of light near to and above the horizontal. The most sensitive/critical zones for minimising sky glow are those between 90° and 100° as shown in Figure 2 and referred to as the lower, upward light output zone (UL).

Figure 2 – Critical luminaire angles For minimising sky glow



For most sports and area lighting installations the use of luminaires with double-asymmetric beams designed so that the front glazing is kept at or near parallel to the surface being lit should, if correctly aimed, ensures minimum obtrusive light.

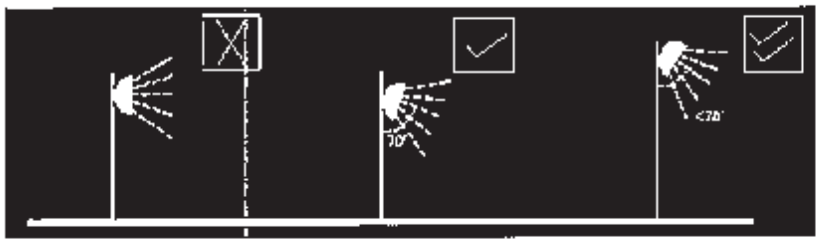
Appendices 1 and 2 to these notes gives more details of how to choose and if necessary modify luminaires.

Installation

In most cases it will be beneficial to use as high a mounting height as possible, giving due regard to the daytime appearance of the installation. The requirements to control glare for the safety of road users are given in Table 3.

Keep glare to a minimum by ensuring that the main beam angle of all lights directed towards any potential observer is not more than 70°. Higher mounting heights allow lower main beam angles, which can assist in reducing glare. In areas with low ambient lighting levels, glare can be very obtrusive and extra care should be taken when positioning and aiming lighting equipment. With regard to domestic security lighting the ILP produces an information leaflet GN02:2009 that is freely available from its website.

Figure 3 – Luminaire aiming angles



When lighting vertical structures such as advertising signs, direct light downwards wherever possible. If there is no alternative to up-lighting, as with much decorative lighting of buildings, then the use of shields, baffles and louvres will help reduce spill light around and over the structure to a minimum.

For road and amenity lighting installations, (see also design standards listed on Page 5) light near to and above the horizontal should normally be minimised to reduce glare and sky glow (Note ULR's in Table 2). In rural areas the use of full horizontal cut off luminaires installed at 0° uplift will, in addition to reducing sky glow, also help to minimise visual intrusion within the open landscape. However in some urban locations, luminaires fitted with a more decorative bowl and good optical control of light should be acceptable and may be more appropriate.

Figure 4 – Façade Illumination

Since 2006 "Artificial Light" has been added to the list of possible Statutory Nuisances in England, Wales and Scotland. The monitoring of such nuisances will be the responsibility of Environmental Health Officers (EHOs) for which separate guidance is being produced.

With regard to the planning aspect, many Local Planning Authorities (LPAs) have already produced, or are producing, policies that within the planning system will become part of their local development framework. For new developments there is an opportunity for LPAs to impose planning conditions related to external lighting, including curfew hours.

The Scottish Executive has published a design methodology document (March 2007) entitled "Controlling Light Pollution and Reducing Energy Consumption" to further assist in mitigating obtrusive light elements at the design stage.

ENVIRONMENTAL ZONES

It is recommended that Local Planning Authorities specify the following environmental zones for exterior lighting control within their Development Plans.

Table 1 – Environmental Zones

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Small town centres or suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

Where an area to be lit lies on the boundary of two zones the obtrusive light limitation values used should be those applicable to the most rigorous zone.

NB: Zone E0 must always be surrounded by an E1 Zone.

DESIGN GUIDANCE

The following limitations may be supplemented or replaced by a LPA's own planning guidance for exterior lighting installations. As lighting design is not as simple as it may seem, you are advised to consult and/or work with a professional lighting designer before installing any exterior lighting.

Table 2 – Obtrusive Light Limitations for Exterior Lighting Installations – General Observers

Environmental Zone	Sky Glow ULR [Max %][1]	Light Intrusion (into Windows) E_v [lux] [2]		Luminaire Intensity I [candelas] [3]		Building Luminance Pre-curfew [4]
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L [cd/m^2]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

ULR = **Upward Light Ratio of the Installation** is the maximum permitted percentage of luminaire flux that goes directly into the sky.

E_v = **Vertical Illuminance in Lux** – measured flat on the glazing at the centre of the window.

I = **Light Intensity in Candelas (cd)**

L = **Luminance in Candelas per Square Metre (cd/m^2)**

Curfew = **the time after which stricter requirements (for the control of obtrusive light) will apply**; often a condition of use of lighting applied by the local planning authority. If not otherwise stated - 23.00hrs is suggested.

***** = **Permitted only from** Public road lighting installations

(1) Upward Light Ratio – Some lighting schemes will require the deliberate and careful use of upward light, e.g. ground recessed luminaires, ground mounted floodlights, festive lighting, to which these limits cannot apply. However, care should always be taken to minimise any upward waste light by the proper application of suitably directional luminaires and light controlling attachments.

(2) Light Intrusion (into Windows) – These values are suggested maxima and need to take account of existing light intrusion at the point of measurement. In the case of road lighting on public highways where building facades are adjacent to the lit highway, these levels may not be obtainable. In such cases where a specific complaint has been received, the Highway Authority should endeavour to reduce the light intrusion into the window down to the post curfew value by fitting a shield, replacing the luminaire, or by varying the lighting level.

(3) Luminaire Intensity – This applies to each luminaire in the potentially obtrusive direction, outside of the area being lit. The figures given are for general guidance only and for some sports lighting applications with limited mounting heights, may be difficult to achieve.

(4) Building Luminance – This should be limited to avoid over lighting, and related to the general district brightness. In this reference building luminance is applicable to buildings directly illuminated as a night-time feature as against the illumination of a building caused by spill light from adjacent luminaires or luminaires fixed to the building but used to light an adjacent area.

Table 3 – Obtrusive Light Limitations for Exterior Lighting Installations – Road Users

Road Classification (1)	Threshold Increment (TI)	Veiling Luminance (Lv)
No road lighting	15% based on adaptation luminance of 0.1cd/m^2	0.04
ME6/ ME5	15% based on adaptation luminance of 1cd/m^2	0.25
ME4/ ME3	15% based on adaptation luminance of 2cd/m	0.40
ME2 / ME1	15% based on adaptation luminance of 5cd/m^2	0.84

TI = **Threshold Increment** is a measure of the loss of visibility caused by the disability glare from the obtrusive light installation

Lv = **Veiling Luminance** is a measure of the adaptation luminance caused by the disability glare from the obtrusive light installation

(1) = **Road Classifications** as given in BS EN 13201 - 2: 2003 Road lighting Performance requirements. Limits apply where users of transport systems are subject to a reduction in the ability to see essential information. Values given are for relevant positions and for viewing directions in path of travel. For a more detailed description and methods for determining, calculating and measuring the above parameters see CIE Publication 150:2003.

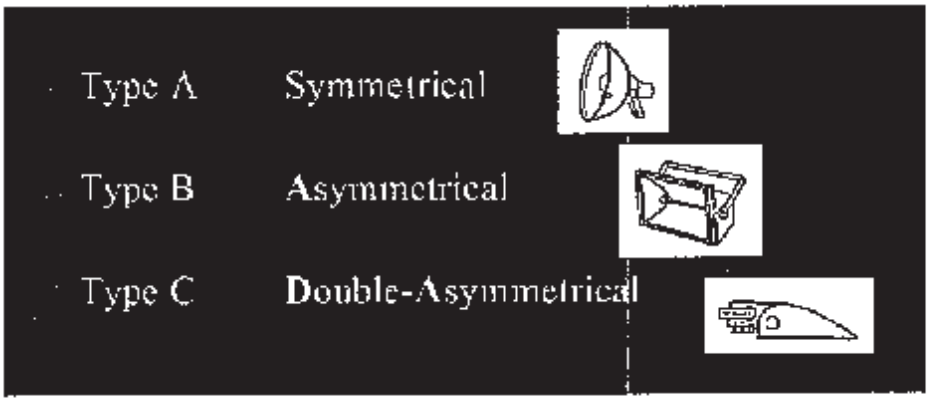
RELEVANT PUBLICATIONS AND STANDARDS:

British Standards: www.bsi.org.uk		BS 5489-1: 2003 Code of practice for the design of road lighting – Part 1: Lighting of roads and public amenity areas BS EN 13201-2:2003 Road lighting – Part 2: Performance requirements BS EN 13201-3:2003 Road lighting – Part 3: Calculation of performance BS EN 13201-4:2003 Road lighting – Part 4: Methods of measuring lighting performance. BS EN 12193: 1999 Light and lighting – Sports lighting BS EN 12464-2: 2007 Lighting of work places – Outdoor work places
Countryside Commission/ DOE		Lighting in the Countryside: Towards good practice (1997) *(Out of Print but available on www.communities.gov.uk/index.asp?id=1144823)*
UK Government / Defra www.defra.gov.uk		Statutory Nuisance from Insects and Artificial Light – Guidance on Sections 101 to 103 of the Clean Neighbourhoods and Environment Act 2005 Road Lighting and the Environment (1993) (Out of Print)
CIBSE/SLL Publications: www.cibse.org	Col.	Code for Lighting (2002)
	LG1	The Industrial Environment (1989)
	LG4	Sports (1990+Addendum 2000)
	LG6	The Exterior Environment (1992)
	FF7	Environmental Considerations for Exterior Lighting (2003)
CIE Publications:	01	Guidelines for minimizing Urban Sky Glow near Astronomical Observatories (1980)
www.cie.co.at	83	Guide for the lighting of sports events for colour television and film systems (1989)
	92	Guide for floodlighting (1992)
	115	Recommendations for the lighting of roads for motor and pedestrian traffic – Second Edition (2010)
	126	Guidelines for minimizing Sky glow (1997)
	129	Guide for lighting exterior work areas (1998)
	136	Guide to the lighting of urban areas (2000)
	150	Guide on the limitations of the effect of obtrusive light from outdoor lighting installations (2003)
	154	The Maintenance of outdoor lighting systems (2003)
ILP Publications: www.theilp.org.uk	TR 5	Brightness of Illuminated Advertisements (2001)
	TR24	A Practical Guide to the Development of a Public Lighting Policy for Local Authorities (1999)
	GN02	Domestic Security Lighting, Friend or Foe
ILP/CIBSE Joint Publications		Lighting the Environment - A guide to good urban lighting (1995)
ILP/CSS Publications		Joint Code of Practice for the Installation, maintenance and removal of seasonal decorations. (2005)
ILP/CfDS Joint Publication www.dark-skies.org		Towards Understanding Sky glow. 2007
IESNA www.iesna.org		TM-15-07 (R) Luminaire Classification System for Outdoor luminaires

NB: These notes are intended as guidance only and the application of the values given in Tables 2 & 3 should be given due consideration along with all other factors in the lighting design. Lighting is a complex subject with both objective and subjective criteria to be considered. The notes are therefore no substitute for professionally assessed and designed lighting, where the various and maybe conflicting visual requirements need to be balanced.

APPENDIX 1 - PROPOSED OUTDOOR LUMINAIRE CLASSIFICATION SYSTEM

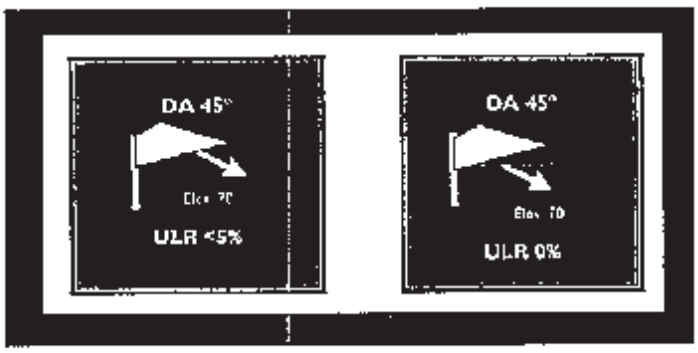
Variable Aim Luminaires – General Classifications:



Proposed labelling System:

Fixed Position luminaires

Variable Aim Luminaires
(Shown here for a 45° Double-Asymmetric luminaire aimed at 70° – with and without a cowl).



why use an approved contractor?

About 12,500 fires a year are reported as having an electrical source, which includes faulty or inadequate wiring.

Cables, switches, socket-outlets and other equipment deteriorate with prolonged use, so they all need to be checked and necessary replacements or repairs made in good time.

Our aim is to protect everyone who uses electricity from unsafe electrical installations in their homes, places of work and leisure. In order to achieve this, we maintain a register (Roll) of electrical contractors that we have assessed as complying with the Council's rules. The assessment covers a representative sample of the contractors' electrical work, their premises and documentation, and the competence of their key supervisory staff. Once contractors become NICEIC Approved Electrical Contractors, they are re-assessed every year by one of the Council's Area Engineers to confirm that their business and the technical standard of their electrical work continue to comply with the Council's rules.

Enrolment with the NICEIC is voluntary, but electrical contractors that are competent and conscientious about the service they offer customers would consider it a priority to enrol.

There are more than 10,500 Approved Contractors on the Roll, covering the whole of the UK, including Northern Ireland. This means that you're sure to have a choice of Approved Contractors operating in your area. You can find an Approved Contractor by searching the **Roll of Approved Contractors** by postcode.

It is imperative that electrical work is carried out only by those with the necessary knowledge, skill and experience of the type of electrical work to be undertaken to enable them to avoid the dangers to themselves and others that electricity can create. It's easy to make an electrical circuit work - it's far more demanding to make the circuit work safely. Safety for you in your home is paramount; therefore the NICEIC strongly recommends that you choose an Approved Contractor to carry out your electrical work.

As a further guarantee of good work, all NICEIC Approved Contractors must issue certificates for all work carried out in accordance with the national standard **BS 7671**. Our **Certificates** page gives more details.

In the rare cases where a consumer is not satisfied with the technical standard of an Approved Contractor's electrical work, the NICEIC offers a complaints resolution service. The NICEIC expects its Approved Contractors to provide quality services to customers so, subject to certain limitations and conditions, we endeavour to resolve all complaints about the technical standard of their work. If a customer and an Approved Contractor are unable to resolve an alleged deficiency in the technical standard of electrical work, the customer can make a formal complaint to the NICEIC. All complaints falling within the scope of the NICEIC complaints procedure will be investigated and where a complaint is substantiated, the deficiency will be rectified at no additional cost to you. See our **Complaints** section for more details.

guarantee of standards

The NICEIC expects its Approved Contractors to provide quality services to customers so, subject to certain limitations and conditions, we endeavour to resolve all complaints about the technical standard of their electrical work.

If a customer and an Approved Contractor are unable to resolve an alleged deficiency in the technical standard of electrical work, the customer can make a formal complaint to the NICEIC. See our Complaints page for the procedure.

