

Clive Lawrence
Kier Regional Building, Thames Valley
2000 Cathedral Square
Cathedral Hill
Guildford
Surrey
GU2 7YL

Our Ref: 192933/6

17 January 2019

Dear Clive

Re: Lighting Strategy Review

Keystone Ecology issued the following guidance in line with Bats and Artificial Lighting Guidance Note 2018.

Appropriate Luminaire Specifications

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered.
- Column heights should be carefully considered to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used.
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1min) timers.
- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

Keystone Ecology reviewed the existing lighting proposals and through liaison with Elementa Consulting the following changes were agreed to bring the proposals in line with current guidance for bats:

- 0° tilt implemented on all external lights
- Cowls and hoods have been added to reduce light spill.
- Column heights have been reduced
- Light spill onto ecological receptors (notably from the mixed use game area onto retained trees and landscaping to the west of site) has been reduced to background levels for the area with little or no vertical spill.
- A reduction in colour temperature to 3000 Kelvin site wide (a slightly higher temperature was acceptable due to the lower light spill)

As there are no ecological receptors immediately to the east of site, no mitigation measures to reduce light spill to the east are required for ecological reasons.

Where changes have been made to the original lighting scheme as a result of ecological advice, these have been highlighted in pink on the appended plans and green within the table.

Following the production of a revised lighting strategy by Elementa Consulting, the lighting scheme is now compliant with bats and lighting guidance.

Yours sincerely



Tas Adcock
Ecologist

Tas.adcock@keyenv.co.uk

Appendix 1 – Original Lighting Plans

Luminaire parts list								
Index	Manufacturer	Quantity	Luminaire type	Item number	Luminaire efficacy	Luminous flux	Maintenance factor	Connected load
A	Holophane	8	Single Column Single Mount @ 5m 0° Bracket tilt	SLI.2.LA.054.A2. W035	127 lm/W	4446 lm	0.80	35 W
B	Holophane	4	Single Column Twin Mount @ 5m 5° Bracket tilt	SLI.2.LA.054.A2. W036	126 lm/W	4542 Lm	0.80	36 W

SITE BOUNDARY

106 BOUNDARY

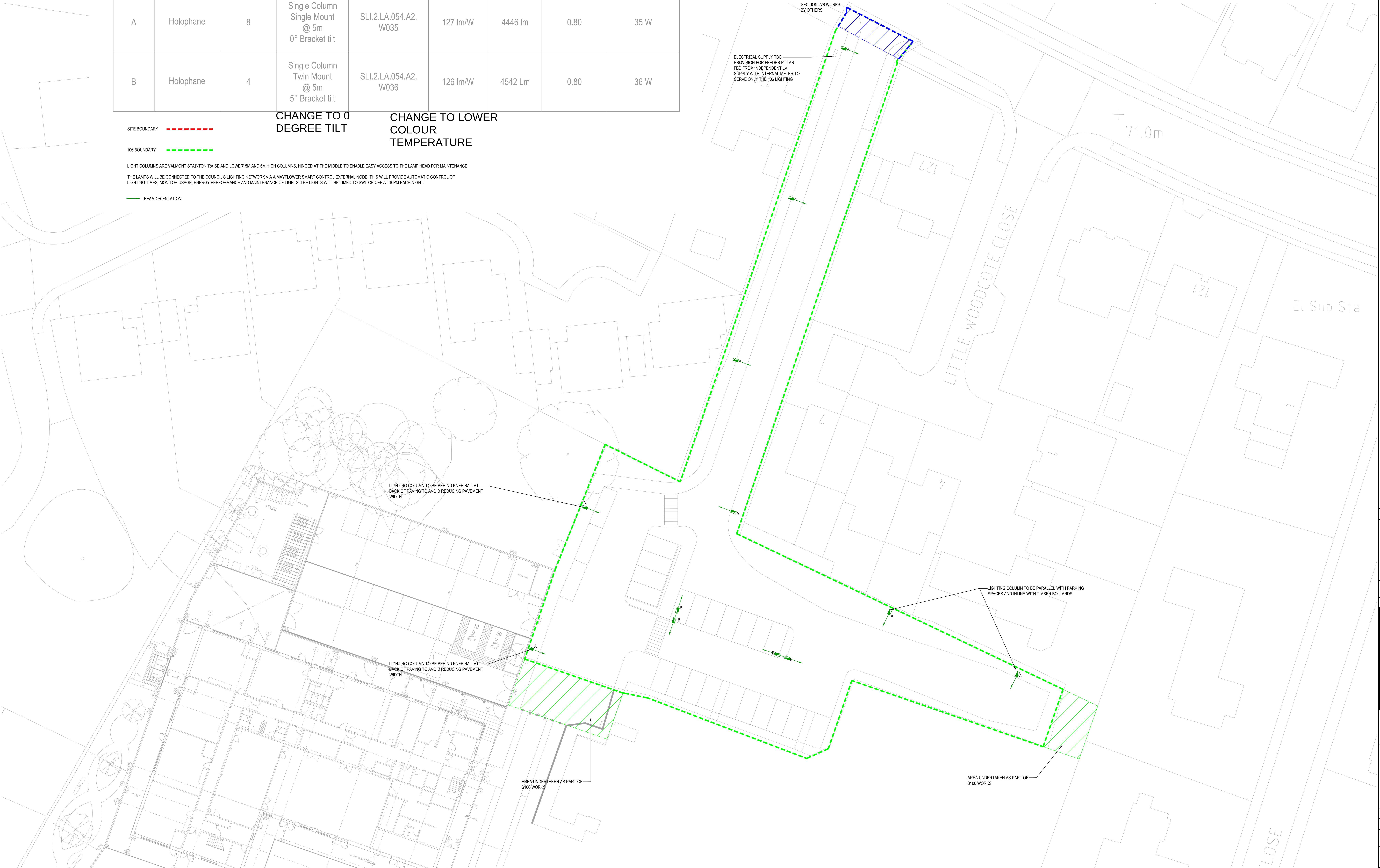
LIGHT COLUMNS ARE VALMONT STANTON 'RAISE AND LOWER' 5M AND 6M HIGH COLUMNS, HINGED AT THE MIDDLE TO ENABLE EASY ACCESS TO THE LAMP HEAD FOR MAINTENANCE.

