Member of the Surbana Jurong Group

Prepared For:
Lochailort Newbury Limited

RBG Project No.:
4508

Document No.:
4508-RBG-ZZ-XX-RP-S-00002

Revision:
03

Status:
S2 - For Information

Date:
09 August 2024

Report Amendment Register

Revision	Section / Page No.	Revision Description	Author	Reviewer	Date
P01		First Issue	Abdulfatah Ali	Cormac Ennis	03/12/20
P02		Revised structural scheme	Joao Parracho	Cormac Ennis	20/10/23
P03		Revised Structural Scheme – to Woods Hardwick Architectural Layouts	Hayden Johnson	Cormac Ennis	09/08/24

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Date: 09/08/2024

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Date: 09/08/2024

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Date: 09/08/2024

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Date: 09/08/2024

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1.0 Introduction

Robert Bird Group (RBG) has been appointed by Lochailort Newbury Limited (the Client) to provide pre-planning Structural, Civil, and Geotechnical engineering services for the proposed redevelopment of the Kennet Centre in Newbury.

Robert Bird Group (RBG) role is to provide support to the wider design team to achieve planning. RBG aims to do this through ensuring the scheme design is robust and sound whilst highlighting all critical decisions that may have a large impact on the design to the Client and the Design Team.

1.1 Scope of Report

The purpose of this report is to summarise the structural scheme design for the development of Kennet centre and its multiple buildings, along with identifying key constraints and design criteria. The report will focus on the fundamental aspects of building design including foundations, structural form and stability systems.

2.0 Site

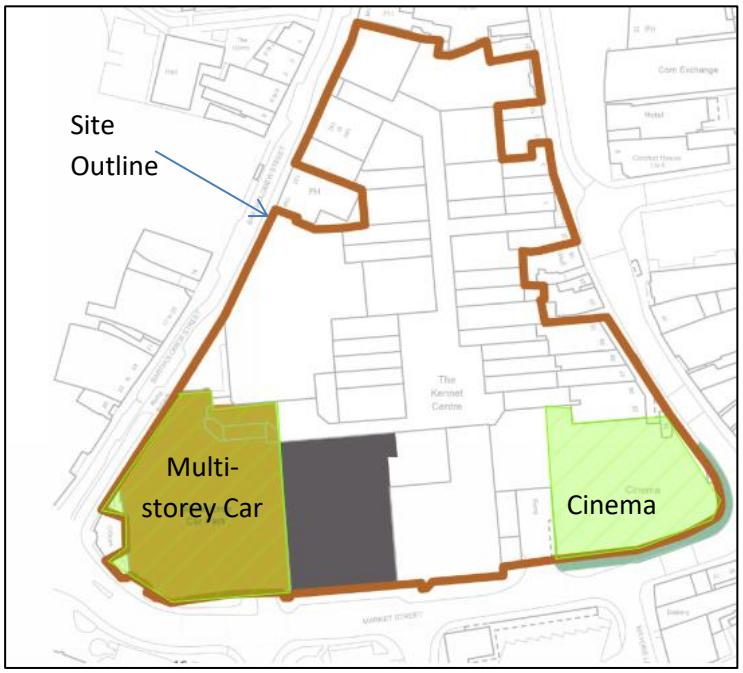

Figure 1 Kennet Centre Site

2.1 Site Constraints and Interfaces

The current site comprises of the 'Kennet Centre', a 2 to 3 storey retail and leisure development. The Kennet centre development can be broadly split into 3 main areas: retail, multi-storey car park, and Vue multi-screen cinema. The site is approximately trapezoidal in shape and is bound on three sides by roads: Cheap St, Bartholomew St, and Market St.

The site has several interfaces with adjoining properties, to the North is a Victorian retail arcade and within the wider trapezoidal footprint is indented by adjoining retail units and pubs, including several Grade II listed buildings.

During the initial pre-planning period, 'Siteline' carried out extensive surveys of the interfaces with retained or party wall structures. RBG's scope for pre-planning support does not include

'Construction Engineering Services' but these interfaces have been assessed to ensure there is a buildable solution for them.

As part of the integration of the new architectural scheme by Woods Hardwick, RBG have revised the demolition and party walls interfaces report 4508-RBG-XX-ZZ-RP-ST-003 revision P03. We recommend this is read in conjunction with report to inform cost planning and tender purposes.

3.0 Proposed development

The proposed development consists of the redevelopment of the current Kennet Centre (shopping centre) in Newbury:

- Demolish the existing shopping centre, maintaining the existing Cinema and the existing multi-storey car park (MSCP).
- Construction of 317 new BTR (Build to Rent) residential units and/or private sale dwellings. The new residential blocks typically have no basement and a total maximum height of approximately 6 storeys.
- 5 retail units on the ground floor of the structure
- 1 community hub building
- Vertical extension to existing MSCP

4.0 Structural Design

4.1 Design Standards and Technical References

The design of the structure shall comply with UK Building Regulations and be predominantly in accordance with the "Eurocodes", including the associated UK National Annex.

