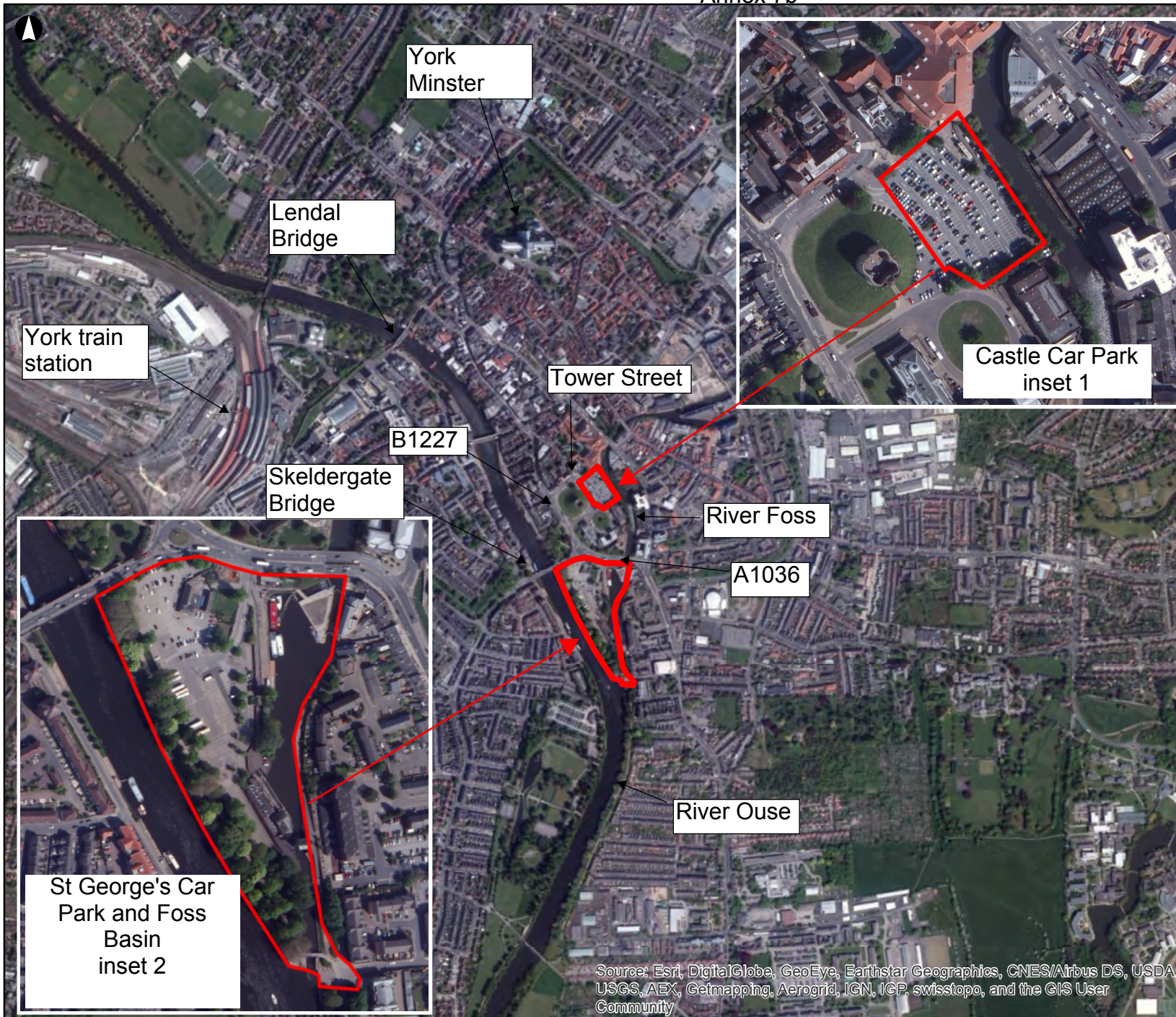


Appendix A

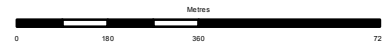
Sketches

Annex 7b



PO	2015-05-22	AP	AP	AP
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Issue	Date	By	Chkd	Appd
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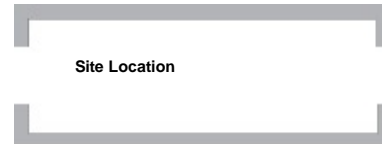


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City of York Council

Job Title
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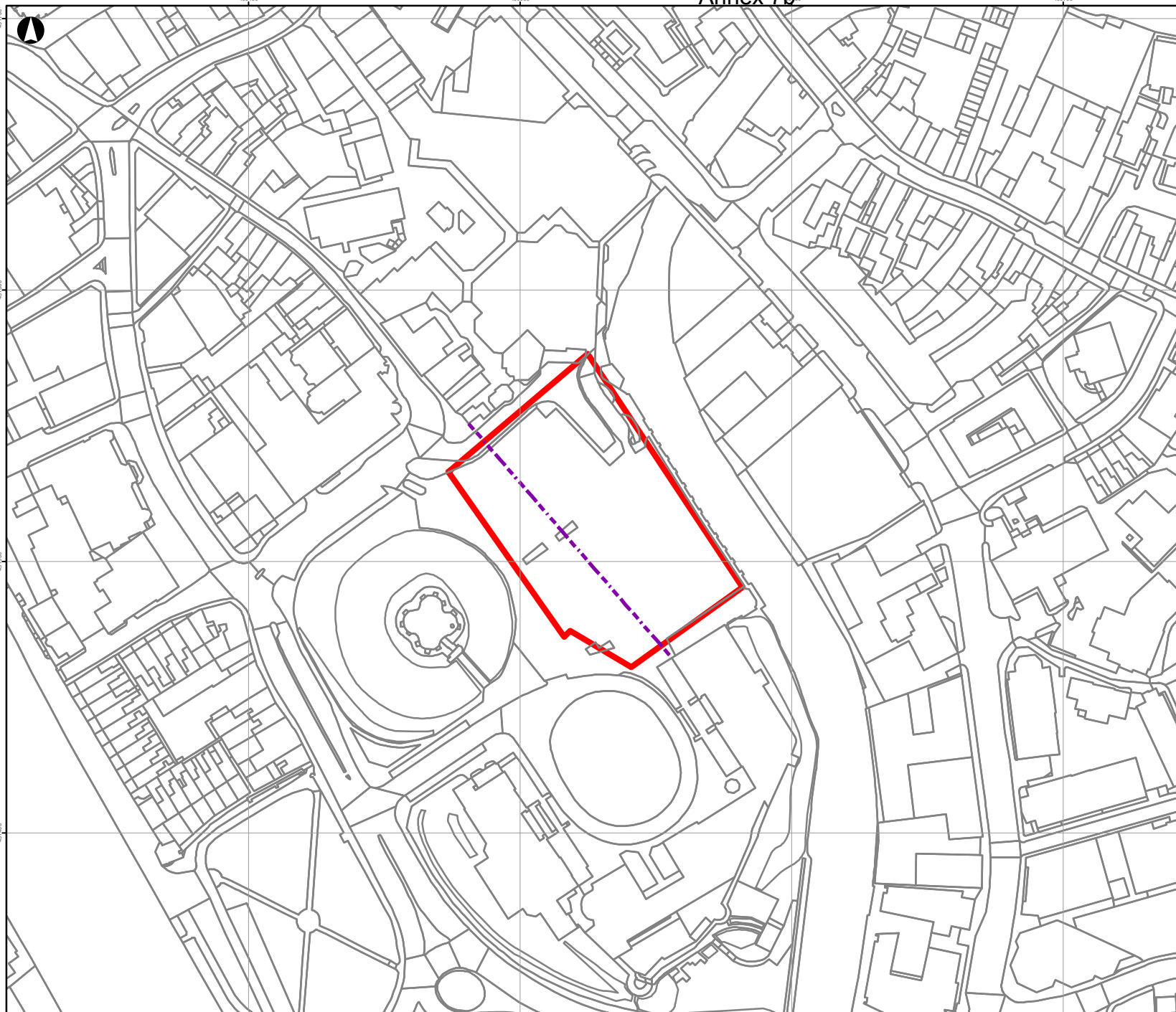


Scale at A4
1:15,000

Job No 242845	Drawing Status Preliminary
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Drawing No SKETCH 1	Issue PO
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