THE LAMPS WILL BE CONNECTED TO THE COUNCIL'S LIGHTING NETWORK VIA A MAYFLOWER SMART CONTROL EXTERNAL NODE. THIS WILL PROVIDE AUTOMATIC CONTROL OF LIGHTING TIMES. MONITOR USAGE, ENERGY PERFORMANCE AND MAINTENANCE OF LIGHTS. THE LIGHTS WILL BE TIMED TO SWITCH OFF AT 10PM EACH NIGHT.

BEAM ORIENTATION

CHANGE TO 0 DEGREE TILT

CHANGE TO LOWER COLOUR TEMPERATURE



- NOTES
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A0

ORIGINAL SET DRAWING

C03	BEAM ORIENTATION	SS	04.06.19
C02	UPDATED TO SUIT CIVIL'S LAYOUT	IS	04.07.19

NO.	REVISION	CHK	DATE
Elementa Consulting Ltd 99 Park Drive London Dorset, Oxfordshire OX4 4RY t: +44(0)1235 820300 www.elementaconsulting.com			
 Member of Integral Group			
			
CLIENT ESFA			
PROJECT THE HEIGHTS 106 WORKS			
TITLE 106 EXTERNAL LIGHTING			
DATE	11.03.19	SCALE	1:200 @ A0
DESIGNED	SS	CHECKED	IS
APPROVED	SS		
SUPPLY CODE	SUPPLY DESCRIPTION		
DRAWING STATUS FOR CONSTRUCTION			
DRAWING NO. FS0280-ELE-106-00-DR-EX-63001			
REVISION C03			



BUILDING FIXED LUMINAIRES SHOWN ON LAYOUTS
FS0280-ELE-XX-00-DR-EX-63001

THE FOLLOWING LUMINAIRES ARE TO BE
AUTOMATICALLY CONTROLLED VIA TIME CLOCKS AND
PHOTOCELLS WITH MANUAL OVERRIDE FACILITIES:

- FINAL EXIT LIGHTING AND EXTERNAL WALKWAY,
- WALL MOUNTED BULKHEADS
- CANOPY LIGHTING, RECESSED DOWNLIGHTS
AND SIGNAGE LIGHT
- BIKE STORES, STORE MOUNTED BULKHEADS
- CAR PARK LIGHTING COLUMNS

REFUSE STORE WILL HAVE AN IP65 RATED MANUAL
SWITCH AND TIMER TO TURN THE LIGHT OFF AFTER A
SET TIME:

MUGA LIGHTING WILL HAVE LIGHTING CONTROL,
DETAILS IN SPECIFICATION

MUGA LIGHTING TO BE FIXED TO FENCE POSTS.

