Presentations

www.oxford.gov.uk

OXFORD CITY COUNCIL

West Area Planning Committee

Date: **Tuesday 10 March 2015**

Agenda No	Item	Pages
3.	Westgate planning applications:14/02402/CND - Conditions 6 & 17 (landscaping and elevational treatments)	3 - 22
4.	333 Banbury Road: 14/03255/FUL	23 - 48
5.	376 Banbury Road: 14/03445/FUL	49 - 70
6.	Oxford Railway Station: 15/00096/PA11	71 - 94
7.	Aristotle Lane: 14/01348/FUL	95 - 120
8.	Former Ruskin College, Walton St: 13/00832/CND10 & CND11, 13/01075/CND8 - including technical information and schedule of materials to accompany the report.	121 - 168

This page is intentionally left blank

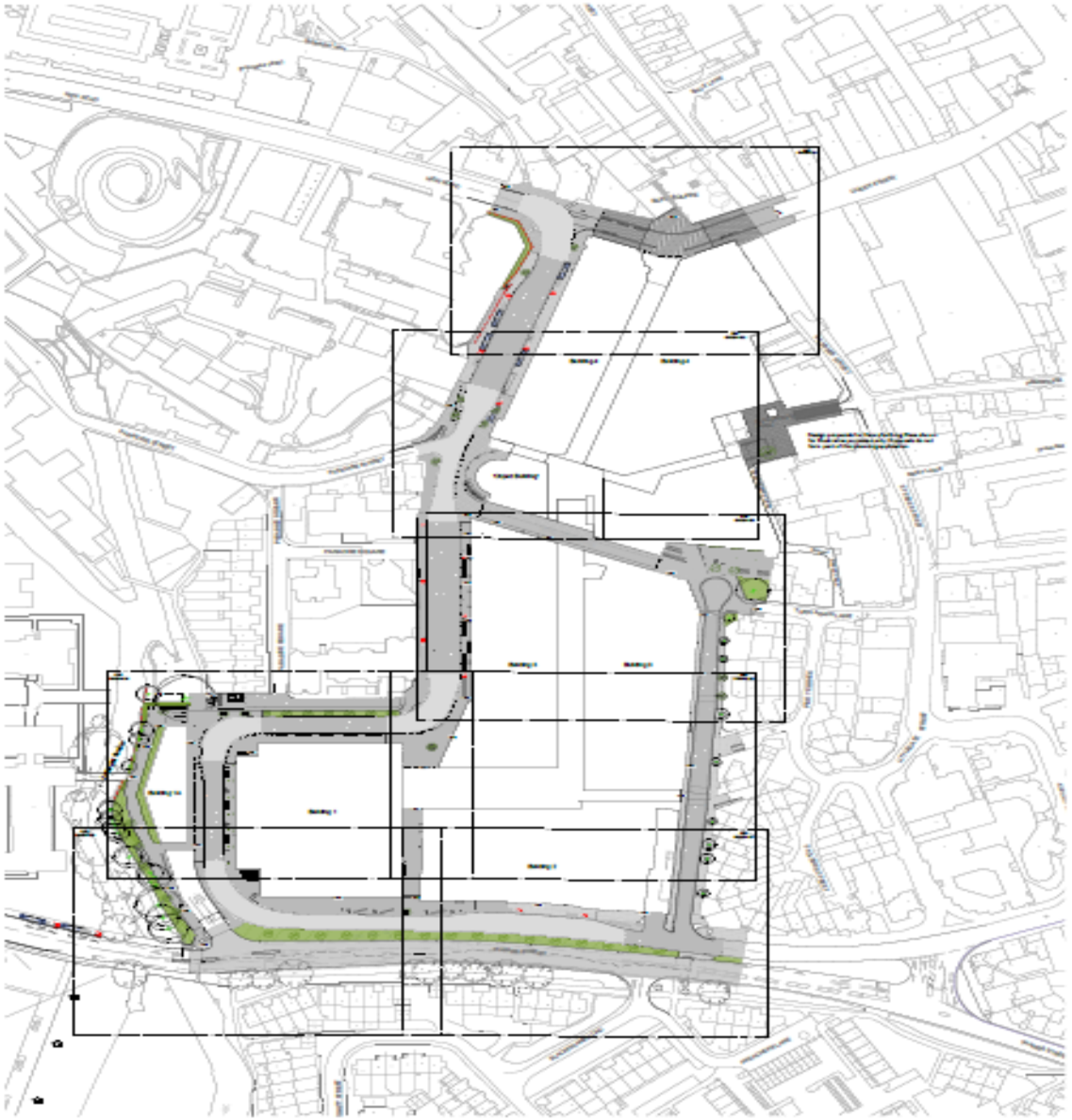
Welcome to the West Area Planning Committee

www.oxford.gov.uk

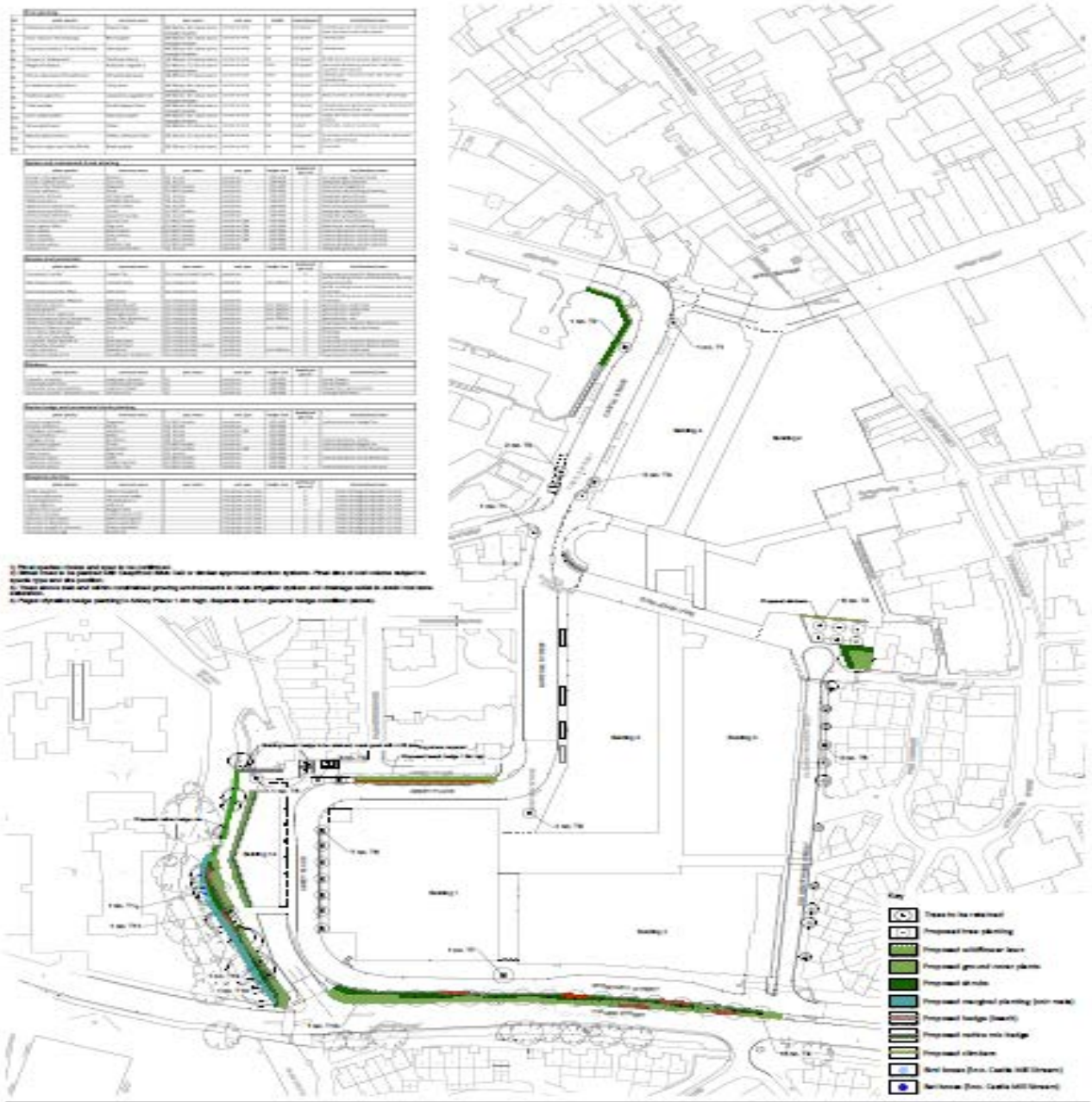
OXFORD CITY COUNCIL

- This planning committee meeting is held in public but it is not a public meeting.
- There will be an opportunity for the public to address the committee on each application.
- If you wish to speak for or against a planning application, you need to have either requested it in advance, or hand in one of the available speaker forms, or speak to the clerk.
- Information on meeting protocol and conduct at the committee is set out in the Code of Practice.
- This is in the committee agenda just before the first planning application report.

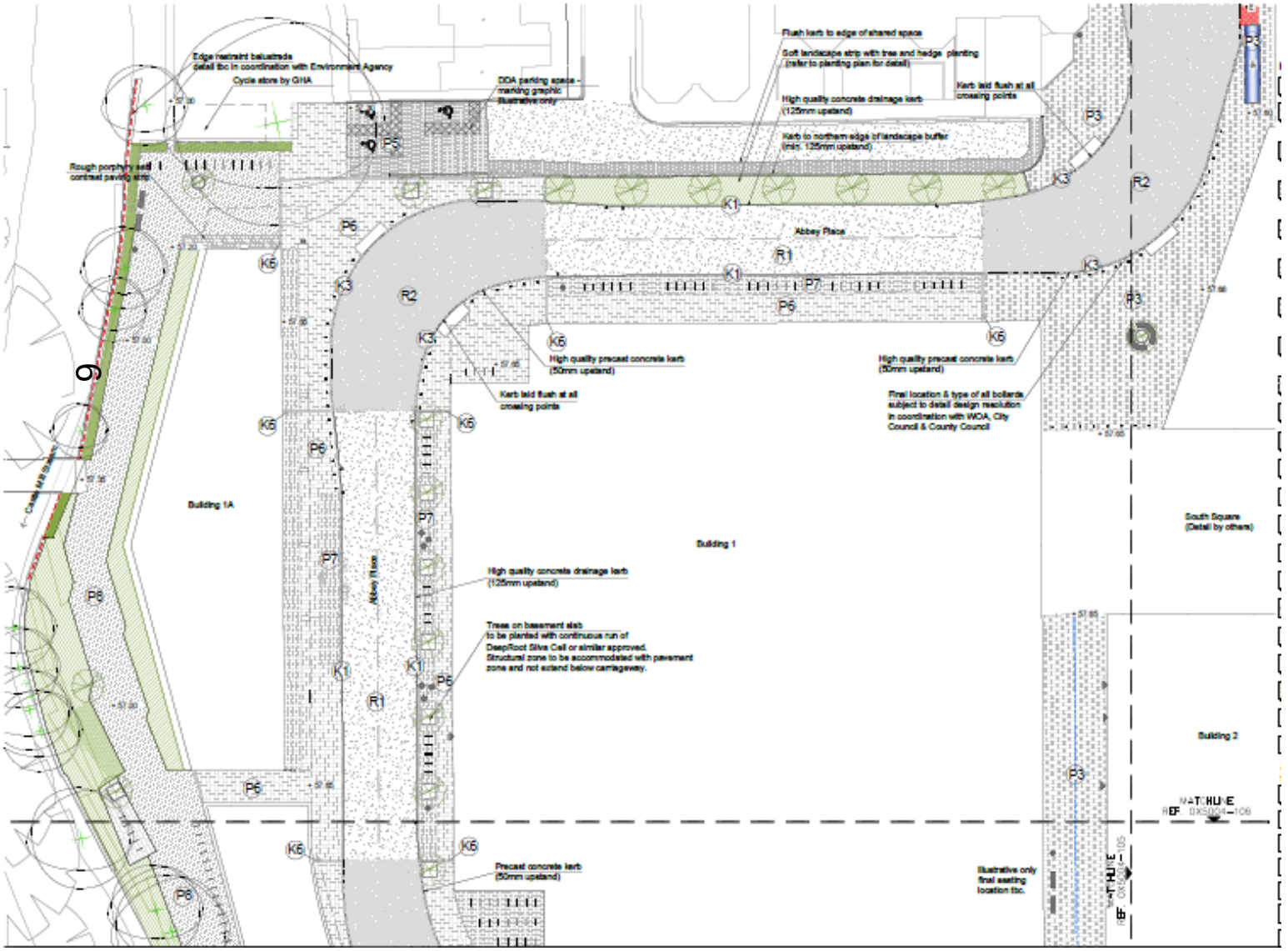
LANDSCAPE GENERAL ARRANGEMENT PLAN



PLANTING PLAN



GENERAL ARRANGEMENT PLAN ABBEY PLACE



www.oxford.gov.uk

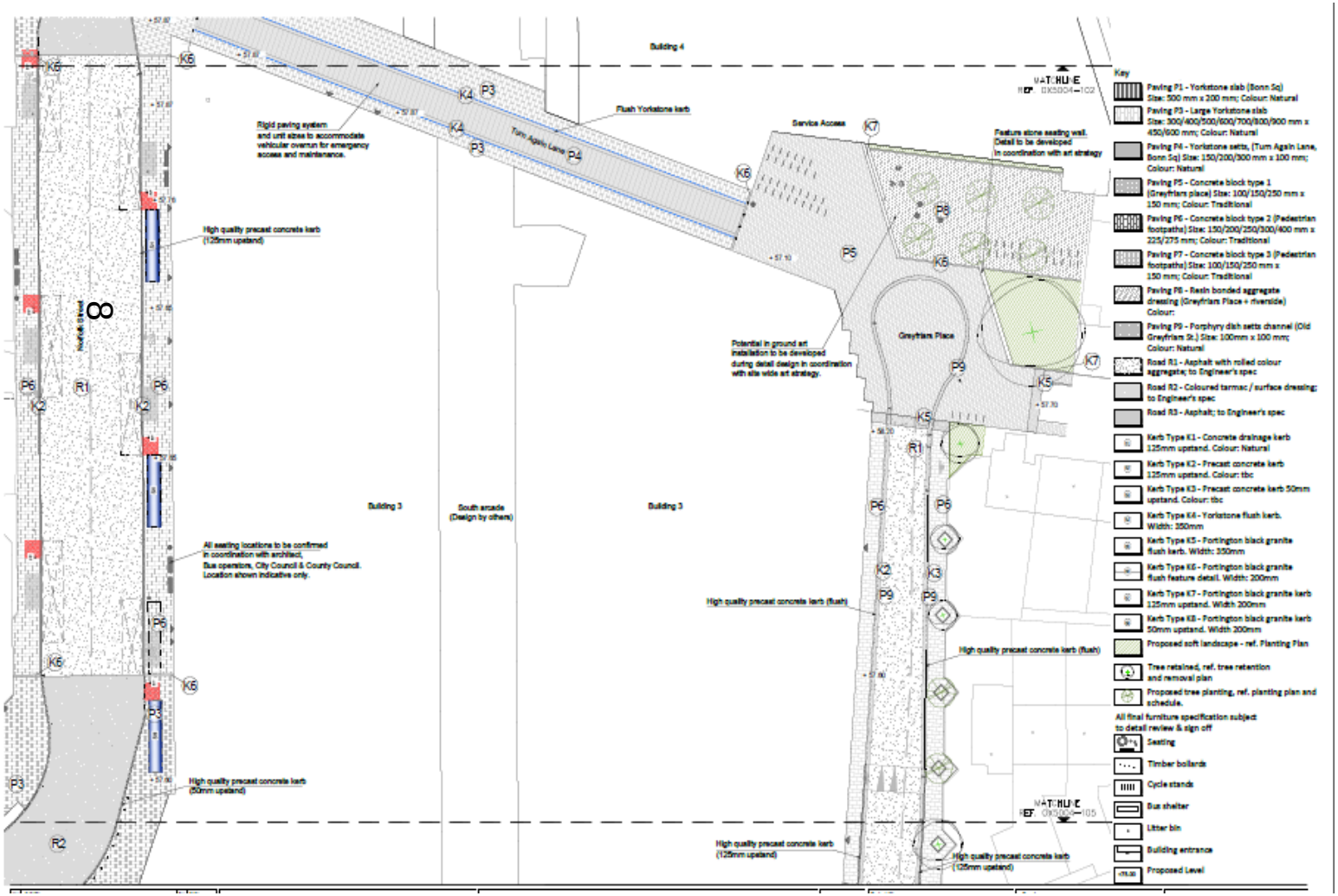
OXFORD CITY COUNCIL

www.oxford.gov.uk

OXFORD CITY COUNCIL

Abbey Place / Norfolk Street

GENERAL ARRANGEMENT PLAN NORFOLK STREET & GREYFRIARS PLACE



www.oxford.gov.uk

OXFORD CITY COUNCIL

TURN AGAIN LANE ELEVATION

01 / TURN AGAIN LANE ELEVATION

02 / VIEW FROM CASTLE STREET ALONG TURN AGAIN LANE

03 / VIEW FROM GREYFRIARS PLACE ALONG TURN AGAIN LANE

04 / VIEW FROM GREYFRIARS PLACE TOWARDS TURN AGAIN LANE

www.oxford.gov.uk

OXFORD CITY COUNCIL

Turn Again Lane / Greyfriar’s Place

Greyfriar’s Place

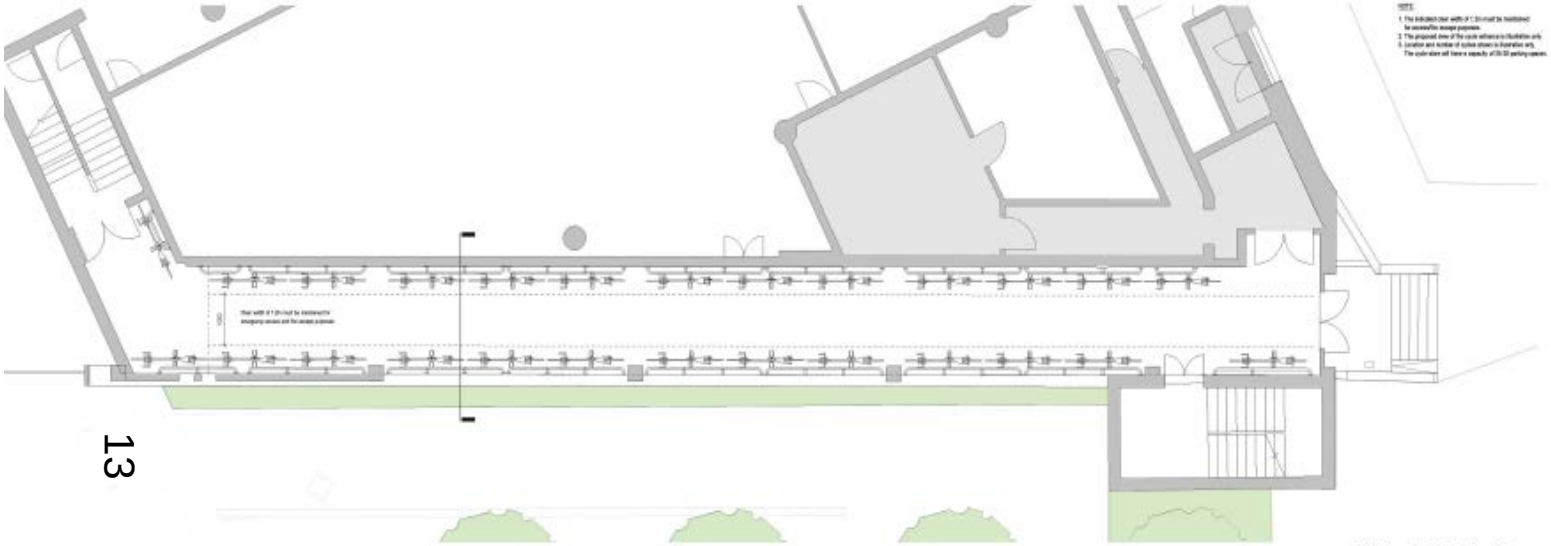
ILLUSTRATIVE VIEW - GREYFRIARS PLACE TOWARDS TURN AGAIN LANE

MATERIAL KEY

1. Rubble stone cladding
2. Cut Jura stone plinth
3. Grey granite plinth
4. Ashlar stone cladding
5. Ashlar stone coping with inset stainless steel drip
6. Reclaimed brick from existing building
7. New brickwork
8. Grey PPC canopy with integrated linear light fittings to underside
9. Grey PPC panel
10. Grey PPC framed flushed glazed window
11. Grey PPC framed capped glazed window
12. Grey PPC sliding doors
13. Metal ceiling with inset lights
14. Bronze PPC framed flushed glazed window
15. Bronze PPC frame and flat panel pilaster cover
16. Bronze PPC panel with illuminated lettering
17. Shopfront by tenant
18. LED light
19. Copper coloured metal roof screen
20. Curved barrel vault ceiling
21. Hardwood seat and armrests
22. Insulated render painted pale blue
23. Insulated render to existing walls painted pale blue
24. Digital display with bespoke PPC frame to match surrounding render
25. Cast glass shingles on metal frame
26. Existing pyramid skylights replaced
27. Existing concrete frame coated with grey mineral paint
28. Existing metal ductwork coated with grey mineral paint
29. Existing brickwork
30. Existing Louvres
31. Area of glazing re-glazed
32. New floor and balustrades
33. Lime green painted soffit
34. Uplighting
35. Galvanised rail fixed to existing wall
36. Concrete shear wall with slot vents coated with grey mineral paint
37. Stainless steel cabling to enable plant growth
38. New external secure access gate
39. New external steps, landing and bicycle ramp
40. New glazing by tenant
41. Copper PPC panel
42. Existing concrete frame
43. Existing glazing
44. Grey PPC panel
45. Existing concrete paving

BUILDING 4 CYCLE STORE

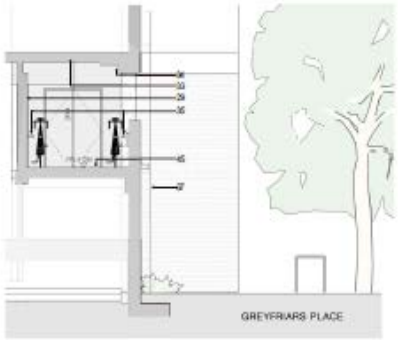
OXFORD CITY COUNCIL



1 Building 4 Cycle Store Plan
1 : 50

2 Illustrative view - Cycle store entrance

3 Existing interior view



4 Cross-section through the cycle store
1 : 50

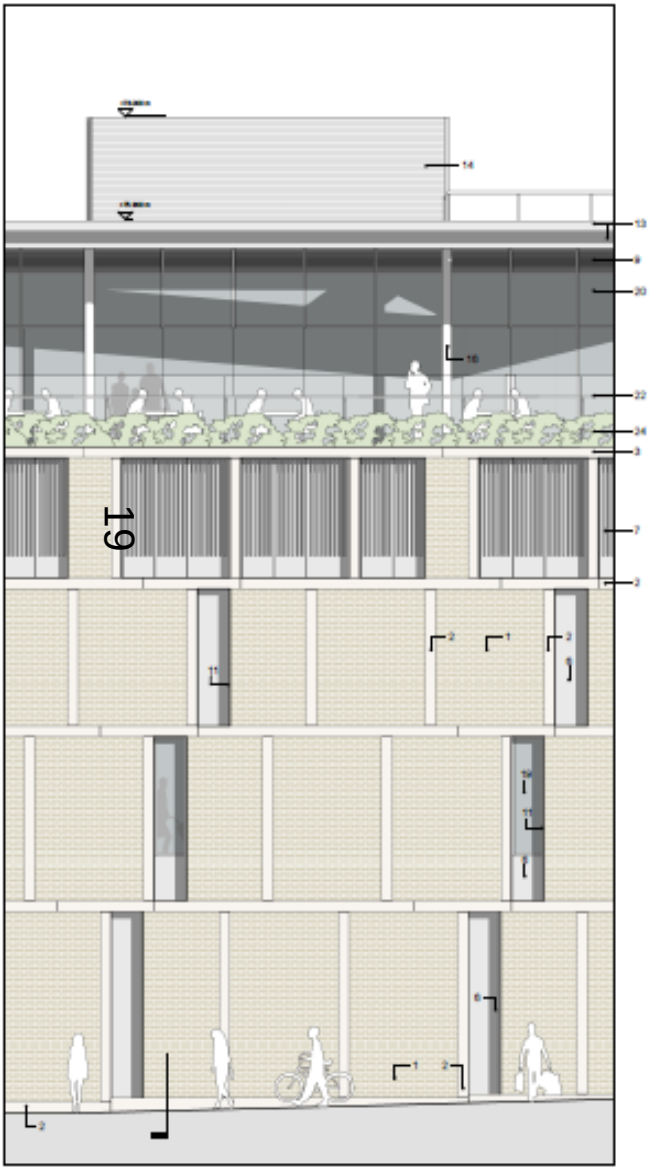
Greyfriar’s Place

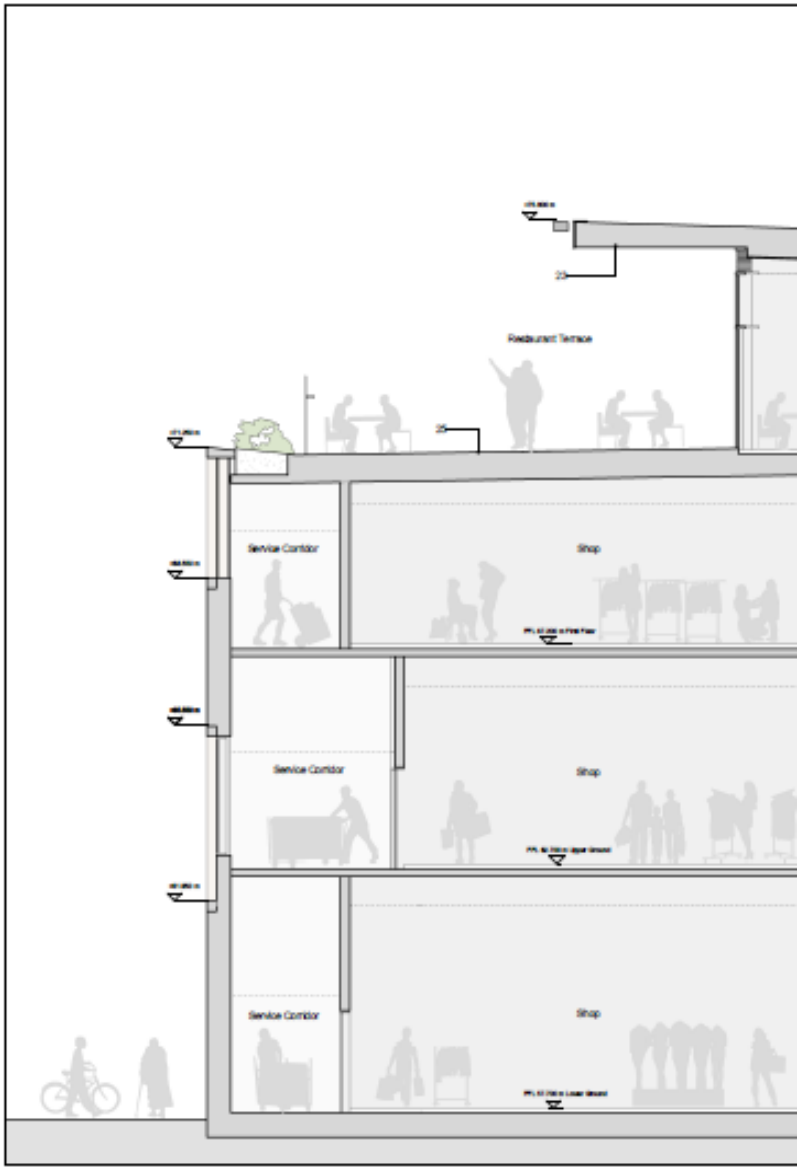
Thames Street

Old Greyfriar’s Street

Entrance to South Square from Old Greyfriar's street

OLD GREYFRIARS STREET BAY STUDY 2





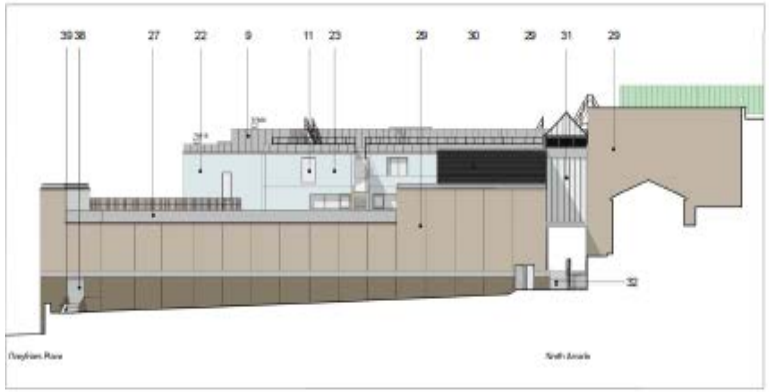
www.oxford.gov.uk

OXFORD CITY COUNCIL

SITE WIDE ELEVATIONS LL & DD

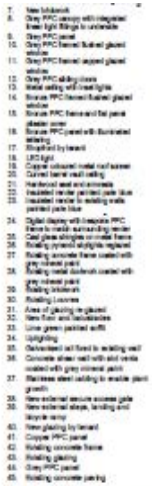
Site Wide Elevation LL
Old Greyfriars Street

ROGER BACON LANE & ST EBBES STREET ELAVATION



01 / ROGER BACON LANE ELEVATION

02 / ST EBBES STREET ELEVATION



03 / VIEW OF CHURCH LANE ENTRANCE FROM PENNY FARTHING PLACE

03 / VIEW OF ST EBBES STREET CORNER FROM BONN SQUARE

03 / VIEW ALONG ST EBBES STREET FROM BONN SQUARE

www.oxford.gov.uk

OXFORD CITY COUNCIL

Pennyfarthing Place

Welcome to the West Area Planning Committee

- This planning committee meeting is held in public but it is not a public meeting.
- There will be an opportunity for the public to address the committee on each application.
- If you wish to speak for or against a planning application, you need to have either requested it in advance, or hand in one of the available speaker forms, or speak to the clerk.
- Information on meeting protocol and conduct at the committee is set out in the Code of Practice.
- This is in the committee agenda just before the first planning application report.

www.oxford.gov.uk

OXFORD CITY COUNCIL

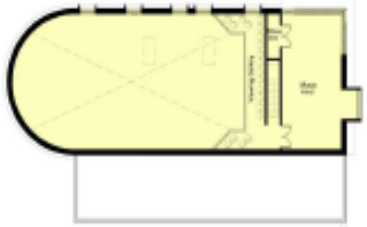
14/03255/FUL

Capel Close
Banbury Road
Hernes Crescent
Whitewalls
Groom Cottage
25
27
23
17
9
5
7
3
1
1b
337
331
329
327
378
374
372a
370

Ground Floor Plan
1:200

Second Floor Plan
1:200

Basement Plan
1:200



First Floor Plan
1:200

REV A - 22/01/2015
Hall Repositioned

d'Overbroek's College	18/11/14
	1:200
330 Banbury Road	2014054
Floor Plans - Proposed	PSSA

Banbury Road Street Elevation
1:250

South Facing Elevation
1:250

27

North Facing Elevation Windows
1st floor Laboratory Windows to have obscured glass up to 1.8m above floor level to prevent overlooking.