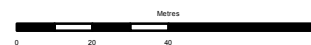


Legend

- - - - Above Ground Construction Line
- Basement Development Area

P0	2015-04-24	AP	AP	AP
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Issue	Date	By	Chkd	Appd
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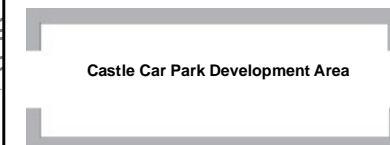


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Scale at A4
1:2,000

Job No 242845	Drawing Status Preliminary
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Drawing No SKETCH 2	Issue P0
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Issue	19/05/15	NJH	xx	xx
	Date	By	Chkd	Appd

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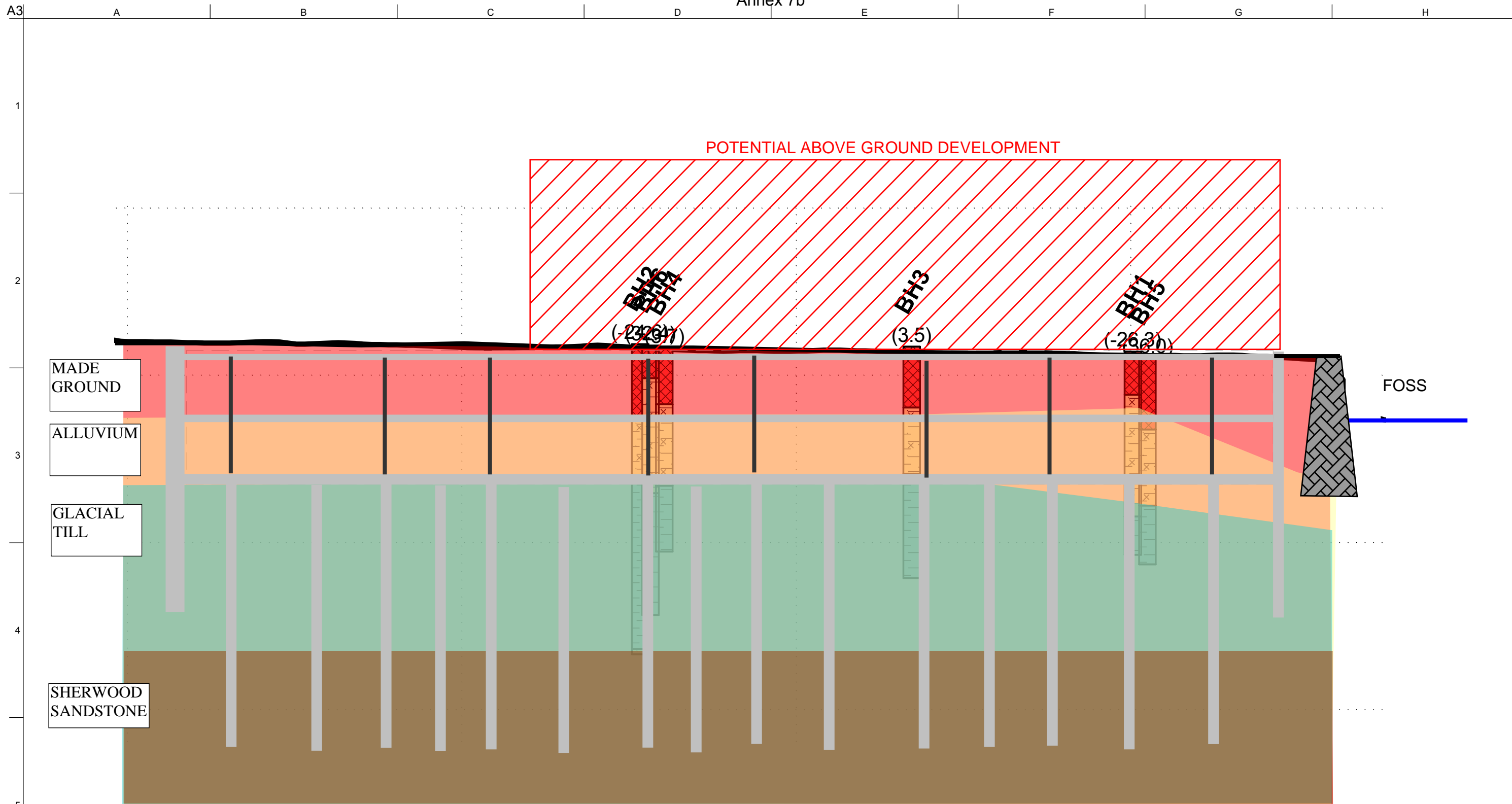
**Basement Geological
Section**

Scale at A3 **NTS**

Discipline **Structural**

Job No **242485** Drawing Status **Feasibility**

Drawing No **Sketch 3** Issue **1**



Issue	19/05/15	NJH	xx	xx
	Date	By	Chkd	Appd

ARUP

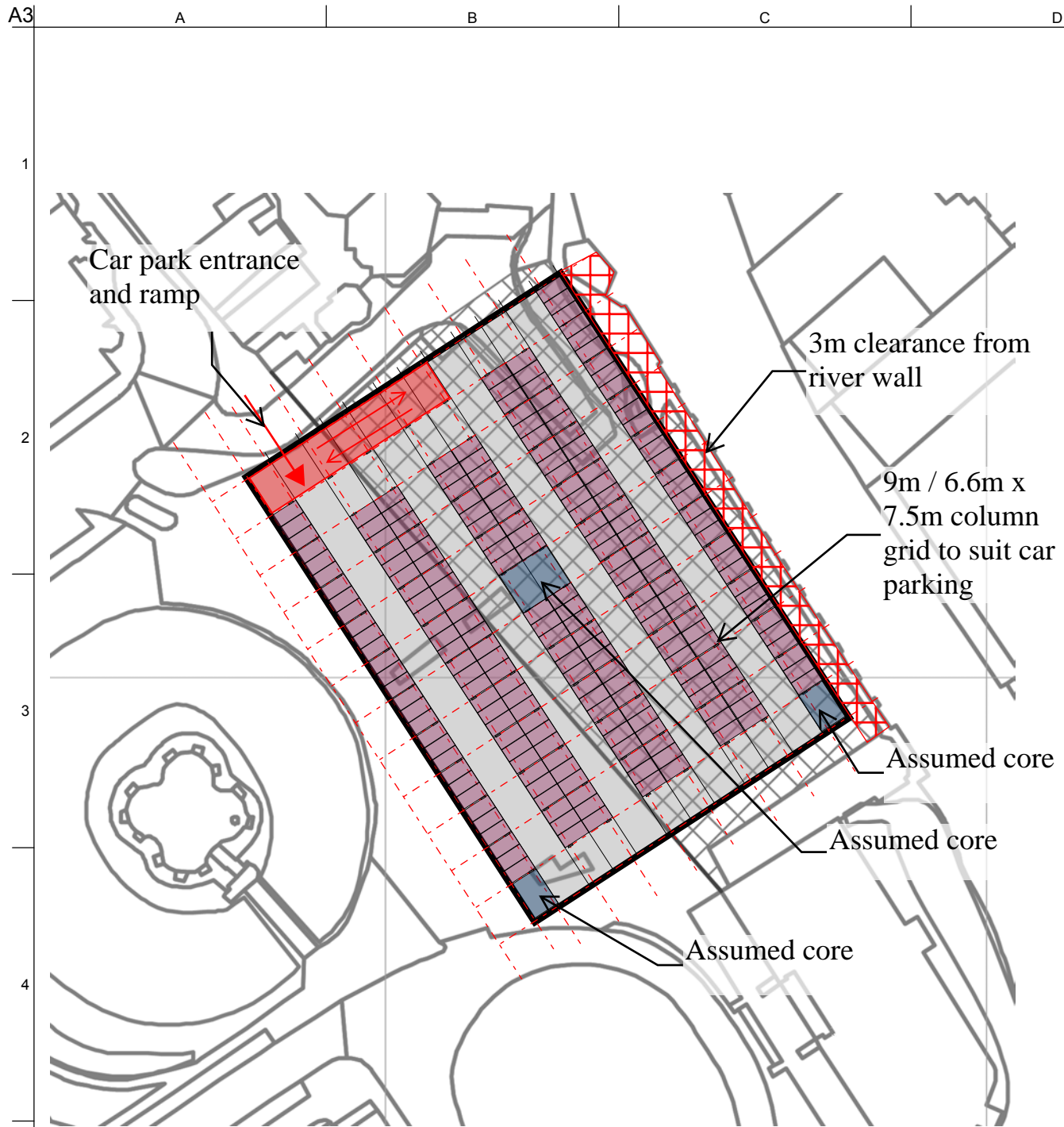
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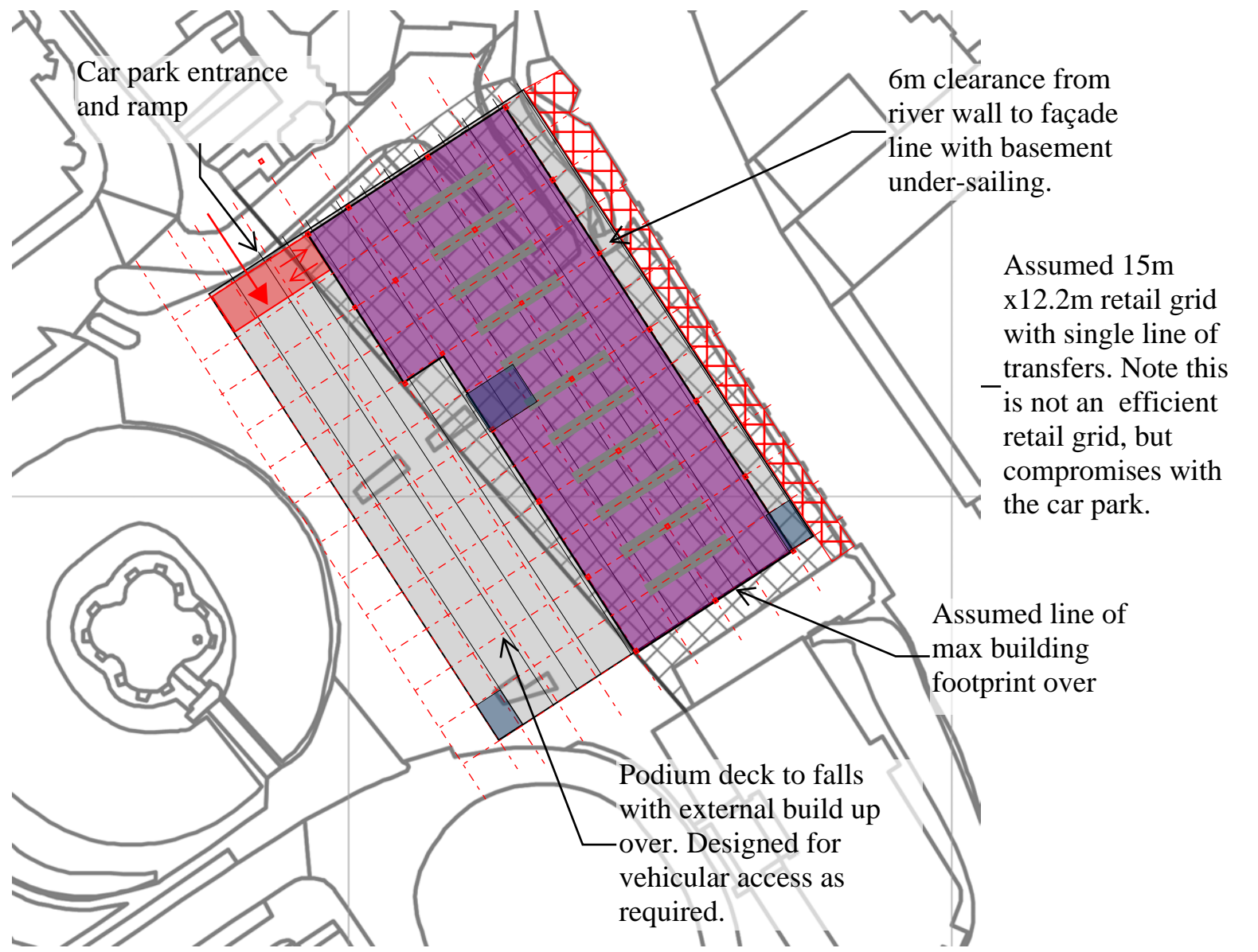
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City of York Council