The Design Codes and guidelines to be referenced during design include:

- BS EN 1990 Basis of Structural Design
- BS EN 1991 Actions on Structures
- BS EN 1992 Design of Concrete Structures
- BS EN 1993 Design of Steel Structures
- BS EN 1995 Design of Timber Structures
- BS EN 1996 Design of Masonry Structures.
- BS EN 1997 Geotechnical Design
- BS EN 206 Concrete Specification, performance, production and conformity

In addition to the standards listed above, Non-Contradictory Complementary Information (NCCI) such as design guides, reports and digests published by the Constructional Industry Research Information Association, Building Research Establishment, British Constructional Steelwork Association Ltd, Concrete Society and Highway Agency will be used in the design. These include but are not limited to:

- Building Regulations Approved Documents
- BRE Digest – Concrete in Aggressive Ground
- CDM 2015
- GRO Green Roof Code - Green Roof Code of best practice for the UK 2011
- IStructE – Manual for the Design of Concrete Building Structures
- IStructE – Manual for the Design of Steelwork Building Structures

4.2 Assumed Loads in preliminary design

RBG, as part of the preplanning phase, have assumed conservative loadings to derive a robust scheme and with future flexibility. As the design is developed through later stages, loading assumptions will be interrogated to a greater detail to produce a lean structural design.

RBG have conservatively assumed wet screed at this stage and heavy masonry façade throughout. At a later stage RBG would recommend this to be designed out to reduce loads on the building, which will offer material savings in the structure and a reduction in embodied carbon.

The appropriate imposed live load actions for each type of activity/occupancy shall be chosen with reference to BS EN 1991. Imposed loads from elements such as lifts, lift cores, hoists, escalators, building maintenance equipment, fire trucks and service vehicles shall be considered in the design. The Imposed Load actions for different typical conditions are summarised in the table below**Error! Reference source not found.**.

Table 1 – Summary of Live Load Actions Applied to Floors

Condition	Load / Action (LL)
Residential Floors	1.5 kN/m^2
Residential Balconies	3.0 kN/m^2
Residential Terraces	3.0 kN/m^2
Residential Lobbies, Corridors & Stairs	3.0 kN/m^2
Roof Terrace	3.0 kN/m^2
Roof Garden area	4.0 kN/m^2
Roof Plant area	7.5 kN/m^2
General Roof area (Access only)	1.5 kN/m^2
Refuse & Storage Areas	5.0 kN/m^2

4.3 Civil Engineer Design

As part of RBG's pre-planning support our Civil Engineering team have developed the outline drainage strategy and flood risk assessment to be submitted as part of the planning submission. For further information on the Civil Engineering design please refer to the relevant planning documents, FRA '4508-RBG-ZZ-XX-RP-CV-0001' and Drainage Statement '4508-RBG-ZZ-XX-RP-CV-0002'.

4.4 Geotechnical Design

As part of the appointment by Lochailort Newbury Limited (the client), RBG has produced a Ground Investigation Report based on the site investigation carried out by Soiltechnics between May and September 2020.

The report interprets the geotechnical data collected during the site-specific ground investigation and recommends geotechnical characteristic design parameters to aid in the detail design of the proposed foundation and substructure. Further information on the ground investigation report can be found on the issued document '4508-RBG-ZZ-XX-RP-GE-001' (Robert Bird Group, October 2019).

4.5 Sustainability

As part of the further works on the next stage of design, RBG recommends a careful interrogation of the loadings assumed for the buildings and the potential minimising of wet screeds. The reduction in loading and weight will positively impact the section sizes and reduce the foundation requirements and subsequently decrease the embodied carbon. Moreover, exploring post tension flat slabs as an alternative solution for the RC frames may prove to be a good sustainability approach due to the potentially thinner slabs and the positive knock-on effect on the reduced foundation sizes, as well as embodied carbon.

Existing party walls are being retained around the site and are being used to form part of the envelope of the structures, minimising new construction. At the next stage we would recommend the re-use of the existing piles (per 5.1.2) to reduce the amount of new material being used on site.

Sustainable materials will be used in line with current best practise for steel and concrete to minimise the carbon associated with the project.

5.0 Substructure

5.1 Foundations – Multi- Storey Car Park

The proposal for the multi-storey car park is to reuse the existing piles. An investigation of the existing piles has been carried out to inform the potential of their reuse. This included the coring of three piles within two piles caps. The thickness of the pile cap was also determined through this exercise. Refer to document '4508-RBG-ZZ-XX-RP-GE-0001 P01' for more detailed information.

RBG's geotechnical team have carried out a back analysis using Eurocode 7 to determine the capacity of the 450mm and 500mm piles based on the test. Based on this information and our load take down of the existing multi-storey car park, we have determined there is capacity to add additional one full storey and partial storey of car parking using lightweight construction. The current Woods Hardwick scheme only requires a single full storey of additional car park and extension of some of the cores. This is within the bounds of the original assessment.

The back analysis carried out by RBG verifies sufficient level of redundancy in the piles based on historic drawing information. Prior to commencing pile reuse additional testing to verify the historic information is likely to be required for warranty purposes. Please refer to document '4508-RBG-ZZ-XX-RP-GE-0001 P01' for more detailed explanation and suitable recommendations.