1st floor Offices to have projected timber boxes which allow for views to Banbury road and restrict views to neighbours gardens

North Facing Elevation
1:250

Capel Close Street Elevation
1:250

6.3 Appearance - Elevations

Banbury Road Street Elevation

South Facing Elevation

North Facing Elevation Windows
1st Floor Laboratory Windows to have obscured glass up to 1.8m above floor level to prevent overlooking.

1st Floor Offices to have projected timber boxes which allow for views to Banbury road and restrict views to neighbours gardens

North Facing Elevation

West Elevation
1:200

East Elevation
1:200

North Facing Elevation
1:200

East Elevation
1:200

Materials
The walls of the new buildings will be finished in a light multi coloured brick with fine pre- cast concrete detailing. The roofs will be finished in a dark grey zinc sheet material.

South Facing Elevation
1:200

REV A - 23/01/2015
Hall Repositioned

St Overbroek's College	18/11/14
	1:200
333 Banbury Road	2014004
Elevations - Proposed	P07A

6.3 Appearance - Elevations & Aerial View

Capel Close Street Elevation

Aerial View

6.3 Appearance - Perspectives

View from Front Lawn to Entrance

View from West Lawn to Villa

6.3 Appearance - Perspectives

View from Front path to central courtyard

View from Front Lawn to Entrance


SOLD
JOHN D WOOD
& CO
01865 311522
333
ENTRANCE

36


37


38

39


This foundation stone was laid by
R.W. Bro. G.M. REDMAN-BROWN
Provincial Grand Master for Oxfordshire
at the start of work on the extensions
2 x 1985


THE FOUNDATION STONE
FOR THIS EXTENSION
WAS LAID BY
R.W. Bro. G.M. REDMAN-BROWN
PROVINCIAL GRAND MASTER
ON 3RD OCTOBER 2001


45


46

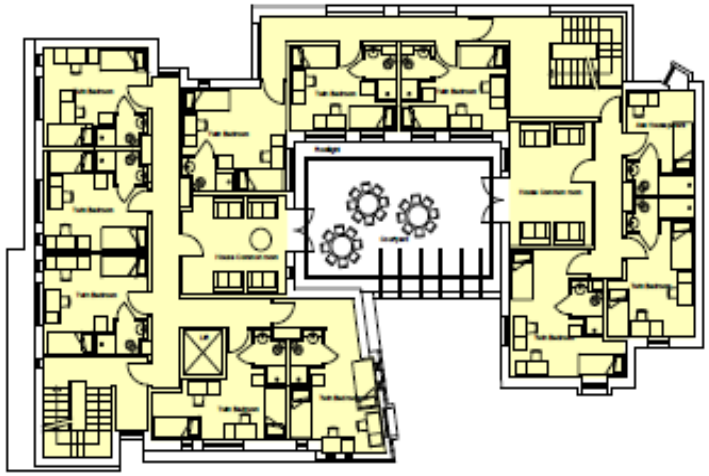

47


P
Mon-Fri
9 am-4 pm
Permit holders
SW
only

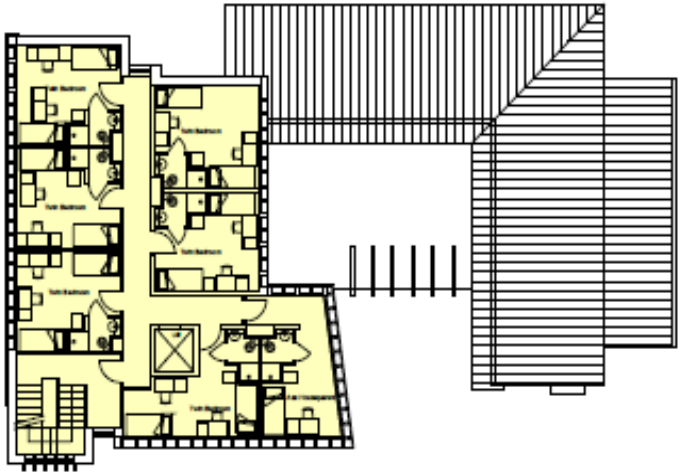
Welcome to the West Area Planning Committee

- This planning committee meeting is held in public but it is not a public meeting.
- There will be an opportunity for the public to address the committee on each application.
- If you wish to speak for or against a planning application, you need to have either requested it in advance, or hand in one of the available speaker forms, or speak to the clerk.
- Information on meeting protocol and conduct at the committee is set out in the Code of Practice.
- This is in the committee agenda just before the first planning application report.

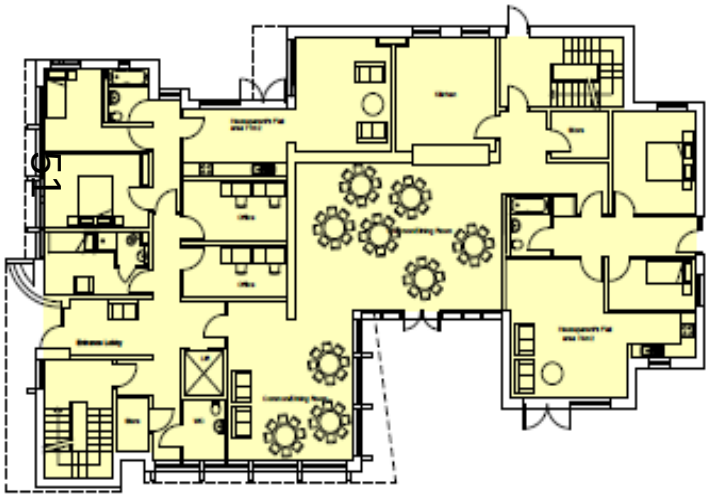
378
337
Banbury Road
1
50
New boundary wall
Hernes Crescent
374
Groom
Cottage
Whitewalls
372a
331
TSH
December 14
1:200@A1
2014028
376 Banbury Road
Proposed Site Plan
P03



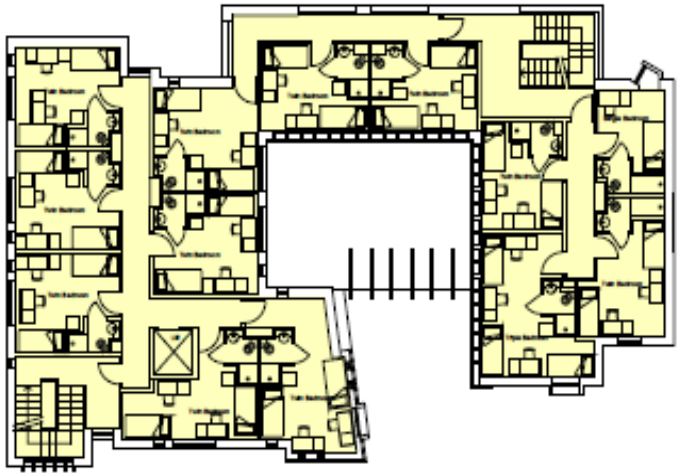
First floor plan



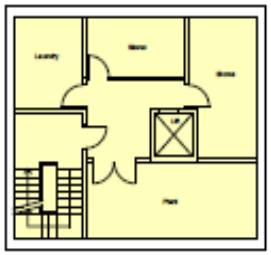
Third floor plan



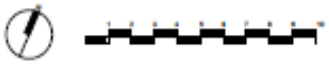
Ground floor plan



Second floor plan



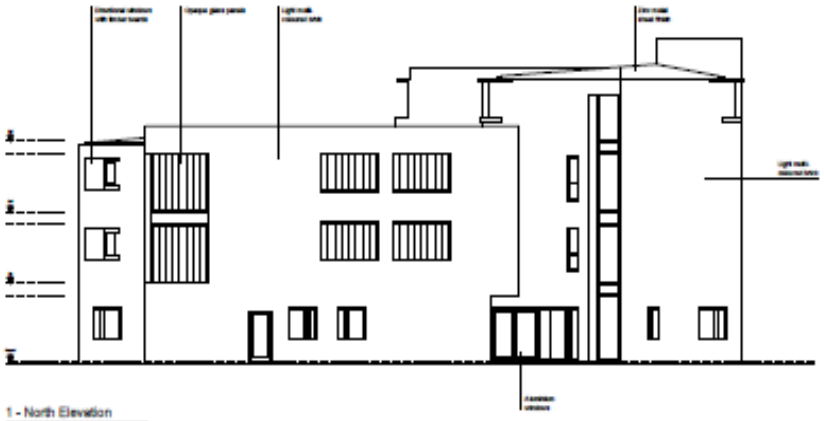
Basement plan



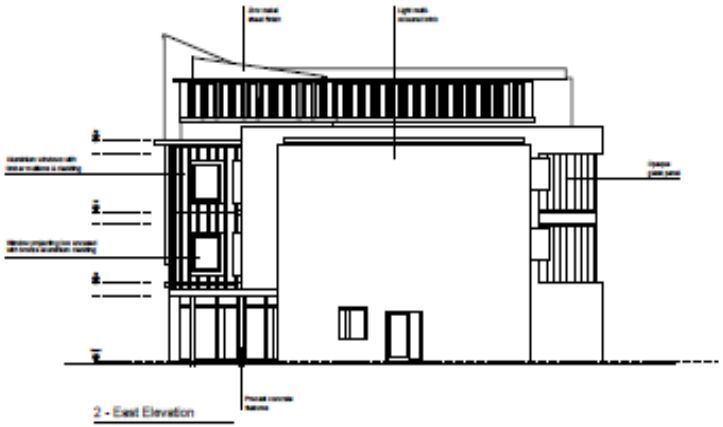
d'Overbroeck's Boarding House		December 14
376 Banbury Road		1:100@A1
		2014028
Proposed Plans		P04

Banbury Road Street Elevation
1:200

Hermes Road Street Elevation
1:200

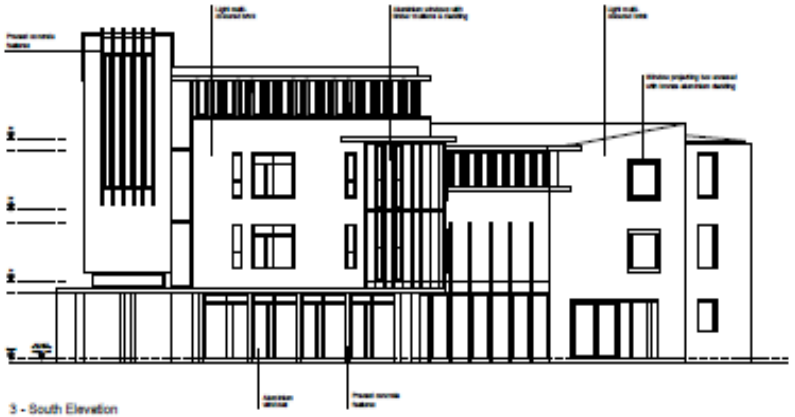


1 - North Elevation



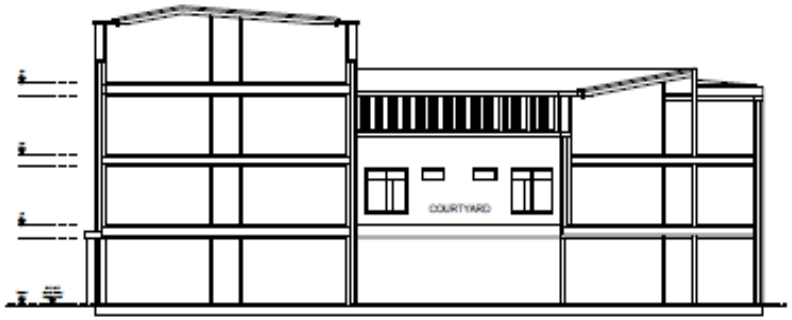
2 - East Elevation

4 - West Elevation

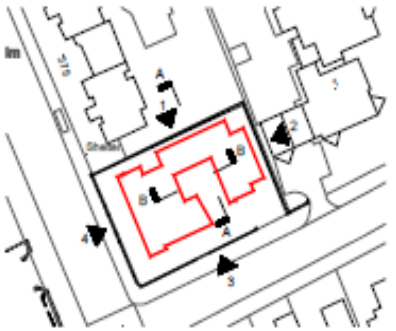


3 - South Elevation

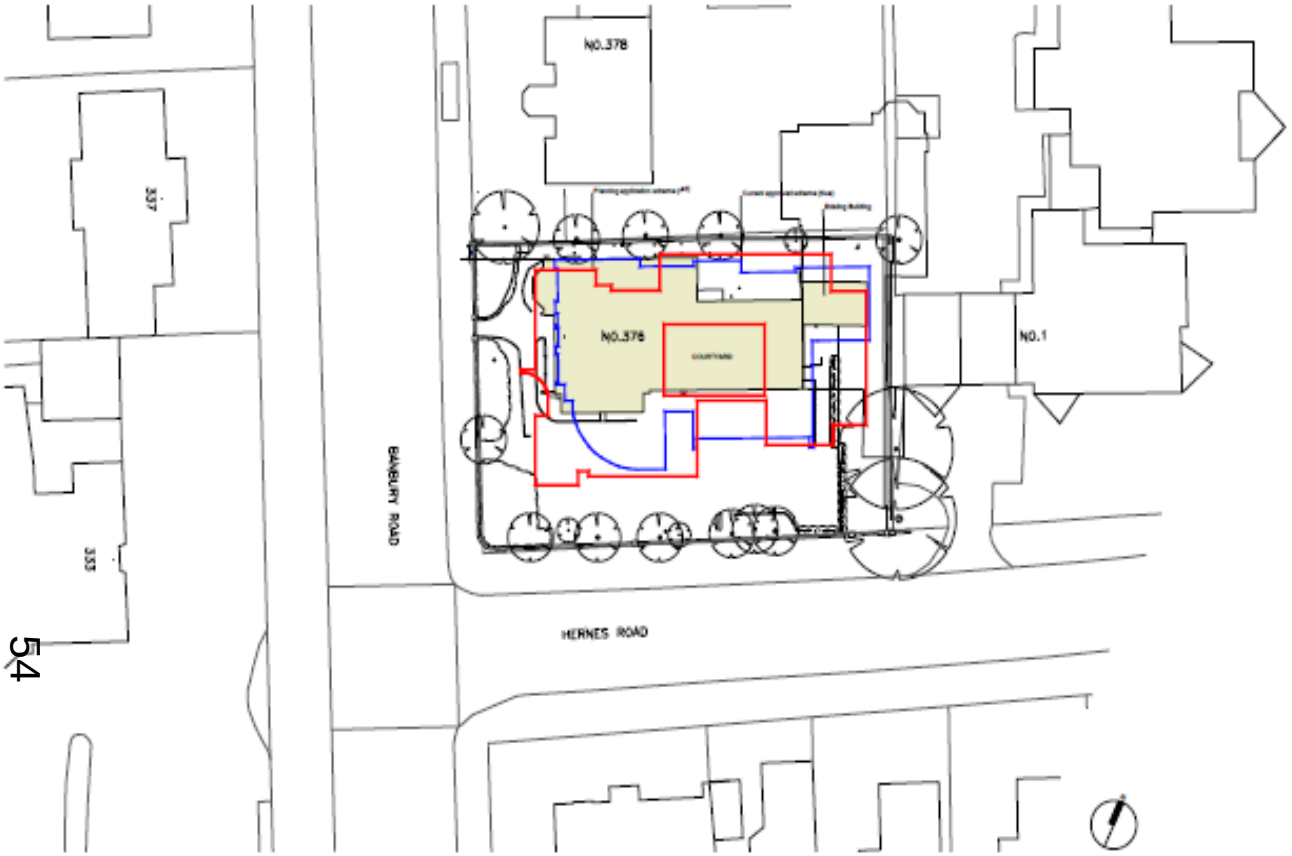
A - Section



B - Section

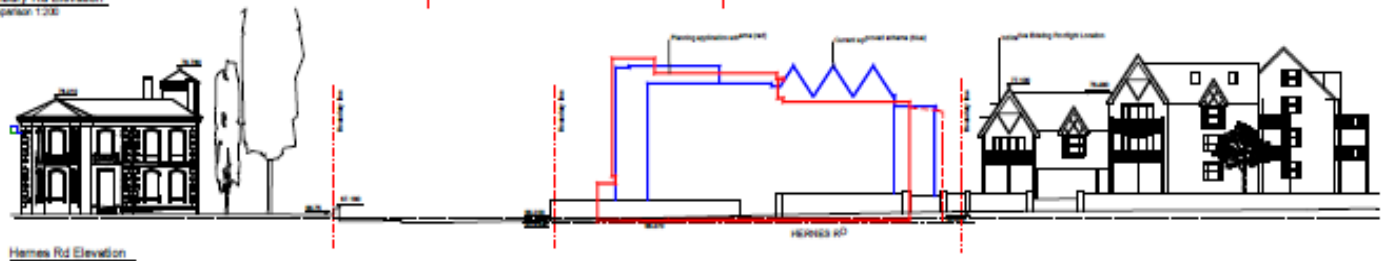


d'Overbroeck's Boarding House 376 Banbury Road	December 14 1:100@A1 2014028
Proposed Elevations	P06



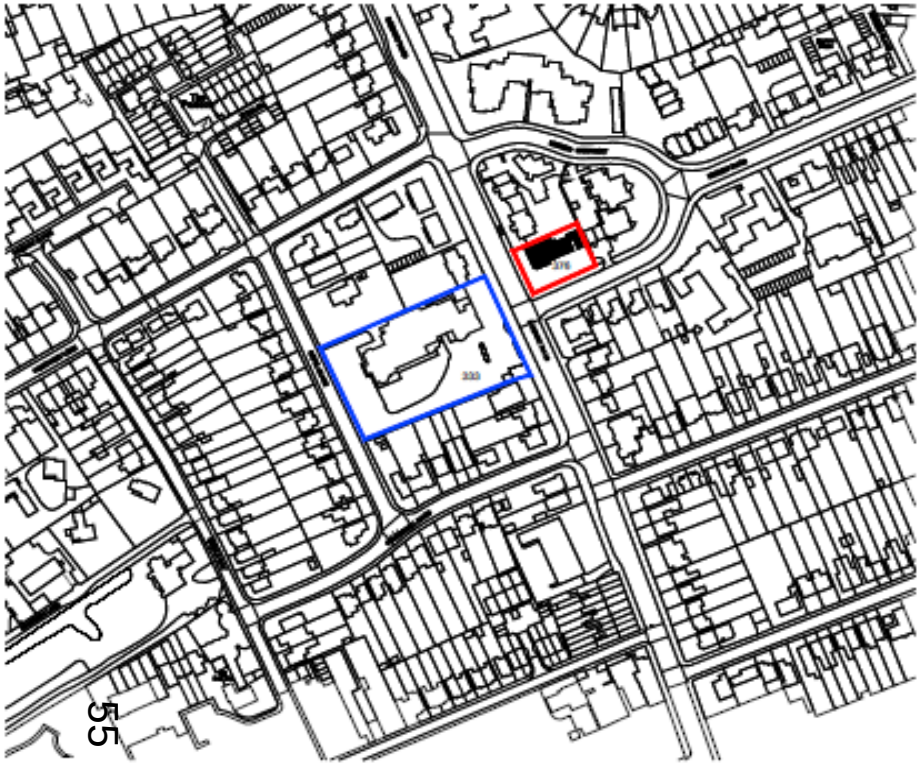
Site Plan
Comparison 1:200

Banbury Rd Elevation
Comparison 1:200



Hernes Rd Elevation
Comparison 1:200

d'Overbroeck's Boarding House 376 Banbury Road	December 14 As shown at A1 2014028
Comparison drawing	P08



Location Plan
Existing 1:1250

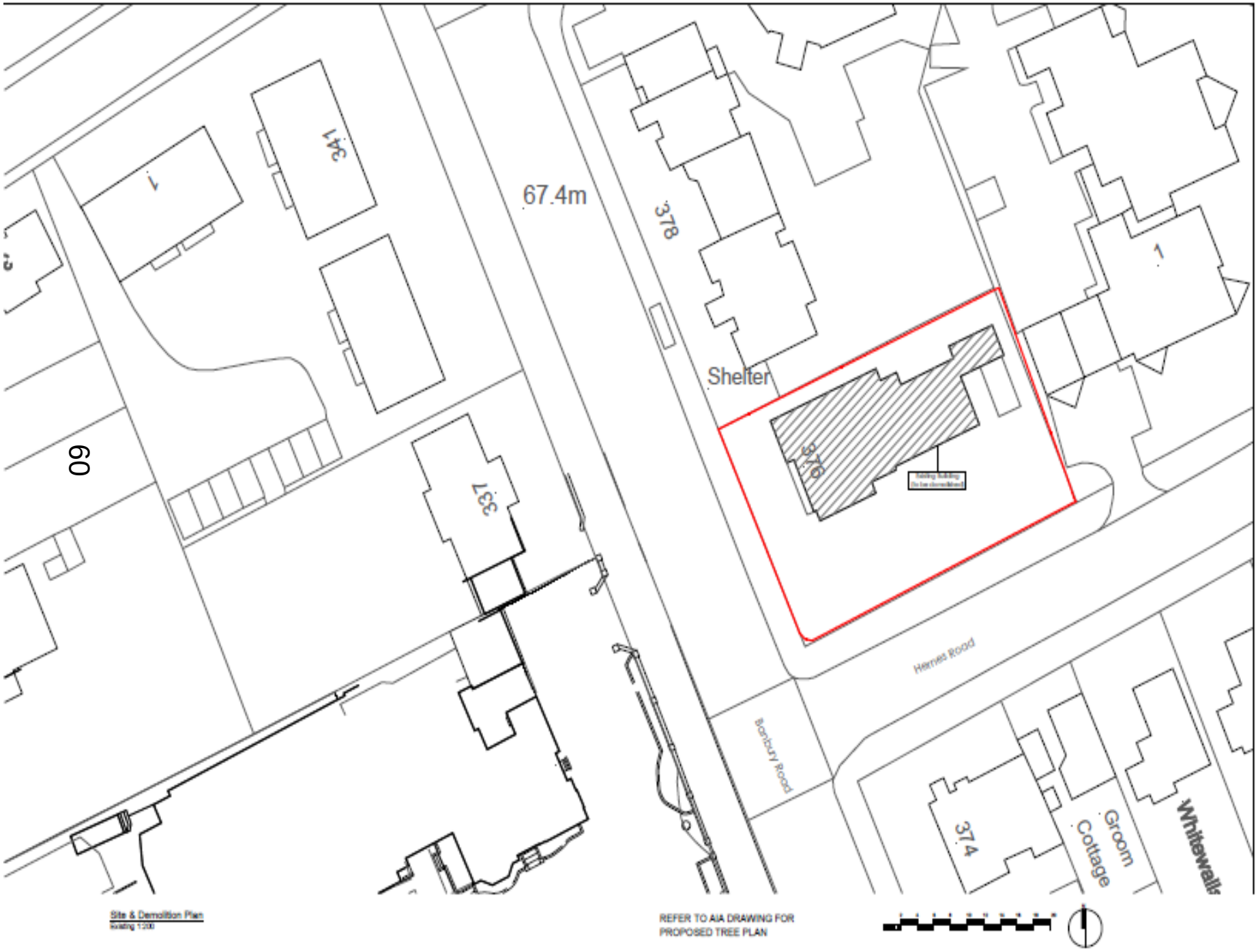
Block Plan
Existing 1:500

OXFORD CITY COUNCIL

OXFORD
CITY
COUNCIL

www.oxford.gov.uk

OXFORD CITY COUNCIL



Site & Demolition Plan
existing 1:200

REFER TO AIA DRAWING FOR
PROPOSED TREE PLAN


20
openreach


62


63


openreach
a BT Group business
BT
Connecting the Nation
to Phone, Broadband
and TV services

64


99


Randolph House
PRIVATE CAR PARK
FOR RESIDENTS USE ONLY
Randolph House
Private parking
for residents only.
No visitor parking.


88
PROSCAN
LED TV
46"
PLDED4616-UK
LED HDTV


376
WARNING
Concealed CCTV
cameras operate on
these premises

69

This page is intentionally left blank

Welcome to the West Area Planning Committee

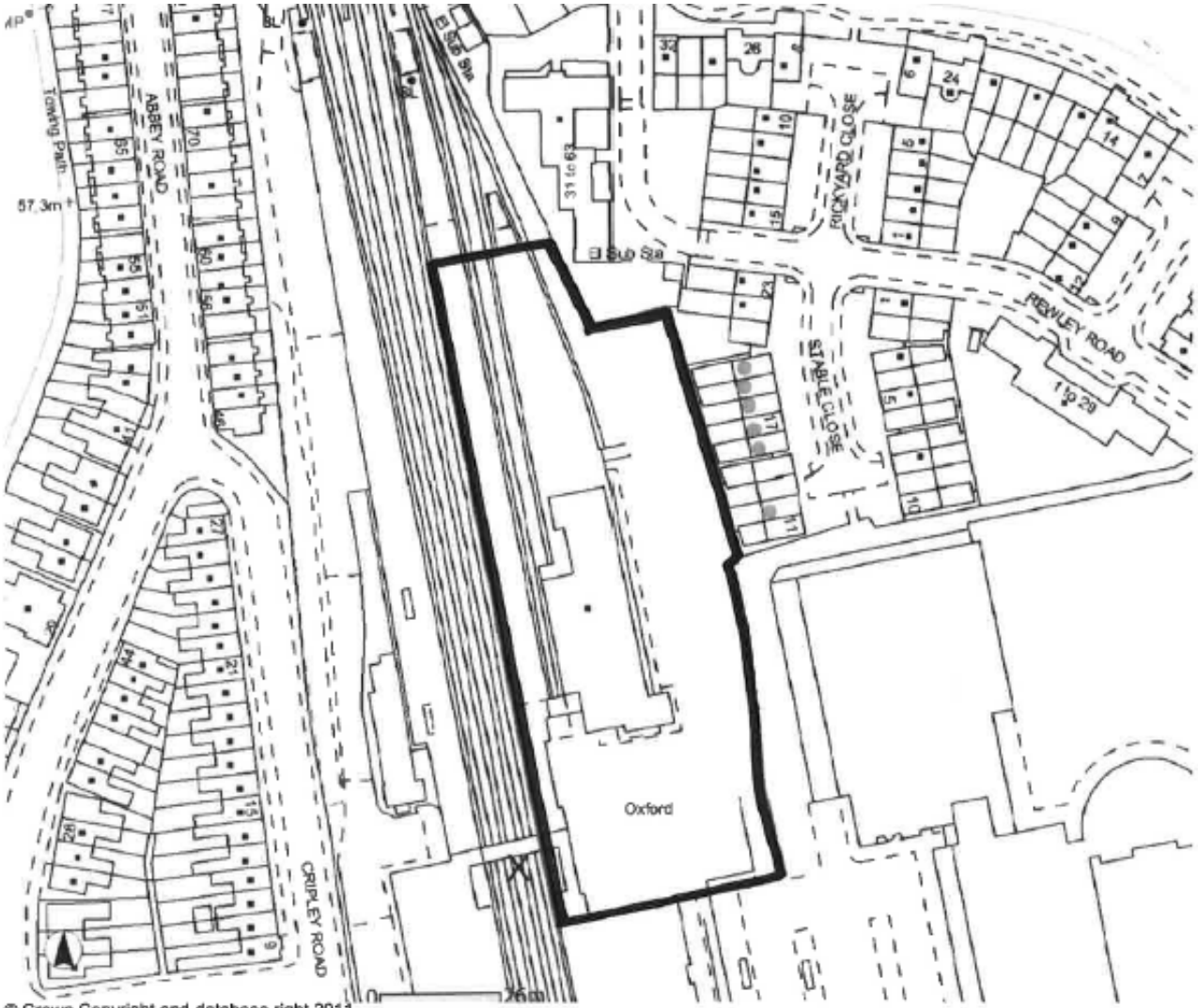
- This planning committee meeting is held in public but it is not a public meeting.
- There will be an opportunity for the public to address the committee on each application.
- If you wish to speak for or against a planning application, you need to have either requested it in advance, or hand in one of the available speaker forms, or speak to the clerk.
- Information on meeting protocol and conduct at the committee is set out in the Code of Practice.
- This is in the committee agenda just before the first planning application report.

www.oxford.gov.uk

OXFORD CITY COUNCIL

Oxford Railway Station: 15/00096/PA11

Site Plan



www.oxford.gov.uk

OXFORD CITY COUNCIL


Existing TOC building
Access ramp
AMBULANCE
NHS

Existing TOC, public short stay parking and pedestrian over bridge

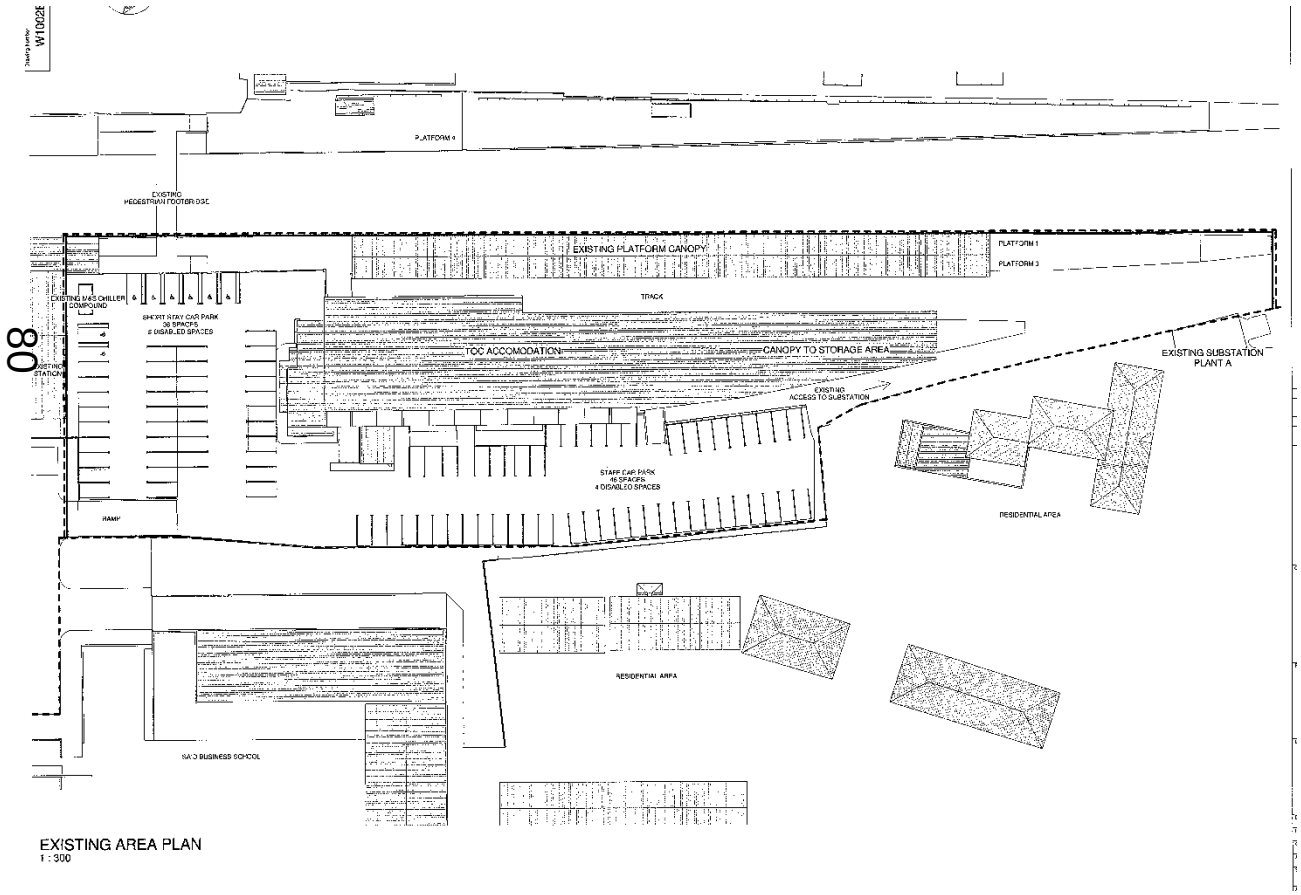

Existing Platform 3 and back of TOC building
3
Food Waste
09:21:59 Platform 3


View across existing staff car park
Existing TOC building
Rewley Road
Stable Close
Except authorised vehicles
Warning
Staff Parking only beyond this point
These spaces are for (upside) staff Permit holders only
KV62 WBW
STAFF PARKING ONL