If an Approved Contractor does not undertake the required remedial work, The NICEIC Guarantee of Standards Scheme ensures it will be done by another Approved Contractor, at no cost to the consumer.

The Scheme applies to:

- completed electrical installation work ie: work for which an Electrical Installation Certificate has been issued.

- the safety and standard of workmanship of any electrical installation that is the subject of a complaint by the client or user of the installation.

- the 12-month period from the date the installation was put into service, or from the date the 'inspection and test' section of the Electrical Installation Certificate for the work was signed, whichever expires first.

The Scheme does not apply to:

- the work of Approved Contractors covered by a Trade Association Guarantee.

- contracts under which the customer is indemnified by an insurance or other bond.

- work carried out by Approved Contractors that have closed their businesses and/or gone into liquidation. This is considered a commercial risk against which specifiers and consumers should make suitable arrangements.

- consequential and/or contingent liabilities including personal injury or death arising from the work of an Approved Contractor being below the required standard.

- the inspection and testing of electrical equipment, which does not form part of a fixed electrical installation and/or any claim resulting from such work.

The financial limit for remedial work is £10,000, on the work associated with any one contract or related series of contracts.

All decisions regarding the application and interpretation of the NICEIC Guarantee of Standards Scheme, the safety and standard of workmanship of an electrical installation and remedial work required, rest solely with the National Inspection Council. Any essential remedial work deemed necessary by the NICEIC will be carried out by an Approved Contractor appointed by the National Inspection Council.

The NICEIC Guarantee of Standards Scheme provides benefits in addition to legal and statutory rights. The Scheme does not reduce or modify those rights.

The current terms and conditions relating to the Guarantee of Standards Scheme can be downloaded here:

Why use the NICEIC?

The UK has a comparatively good record of electrical safety. According to government figures there are around 10 fatal and 2,000 non-fatal electric shock accidents in the home each year, and around 19 fatal and 880 non-fatal shock accidents a year in the workplace.

However, there are about 12,500 electrical fires in homes across the UK each year. Although many incidents are caused by faulty appliances rather than the electrical installation itself, a properly installed and well-maintained installation could save lives.

The **NICEIC's** independence assures consumers and specifiers that all installation work done by an NICEIC Approved Contractor will meet electrical safety requirements. The list of our Approved Contractors can be accessed on this website, and is updated weekly. A CD-ROM version of the Roll is also available on request.

Approved Contractors are required to issue a safety certificate for all their electrical work to confirm that the installation has been designed, constructed, inspected and tested in accordance with the national electrical safety standard, **BS 7671** - Requirements for Electrical Installations. A Periodic Inspection Report (PIR) is issued when a report on the condition of an existing installation is required.

The NICEIC investigates all complaints that Approved Contractors have not complied with the appropriate technical standard and we operate a **Complaints Procedure** and **Guarantee of Standards Scheme**.

Householders have peace of mind knowing that all electrical work undertaken by an Approved Contractor will be safe. Approximately 90% of local authorities in the UK are believed to restrict work to NICEIC Approved Contractors on safety grounds.

VALUATION REPORT.

CANONS COPSE (BELLAMY COPSE).

A CAVAT (Community Asset Valuation of Amenity Trees) report for the Copse on the South West corner of News of the World Sports Ground, part of the Canons Pleasure Gardens, with explanation of the valuation system.

1. THE COPSE

1.1 The copse is located in the centre of the Canons Pleasure Gardens – more commonly known as the Canons' Recreation Ground – just north of the Canons' Leisure Centre and its associated rear access. It consists of some planted material (Oak, Birch and Thorn, planted as screening (condition) for the construction of the Leisure Centre. This has been supplemented by self sown Sycamore, Poplar and Goat Willow with an understory containing considerable areas of bramble and much Ivy. A Phase 1 Ecological Survey has been carried out (November 2011) by Furesfen, giving greater detail on non-tree species.

1.2 The nearest other woodlands in the immediate area are adjacent to the railway lines to the eastern side of Cranmer Green and scattered wooded areas on Mitcham Common. Other urban tree canopy features in the area include: extensive lines and groups of specimen trees within the Canons' Recreation Ground and it's boundaries (several groups of which are spectacularly used as pre-roost gathering places by both Rose-ringed Parakeets and by Jackdaws); scattered boundary trees on Cricket, Police, Vestry and Cranmer Greens; limited street tree populations.

1.3 Apart from litter and some marginal fly tipping the main damage to the copse in the past has been from the opening up to grounds maintenance vehicles, of a pathway from SW to NE and the imposition of a leaf dump area at the western margin. Prior to this in 2005-6 the path was a narrow foot path desireline with both sections almost equally tree'd. The current proposal for a MUGA will obliterate the copse.

1.4 Management in the past has been limited to removal of selected Sycamore to favour native Oak, though to date the main beneficiary has been Goat Willow. Colonisation by Oak is possible where bramble and thorn protection exists without being so prolific as to overtop and discourage oak regeneration. To date this has not occurred and may require intervention. Due to the possible need for this intervention, the Sycamores, Poplar and to a lesser extent PARCEL377 (largely Goat Willow) have been devalued in the accompanying monetary totals.

CAVAT.

2.1 This monetary valuation system was originated by Chris Neilan of Epping Forest District Council in conjunction with the London Tree Officers Association and can be viewed in detail or freely downloaded from the website of the LTOA – http://www.ltoa.org.uk

2.2 A number of valuation systems for natural objects and ecological services exist and there are some comparative studies on them. All contain some variable elements and subjective value judgements. Valuations between these systems can vary – as also variations are possible even the use of one system.

2.3 CAVAT is used in Merton;
to assess the grading of trees in cases of alleged damage from tree roots (subsidence allegations) to determine the level of evidence required;
to assess damage caused to our assets in RTA cases or vandalism incidents;
to determine compensation when trees are lost or damaged during development – whether agreed by negotiation or due to negligence and poor practice.

2.4 Common examples are, that until recently, removal of a street tree for a vehicle footway crossover was charged at the *cost* of removal of the existing tree and the *cost* of a new tree elsewhere, neither of which, either separately or in sum represent the *value* of the loss. Likewise CAVAT can be used to demonstrate ongoing amenity losses of repeat pruning operations leading to unfulfilled environmental potential by the needs of, say, CCTV – avoidable by re-siting cameras – if the valuation is used to illustrate true costs to the environment.

2.5 We also use CAVAT to demonstrate the value of trees as assets, as it is frequently the case that some people have difficulty with the concept of the natural environment representing more than a cost. Providing an assessment raises for discussion such issues as tangible health benefits, pollution reductions, etc, which are otherwise ignored.

2.6 CAVAT uses a relatively simple calculation formula.
a) stem area – derived from DbH (Diameter at Breast Height) - which is standard data in tree inspection - x unit value (£14.72 per cm sq. updated annually).
b) an adjustment to reflect population density – i.e. who benefits from the amenity provided by the tree – derived from the ONS (Office of National Statistics) data for the area. An x 1.5 factor in the case of Merton.
c) Functional Value – whether the tree is performing its biological function and therefore providing ecological, amenity and broad environmental services to the community commensurate with its stem size.
d) Special adjustments if present – such as a veteran tree, a tree with historic associations, etc,

e) Longevity – ie. if despite performing its function to the full it is diseased or structurally unsound, such issues are addressed here in reduced life expectancy and therefore value.

3. MERTON'S EZYTREEV DATABASE

3.1 This tree database holds survey, inventory and condition survey data on Merton owned trees. With the close and inseparable relationship between Arboriculture, Ecology and Bio-diversity, it also holds information relevant to those disciplines.

3.2 A somewhat simplified CAVAT calculation is built into Ezytreev which enables calculation of the value of single trees and of the entire surveyed tree stock, and makes possible assessment of the fluctuations in asset value caused by destruction and loss or increase through growth, good ecological practice or planting. A fully complete and correct stock valuation is never fully possible as the tree stock is dynamic and inspection/survey an ongoing process.

3.3 For individual trees or sites, valuations is fully valid but as noted any valuation is somewhat subjective, as with all such systems. For this reason all non-measurement entries are made to the most conservative value.

3.4 The formula used in Ezytreev consists of:
a) Functional value broken down to 25% steps – i.e 0%, 25%, 50%, 75% or 100% reduction in functionality – generally reflecting the fact that many Merton trees have to be subjected to pruning.
b) Safe life expectancy likewise reduced to a small number of steps
c) The necessity to group some areas, such as the overall matrix of the copse, into parcels, with numbers of trees of varying sizes grouped as one entry and significant individuals superimposed. Parcels are therefore generally valued extremely conservatively.

3.5 It is also necessary to mark down the functional value of some trees – such as Sycamore, where it is considered that as they are invasive under some circumstances, and can sometimes reduce the opportunity for the development of more desirable species, their presence does not contribute as much as their size might suggest.
In this also, the valuation is conservative.

4. SURVEY.

4.1 The main body of the copse has been surveyed by Greenspaces Arboriculture as 2 Parcels (365.00 West of the path and 377.00 main area

east of the path) with the larger or more notable individual trees superimposed. Note that only the Copse itself has been surveyed and valued.

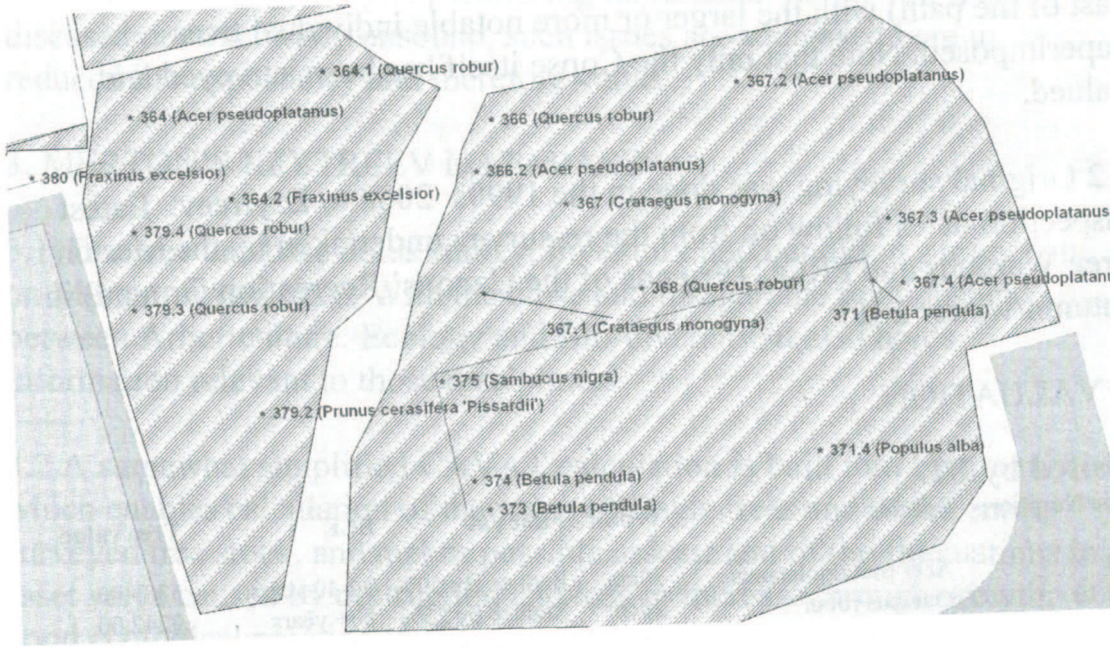
4.2 Original surveying was done in the 1990s 2008 to Ezytreev. Latest inspection dates follow on from the re-survey undertaken by the Merton Tree Wardens and FROC (Friends of the Canons' Recreation Ground) in autumn/winter 2011.

5. VALUATION.

Visited by DL

Tree Number	Species	Trunk	FuncVal	SLE	Tree value
364	Acer pseudoplatanus	30cm	Reduce By 50%	20-40 years	5305.00
364.10	Quercus robur	28cm	Reduce by 25%	80+ years	9242.00
364.20	Fraxinus excelsior	11cm	Reduce by 25%	40-80 years	1355.00
Grp/365	PARCEL	5cm	Reduce by 75%	20-40 years	368.00
366	Quercus robur	29cm	Reduce by 25%	80+ years	9914.00
366.20	Acer pseudoplatanus	32cm	Reduce By 50%	20-40 years	6036.00
367	Crataegus monogyna	17cm	Reduce by 25%	20-40 years	2555.00
367.10	Crataegus monogyna	10cm	Reduce by 25%	20-40 years	884.00
367.20	Acer pseudoplatanus	38cm	Reduce By 50%	40-80 years	10781.00
367.30	Acer pseudoplatanus	28cm	Reduce By 50%	20-40 years	4621.00
368	Quercus robur	24cm	Reduce by 25%	80+ years	6790.00
367.40	Acer pseudoplatanus	28cm	Reduce By 50%	20-40 years	4621.00
371	Betula pendula	18cm	Reduce by 25%	40-80 years	3628.00
371.40	Populus alba	38cm	Reduce By 50%	40-80 years	10781.00
373	Betula pendula	18cm	Reduce by 25%	40-80 years	3628.00
374	Betula pendula	18cm	Reduce by 25%	40-80 years	3628.00
375	Sambucus nigra	20cm	Reduce by 75%	20-40 years	1179.00
Grp/377	PARCEL	10cm	Reduce By 50%	20-40 years	14735.00
379.40	Quercus robur	30cm	Reduce by 25%	80+ years	10610.00
379.20	Prunus cerasifera 'Pissardii'	12cm	Reduce By 50%	80+ years	1132.00
379.30	Quercus robur	30cm	Reduce by 25%	80+ years	10610.00

Overall total: 21 inspections **£121,603.00**


364.1 (Quercus robur)
364 (Acer pseudoplatanus)
380 (Fraxinus excelsior)
364.2 (Fraxinus excelsior)
379.4 (Quercus robur)
379.3 (Quercus robur)
379.2 (Prunus cerasifera 'Pissardii')
367.2 (Acer pseudoplatanus)
366 (Quercus robur)
366.2 (Acer pseudoplatanus)
367 (Crataegus monogyna)
367.3 (Acer pseudoplatanus
368 (Quercus robur)
367.4 (Acer pseudoplatanu
371 (Betula pendula)
367.1 (Crataegus monogyna)
375 (Sambucus nigra)
371.4 (Populus alba)
374 (Betula pendula)
373 (Betula pendula)

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TECHNICAL REPORT 111-0701-2/D&A

PROPOSED MULTI USE GAMES AREA

AT

CANONS LEISURE CENTRE

MADEIRA ROAD, MITCHAM

Planning Statement

and

Design and Access Statement to accompany

Planning Application

Prepared for

merton MERTON COUNCIL

Prepared by

Bob Froud

.....