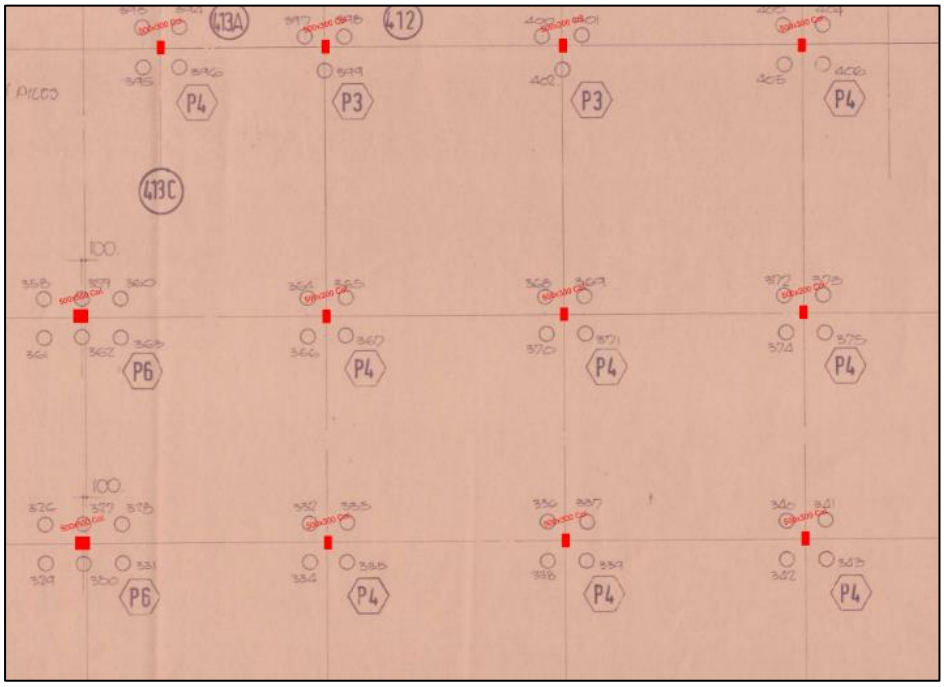

Figure 2: Existing Car Park Grid layout and Foundations

5.2 Foundation – Resedential development

Strip footing and piled foundations have been considered for founding the proposed complex. Due to the nature of the large integrated complex proposed with ranging story heights, piles are preferred over strip footings for the following reasons:

- The Beenham Grange Gravels' range from 2.2-4.1m below ground on the site and will require large batters or temp sheet piles/underpinning when constructing close to the adjoining properties.
- The site water table is as high as 2.5m below ground, meaning you would likely require temp dewatering to construct shallow foundation at these depths.

	No Pile Test		Working Piles Tests		Working & Preliminary Pile Tests	
Pile length	Bored	CFA	Bored	CFA	Bored	CFA
mbgl	kN	kN	kN	kN	kN	kN
25	1650	1300	1900	1500	2200	1750
30	2050	1750	2350	2000	2750	2300

- Most of the housing isn't isolated and are formed of townhouses in blocks that vary in storey height, so will settle differently, especially between different foundation systems (e.g. piled and shallow). This would require complex arrangements of movement joints within the superstructure between the piled and shallow foundations in connected buildings to accommodate this.

5.2.1 Piles Foundations

The ground investigation report carried out by RBG detailed above (September 2020) has provided pile capacities based on preliminary bearing pile designs. Typical values for pile capacities of 600mm diameter piles are presented in Table 2 below, taken from the Ground investigation report '4508-RBG-ZZ-XX-RP-GE-001 P01'. Table 2 below assumes a pile length of 25m.

Table 2 – Pile Capacities as contained in the Ground Investigation Report

Due to the new configuration of the structure and the decrease in loading from previous concepts, 450mm diameters are considered more appropriate for this configuration. As the capacities for a 450mm pile have not provided, the information provided in the Ground investigation report was used to derive the capacity. Therefore, this information will need to be verified by a geotechnical engineer or piling contractor at the next design phase.

Due to the quantum of piles required for the project, it is assumed that working pile tests and preliminary pile tests will be required. Therefore, the capacity of a 450diameter CFA pile gives the following capacities:

20m embedment = 800 kN

25m embedment = 1100 kN

5.2.2 Reuse of existing piles

Photographs taken during construction of phase 1 and phase 2 Kennet Centre showing a piling rig on site, however based on the information we have available, there is no documentation of the piles installed. We do have piling information on stage 3 which are retained supporting the carpark.

Due to the lack of information on the piles in phase 1 and 2 we cannot access if the piles have sufficient capacity or are int the correct location for the proposed works. Based on the size of the structure being removed, it is possible the piles have sufficient capacity to be used to support parts of the new structure and reduce the number of piles required.

To determine the locations, geometry and capacity of the existing piles, on site surveys and testing will be required prior and during the demolition phase of the project. The testing and survey can be explored further in the next design phase should pile reuse be considered for the project.

6.0 Superstructure

6.1 Structural System – Car Park

The car park superstructure is driven how to limit new loading onto the existing piles which are to be reused. The most effective structural solution is a steel frame with a light-weight concrete metal deck composite slab. This will allow the reuse of the existing grid layout without introducing heavy dead loads as would be the case in a concrete solution. See Appendix B for the preliminary layout of the additional levels of car park.