Properties in Stable Close
18

Existing station, public short stay parking,+ pedestrian over bridge

Existing Area Plan – Accommodation Building

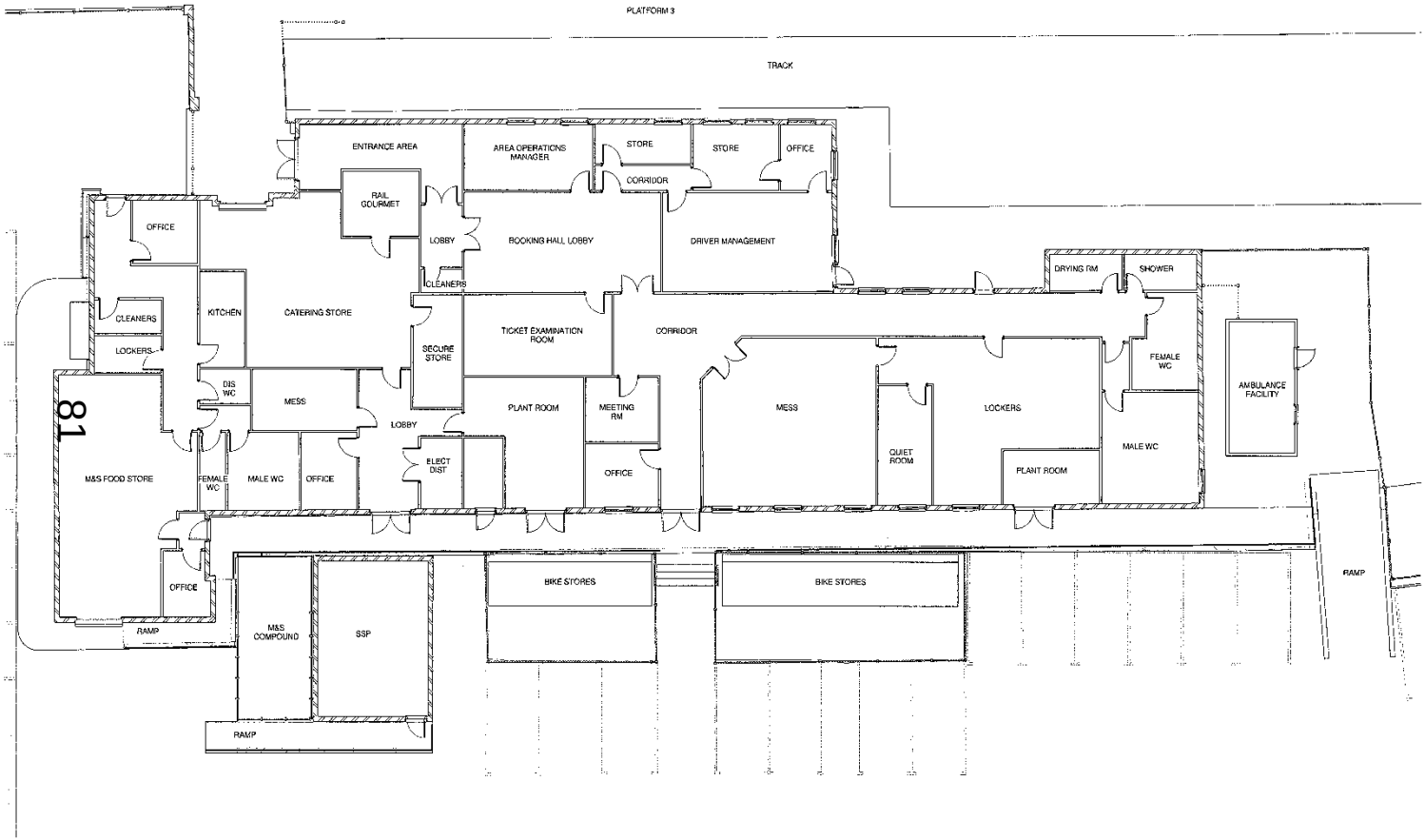


EXISTING AREA PLAN
1 : 300

www.oxford.gov.uk

OXFORD CITY COUNCIL

Existing Floor Plan – Accommodation Building

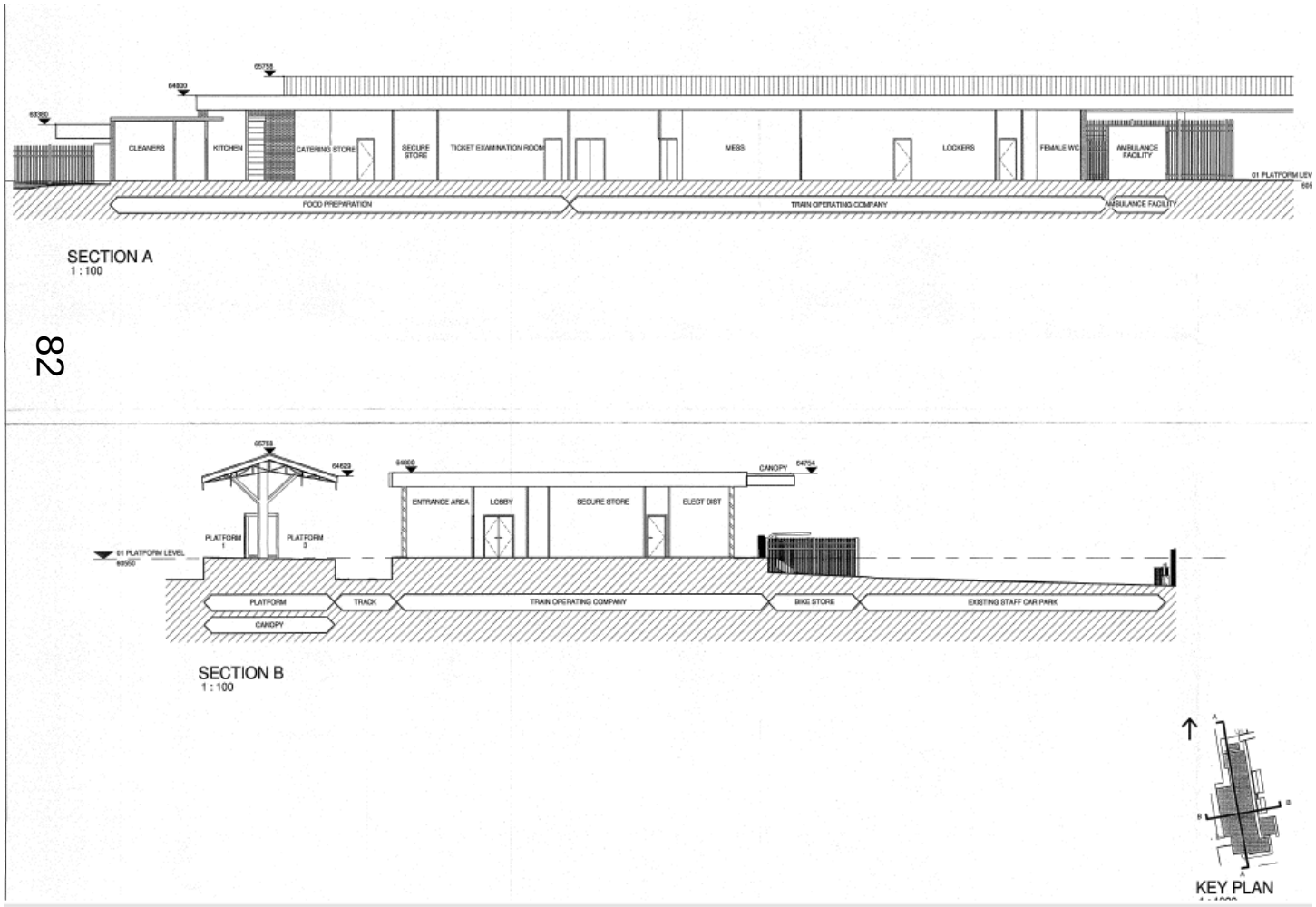


EXISTING GROUND FLOOR
1 : 100

www.oxford.gov.uk

OXFORD CITY COUNCIL

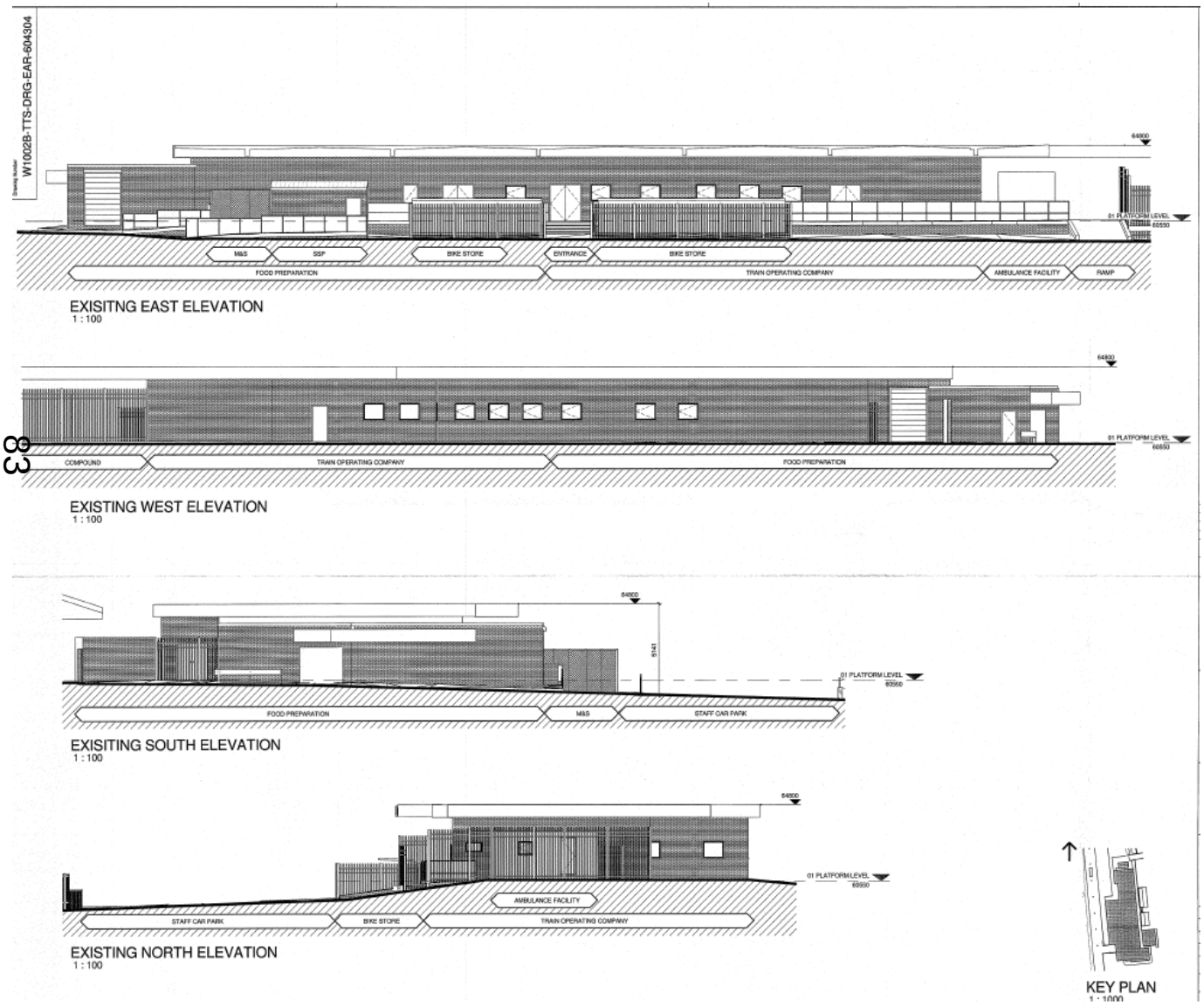
Existing Building Sections – Accommodation Building



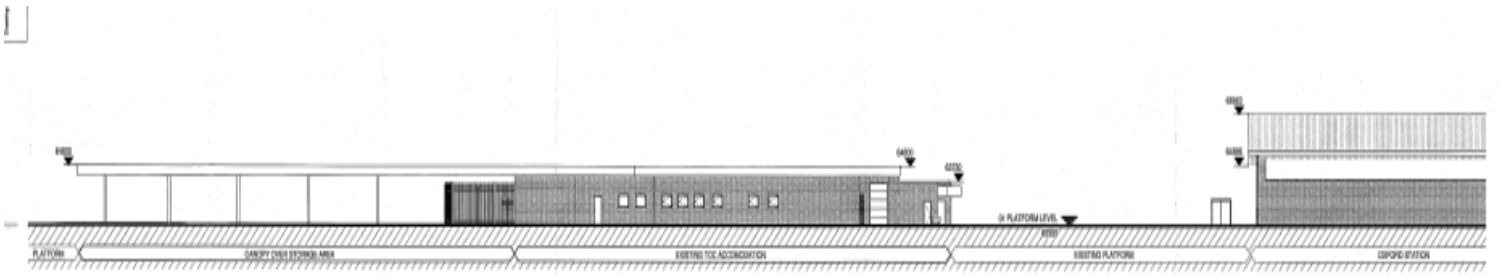
www.oxford.gov.uk

OXFORD CITY COUNCIL

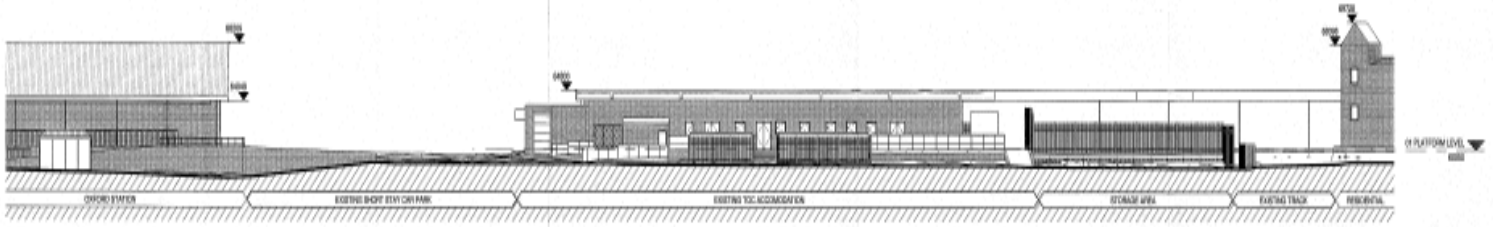
Existing Building Elevations – Accommodation Building



Existing Elevations (with context 1/2)

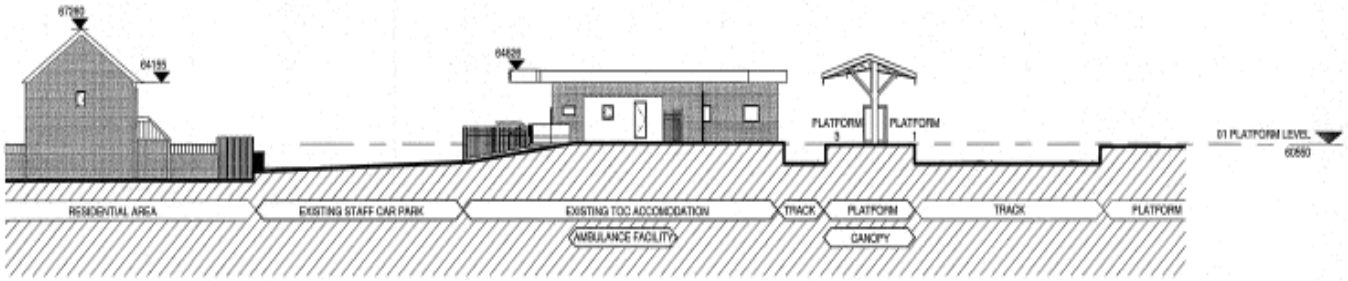


EXISTING EAST ELEVATION
(WITH CONTEXT)
1:200

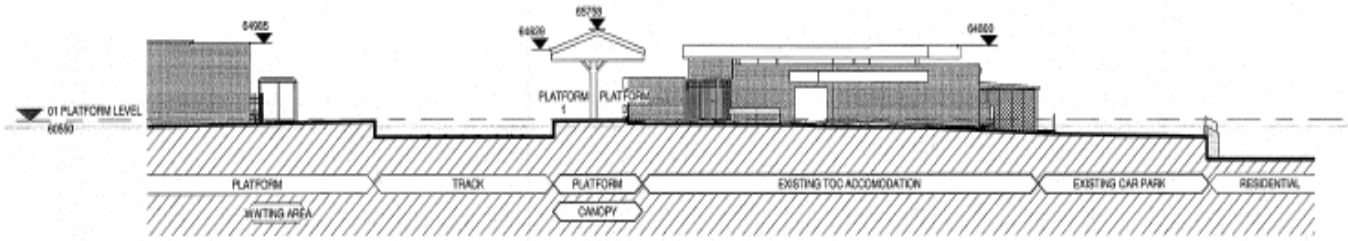


EXISITNG WEST ELEVATION
(WITH CONTEXT)
1:200

Existing Elevations (with context 2/2)

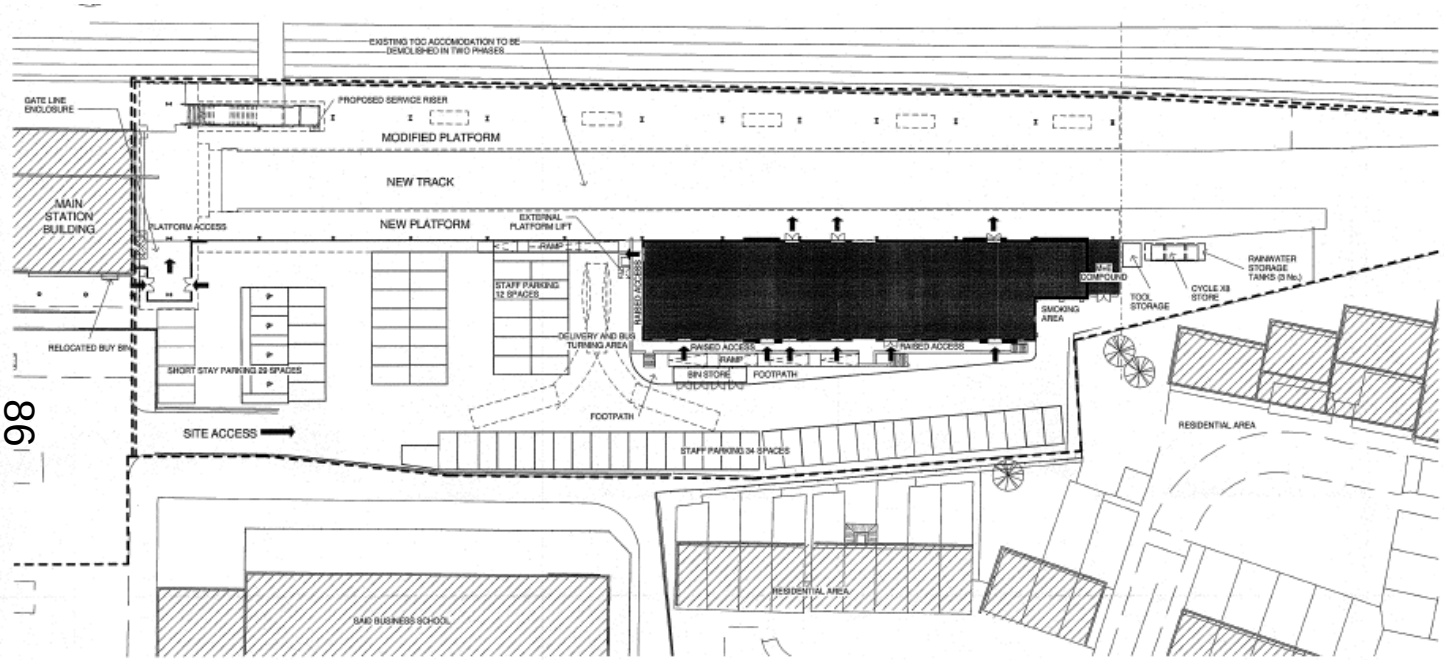


NORTH ELEVATION
1 : 200



SOUTH ELEVATION
1 : 200

Proposed Site Layout

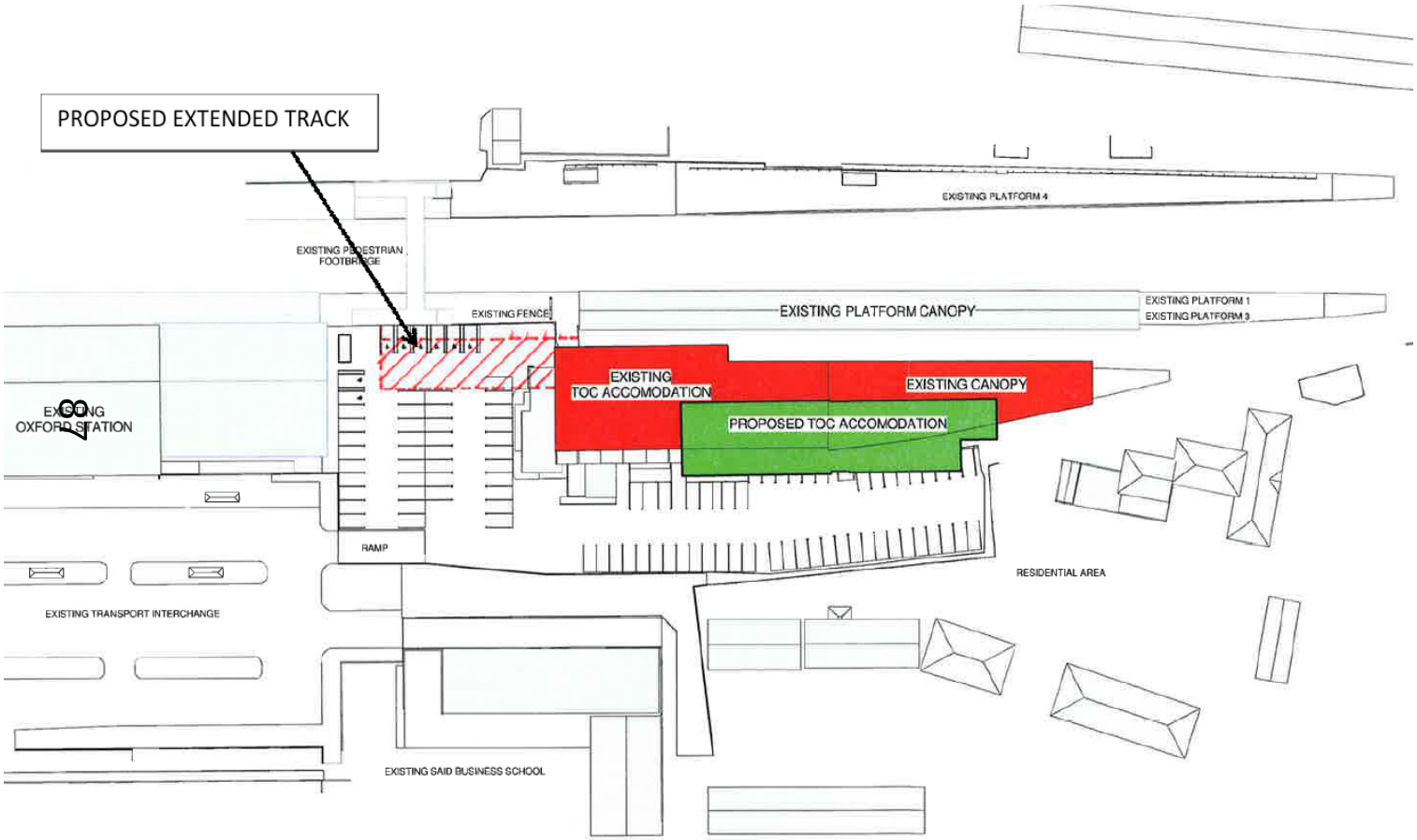


SITE LAYOUT
1 : 300

	EXISTING	PROPOSED	DIFFERENCE	COMMENTS
STAFF	46	46	0	STAFF PARKING PROVISION MAINTAINED
STAFF DISABLED	4	0	-4	REDUCTION IN STAFF DISABLED PARKING PROVISION FOLLOWING FEEDBACK.
SHORT STAY	36	25	-11	TO MAINTAIN SIMILAR STAFF PARKING PROVISIONS THERE IS A REDUCTION IN THE NUMBER OF PUBLIC SHORT STAY PARKING SPACES.
SHORT STAY DISABLED	8	4	-4	REDUCTION IN THE NUMBER OF DISABLED PUBLIC SHORT STAY PARKING SPACES.