Bob Froud MIM, I.Eng

(Senior Consultant)

Date of Report: 3rd June 2013

1. INTRODUCTION

This design and access statement is submitted by MSc Consultants Ltd on behalf of the London Borough of Merton in support of their planning application to develop a floodlit outdoor multi-use games area (MUGA) at Canons Leisure Centre at Madeira Road, Mitcham.

The proposed new MUGA will be enclosed by 4.5m high weld-mesh fence and lit by an arrangement of 6 no. floodlighting masts, each 8m high. The 6 masts will support a total of 8 no. *HiLux Match 107* luminaires each fitted with a 1kW metal halide bulb. The lighting design is attached and has been prepared by Luminance Pro Lighting Systems Ltd.

The MUGA will be primarily used for football and general sports training. It will be built above the existing (disused) tennis courts which are located on the eastern side of the natural turf bowling green. The dimensions of the existing tennis courts are 31m in width (E-W) by 34m in length (N-S). Photographs of the proposed area are shown in Appendix 1 of this report. The existing macadam surfaced tennis courts (block of two courts) are surrounded by 3m high chainlink fencing which is in a very poor condition. There is no floodlighting on the existing tennis courts but there is on the adjacent bowling green (to the west of the tennis courts)

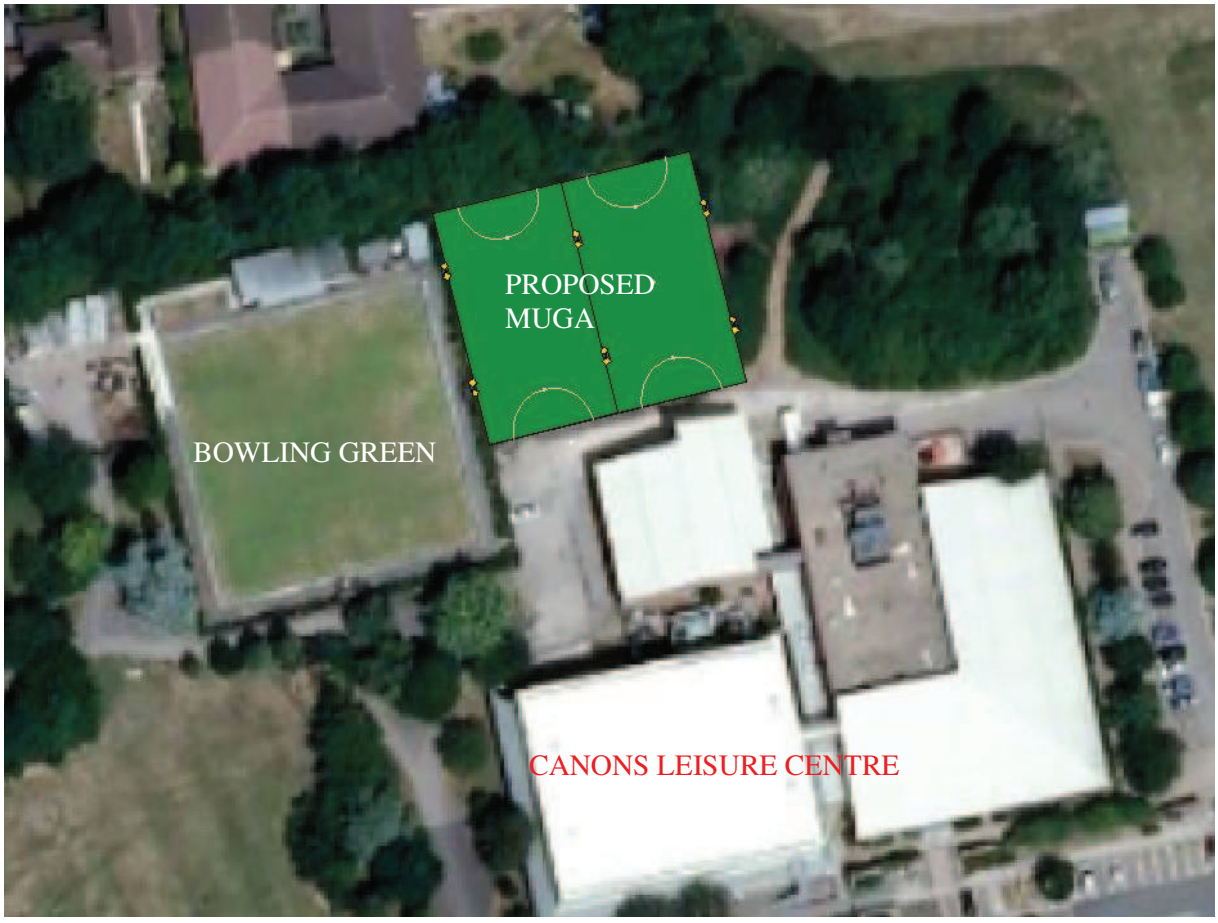
MSC's Drawing No 111-0701-001 shows the location and orientation of the proposed new MUGA. The drawing shows a new MUGA measuring 39m in width x 35m in length oriented in an approximately north/south orientation. The MUGA will be divided into two pitches each of dimensions 19.5m in width x 35m in length each which meets FA and Sport England guidelines for a small sided football pitch. The surround fence including the pitch divider fence will be 4.5m 'twin wire' weld-mesh. The divider fence will be 'double skinned' i.e. panels on each side of the fence post.

2. THE DEVELOPMENT AND PROPOSED DESIGN

The attached drawings show the design of the MUGA in plan and elevation. There are a number of areas of the design that require some explanation, namely, layout, fencing, floodlighting, and construction.

2.1 MUGA location and layout

The proposal is to construct a multi-sports games area (MUGA) at the northern end of Canons Leisure Centre, adjacent to the Bowling Green. The new MUGA will occupy the footprint of the existing macadam tennis courts and extend 8m into the existing copse the east to provide football facilities of suitable width.



AERIAL VIEW OF CANONS LEISURE CENTRE (Madeira Road, Mitcham)

Location (Streetmap)

2.2 Fencing

The fencing around any sports facility has to perform two functions, a) stop balls and b) afford the required security. The proposed design shows a 4.5m high, weld mesh fence around the pitch. The mesh infill is to be of green and have a 200mm x 50mm aperture size weld mesh having 8mm gauge wire. The lower 1.2m of the fence is to be of a 'Super Sport Rebound' twin wire construction to provide good football rebound properties. The fence height has been proposed at 4.5m to reduce the likelihood of balls being kicked out of the pitches. The FA recommend 4.5m high fencing.

The type of fencing proposed is shown in the photographs below.

Lower 1.2m 'Super Sport Rebound'

PROPOSED ZAUN TYPE FENCING (OR SIMILAR)

2.3 Floodlighting

2.3.1 Proposed column arrangement

The submitted drawings show an arrangement of 6 No. floodlight masts, each 8m high. This arrangement will provide the necessary performance required by the Football Association of 200 lux for facilities of this type. The arrangement will also minimize the overspill directly around the facility together with sky glow. The recommendations contained in the Bat survey report prepared for LB Merton have been taken into account when designing the lighting system.

The height of the columns has been set at 8m, which has been calculated to be the best possible height to allow a good concentration of light over the pitches with minimum spillage around the perimeter. If the columns were reduced in height, there would be a need to aim the lights further upwards from the horizontal thus increasing spillage and sky glow.

2.3.2 Column type

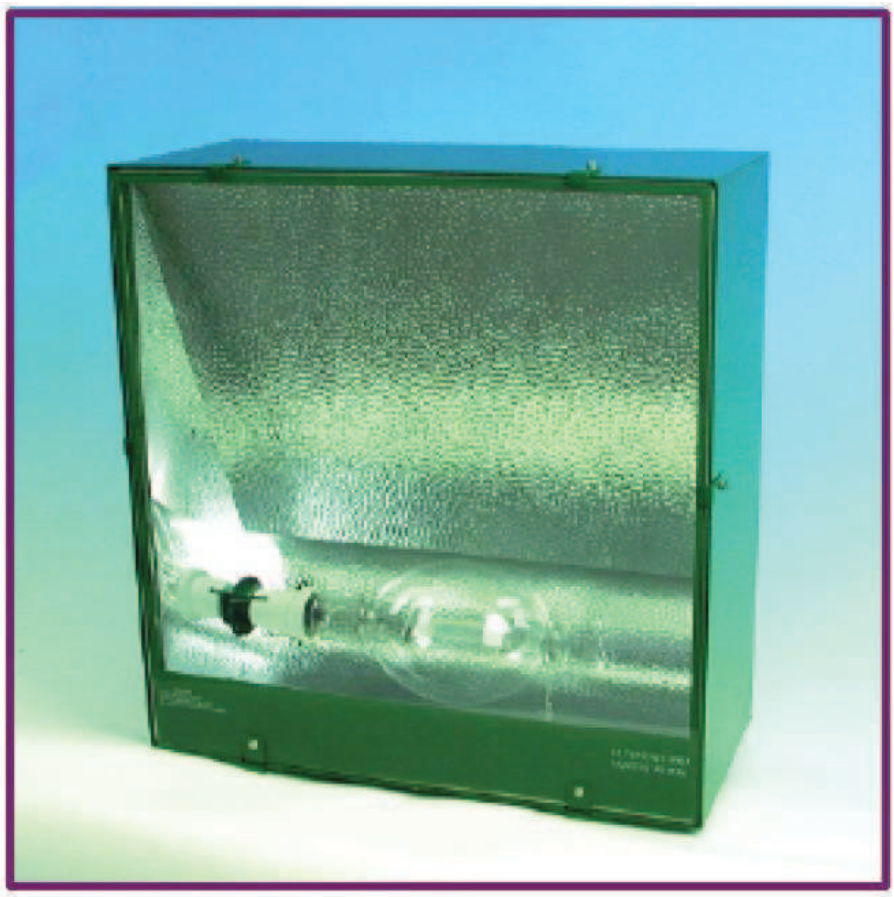
The light fittings will be mounted on root mounted galvanized steel columns. A photograph of a typical column of this type is included overleaf. The normal finish for the masts would be galvanised but for this facility will be painted green to match the fencing.

2.3.3 Illuminance levels

As it is proposed to design a minimum average maintained horizontal illuminance of 200 lux over the playing surface. This will be suitable for football and general sport training. To allow for normal deterioration of the system over the first few months of use, the initial value on installation will be approximately 25% higher than this maintained value.

2.3.4 Type of luminaries

To provide good colour rendering, the luminaires should be high pressure mercury discharge halide type, which give a particularly good spectral distribution. The Hi Lux *Match 107/WB 17B* is satisfactory for this application.



HI-LUX – Match107/WB 17B

HI-LUX – Match107/WB 17B fittings installed on tennis courts with the type of columns proposed for Canons Leisure Centre

2.3.5 Number of luminaries

The proposed design is based on using *Hi Lux Match 107/WB* 17B 1 kW luminaires. To achieve the 200 lux Illuminance specified would require a total of 8 No. luminaires, 1 No. on each of 4 columns on the sides and 2 No. on each of the two middle columns.

2.3.6 Uniformity of illuminance

Good uniformity is important and the FA recommend a minimum of 0.6 (min/ave). The proposed min/ave value is 0.65.

2.3.7 Pollution control

In view of the nature of this location, it is recognised that special precautions will be needed to minimise the effects of light pollution outside the MUGA and into the property to the north. The luminaires proposed are of a double assymetric design, with the lamps being located high up at the back of the luminaire, the luminare will have a flat glass screen which is positioned in the horizontal, this minimizes sky glow and the visible impact of the lamps. These type of luminaries have been specifically designed to provide a sharp cut-off for use where low light pollution is required and are of the type recommended in the Bat survey report.

After consultation with Alison Fure (Bat report author), we will also partly screen the northern and western fence lines with green netting to cut down on light overspill and fit back plates to the luminaires on the western perimeter of the courts. It is proposed to mount the netting at 1.5m above ground level to the cover the fence up to 4m. This will produce a significant amount of wind loading on the fence posts and the fence posts will need to be sized appropriately to accommodate this load.

Green Screening Net

The lighting design report which accompanies this application shows a computer generated light overspill pattern for the proposed design down to the 1 lux level. As guidance, 5 lux is the intensity of street lighting and the 1 lux the intensity of full moonlight. Page 7 of the design shows only a 1 lux overlap onto the face of the buildings to the north which are 10m away from the proposed MUGA. The 5 lux contour is not touching the face of the building. The contours, **take no account of the screening effect of existing trees but do take into account the screening effect of the fence netting**. Even with leaf drop during the winter months, the trees to the north of the MUGA will still provide significant screening.

2.3.8 Floodlight Use

The floodlights will be used seven days a week.

The proposed opening time for the new MUGA will be 8am until 9.30pm seven days per week. One light will remain on until 9.45pm to allow safe egress for users. The lights will be wired to an automatic timer which switches them off at 9.30pm (apart from the egress light which switches off 15 minutes later).

3g five-a-side pitch at 200 lux lighting level

2.4 MUGA construction

The predominant sports use of the MUGA's is expected to be football. For this reason, the surface of the pitch will surfaced with be a long-pile (60mm pile length), sand/rubber-filled '3G' type synthetic turf above a 15mm in-situ formed rubber shockpad.

At tender stage, samples of the proposed materials will be called for and the successful contractor will be required to provide formal, reference samples of the surfacing components against which deliveries to site will be compared.

On completion, the pitch will be tested and certified as compliant with the specified parameters before Practical Completion is awarded.

The existing macadam courts will be broken up and the arisings taken off site. The formation will be excavated, trimmed and graded to a level 430mm below existing ground level.

After compaction and consolidation of the formation, a drainage system of lateral perforated drains will be installed within the formation. These will be 80mm diameter perforated pipes at 7 – 10m centres, connected to a 120mm perimeter collector drain

and from there connected into the existing surface water drainage outfall. The formation will then be treated with weed killer and overlaid with a geotextile membrane, which will also line the drainage trenches. The drainage trenches will then be backfilled with permeable rounded drainage shingle.

The stone sub-base will then be laid onto the prepared formation which will comprise a porous, frost-resistant crushed stone layer (MOT Type 1 grading) of not less than 300mm depth. The stone will be laid and rolled in layers not exceeding 150mm to ensure compaction.

Above the stone layer will be installed a 65mm thick porous macadam base in two layers i.e. 40mm thick base course and 25mm thick wearing course.

The construction will be retained within 150mm x 50mm pcc edgings.

A root barrier will be installed outside the N, W and E boundaries of the new MUGA to protect the construction against tree roots.

Each stage of the construction process, from initial setting-out to completion of the perimeter macadam surface will be subjected to inspection and testing by MSc before the contractor is authorised to progress the works to the next stage.

2.5 Tree removal (landscaping)

The new MUGA will extend 8 m into the copse to the east of the tennis courts. It will be necessary to remove two trees within the new MUGA footprint and also two trees and bushes outside the MUGA footprint to eliminate leaf drop on to the MUGA surface and prevent root intrusion into the MUGA construction. The tree survey, Ecological survey and Bat survey are attached to this report. The client intends to re-plant trees nearby and a suggested location is shown below although this is subject to reappraisal.