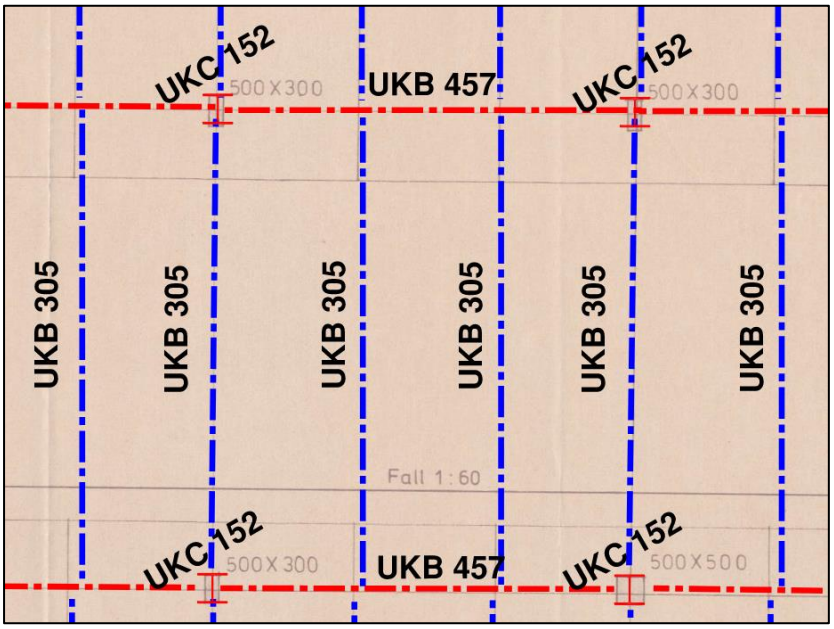

Figure 3: Typical layout for the new levels of Car Park

Preliminary assessment has been carried out on existing RC columns and based on record information and the loading of the building in its current form. Based on this information the existing columns can accommodate the uplift in load from the additional storey without the requirement of any strengthening works.

6.2 Structural Systems – Residential

The residential blocks 4 stories and below typically lend themselves cavity masonry wall solution with a concrete flat slab spanning (see Figure 2 below) between walls as it allows for an irregular grid of walls to coordinate with the architectural plans and achieve the desired appearance. The masonry walls are proposed to take both the vertical and lateral loading exerted on the structure.

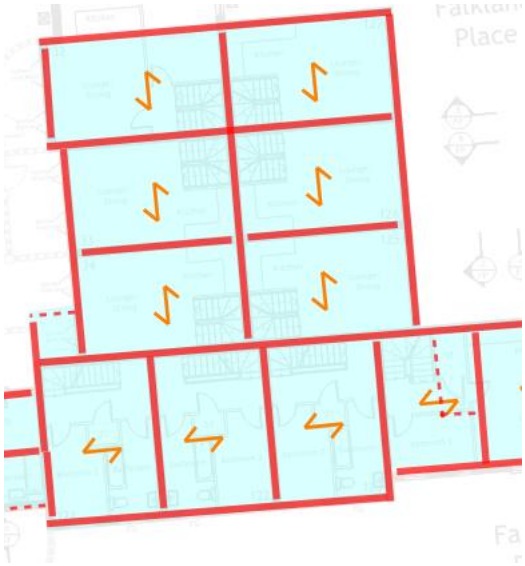

Figure 2: Plan view of Masonry wall arrangement

Where the structure is above 4 stories, the typical cavity masonry wall structure has been substituted for a reinforced concrete flat slab solution (see figure 3 below) to achieve the additional stories. The structure is proposed to utilise discrete concrete columns with core walls to take vertical and lateral loading. The flat soffit of the concrete slab provides flexibility to services and the concrete has good acoustic properties important to residential buildings. To achieve the desired appearance for the structure, masonry façade elements can be utilised.

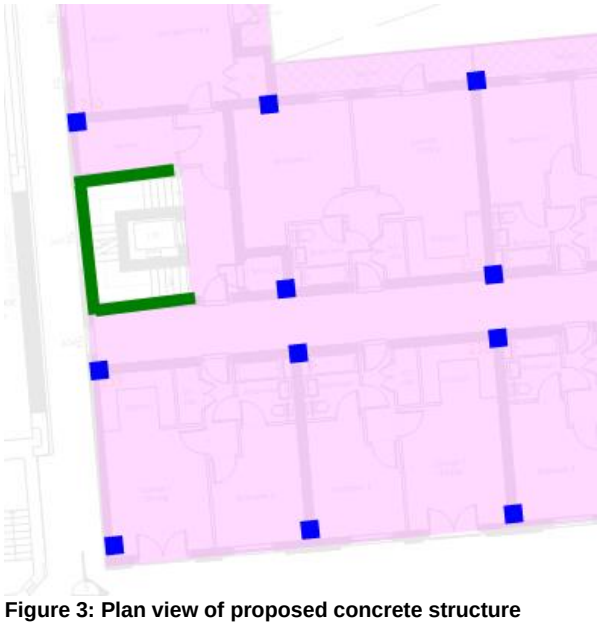

Figure 3: Plan view of proposed concrete structure

Craven house on the eastern side of the site is proposed to be 5 stories and due to the configuration of the structure is lends itself to being a masonry cavity wall solution similar to the structures below 4 stories. All other structures above 4 stories are proposed to utilise the concrete flat slab solution.

7.0 Structural Frame

The structural scheme design in Appendix A is preliminary, with the purpose of defining the structural intent for architectural coordination and budget costing purposes. A more detailed structural design will be developed for the buildings as part of the tender design and coordination process. The following sections provide an explanation of the scheme design, which has been adopted following the structural appraisal.

7.1 Slabs

Masonry wall structure:

The suspended floors are assumed to be a 225mm thick concrete floor for the purpose of preliminary design to account for the floor spans expressed on the architectural drawings. Alternative flooring options such as beam and block, can be explored at the next design phase. The ground floor slab is assumed to be 225mm thick and spanning between new foundation beams and piles.

Concrete structure:

The suspended floors are assumed to be a 225mm thick RC flat slab for the purpose of preliminary design to account for the floor spans expressed on the architectural drawings. The concrete slabs act as diaphragm under lateral loading to transfer the loads to the core walls which provide stability to the structure. The ground floor slab is assumed to be 300mm thick spanning between pile caps.

