



52-55 FRIAR STREET
AND 12 GREYFRIARS ROAD
READING
RG1 1DX

STRUCTURAL FEASIBILITY

Revision
1.0
2.0

Notes
Issued for draft comments
Issued for Planning

Issued by
SCL
HR

Date
12th Nov 2015
27th Oct 2016

SCL/PC/8939

OCTOBER 2016

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1.0 Introduction

The site is located in Reading town centre.

The current property is described within CBRE Building Survey Report dated November 2014 and consists of a reinforced concrete frame of 3 storeys plus basement level constructed circa 1965. A Phase 1 Environmental Assessment produced by WSP UK Ltd is appended to the CBRE report.

The building is currently occupied by Sainsbury's and is used as a supermarket with associated ancillary space.

This feasibility has been instructed by Aviva Investors on behalf of CIP Property (AIPT) Limited to review alternative uses for the site.

There is significant development proposed around Reading Station and to the boundary of the site, the area concerned being known as Station Hill.

Proposals for the site are to be reviewed with this in mind as regards likely planning constraints.

2.0 Site History

The site is located approximately 270m south west of Reading train station in a predominantly retail and commercial area with some residential properties also present.

Historical maps within the WSP report indicate that from at least 1879 the site consisted of residential and commercial properties.

Other uses over the years are indicated as coal yard, drying ground, a small dairy, hall and other presumed commercial properties.

Between 1962 and 1969 the eastern part of the site had been redeveloped and by 1974 the site appears as present.

Surrounding sites are indicated as having significant industrial usage, the majority of areas redeveloped to those current.

3.0 Ground Conditions

Local Geological Maps and boreholes describe the area as consisting of the Seaford and Newhaven Chalk formation overlying the chalk aquifer.

It is anticipated that there will be a combination of fill, alluvium, gravel and chalk with the local water table in the region of 4-6m below ground.

4.0 Contamination

The WSP report concludes that the site is unlikely to represent a significant contamination risk and that for continued retail land use the site represents a low risk with regard to contaminated land liabilities.

In the event of redevelopment intrusive investigations will be required and it is likely that some contaminated soil will be found but this can be dealt with as part of the normal site clearance works.

5.0 Flood Risk

The site is within zone 1 as defined within Environment Agency guidelines and therefore flood risk is considered low and should not be an impediment to development.

6.0 Topography

There is a significant level change across the site which is indicated on the topographic survey. There is a drop of 3.5-4m from Friar Street at the front of the site to the rear.

7.0 Archaeology

In a report prepared by Wessex Archaeology and relating to the adjacent Bridewell House and Samuel House which abut the site, the conclusion is that significant remains are unlikely to have survived the modern construction and associated ground disturbance but that a watching brief could be maintained during any intrusive groundworks.

It is likely that similar will apply to this site but that a site specific report will be necessary and the possibility of some further investigation during redevelopment.

8.0 Easements

It is recommended that the building deeds be reviewed for any easements or wayleaves which may affect the site.

This relates also to below ground services and we understand that the services engineers Hurley Palmer Flatt are undertaking searches in that respect.

There is an existing substation towards the rear of the site which we understand will need to be retained and likely increased in size as part of any redevelopment proposals.

9.0 Crossrail

Our searches indicate that we are clear of the Crossrail exclusion zone which is close to the station.

10.0 Building Height

Wind studies may be required dependent on final building height.

11.0 Cumulative Effect

Due to the scale of the Station Hill development it is likely that anything undertaken on our site will be viewed cumulatively with regard planning and infrastructure constraints/opportunities.

12.0 Party Walls

There are various party wall constraints as is normal for a city centre development.

It does appear that the building has been constructed independently from those adjacent but investigations are required as regards adjacent levels outside of the current topographic survey scope and a search of historic party wall awards in order to better understand constraints.

13.0 Development Proposals

The feasibility has reviewed different building massing and uses for the site informed by current proposals for the adjacent Telecoms House site and initial discussions with the planners.

Regarding structural aspects, building volumes have been similar for each scheme and therefore, although uses investigated have been different, constraints and structural form for each have been similar.

The current favoured scheme is for 10 storeys of residential accommodation with ground floor retail and commercial space, landscaped podium level and basement car park, plant and associated ancillary space.

14.0 Structural Appraisal

The principal structural frame and other associated elements are summarised for incorporation within the cost plan.