Proposed tree removal and proposed new planting

3. ACCESS

Construction traffic will enter site by Commonside West Road.

There will be two double gates into the new MUGA (one into each of the pitches) for maintenance vehicles and users. Access will be fully DDA compliant.

The size of the facility and total number of outside users at any one time can be accommodated within the current parking arrangements.

END OF REPORT

APPENDIX 1

Photographs of proposed site

View from SW corner of existing tennis courts looking towards the copse

Looking towards the ‘copse’ from western side of tennis courts

(note tree debris on tennis courts)

View from eastern side of tennis courts towards bowling green

View of Copse

APPENDIX 2

ECOLOGICAL REPORT

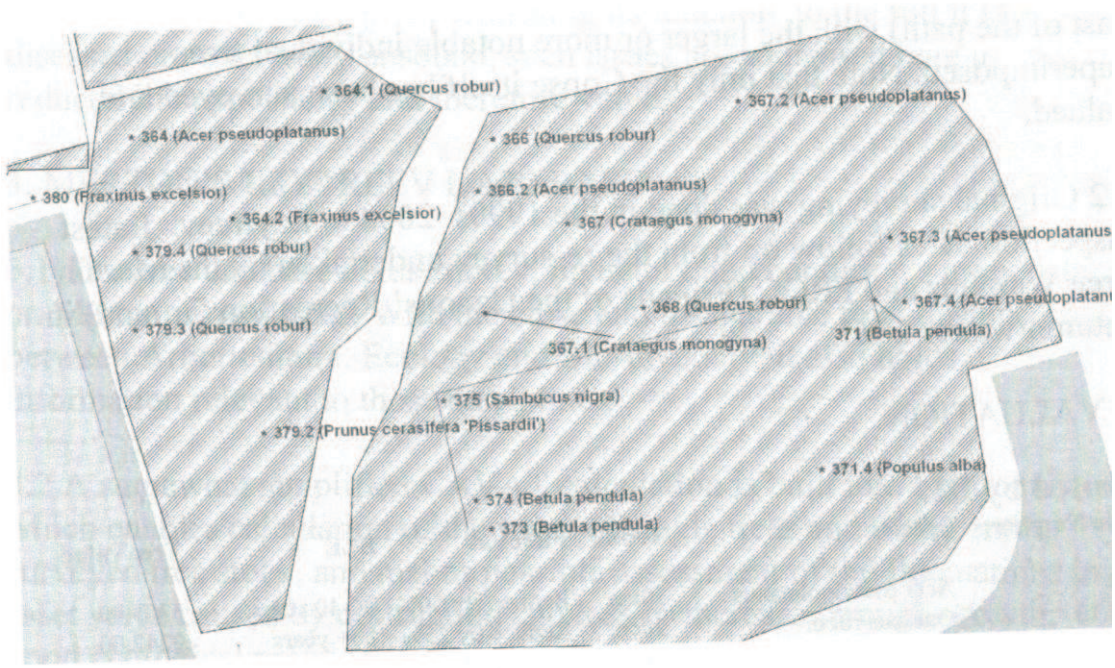
APPENDIX 3

BAT SURVEY

APPENDIX 4

TREE VALUATION REPORT

(PLAN FROM PAGE 6 SHOWN BELOW)



APPENDIX 5

DRAWINGS LIST

111-0701-001

Proposed layout

(red line shows footprint of existing tennis courts)

111-0701-002

Blue and red line drawing

(site boundary – blue, new muga – red)

111-0701-003

Trees to be removed and new planting location

111-0701-004

front elevation viewed from south

(black line denotes existing tennis courts)

111-0701-005

Side elevation viewed from west

(black line denotes existing tennis courts)

APPENDIX 6

LIGHTING DESIGN

(Prepared by LPLS)

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PROPOSED NEW FLOODLIT MULTI USE GAMES AREA AT MADEIRA ROAD, MITCHAM (REVISION a)

Heritage Statement

(supplement to Planning Application – to be read in conjunction with the design and access statement)

merton MERTON COUNCIL

Prepared by

Bob Froud

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Bob Froud MIM, I.Eng

(Senior Consultant)

LONDON BOROUGH OF MERTON

Date of Report: 1st July 2013

- 1 JUL 2013

1. INTRODUCTION

The following report is submitted by MSc Consultants on behalf of The London Borough of Merton in support of their planning application to provide new sporting facilities within;

Canons Leisure Centre
Madeira Road,
Mitcham

This report is to be read in conjunction with the Design and Access Statement and Drawings submitted with planning application 13/P1744. Those documents will provide full details of the proposed Floodlit Multi Use Games Area.

2. LOCATION

The proposed site for the MUGA is within The Mitcham Cricket Green conservation area and within the vicinity of Park Place and Canons House. Park Place is a grade 2 listed building and Canons House a 2 star listed building

A detailed conservation area appraisal is attached in Appendix 2 of this report.

The new MUGA will be constructed on a part of the site which is already occupied by a tennis court (albeit disused) and bowling green. The new sports lighting has been designed to take the local wildlife into account and overspill has been kept to a minimum.

3. CONCLUSION

The proposed MUGA site is mostly hidden from view and there are no direct views from Canons House or Park Place. It is proposed that replacement tree planting on the east side of the copse will mitigate the impact and local concerns.

To help mitigate light spill, it is proposed that 6 No. 8m columns will be installed with rear deflectors fitted on 2 No. western light fittings. This is the lowest height that the columns can be installed without affecting light uniformity on the pitches and risking balls hitting the fittings. There will also be green transparent netting fitted to the top 3m of the fence on the northern and western perimeters which will reduce overspill outside those boundaries. To fit in with the local environment, the fencing, columns and light fittings will be painted green (RAL 6005)

END OF REPORT

APPENDIX 1

CONSERVATION AREA PLAN
(MAP COPYRIGHT OF LB MERTON)

Mitcham Cricket Green Conservation Area

Designated: 1969
Extensions designated: 1991
12th July 2007
Area: 52.7 Hectares (130.2 Acres)

merton

APPENDIX 2

CONSERVATION AREA APPRAISAL AND MANAGEMENT PLAN
ATTACHED AS A PDF FILE
(REPORT COPYRIGHT OF LB MERTON)

Furesfen

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PHASE 1 ECOLOGICAL SURVEY, THE CANONS, MADEIRA ROAD, MITCHAM.

To:

November, 2011

From:
Alison Fure
28, Bonner Hill Rd
Kingston upon Thames
Surrey KT1 3HE

1.0 INTRODUCTION

1.1 PURPOSE

A Phase 1 Ecological Survey was commissioned at land situated at Canons Leisure Centre and Recreation Ground, Madeira Road, Mitcham (TQ279685). The survey was carried out by A. Fure, holder of protected species licenses including bat license, no 20110691. This was in advance of plans to reinstate two dis-used tennis courts and construct an adjacent Multi-use Games Area (MUGA). The Lawn Tennis minimum lighting standards will be achieved by providing 6 Metal Halide Hi-Lux luminaires placed on 8 metre high lighting columns. Unspecified lighting is proposed at the MUGA.

1.2 SITE DESIGNATIONS

The tennis courts and proposed MUGA are situated to north of the Canons Leisure Centre and at Canons recreation ground. The nearest designated site is the Canons Pond, which is a Borough Site of Local Importance for nature conservation interest. To the east lies Mitcham Common, Site of Metropolitan Importance for Nature Conservation (Site M93) incorporating Cranmer Green Local Nature Reserve (LNR). 1.5 km south-west lies the Wandle river and part of Ravensbury Park, which were designated as part of a Site of Metropolitan Importance for Nature Conservation (Site M91 – the Upper River Wandle) by the former London Ecology Unit. It is identified as a Site of Importance for Nature Conservation in the Merton Unitary Development Plan (UDP). The central grassland area (Ravensbury Meadow) and northern tip of the Park are not included in the Metropolitan site. The Park is also designated as Metropolitan Open Land, Open Space and Green Chain. Ravensbury Park (7.27 Ha) was recently designated a Local Nature Reserve.

1.3 ADDITIONAL SITES OF LOCAL IMPORTANCE

Nearby sites of Local Importance for nature conservation include St Peter and St Paul's Churchyard, important for its grassland. The church or its mature trees could provide opportunities for roosting bats. To the south-east lie London Playing Fields, where there are mature trees, particularly horse chestnuts and limes along the western and northern boundaries. A belt of trees and scrub on the park's shared boundary with a waste transfer station is divided by Barons Walk, an eighteenth century path. The southern Tram link and railway line to the east, act as additional corridors for wildlife moving in and out of the area.

1.4 HABITAT AND POTENTIAL

Together these areas create a varied suite of habitats incorporating: wetland areas including three ponds; extensive tree canopy cover; as well as grassland. Connections between these sites are strong as there exists river and rail corridors as well as ancient footpaths, such as Cold Blows to the immediate north of the site linked to Barons Walk. To the north of the disused tennis courts is a well -defined tree-lined corridor. The area known locally as the Copse has developed as secondary woodland with a well-defined rough grassland edge abutting the amenity grass of the recreation ground. An extensive area of land under conservation management exists within the vicinity and there is good connectivity between sites facilitated by river and railway corridors. There appears to be potential for protected/ Biodiversity Priority Species to have colonised the site. This reports on the findings of the late season survey.

2.0 LEGISLATION AND POLICY

2.1 PROTECTION OF BADGERS ACT 1992

This is an all-embracing Act regarding Badger Law, which includes measures to safeguard Badger setts as well as the animals themselves. It is an offence to damage or destroy a sett or part of a sett. A sett is defined as “Any structure or place, which displays signs indicating current use by a Badger”. Thus any sett disturbance or destruction can only be carried out under a licence, which is obtainable from Natural England in the event of disturbance for development purposes.

2.2 MAMMALS PROTECTION ACT, 1996

Whilst foxes and rabbits have no legal protection *pers se,* these animals are protected from cruelty, which means that care must be undertaken when erecting a new structure. This is in order to prevent cruelty to any mammal whilst using its resting place. Animals must be humanely removed by a licensed operative and care must be taken to identify the presence of any dependent young.

2.3 EUROPEAN AND UK LAW PERTAINING TO BATS

All species of bat are fully protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion in Schedule 5. All bats are also included in Schedule 2 of the Conservation (Natural Habitats, & c.) Regulations,1994. The Act and Regulations make it illegal to:

- intentionally or deliberately kill, injure or capture (take) bats;
- deliberately disturb bats (whether in a roost or not);
- damage, destroy or obstruct access to bat roosts;
- possess or transport a bat or any other part of a bat, unless acquired legally; or
- sell, barter or exchange bats or parts of bats.

2.4 AMENDMENTS TO THE HABITATS REGULATIONS (2007)

Enacted during 2008, there were moves to strengthen the protection of features of importance that protected species are reliant upon. This applies where there may be **ANY** disturbance to bats or a disturbance affecting:

- The ability of a group of animals of that species to survive, breed or rear or nurture their young;
- In the case of migratory species, impair their ability to hibernate or migrate (**also new); or**
- The local distribution or abundance of the species

This may preclude fragmentation of corridors caused by light pollution and a useful discussion of this is provided by Garland and Markham (2007).

If a bat roost is to be affected by development activities, a licence from Natural England will need to be obtained.

2.5 WILD BIRDS

The Wildlife and Countryside Act (1981, as amended) protects birds, eggs and nestlings from killing, injury, and damage or destruction to its nest. The Act also protects any intentional disturbance to the bird while it is building its nest, or is in, on or near a nest containing eggs or young, or disturbance of the dependent young. The Countryside and Rights of Way Act 2000 (CROW) strengthened aspects of this legislation, importantly adding that 'reckless' disturbance of birds (including those listed on Schedule 1) during the breeding season is now subject to prosecution under the law.

2.6 CONSERVATION UNDER BIODIVERSITY ACTION PLANS (BAP)

The Local, Regional and National Biodiversity Action Plans (BAP's) are a consideration in determining local habitat changes. Within the BAP is an Action plan for certain habitats and species which seek to ensure that they are not adversely affected by development. The BAP aims to increase target habitats and species within a district by:

- protecting key habitats;
- securing appropriate management for them; and by
- seeking gains for certain species and habitats through the planning system.

According to PPS 9, priority habitats and species are a material consideration in determining a planning application.

2.7 DUTY TO CONSERVE

The Council has a duty under the terms of the Natural Environment and Rural Communities Bill (NERC, 2006) to conserve biodiversity in all of it's functions.

It must therefore ensure that floodlighting does not adversely affect areas of conservation importance. Bats in busy London boroughs should be a conservation priority as general numbers have suffered a fifteen year decline (Guest et al, 2002).

2.8 CLIMATE CHANGE

DEFRA Guidance (May 2007) identifies a series of key principles which should inform plans for climate change adaptation through the protection and strengthening of corridors. The new guidance emphasises the importance of establishing ecological networks, through habitat protection, restoration and creation to allow mobile species to shift in response to climate change. n.b. Garland and Markham, 2007 (2.4).

2.9 ROYAL COMMISSION ON ENVIRONMENTAL POLLUTION (2009)

The Royal Commission on Environmental Pollution, reported on the nuisance caused by badly designed lighting and the effects of artificial light on nature and ecosystems. It concluded that there was an urgent need for government to recognise that artificial light in the wrong place at the wrong time is a pollutant, which can harm the natural environment.

3.0 METHOD

3.1 DESK STUDY AND INFORMATIVES

A desk study was performed using information from:

- authors' data;
- Regional Biodiversity Action Plan;
- Nature on the Map, Natural England;
- Site owner;
- Ayrlect Engineers Report;
- Merton Open Spaces Strategy;
- Merton Ecology Handbook 29.

3.2 WALKOVER SURVEY

A walkover of the site was undertaken (26.11.11) between 2pm and 5pm, which identified habitats present following the standard 'Phase 1 Habitat Survey' method developed by the Nature Conservancy Council (NCC 1992). In addition, the dominant plant species in each habitat was recorded. The potential for the site to support protected species was assessed. Anecdotal sightings of visiting bird species were recorded and breeding status was noted as far as possible.

4.0 RESULTS

4.1 DESK STUDY

The desk study indicated that there were records of biodiversity target habitats and species as well as protected species nearby. There were reptile, mammal/bat and bird records within 1,000m of the site. Five species of bat are regularly recorded nearby: common pipistrelle *Pipistrellus pipistrellus*; soprano pipistrelle *Pipistrellus pygmaeus*; noctule bat *Nyctalus noctula*; Leisler's bat *Nyctalus leisleri* and Daubenton's bats *Myotis daubentonii* (along the Wandle river). Leisler's bats are thought to roost in the area and have a strong local presence. Tawny owls are frequently heard calling at night. Slow worms, common lizard and hedgehogs are recorded at Mitcham Common.