In southeastern corner of the development, there is an existing ESS structure which need to remain in place during construction. Therefore, the new structure is required to span over the top of the existing room without loading it. This results in a longer than typical floor span which is proposed to be 300mm thick concrete floor.

7.2 Columns

For the blocks utilising a concrete solution, there is a degree of flexibility in the section shape which can be used for the columns. However, the minimum dimension of a column and minimum thickness of a wall are often dictated by the fire rating of the building. Generally, to keep columns within party/corridor walls they are designed as blade columns with an aspect ratio of 4:1.

The blocks will have different minimum fire rating requirements according to their overall height, with a minimum of 60min for lower blocks and 90 minutes for taller ones, as long as the maximum height is under 30m. Columns and slab soffits within substations will require a 240min fire rating which will impact the thickness of the columns and potentially require localised substation slabs (independent of the primary structure).

7.3 Roof

A pitched roof is typically used which is assumed to be traditional timber roof trusses with a tiled roof. There are number of roof terraces which utilize a flat roof which are to be constructed with a concrete floor per typical suspended floors.

7.4 Partial Basement

The architectural layout shows some units with partial basements across the site. To accommodate these partial basements, retaining walls will be required which introduces significant complexities to the construction of structure including waterproofing, lower of foundations locally and construction sequencing. Adding these partial basements will likely come at a large cost premium. If the partial basement and associated risk/costs are acceptable, Robert Bird group can provide further input at the next design phase.

7.5 Stability and Movements

Masonry structure:

The lateral stability of the lower blocks is provided by masonry walls around the perimeter and throughout the structure. The cavity walls utilising typical a single leaf of brick either side of a cavity are assumed. Each block is proposed to have its own lateral system utilising the walls within the structure.

Concrete structure:

The lateral stability of the buildings is provided by reinforced concrete walls around the stair and lift cores, as well as shear walls where required. The main core/stair walls and shear walls are to be 250mm thick with link beams (lintels) over openings to form a closed section. Each block will have its own independent stability system.

Given the size of the development, movement joints for thermal effects in the concrete are required. Movement joints have been suggested on Appendix A. An example is given in figure 4 below.

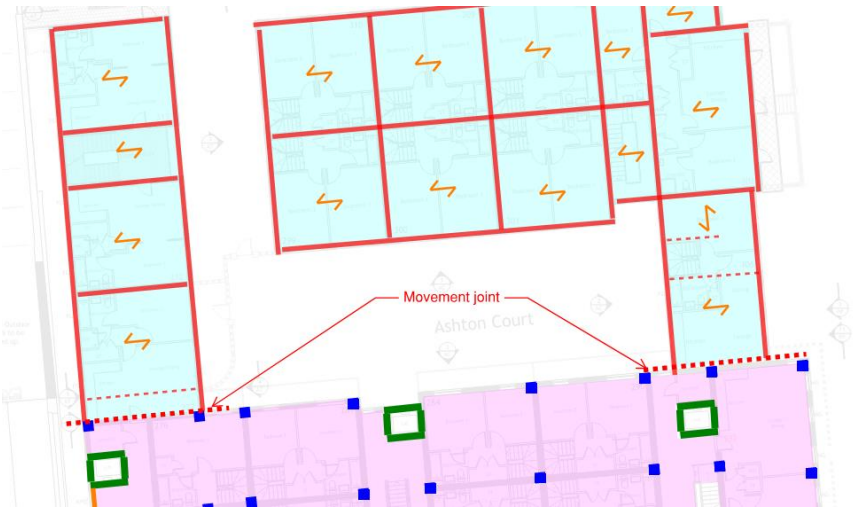

Figure 4: Plan view of movement joints proposed

8.0 Balconies

The balconies shown on the architectural drawings will typically be supported using the same system proposed for the main structure. Where balcony extends past the building extent, steel or timber framing may be used to accommodate the balcony which may require post if not able to cantilever off the main structure. This is to be explored further in the next stage of design.

9.0 Interface with Existing walls

The new structure uses the existing party walls to enclose the structure. The new structure is assumed to be vertically isolated from the existing walls to ensure no additional loads are imposed on the structure. Any new foundations in the proximity of the existing walls are to be suitably offset from the existing wall to ensure there is no risk of under pinning the foundations.

Appendix A – Structure Scheme Sketches

Notes:

1. The sketches provided are for high level planning and co-ordination only and are subject to further design development in the next phase of design.
2. Floors are assumed to be 225mm thick concrete to give the worst case loading on foundations. Alternative floor systems can be explored at the next phase of design.
3. Piles capacities provided are based on '4508-RBG-ZZ-XX-RP-GE-001 P01' dated September 2020. The capacities are provided for 600 diameter piles. 450CFA pile capacities will need to be verified by the geotechnical engineer or pile contractor at the next phase. Due to number of piles, it is assumed working and preliminary testing of piles will be undertaken allowing high loaded piles.
4. Total number of piles are as follows:
   20m deep 450CFA = 330 piles
   25m deep 450CFA = 275 piles
5. Interstory height is assumed to be 3.4m as no additional information has been provided. This can be modified in the next design phase
6. All piles are to be 1.2m min away from existing walls/structure to ensure structure is not compromised and for sufficient room for a piling rig. Existing party walls are to be isolated from new structure with no vertical transfer of load.
7. Sketches are based off information made available at the time of production. Additional information may alter proposal provided.
8. Scheme assumes that excavation of new footings and foundations are to be suitable offset form existing party walls to avoid any under pinning.