At the next stage of design and ultimately in consultation with tendering contractors, alternatives will be considered as informed by further investigations, design development, market forces and programme requirements.

Building Superstructure

A reinforced concrete frame with downstand beams and walls is suited to this type of residential accommodation.

The construction is robust and inherently stable with good acoustic and fire resistance properties.

Construction and building height are eased by limiting downstand beams and similarly the transmission and location of services is flexible.

Due to the change of use and hence likely different column grid at lower levels between the residential, commercial, retail and car park areas, transfer structures at these levels are currently presumed.

Blade columns will be hidden in party walls and services risers in non-sensitive areas can be accommodated.

The full brick façade will mean some edge stiffening to slabs will be necessary, by way of downstand beams.

Balconies where they occur will be an extension of the floor slab with structural thermal breaks.

It is presumed at this stage that the majority of the party walls between flats will be lightweight studwork; some RC walls will be present where structurally necessary.

Where duplexes are proposed further structural transfer will be required.

Where lightweight feature roofs or canopies occur it is presumed that these will be constructed in steel with an architectural finish.

It is likely that green roofs and associated secondary planting will be incorporated at high level and consequently the density of the structure will increase in these areas.

All core walls will be constructed in reinforced concrete in order to assist with the overall building stability but also for ease of construction.

The brickwork façade is to be supported off Halfen channels, or similar, at every other level. Restraints provided at every level at slab locations.

The ground floor central podium will be subject to significant landscaping loads and also potentially cherry picker access and therefore the structural slab in this area will need to be more robust in nature.

Substructure

There is an existing basement over the rear part of the site tending to grade due to the slope of the land.

It is proposed that the existing slab and building foundations will be removed and new piles, pile caps and ground floor slab together with retaining walls where required will be cast. Piles to be constructed with sleeves to avoid cross-contamination between soil strata.

A normal basement waterproofing system will be required with a secondary line of defence such as waterproof concrete or internal cavity drainage incorporated where the use of space requires.

Underground Drainage

Following the TWS study into the existing capacity with the local drainage board, it has been found that the foul water has sufficient capacity. Attenuation and SUDS will be necessary for the surface water, see TWS “Drainage and SUDS report” for full details.

Dependent on final invert levels some pumping may be necessary and a number of new connections to the mains should be presumed.

15.0 Outline Specification

All materials and workmanship are to comply in all respects with current British Standards, Eurocodes and the Building Regulations.

The design of the structure will be carried out in accordance with the following Codes of Practice. Eurocodes may be substituted where their use is required or will lead to a more economic design.

Loading	BS 6399
Foundations	BS 8004
Concrete	BS 8110
Steelwork	BS 5950
Timber	BS 5268
Masonry	BS 5628

Loadings

The following Imposed Loads are at this stage presumed:

Residential accommodation	1.5kN/m ²
Balconies apartments	1.5kN/m ²
Balconies communal	same as room served with a minimum of 3.0kN/m ²
Corridors and stairs	3.0kN/m ²
Office areas general	3.5 + 1.0kN/m ²
Office storage	5.0kN/m ²
Retail shopping	4.0kN/m ²
Retail storage	2.4kN/m ² per metre of storage height
Plant and equipment	7.5kN/m ²
Podium slab	10.0kN/m ²
Car parking	2.5kN/m ²

Wind Loads

To be determined subject to final massing and configuration.
Studies may be required.

Below Ground Drainage

The below ground drainage system will be designed in accordance with the following together with other guidelines which may from time to time apply:

BS EN 752

BS EN 1295-1

Building Regulations Part H

The SUDS Manual Ciria C697

National Planning Framework

Defra/Environment Agency Technical Report WS-074/A/TR/1

Sewers for Adoption (Current Edition)

Typical Quantities

Residential floor slabs: 225-250mm thick

Residential balconies: same as floor slab.

Blade columns: 200mm thick.

Transfer structures (Duplex's): 300mm.

Podium structure: 800mm overall thickness, beams and slabs .

Basement slab: 250mm thick.

Pile caps: 1200mm thick.

Bored Piles: 600-900mm diameter.

Concrete core walls: 150-200mm thick.