4.2 HABITAT FEATURES

During the survey habitats were identified as follows:

A1 Broadleaved semi-natural woodland: less than 30% of the tree composition is planted (mainly oak);

A2 Scrub: scattered scrub around the boundary and bramble matrix;

B Semi-improved grassland with some areas of acidic substrate, giving rise to characteristic species;

C3.1 Ruderal tall herb: nettles and hemlock

J: Miscellaneous:

J2. Hardstanding, and fly-tipping;

J2.6 Boundary Feature dry ditch and defunct hedge.

Fig 1 indicates: secondary woodland in the background; planted oak and tall herbs in the foreground; fringed by an 8 metre belt of mound forming semi-natural grassland with plants characteristic of acidic substrate.

The Copse is unequally divided by a compacted path, which acts as the main public footway across the recreation ground used by schoolchildren and dog walkers. A third of the area (nearest the tennis courts) is predominately scrub, the remaining 2/3 consists of semi-mature and mature trees, forming a close canopy woodland. Scrub has arisen on ground formerly used as a compost area, giving rise to nettles and hemlock, where characteristic bird species such as dunnock were recorded. Some of the oak has been planted and fallen leaves attest to a possible hybrid with Turkey oak. Between the tennis courts and Council owned community accommodation, (sandwiched between two chain link fences) is a boundary feature, which might be an old hedge bank and ditch. It is characterised by standing and lying deadwood as well as vertical habitats. None of the trees are suitable as bat roosts although they will be used by bats for commuting and foraging purposes (refer to Table 1 for a plant list).

Table 1 Characteristic plant species recorded at the Copse 26.11.11

SCIENTIFIC NAME	ENGLISH NAME
Lotus sp.	a bird's-foot-trefoil
Salix sp.	a sallow
Fraxinus excelsior	Ash
Solanum dulcamara	Bittersweet
Ballota nigra	Black Horehound
Rubus fruticosus agg.	Bramble
Buddleja davidii	Butterfly-bush
Conyza canadensis	Canadian Fleabane
Galium aparine	Cleavers
Dactylis glomerata	Cock's-foot
Stellaria media	Common Chickweed
Hedera helix	Common Ivy
Urtica dioica	Common Nettle
Senecio jacobaea	Common Ragwort
Vicia sativa	Common Vetch
Potentilla reptans	Creeping Cinquefoil
Cirsium arvense	Creeping Thistle
Bellis perennis	Daisy
Taraxacum agg.	Dandelion
Sambucus nigra	Elder
Ulmus agg.	Elm
Arrhenatherum elatius	False Oat-Grass
Acer campestre	Field Maple
Veronica chamaedrys	Germander Speedwell
Salix caprea	Goat Willow
Galium mollugo	Hedge Bedstraw
Conium maculatum	Hemlock
Ilex aquifolium	Holly
Galium verum	Lady's Bedstraw
Ranunculus acris	Meadow Buttercup
Acer platanoides	Norway Maple
Quercus robur	Pedunculate Oak
Trifolium pratense	Red Clover
Plantago lanceolata	Ribwort Plantain
Festuca ovina	Sheep's-fescue
Betula pendula	Silver Birch
Symphoricarpos albus	Snowberry
Acer pseudoplatanus	Sycamore
Lamium album	White Dead-nettle
Prunus avium	Wild Cherry
Artemisia absinthium	Wormwood
Achillea millefolium	Yarrow
Holcus lanatus	Yorkshire-fog

4.3 BIRDS

Some of the birds recorded during the survey were overhead registrations with the exception of: a group of chattering house sparrows; dunnocks occupying their typical favoured location at the old compost heap, singing wrens; blackbirds feeding on ivy berries and roosting wood pigeons. No old nests were found on site, although there was evidence of pre-roost gatherings of 300 jackdaws; night roosts of corvids and woodpigeons as well as a pied wagtail roost in the roof of Canons Leisure Centre. Disturbance evidence attested to green woodpeckers foraging within the yellow ant mounds.

Table 2 Characteristic bird species recorded 26.11.11.

SCIENTIFIC NAME	ENGLISH NAME
Troglodytes troglodytes	Wren
Pica pica	Magpie
Parus caeruleus	Blue Tit
Corvus corone	Crow
Turdus merula	Blackbird
Sturnus vulgaris	Starling*
Columba palumbus	Wood Pigeon
Erithacus rubecula	Robin
Parus major	Great Tit
Prunella modularis	Dunnock
Passer domesticus	House Sparrow*
Corvus monedula	Jackdaw
Larus fuscus	Lesser Black-backed Gull*
Motacilla alba yarrellii	Pied Wagtail
Psittacula krameri	Rose-ringed Parakeet

* indicates species of conservation concern

4.4 ADDITIONAL SPECIES

Table 3: Additional species of interest

Lasius flavus	Ant mounds
Vulpes vulpes	Fox den

Fig.2 three species of fungi were recorded during the survey. These fruiting bodies undertake the work of nutrient recycling, whilst providing fleshy habitat for small flies to lay their eggs, in turn providing food for opportunistic bats and birds at the year end.

5.0 EVALUATION

5.1 Table 4: Evaluation Summary Table.

Site Resources	Value.	Reasons.
Secondary Woodland	Neighbourhood	This is important local habitat providing nesting opportunities for small mammals (such as hedgehog) birds and insect species. It provides a refuge from predators and food resource for birds. It suffers through ivy growing throughout the woodland floor supressing the growth of woodland flowers, although regeneration of tree species was noted. There is a bank of willow species indicating wetter conditions which might be attractive to warblers such as chiff-chaff in the summer.
Boundary Feature: dry ditch and defunct hedgerow	Neighbourhood	There are a number of ancient passages in the district and the topography of the boundary feature situated between the tennis courts and community building suggests this could be a remnant hedge boundary. If this is the case it could be a seed bank of interesting plants If it isn't an ancient boundary feature, it functions as a a wildlife corridor, refuge and night roost as well as providing standing and lying deadwood and vertical (ivy) habitats.
Grassland	Neighbourhood	The grassland area, although small, functions well providing micro-habitats for small mammals, birds and insects.
Bramble scrub	negligible	The brambles are too dense to be of much value. No nests were found although the area probably acts as a refuge for birds from local cats. Fox breeding earth present. Foxes are native British animals and an important part of a natural wildlife community. They eat rats in urban areas. Fly-tipping is prevalent.

5.2 VALUE.

Overall the site is assessed to be of neighbourhood value, with elements of borough conservation interest, which include its strategic position in the landscape forming a link between Mitcham Common and nearby sites (refer to Merton Policy NE9 below) This is mainly due to the presence of secondary woodland and the boundary feature, which acts as a stepping stone, a refuge and corridor. Birds of Conservation Concern such as house sparrows are reliant on these features. The site could be assessed at a value at a higher level if managed to limit factors such as fly-tipping, compaction, prostrate ivy coverage, which might lead to a greater diversity of species.

POLICY NE.9: MANAGEMENT OF LAND

THE COUNCIL WILL ENCOURAGE THE APPROPRIATE MANAGEMENT OF FEATURES OF THE LANDSCAPE WHICH ARE OF MAJOR IMPORTANCE FOR WILD FLORA AND FAUNA. SUCH SITES WILL INCLUDE STEPPING STONE SITES AS IDENTIFIED IN POLICIES NE.5 AND NE.6, AND FEATURES OF LINEAR AND CONTINUOUS STRUCTURE AS IDENTIFIED IN POLICY NE.8. Ch. 4 A Safe Green and Healthy Borough.

5.3 SURVEY EVALUATION.

- The development is within 100m of designated LNR's and SBI's;
- The survey identified habitat and bird species protected by planning policy (parks and urban spaces, secondary woodland, house sparrows are all regional biodiversity priorities and the latter appear on the red list of conservation concern;
- The field survey identified dead wood on site and potential for stag beetles.

5.4 IMPACT

Impacts on wildlife could result from light pollution and total loss of the Copse. There will also be a loss of permeability and water storage capacity. There will be 'tidying' of remaining vegetation, which will reduce the overall habitat for nectaring and resting insects. Planning Policy indicates that any development and its impacts should be mitigated, compensated and any lost features should be re- provided.

5.5 LIMITATIONS

The limitation of the survey is that: it was undertaken in the winter months during the plant dormant season; and that no bat surveys have been performed, which is an expectation during any application for lighting (where there has not been any previous illumination). However, it is unlikely that any dormant or unidentified plant species would alter the final recommendations within the report. There have been a number of bat surveys undertaken at the Canons and the environs in past years. The species recorded are detailed at 4.1. Two of the species (noctule and Leisler's bat) are tolerant of certain levels of lighting and they have been recorded foraging above the floodlights at the Waste Transfer Station. Two pipistrelle species are dependent on tree-lines for navigation purposes and would be intolerant of any floodlighting of the tennis courts if they are found to be using this treeline. For this reason bat surveys will be proposed. Bat surveys should consider the availability of alternative dark corridors for movement through the site.

6.0 DISCUSSION

6.1 HABITAT

The main features of the site were the secondary woodland and the dry boundary ditch. Both suffered from lack of management and factors such as: ivy growth on the woodland floor supressing any under storey; litter and fly-tipping; as well as the barrier effects of the derelict fencing. However, this area is an important point of contact with nature for many schoolchildren using the path, who will observe the seasonal vegetation changes, criss-crossing blackbirds and hear singing wrens.

6.2 PROTECTED SPECIES EFFECTS ON COMMUTING BATS

Anthropogenic light pollution is an increasing global problem (Stone and Jones, 2009) affecting ecological reactions across a range of taxa. The researchers installed high pressure sodium lights to mimic the intensity and light spectra of street lights along commuting routes of lesser horseshoe bats *Rhinolophus hipposideros*. Bat activity was reduced dramatically and the onset of commuting behaviour was delayed in the presence of lighting (with no evidence of habituation). The results of the study demonstrated that light pollution has a significant impact of the selection of flight routes of bats. Not all species are affected in the same way. Emergence times from roosts appear to act as an indication of the differing light tolerance through the range of species. Those bats which emerge late in the evening such as the *Plecotus* and *Myotis*, particularly the Natterer's bat, have a reduced tolerance to lighting. As intensity of light increases, even relatively light tolerant species are delayed in emergence from their roost. Larger, high flying bat species such as Noctule bat, are not as affected by light pollution. They will often fly during the daytime and feed above installations where security lights attract a variety of insects

6.3 GUIDANCE ON LIGHTING AND BATS

A conference hosted by the Bat Conservation Trust on Lighting and Mitigation for Bats (2007) resolved that: Where any bat species are found, care should be taken to ensure that roosts, foraging areas, and corridors for movement of these species are not affected by light pollution.

- All bat species are adversely affected by the roost access being lit.
- Noctule, serotine, Leisler's and pipistrelle species commonly feed around lights.
- All other species are generally adversely affected by foraging areas being lit.

- The positive feeding opportunity for some species is not positive overall for bats.

6.4 BAP SPECIES

Notable species found on site include those for which action plans have been prepared to maintain their favourable conservation status (UK BAP species), such as house sparrow in accordance with the 1992 Convention on Biological Diversity. Although not afforded any greater legal protection than that given to almost all birds in Britain, BAP species should be considered in the planning process under Planning Policy 9 (PPS9). A survey carried out during the bird breeding season may establish the importance of the site for additional BAP species although no evidence of recent nesting was found as the vegetation structure was insufficient to support bird nests.

6.5 SPECIES OF CONSERVATION CONCERN

A number of bird species visiting the site (Including the house sparrows) may also be considered as Birds of Conservation Concern (BOCC) and listed as red (high conservation concern) such as starlings, amber (medium concern) such as dunnock for [Royal Society for the Protection of Birds (RSPB)]. Whilst the presence of a notable bird on a site does not preclude development, birds at their nests are protected at all times and should be considered during vegetation clearance or construction works. This means that any tree or scrub clearance should be undertaken outside the bird breeding season.

6.6 ADDITIONAL SPECIES

There was evidence of large mammal holes within the proposed construction area and existing mammal trails pertained to foxes. Care should be taken during the construction to ensure that there are no fresh mammal holes. Mammals are protected from cruelty during construction (refer to 2.2). A licensed person should ensure that animals are humanely removed. This means outside the breeding period as a vixen cannot be captured when cubs are below ground. Cubs are dependent on their mother until August or September.

7.0 IMPACTS

These are considered separately as:

- Tennis courts and associated lighting only; and
- Tennis Courts, lighting and MUGA.

7.1 IMPACT OF TENNIS COURT LIGHTING

7.1.1 METAL HALIDE LIGHTS.

Metal Halide lighting emits white lighting at all wavelengths including short wavelengths, which travels further in the environment than longer wavelengths. Insects are attracted to the high UV content which has a much greater impact on bat foraging (Bat Conservation Trust and Institute of Lighting Engineers, 2009). The floodlighting proposed for the tennis courts will be 6 2 kW, metal halide luminaires.

7.1.2 AMELIORATION OF IMPACTS

The impact on birds and bats from light spillage can be minimised in some circumstances by: maintaining the brightness as low as possible; limiting the times during which the lighting can be used (summer light curfews); directing the lighting to where it is needed to avoid light spillage; and minimising upward lighting to avoid sky glow. Light can be restricted to selected areas by fitting louvers or hoods, which direct the light below the horizontal plane, at preferably an angle less than seventy degrees. Limiting the height of lighting columns to eight metres and directing light at a low level reduces the ecological impact of the light.

7.1.3 ADDITIONAL MEASURES

When available the lighting contours will most likely indicate that there will be spillage beyond the path dividing the Copse, amounting to >1 lux. This will have an effect on bats using the Copse. The eastside of the Copse will be available for bat foraging, and should be unaffected by light spillage. However the boundary feature, will be rendered unsuitable for bat navigation at certain times of the year. Determination of the importance for bats should be undertaken by bat surveys during June and July, 2012.

7.2 IMPACT OF LOSS OF WOODLAND TO PROVIDE A MUGA PITCH

The loss of some or all of the mature secondary woodland (a regional priority habitat) will have an impact on the biodiversity of the immediate area, which may extend to biodiversity loss at adjacent sites. This requires a common sense approach when

evaluating loss. Hedgehogs are one of the first species to disappear when linking habitats are removed. Loss will reduce the contact that children have with wildlife. According to planning law, if the MUGA is constructed, the Copse must be re-provided within a meaningful area. In addition the loss must be compensated. It is recommended that an area of woodland twice this area should be re-provided. It should be planted as broadleaved deciduous woodland with the same number species. The site should be identified prior to the removal of trees and a planting programme commence during the first planting season (October onwards).