CAR PARKING
1 : 50

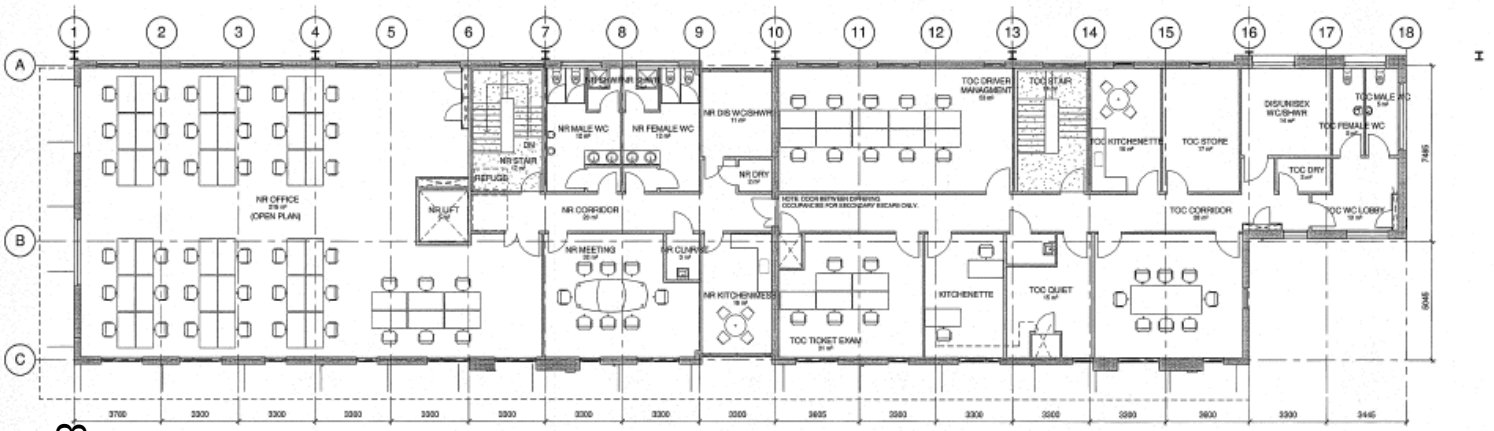
Comparison Drawing



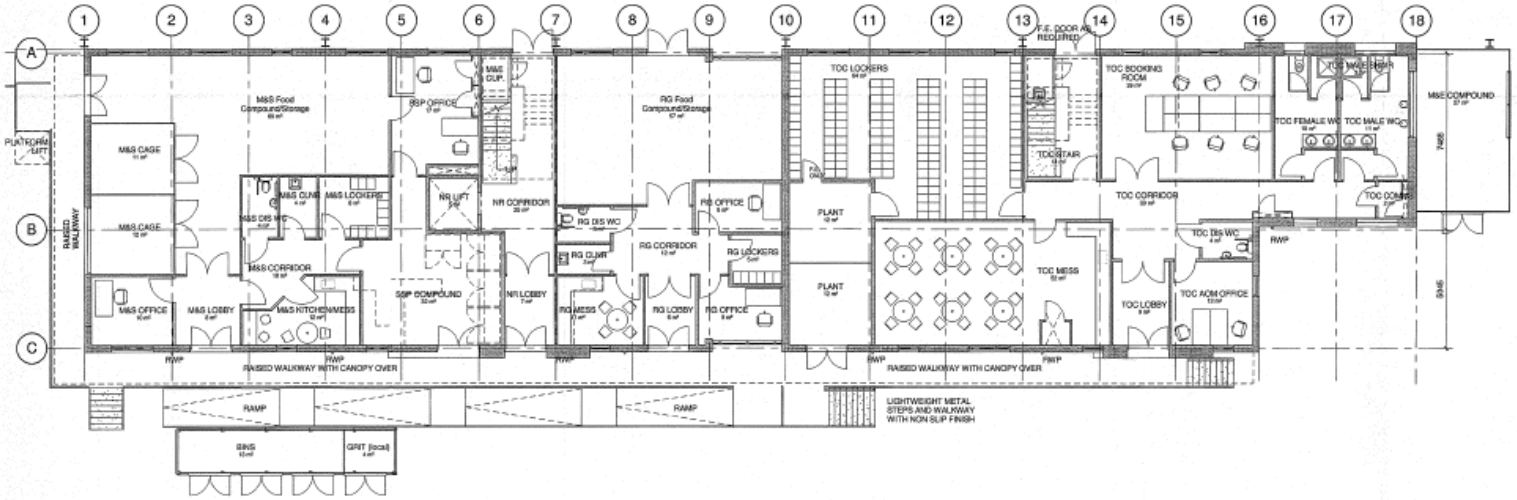
www.oxford.gov.uk

OXFORD CITY COUNCIL

Proposed Floor Plans



PROPOSED FIRST FLOOR
1 : 100

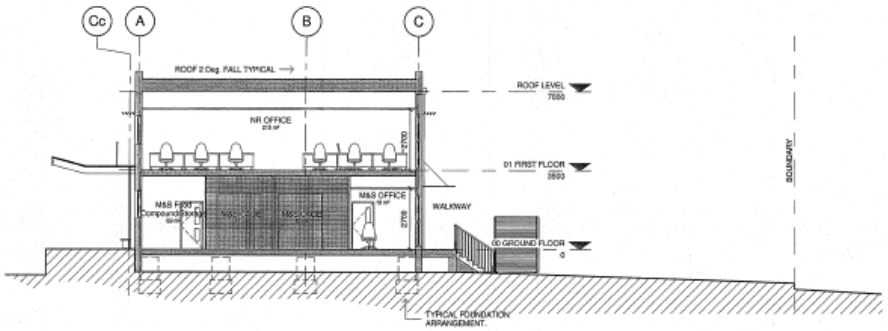


PROPOSED GROUND FLOOR
1 : 100

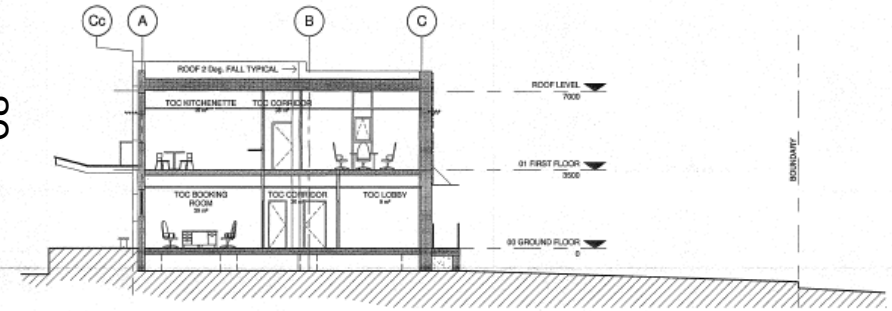
www.oxford.gov.uk

OXFORD CITY COUNCIL

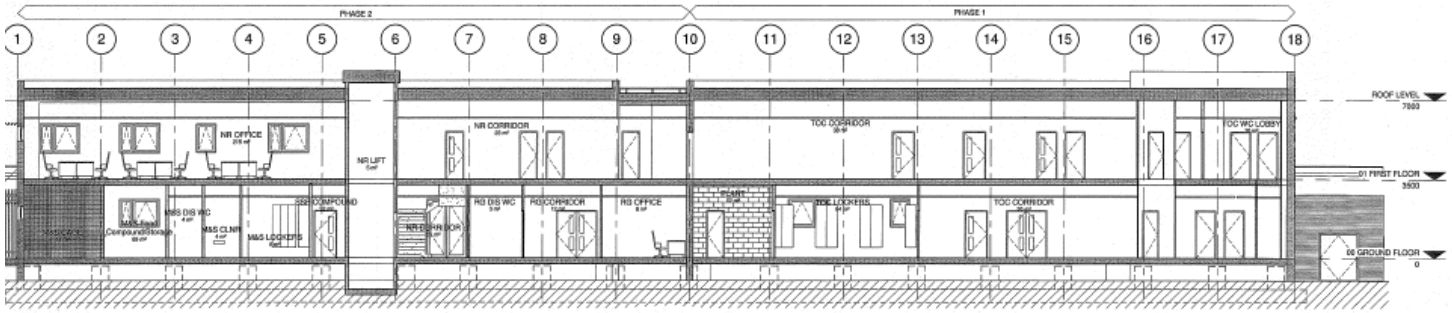
Proposed Sections



PROPOSED SECTION 1
1 : 100

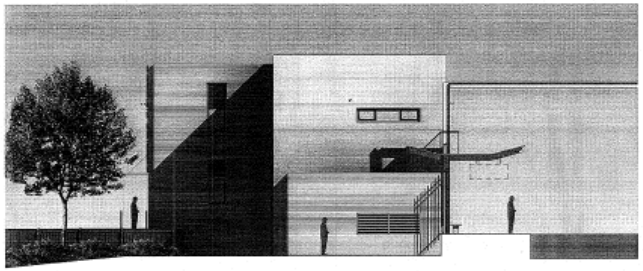


PROPOSED SECTION 2
1 : 100

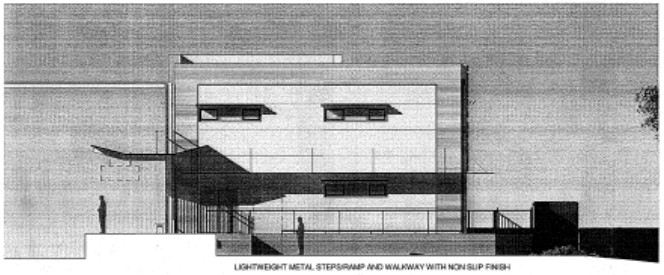


PROPOSED SECTION 3
1 : 100

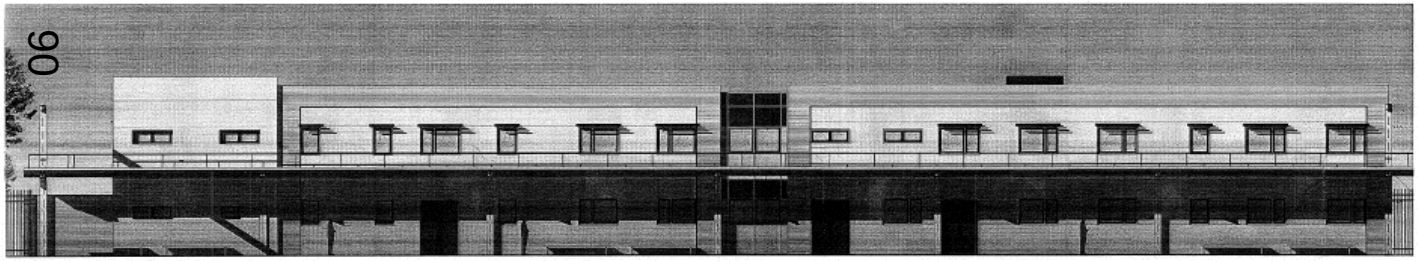
Proposed Elevations



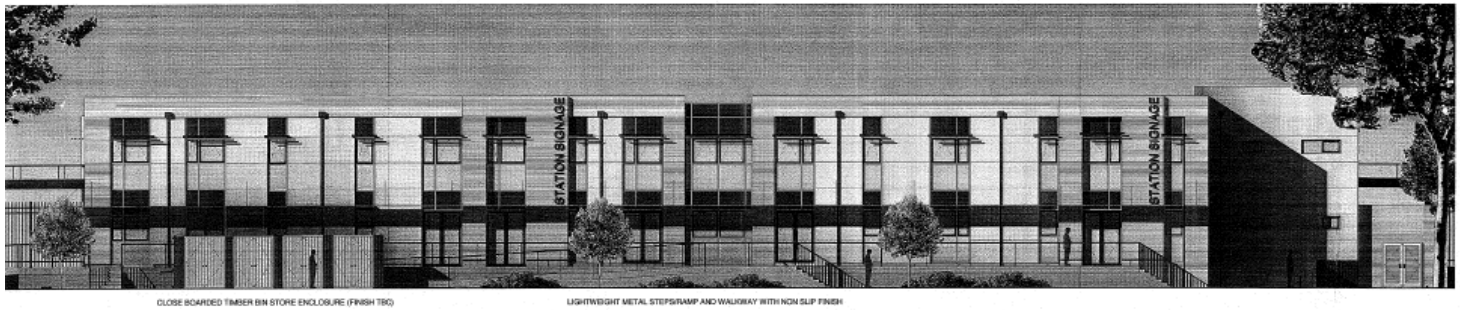
PROPOSED NORTH ELEVATION
1 : 100



PROPOSED SOUTH ELEVATION
1 : 100



PROPOSED WEST ELEVATION
1 : 100

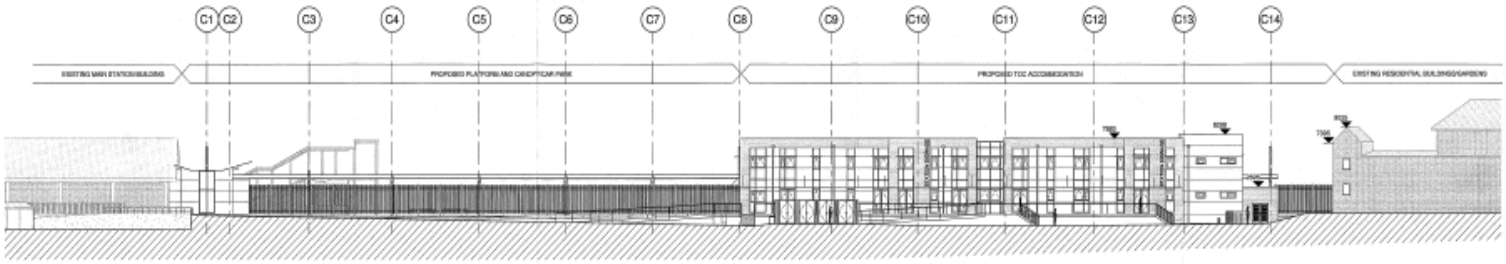


PROPOSED EAST ELEVATION
1 : 100

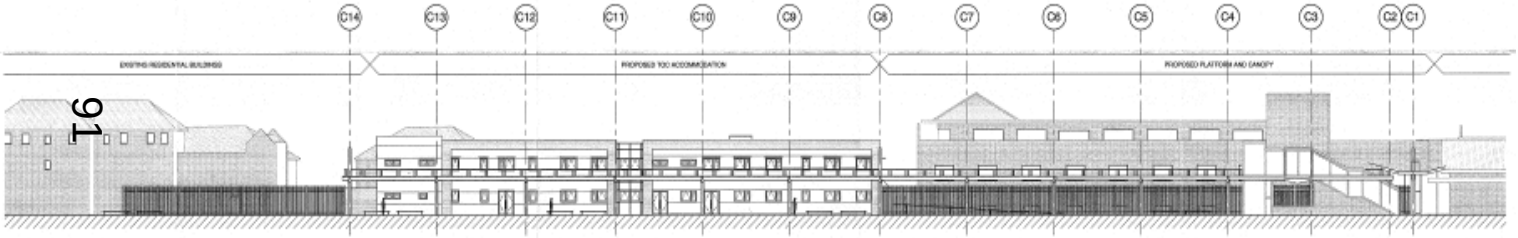
www.oxford.gov.uk

OXFORD CITY COUNCIL

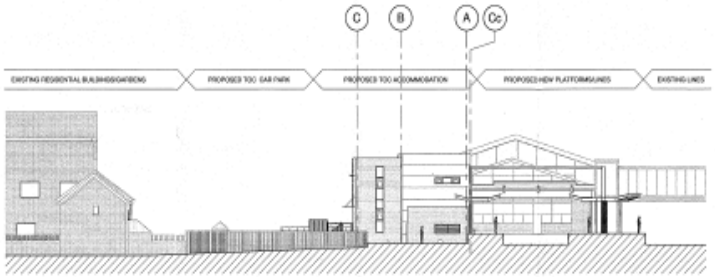
Proposed Elevations (with context)



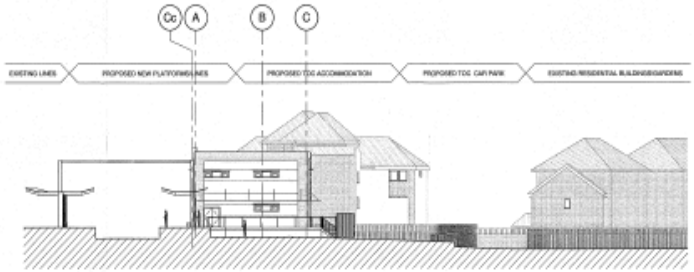
PROPOSED EAST ELEVATION (WITH CONTEXT)
1 : 200



PROPOSED WEST ELEVATION (WITH CONTEXT)
1 : 200

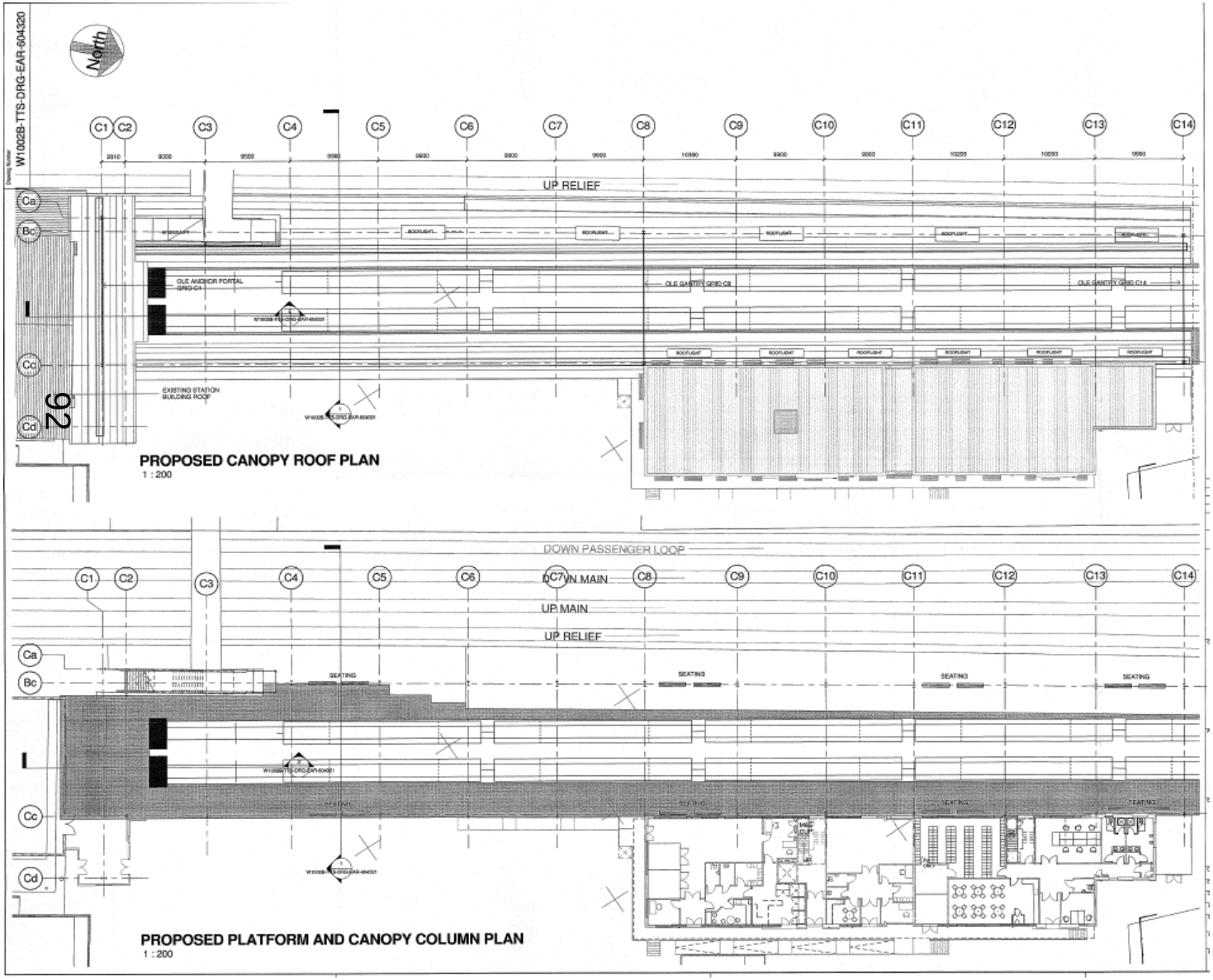


PROPOSED NORTH ELEVATION (WITH CONTEXT)
1 : 200



PROPOSED SOUTH ELEVATION
1 : 200

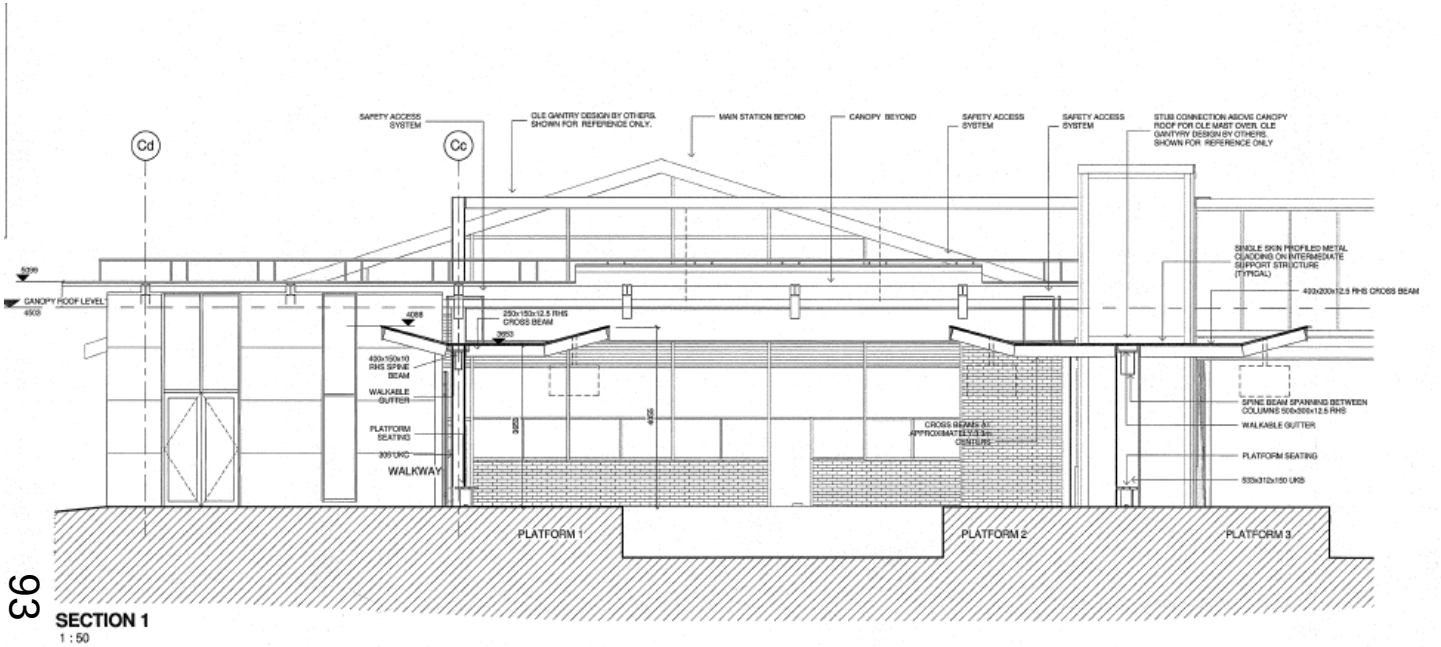
Proposed Platform and Roof Plans



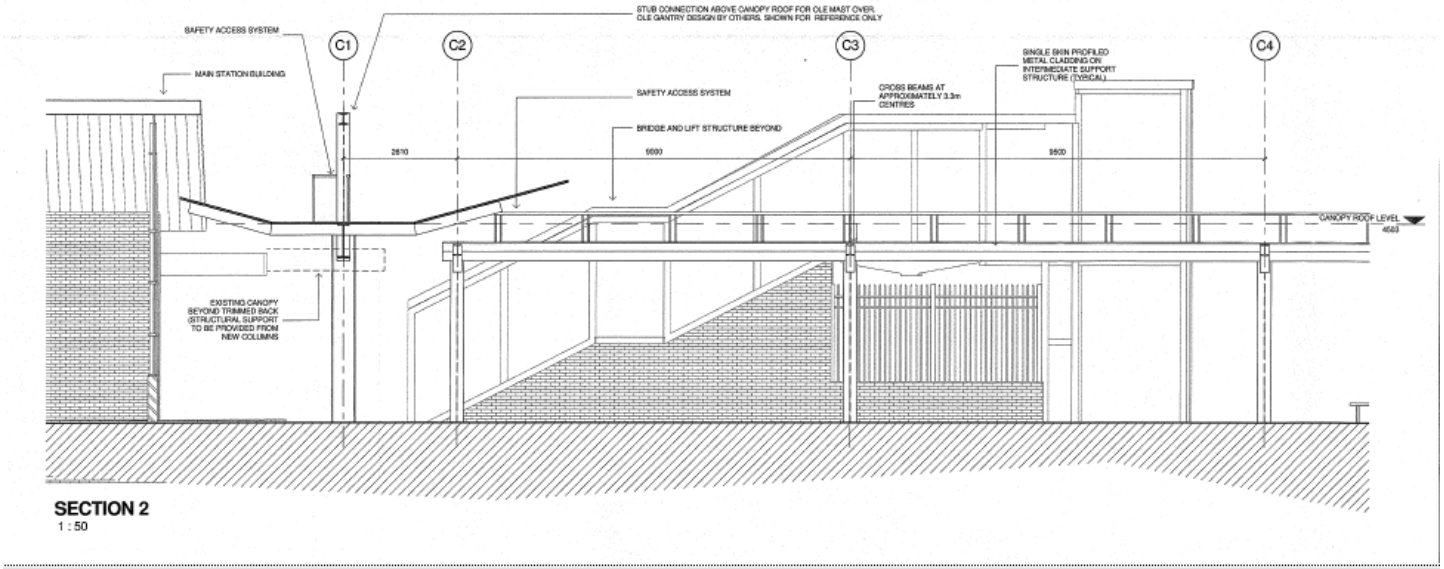
www.oxford.gov.uk

OXFORD CITY COUNCIL

Proposed Canopy Sections

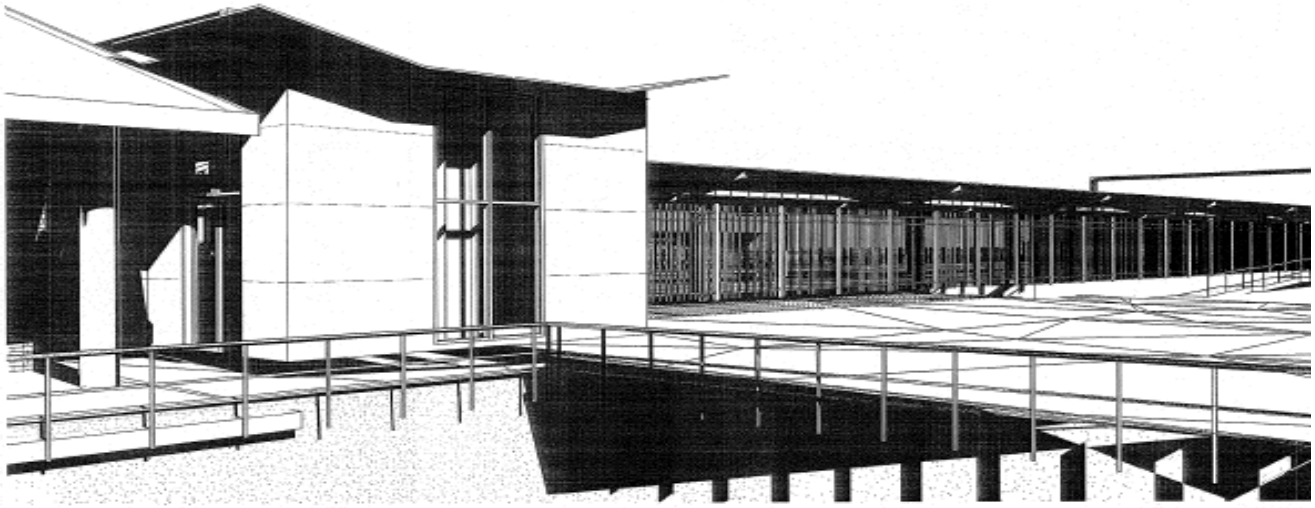


SECTION 1
1 : 50

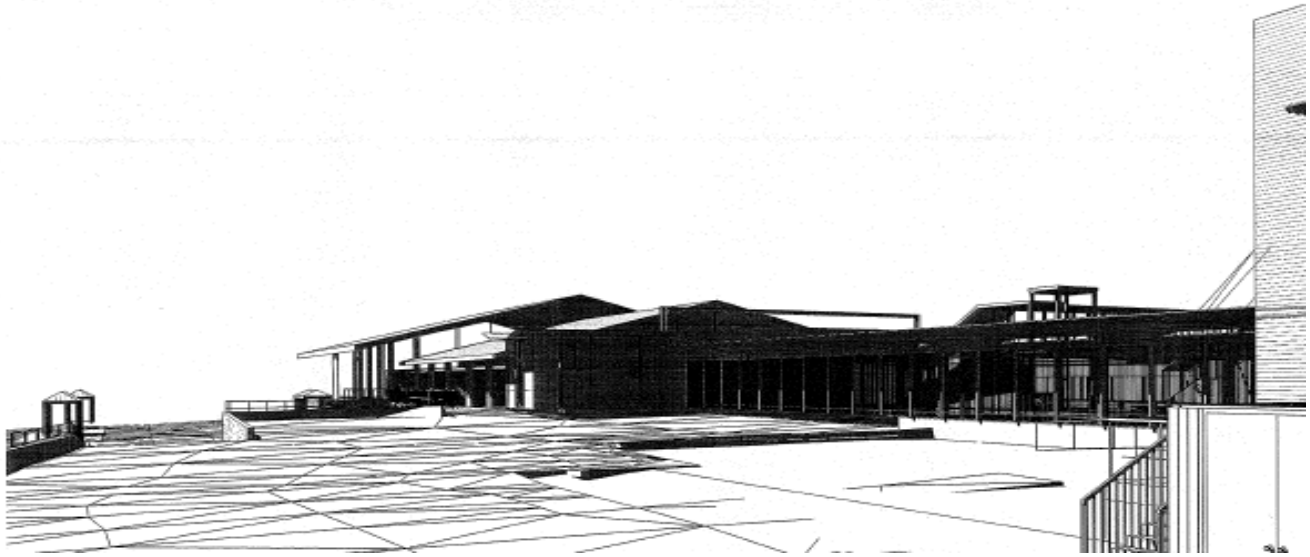


SECTION 2
1 : 50

Proposed Canopy 3D View



CANOPY 3D VIEW 1



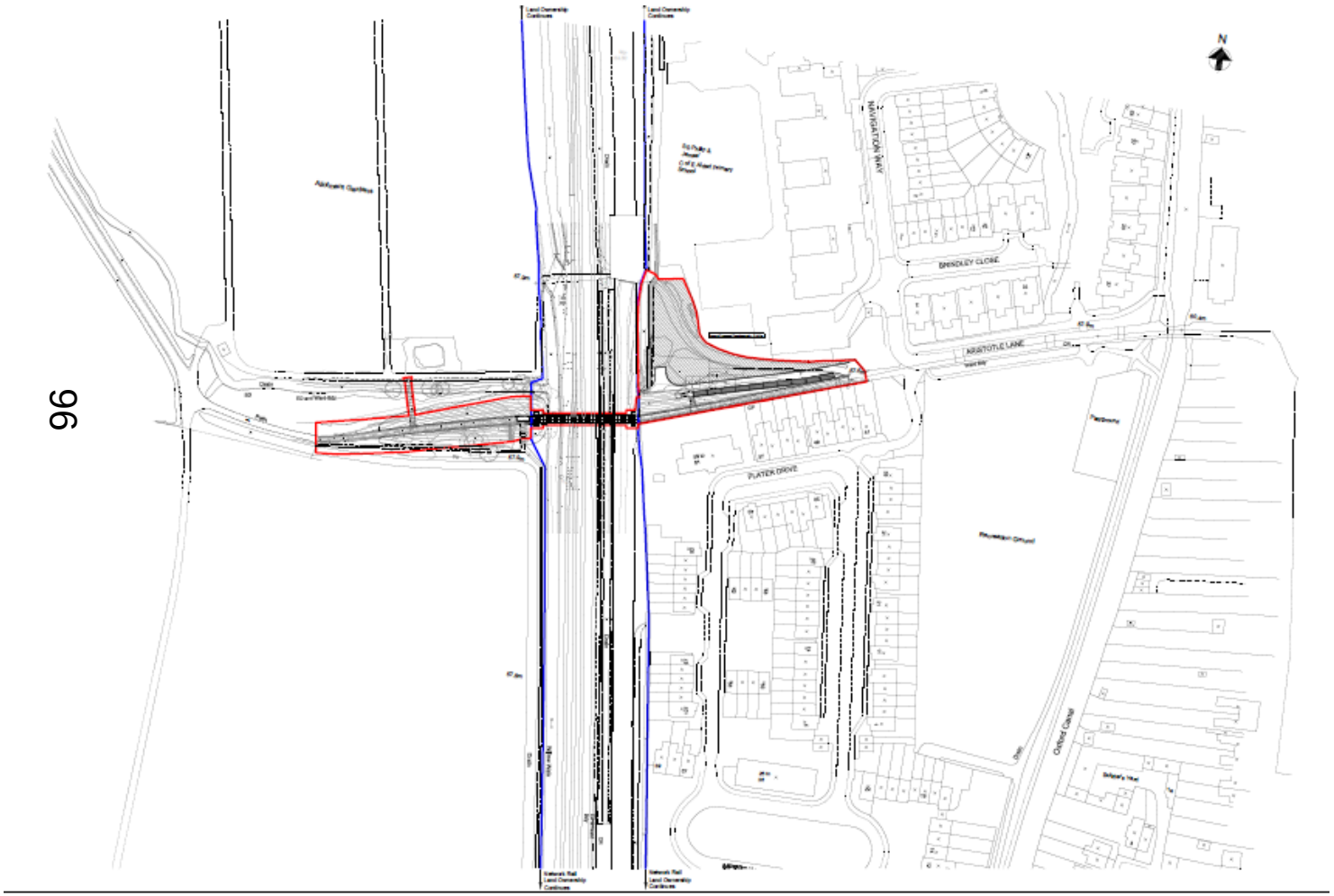
Welcome to the West Area Planning Committee

www.oxford.gov.uk

OXFORD CITY COUNCIL

- This planning committee meeting is held in public but it is not a public meeting.
- There will be an opportunity for the public to address the committee on each application.
- If you wish to speak for or against a planning application, you need to have either requested it in advance, or hand in one of the available speaker forms, or speak to the clerk.
- Information on meeting protocol and conduct at the committee is set out in the Code of Practice.
- This is in the committee agenda just before the first planning application report.