**Basement Section
2 level option**

Scale at A3	NTS	
Discipline	Structural	
Job No	242485	Drawing Status
		Feasibility
Drawing No	Sketch 4	Issue
		1



Basement Plan : approx 1:1000
 (assume two storey option plan similar)



Ground Level Plan : approx 1:1000

Issue	19/05/15	NJH	xx	xx
	Date	By	Chkd	Appd

ARUP

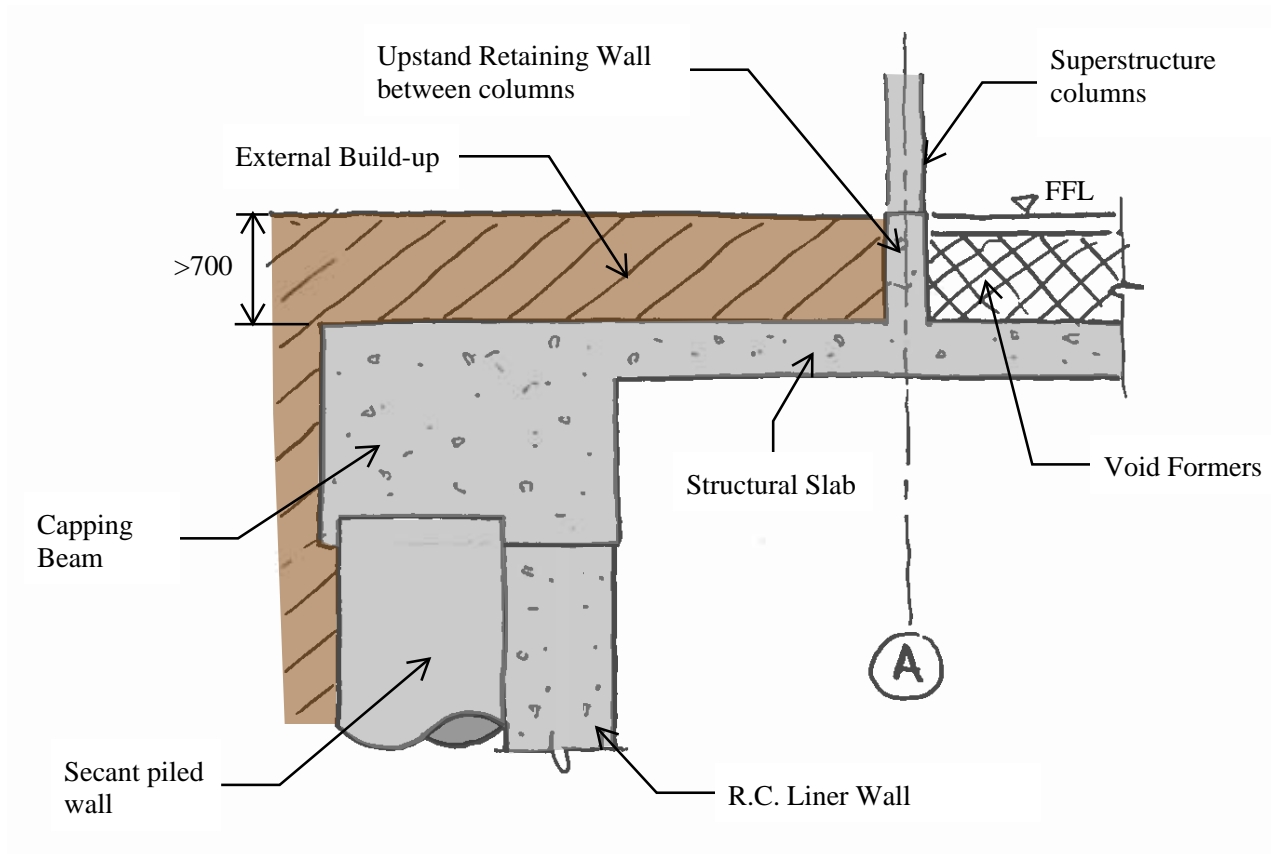
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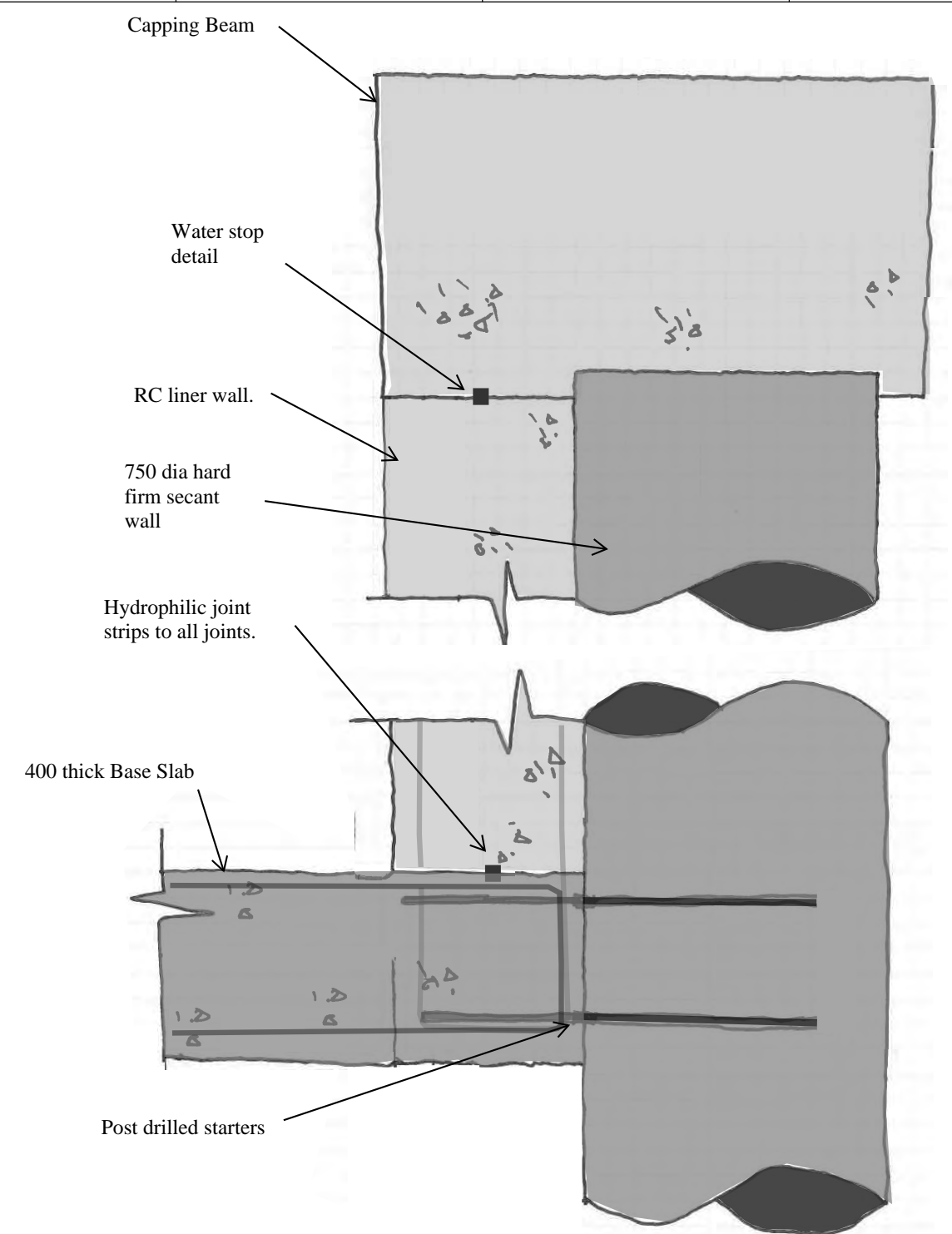
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**Basement and Ground Floor
 Plans**