7.3 CONCLUSION

Floodlights proposed at the tennis courts may have an impact on roosting, foraging and commuting bats. Surveys will be necessary to establish this during 2012. There may also be an effect on bat communication between adjacent sites such as Mitcham Common. This is contrary to legislation and policy outlined at 2.3-2.9 including the Habitats Regulations (Garland and Markham, 2007); the National, Regional and Local Biodiversity Action Plans; DEFRA Guidance on strengthening of corridors; and contrary to the recommendations of the Royal Commission on Environmental Pollution, 2009. However these impacts will be limited according to the time of year when the lights are used and their provision is reversible providing cabling doesn't interfere with tree roots. The loss of any amount of woodland, due to the construction of a MUGA, will be irreversible and may have an irreversible effect on the local bird and bat population.

8.0 RECOMMENDATIONS

8.1 GREEN WALL AND FENCE ENHANCEMENTS

Boundary fences around the tennis courts should be planted as a high living wall to increase the supply of insects, berries and refugia. Sections can include ivy *spp*. on north facing elevations. Boston ivy gives good coverage of buildings but does not provide the late autumn pollen enjoyed by insects including Holly blue butterflies. Hops and honeysuckle grow well in the shade cast under trees.

8.2 TENNIS COURT SCREEN PLANTING

Tree screening should be continuous along the eastern fence, to prevent light spillage onto the Copse. Native species should be used for this.

8.3 BAT SURVEYS

Two bat surveys undertaken in June and July 2012 should ascertain whether the site is used by species of bat, which will not tolerate light pollution. Particular attention should be paid to the boundary feature. According to the findings, additional mitigation measures may arise.

8.4 BOUNDARY FEATURE

There should be no tidying of the area between the tennis courts and the community building unless specifically agreed as a conservation project. This area could be important for stag beetles and a range of other species, which have not been considered within the scope of this report.

8.5 MUGA PITCH

The loss of the secondary woodland should be compensated by re-providing this feature elsewhere. The area chosen should be meaningful i.e to extend an existing area of habitat (it should not be a habitat ‘island’). It must incorporate an area twice that of the existing Copse and a site should be identified before the Copse is felled. Planting should take place in the first available season with native trees and shrubs.

8.6 NESTING BIRDS

Vegetation clearance should take place outside the bird breeding season October-March. If this is not possible a qualified ecologist should ensure that there are no breeding birds within the Copse.

8.7 BREEDING FOXES

Mammals are protected from cruelty during construction (refer to 2.2). A licensed person should ensure that animals are humanely removed. This means outside the breeding period as a vixen cannot be captured when cubs are below ground. Cubs are dependent on their mother until August or September.

9.0 REFERENCES

Author's data 2001-2010

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A Safe Green and Healthy Borough Merton Council

http://www.merton.gov.uk/udpnaturalenv.pdf undated

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Claire Berry

From: Francis McParland
Sent: 19 November 2013 09:56
To: Claire Berry
Cc: Eben Van Der Westhuizen
Subject: Biodiversity statement
Attachments: Canons Muga Biodiversity Statement November 2013.doc

Claire

As per Ebens request, I attach a biodiversity statement from Alison Fure of Furesfen ref. the positive outcomes of the Canons proposal

Francis

Leisure Support Services Manager
Leisure & Culture Development
Environment & Regeneration Department
tel: 020 8545 4172
mob: 07932 384 029
francis.mcparland@merton.gov.uk

Furesfen
Alison Fure MSc C.Env MCIEEM
Ecological Consultant

28, Bonner Hill Rd
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Surrey KT1 3HE

Tel/fax 020 8974 6670
Mob.0786 750 7086
Email alison@furesfen.co.uk
Website: www.furesfen.co.uk

15.11.13

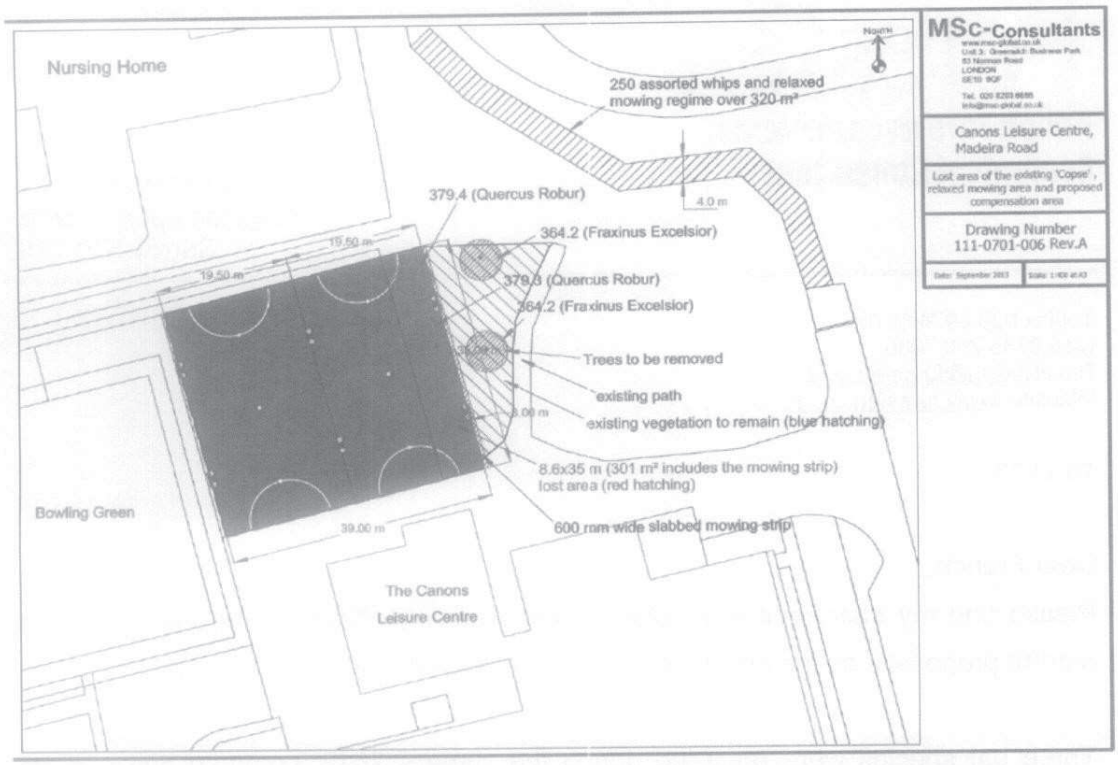
Dear Francis,

Please find my statement requested by the planning officer on the impacts of the current proposals, as the initial bat surveys addressed a different scheme.

Three bat species were recorded during the surveys 2012: common and soprano pipistrelle bats as well as the rare Leisler's bat, which has a strong presence in the LB Merton. The latter is roosting at a location/s within the Canons complex and there have been attempts to establish the group of trees used (Fure, 2008-10).

During 2012, the proposals were evolving and as such, mitigation had not been incorporated into the scheme. There was concern that the lighting columns were higher than they needed to be and that there would be too much overspill at the remaining woodland. This was the reason for Natural England's objection July, 2013.

A site meeting was convened during September, 2013 and mitigation measures were discussed, with the lighting consultant, ecologist, Greenspaces Warden of Mitcham Common and the local authority. Options were contained in the document 'MUGA' Options Appraisal and site drawings were produced to extend the Copse to 320m2. See plan below.

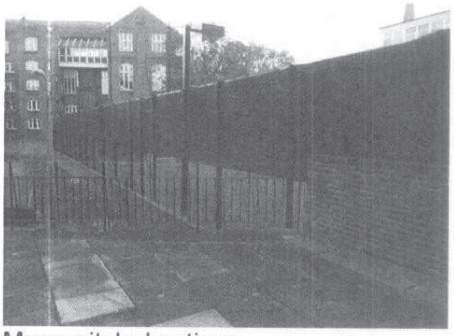


In addition, the lighting columns were reduced to 6.7m, to reduce the overspill at the woodland; suitable relaxed mowing regimes and summer night time curfews between **May-August** were agreed to ensure that the impacts of the proposal would be suitably mitigated.

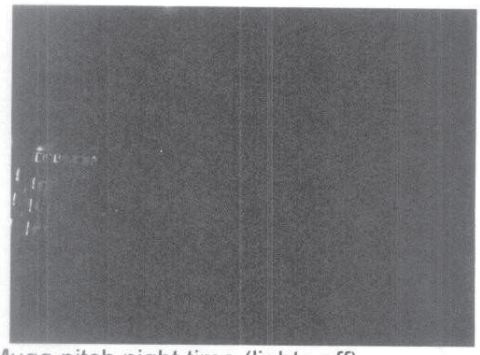
These measures were consolidated within a Bat Mitigation Statement, which was produced during September, 2013 and led to Natural England lifting their objection to the scheme. They stated *'having now seen the bat mitigation plan, dated September 2013, Natural England **does not object** to the proposed development. On the basis of the information available to us, our advice is that the proposed development is likely to affect bats through damage or destruction of a foraging area for a maternity roost of bats. We are satisfied however that the proposed mitigation is broadly in accordance with the requirements of the Bat mitigation guidelines and should maintain the population identified in the survey report.'*

More recently the value of dark netting has been recognised. This has been used elsewhere in the borough along the Beverley Brook, in close proximity to a Local Nature Reserve (Fishponds Wood). Success in the reduction of light spill has been recorded at a site in the LB Brent, which I have visited (13.11.13) and taken light measurements with 'lights off' to check against the contour plan provided by the

lighting consultant. Unfortunately the pitch is not in regular use so it is not possible to check the measurements with 'lights on' but this was been undertaken by MSc-Consultants October, 2013 who measured a substantial attenuation in light spillage.



Muga pitch day time



Muga pitch night time (lights off).

The presence of forward facing baffles as well as back plates on some of the box luminaires were noted and probably added post-construction. It is already a recommendation that there should be post-development monitoring in order to ascertain whether similar measures might be necessary at the Canons.

If the measures outlined in the Bat Mitigation Plan along with the dark netting are made planning conditions, then I believe the impact on the woodland will be successfully minimised and the bats will have an increased foraging area.

In addition, the extension of the woodland area will be a net gain of 19 sqm, which will be planted with native broadleaved species. The relaxed mowing regime will increase the insect food supply for birds and bats and strengthen the wildlife corridor, particularly for small mammal species such as hedgehog and voles. It will enable movement to and from adjacent gardens as well as provide cover and food sources. This is in accordance with paragraph 7.19 of the London Plan and Merton Core Planning Strategy Policy CS 13.

Yours sincerely,
Alison Fure

BAT MITIGATION PLAN

Furesfen September, 2013

Section A: Application Details	
Planning Authority: **LB Merton**	**Planning Application Ref. No: 13/P1744**
Location: **The Canons, Madeira Road, Merton**	Plans to construct two Multi-use Games Areas (MUGA). The minimum lighting standards will be achieved by providing 6 Metal Halide Hi-Lux luminaires placed on 6.7 metre high lighting columns.
Grid Reference: TQ279685	
Ecological consultant: Alison Fure T/A Furesfen	**Planning Officer: Claire Berry**

Section B: Details of Interest Features	
Protected species / BAP interests	**Population estimate / status**
Common pipistrelle	**Foraging area for small population**
Soprano pipistrelle	**Foraging area for small population**
Leisler's bat	**Foraging area in the early period of the evening indicating a nearby roost**

Summary of Phase 1 Survey Findings

Two bat emergence and activity surveys were undertaken (9.7.12.-1.8.12) using hand held recordable Bat Box 4 Frequency Division equipment. Three bat species were recorded during the survey: common and soprano pipistrelle bats as well as Leisler's bat. The latter is roosting at a location/s within the Canons complex and there have been attempts to establish the group of trees used (Fure, 2008-10).

When bats have pups to feed, they do not travel far to forage and will return to their roost site after 30 minutes or so, in order to suckle young. This is thought to be the explanation for early activity during the first survey, when bats were recorded flying over the recreation ground. By the second occasion, the juvenile was considered to be able to fly with its mother.

Site meetings were convened during September, 2012 and 2013 and mitigation measures were discussed, with the lighting consultant, ecologist, Greenspaces Warden of Mitcham Common and the local authority. Options were contained in the document 'MUGA' Options Appraisal and site drawings were produced to extend the Copse by 320m2 (slightly >2.5 times the area lost, 301m2 x 2.5 = 753m2).

In addition, suitable relaxed mowing regimes and summer night time curfews will ensure that the impacts of the proposal would be suitably mitigated.

Section C: Mitigation Plan Summary		
Summary of Mitigation Measures To Be Implemented		
Avoidance of harm through best practice	• American Box luminaires with Swedish back plates, as per Phase 1 report, have been agreed; • The height of the columns has been reduced to 6.7m to reduce light spill; • The current fence surrounding the tennis courts is 3m high, it is proposed that a 4.5m fence be installed as this is usual for MUGAs, extending to 5m along the boundary with the bowling green; • A summer curfew will be in place between May-August; • Lights are to be switched off at all times 21.30 hours;	
Habitat enhancement measures	• The Copse will be extended by 320m2 (>than the area lost, continuing into the main field see plan appendicised; • The area will be managed for nature conservation in perpetuity; • Suggested planting will include 250 assorted whips of oak/hawthorn/blackthorn etc.	
EPS / NE Licence Required for Works	A licence will not be required for works as a roost will not be destroyed and a bat will not be permanently deprived of its roost site. Changes to a foraging area of a maternity colony of rare bats has been mitigated	NO