NOTES

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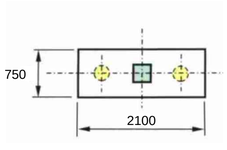
THE ARCADE
The Globe Inn
MARKET PLACE
Artist's Mews (North)
Artist's Mews (South)
Eagle Yard
William Hill
Proposed highway improvements to facilitate access into the site.
BUS STOP
BARTHOLOMEW STREET
Foundations here
1200 mm
Crown Court
The Newbury
Allow for retaining walls and lower foundations. Design to be progress further at next design phase with more information regarding layout/depth
Falkland Place
Alma Court (North)
Allow for retaining walls and lower foundations. Design to be progress further at next design phase with more information regarding layout/depth
The Catherine Wheel
Alma Court
Smith's Yard
Alma Court (South)
Allow minimum 1200 offset from center of pile to existing for a pileing rig
CHEAP STREET
Ashton Thicket
Allow for retaining walls and lower foundations. Design to be progress further at next design phase with more information regarding layout/depth
Plenty's Place
Movement joint
Movement joint
Ashton Court
Iron Yard
Victoria Court
MARKET STREET
Proposed new layby parking.
Existing Vehicular Ramp to be made into A Pedestrian Access and Retained by the Existing Dwellings.

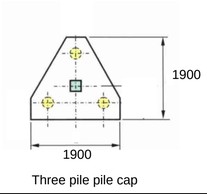
Legend:

- 750mm x 600mm deep foundation beam
- 450mm diameter CFA pile 25m deep
- 450mm diameter CFA pile 20m deep
- 2 x 450mm diameter CFA piles 25m deep w/ 2.1m x 0.75m x 1m deep pile cap
- 3 x 450mm diameter CFA piles 25m deep w/ 1.9m x 1.9m x 1m deep pile cap
- Existing structure

Pile Cap arrangements



Two pile pile cap



Three pile pile cap

SCALE 1:200

LOCHAILORT

Robert Bird Group

Title: Preliminary Foundations Plan			
Project: Kennet Centre			
Job No: 4508	By: HJ	Chk: CE	App:
Date: 09.08.24	Status: FOR INFORMATION		
Sketch No: **4508-RBG-ZZ-XX-RBG-SK-S-0001**			Rev: **P03**

Preliminary Foundations Plan

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THE ARCADE
The Globe Inn
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Artist's Mews (North)
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Proposed highway improvements to facilitate access into the site.
Alma Court (North) (One-way)
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The Catherine Wheel
Smith's Yard
CHEAP STREET
Plenty's Place (One-way)
Movement joint
Ashton Court
Victoria Court
Iron Yard
MARKET STREET
Proposed new layby parking.
Existing Vehicular Ramp to be made into A Pedestrian Access and Retained by the Existing Dwellings.
Existing structure to be retained

Legend:

- 450mmx450mm Concrete column
- 300mm thick concrete slab
- Existing slab for ESS room
- 250mm thick concrete core wall
- Masonry Cavity wall
- Existing structure
- 225mm thick concrete slab

Level 0 (Ground Floor)
67 spaces
(inc. 19 disabled bays and 2 parent & child bays)

SCALE 1:200

LOCHAILORT

Robert Bird Group

Title: Preliminary Ground floor Plan			
Project: Kennet Centre			
Job No: 4508	By: HJ	Chk: CE	App:
Date: 09.08.24	Status: FOR INFORMATION		
Sketch No: 4508-RBG-ZZ-XX-RBG-SK-S-0002			Rev: P03

Preliminary Ground Floor Plan

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5. Interstory height is assumed to be 3.4m as no additional information has been provided. This can be modified in the next design phase
6. All piles are to be 1.2m min away from existing walls/structure to ensure structure is not compromised and for sufficient room for a piling rig. Existing party walls are to be isolated from new structure with no vertical transfer of load.
7. Sketches are based off information made available at the time of production. Additional information may alter proposal provided.
8. Scheme assumes that excavation of new footings and foundations are to be suitable offset form existing party walls to avoid any under pinning.

Transfer beams below to allow for discontinuous wall through retail space

Transfer beams required above the car access

Transfer beams required above the car access

Transfer beams required above the car access

Transfer beams required above the car access

Transfer beams required above the car access

Transfer beams required above the car access

Movement joint

Concrete drag beam

Movement joint

Concrete drag beam

Legend:

- 450mmx450mm Concrete column
- 225mm thick concrete slab
- 300mm thick concrete slab
- 250 mm thick concrete core wall
- Masonry Cavity wall
- 225mm thick concrete floor slab one-way spanning
- Existing structure
- Masonry Cavity wall - below
- New steel structural beams and columns
- 225mm thick concrete slab

NOTES

1. Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding.

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3. Direct scaling off the drawing is permissible for planning purposes only.