→ BEAM ORIENTATION

Luminaire parts list

Index	Manufacturer	Quantity	Luminaire type	Item number	Luminaire efficacy	Luminous flux	Maintenance factor	Connected load
S1	Holophane REDUCE COLOUR TEMPERATURE TO 3000K	6	Single Column Single Mount @ 5m 0° Bracket tilt	SLI.2.LA.05 4.A2.W035	127 lm/W	4446 lm	0.80	35 W
T1	Abacus ADD REAR COWL	6	Single Column Single Mount @ 10m Fixed to MUGA fence	Challenger 1	72 lm/W	81951 Lm	0.80	1131 W
H1	Whitecroft lighting ENSURE IT COMES WITH HOOD. REDUCE COLOUR TEMPERATURE TO 3000K	4	Surface mounted circular luminaire. IP65. Vandal resistant	Kolo IP65	77 lm/W	1078 lm	0.8	14 W

NOTES

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A1 ORIGINAL SIZE DRAWING

T02	BEAM ORIENTATION	SS	04.09.19
T01	Stage 4	SS	26.04.19
No.	REVISION	CHK	DATE

Elementa Consulting Ltd
99 Park Drive
Milton Park
Didcot, Oxfordshire
OX14 4RY

elementa
Member of Integral Group

t: +44(0)1235 820300
www.elementaconsulting.com



CLIENT
ESFA

PROJECT
The Heights

TITLE
External Lighting Services Layout

DATE	21.01.19	SCALE	1:200 @ A1
DESIGNED	SS	CHECKED	ES
		APPROVED	IS

SUITABILITY CODE	S2	SUITABILITY DESCRIPTION	For Information
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DRAWING STATUS	Stage 4	FS01188	EMS 556203
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DRAWING No.	FS0280-ELE-XX-XX-DR-EX-97001	REVISION	T02
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Project No:FS0280												Project Title : The Heights Primary School												elementa Member of Integral Group			Rev.		T01	
															Date:		26.04.19													
LUMINAIRE													LAMP			MANUFACTURER/REFERENCE														
Ref	Description	Air Handling	Emergency Type	Notes	Location	Dimensions	Control Gear	Flex	Finishes	Luminaire Efficacy	Type	Images	Type	Colour Temperature	Rating	Manufacturer	Product													
A1	LED linear suspended standalone luminaire	N	N	Dimmable Suspended to same height as acoustic panels	Classrooms	1630(L) x 235(W) x 77(H)	DALI	N/A	Slim depth sheet steel construction with no visible joints on the front face of the luminaire, Finished white	105lm/W	Suspended		LED	4000K	47W	Whitecroft Lighting	Broadsword													
B1	LED 600X600 recessed luminaire panel	N	N	Dimmable	Staff work room, Head's Office, Main Admin office, Bursar, FM Office, Staff Office, Staff room	584(L) x 584(W) x 96(H)	DALI	N/A	Steel body finished in reflective white	111 lm/W	Recessed		LED	4000K	30W	Whitecroft Lighting	Cascade LED													
C1	LED downlighter with IP44	N	N	N/A	WCs	192(Ø) x 99(H)	DALI	N/A	White finish	89 lm/W	Recessed		LED	4000K	12.8	Whitecroft Lighting	Espirit													
D1	IP65 anti-corrosive surface LED	N	N	IP65	Plant room	1275(L) x 170(W) x 103(H)	DALI	N/A	GRP body finished light grey	140 lm/W	Surface Mounted		LED	4000K	33W	Whitecroft Lighting	ACL Industry													
D1E	IP65 anti-corrosive surface LED	N	Y	IP65 3hr emergency backup	Plant room	1282(L) x 145(W) x 101(H)	DALI	N/A	GRP body finished light grey	141 lm/W	Surface Mounted		LED	4000K	33W	Whitecroft Lighting	ACL Industry													
D2	IP65 anti-corrosive surface LED	N	N	IP65	Plant room	1275(L) x 170(W) x 103(H)	DALI	N/A	GRP body finished light grey	147 lm/W	Surface Mounted		LED	4000K	19W	Whitecroft Lighting	ACL Industry													
F1	LED downlighter with IP44	N	N	N/A	WCs	192(Ø) x 99(H)	DALI	N/A	White finish	89 lm/W	Recessed		LED	4000K	12.8	Whitecroft Lighting	Espirit													
G1	IP65 recessed LED luminaire with sealed frame construction	N	N	IP65	Kitchen	590(L) x 590(W) x 113(H)	DALI	N/A	Steel body finished white Diffuser securely clamped	82 lm/W	Recessed		LED	4000K	73W	Whitecroft Lighting	Lister2													
G2	IP65 recessed LED luminaire with sealed frame construction	N	N	IP65	Kitchen Servery, Studio	590(L) x 590(W) x 113(H)	DALI	N/A	Steel body finished white Diffuser securely clamped	79 lm/W	Recessed		LED	4000K	45W	Whitecroft Lighting	Lister2													
H1	Surface mounted circular IP65 LED vandal resistant luminaire	N	N	IP65, with hood	Final exits	400(Ø) x 95(D)	DALI	N/A	Black	77 lm/W	Surface Mounted		LED	4000K	14W	Whitecroft Lighting	Kolo IP65													
H1E	Surface mounted circular IP65 LED vandal resistant luminaire	N	Y	IP65, with hood	Final exits	400(Ø) x 95(D)	DALI	N/A	Black	77 lm/W	Surface Mounted		LED	4000K	14W	Whitecroft Lighting	Kolo IP65													
J1	Linear LED for harsh environments	N	N	IP67	Canopy signage	1000(L) x 25(W) x 36(H)	DALI	N/A	Silver colour	70 lm/W	Surface Mounted		LED	4000K	25W	LED Linear	Xoolum													