Site Plan



www.oxford.gov.uk

OXFORD CITY COUNCIL

97

View from the west, across Port Meadow

View from Port Meadow, looking towards footbridge

99

View from concrete track, Port Meadow, looking towards footbridge

View of West Ramp from Port Meadow

View of Allotments gates and perimeter track in Port Meadow

102

View of West Ramp

Existing bridge

104

View of East Ramp looking towards Aristotle Lane

View of East Ramp, looking west

Existing bridge illustrating clearance

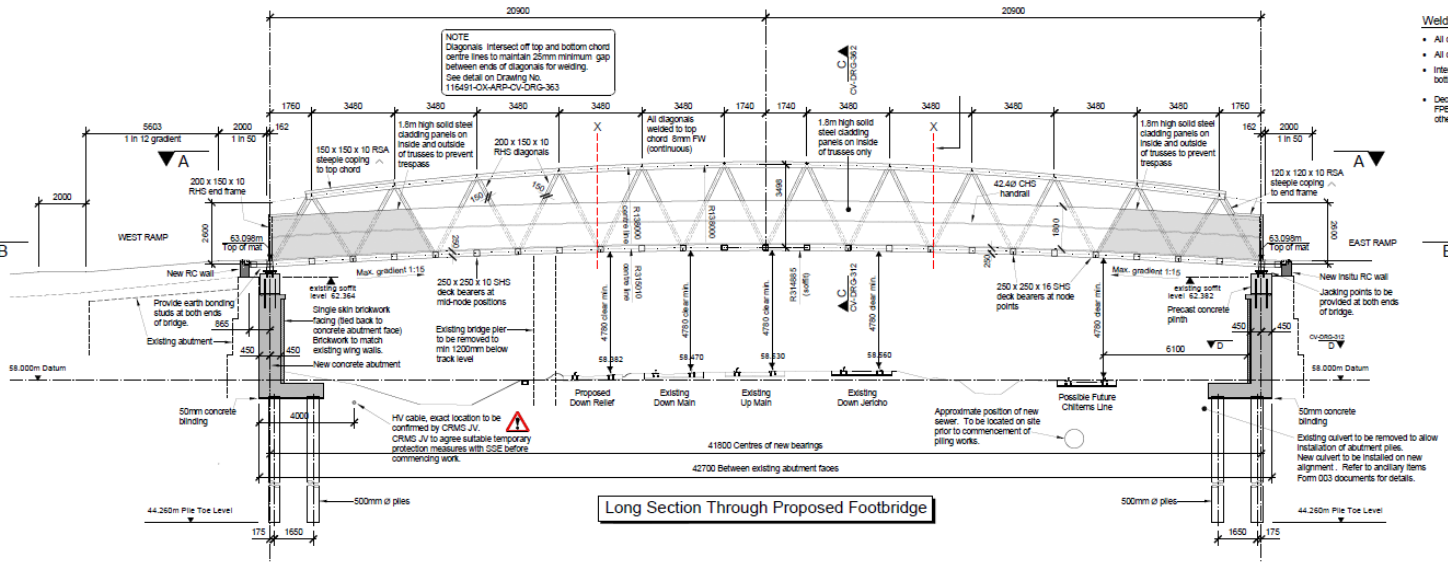
East ramp, existing and proposed

Footbridge existing and proposed

West ramp, existing and proposed

110

Spur bridge to allotments, existing and proposed



Elevation and plan of bridge

111

NOTES

1. This drawing to be read in conjunction with the Specification and Contract documents.
2. All dimensions are in millimetres unless noted otherwise.
3. All levels are in metres above local datum.
4. Drawings should not be scaled, only figured dimensions are to be used.
5. All existing services on the bridge are to be removed. No new provision of services is required.
6. For General Notes refer to Drawing No. 116491-OX-ARP-CV-DRG-300. For Topographical Survey refer to Drawing No. 116491-OX-ARP-CV-DRG-301. See Drawing Nos. 116491-OX-ARP-CV-DRG-362, 363 and 364 for other details of footbridge.

Issue	Date	By	Chkd	Appd
B01	23/10/14	ACC	CT	SCB

Issued for F003 Approval.

ARUP

63 St Thomas Street Bristol BS1 6JZ Tel +44(0)117 976 5432 Fax +44(0)117 976 5433 www.arup.com

Client: Colas Rail and Morgan Sindall Joint Venture

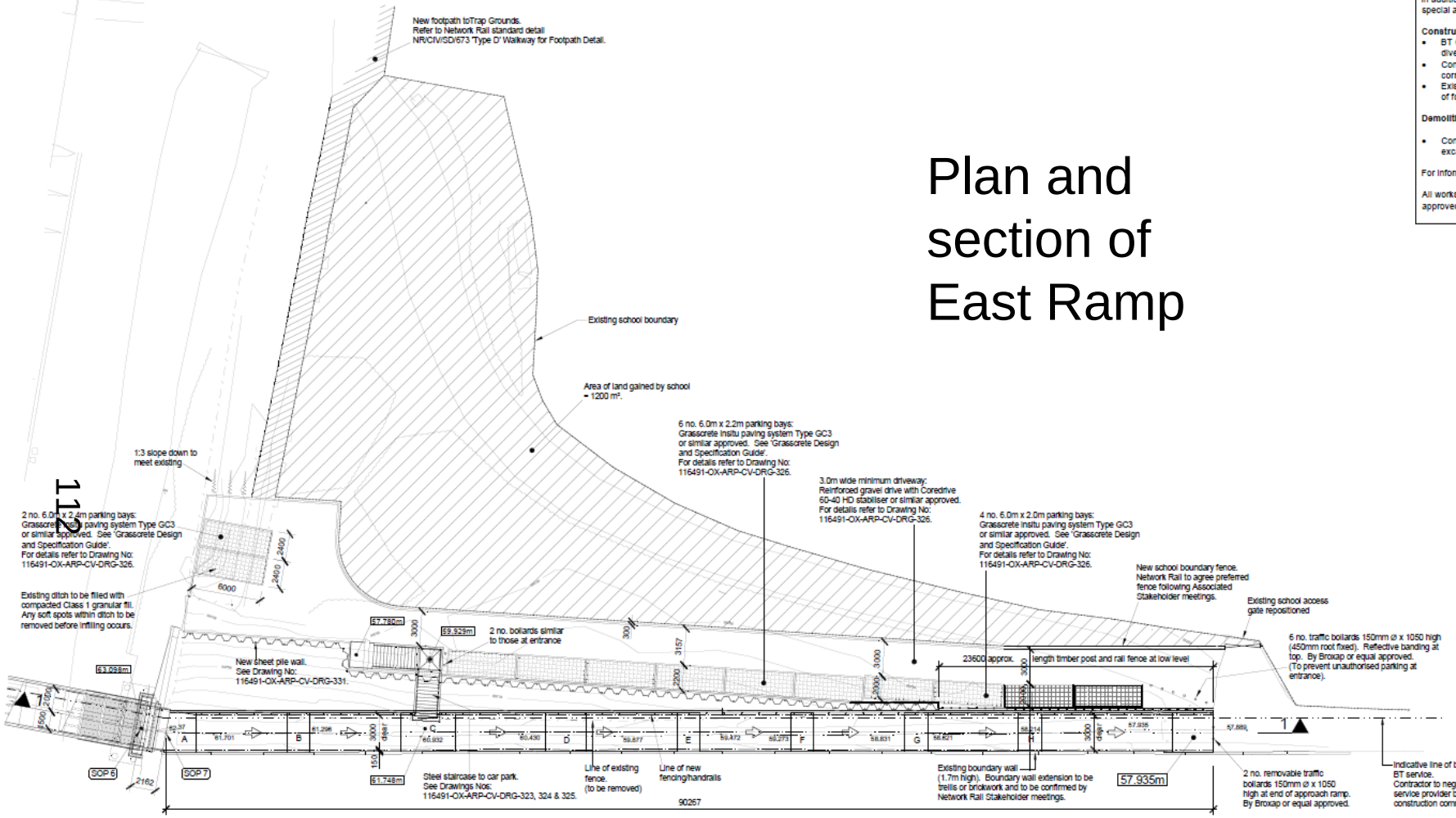
Job Title: FTL - Oxford

Aristotle Lane Footbridge
DCL 64m 34ch
Proposed Long Section & Plans

Scale at A1: 1:100
Discipline: Bridge Design
Job No: 229160-10
Drawing Status: Form 003 Approval
Drawing No: 116491-OX-ARP-CV-DRG-361
Issue: B01

Do not scale

Plan and section of East Ramp



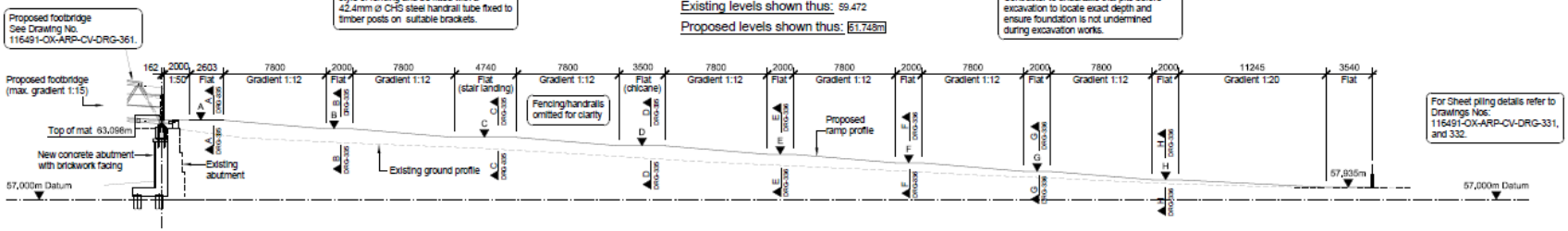
Plan on Proposed East Ramp

Existing levels shown thus: 59.472

Proposed levels shown thus: 61.748m

NOTE
New timber fencing to replicate the existing style of fencing and be fitted with a 42.4mm ø CHS steel handrail tube fixed to timber posts on suitable brackets.

NOTE
Boundary wall foundation depth unknown. Contractor to undertake trial pits before excavation to locate exact depth and ensure foundation is not undermined during excavation works.



Landing Location	Proposed Level (m)
A	63.048
B	62.398
C	61.748
D	61.098
E	60.448
F	59.798
G	59.148
H	58.498

Long Section 1 - 1 (Proposed East Ramp)

Levels shown are proposed levels

Safety, He

In addition to the hazards/risks special attention should be giv

Construction

- BT Cable in vicinity of ra diverted in accordance wi
- Contractor to ensure exc correct manner
- Existing masonry wall to of foundation and ensure

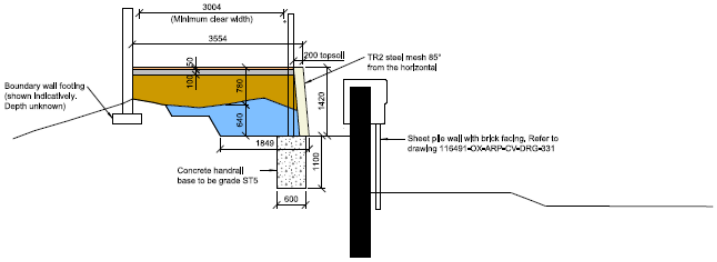
Demolition

- Contractor to plan metho excavation and re-gradin

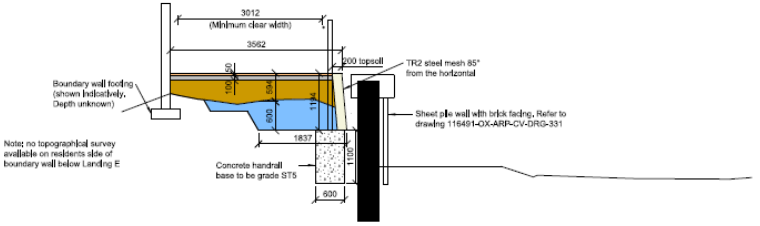
For information relating to use

All works are to be carried out approved method statement.

Sections of East Ramp



1 Section E
1:50

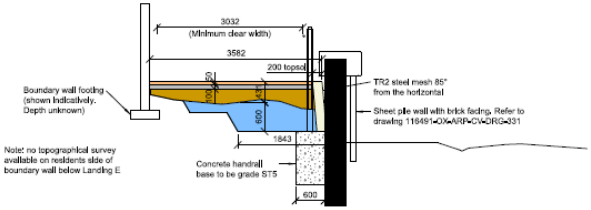


2 Section F
1:50

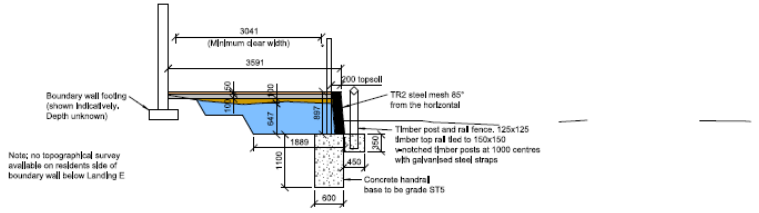
Note:

No topographic information has been provided on the locations of trees along the slope. A survey should be undertaken to identify these locations.

East approach ramp is raised to suit the new height of the main footbridge. No strengthening of the existing embankment is being undertaken as per client requirements.



3 Section G
1:50



4 Section H
1:50

Safety, Health and Environmental Information

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, special attention should be given to:

i. Ensure all sheet piles reach specified depth.

ii. Care to be taken to minimise damage to trees on site.

iii. Care to be taken to avoid undermining or otherwise damaging existing boundary wall.

iv. Care to be taken to avoid overloading embankment buttress.

For information relating to use, cleaning and maintenance refer to the Health and Safety File.

All works are to be carried out by a competent Contractor working - where appropriate - to an approved method statement.

NOTES

1. This drawing to be read in conjunction with all relevant Engineer's drawings and the Form 003 document.
2. All dimensions are in millimetres unless noted otherwise.
3. Drawings should not be scaled, only figured dimensions are to be used.

Issue	Date	By	Chkd	Appd
B02	17/02/15	JMN	MJC	SCB
	Handrail Removed Following NR Request			
B01	11/12/14	LJH	CM	SCB
	Issued for F003 Approval			

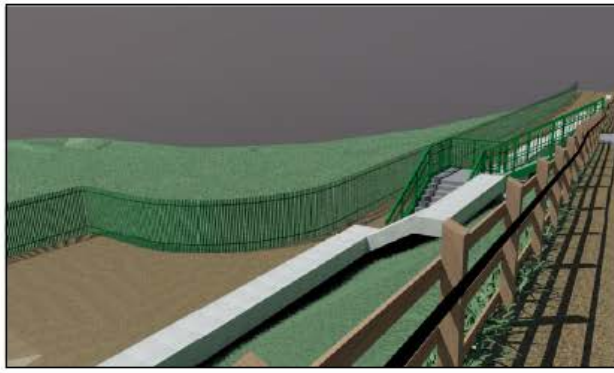
ARUP
63 St Thomas Street
Bristol BS1 6JZ
Tel +44(0)117 976 5432 Fax +44(0)117 976 5433
www.arup.com

Client: Colas Rail and Morgan Sindall Joint Venture

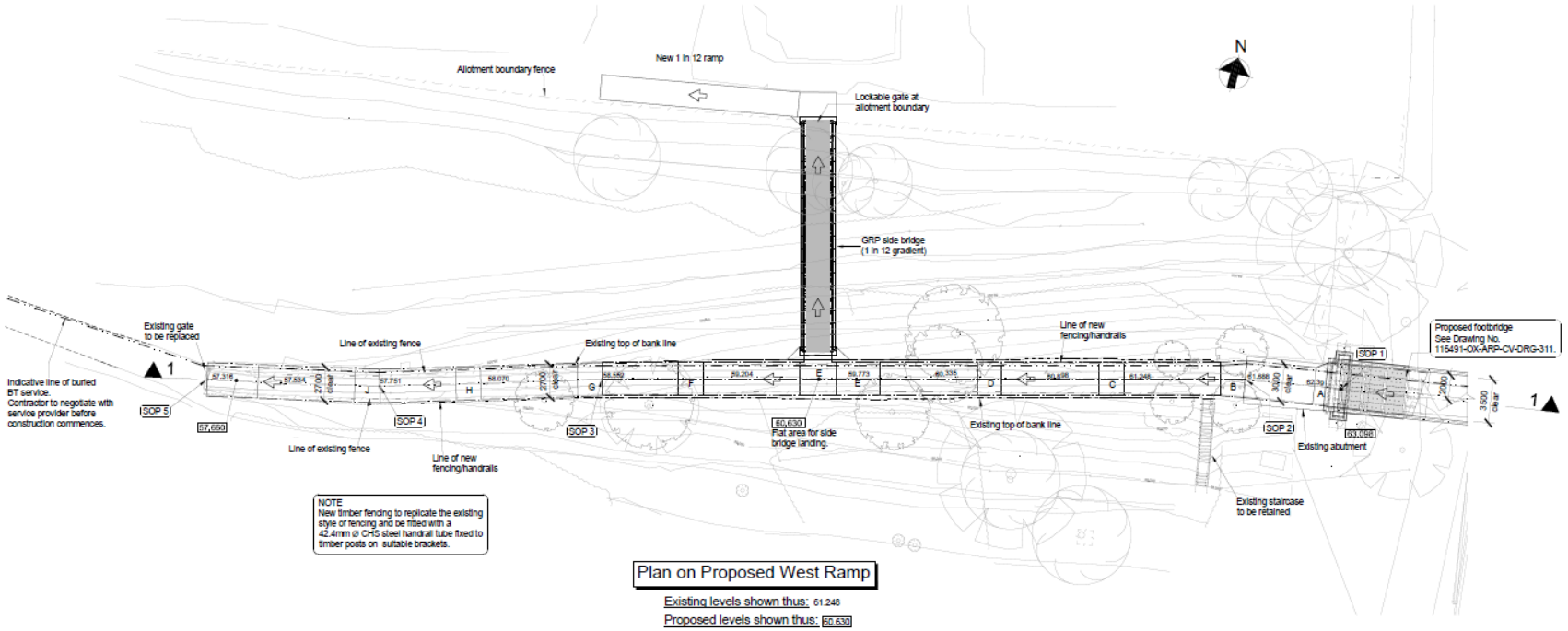
Job Title: FTL - Oxford

Aristotle Footbridge
East Approach Ramp
Sections
Sheet 1

Scale at A1: As Shown
Discipline: Civil Engineering
Job No: 229160-10
Drawing Status: Form 003 Approval
Drawing No: 116491-OX-ARP-CV-DRG-336
Issue: B02



Visuals of each ramp from proposed car park and school grounds

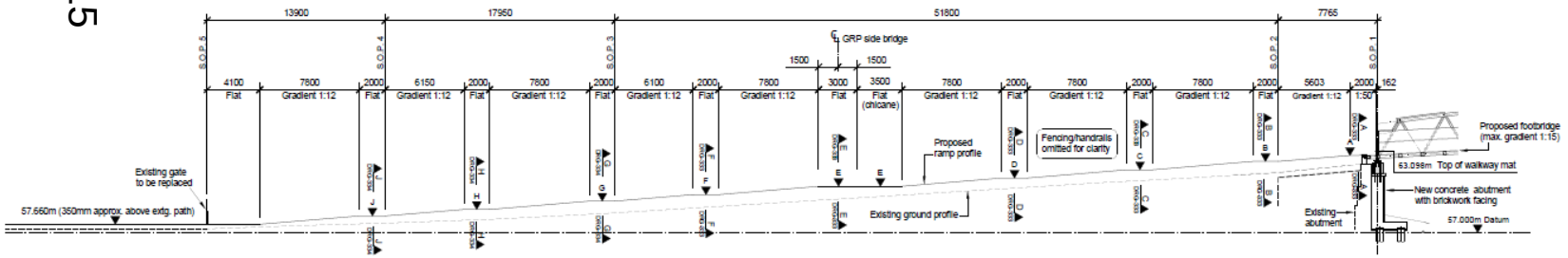


Plan on Proposed West Ramp

Existing levels shown thus: 61.248

Proposed levels shown thus: 60.630

115

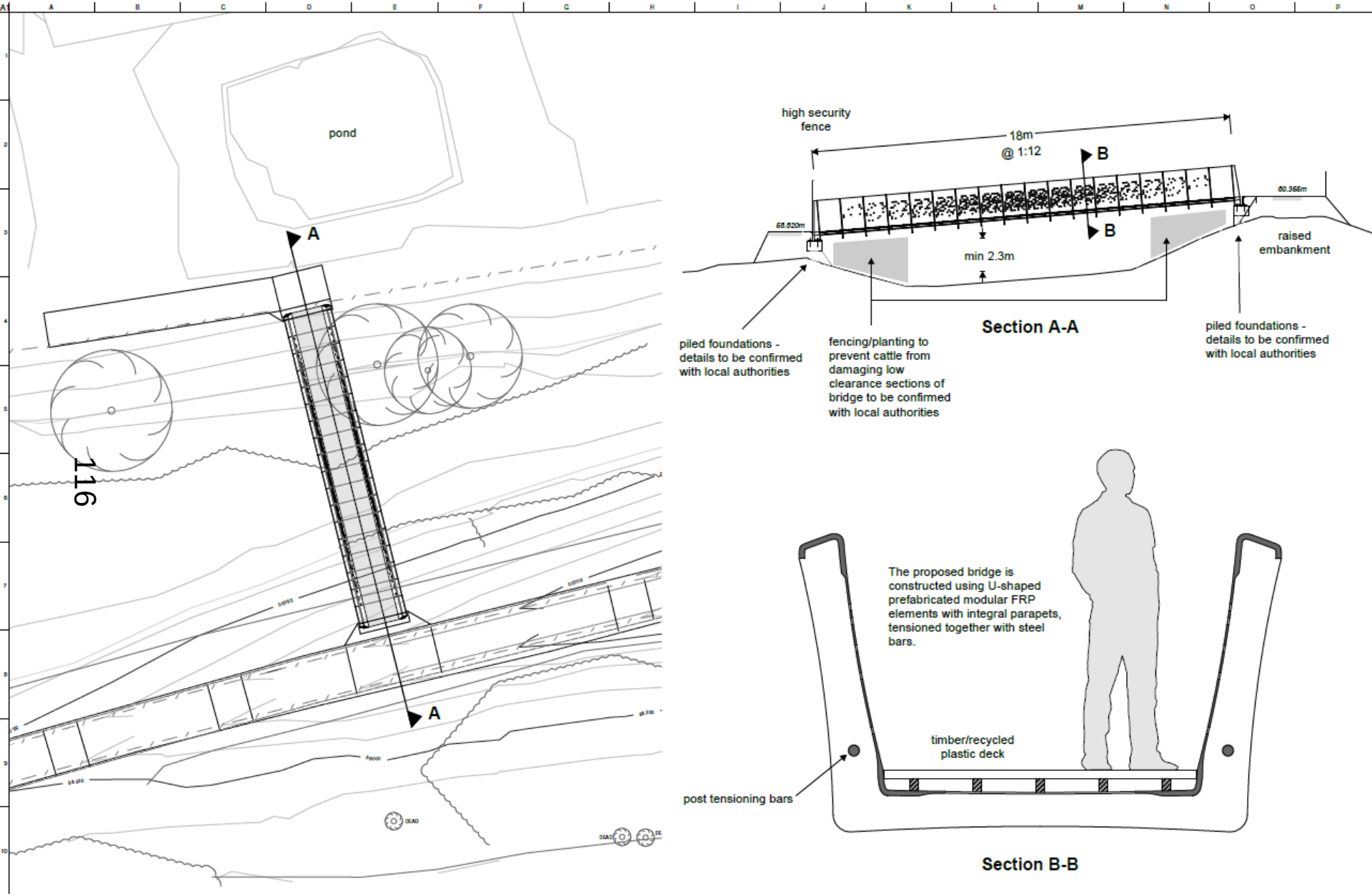


True Long Section 1 - 1 (Proposed West Ramp)

Levels shown are proposed levels

Landing Location	Proposed Level (m)
A	63.047
B	62.580
C	61.930
D	61.280
E	60.630
F	59.980
G	59.472
H	58.822
J	58.310

Plan and section of west ramp



Plan, section and elevation of spur bridge

Examples of ‘Holly Green’ painted finish

Proposed fence design detail

Examples of ‘Holly Green’ painted finishes

This page is intentionally left blank

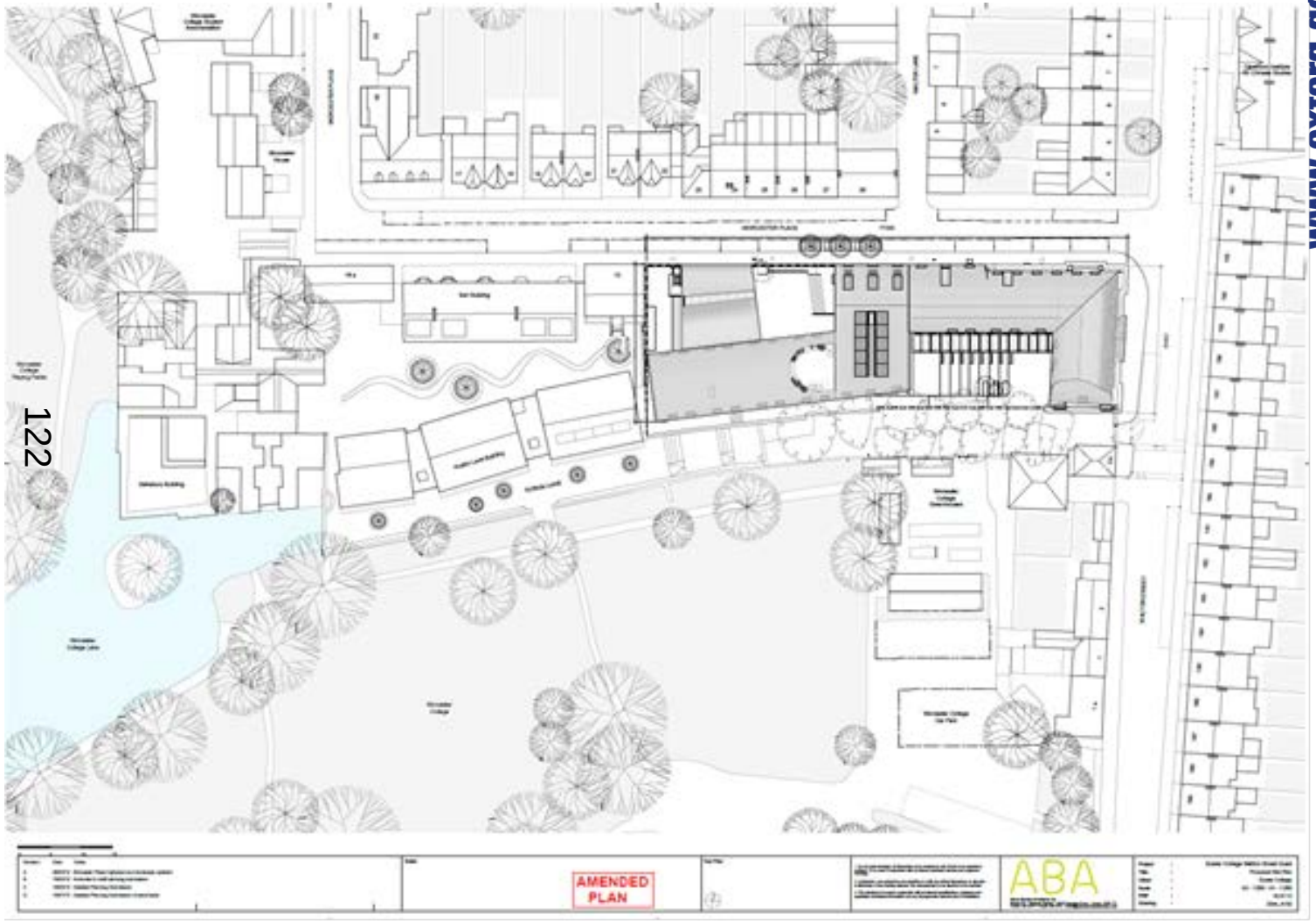
Welcome to the West Area Planning Committee

www.oxford.gov.uk

OXFORD CITY COUNCIL

- This planning committee meeting is held in public, but it is not a public meeting.
- There will be opportunity for the public to address the committee on each application.
- If you wish to speak for or against a planning application, you will need to have either requested it in advance, or fill out and hand in one of the available speaker forms.
- Information on meeting protocol and conduct at committee is set out in the Code of Practice.
- You can find a copy of the Code of Practice in the committee agenda, just before the first planning application report.

Approved Block Plan



North

CGI of Approved Elevations

OXFORD CITY COUNCIL

Walton Street frontage and Worcester Place elevation


View down Worcester Place
125
WORCESTER PLACE
WALTO


View down Worcester Place showing residential properties opposite
126
GU02 LYY

View north from Worcester College (across orchard) showing Holmoaks

127

View north from Worcester College

128

ABA

EXETER
COLLEGE
OXFORD

A New Quad at Walton Street

Planning Condition PP3, LBC 09, LBC10
Metal Roof and Wall Cladding Finish
December 2014

Turnberry

Turnberry Planning Ltd
41-43 Maddox Street
London
W1S 2PD

tel: 0207 493 6693
fax: 0207 493 2393
info@turnberryuk.com
www.turnberryuk.com

ABA

Alison Brooks Architects Ltd
Unit 610 Highgate Studios
53-79 Highgate Road
London
NW5 1TL

tel: 0207 267 9777
fax: 0207 267 9772
info@alisonbrooksarchitects.com
www.alisonbrooksarchitects.com

Content - External Materials
The Metal Roof and Wall Cladding Finish

Executive Summary 1.0

This document has been produced by Alison Brooks Architects, as supplementary information in response to the Exeter College, Walton Street Quadrangle planning conditions and stakeholder feedback; to describe the final proposed finish for the external roofing material and vertical sections of metal cladding.

Over the last two years Alison Brooks Architects alongside the Project Team, Planning and Conservation Officers and Stakeholder Groups, have carefully developed the final proposed material finish, the colour and pattern of the metal rainscreen cladding.

The first chapter of this document will explain the proposed rainscreen cladding specification, with a brief description of the manufacturing processes undertaken in order to achieve the proposed finish, colour, pattern and texture of the stainless steel shingles.

The second chapter of this document will address stakeholder feedback in relation to the reflectivity of the material, by explaining the fundamental principles of reflectivity and addressing stakeholder concerns with regards to solar heat radiation onto Worcester Place.

As the law of reflection means that the angle of incidence is equal to the angle of reflection, light will reflect according to this law, regardless of whether the reflection occurs off a flat surface or a curved surface. A convex surface will result in the light splaying off a surface, this is commonly known as a ‘diverging reflection’. The second chapter of this document will concentrate on identifying whether there is any significant effect of oblique sun light hitting the vertical elevations of the metal rainscreen cladding, primarily focusing, on the north facing elevations to Worcester Place.

Therefore due to the principle of reflectivity, there is no possibility of reflected light from curved surfaces impacting the local context and streetscape.

In response to local stakeholder feedback, the second section of this chapter will analyse the southerly angle of the sun hitting the pitched sections of the sloping roof, facing north.

The third chapter of this document will analyse the southern elevation of the New Walton Street Quadrangle adjacent to the Worcester College’s Grade I listed Gardens, looking at the extent of the visible roofing material and vertical cladding. This roof is interspersed with windows and dormers, and is shaded by the evergreen Holm Oak trees of Worcester College Gardens.

02

Metal Rainscreen Cladding to the Roof and Vertical Elevations

2.1 Rimex
Stainless Steel Shingles

The proposed roof cladding is a coloured, patterned and textured stainless steel interlocking shingles, in a diamond pattern, that refers to the pattern of the 19th Century leaded fleche of Exeter College's Chapel.

The malleability of metal roofing accommodates complex shapes such as domes or curved roofs. Metal roofing is one of the only craft based technologies remaining within the construction industry. The size of the roof shingles reveals the scale of the material or module manageable by one person.

ABA have utilised a traditional metal shingles roofing pattern for the new roofs of Exeter College's, Walton street Quadrangle. They are set in a diagonal format to suit the curved roof form, as seen in historic examples throughout Britain and the world.

Subtle checkerboard patterning adds another layer of reference and meaning to the new roof, reflecting the latticed diagonal lead work of Exeter's College's, Turl St Chapel spire, and the patterned tiles of the Chapel floor. The checkered brick of the artisan cottages of Jericho are a further association one can make with the iconography of the new roof, adding to the layering of histories to be read in the new architecture of Exeter College's, Walton Street Quadrangle.