LOCHAILORT

Robert Bird Group	Title: Preliminary typical suspended floor plan			
	Project: Kennet Centre			
	Job No: 4508	By: HJ	Chk: CE	App:
	Date: 09.08.24	Status: FOR INFORMATION		
	Sketch No: **4508-RBG-ZZ-XX-RBG-SK-S-0003**			Rev: **P03**

Preliminary Typical Suspended Floor Plan

Notes:

1. The sketches provided are for high level planning and co-ordination only and are subject to further design development in the next phase of design.
2. Floors are assumed to be 225mm thick concrete to give the worst case loading on foundations. Alternative floor systems can be explored at the next phase of design.
3. Piles capacities provided are based on '4508-RBG-ZZ-XX-RP-GE-001 P01' dated September 2020. The capacities are provided for 600 diameter piles. 450CFA pile capacities will need to be verified by the geotechnical engineer or pile contractor at the next phase. Due to number of piles, it is assumed working and preliminary testing of piles will be undertaken allowing high loaded piles.
4. Total number of piles are as follows:
   20m deep 450CFA = 330 piles
   25m deep 450CFA = 275 piles
5. Interstory height is assumed to be 3.4m as no additional information has been provided. This can be modified in the next design phase
6. All piles are to be 1.2m min away from existing walls/structure to ensure structure is not compromised and for sufficient room for a piling rig. Existing party walls are to be isolated from new structure with no vertical transfer of load.
7. Sketches are based off information made available at the time of production. Additional information may alter proposal provided.
8. Scheme assumes that excavation of new footings and foundations are to be suitable offset form existing party walls to avoid any under pinning.

NOTES

1. Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding.
2.
3. Direct scaling off the drawing is permissible for planning purposes only.

THE ARCADE
The Globe Inn
The Arthouse
Artist's Mews (North)
The Gallery
Eagle House
Eagle Yard
Eagle Lodge
MARKET PLACE
William Hill
Artist's Mews (South)
Kiln House
Crown Court
BARTHOLOMEW STREET
The Newbury
Falkland Place
Falkland Lodge
Ulvntone House
Newburgh House
The Manor
Falkland House
Essex House
Crown House
The Barn
Falkland Place
Alma Court (North)
Gerard House
Kimber House
The Catherine Wheel
St Bartholomew House
Alma Court
The Smithy
Smith's Yard
Alma House
Alma Court (South)
Alma Cottage
The Bellows
The Forge
Kennet House
Charlton House
Dolman House
Coppersmith House
Whitesmith House
Chestnut House
Ashton Thicket
Plenty's Place
Movement joint
Craven House
The Fane
Herborough House
Winchcombe House
Ashton Court
Victoria House
Victoria House
Victoria Court
The Workshop
Iron Yard
Pellew House
Edward House
CHEAP STREET
BUS STOP
Car Park
Total Spaces: 470
Leisure Block
Vue Cinema & 4 Commercial Units
MARKET STREET
New

Legend:

- Standard timber roof truss with tiled roof
- Concrete floor per typical floor plate

SCALE 1:200

LOCHAILORT

Robert Bird Group

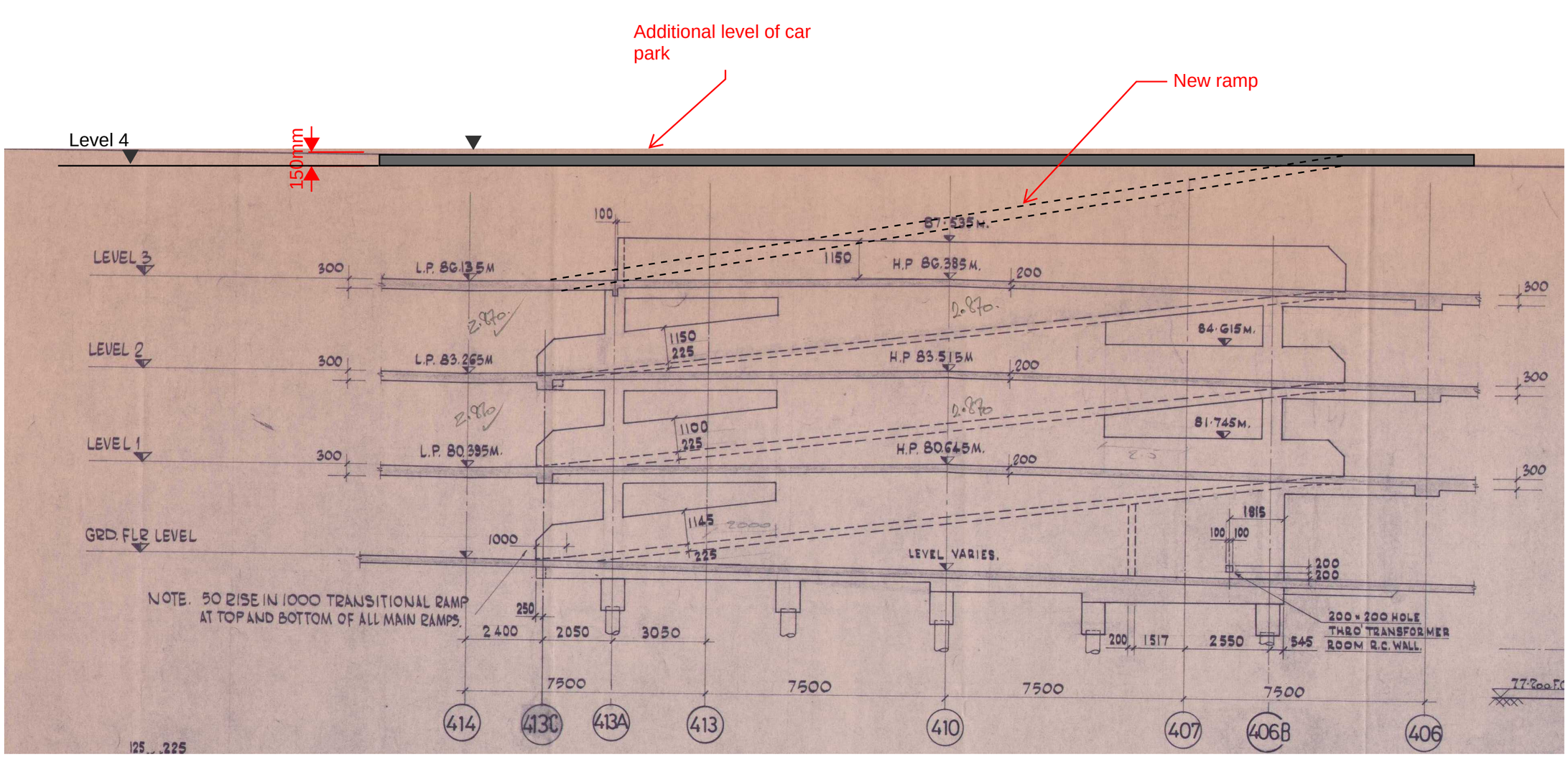
Title: Preliminary Roof Plan			
Project: Kennet Centre			
Job No: 4508	By: HJ	Chk: CE	App:
Date: 09.08.24	Status: FOR INFORMATION		
Sketch No: 4508-RBG-ZZ-XX-RBG-SK-S-0004			Rev: P03