Scale at A3 NTS	
Discipline Structural	
Job No 242485	Drawing Status Feasibility
Drawing No Sketch 5	Issue 1



Section through capping beam
Showing Assumed Build up
common to both options



Detail section through Basement
wall - Single Storey

Issue	19/05/15	NJH	xx	xx
	Date	By	Chkd	Appd

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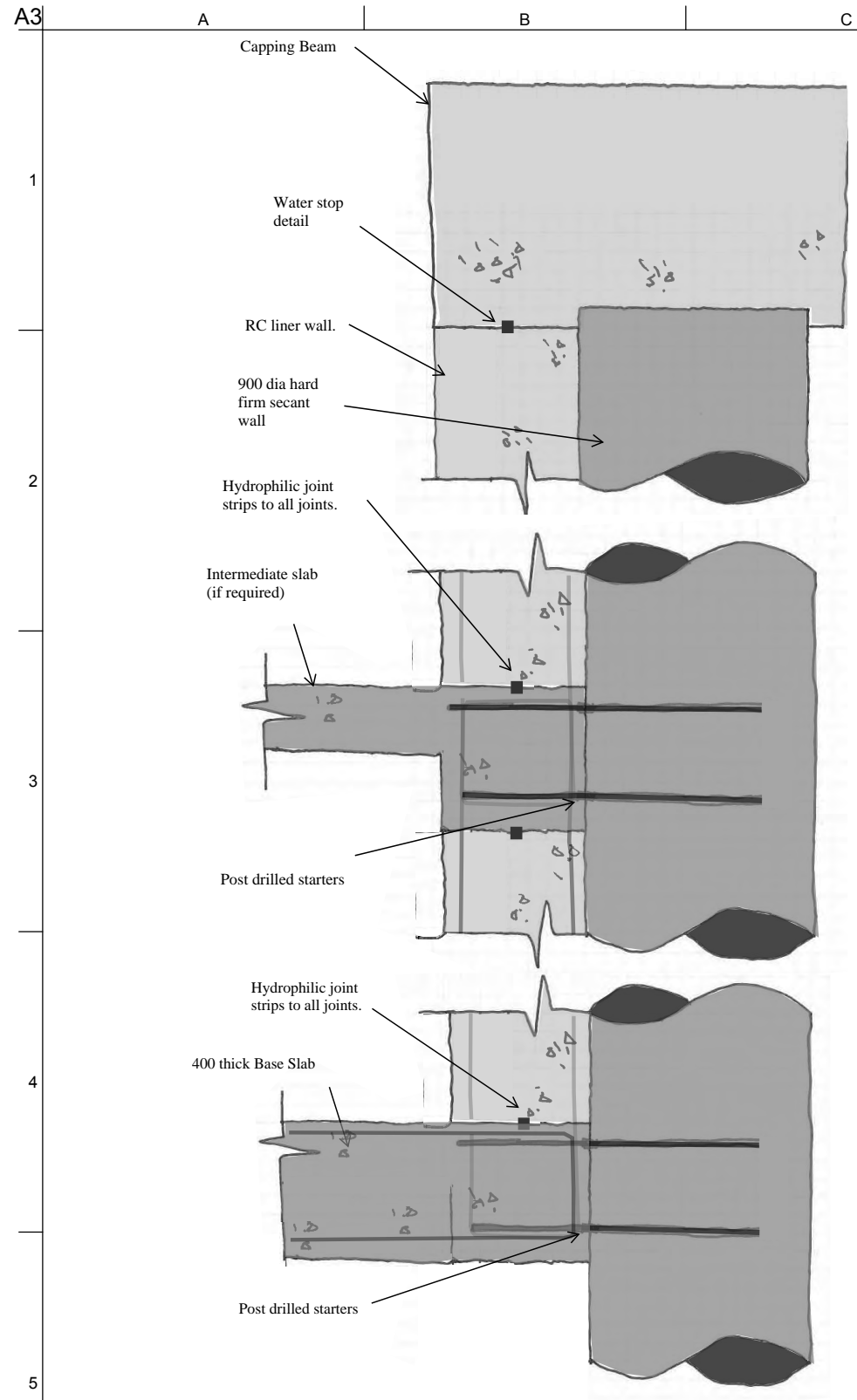
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Job Title
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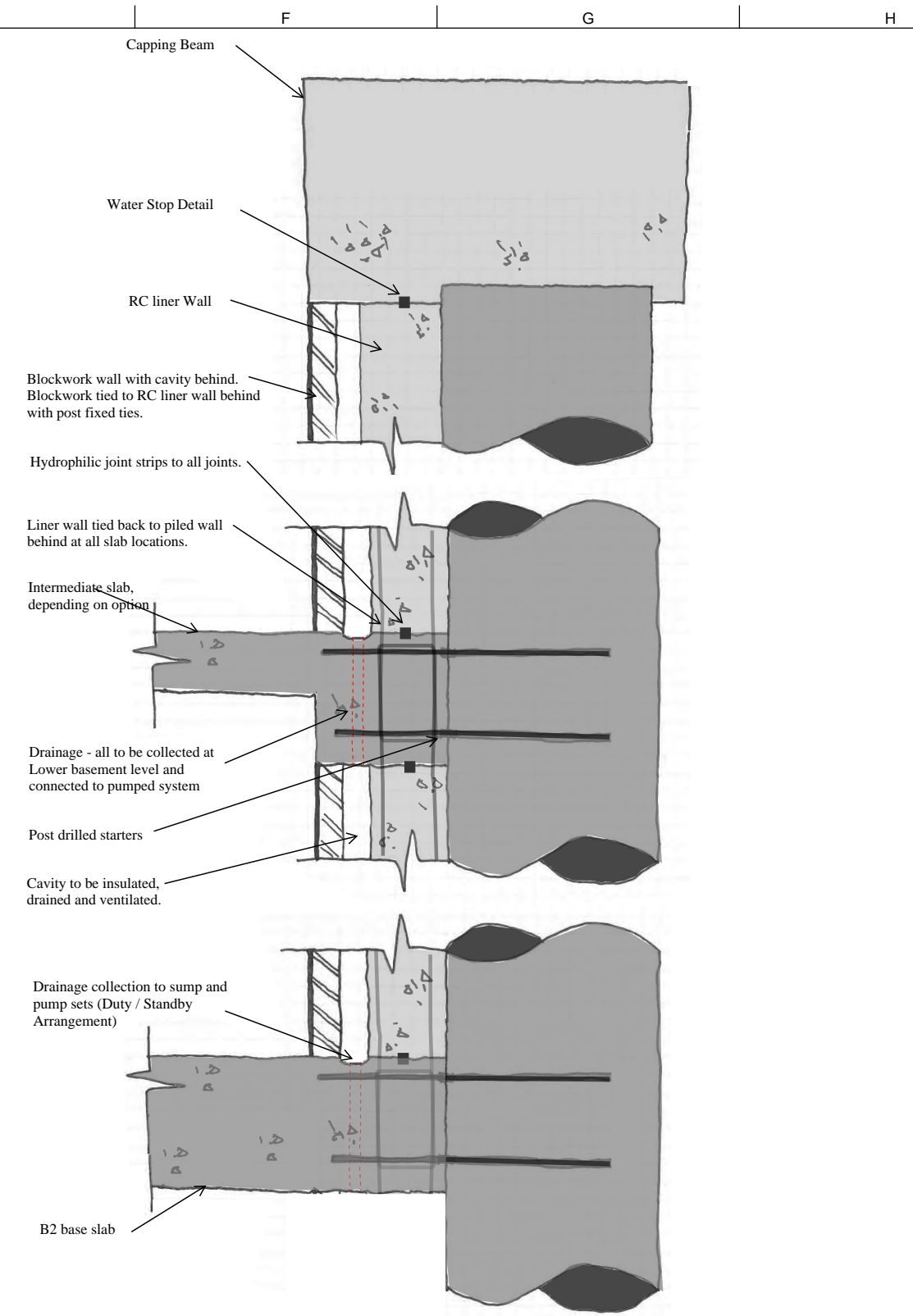
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Single Storey Basement
Option Wall Details