The curved and patterned form of the new roof and facade can be read as an authentic representation of 21st century construction technology, internal spatial delight, renewed iconography and building craft, designed to enrich both the Walton street context and Oxford's architectural heritage.

The Proposed Specification of the Metal Shingles:

Rimex Stainless Steel, Finish and Colour:
Shingle 01 - Bronze, Paladin, Granex M1A
Shingle 02 - Champagne, Paladin, Granex M1A

Shingle 01

Shingle 02

Rimex Metals Group, have manufactured surface stainless steel since 1959. Their British factory based in Enfield, produce patented stainless steel iridescent sheets, suitable for building claddings and interior linings.

The processes of transforming the raw Bright Annealed Stainless Steel Roll material into the bespoke, coloured and textured Roofing Shingles specified for the New Walton Street Quadrangle, is described below:

1 - Colouring the Rimex:

The Rimex sheet material is coloured through anodising. The anodising process involves immersing sheets of stainless steel in chemical tanks to thicken the chromium oxide passive film on the stainless steel surface.

Unlike painted or other coloured metal processes, Rimex ColourTex creates an iridescent cladding material, which is responsive to light conditions.

The nature of colouring / anodising stainless steel sheets is that the colour and tone of the metal may vary in different lighting conditions. However by colouring the sheets as the first process, it is possible to create the most stable colour level across the different batches of stainless steel being produced.

2 - Patterning the Rimex:

The pattern is produced by a unique cold rolling process to create a three dimensional pattern or stippling called 13SD.

The patterning process also reduces the oil canning effect, by stiffening the material, improving optical flatness making the product ideal for roofing cladding. The pattern finish can also be used to hide scratches, dents and other imperfections.

Patterning / rolling the sheet material reduces the reflectivity of the flat raw material.

Once the Rimex sheets have been coloured, patterned, and rolled it is possible to carry out one final patterning process. This involves shaving off the tops of the stainless steel stipple that exposes small areas of raw stainless steel. This was carried out on mock up 01.

3 - Bead Blasting the Rimex:

Granex is the name of Rimex's bead blasting finish. The results are a duller stainless steel finish, that absorbs and diffuses light. Reflectivity levels of less than 0.5 RA for roofing applications are achieved. Bead blasting finishes scatter the light and therefore reduce the reflectivity of the material.

Granex produces a non directional finish. There are a number of different strengths of bead blasting finishes available, from Architectural (as seen on mock up 04) to M1A.

The bead blasting process can take place at any point during the production process. However if the tops of the stippled pattern are to be shaved off to achieve the dullest finish possible the bead blasting must be specified as the final process.

Once the sheets are processed they are then cut down to size. The delicate process of forming and folding the stainless steel shingles occurs on site, with the use of jigs, cutting and forming tools.

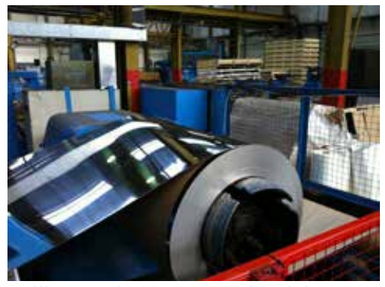
Exeter College Chapel Spire

Exeter College Chapel Tiled Floor

Jericho Checkered Brick

Unprocessed Stainless Steel Rolls

Bead Blasting the Flat Stainless Steel Sheet - Granex



Rolling out the Unprocessed Stainless Steel Rolls

Oxidising the Sheets to Add the Colour

Flattening and Patternisation

Shaving off the Top of the Pattern

Photographs taken during a Rimex factory visit, Edmonton 2013.

Rimex
Stainless Steel Shingles

2.2

Mock Up 01
Commissioned October 2012

- Curved Panel
- Bronze Paladin
- Champagne Paladin
- 335 x 335

Mock Up 02
Commissioned October 2012

- Curved Panel
- Bronze Pagoda
- Champagne Vortex
- 235 x 235

Mock Up 03
Commissioned April 2013

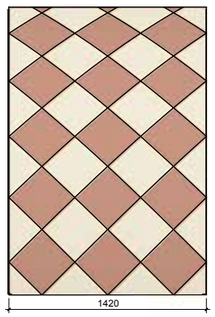
- Flat Panel
- Bronze 6WL
- Granex Architectural
- Champagne 13SD
- Granex Architectural
- 235 x 235

Mock Up 04
Commissioned June 2013

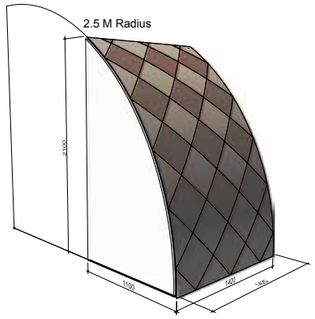
- Flat Panel
- Bronze Pagoda
- Granex Architectural
- Champagne Paladin
- Granex Architectural
- 235 x 235

Mock Up 05
Commissioned June 2014

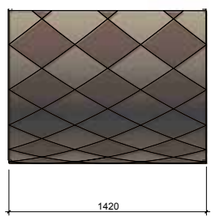
- Curved Panel
- Bronze Paladi
- Granex Architectural
- Champagne Paladin
- Granex Architectural
- 335 x 335



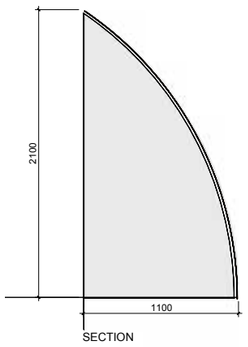
FRONT ELEVATION



PERSPECTIVE

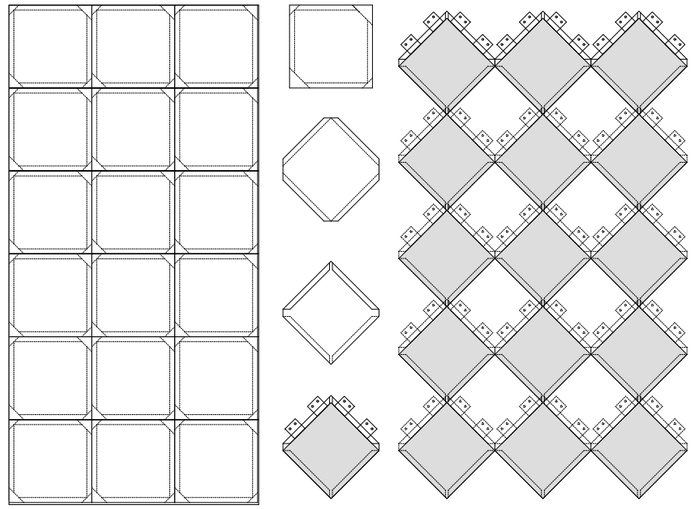


PLAN

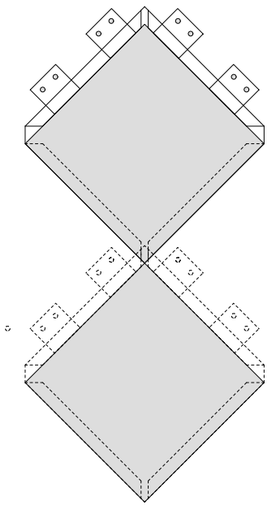


SECTION

Setting Out of the Mock Up Panels



Roof Shingle Setting Out



The Unfolded shingle

Since October 2012, a number of roof mock ups have been produced in order to test colour, pattern, finish and reflectivity. The results of these tests are manifested in a set of large scale mock up panels displayed on site.

The feedback gathered by the Project Team during public consultation and OCC meetings seems to be in favour of a stippled, bead blasted finish, as it would result in a subtle range of tones, seen from different angles of view.

The principle concern raised through stakeholder feedback during the planning process has been with regards to the reflectivity of the finished material when seen from Worcester Place. This has resulted in further mock ups being commissioned in order to further test finishes and textures.

The final proposed finish now incorporates the Granex M1A, maximum bead blasting finish, which reduces the overall reflectivity of the material, to that of a matt metal finish.

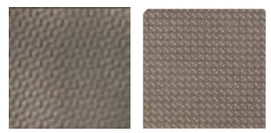
This has been combined with specifying a smaller stippling pattern, instead of the larger 6WL pattern as tested on mock up 02, which breaks up the finish of the flat sheet.

The most recent study has focused on the Paladin / 13 SD patterns. The Paladin and 13SD patterns are the same pattern, with the subtle difference that the Paladin pattern shaves off the tops of the stainless steel stipple.

Mock up 01 (as described during stakeholder reviews as the mock up on the right), shows the bronze and champagne stainless steel shingles with the Paladin pattern, shaving off the tops of the chromium oxide passive film, in order to reveal the un-coloured stainless steel. This seems to visually result in a more notable colour difference between the bronze and champagne shingles. Following Stakeholder feedback in April 2013, further mock ups 02, 03 and 04, were produced incorporating the Granex Architectural bead blast. These panels tested various patterns and tile sizes that were considered unsuccessful in comparison to mock up 01.

Mock up 05 (as described during stakeholder reviews as the mock up on the left) was commissioned in June 2014, in order to test if using the stippled pattern, with out shaving the tops off the pattern, would further reduce the reflectivity of the mock up. This mock up also incorporated the Granex Architectural bead blasting. However this was found not to be the case.

For this reason the proposed specification of the roof material is more closely represented in Mock up 01. However, we are now proposing to bead blast the sheets at the end of the manufacturing process with the highest M1A Granex finish. Bead blasting at the end of this process will further dull down the exposed stainless steel.



13SD Paladin

2.3 Mock Up - Site Photographs Typical Day, North Elevation

The two most recent mock up panels under analysis were displayed on site over the hoarding line, in order to allow local stakeholders and OCC Planning Officers to review the two most significant mock up panels under review.

The diagrams below describe the finishes applied to both these panels (mock up 01 and 05), with the final specification for the proposed roofing cladding below for comparison.

The photographs to the left of this page are a series of images taken during a single day to capture the dynamic nature of the panels over a typical day.

Mock Up 05
'The Mock Up on the Left'

Mock Up 05 - Curved Panel
Commissioned June 2014

Shingle 01 - Bronze Paladin, Granex Architectural
335 x 335

Shingle 02 - Champagne Paladin, Granex Architectural
335 x 335

Mock Up 01
'The Mock Up on the Right'

Mock Up 01 - Curved Panel
Commissioned October 2012

Shingle 01 - Bronze Paladin
335 x 335

Shingle 02 - Champagne Paladin
335 x 335

The Proposed Specification of the Rimex Shingles:

Shingle 01 - Bronze, Paladin, Granex M1A
335 x 335

Shingle 02 - Champagne, Paladin, Granex M1A
335 x 335

Shingle 01

Shingle 02

Image 01
28.10.14 - 10.15am

Image 04
28.10.14 - 2.30pm

Image 02
28.10.14 - 12.30pm

Image 05
28.10.14 - 4.00pm

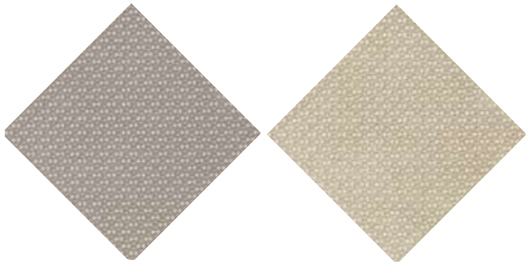
Image 03
28.10.14 - 1.00pm

Worcester Place Elevation

Stone

The Proposed Stone Specification:

Hartham Park Quarry - Lime Stone



Tile 01 Tile 02

The Proposed Tile Specification:

Finish and Colour:
Tile 01 - Bronze, Paladin, Granex M1A
Tile 02 - Champagne, Paladin, Granex M1A

The Material Palette:

The colour palette for the two different Rimex shingles specified has been designed in coordination with the new stone cladding proposed for the ground floor of the New Walton Street Quadrangle.

The proposed Hartham Park limestone, will provide a warm, creamy - beige tone to the base of the building.

The Bronze and Champagne colours of the Rimex shingles will complement the tones of the Hartham Park (Bath Stone) lime stone.

The proposed lime stone is a Bath Stone, sourced at the Hartham Park Quarry, in Corsham.

The Hartham Park stone has been used most recently within Oxford on the Gateway Building, completed in 2013 for St Anthony's College.

Worcester Place Elevation

2.5 Rimex
Building Precedents

Below is a selection of images of some of Rimex's most recent project undertaken within Europe. The precedents below, demonstrate the variety of the finishes which can be achieved by Rimex. The final proposed specification for the New Quadrangle at Walton Street roofing and vertical cladding shingles, has been intensively developed over the last two years in order to achieve a bespoke finish appropriate for the local urban context.

Images 01
Cardiff Millenium Centre - Bronze Canvas and Bronze 6WL

Images 02
Cardiff Millenium Centre - Bronze Canvas and Bronze 6WL

Images 03
Sherman Theatre, Cardiff - 316 Millenium Champagne Pegaus

Images 04
Brand Building, Eindhoven Holland - Bronze Paladin

Images 05
Brand Building, Eindhoven Holland - Bronze Paladin

Images 06
Sherman Theatre, Cardiff - 316 Millenium Champagne Pegaus

141

03

Sun Light and Reflectivity Study

3.1 Principles of Reflectivity

These diagrams have been produced in order to illustrate the basic principles of reflectivity, that have informed this report.

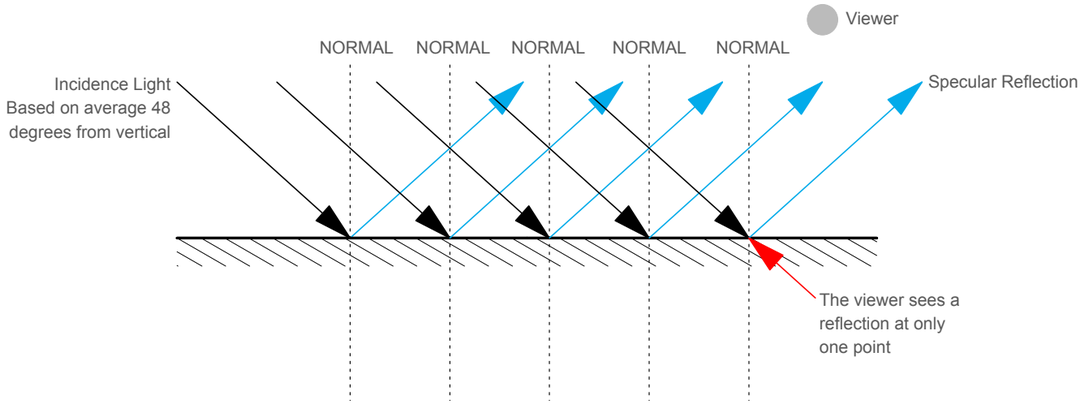


Diagram 01
Flat Mirror Like Surface in - Plan

The Angle of Incidence = The Angle of Reflection
A mirror like surface such as glass or a white gloss surface would result in a specular reflection, a directional light.

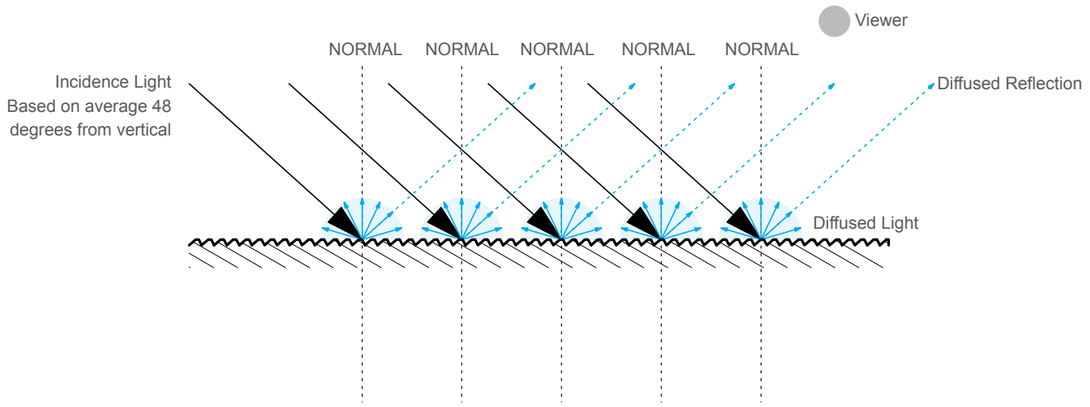


Diagram 02
Textured Bead Blasted Surface - Plan

Textured rough bead blasted surfaces result in diffused light.

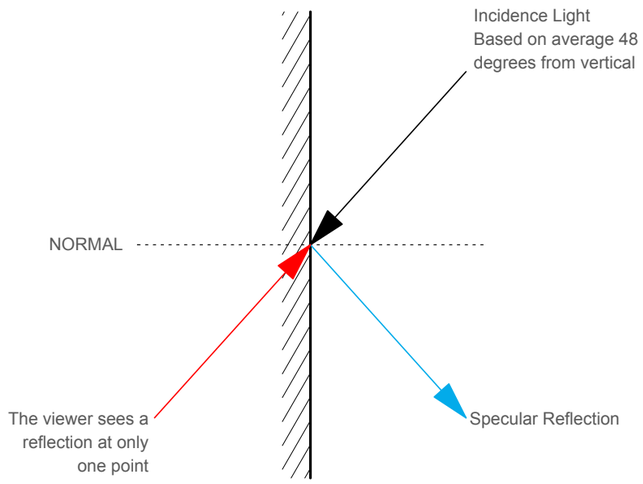


Diagram 03
Vertical Elevation

The Angle of Incidence = The Angle of Reflection

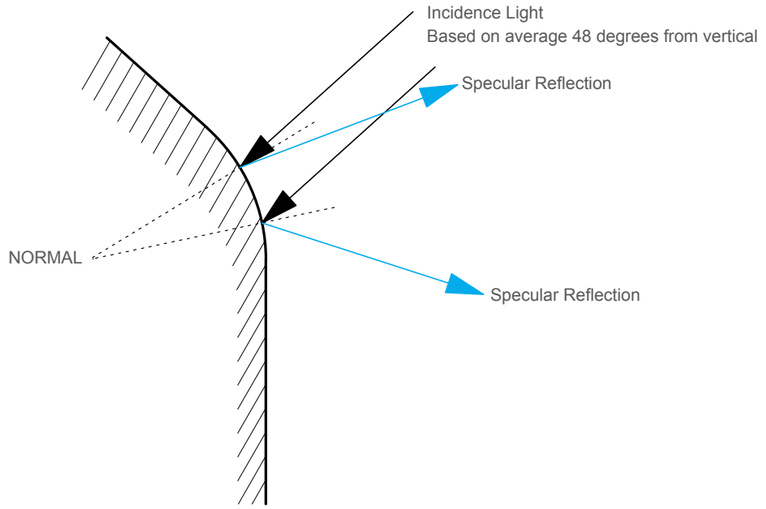


Diagram 04
Convex Curve Elevation

The Angle of Incidence = The Angle of Reflection
Diverging Reflection

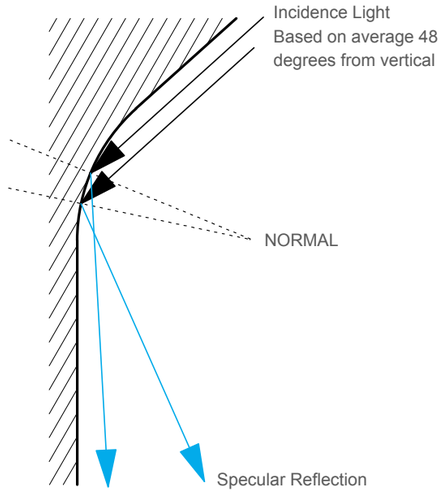


Diagram 05
Concave Curve Elevation

The Angle of Incidence = The Angle of Reflection
The light is focused into a hot spot, passing through a focal point, converging through this common point.

Environmental Statements on Reflectivity and Heat 3.2

Due to stakeholder feedback, in relation to reflectivity, glare and heat generation concerns. Alison Brooks Architects have consulted with Max Fordham, the Mechanical and Electrical Engineers in order to technically verify the analysis presented within this report. Below are two statement that address the local stakeholder concerns.

1. Light, Reflectivity and Glare:

Reflectivity is a material property, dependent on the colour of the material. Whilst it is the colour that determines how much light is reflected, the reflection can be specular – mirror like – or diffuse, which is related to the surface roughness of the material and may affect the perception of how much light is reflected.

Glare is the human perception of light entering the centre of the visual plane. It is a visual sensation and is a result of the high relative intensity of a light source against the general view. Glare from the sun is generated by the concentration of sunlight or by strong specular reflections of the sun.

There are a small number of hours in the year when evening sunlight will hit the north facing Worcester Place elevation at an oblique angle. This is approximately 2 hours per day, over 6 months.

The Worcester Place facade is north facing, convex and made of a material that will diffuse and scatter this light. This is due to the texture applied to the material and the bead blasting finish. The scattering effect of the light across the convex roof shape will mean that any reflected sunlight will be diffused and should not generate glare.

2. Heat Generation:

The sun's heat is radiated via light waves. The roof surface has a coarse finish with a low reflectivity, resulting in a diffusion of light and little directional heat on the adjacent buildings. As a comparison, glass provides specular reflections, and does not diffuse the light source or heat source, which can lead to the concentration of the heat into 'hot spots'.

The Rimex material on the new Walton Street Quadrangle, Worcester Place facade cannot increase the overall level of heat within the adjacent street unless it concentrated the reflected sunlight into a 'hot spot.' The convex shape of the roof on this building (which in interspersed with dormers), and the roughness of the material will mean that any reflected sunlight is scattered rather than concentrated, so the facade will not create hot spots.

The heat radiation from any surface is proportional to the fourth power of the relative temperature difference between the radiation and receiving objects; and the relative colours. Due to the relative temperatures involved, the amount of radiated heat from the building will be very small and will be similar to that from any other construction material of similar colour.

04

Sun Light and Reflectivity Study

4.1 Vertical Elevation - Worcester Place Central Learning Commons Block

As outlined within the executive summary, due to the laws of reflection meaning that the angle of incidence is equal to the angle of reflection, and the resulting diverging reflections from a convex curve, the subsequent studies focus on the vertical section of the Worcester Place elevation, the central learning commons block and the hall.

Using three dimensional environment analysis software Vasari, ABA have been able to locate a computer model of the proposed Walton Street Quadrangle and its adjacent context, in its true GPS Coordinates. This has allowed us to record the months of the year and the hours of the day in which the sun obliquely hits the north facing Worcester Place elevations.

As the summer and winter solstices are on the 21st of the month, this study has been produced by using data for the 15th of every month as the average day.

All of the information within the subsequent studies is based on weather data for a clear sunny day. It should be taken into consideration that this is not a true representation of what the hours of sun light for these months is typically. From Met Office studies, we can see that the average sun light per month for the years between 1970 and 2000 from March to September, was 295 hours per month, with March having on average 190 hours of sunshine, and June 300 hours of sunshine.

Where as this study assumes a worst case scenario of 443 hours of clear sunshine per month.

The Central Learning Commons Block:

- On average the oblique sun only hits the 101 sqm of vertical cladding for 2.3 hours per day, at 6.30 pm.

The total area of vertical cladding to the elevation directly facing Worcester Place is 101sqm.

This elevation is regularly intersected with large student room windows and desk reading windows. Therefore the largest width of vertical cladding is no greater than 2.4m.

The vertical section of metal cladding to the central learning commons block along Worcester Place, receives oblique sun light during 7 months of the year.

This sun light is from a south westerly direction, when the sun is at its highest point in the sky during the summer / spring months (solar altitude).

During these 7 months the amount of sun light hitting this section of vertical cladding varies from 20min to 4 hours, per day.

On average the sun would hit the vertical section of the elevation for only 2.3 hours per day at an average solar altitude of 48 degrees (from the horizontal), and this would take place at approximately 6.30pm.

Months: All of the dates listed are the 15th of the month 2014.	**Hour of Oblique Sun Light:** The Hour in which the sun first shines on the vertical section of learning commons elevation, on the 15th of the month.	**Hour of Shade:** The time at which the sun no longer shines on the vertical section of learning commons elevation. The elevation is now in the shade of the buildings adjacent, along Worcester Place.	**Total Hour of Oblique Sun Light on the Elevation:** The total duration of oblique sun light, on the vertical section of learning commons elevation, on the 15th of the month.	**Total Hours of Oblique Sun Light on the Elevation for 7 months:** Total duration of oblique sun light on the north elevation based on the 15th of the month x the total number of days in the month. Rounded to the hour.	**Average Hours of Sun Light in the month:** Based on a clear day with no cloud coverage.	**Solar Angle:** The approximate figures shown relate to the angle of degrees from the horizontal.
March *Spring Equinox*	6.50pm	7.10pm	20 min	**10 hours**	11 hours 45 min daily **367 hours 27 min**	38 degrees
April	6.05pm	7.50pm	1 hours 55 min	**57 hours**	13 hours daily **390 hours**	46 degrees
May	5.25pm	8.40pm	3 hours 15 min	**100 hours**	15 hours daily **465 hours**	54 degrees
June *Summer Solstice*	5.15pm	9.15pm	4 hours	**120 hours**	16 hours 15 min daily **487 hours**	62 degrees
July	5.25pm	9.05pm	3 hours 30 min	**108 hours**	16 hours 30 min daily **511 hours**	54 degrees
August	5.50pm	8.15pm	2 hours 25 min	**74 hours**	15 hours 30 min daily **480 hours**	46 degrees
September *Autumn Equinox*	6.20pm	7.10pm	50 min	**25 hours**	13 hours 30 min daily **405 hours**	38 degrees
		Total Number of Hours over the relevant 7 month period:	**15 hours**	**494 hours of sun light over 7 months of the year.** **Average:** **2.3 hours per day @ 6.30pm,48 degrees**	**3107 hours 30 min** **Average:** **14 hours 30 min per day**	

Table 01
Directional south west sunlight hitting the vertical section of metal cladding on the learning commons block. The area of elevation is illustrated in diagram 01.

Diagram 01 - Worcester Place Elevation

Vertical Section of the Central Learning Commons Block Area - 101 sqm

Vertical Elevation - Worcester Place
Central Learning Commons Block

4.1

Diagram 02 diagrammatically shows the path of the sun around the site for the summer solstice and the winter solstice. It then maps out the time in which the sun first hits the vertical section of the central learning commons block and the time in which the buildings adjacent finally cast shadows across this section of elevation. This can be seen in images 01, 02 and 03, on the subsequent page.

Key:

- Summer and Winter Solstice Sun Rise
- March to September Sun on the Vertical Elevation
- Summer Solstice Sun on the Vertical Elevation

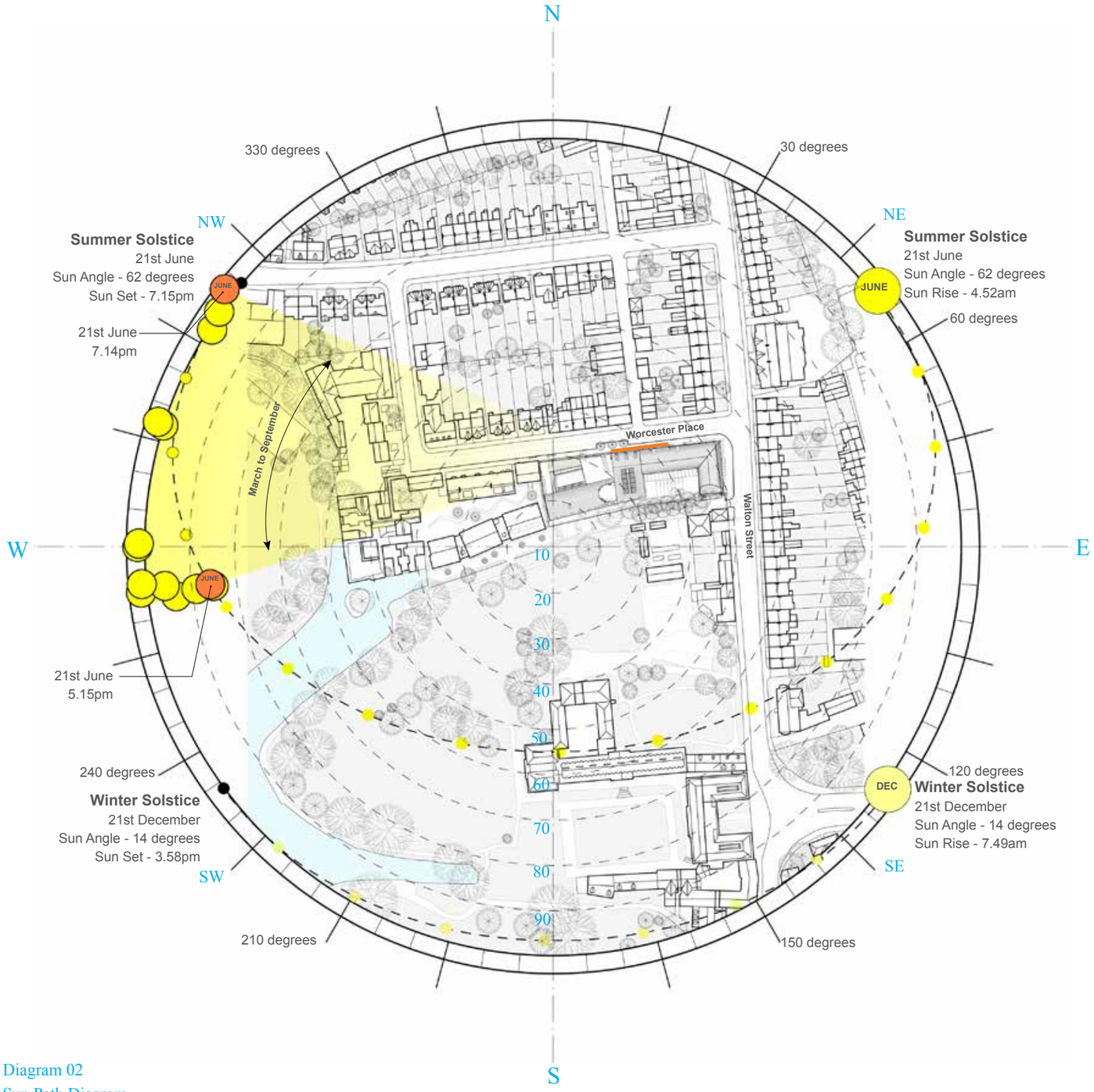


Diagram 02
Sun Path Diagram
Central Learning Commons Block Vertical Elevations

4.1 Vertical Elevation - Worcester Place Learning Commons Block

Diagram 03 illustrates three dimensionally the sun path around the site during the summer solstice, and the shadow and sun locations at this time.

Referring to page 20, the area highlighted in orange will receive oblique sunlight for approximately 2.3 hours per day over a 7 month period, assuming no cloud cover.

The sunlight will be reflected to the north east, with the sun being at an average solar altitude of 48 degrees from the horizontal. Therefore having no impact on any viewpoint within the local environment.