Section E: Bat Mitigation Method Statement

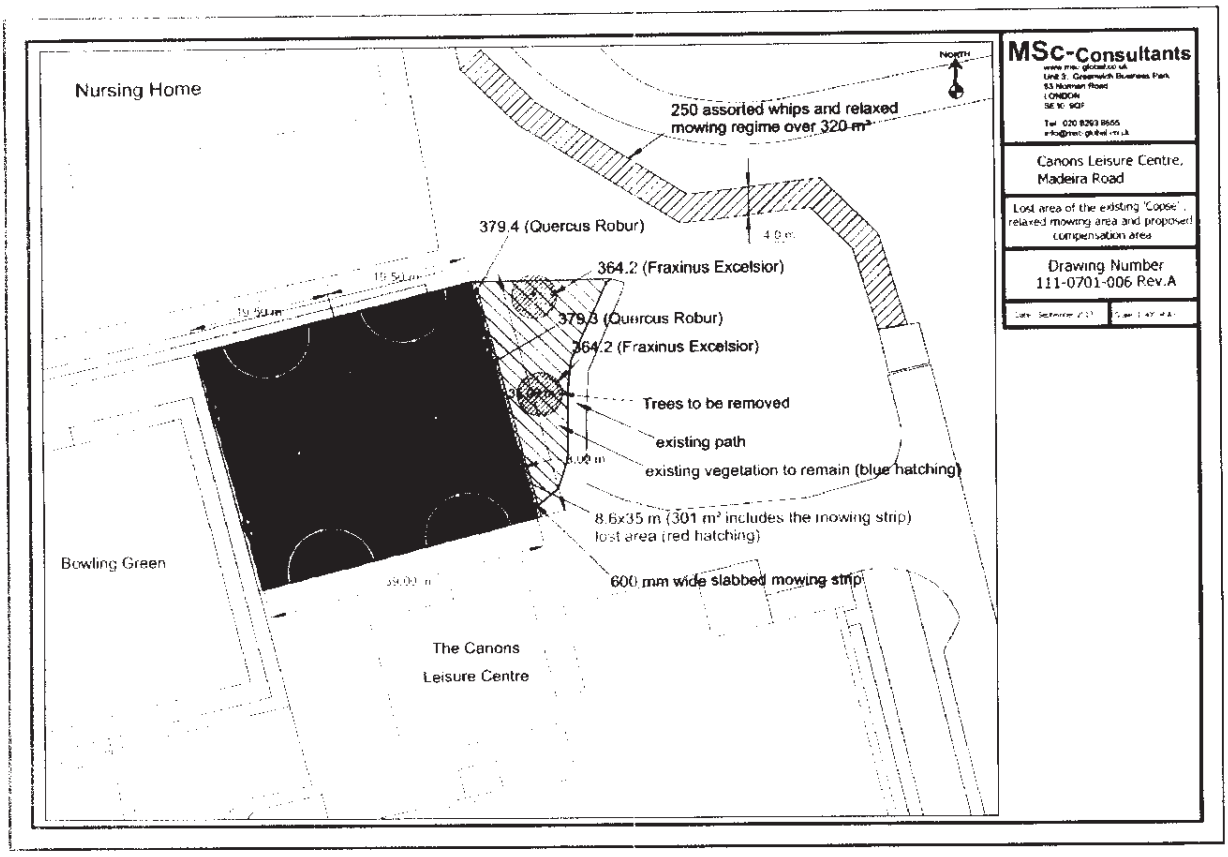
- Mitigation measures should be undertaken before works to the MUGA;
- A relaxed mowing regime has been agreed with contractors;
- 250 assorted whips of native species to be planted;
- The Copse should be managed for nature conservation in perpetuity;
- The fence should be extended to 4.5m and 5m at the bowling green;
- The lighting columns should be reduced to 6.7m;
- Box luminaires should be fitted with back-plates as necessary;
- A curfew should exist between the months May-August;
- Lights should be extinguished in all months after 21.30 hours;
- A monitoring report addressing the above is required before the pitches can be used.

Section F: Consultant Statement

I hold roost visitor and Science and Education Class 2 licences.
I am a full member of the IEEM and Chartered Environmentalist.
I have held EPS Licences since 2005 in respect of several bat species, including 2 pipistrelle species, brown long-eared and noctule bats, both within buildings, structures and in trees.
I have attended residential courses in Bat Mitigation Assessment, provided by the SNCO (CCW) and Ecology Services UK. I have provided courses on Mitigation Impact and Assessment for Natural England and have undertaken independent Compliance Audits at various sites, at the request of the SNCO and the Metropolitan Police.

BAT MITIGATION PLAN

Furesfen September, 2013



Alison Fure MSc C.Env MIEEM
Ecological Consultant

Furesfen

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BAT SURVEY REPORT, THE CANONS, MADEIRA ROAD, MITCHAM, SURREY.

To:

MR F McParland

August, 2012

From:
Alison Fure
28, Bonner Hill Rd
Kingston upon Thames
Surrey KT1 3HE

SUMMARY

A Bat Survey was commissioned at land situated to the north of Canons Leisure Centre adjacent to a Recreation Ground, at Madeira Road, Mitcham (TQ279685). The survey was carried out by A. Fure, holder of protected species licences, including bat licence no. 20120447 assisted by C. Long. This was in advance of plans to reinstate two dis-used tennis courts, as well as construct an adjacent Multi-use Games Area (MUGA). The Lawn Tennis minimum lighting standards will be achieved by providing 6 Metal Halide Hi-Lux luminaires placed on 8 metre high lighting columns. Lighting is also proposed at the MUGA, to be constructed on 75 per cent of an area currently a woodland copse.

Two bat emergence and activity surveys were undertaken (9.7.12.-1.8.12) using hand held recordable Bat Box 4 Frequency Division equipment. Three bat species were recorded during the survey: common and soprano pipistrelle bats as well as Leisler's bat. The latter is roosting at a location/s within the Canons complex and there have been attempts to establish the group of trees used (Fure, 2008-10). When bats have pups to feed, they do not travel far to forage and will return to their roost site after 30 minutes or so, in order to suckle young. This is thought to be the explanation for early activity during the first survey, when bats were recorded flying over the recreation ground. By the second occasion, the juvenile was considered to be able to fly with its mother.

There are examples across London of tennis court provision next to wildlife features, although planning for wildlife must be considered within the design. For example, columns must be as low as possible and it is noted that 8m columns are proposed, which are considered high and will have an effect on the boundary tree-line (and therefore any species travelling along it). However the overall impact on a protected species of the reinstatement of the tennis courts will be minor.

The floodlights proposed at the MUGA have a substantial overspill, which will affect the remaining portion of the woodland. The most well-known effect of artificial light, is its attraction of insects, especially to the high UV content found with Metal Halide types. When attracted to artificial light sources, insects deviate from their natural habitats and from their natural behaviour and also this can lead to demographic losses. Lights could attract up to 75 per cent of the insect food resource in an area. The draw of insects to artificial lighting has been termed the 'vacuum effect'. This insect attraction leads to a reduction in insect density in the environs, leaving some bat species at a significant foraging disadvantage.

Leisler's bats are using the recreation ground as a foraging area, at an important time during their breeding cycle. Removal of the woodland to create a MUGA will have a negative impact on the foraging opportunities of this species, especially when they have dependent young. For this reason mitigation for the loss of woodland will be necessary. The removal of 75 per cent of a feature that a rare bat species is dependent on 'in order to nurture young' (Habitats Regulations, 2010 see 6.2) will have significant effect, which **will require a licence**. The insects generated in the remaining area of the woodland would not necessarily be available for bat use, due to the 'vacuum effect' of the metal halide floodlighting. In turn this could have an impact on pipistrelle bats although this would not be licensable as the level of disturbance was considered insignificant.

REPORT CONTENTS

1.0 INTRODUCTION

1.1 PURPOSE

A Bat Survey was commissioned at land situated to the north of Canons Leisure Centre adjacent to a Recreation Ground, at Madeira Road, Mitcham (TQ279685). The survey was carried out by A. Fure, holder of protected species licences, including bat licence no. 20120447, assisted by C. Long. This was in advance of plans to reinstate two dis-used tennis courts, as well as construct an adjacent Multi-use Games Area (MUGA). The Lawn Tennis minimum lighting standards will be achieved by providing 6 Metal Halide Hi-Lux luminaires placed on 8 metre high lighting columns. Lighting is also proposed at the MUGA to be constructed on 75 per cent of an area, which is currently a woodland copse.

1.2 SITE DESIGNATIONS

The nearest designated site is the Canons Pond, which is a Borough Site of Local Importance for nature conservation interest. To the east lies Mitcham Common, Site of Metropolitan Importance for Nature Conservation (Site M93) incorporating Cranmer Green Local Nature Reserve (LNR). 1.5 km south-west, lies the Wandle river and part of Ravensbury Park, which were designated as part of a Site of Metropolitan Importance for Nature Conservation (Site M91–the Upper River Wandle) by the former London Ecology Unit. It is identified as a Site of Importance for Nature Conservation in the Merton Unitary Development Plan (UDP). The central grassland area (Ravensbury Meadow) and northern tip of the Park are not included in the Metropolitan site. The Park is also designated as Metropolitan Open Land, Open Space and Green Chain. Ravensbury Park (7.27 Ha) is designated a Local Nature Reserve.

1.3 ADDITIONAL SITES OF LOCAL IMPORTANCE

Nearby sites of Local Importance for nature conservation include St Peter and St Paul's Churchyard, important for its grassland. The church or its mature trees could provide opportunities for roosting bats. To the south-east lie London Playing Fields, where there are mature trees, particularly horse chestnuts and limes along the western and northern boundaries. A belt of trees and scrub on the park's shared boundary with a waste transfer station is divided by Barons Walk, an eighteenth century path. The southern

Tram link and railway line to the east, act as additional corridors for wildlife moving in and out of the area.

2.0 METHOD

2.1 DESK STUDY

A desk study was performed using author's data.

2.2 WALKOVER SURVEY

A walkover of the area was undertaken on 9.7.12, in line with Bat Conservation Trust Guidelines (2012) to establish features of bat interest and see how bat species use the area.

2.3 BAT SURVEYS

Two bat emergence and activity surveys were undertaken (9.7.12-1.8.12) using hand held recordable Bat Box 4 Frequency Division equipment, and static bat detection equipment, notably an Anabat left along the northern boundary of the tennis courts on the first occasion. Recordings were played through BatSound and Analook software and interpreted according to Russ (2012).

3.0 RESULTS

3.1 DESK STUDY

Six species of bat are recorded locally (Table 1). Leisler's bats have been recorded since 2008 at this location and efforts have been made to study the habits of the local colony. This has included the use of remote detection devices at the Canons Mansion as well as a loft inspection. After a colony was discovered during tree work (Cannon Hill Common, 2005) surveys of local sites were commissioned and the records are collated below (Table 2). These may pertain to individuals from one colony.

Table 1: Status of bats recorded in the local catchment.

Species	Frequency	Main roosts sites
Common pipistrelle	Common	Buildings nearby (LBG)
Soprano pipistrelle	Common	Buildings and trees especially near water (LBG).
Nathusius's pipistrelle	Rare	Buildings Trees its local status is variable
Daubenton's bat	Relatively common	Trees, structures and underground sites in the local area. Roosts known within 1.km
Noctule bat *Nyctalus noctula*	Becoming less common	A known roost at Ravensbury and Wimbledon Park
Leisler's bat *Nyctalus leisleri*	rare	Trees and sometimes buildings. Known roosts in the area and records of early registrations

Adapted from Mitchell-Jones (2007) LBG=London Bat Group records

Table 2 Leisler's bat activity with numbers of animals at Merton Sites (Author's data).

Cannon hill common	3	22-Sep-05
Cannon hill common	1	04-Aug-07
Cannon hill common	1	12-Aug-06
Cannon hill common	2	Aug-20
Cannon hill common	1	02-Oct-06
Canons, Madeira Road,	3	06-Jun-08
Joseph Hood Recreation Ground	3	22-May-08
Ravensbury park	3	12-Jun-08
Ravensbury Pk, Wandle backwater East	1	30-Jul-09
Ravensbury Pk, Wandle Backwater West arm	1	30-Jul-09
Shadbolt park, Salisbury Road, Worcester Park	1	30-Jul-10
Worcester Park Sewage Works	2	25-May-07

3.2 HABITAT FEATURES:

A Phase 1 Habitat Survey (Fure, 2011) assessed the site to be of neighbourhood value, with elements of borough conservation interest, which include its strategic position in the landscape, forming a link between Mitcham Common and nearby sites. This was mainly due to the presence of secondary woodland and the boundary feature, which acts as a stepping stone and corridor for wildlife.

During the initial walkover survey, the following features of bat interest were found:

- Trees within the Canons complex capable of supporting bats;
- Historic buildings within the vicinity;
- Oak and willow trees with associated insect biomass.

3.3 FIRST EMERGENCE SURVEY

During the survey (9.7.12) no bats were seen to emerge from any trees or structures at the Copse or the Leisure Centre. There were no bats recorded until 22.01 when 2 Leisler's bats began foraging over the recreation ground for several minutes. The only other bat recorded was a soprano pipistrelle bat, flying west to east alongside the Canon's Health Club air con unit (Table 1 and Figs 1-2).

Table 3: All bat activity 9.7.12)

Sunset 21.16p.m. Cloud cover 4/8 Temperature 20 degrees centigrade at start. Heavy rain preceded survey

Time	Details: Duet detector
22.01 sunset + 45 minutes	Prolonged foraging of two Leisler's bats over the recreation ground
22.01	Soprano pipistrelle direct pass through site

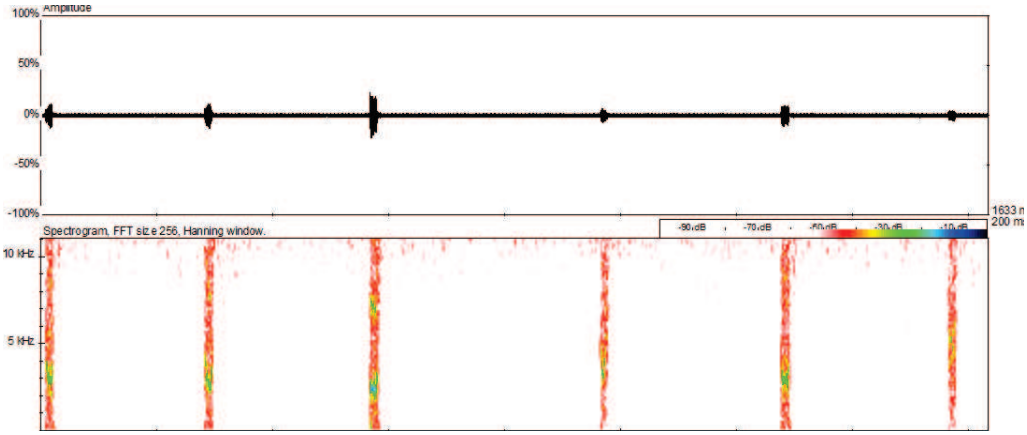

Fig. 1 Screenshot of the sonogram of a Leisler's bat, feeding over the Canon's Recreation Ground 22.01, 9.7.12.

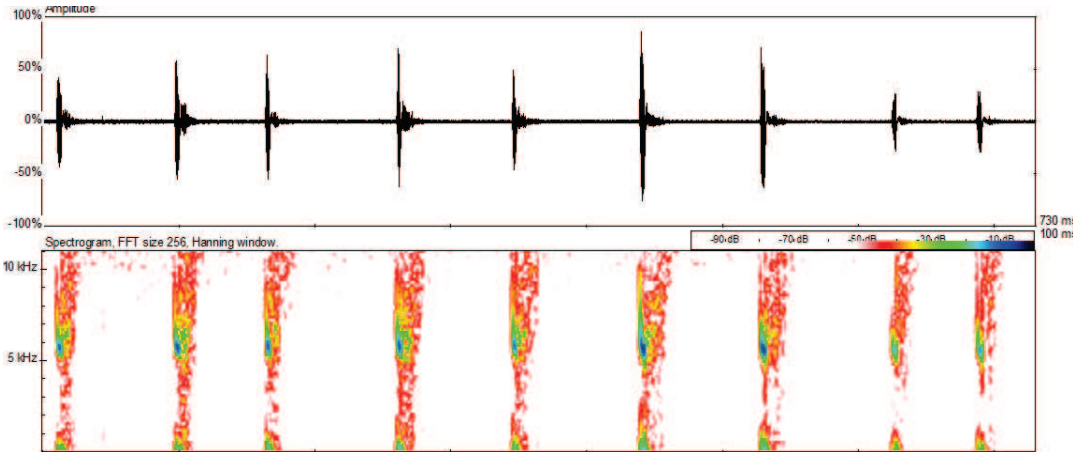

Fig. 2 Screenshot of the sonogram of a soprano pipistrelle at 22.01, 9.7.12.