Scale at A3	NTS
Discipline	Structural
Job No	242485
Drawing Status	Feasibility
Drawing No	Sketch 6
Issue	1



Detail section through Basement wall - Two Storey



Alternative Detail for Basement Retail with Drained Cavity and Liner Wall

Issue	19/05/15	NJH	xx	xx
	Date	By	Chkd	Appd

ARUP

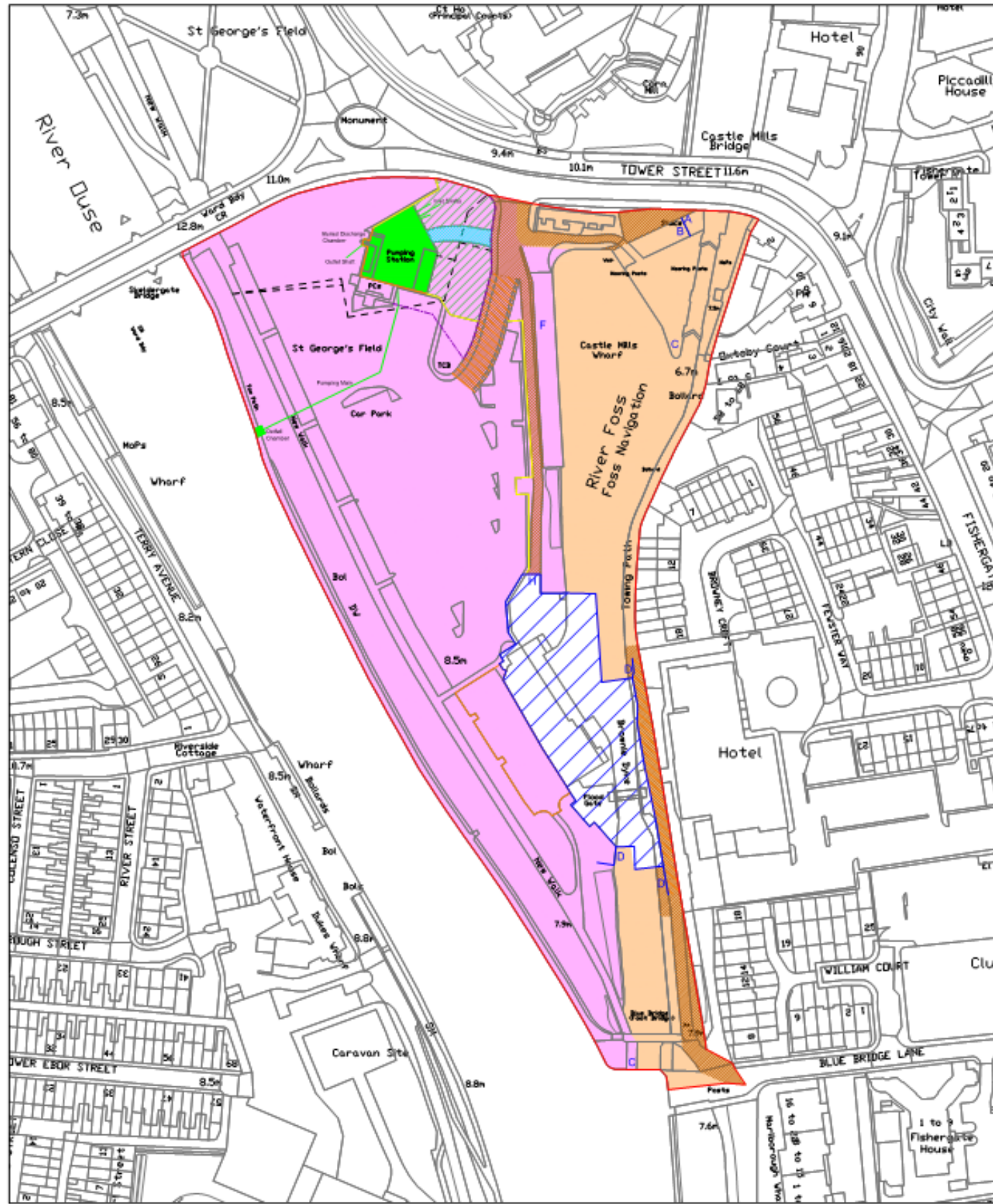
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**Alternative option Wall
Details**

Scale at A3	NTS	
Discipline	Structural	
Job No	242485	Drawing Status
		Feasibility
Drawing No	Sketch 7	Issue
		1



Foss Basin Ownership (Subject to Legal Confirmation)

Land Ownership

- Owned by City of York Council (Freehold)
- Registered NYK393703
No Deeds
Possible unknown restrictions/covenants
- Acquired via statute

Castle Mills Pumping Station

- Owned by Yorkshire Water (Freehold)
 - Flood Walls - responsibility of Environment Agency
 - Flood Walls - responsibility of Yorkshire Water
 - Outfall Chamber, Inlet Shafts, Buried Discharge chamber, Outlet Shaft, Pumping Main
- NB Consultation with Yorkshire Water and Environment Agency required on all underground apparatus in terms of positioning and obsolescence
- Roadway Access Rights to Yorkshire Water. Yorkshire Water responsible for maintain access roadway and associated drainage
 - Landscaping Responsibility Yorkshire Water

Foss Barrier

- ▨ Owned by Environment Agency (Freehold)

Apparatus in Environment Agency Ownership situated on City of York Council Owned Land

- A Water Level Measuring Equipment
- B Sluice
- Flood Walls
- C Navigation Lights
- D Metal Sheet Piling and Railing

NB Cables and Foundations associated with Foss Barrier operation also on City of York Council Owned land
Flood Walls have foundations 2.1m wide
Consultation required with Environment Agency on underground positioning and obsolescence

- ▨ Ramps - Prohibition on lowering/interfering with levels (maintained by Environment Agency, including retaining walls/guard rails. Excludes the surface and rails of larger ramps situated between Tower Street and St George's Field Car Park).
 - Working Area - Prohibition on erecting temporary/permanent buildings or structures
 - ▨ Environment Agency Vehicular Rights of Access
 - F-H Environment Agency maintain surface
 - Telecom Wayleave
 - Electricity Wayleave
 - Gas Wayleave - No details of position
- All positioning of service runs need to be checked on site

As provided by CYC

Issue	Date	By	Chkd	Appd
	19/05/15	NJH	xx	xx

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Foss Basin Ownership

Scale at A3 NTS	
Discipline Structural	
Job No 242485	Drawing Status Feasibility
Drawing No Sketch 8	Issue 1

A3

A B C D E F G H



Paalwoningen 'stilt houses',
Haarlemmermeer, Holland,
www.waterstudio.nl.