Image 01 - 21st June 5.15pm

Image 02 - 21st June 7.45pm

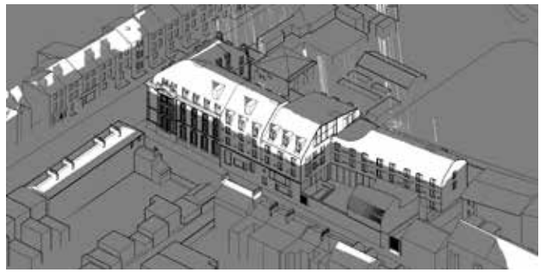


Image 03 - 21st June 9.15pm

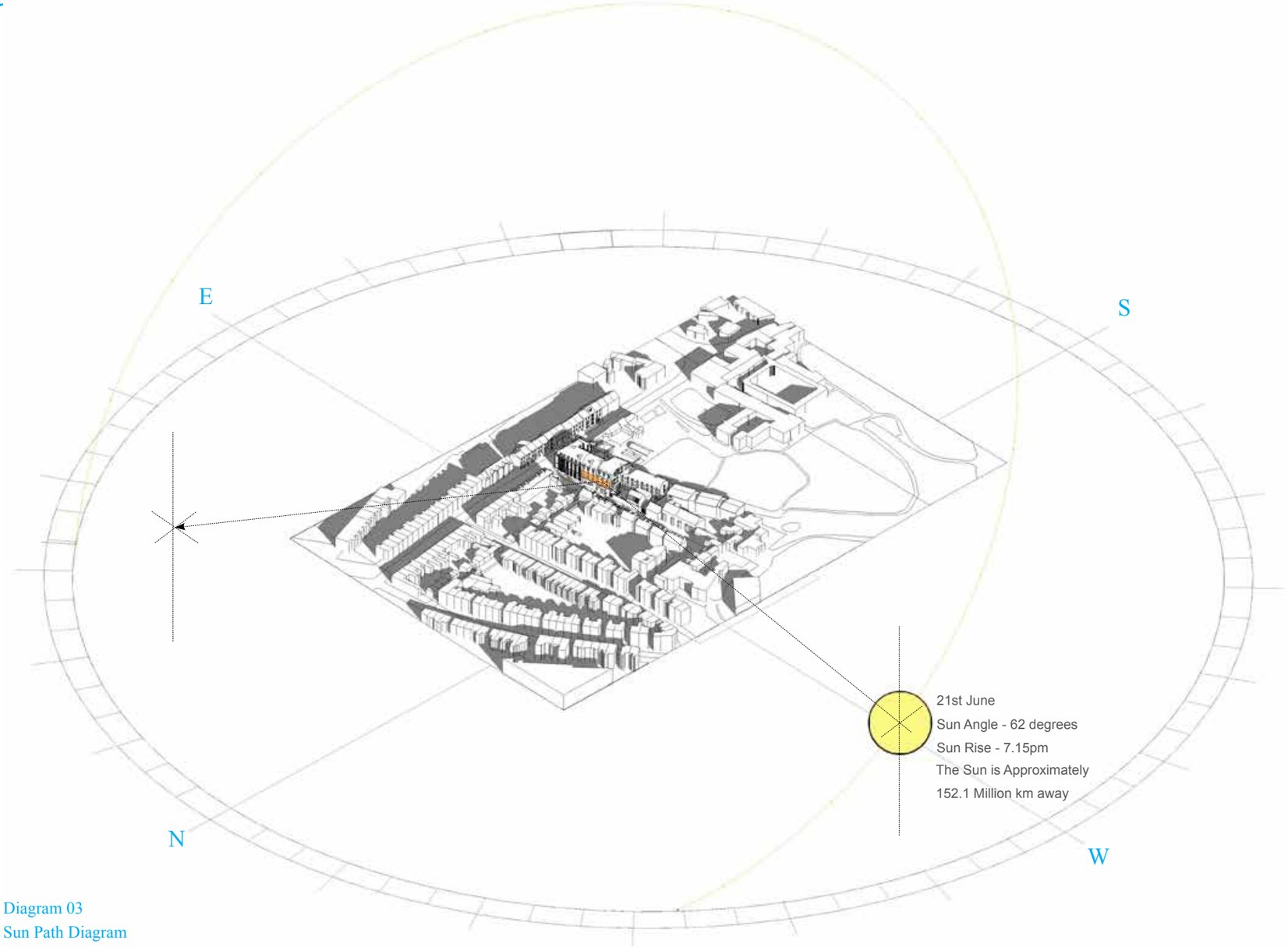


Diagram 03
Sun Path Diagram
Central Learning Commons Block Vertical Elevations

Diagram 04 - Worcester Place Elevation

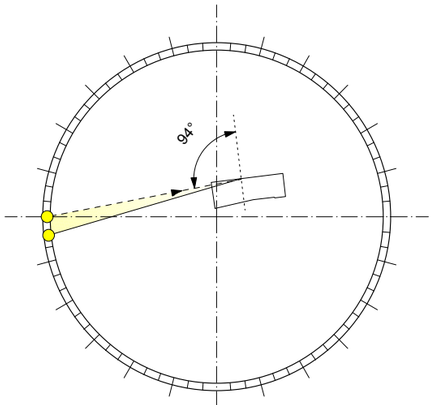
Vertical Section of the Central Learning Commons Block
Area - 101 sqm

Vertical Elevation - Worcester Place
Central Learning Commons Block

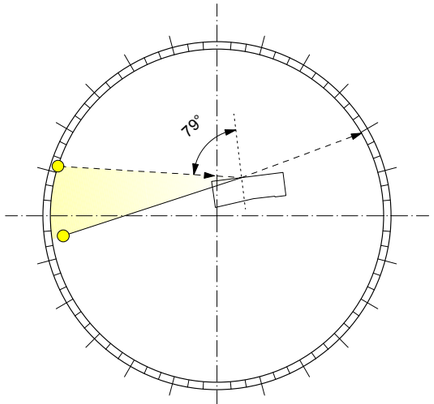
4.1

These diagrams illustrate an approximate angle of reflection, for the oblique sun light hitting the corner of the learning commons block along Worcester Place.

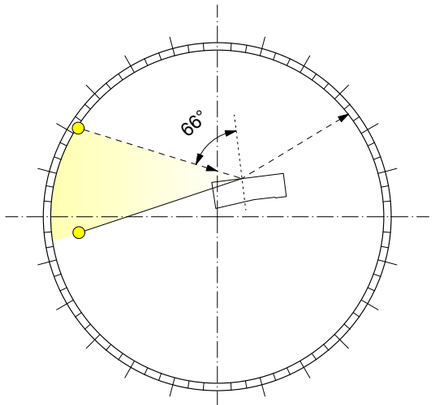
From these diagrams we can see that the angle of the sun is always greater that 60 degrees, and for this reason always results in a angle of reflection of an equal angle towards the north east, of the site.



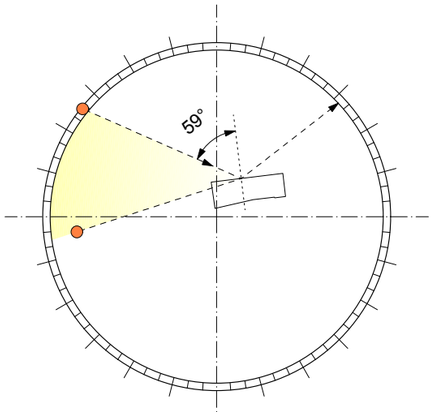
15th March
Sun Angle - 38 degrees
6.50pm till 7.10pm = 35min
Angle of Incidence Approximately - 94 degrees



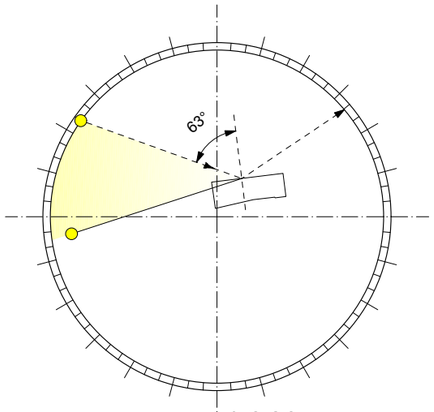
15th April
Sun Angle - 46 degrees
6.05pm till 7.50pm = 1hr 55min
Angle of Incidence Approximately - 79 degrees



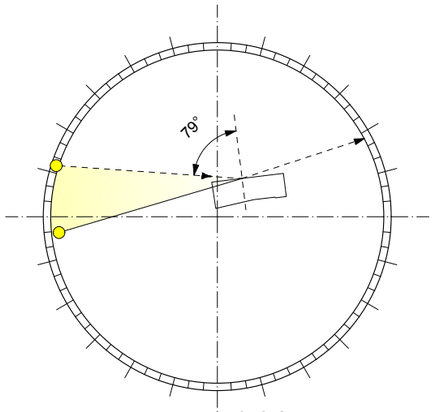
15th May
Sun Angle - 54 degrees
5.25pm till 8.40pm = 3hr 15min
Angle of Incidence Approximately - 66 degrees



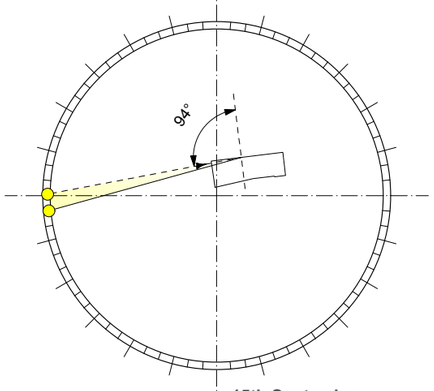
15th June
Sun Angle - 62 degrees
5.15pm till 9.15pm = 4hr
Angle of Incidence Approximately - 59 degrees



15th July
Sun Angle - 54 degrees
5.25pm till 9.05pm = 3hr 30min
Angle of Incidence Approximately - 63 degrees



15th August
Sun Angle - 46 degrees
5.50pm till 8.15pm = 2hr 25min
Angle of Incidence Approximately - 79



15th September
Sun Angle - 38 degrees
6.20pm till 7.10pm = 50min
Angle of Incidence Approximately - 94 degrees

Diagram 05
Sun Path Diagram, the Reflectivity of the Sun to the Corner of the Learning Commons Block, Vertical Elevation.

4.2 Vertical Elevation - Worcester Place Hall Elevation

The Hall elevation:

- On average the oblique sun only hits the 38 sqm of vertical cladding for 1.7 hours per day, at 6.00 pm.

The total area of vertical cladding to the elevation of the Hall is 38sqm.

The vertical section of metal cladding to the Hall elevation along Worcester Place, receives directional sun light during 6 months of the year.

This sun light is at a south westerly direction, when the sun is at its highest point in the sky during the summer / spring months (solar altitude).

During these 6 months, the amount of sun light hitting this section of vertical cladding varies from 10 minutes to 2 hours, 45 minutes per day.

On average the sun would only hit the vertical section of the Hall elevation for 1.7 hours per day, at an average solar altitude of 48 degrees from the horizontal, and this would take place at approximately 6.00pm.

Months: All of the dates listed are the 15th of the month 2014.	**Hour of Oblique Sun Light:** The Hour in which the sun first shines on the vertical section Hall elevation, on the 15th of the month.	**Hour of Shade:** The time at which the sun no longer shines on the vertical section of Hall elevation. The elevation is now in the shade of the buildings adjacent, along Worcester Place.	**Total Hour of Oblique Sun Light on the Elevation:** The total duration of oblique sun light, on the vertical section of Hall elevation, on the 15th of the month.	**Total Hours of Oblique Sun Light on the Elevation for 6 months:** Total duration of oblique sun light on the north elevation based on the 15th of the month x the total number of days in the month. Rounded to the hour.	**Average Hours of Sun Light in the month:** Based on a clear day with no cloud coverage.	**Solar Angle:** The approximate figures shown relate to the angle of degrees from the horizontal.
April	6.05pm	7.20pm	1 hour 15 min	**37 hours**	13 hours daily **390 hours**	46 degrees
May	5.30pm	7.40pm	2 hour 10 min	**69 hours**	15 hours daily **465 hours**	54 degrees
June *Summer Solstice*	5.15pm	7.55pm	2 hours 45 min	**82 hours**	16 hours 15 min daily **487 hours**	62 degrees
July	5.30pm	8.00pm	2 hours 30 min	**77 hours**	16 hours 30 min daily **511 hours**	54 degrees
August	5.50pm	7.40pm	1 hours 30 min	**46 hours**	15 hours 30 min daily **480 hours**	46 degrees
September *Autumn Equinox*	6.20pm	6.55pm	35 min	**17 hours**	13 hours 30 min daily **405 hours**	38 degrees
		Total Number of Hours over the relevant 6 month period:	**10 hours 45 min**	**328 hours of sun light over 6 months of the year.** **Average:** **1.7 hours per day @ 6.00pm,48 degrees**	**2740 hours** **Average:** **14 hours 50 min per day**	

Table 02
Directional south west sunlight hitting the vertical section of metal cladding on the Hall elevation. The area of elevation is illustrated in diagram 06.

Diagram 06 - Worcester Place Elevation

Vertical Section of the Hall elevation
Area - 38 sqm

Vertical Elevation - Worcester Place Hall Elevation

4.2

Diagram 07 diagrammatically shows the path of the sun around the site for the summer solstice and the winter solstice. It then maps out the time in which the sun first hits the vertical section of the hall elevation and the time in which the buildings adjacent finally cast shadows across this section of elevation. This can be seen in images 01, 02 and 03, on the subsequent page.

Key:

- Summer and Winter Solstice Sun Rise
- March to September Sun on the Vertical Elevation
- Summer Solstice Sun on the Vertical Elevation

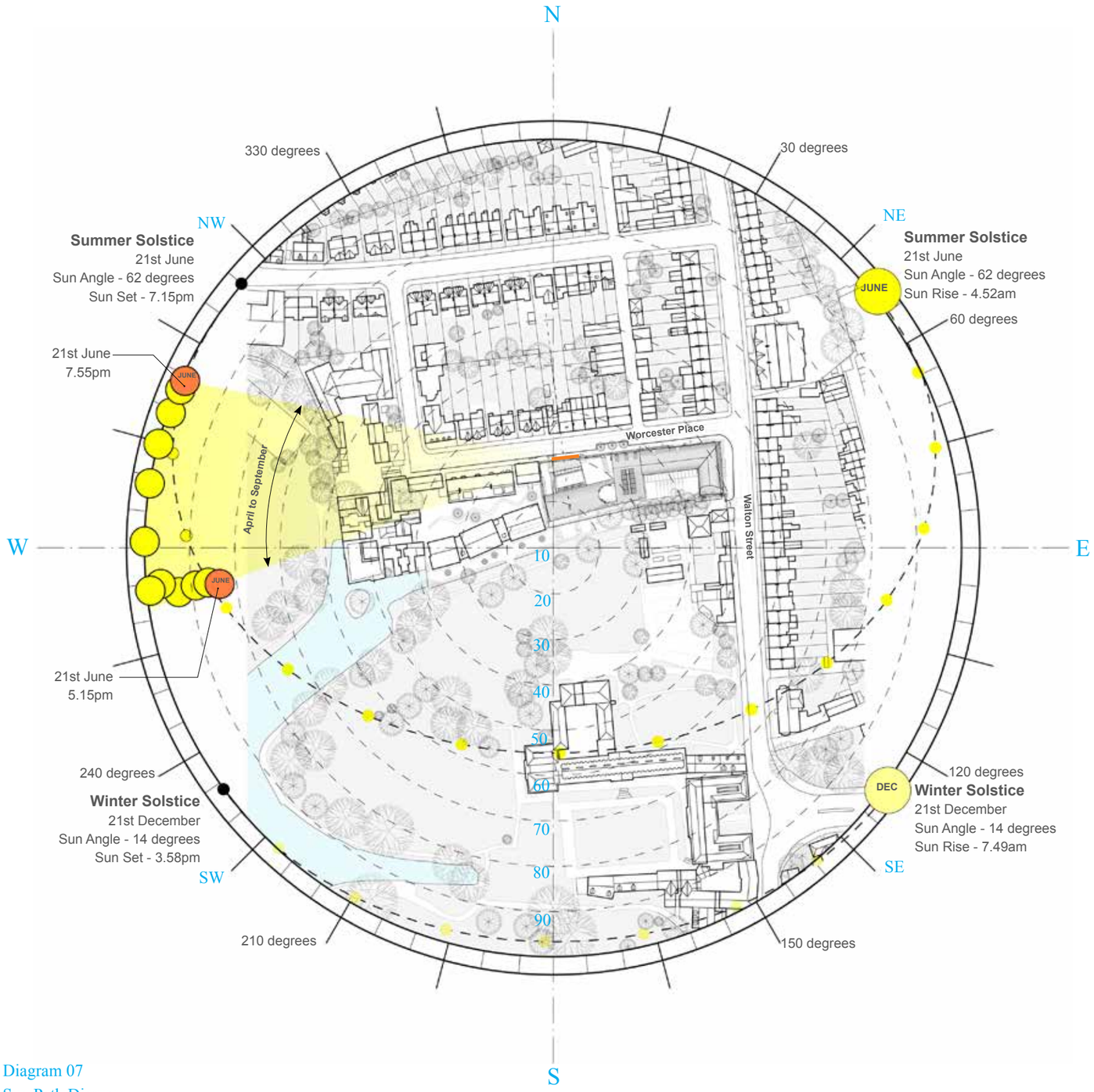


Diagram 07
Sun Path Diagram
The Hall Vertical Elevations

4.2 Vertical Elevation - Worcester Place Hall Elevation

Diagram 08 illustrates three dimensionally the sun path around the site during the summer solstice, and the shadow and sun locations at this time.

Referring to page 24, the area highlighted in orange will receive oblique sunlight for approximately 1.4 hours per day over a 6 month period, assuming no cloud cover.

The sunlight will be reflected to the north east at an average angle of 48 degrees from the vertical, above the local roof line. Therefore having no impact on any viewpoint within the local environment.

Image 01 - 21st June 5.15pm

Image 02 - 21st June 7.30pm

Image 03 - 21st June 8.00pm

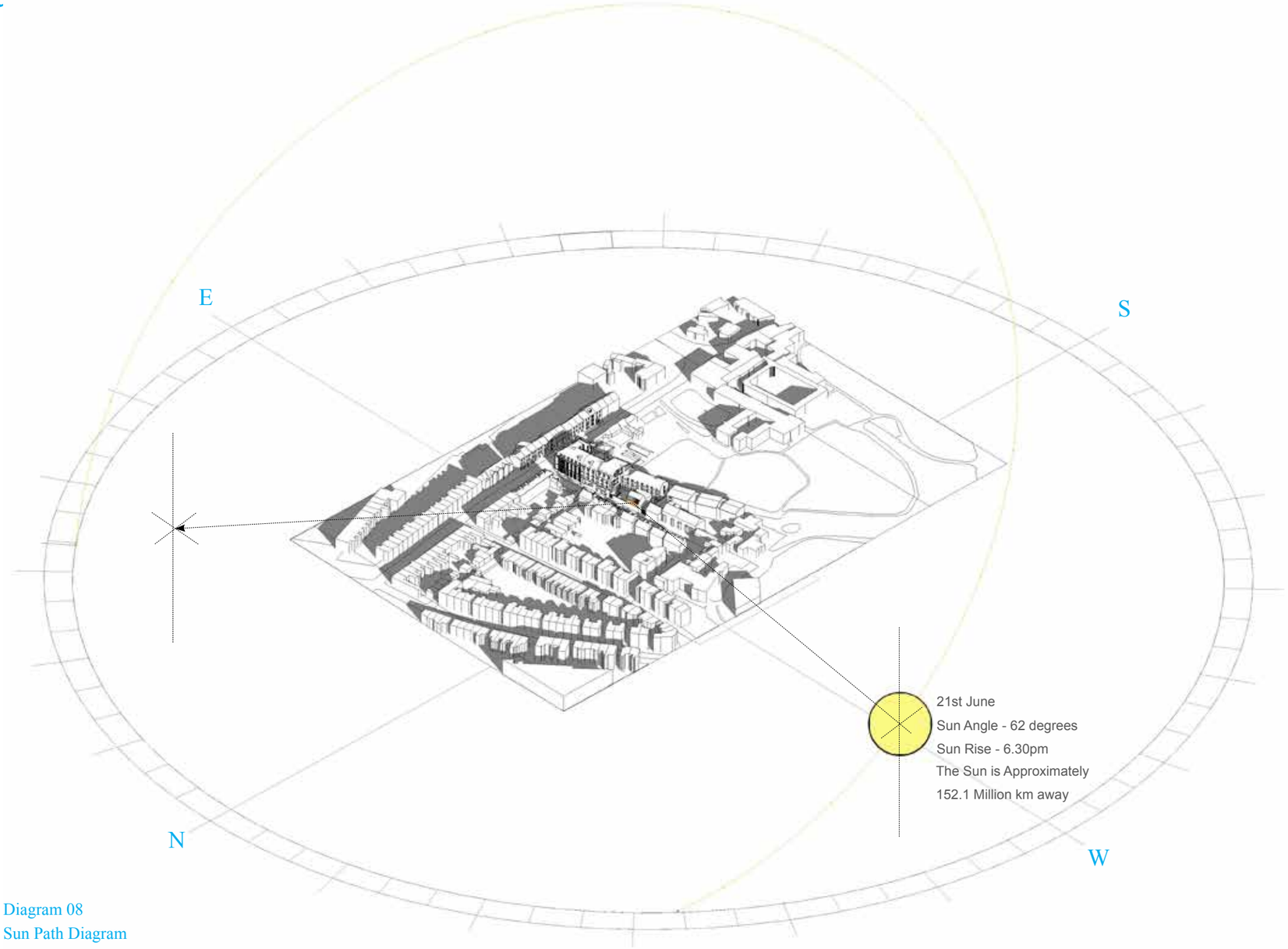


Diagram 08
Sun Path Diagram
Central Learning Commons Block Vertical Elevations

Diagram 09 - Worcester Place Elevation

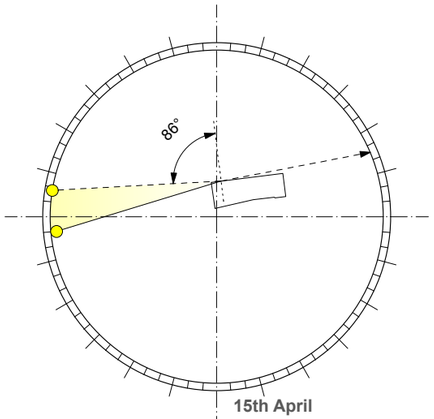
Vertical Section of the Hall Elevation
Area - 38 sqm

Vertical Elevation - Worcester Place
Hall Elevation

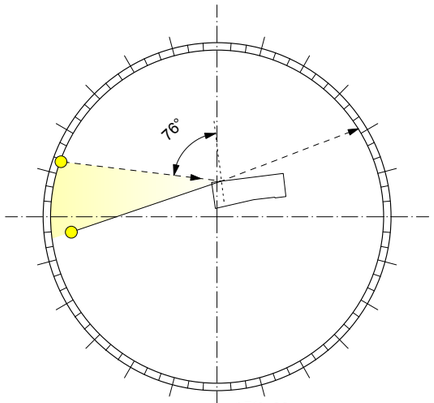
4.2

These diagrams illustrate an approximate angle of reflection, for the oblique sun light hitting the corner of the hall elevation along Worcester Place.

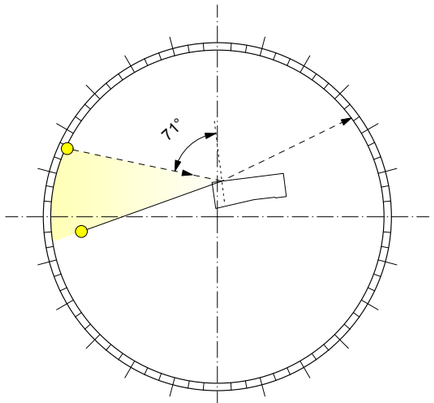
From these diagrams we can see that the angle of the sun is always greater that 60 degrees, and for this reason always results in a angle of reflection of an equal angle towards the north east, of the site.



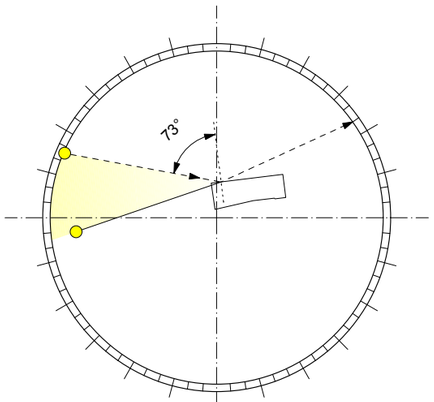
15th April
Sun Angle - 46 degrees
6.05pm till 7.20pm = 1hr 15min
Angle of Incidence Approximately - 86 degrees



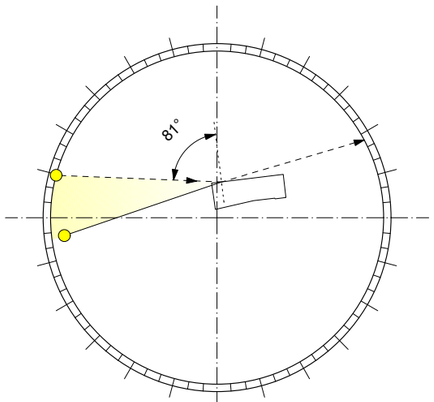
15th May
Sun Angle - 54 degrees
5.30pm till 7.40pm = 2hr 10min
Angle of Incidence Approximately - 76 degrees



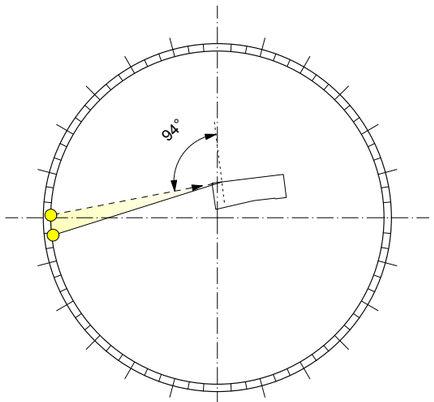
15th June
Sun Angle - 62 degrees
5.15pm till 7.55pm = 2hr 45min
Angle of Incidence Approximately - 71 degrees



15th July
Sun Angle - 54 degrees
5.30pm till 8.00pm = 2hr 30min
Angle of Incidence Approximately - 73 degrees



15th August
Sun Angle - 46 degrees
5.50pm till 7.40pm = 1hr 30min
Angle of Incidence Approximately - 81



15th September
Sun Angle - 38 degrees
6.20pm till 6.55pm = 35min
Angle of Incidence Approximately - 84 degrees

Diagram 10
Sun Path Diagram, the Reflectivity of the Sun to the Corner of the Hall Elevation, Vertical Elevation.

4.3 Roof Pitch - Worcester Place
Analysis of Diffused Light

Following further local stakeholder consultations, ABA have been able to use the three dimensional software, to analyse when sun light would hit the pitched sections of the roofs facing Worcester Place. This has allowed us to record the months of the year and the hours of the day in which the sun would obliquely hit the pitched section of the roof facing Worcester Place, from a southernly direction.

Due to the adjacency of the properties opposite the New Walton Street Quadrangle, along Worcester Place, this study focuses on the lowered pitched section of roof, of the central learning commons block and the Hall.

The pitch of the learning commons roof is 42 degrees, with the pitch of the hall roof being 28 degrees (from the horizontal).

<u>The Lower Section of the Learning Commons Block Roof:</u>

- On average the oblique southernly sun angle only sits the slopping learning commons pitched roof for 5 months of the year, from 12 pm.

- The dormers and adjacent roof over shadow the learning commons pitched roof until noon.

We can see from these studies, that due to the angle of the sun during the winter to spring months, the sun will only hit the pitched section of the learning commons roof and all the other adjacent houses and buildings along Worcester Place, for 5 months of the year, between April and August. This is when the solar altitude is between 42 and 62 degrees (from the horizontal). It is also possible to see that it is not until mid day, that the adjacent roof section and dormers to the roof, no longer cast long shadows over this section of roof.

Therefore the Central Learning Commons section of roof will only received approximately 5 hours of sun light, with the majority of this sun light hitting the pitched section of the roof at an oblique angle. Again it should be noted this study is based on a clear sunny day with no cloud coverage.

The diagrams to the left, represent stills taken from the 3D model between 9am and 5pm, at regular intervals throughout the year to illustrate the varying conditions on the roof.

<u>The Hall Roof:</u>

- On average the oblique southernly sun angle only sits the slopping learning commons pitched roof for 8 months of the year, from 12 pm.

This same study has been carried out on the pitched section of the Hall roof. We can see from these studies, that the sun will hit the pitched section of the hall roof for 8 months of the year, between March and October.