USE LOWER
COLOUR
TEMPERATURE

Project No:FS0280													Project Title : The Heights Primary School													elementa Member of Integral Group			Rev.		T01	
													Date:			26.04.19																
LUMINAIRE													LAMP			MANUFACTURER/REFERENCE																
Ref	Description	Air Handling	Emergency Type	Notes	Location	Dimensions	Control Gear	Flex	Finishes	Luminaire Efficacy	Type	Images	Type	Colour Temperature	Rating	Manufacturer	Product															
K1	IK08 LED high bay luminaire	N	N	IP43	Main hall, studio	756(L) x271(W) x 92(H)	DALI	N/A	Anodised aluminium	111 lm/W	Suspended		LED	4000K	152W	Thorn	Hipak Pro															
L1E	High output LED circular luminaire	N	Y	IP40	Stairs	538(Ø) x 168(D)	DALI	N/A	Standard	116 lm/W	Surface Mounted		LED	4000k	40W	Whitecroft Lighting	Convor Surface															
M1	IP65 recessed down lighter	N	N	IP65	Canopy downlights	202(Ø) x 132(D)	Switched	N/A	Aluminium bezel	87 LM/w	Recessed		LED	4000K	23W	Whitecroft Lighting	Mirage IP65															
E1	Standalone open area emergency luminaire	N	Y	3hr emergency non-maintained operation	Recessed open area		DALI	N/A	White	148 lm/W	Recessed		LED	4000K	1W	Whitecroft Lighting	Florin															
E2	Standalone escape route emergency luminaire	N	Y	3hr emergency non-maintained operation	Recessed escape route		DALI	N/A	White	151 lm/W	Recessed		LED	4000K	1W	Whitecroft Lighting	Florin															
E3	Standalone high bay open area emergency luminaire	N	Y	3hr emergency non-maintained operation	High bay open area		DALI	N/A	White	96lm/W	Surface mounted		LED	4000K	3W	Whitecroft Lighting	Florin high level															
S1	Column light	N	N	Same as the 106 works. Single column, single mount at 5m	Car park		Switched	N/A	Same as 106 works	127 lm/W	Column mounted		LED	4000K	35W	Holophane	SLI.2															
T1	Column sports light	N	N	Mounted on fence at 10m	MUGA		DALI	N/A	Standard		Fence mounted		LED	4000K	1000W	Abacus	Challenger 1															

USE LOWER COLOUR TEMPERATURE

LUMINAIRE SCHEDULE NOTES:

- 1 The Contractor may propose alternative luminaires to those specified in the Schedule but must include within the tender return the cost for the specified luminaires with the saving associated with the alternate luminaires identified separately. Note that any proposed alternative must match the performance and quality of the proposed luminaires. Where a
- 2 All information given in this Schedule must be checked and verified with the manufacturers. Any discrepancies must be reported to the Engineer before ordering.
- 3 The contractor shall be responsible for ordering all additional items which are required for a complete installation within the specified ceilings, walls and floors.
- 4 All fluorescent luminaires shall be complete with integral fuse, power factor correction to 0.95 and high frequency control gear.
- 5 Luminaires shall comply with the relevant / Current sections of BS 4533 & EN 60598
- 6 Generally, the luminaires shall be provided with independent means of support or rest on the ceiling grid. The Contractor shall check suitability of the luminaire for installation on/in the indicated ceiling type. (Also, see Item 8 below).
- 7 All "lay in" type luminaires shall be complete with retaining clips or other means to ensure that diffusers do not lift on door closing, etc.
- 8 All colours of luminaires must be verified by the Contractor within the Architect prior to procurement.
- 9 The Contractor shall ensure that all luminaires are suitable to be mounted on/in the ceiling types that are shown on the Architects drawings prior to procurement.
- 10 Any specials shall be submitted for approval (pre-production sample) and the Contractor shall allow for this approval time in his programme.
- 11 Luminaires shall not be lamped or tubed until immediately prior to hand-over. If, by agreement, luminaires are used during construction, the luminaires used during this period shall be re-lamped at hand-over.
- 12 Information shown in the Schedule is for mains luminaires only. The Contractor shall verify the catalogue numbers/references prior to procurement. Specifically with regard to accessories
- 13 All luminaires shall be cleaned and free of dust, dirt, finger prints and other deleterious materials prior to hand-over of the installation. Where dust, dirt, finger prints, corrosion or other conditions have caused imperfections in the luminaire, they shall be replaced at no extra cost to the Client.
- 14 All LED CRI should be greater than 87.

ADDITIONAL:

These equipment schedules are issued in line with the level of design development at the date of issue.
The contractor shall select final equipment based on the subsequent work stages up to and inclusive of the requirements of RIBA stage F2/4C installation design. The contractor shall satisfy themselves of the site dimensions and relevant installation details for specific items of equipment and interdependencies of plant items. All equipment selected shall be issued as technical submittals for approval by the Engineer. Equipment ordered against Elementa equipment schedules shall be entirely at the contractors risk.

Appendix 2 – Amended Lighting Plans Following Ecology Review

Luminaire parts list									
Index	Manufacturer	Quantity	Luminaire type	Item number	Luminaire efficacy	Luminous flux	Maintenance factor	Connected load	Notes
A	Holophane	8	Single Column Single Mount @ 6m 0° Bracket tilt	SLI.2.LA.054.A2. W035	127 lm/W	4446 lm	0.80	35 W	3000K
B	Holophane	4	Single Column Twin Mount @ 6m 0° Bracket tilt	SLI.2.LA.054.A2. W036	126 lm/W	4542 Lm	0.80	36 W	3000K