'Flood House'
<http://www.trendhunter.com/trends/f9-productions-flood-house>



Floodplain houses - UK
design
<http://www.dailymail.co.uk/news/article-2799081/Council-plans-flood-plain-houses-S-TILTS-safe-extreme-weather.html>



'York - Skeldergate on the River Ouse'

Issue	19/05/15	NJH	xx	xx
	Date	By	Chkd	Appd

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City of York Council

**Examples of Raised
Structures**

Scale at A3	NTS	
Discipline	Structural	
Job No	242485	Drawing Status
		Feasibility
Drawing No	Sketch 9	Issue
		1

Appendix B

Feasibility Cost Estimate



Annex 7b

City of York Council

Castle Piccadilly

York

Engineering Constraints Study

Basement Car Park Options - Feasibility Estimate

July-15

**ARUP
Admiral House
Rose Wharf
78 East Street
Leeds LS9 8EE**

**Gardiner & Theobald LLP
Russell House
St Paul's Street
Leeds
LS1 2JG**

**Castle Piccadilly - York
Basement Car Park Options - Feasibility Estimate**

	General Summary	Single Level Basement		Two Basement Level	
		£	£	£	£
1	Site Clearance	19,252		19,252	
2	Demolition & alterations to existing development	50,000		60,000	
3	Excavation	799,100		1,450,600	
4	Piling				
	Secant piling to form retaining wall	2,461,264		3,314,879	
	Piling to column bases	651,917		902,262	
5	Temporary works in propping	286,767		316,767	
6	Concrete slabs and tanking				
	Base slab	1,092,420		1,092,420	
	suspended slabs	1,366,150		2,653,204	
7	Concrete lining walls	118,016		262,496	
8	Concrete frame	254,779		509,558	
9	Ramp	120,900		241,800	
10	Staircase / Lift cores (3 nr)	48,750		97,500	
11	Drainage - internal	64,190	7,333,505	107,420	11,028,158
12	Externals		98,040		98,040
13	Footbridge across River Foss		330,000		330,000
			£ 7,761,545		£ 11,456,198
14	Preliminaries	15%	1,164,232		1,718,430
15	Overheads and Profit	8%	714,062		1,053,970
16	Contingency & Risk	20%	1,927,968		2,845,720
			£ 11,567,806		£ 17,074,318
17	Design and engineering fees	12.50%	1,445,976		2,134,290
	Feasibility Cost (2nd Qtr 2015)		£ 13,013,782		£ 19,208,607

Notes:

1 Based on Arup drawings:

Sketch 1 issue 1 - Basement and Ground floor Plans

Sketch 2 issue 1 - Single Storey Basement Option Wall Details

Sketch 3 issue 1 - Alternative Option Wall Details

Summary of Basement Design Assumptions

2 Scope:

Single Level basement - 190 car parking spaces serviced by single ramp, two staircase cores and one staircase and lift core. The construction is shell only with fit-out by tenant / user.

Two Basement Level - 380 car parking spaces serviced by single ramps at each level, two staircase cores and one staircase and lift core. The construction is shell only with fit-out by tenant / user.

Foot bridge across river Foss

Allowance for electrical supply to site for car parking only

2 Exclusions:

Site acquisition costs

Tenant compensation costs or contributions

Remodelling or refurbishing existing car park

Any works to the existing River Foss bank walls

Section 278 highway works

Local authority planning and building regulation fees

Section 106 or Community Charge costs

Any contaminated soils encountered in excavations

Utilities

Archaeological impact

VAT

Castle Piccadilly - York
Basement Car Park Options - Feasibility Estimate
Single Basement Levels

1.00 Site Clearance					£
1.01 Breaking up existing tarmacadam car park	0.5	44.4			
		<u>101.09</u>	2244.20		
	0.5	101.09			
		<u>39.07</u>			
	0.5	55.17			
		<u>12.58</u>	<u>347.02</u>		
			2591.22 m2	5.5	14,252
1.02 General clearance - planting signage lighting etc.			item		<u>5000</u>
					£ 19,252
2.00 Demolition & alterations					
Alterations to Ramp and loading area			say		£ 50,000
3.00 Excavations					
Excavation and cart away		6400.00		exc tip 5.5	
		<u>4.50</u>	28,800 m3	<u>18.75</u>	
				24.25	698,400
Extra for excavating below water table level		6400			
		<u>1.5</u>	9600 m3	4.5	43,200
Extra for dewatering / pumping			say		50,000
Forming access ramp					<u>7,500</u>
					£ 799,100
4.00 Piling					
secant piling - retaining wall					
	piles	537 nr			
	length	6448 m			
750 dia pile - setting up		537 nr	163		87,531
Boring		6448 m	107		689,936
Concrete pile		6448 m	55		354,640
Reinforcement		712.25 tonne	850		605,414
Disposal		2849 m3	18		51,282
Casing below water level		4836 m	85		411,060
Preparing heads of piles		537 nr	63		33,852
Extra for intermediate hard boring		2149 m	32.6		70,068
Obstruction removal		item			25,000
Capping beam					
Concrete in beam		384 m3	120		46,080
Reinforcement		96 Tonne	900		86,400
Formwork to beam		784 m2	70		<u>54,880</u>
					£ 2,461,264
Bases					
	piles	104 nr			
	bored length	1872 m			
	concrete length	1508 m			
750 dia piles setting up		104 nr	163		16,952
	Boring	1872 m	107		200,304
	concrete pile	1508 m	55		82,940
Filling blind bored pile with earth		364 m	12		4,368
	reinforcement	166.58 tonne	850		141,589

	Disposal arisings	666 m3	18	11,993
	Casing below water level	1508 m	85	128,180
	Preparing heads of piles	104 nr	63	6,552
	Obstruction removal	item		5,000
	Pile caps 900 x 1050 x 1000 deep - 104nr			
	Concrete in pile cap	98 m3	110	10,811
	Reinforcement	24.57 tonne	850	20,885
	Formwork	406 m2	50	20,280
	Excavate pile cap and cart away	98 m3	21	2,064
				<u>£ 651,917</u>
5.00	Temporary Propping and Bracing			
	Corner bracing of structure	4 nr	7,500.00	30,000.00
	Raking props bolted to waling	57 nr	3,500.00	200,666.67
	concrete bases to props	57 nr	500.00	28,500.00
	waling beam bolted to concrete piles	320 m	55.00	17,600.00
	remove on completion	item		10,000.00
				<u>£ 286,766.67</u>
6.00	Concrete Slab			
	single basement			
	Base slab:	6400 m2		
	Concrete blinding 75 thick	480 m3	110	52,800
	Concrete slab 400th	2560 m3	112	286,720
	Surface - power float	6400 m2	1.5	9,600
	Reinforcement	640 tonne	1100	704,000
	DPM membrane; taped joints	6400 m2	4.5	28,800
	Expansion joints etc.	350 m	30	10,500
				<u>£ 1,092,420</u>
	Ground Suspended slab:	6400 m2		
	Concrete slab 400th	2560 m3	125	320,000
	Reinforcement	640 Tonne	1100	704,000
	Surface - tamped finish	6400 m2	1	6,400
	Joints	350 m	45	15,750
	Formwork to soffit concrete slab - fair finish	6400 m2	50	320,000
				<u>£ 1,366,150</u>
7.00	Lining wall			
	Concrete wall 300 thick cast next secant piles	192 m3	125	24,000
	Reinforcement	48 tonne	1100	52,800
	Formwork to wall - fair finish	512 m2	65	33,280
	Joints - movement	26 m	10	256
	Water stop joint	640 m	12	7,680
				<u>£ 118,016</u>
8.00	Concrete Frame			
	Columns	60 m3	120	7,188.48
	Reinforcement	14.98 tonnes	1100	16,473.60
	Formwork columns - fair	549 m2	70	38,438.40
	Beams 1500 x 700	389 m3	120	46,710.00
	Reinforcement	97.31 tonnes	1100	107,043.75
	Formwork beams - fair	519 m2	75	38,925.00
				<u>£ 254,779.23</u>
9.00	Ramp			
	Concrete ramp	105 m3	120	12,600
	Reinforcement	26.25 tonne	1100	28,875
	Formwork	263 m2	70	18,375
	Walls	33 m2	350	11,550
	Barriers	70 m	600	42,000
	trimming etc.			7,500
				<u>£ 120,900</u>