June 15th

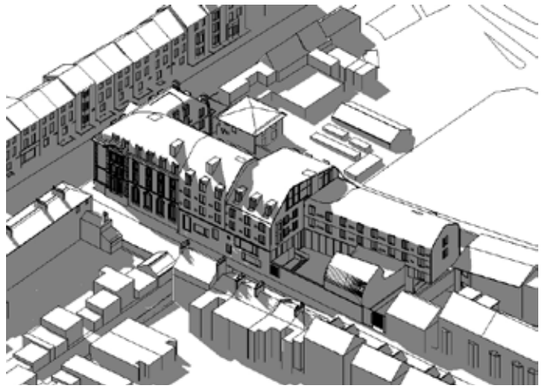


Diagram 01

9.00am 15th June

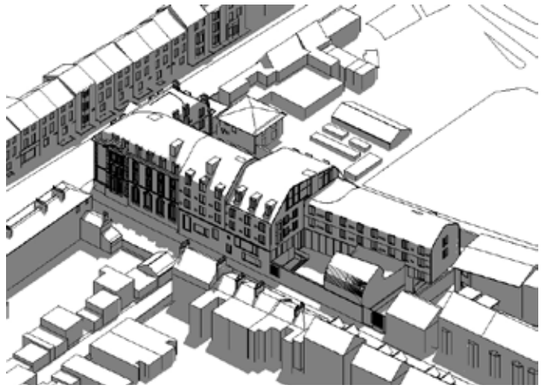


Diagram 02

12.00pm 15th June

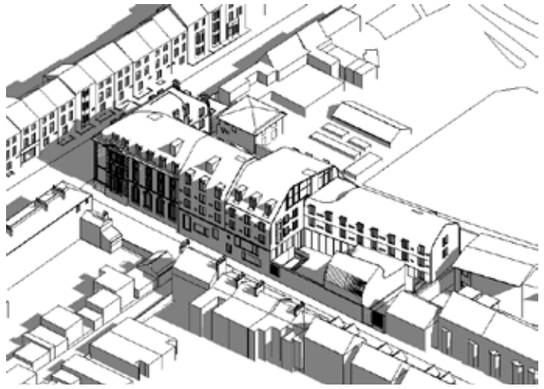


Diagram 03

5.00pm 15th June

September 15th

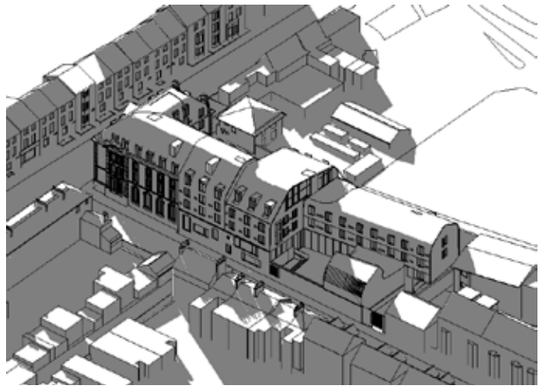


Diagram 04

9.00am 15th September

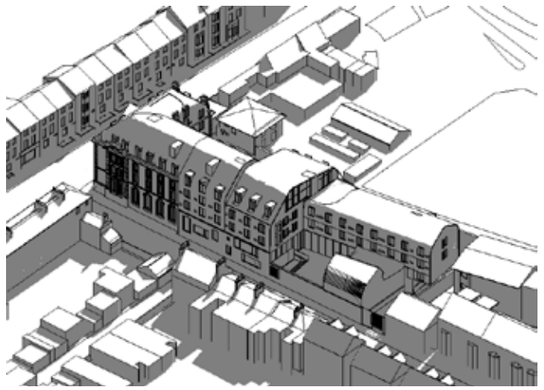


Diagram 05

12.00pm 15th September

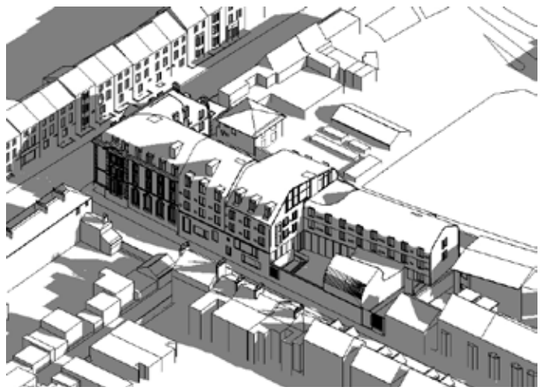


Diagram 06

5.00pm 15th September

January 15th

Diagram 07

9.00am 15th January

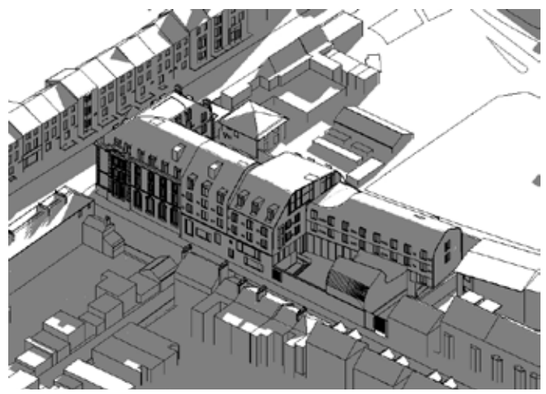


Diagram 08

12.00pm 15th January

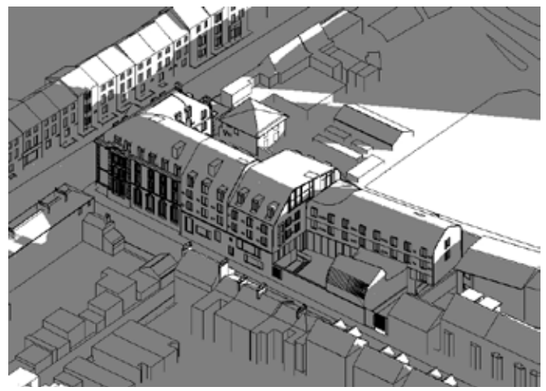


Diagram 09

5.00pm 15th January

Image 01
Two Mock Ups North Facing on Site

Image 02
The Folds within the Shingles

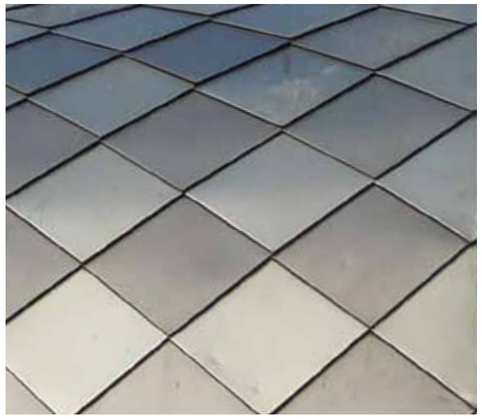


Image 03
The Folds within the Shingles

Although the average angle of the roofs for the lowered learning commons block and the hall, can be described as 42 degrees and 28 degrees (from the horizontal), when looking at the actual construction detail of the shingles, we can see that this angle is not representative of the individual shingles, due to the fact each shingle is interlocked.

For example on the 42 degree roof pitch, the actual angle of the shingles would more accurately be 38 degrees. This reduces the overall pitch of the surface from which the light is diffused.

It is apparent from the mock ups produced and displayed on site, the effect the folding and interlocking process has on the overall perception of the roof. As the tiles are folded on four sides, due to the orientation of the tiles, each tiles casts a shadow onto the next tile to which it interlocks.

As outlines on page 16, the surface treatment, patterning and bead blasting to the shingles, will result in any light hitting the surface being absorbed and diffused.

Diagram 01 and 02, illustrate how the light would be diffused off the patterned / stippled bead blasted shingle surface, and highlights the overlapping, shading and angle to the shingles, in comparison to the average roof pitch.

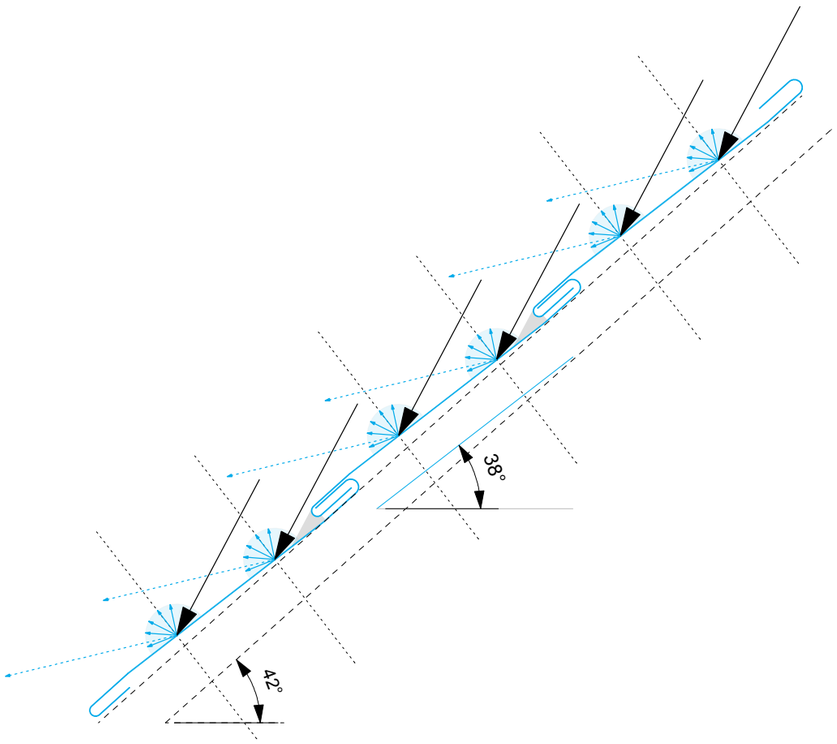


Diagram 01
Detailed section through three shingles - 62 Degrees Summer Solstice

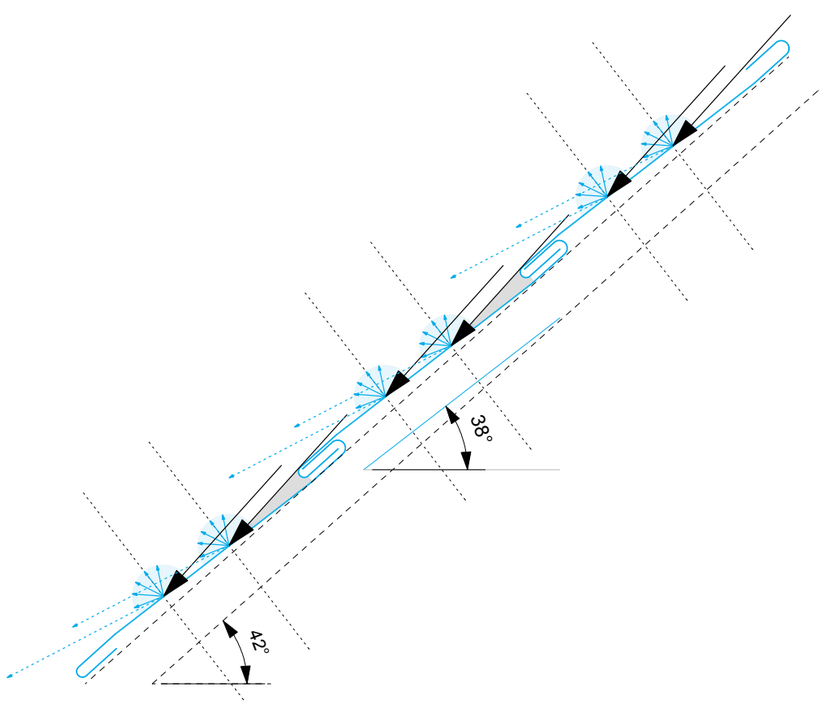


Diagram 02
Detailed section through three shingles - 46 Degrees April / August Sun Angles

4.3 Roof Pitch - Worcester Place
Analysis of Diffused Light

This same study can be shown with sectional diagrams. This illustrates the solar altitude at the summer solstice (62 degrees) and spring / summer equinox (48 degrees), when the sun would be hitting this pitched section of the roofs along Worcester Place.

This is in fact a shadow study, showing that at noon any light hitting the pitched section of the roofs, over the 6 months of the year will not impact the adjacent properties, due to the angles of the proposed roofs.

The properties along Worcester Place have south facing elevations, the point in which the sun is hitting the roofs from a southerly angle at noon, the sun itself is in fact the greatest source of light directly affecting these properties and the roof cladding will leave no greater impact that the ambient environmental conditions, caused by the direct sun light.

The new Walton Street Quadrangle, compared to the existing building massing, pulls the massing back from Worcester Place, with the creation of the North Quad.

The proposed tree to the North Quad, and the three trees proposed trees along Worcester Place, will improve the existing and proposed micro climate of Worcester Place.

These trees will fundamentally shade the street surface, which cools down the ground conditions. The trees will also help remove greenhouse gases from the atmosphere and help lower ambient temperatures. Trees transpire water through their leaves, this evaporation of water from a trees leaves, act an a natural cooling effect.

Diagram 01- Worcester Place Shadow Study
Illustrates the shadows cast across Worcester Place during the summer solstice.

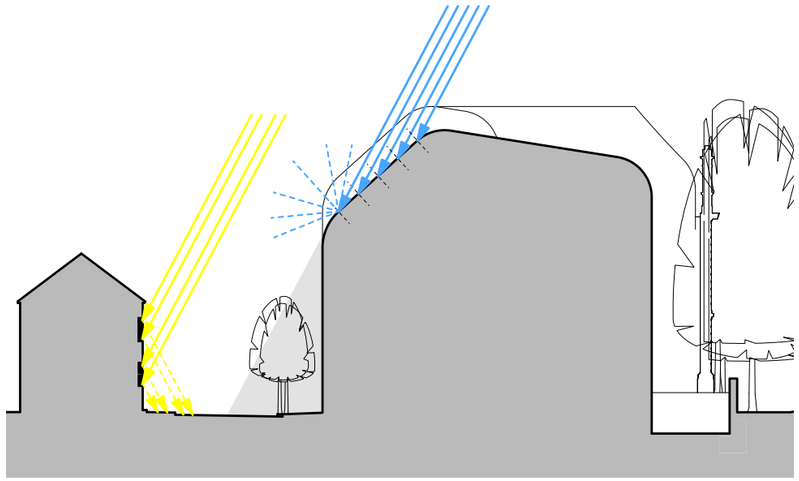


Diagram 02
Learning Commons Block - Adjacent to No.28 Worcester Place
62 Degrees - Summer Solstice

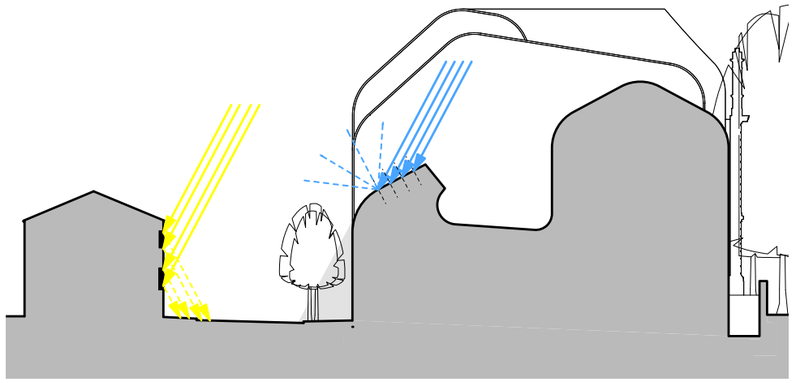


Diagram 03
Hall - Adjacent to No.24 Worcester Place
62 Degrees - Summer Solstice

Existing Worcester Place Building Elevation

Proposed Worcester Place Building Elevation

05

Southern Elevation
Holm Oak Trees

5.1 Ruskin Lane - South Elevation

Due to the regular dormer pattern and student room desk reading windows, the total are of the vertical section of elevation on the west wing is only 17sqm.

The vertical section of elevation to the learning commons block is 33sqm, this elevation is obscured behind the mature 14 holmoak evergreen trees, which are approximately 17m tall.

Ruskin Lane Elevation

Vertical Section of the West Wing Elevation

Area - 17 sqm

Ruskin Lane Elevation - Holmoak Evergreen Trees

View of the Holmoaks From Worcester College Car Park

Shadows of the Holmoak Trees
10.00am

Shadows of the Holmoak Trees
11.30am

Ruskin Lane - Holmoak Trees

5.1

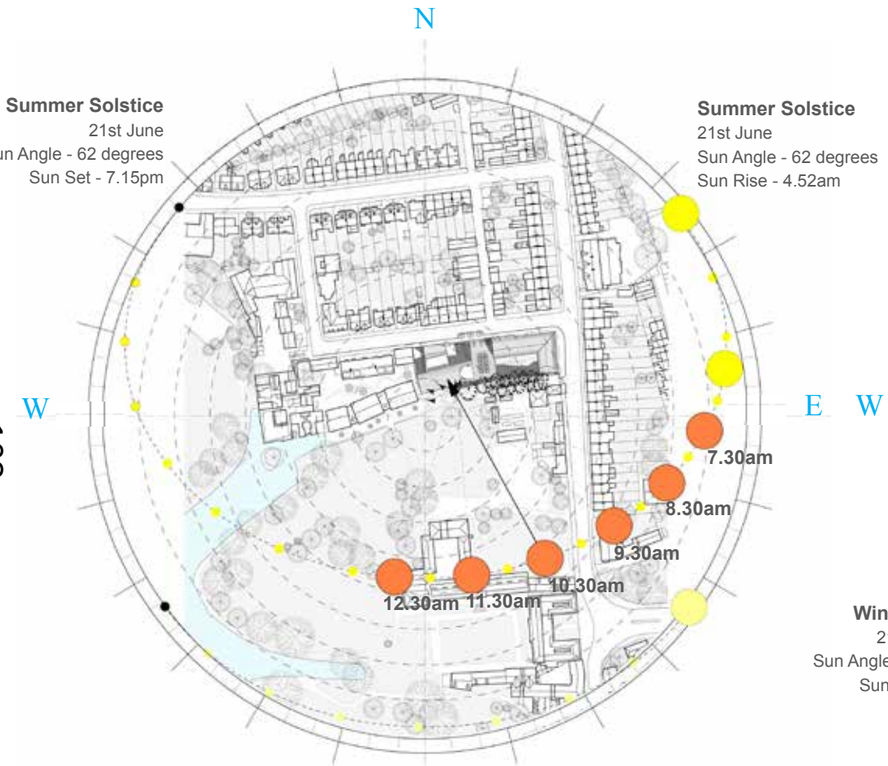


Diagram 01 - Sun Path, Summer Solstice
Holmoak Trees

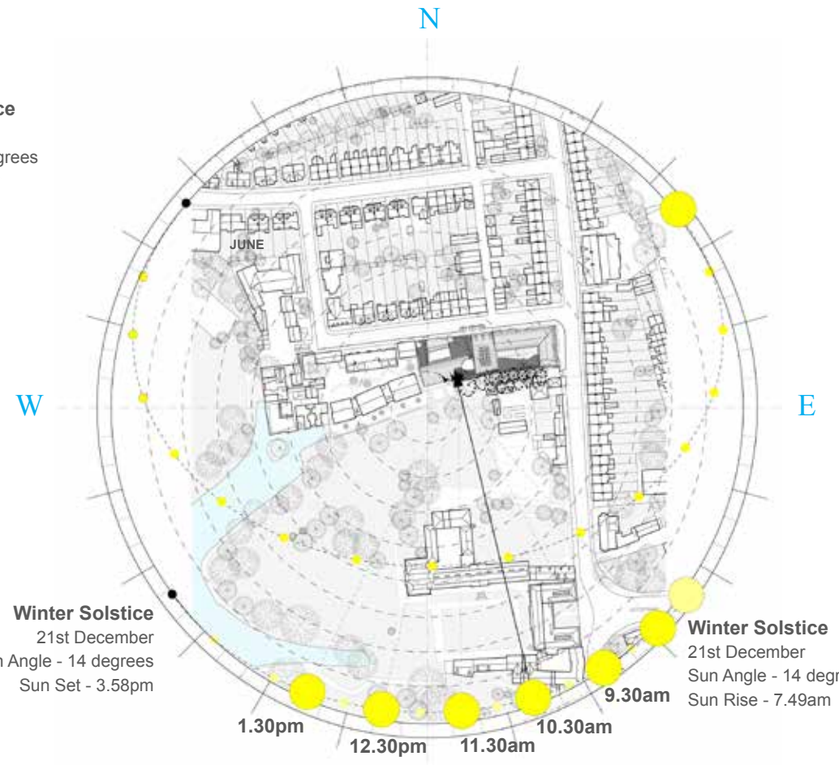


Diagram 02 - Sun Path, Winter Solstice
Holmoak Trees

Using the three dimensional environmental analysis software Vasari, ABA have been able to see how the 14 mature existing evergreen Holmoak trees along Ruskin Lane, will obscure the elevation of the learning commons block and will cast speckled shadows across the west wing elevation.

During the Summer Solstice on the 21st June (when the sun is at 62 degrees), the Holmoak trees will cast shadows across the west wing elevation from 7am till 12pm. Illustrated diagrammatically in image 01.

During the Winter Solstice on the 21st December (when the sun is at 14 degrees), the Holmoak trees will cast shadows across the west wing elevation from 7am till 2pm. Illustrated diagrammatically in image 02.

Summer Solstice - 10.30 am

Ruskin Lane Elevation - Holmoak Evergreen Trees
Summer Solstice 10.30 am

Ruskin Lane Elevation - Holmoak Evergreen Trees
Winter Solstice 10.30 am

Winter Solstice - 10.30 am

This page is intentionally left blank

2344 Schedule of External Materials
Project - Exeter College, Walton Street
Client- Exeter College
Date - 12.01.15

Item No.	Item	Material	Floor	Area / Room	Finish	Size (Visible)	G Value	Specification	Notes	Drawing
1.1	**Roof**	**Rimex Stainless Steel Sh**	First - Fourth	Roof	Finish: Rimex Stainless Steel Bronze	335 x 335		*H76/ 120*		A0070
					Paladin Pattern					A0071
					Granex Bead Blasting M1A					A0072
										A0073
			First - Fourth	Roof	Finish: Rimex Stainless Steel Champagne	335 x 335		*H76/ 120*		A0170 to A0172
					Paladin Pattern					
					Granex Bead Blasting M1A					
			Fourth	Ridge / Hip Standing Seam	Finish: Rimex Stainless Steel Bronze			*H75 / 330*		A0170 to A0172
					Paladin Pattern					
					Granex Bead Blasting M1A					
1.2		**Slate**	Third	Roof Isating to the Walton Street Parapet	Welsh Slate, Bugail Dark Blue / Grey			*H62 / 105*		A0170 to A0172
1.3		**Green Roof**	Ground	Extensive Green Roof to the Hall	Bauder Green Roof System			*Q37 / 130*		A0170

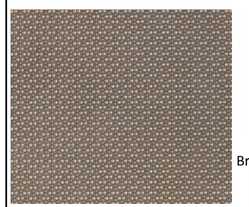
2.1	**Rain Water Goods**	**Gutter**	First	Gutter	Finish: Rmex Stainless Steel Bronze			*H75 / 215*		A0070, 71, 72, 73
					Paladin Pattern					A1120
					Granex Bead Blasting M1A					
2.2		**RWP**		RWP - Ruskin Facade	As existing.				All RWP / Goods to the Ruskin Facade, as existing - Refurbished.	A0070
2.2		**RWP**		RWP - West Elevation West Wing	TBC				All RWP other than those to the west elevation of the West Wing, concealed within the building fabric.	

3.1	**Walls**	**Stone**	Basement - First		Hartham Park Lime Stone - Top Bed			*F21 / 110*		A0070
										A0071
					Hartham Park Lime Stone - Base Bed			*F21 / 115*		A0072
										A0073
										A3000 to A3009
3.2		**Metal**	First	Mezzanine Plant Room Screen	Laser cut Steel Plates with Diagonal Patter, PPC Steel, Syntha Pulvin Metalic Range to match RAL Analok 543			*L10 / 600*		A0072
3.3		**Timber**	Third	Timber Weatherboarding to the Roof Terrace	Species: IPE, Profile Chamfered	75mm		*H21 / 116*		TBC
3.4		**Brick**	Ground - First	South Gable Wall	Brickes reused from existing facade					A0071

4.1	**Curtain Glazing**	**Glazing**	Basement - Ground	Learning Commons	Frame: PPC Metalic Bronze Steel		0.5 W/m2K	*H11 / 110* *L10 / 330*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	A5008 A5009
					Cills and Reveals: Anodised Aluminium Bronze Analok 541			*H72 / 160*		
			Ground	Hall	Frame: PPC Metalic Bronze Steel		0.4 W/m2K	*H11 / 110*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	A5010
					Cills and Reveals: Anodised Aluminium Bronze Analok 541			*H72 / 160*		
			Ground	Curtain Glazing Generally	Schucco Frame: Anodised Aluminium Bronze Analok 543		0.4 W/m2K	*H11 / 115*	For detailed values per window refer to 2344-SH-0001, Glazing Shedule.	A5000 to A5013
					Cills and Reveals: Anodised Aluminium Bronze Analok 541			*H72 / 160*		
			Ground	South Cloister	Frame: Plant on system, with Anodised Aluminium Caps Anolok 543		0.3W/m2K	*H11 / 120*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	A5006 A5007
					Cills, Reveals and Bespoke Capping: Anodised Aluminium Bronze Analok 541			*H72 / 160*		

Reference Image

Rimex Stainless Steel Shingles

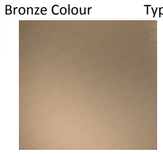


Paladin Pattern

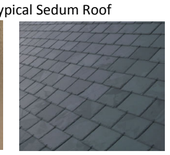
Extensive Green Roof

Bronze Colour

Typical Sedum Roof

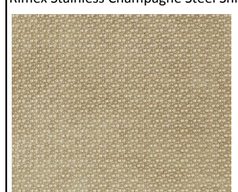


Champagne Colour



Existing Slates to be Reused

Rimex Stainless Champagne Steel Shingles



Hartham Park Lime Stone

Timber

South Gable Wall - Built in facsimile

Anodised Aluminium

Anolok 541

Anolok 543

Powder Coated Stainless Steel

Metalic Bronze Steel

2344 Schedule of External Materials
Project - Exeter College, Walton Street
Client- Exeter College
Date - 12.01.15

			Ground	North Cloister			0.4 W/m2K	*H11 / 120*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	A5013
					Cills, Reveals and Bespoke Capping: Anodised Aluminium BronzeAnalok 541			*H72 / 160*		
			Third	Fellows Studies	Composite Frame: Protec Anodised Aluminium Bronze Anolok 543		0.3 W/m2K	*H11 / 125*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	A5012
					Cills and Reveals: Anodised Aluminium Bronze Anolok 541			*H72 / 160*		
			Fourth	Senior Common Room	Composite Frame Sliding Door: Frame: Protec Anodised Aluminium Bronze		0.3 W/m2K	*H11 / 125*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	A5012
					Cills and Reveals: Anodised Aluminium BronzeAnalok 541			*H72 / 160*		

5.1	**Windows**	**Glazing**	Ground	Steel Windows to the Ground Floor of the Ruskin Facade	Crital Windows; PPC white		0.4 W/m2K		For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	A0071
			First - Second	Wooden Windows to the Ruskin Facade	Retained Existing Windows				For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	
			First - Third	Aluminium Windows Gernerally	Frame: Protec Anodised Aluminium Bronze Anolok 543			*L10 / 330*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	
					Spandrel Panel: Protec Anodised Aluminium Bronze Anolok 543			*L10 / 330*		
					Cills and Reveals: Anodised Aluminium Bronze Anolok 541			*H72 / 160*		
			First - Third	Aluminium / Timber Composite Windows Gernerally	Frame: Protec Anodised Aluminium Bronze Anolok 543			*L10 / 400*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	
					Spandrel Panel: Protec Anodised Aluminium Bronze Anolok 543			*L10 / 330*		
					Cills and Reveals: Anodised Aluminium Bronze Anolok 541			*H72 / 160*		
					Purpose Made Balustrades: Toughened and Laminated Glass			*L10 / 405*		

Anodised Aluminium

Anolok 541 Anolok 543

6.1	**Glazing**	**Roof Lights**								
			Ground	Hall	Shucco Frame: Anodised Aluminium Bronze Anolok 543			*H11 / 116*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	
			Third	Fellows Study Corridor	Shucco Frame: Anodised Aluminium Bronze Anolok 543			*H11 / 117*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	
			Basement	Archive Reading Room	National Domelight Company: Thermalight Fixed Glass			*L10 / 460*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	
					Glazing Film: Solar Control 3M			*L40 / 610*		

Anodised Aluminium

Anolok 543

7.1	**Glazing**	**Dormers**								
			Fourth	Glass Dormers	Frameless			*H11 / 138*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	
			Second - Fourth	Dormers Generally	Frame: Anodised Anodised Aluminium BronzeAnalok 541			*H72 / 150*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	
					Cills and Reveals: Anodised Aluminium BronzeAnalok 541			*H72 / 160*		

Anodised Aluminium

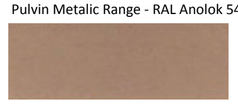
Anolok 541

8.1	**External Doors / Gates**	**Doors**								
			Ground	External Doors Generally	Schucco Frame: Anodised Aluminium Bronze Anolok 543		0.3 W/m2K	*H11 / 135*	For detailed values per window refer to 2344-SH-0001 and 2344-SH-0002, Glazing Shedule.	A5008
			Ground	Entrance Door	Schucco Jansen Frame: PPC Syntha Pulvin Metalics Range			*H11 / 137*		A1125
				Entrance Door Fan Light	Schucco Jansen Frame: PPC Syntha Pulvin Metalics Range			*H11 / 138*		
			Ground	South Cloister	Schucco Jansen Frame: PPC Syntha Pulvin Metalics Range		0.4 W/m2K	*L20 / 470*		A5006 A5007
			Ground	North Cloister	Schucco Jansen Frame: PPC Syntha Pulvin Metalics Range		0.4 W/m2K	*L20 / 470*		A1718
8.2		**Gates**								
			Ground	Worcester Place, North Quad Gate	Laser cut Steel Plates with Diagonal Patter, PPC Steel, Syntha Pulvin Metalic Range to match RAL Analok 543			*Q50 / 135*		A0072 and A9000 tp A9001

Anodised Aluminium

Anolok 543

Pulvin Metalic Range - RAL Anolok 543



2344 Schedule of External Materials
Project - Exeter College, Walton Street
Client- Exeter College
Date - 12.01.15

			Ground	Worcester Place, Service Lane Gate	Laser cut Steel Plates with Diagonal Patter, PPC Steel, Syntha Pulvin Metalic Range to match RAL Analok 543			*Q50 / 136*		A0072 and A9000 tp A9001

9.1	**External Balustrades**	**Glass**								
			Ground	North Quad Balustrade	Glass: Toughened and Laminated Glass, 1100mm			*L30 /552*		
					Capping: Brass Cap, Brushed Stainless Steel	25mm				
			Ground	South Quad Balustrade	Glass: Toughened and Laminated Glass, 1100mm			*L30 /556*		A0874
			Third	Roof Terrace Balustrade	Curved Glass: Toughened and Laminated Glass, 1100mm			*L30 /556*		A0875
9.2		**Metal**								
			Ground	North Quad Handrail	Finish: Factory Sprayed					
					Brass Handrail, on Mild Steel Plate Brackets fixed back to wall, countersunk Fixings	32mm Diameter				
					Posts: Mild Steel Flats	10mm				

10.1	**Floor**	**Timber**	Third	Roof Terrace Decking to the Fellows Terrace	IPE Hardwood Decking, Tongue and Groove	25mm		*K11 / 585*		
10.2		**Stone**	Ground	External Stone Floor Generally	Jura Beige Vein Cut			*M40 / 115*		
10.3		**Resin**	Ground	Service Lane	Resin Bonded Chippings to External Paths, Colour: Dorset Gold			*Q23 /225*		

Timber Decking

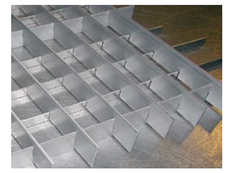
External Stone Floor

Resin Bound Gravel - Dorset Gold

11.1	**Ceiling**	**Metal**	Mezzanine	Service Lane	Galvanized Steel Grating, Elefant Grating			*L10 / 601*		A0857

12.1	**Landscape**	**Fixed Furniture**	Ground	Exterior Seating to the South Quad	Bath Stone - Base Bed			*F21 / 115*		A0111
					Hartham Park - Base Bed					
					Clipsham - Base Bed					
			Ground	Exterior Seating to the North Quad	Species: IPE Hardwood Decking, Sanded and Finished, Open grooves	25mm		*K11 / 586*		
			Third	Exterior Seating to the Fellows Terrace	Species: IPE Hardwood Decking, Sanded and Finished, Open grooves	25mm		*K11 / 586*		
			Ground	Service Lane, Double Stacked Bike Rack	Galvanised Mild Steel Oxford Two Tier Shelter, Cycle Pod Shelter			*Q50 / 215*		
					Glavanised Mild Steel, Easy Lift Double Stack Cycle Rack			*Q50 / 216*		
			Ground	Service Lane Semi Vertical Bick Rack						
			Ground	Service Lane Bike Racks under the West Wing	Black, Cuclehoop M Cycle Stand			*Q50 / 217*		
12.2		**Stair Case Seven**	Ground	Galvanized Steel Grating, Elefant Grating		*L10 / 601*				A0857
12.3		**Bin Store**	Ground	Bin Store to the Service Lane	Galvanised Steel Doors				Finish of bin store, subject to final treatment of the gable wall and boundary walls to No.10 Worcester Place	

Galvanised Steel Elefant Grating



Jura Beige Stone Flooring

Hartham Park Lime Stone

This page is intentionally left blank