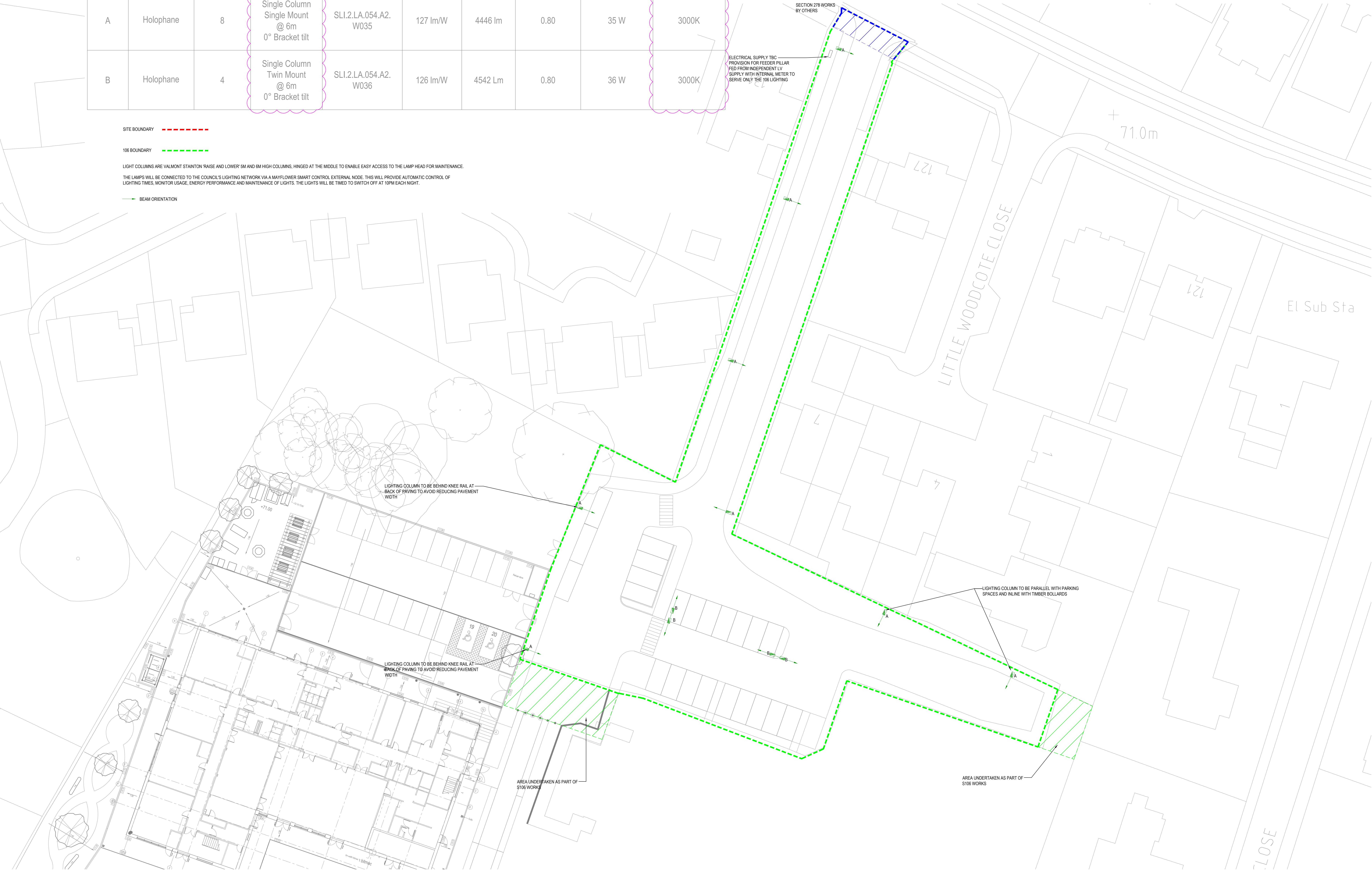
SITE BOUNDARY - - - - -

106 BOUNDARY - - - - -

LIGHT COLUMNS ARE VALMONT STANTON 'RAISE AND LOWER' 5M AND 6M HIGH COLUMNS, HINGED AT THE MIDDLE TO ENABLE EASY ACCESS TO THE LAMP HEAD FOR MAINTENANCE.

THE LAMPS WILL BE CONNECTED TO THE COUNCIL'S LIGHTING NETWORK VIA A MAYFLOWER SMART CONTROL EXTERNAL NODE THIS WILL PROVIDE AUTOMATIC CONTROL OF LIGHTING TIMES, MONITOR USAGE, ENERGY PERFORMANCE AND MAINTENANCE OF LIGHTS. THE LIGHTS WILL BE TIMED TO SWITCH OFF AT 10PM EACH NIGHT.

→ BEAM ORIENTATION



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A0 ORIGINAL SIZE DRAWING			
C01	Changes to meet ecology requirements	SS	29.11.19
C03	BEAM ORIENTATION	SS	04.09.19
C02	UPDATED TO SUIT CIVIL'S LAYOUT	IS	04.07.19
Elementa Consulting Ltd 99 Park Drive London Didcot, Oxfordshire OX14 4RY t: +44(0)1235 620300 www.elementaconsulting.com			
elementa Member of Integral Group			

KIER	
CLIENT ESFA	
PROJECT THE HEIGHTS 106 WORKS	
TITLE 106 EXTERNAL LIGHTING	
DATE 11.03.19	SCALE 1:200 @ A0
DESIGNED SS	CHECKED SS
SUITABILITY CODE 	SUITABILITY DESCRIPTION
DRAWING STATUS FOR CONSTRUCTION	
DRAWING No. FS0280-ELE-106-00-DR-EX-63001	REVISION C04



BUILDING FIXED LUMINAIRES SHOWN ON LAYOUTS
FS0280-ELE-XX-00-DR-EX-63001

THE FOLLOWING LUMINAIRES ARE TO BE
AUTOMATICALLY CONTROLLED VIA TIME CLOCKS AND
PHOTOCELLS WITH MANUAL OVERRIDE FACILITIES:

- FINAL EXIT LIGHTING AND EXTERNAL WALKWAY,
- WALL MOUNTED BULKHEADS
- CANOPY LIGHTING, RECESSED DOWNLIGHTS
AND SIGNAGE LIGHT
- BIKE STORES, STORE MOUNTED BULKHEADS
- CAR PARK LIGHTING COLUMNS

REFUSE STORE WILL HAVE AN IP65 RATED MANUAL
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MUGA LIGHTING WILL HAVE LIGHTING CONTROL.
DETAILS IN SPECIFICATION

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→ BEAM ORIENTATION

Luminaire parts list									
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T1	Abacus	4	Single Column Single Mount @ 8m Fixed to MUGA fence	Challenger S 1kW MHN-LA	72 lm/W	81951 Lm	0.80	1131 W	Rear cowls required
H1	Whitecroft lighting	4	Surface mounted circular luminaire. IP65. Vandal resistant	Kolo IP65	77 lm/W	1078 lm	0.8	14 W	With hood 3000K

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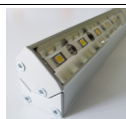
A1 ORIGINAL SIZE DRAWING			
T03	Changes to meet ecology requirements	SS	29.11.19
T02	BEAM ORIENTATION	SS	04.09.19
T01	Stage 4	SS	26.04.19
No.	REVISION	CHK	DATE
Elementa Consulting Ltd 99 Park Drive Milton Park Didcot, Oxfordshire OX14 4RY t: +44(0)1235 820300 www.elementaconsulting.com			

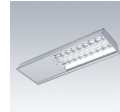
CLIENT
ESFA

PROJECT
The Heights

TITLE
External Lighting Services Layout

DATE 21.01.19	SCALE 1:200 @ A1
DESIGNED SS	CHECKED ES
APPROVED IS	
SUITABILITY CODE S2	SUITABILITY DESCRIPTION For Information
DRAWING STATUS Stage 4	
DRAWING No. FS0280-ELE-XX-XX-DR-EX-97001	REVISION T03

Project No:FS0280												Project Title : The Heights Primary School												elementa Member of Integral Group			Rev.	T02
															Date:	29.11.19												
LUMINAIRE													LAMP			MANUFACTURER/REFERENCE												
Ref	Description	Air Handling	Emergency Type	Notes	Location	Dimensions	Control Gear	Flex	Finishes	Luminaire Efficacy	Type	Images	Type	Colour Temperature	Rating	Manufacturer	Product											
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F1	LED downlighter with IP44	N	N	N/A	WCs	192(Ø) x 99(H)	DALI	N/A	White finish	89 lm/W	Recessed		LED	4000K	12.8	Whitecroft Lighting	Espirit											
G1	IP65 recessed LED luminaire with sealed frame construction	N	N	IP65	Kitchen	590(L) x 590(W) x 113(H)	DALI	N/A	Steel body finished white Diffuser securely clamped	82 lm/W	Recessed		LED	4000K	73W	Whitecroft Lighting	Lister2											
G2	IP65 recessed LED luminaire with sealed frame construction	N	N	IP65	Kitchen Servery, Studio	590(L) x 590(W) x 113(H)	DALI	N/A	Steel body finished white Diffuser securely clamped	79 lm/W	Recessed		LED	4000K	45W	Whitecroft Lighting	Lister2											
H1	Surface mounted circular IP65 LED vandal resistant luminaire	N	N	IP65, with hood	Final exits	400(Ø) x 95(D)	DALI	N/A	Black	77 lm/W	Surface Mounted		LED	3000K	14W	Whitecroft Lighting	Kolo IP65											
H1E	Surface mounted circular IP65 LED vandal resistant luminaire	N	Y	IP65, with hood	Final exits	400(Ø) x 95(D)	DALI	N/A	Black	77 lm/W	Surface Mounted		LED	3000K	14W	Whitecroft Lighting	Kolo IP65											
J1	Linear LED for harsh environments	N	N	IP67	Canopy signage	1000(L) x 25(W) x 36(H)	DALI	N/A	Silver colour	70 lm/W	Surface Mounted		LED	3000K	25W	LED Linear	Xoolum											