11.00 Drainage - Internal			
Channel in concrete with grating	255 m	130	33,150
Cast iron drainage	120 m	80	9,600
Cast iron vertical stack	12 m	120	1,440
Forming sump with grating	item		5,000
Submersible pump and standby (Electrical connection by others)	item		15,000
			£ 64,190
12.00 Externals			
Granular filling over slab	£ 1,596 m3	£ 40	£ 63,840
Bituthene or similar membrane horizontal over concrete (Surfacing by others)	£ 2,280 m2	£ 15	£ 34,200
			£ 98,040
13.00 Foot bridge			
Deck area	132 m2	2500	£ 330,000

**Castle Piccadilly - York
Basement Car Park Options - Feasibility Estimate
Two Level Basement**

1.00	Site Clearance								£
1.01	Breaking up existing tarmacadam car park	0.5	44.4						
			<u>101.09</u>	2244.20					
		0.5	101.09						
			<u>39.07</u>						
		0.5	55.17						
			<u>12.58</u>	<u>347.02</u>					
				2591.22 m2		5.5			14,252
1.02	General clearance - planting signage lighting etc.							item	<u>5,000</u>
									£ 19,252
2.00	Demolition & alterations								
	Alterations to Ramp and loading area							say	£ 60,000
3.00	Excavations								
	two level Basement							exc	5.5
	Excavation and cart away		6400.00					tip	<u>18.75</u>
			<u>8.00</u>	51,200 m3					24.25
									1,241,600
	Extra for excavating below water table level		6400						
			<u>5</u>	32000 m3		4.5			144,000
	Extra for dewatering / pumping							say	60,000
	Forming access ramp								<u>5,000</u>
									£ 1,450,600
4.01	Piling								
	secant piling - retaining wall								
		piles	431 nr						
		length	6891 m						
	900 dia pile - setting up		431 nr	170					73,270
	Boring		6891 m	170					1,171,413
	Concrete pile		6891 m	76					523,691
	Reinforcement		1096.06 tonne	650					712,436
	Disposal		4384 m3	18					78,916
	Casing below water level		5599 m	85					475,887
	Preparing heads of piles		431 nr	63					27,132
	Extra for intermediate hard boring		2297 m	34					78,094
	Obstruction removal		item						25,000
	Capping beam								
	Concrete in beam		432 m3	120					51,840
	Reinforcement		108 Tonne	900					97,200
	Formwork to beam		1104 m2	70					<u>77,280</u>
									£ 3,314,879
4.02	Bases								
		piles	104 nr						
		bored length	2392 m						
		concrete length	1560 m						
	900 dia piles setting up		104 nr	170					17,680
		Boring	2392 m	135					322,920
		concrete pile	1560 m	76					118,560
	Filling blind bored pile with earth		832 m	12					9,984
		reinforcement	172.32 tonne	850					146,471
		Disposal arisings	689 m3	18					12,407
	Casing below water level		2389 m	85					203,023

4 Cont'd	Preparing heads of piles	104 nr	63	6,552
	Obstruction removal		item	5000
	Pile caps 1.05 x 1050 x 1000 deep - 104nr			
	Concrete in pile cap	115 m3	110	12,613
	Reinforcement	28.665 tonne	850	24,365
	Formwork	406 m2	50	20,280
	Excavate pile cap and cart away	115 m3	21	2,408
				£ 902,262
5.00	Temporary Propping and Bracing			
	Corner bracing of structure	8 nr	7,500.00	60,000.00
	Raking props bolted to waling	57 nr	3,500.00	200,666.67
	concrete bases to props	57 nr	500.00	28,500.00
	waling beam bolted to concrete piles	320 m	55.00	17,600.00
	remove on completion		item	10,000.00
				316,766.67
6.00	Concrete Slab			
	single basement			
	Base slab:	6400 m2		
	Concrete blinding 75 thick	480 m3	110	52,800
	Concrete slab 400th	2560 m3	112	286,720
	Surface - power float	6400 m2	1.5	9,600
	Reinforcement	640 tonne	1100	704,000
	DPM membrane; taped joints	6400 m2	4.5	28,800
	Expansion joints etc.	350 m	30	10,500
				£ 1,092,420
	Ground Suspended slab:	6400 m2		
	Concrete slab 400th	2560 m3	125	320,000
	Reinforcement	640 Tonne	1100	704,000
	Surface - tamped finish	6400 m2	1	6,400
	Joints	350 m	45	15,750
	Formwork to soffit concrete slab - fair finish	6400 m2	50	320,000
	Intermediate Suspended slab	6400 m2		
	Concrete slab 400th	2240 m3	125	280,000
	Reinforcement	560 Tonne	1100	616,000
	Surface - fair finish	6400 m2	1.5	9,600
	Joints	350 m	45	15,750
	Formwork to soffit concrete slab - fair finish	6400 m2	50	320,000
	Edge Beams			
	Concrete in beams	67 m3	120	8,064
	Reinforcement	16.8 tonnes	850	14,280
	Formwork to concrete beams - fair finish	224 m2	70	15,680
	Water bar joint	640 m	12	7,680
				£ 2,653,204
7.00	Lining wall			
	Concrete wall 300 thick cast next secant piles	444 m3	125	55,500
	Reinforcement	111 tonne	1100	122,100
	Formwork to wall - fair finish	1184 m2	65	76,960
	Joints - movement	26 m	10	256
	Water stop joint	640 m	12	7,680
				£ 262,496
8.00	Concrete Frame			
	Columns	120 m3	120	14,376.96
	Reinforcement	29.95 tonnes	1100	32,947.20
	Formwork columns - fair	1,098 m2	70	76,876.80
	Beams 1500 x 700	779 m3	120	93,420.00
	Reinforcement	194.63 tonnes	1100	214,087.50
	Formwork beams - fair	1038 m2	75	77,850.00
				£ 509,558.46

9.00	Ramp					
	Concrete ramp	210 m3		120		25,200
	Reinforcement	52.5 tonne		1100		57,750
	Formwork	525 m2		70		36,750
	Walls	66 m2		350		23,100
	Barriers	140 m		600		84,000
	trimming etc.					15,000
						<u>£ 241,800</u>
11.00	Drainage - Internal					
	Channel in concrete with grating	510 m		130		66,300
	Cast iron drainage	240 m		80		19,200
	Cast iron vertical stack	16 m		120		1,920
	Forming sump with grating	item				5,000
	Submersible pump and standby	item				15,000
	(Electrical connection by others)					<u>£ 107,420</u>
12.00	Externals					
	Granular filling over slab	£ 1,596 m3		£ 40		£ 63,840
	Bituthene or similar membrane horizontal over concrete	£ 2,280 m2		£ 15		£ 34,200
	(Surfacing by others)					<u>£ 98,040</u>

Appendix C

Minutes of Environment Agency Meeting

Minutes

ARUP

Project title	Castle Piccadilly	Job number 242485
Meeting name and number	Environment Agency Meeting	File reference
Location	Environment Agency offices York	Time and date 22 April 2015
Purpose of meeting	Flood risk implications on regeneration of York Centre	
Present	Victoria McCausland, Dave Piercy, Sue Houghton, Steve Wragg, Catherine Birks, Will McBain	
Apologies		
Circulation	Those present Alastair Gordon, Adam Pickles, Neil Houghton	

Action

- 1. Introduction** – CoYC provided an overview of the current viability study which, it is hoped, will result in a Regeneration Framework with development parameters for a substantial area of York around Piccadilly. At the current stage no options are being discounted - CoYC is aiming to identify the ‘realm of the possible’. Car parking is a key component of the plans; the location of which will fundamentally influence the use mix proposed for the Castle-Piccadilly area. Proposals at both Castle Car Park and St George’s Fields Car Park are under consideration and Arup has been appointed to advise on engineering/technical feasibility issues related to geotechnics, flood risk and traffic.

The EA explained that work to the York flood defences is being considered at present and an allowance has been made in the national Medium Term Plan (2015-2021) for flood defence investment in York. The current work is involving modelling assessments which are due for completion in June 2015.