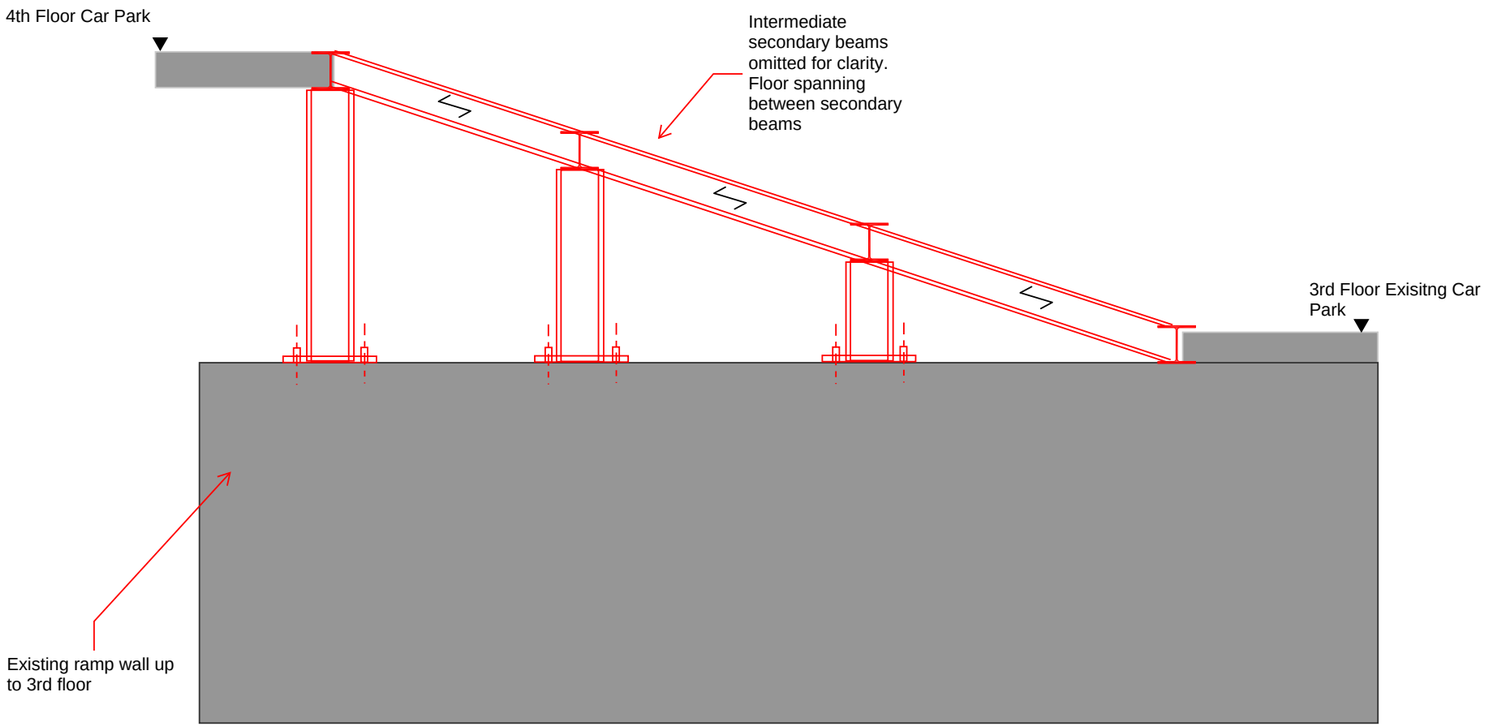
Preliminary Roof Plan

Appendix B – Structure Scheme Sketches MSCP extension

Robert Bird Group

Title: Car Park Scheme - L4 New Structure			
Project: Kennet Centre			
Job No: 4508	By: AA	Chk: CJE	App: CJE
Date: 09/08/2024	Status: FOR INFORMATION		
Sketch No: 4508-RBG-ZZ-XX-RBG-SK-S-0009			Rev: P03





Robert Bird Group	Title: Car Park Scheme - L4 New Structure			
	Project: Kennet Centre			
	Job No: 4508	By: AA	Chk: CJE	App: CJE
	Date: 09/08/2024	Status: FOR INFORMATION		
	Sketch No: **4508-RBG-ZZ-XX-RBG-SK-S-0009**			Rev: **P03**