3.4 SECOND EMERGENCE SURVEY

During the second survey (1.8.12) no bats were seen to emerge from any trees at the Copse or structures around the Leisure Centre. Two Leisler's bats flew together from west to east at 21.21 slightly north of the Copse. They were not detected by a colleague situated at the northern boundary of the recreation ground. This was followed by a common pipistrelle foraging along the edge of the woodland for several minutes. At the northern boundary of the recreation ground, common pipistrelles along with one soprano pipistrelle bat were recorded.

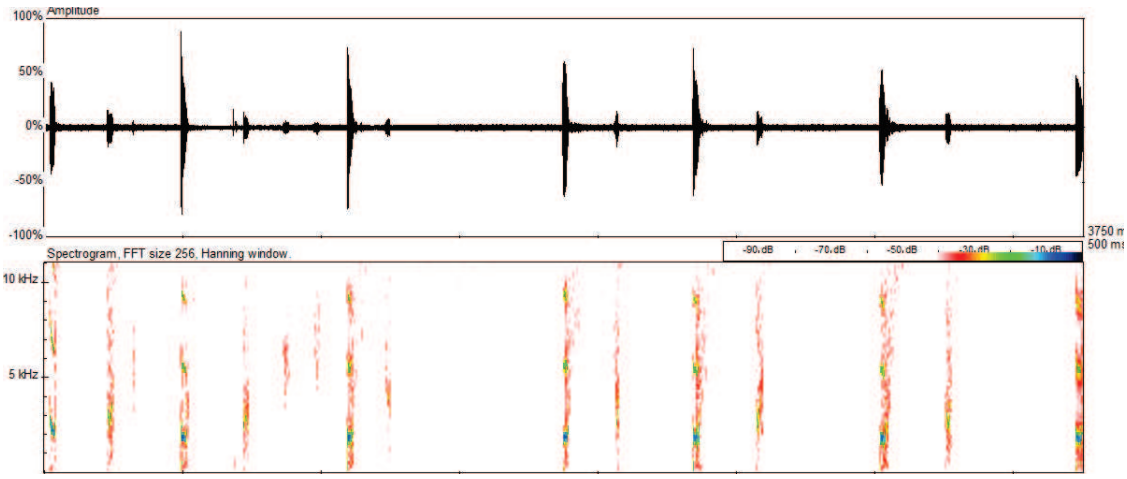

Fig. 3 Screenshot of a sequence of 2 Leisler's bats flying west to east 21.21, 1.8.12.

Table 4: Selected bat activity (1.8.12)
Sunset 20.48p.m. Cloud cover 4/8 .Temperature 19 degrees centigrade at start No wind

Time	Details: Duet detector A Fure
21.21 sunset + 33 minutes	2 x Leisler's bats
21.34	Common pipistrelle foraging along northern edge of Copse
21.45	Common pipistrelle foraging
21.53	Two common pipistrelle bats flying around site

Table 4a: Selected bat activity (1.8.12)
Sunset 20.48p.m. Cloud cover 4/8 .Temperature 19 degrees centigrade at start No wind

Time	Details: Anabat detector C. Long
21.41	Common pipistrelle along northern boundary of rec
21.46	Common pipistrelle foraging along boundary trees
21.48	Soprano pipistrelle foraging
21.53	Common pipistrelle

4.0 EVALUATION

4.1 Table 5: Evaluation Summary Table.

Site Features	**Value.**	**Reasons.**
Leisler's bat maternity colony: Site faithful, appearing consistently over a period of years at this site.	Borough/ Regional	The bats appear shortly after sunset indicating they are exiting a nearby roost. During the first survey a bat fed for some period of time over the recreation ground. This is interpreted as a bat with young (maternity colony). During the second survey two bats flew east together. Nationally, this is determined to be a rare species Tony Mitchell-Jones, 2007
Common pipistrelle bat	District	Common species, appearing later in the evening
Soprano pipistrelle bat	District	Common species, appearing later in the evening
Invertebrates	District	Form the prey species of bat species.

5.0 DISCUSSION

5.1 BAT SPECIES

Three bat species were recorded during the survey: common and soprano pipistrelle bats as well a Leisler's bat. The activity levels were lower than expected and this is possibly due to the failure of some bats to form successful breeding colonies this year due to bad weather.The "common" pipistrelle has been split into two separate species *Pipistrellus pipistrellus* that echolocates around 45 kHz and *P. pygmaeus* that calls around 55 kHz. The 45 kHz pipistrelle can use a wide range of habitats, but frequents the more open situations, such as woodland edges, parkland, recent plantations, watersides and gardens. It will fly up to 5km from the roost to forage but most stay with 2km. Colonies are usually 30-60 bats; they frequently use modern building for roost sites, but are rarely found in bat boxes. The 55 kHz pipistrelle appears fussier in habitat selection than 45 kHz species. It seems to prefer waterside locations such as rivers, lakes and wet woodland. Colonies are usually larger than the 45 kHz pipistrelle with numbers often in the region of 100-150. Roosts in houses are frequently found but tree roosts are also used. Emergence of both species is usually twenty minutes after sunset and the late arrival and low numbersl of both pipistrelle species indicated that the bats were not roosting nearby.

5.2 LEISLER'S BAT, REGIONAL STATUS

As noctule bats have declined in the London Region (due to habitat loss) it has been noted that they are replaced by the closely related, but slightly smaller Leisler's bat, which is considered rare in most parts of the country. They are particularly prevalent in the London Borough of Merton (London Bat Group, 2012) first recorded during 2005 (Cannon Hill Common). There is a total absence of records within Bexley, The City, Hammersmith & Fulham, Kensington & Chelsea, Newham, Tower Hamlets and Lambeth.

5.3 LEISLER'S BAT ECOLOGY

Nyctalus bat species are one of Britain's largest, they are adapted to fast flying above the treetops and can cover large distances from roost to feeding areas. Their fast flight makes them less vulnerable to predatory birds and so they can emerge in good light and feed in open habitats. Leisler's bats can feed on larger beetles and moths but will take

much smaller prey such as chironomids when these occur in large swarms. Roosts are almost invariably in hollow trees, woodpecker holes being a favourite site, although they use a stand of trees, moving between them frequently (the reason Merton with its many mature trees is favoured by this species). Unlike noctule bats they will sometimes use larger, historic buildings for roosting purposes. They are not one of the species affected by illuminance and often forage above light installations, although lighting at a roost would be inappropriate.

5.4 LOCAL STATUS OF BAT SPECIES

The two pipistrelle bat species do not emerge to forage at the site in the early part of the evening or in any great number. It is likely that they have travelled from offsite locations in order to forage at the site. Leisler's bats are roosting at a location/s within the Canons complex and there have been attempts to identify the group of trees that these bats use (Fure, 2008-10). A Taxodium species or cypress tree, at the Canons House is considered to be one of the trees used by this species. When bats have pups to feed, they do not travel far to forage, as they will return to their roost site after 30 minutes or so, in order to suckle young. This is thought to be the explanation for the early activity recorded during the first occasion when bats were recorded flying over the recreation ground. By the second occasion, the juvenile was considered to be able to fly with its mother. A limitation of the survey is in the small amount of data on which to base this explanation of the activity although this is overcome by previous observations (Canons, 2008).

5.5. TENNIS COURTS

There are examples across London of tennis court provision next to wildlife features, although planning for wildlife must be considered within the design. For example, columns must be as low as possible and it is noted that 8m columns are proposed, which are considered high and may affect the boundary tree-line

(and any species travelling along it). The American box fitting (photo) with Swedish baffles prevents any upward light spillage and has full cut offs to the surrounding area and is sited on the lowest columns. It provides the recommended light suggested by the lawn tennis association and may address the problem of light spillage onto features at the conservation area.

5.6 MUGA FLOODLIGHTS

The floodlights proposed for the MUGA have a substantial overspill, which will affect any remaining portion of the woodland. The most well-known effect of artificial light, is its attraction of insects, especially to the high UV content found with Metal Halide types. When attracted to artificial light sources, insects deviate from their natural habitats and from their natural behaviour and also this can lead to demographic losses. Lights could attract up to 75 per cent of the insect food resource in an area, as they are drawn from habitat patches to feed around lights (Bruce-White and Shardlow, 2011). The draw of insects to artificial lighting has been termed the 'vacuum effect' (Eisenbeis, 2006). This insect attraction leads to a reduction in insect density in the environs, leaving some bat species at a significant foraging disadvantage.

5.7 IMPACT

Leisler's bats are not affected by light pollution unless the illuminance is directed towards the roost, although there will be an upper limit. Leisler's bats are using the recreation ground to forage, at an important time during their breeding cycle. This maternity roost may be a constituent of colonies recorded at Ravensbury Park and Worcester Park Sewage Works, which exist at low numbers. Removal of the woodland to create a MUGA will have a significant negative impact on the foraging opportunities of this species, especially when they have dependent young. For this reason mitigation for the loss of woodland will be necessary. The removal of 75 per cent of a feature that a rare bat species is dependent on 'in order to nurture young' (Habitats Regulations, 2010 see 6.2) will be a disturbance, which **will require a licence.** The insects generated in the remaining 25 per cent of the woodland would not necessarily be available for bat use, due to the 'vacuum effect' of the metal halide floodlighting. In turn this could have an impact on pipistrelle bats although this would not be licensable as a maternity colony was not detected and the level of impact was not considered significant.

5.8 CONCLUSION

The functionality of the roost and the local population of this species, are dependent on the feeding resources offered at the recreation ground during their breeding period, particularly as the resource is within a short distance (i.e. better for bat energy expenditure = fitness of individuals). The loss of woodland for the construction of the MUGA will involve a high impact, and therefore will need a licence to be lawful. However, the impact of the development re: foraging will not be possible to offset without provision of a similar foraging opportunity within a similar distance and may not be possible (given the length of time required for trees to mature). It would not be sufficient to dedicate an existing area for bat conservation, and compensation (i.e. replacement) would be needed within a suitable distance. In order to obtain a licence, the IROPI test (Imperative Reasons of Overriding Public Interest) needs to be made and reference to suitable authorities suggest that the tests would not be met.

6.0 LEGISLATION AND POLICY REFERRED TO IN THIS REPORT

6.1 EUROPEAN AND UK LAW PERTAINING TO BATS

All species of bat are fully protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion in Schedule 5. All bats are also included in Schedule 2 of the Conservation (Natural Habitats, & c.) Regulations, 2010. The Act and Regulations make it illegal to:

- intentionally or deliberately kill, injure or capture (take) bats;
- deliberately disturb bats (whether in a roost or not);
- damage, destroy or obstruct access to bat roosts;
- possess or transport a bat or any other part of a bat, unless acquired legally; or
- sell, barter or exchange bats or parts of bats.

6.2 AMENDMENTS TO THE CONSERVATION OF HABITATS REGULATIONS (2010)

Moves to strengthen the protection of features of importance that protected species are reliant upon. This applies where there may be ANY disturbance to bats or a disturbance affecting:

- The ability of a group of animals of that species to survive, breed or rear or nurture their young;
- In the case of migratory species, impair their ability to hibernate or migrate or
- The local distribution or abundance of the species

This may preclude fragmentation of corridors caused by **light pollution** and a useful discussion of this is provided by Garland and Markham (2007).

If a bat roost is to be affected by development activities, a licence from Natural England will need to be obtained.

6.3 WILD BIRDS

The Wildlife and Countryside Act (1981, as amended) protects birds, eggs and nestlings from killing, injury, and damage or destruction to its nest.

The Act also protects any intentional disturbance to the bird while it is building its nest, or is in, on or near a nest containing eggs or young, or disturbance of the dependent young.

The Countryside and Rights of Way Act 2000 (CROW) strengthened aspects of this legislation, importantly adding that 'reckless' disturbance of birds (including those listed on Schedule 1) during the breeding season is now subject to prosecution under the law.

6.4 NATURAL ENVIRONMENT AND RURAL COMMUNITIES (NERC) 2006

This states that every public authority in exercising its function, must secure compliance in conserving biodiversity

(3) Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

(4) "Public authority" means any of the following (c)a public body (including a government department, a local authority and a local planning authority);

Within the terms of this act are habitats and species of principal importance for the purpose of conserving biodiversity.

6.5 UK HABITATS AND SPECIES OF PRINCIPLE IMPORTANCE NERC 2006 AND THE ROLE OF CONSERVATION UNDER BIODIVERSITY ACTION PLANS (BAPS)

Section 40 (1) of the NERC Act (2006): lists principle habitats and species, which are often included in Local, Regional and National Biodiversity Action Plans (BAP's). For example, the UK Biodiversity Action Plan (BAP) contains a Bat Species Action Plan (SAP). The BAP aims to increase the number of this species within the district by protecting certain habitats; securing appropriate management for them and by halting the factors leading to their decline such as:

- Loss of maternity roost sites through damage or destruction resulting from a lack or a misunderstanding of the legislation protecting bats ;
- Loss of hibernation and other seasonally used roost sites;
- Lack of insect rich feeding habitats such as wetlands, woodlands and grasslands;
- Losses of linear landscape elements (flight line features) such as tree lines; and
- Excessive lighting, such as in streets and some open spaces.

6.6 ROYAL COMMISSION ON ENVIRONMENTAL POLLUTION (2009)

The Royal Commission on Environmental Pollution, reported on the nuisance caused by badly designed lighting and the effects of artificial light on nature and ecosystems. It concluded that there was an urgent need for government to recognise that artificial light in the wrong place at the wrong time is a pollutant, which can harm the natural environment. Sir Lawton who chaired the commission has asked for removal of lighting from parks.

6.7 BAT CONSERVATION TRUST GUIDANCE

A Statement by the Bat Conservation Trust on Lighting and Mitigation for Bats (May, 2011) resolved that: smarter lighting, rather than less lighting, is key to mitigating the effects of light pollution. Light should only be erected where it is needed, illuminated during the time period it will be used, and at levels that enhance visibility. Any bare bulbs and any light pointing upwards should be eliminated. The spread of light should be kept near to or below the horizontal. Narrow spectrum bulbs should be used to lower the range of species affected by lighting and light sources that emit ultra-violet light must be avoided. Reducing the height of lighting columns as light at a low level reduces ecological impact. For pedestrian lighting, low level lighting that is directional as possible should be used and below 3 lux at ground level.

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