- 2. Castle Car Park**

WMcB stated that Arup’s geotechnical desk study indicates that basement car parking at this site is likely to be a viable concept– in spite of some challenges with the asymmetric loading from Clifford’s Tower, poor ground generally, uplift/flotation and potential dewatering issues. Extending down two levels rather than one is also potentially viable - the competent strata is at some depth. Arup is considering the permeability/seepage issues/options and will advise CoYC on possible

Prepared by Amy Nettleship
Date of circulation 08 May 2015
Date of next meeting

Minutes

Project title	Job number	Date of Meeting
Castle Piccadilly	242485	22 April 2015

Action

construction methodologies to limit groundwater ingress into the basement - and also options to prevent uplift/flotation.

The issues of relevance to the EA were discussed as follows:

- CoYC will need data on normal water levels in the River Foss adjacent to the Car Park, which is the primary control on groundwater levels. This water is impounded upstream of a sluice/weir at Castle Mills. Data from this level recorder would be ideal. Similarly, if there are any groundwater monitoring points near to this site, any data from these would be useful.

EA

- The car park is at risk of flooding directly from the River Foss, and less directly, from the River Ouse. Ideally any access to the basement would be above the 1 in 1,000 year flood level in the Foss & Ouse, including an allowance for climate change and a safety margin (freeboard), assuming that Foss barrier, or its associated pumping station, fails to operate. If this was achievable at little extra cost, then the risk of the basement flooding directly from either river would be very low. It is likely that an access from Tower Street to the north, which is slightly elevated, could be configured to achieve this. It was agreed that, if this approach does not fit with the Masterplan, it would not necessarily be a showstopper, but it would be necessary to manage the risks carefully. E.g. if the basement has an access at a lower level and was reliant on the successful operation of Foss Barrier for flood protection; there would need to be a clear plan for what to do if the barrier did fail (a very low likelihood; potentially high consequence occurrence). A full set of flood levels for differing return periods with and without climate change has been requested from the EA. This data is required for inclusion in the site brief and for Arup to conclude their advice note.

EA

- The Sherwood Sandstone below the made ground and glacial drift/till material is a Principal Aquifer, so pollution risks during and after construction will need to be mitigated if the basement extends to depth. The EA (be it a different department) will be a key consultee on this issue. Information regarding likely requirements was requested for inclusion in the site brief.

EA

- EA stated that the above proposals sounded reasonable/sensible, provided there would be no loss of flood storage.

3. St George's Fields Car Park

This site is functional floodplain and so the issues are more challenging to address. CoYC is keen to ensure that the case for development has at least been robustly tested.

If anything did proceed here, it will be very important for CoYC to be fully aware of the EA's programme for any works to the flood defences at Foss Barrier in this area and along the Ouse, plus the latest flood levels and climate change impact estimates. The modelling is currently being updated and should be complete by June. Until then, existing data will

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need to suffice. EA to provide data and advise on the EA's access requirements. Action
EA

Arup is relatively confident that a good part of this site could be developed without increasing flood risk, using the right approach. There is an existing access over the flood defences into the site from the A1036 (also Tower Street). If a platform was constructed on stilts above the flood level in this area, this would be compatible with continuing to use the ground level as a car park and an 'area where floodwater is stored in times of flood', but also with building an elevated high value riverside development at the southern gateway to the city centre. The loss of storage associated with the stilts/pillars would be negligible. Other options that could be considered would include creation of a marina facility. There would also be scope to undertake complementary public realm improvements in this area that ensured flood storage volumes were retained/enlarged and to help achieve Water Framework Directive objectives for the river. EA to advise on WFD team's thoughts on this. EA

Developing a 2d hydraulic model to assess options and impacts in detail to verify that flood risk would not be increased would be relatively straightforward. The site design would also need to make sure all flood defence infrastructure and YW's pumping station remains readily accessible for maintenance and/or adaptation.

Such a proposal would test the National Planning Policy Framework (NPPF). Flood Zone 3b, Functional floodplain "comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency". The City of York Strategic Flood Risk Assessment clearly shows the car park as Zone 3b. Its designation has therefore previously been agreed between the EA and CoYC Planners. The new/latest guidance lists land uses that are compatible with functional floodplain - retail and/or residential does not feature on this list (although marina development does).

In order to develop this site, CoYC and the EA will need to agree to the principles that would apply to developing this site, in spite of the conflicts with NPPF and potentially undesirable precedents (in some people's minds at least) this might set (a "Yes, if" approach). All present agreed that a proposal to develop part of the site may be viable if;

- CoYC revises their SFRA and, in consultation with the EA, re-classified part of the car park as Flood Zone 3a. This would make it potentially developable subject to satisfaction of the Sequential and (certainly for residential development) Exception Tests in NPPF;
- Those at risk of flooding nearby (eg Clementhorpe) and downstream of the site (eg Naburn) would need to be consulted/presented with a robust set of evidence-based

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- proposals that demonstrate how the development will not increase flood risk, and will ideally reduce it;
- There is the possibility of this development being promoted/designed in a manner which complements the EA's proposals to upgrade the York Main River flood defences;
- There are also potential funding synergies – and opportunities via ESF and the LEP;
- The process will be helped enormously if this development is designed in line with latest guidance on Water Sensitive Urban Design and incorporates specific measures to help achieve WFD objectives for the River Ouse.

The next step would be a discussion with Neil Longden, Area Flood Risk Manager and Mark Scott, Area Manager to agree whether a “Yes, if” approach is something that the EA would consider. And, if so, under what conditions. VC/DP agreed to brief Neil and Mark on the above and gather their thoughts.

EA

CoYC to send a sanitised version of the slides marked ‘confidential’.

CoYC

Appendix D

Risk Register

Risk Register

Register reference

Project Castle Piccadilly

Job number 242485

Package/Topic Engineering Constraints Study

Design stage Engineering Constraints

Remember: Avoid – Reduce – Control and communicate relevant information to others (CDM Regulation 11)

Date (+ initials)	Area/Location of Risk Exposure	Description of Risk	Mitigation of Risk (Potential or Achieved)	A	R	C	Further Action	by	Status
									Active/closed
02/06/15 AjN	Castle Car Park	Unknown construction of river wall					Search archives for construction information. Carry out survey of the wall		
02/06/15 AjN	Castle Car Park	Possible obstructions from former developments – including foundations from 1930's					Locate existing foundation records		
02/06/15 AjN	Castle Car Park	Possible obstructions in made ground					Undertake ground investigation		
02/06/15 AjN	Castle Car Park	Possible obstructions in natural ground – glacial til					Ground investigation		
02/06/15 AjN	Castle Car Park	Soft ground conditions					Ground investigation		
02/06/15 AjN	Castle Car Park	Groundwater – potential uplift pressures					Monitor ground water levels		

Hazard Risk Register

Register reference

Project Castle Piccadilly

Job number 242485

Package/Topic Engineering Constraints Study

Design stage Engineering Constraints

Remember: Avoid – Reduce – Control and communicate relevant information to others (CDM Regulation 11)

Date (+ initials)	Area/Location of Risk Exposure	Description of Risk	Mitigation of Risk (Potential or Achieved)	A	R	C	Further Action	by	Status
									Active/closed
02/06/15 AjN	Castle Car Park	Unbalanced loads – from Cliffords Tower mound							
02/06/15 AjN	Castle Car Park	Sensitive structures – proximity of Cliffords Tower							
02/06/15 AjN	Castle Car Park	Flood risk – particularly from the River Foss							
02/06/15 AjN	Castle Car Park	Flood levels – modelling currently underway					Review new flood levels when available		
02/06/15 AjN	Castle Car Park	Assumptions regarding basement and superstructure design subject to change							
02/06/15 AjN	St George's Car Park	Site is designated as functional floodplain							

Hazard Risk Register

Register reference

Project Castle Piccadilly

Job number 242485

Package/Topic Engineering Constraints Study

Design stage Engineering Constraints

Remember: Avoid – Reduce – Control and communicate relevant information to others (CDM Regulation 11)

Date (+ initials)	Area/Location of Risk Exposure	Description of Risk	Mitigation of Risk (Potential or Achieved)	A	R	C	Further Action	by	Status
									Active/closed
02/06/15 AjN	St George's Car Park	Flood levels – modelling currently underway					Review new flood levels when available		
02/06/15 AjN	St George's Car Park	Re-designation of the site requires agreement by the EA							
02/06/15 AjN	St George's Car Park	Public opposition to development of the site							