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													Date:	29.11.19						
LUMINAIRE													LAMP			MANUFACTURER/REFERENCE				
Ref	Description	Air Handling	Emergency Type	Notes	Location	Dimensions	Control Gear	Flex	Finishes	Luminaire Efficacy	Type	Images	Type	Colour Temperature	Rating	Manufacturer	Product			
K1	IK08 LED high bay luminaire	N	N	IP43	Main hall, studio	756(L) x271(W) x 92(H)	DALI	N/A	Anodised aluminium	111 lm/W	Suspended		LED	4000K	152W	Thorn	Hipak Pro			
L1E	High output LED circular luminaire	N	Y	IP40	Stairs	538(Ø) x 168(D)	DALI	N/A	Standard	116 lm/W	Surface Mounted		LED	4000k	40W	Whitecroft Lighting	Convor Surface			
M1	IP65 recessed down lighter	N	N	IP65	Canopy downlights	202(Ø) x 132(D)	Switched	N/A	Aluminium bezel	87 LM/w	Recessed		LED	3000K	23W	Whitecroft Lighting	Mirage IP65			
E1	Standalone open area emergency luminaire	N	Y	3hr emergency non-maintained operation	Recessed open area		DALI	N/A	White	148 lm/W	Recessed		LED	4000K	1W	Whitecroft Lighting	Florin			
E2	Standalone escape route emergency luminaire	N	Y	3hr emergency non-maintained operation	Recessed escape route		DALI	N/A	White	151 lm/W	Recessed		LED	4000K	1W	Whitecroft Lighting	Florin			
E3	Standalone high bay open area emergency luminaire	N	Y	3hr emergency non-maintained operation	High bay open area		DALI	N/A	White	96lm/W	Surface mounted		LED	4000K	3W	Whitecroft Lighting	Florin high level			
S1	Column light	N	N	Same as the 106 works. Single column, single mount at 5m	Car park		Switched	N/A	Same as 106 works	127 lm/W	Column mounted		LED	4000K	35W	Holophane	SLI.2			
T1	Column sports light	N	N	Mounted on fence at 10m	MUGA		DALI	N/A	Standard	72 lm/W	Fence mounted		LED	4000K	1131W	Abacus	Challenger 1			

LUMINAIRE SCHEDULE NOTES:

- 1 The Contractor may propose alternative luminaires to those specified in the Schedule but must include within the tender return the cost for the specified luminaires with the saving associated with the alternate luminaires identified separately. Note that any proposed alternative must match the performance and quality of the proposed luminaires. Where a
- 2 All information given in this Schedule must be checked and verified with the manufacturers. Any discrepancies must be reported to the Engineer before ordering.
- 3 The contractor shall be responsible for ordering all additional items which are required for a complete installation within the specified ceilings, walls and floors.
- 4 All fluorescent luminaires shall be complete with integral fuse, power factor correction to 0.95 and high frequency control gear.
- 5 Luminaires shall comply with the relevant / Current sections of BS 4533 & EN 60598
- 6 Generally, the luminaires shall be provided with independent means of support or rest on the ceiling grid. The Contractor shall check suitability of the luminaire for installation on/in the indicated ceiling type. (Also, see Item 8 below).
- 7 All "lay in" type luminaires shall be complete with retaining clips or other means to ensure that diffusers do not lift on door closing, etc.
- 8 All colours of luminaires must be verified by the Contractor within the Architect prior to procurement.
- 9 The Contractor shall ensure that all luminaires are suitable to be mounted on/in the ceiling types that are shown on the Architects drawings prior to procurement.
- 10 Any specials shall be submitted for approval (pre-production sample) and the Contractor shall allow for this approval time in his programme.
- 11 Luminaires shall not be lamped or tubed until immediately prior to hand-over. If, by agreement, luminaires are used during construction, the luminaires used during this period shall be re-lamped at hand-over.
- 12 Information shown in the Schedule is for mains luminaires only. The Contractor shall verify the catalogue numbers/references prior to procurement. Specifically with regard to accessories
- 13 All luminaires shall be cleaned and free of dust, dirt, finger prints and other deleterious materials prior to hand-over of the installation. Where dust, dirt, finger prints, corrosion or other conditions have caused imperfections in the luminaire, they shall be replaced at no extra cost to the Client.
- 14 All LED CRI should be greater than 87.

ADDITIONAL:

These equipment schedules are issued in line with the level of design development at the date of issue.
The contractor shall select final equipment based on the subsequent work stages up to and inclusive of the requirements of RIBA stage F2/4C installation design. The contractor shall satisfy themselves of the site dimensions and relevant installation details for specific items of equipment and interdependencies of plant items. All equipment selected shall be issued as technical submittals for approval by the Engineer. Equipment ordered against Elementa equipment schedules shall be entirely at the contractors risk.