Typical slab reinforcement: 165kg/m³

Walls: 125kg/m³

Roof steelwork: 30kg/m²

Underground Drainage

Cast iron pipework

Pumps and chambers

New connections to mains

Surface water attenuation volume 175m³

16.0 Planned Further Investigations

Soil investigation

Trial holes to determine party wall construction and existing foundation and slab construction

CCTV drainage survey

Archaeological desk top

Party Wall Search

Risk Factors

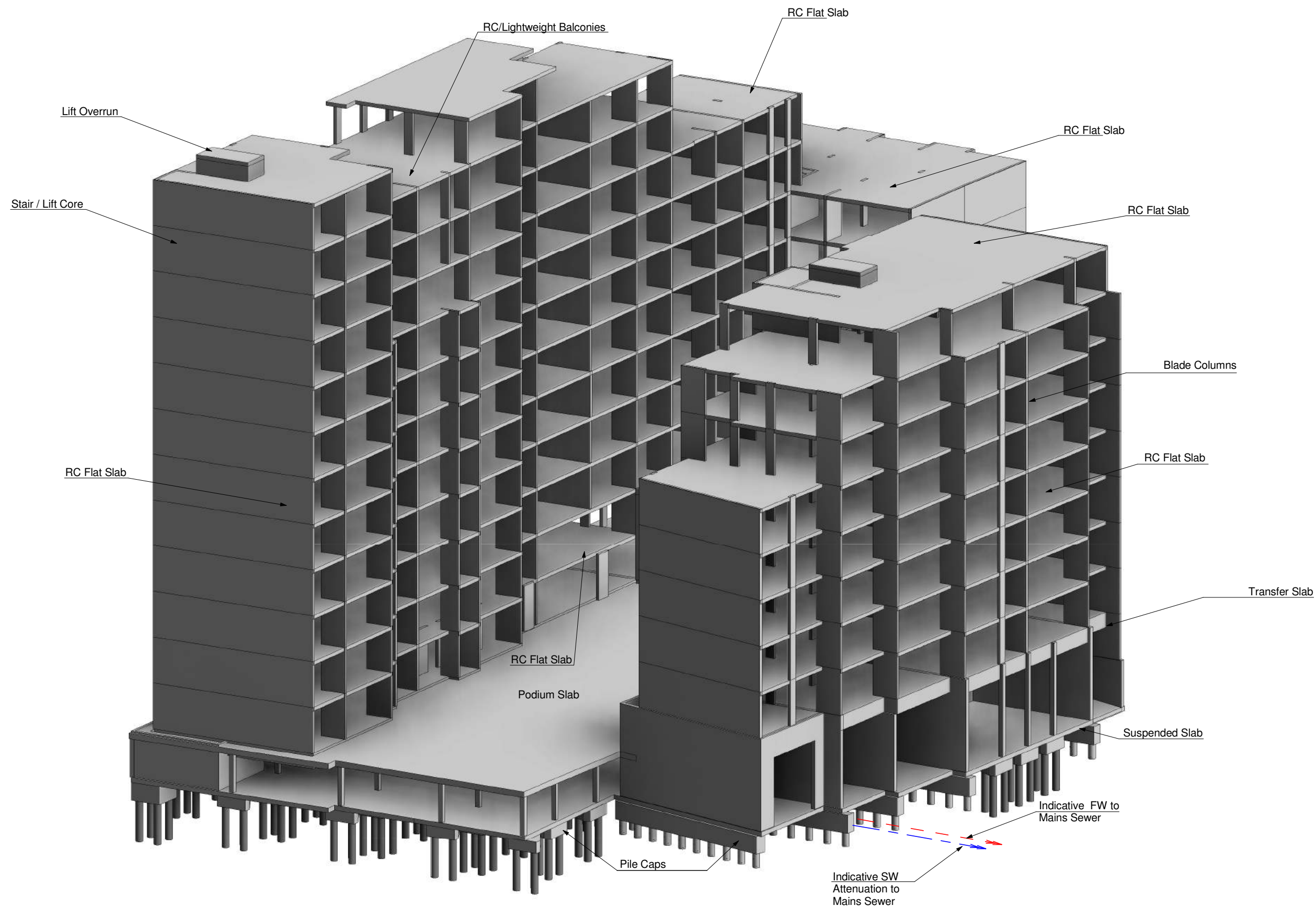
Ground contamination. **Low–Medium**

Appendix A

Structural Proposals 3D Views

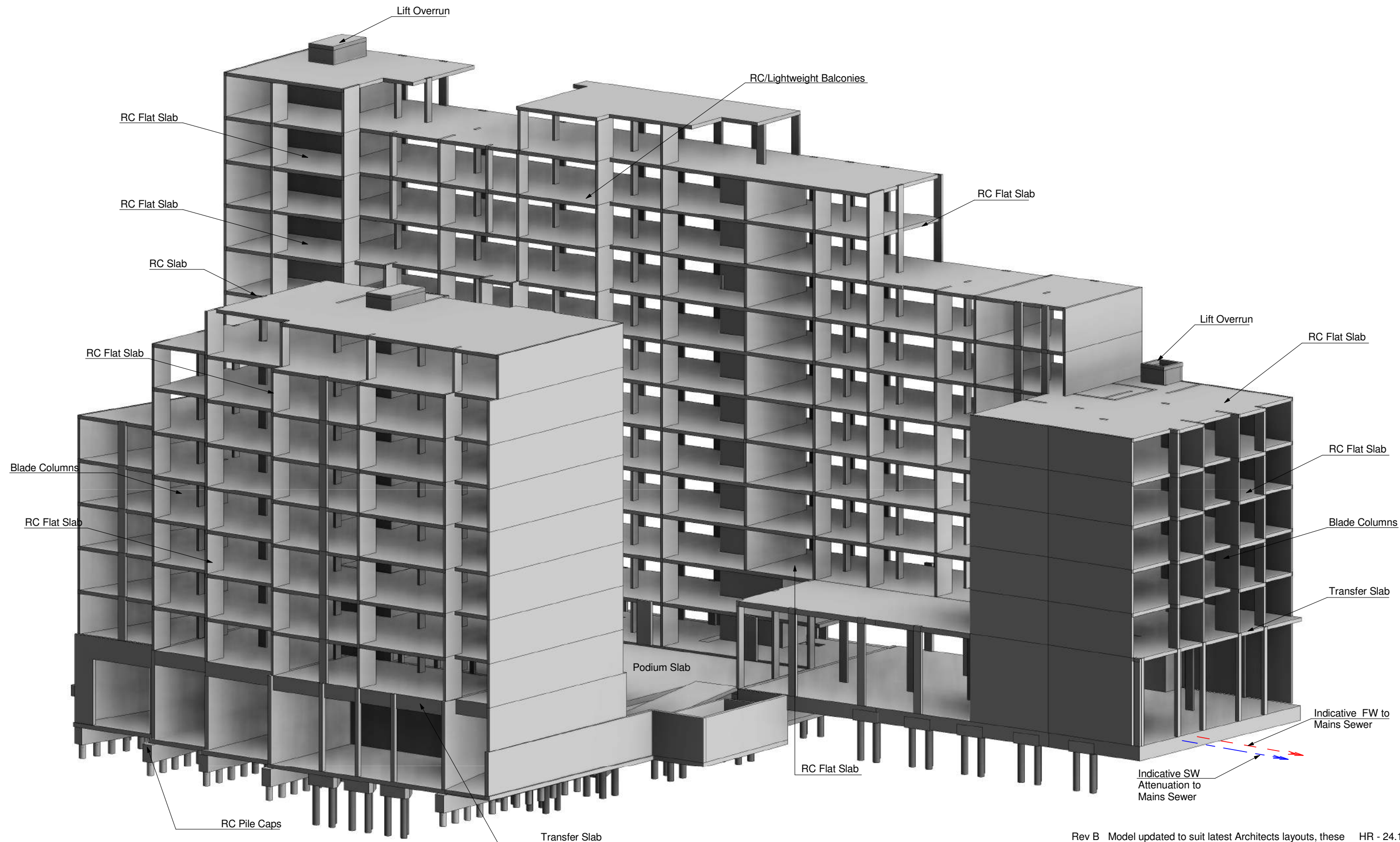
APPENDIX A

STRUCTURAL PROPOSALS 3D VIEWS NOS. 8939/3D-01 AND 8939/3D-02



Rev B Model updated to suit latest Architects layouts, these include: Slab extents of Levels 7 - 9 decreased HR - 24.10.2016

Rev A Model updated to suit latest Architects layouts, these include: Extents of Levels 7 - 10 increased, Elevations changed, Stair/Lift Cores repositioned LjW - 04.07.2016



- Rev B Model updated to suit latest Architects layouts, these include: Slab extents of Levels 7 - 9 decreased HR - 24.10.2016
- Rev A Model updated to suit latest Architects layouts, these include: Extents of Levels 7 - 10 increased, Elevations changed, Stair/Lift Cores repositioned LjW - 04.07.2016